All About Remote Computing Services

The remote computing service (RCS) industry is an unusual market that is difficult to accurately describe in generalities. While remote computing and timesharing services are available for numerous data processing applications, we must recognize the extreme diversities within the current RCS environment. Although RCS vendors typically offer timesharing, remote batch processing, and data base management, they also offer a myriad of other products and services, such as specialized applications packages, customized programming, disaster recovery services, facilities management, graphics, electronic mail, and special consulting and training programs. And the RCS industry has grown tremendously since our last report on this market. We are aware of over 450 companies that now offer some type of on-line or off-line services, data bases, and consulting services to end users, who require either general or highly specialized assistance.

Although the industry is dominated by a small group of very large companies that employ thousands of people, gross over $100 million a year in sales of computing services, and provide a full gamut of products and services, there are hundreds of medium- and small-sized companies presently vying for a share of the RCS market. Medium-sized firms form the largest segment of the RCS industry; they employ anywhere from 100 to 1000 people and gross $5 million to $50 million in sales of computing services. These medium-sized companies collectively offer a full range of services to both principal and specialized industries. "Small" companies, that is those that employ from 5 to 100 people and gross from $200,000 to $5 million a year in RCS sales, often cater to specific markets, e.g., the lighting industry, agriculture, non-profit organizations, or specific hospital departments. A large percentage of these companies is privately held.

The user seeking the services of a remote computing company has an enormous range of choices, and it is important

> **This is a report on the current remote computing (timesharing) industry. Highlights of this report are the 204 comparison charts covering the remote computing services offered by 186 vendors, as well as a detailed index of the applications programs and user programming aids supplied by the vendors.**
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> **In addition, this report includes information regarding recent developments and trends in the remote computing services market, a discussion of user benefits and disadvantages, a guide for selecting and evaluating remote computing services, and a comprehensive suppliers list.**

to carefully examine the diverse offerings of the many vendors before choosing the very best service for a particular application. This process can be mind boggling, but the information contained in this report will provide you with the basic information necessary to making a wise choice.

There are two key concepts to keep in mind when examining the RCS industry. The first key is *service*. Today's remote computing company supplies much more than computing power; it is a service-oriented organization that provides all the "hand-holding" necessary to get your applications—whatever they may be—up and running. The services available vary considerably from vendor to vendor, but may include training your staff, furnishing hardware, developing software, and providing other DP-related consulting or professional services in your specialty area.

As you might expect, some of these value-added services are offered for an additional charge. But, unlike consulting ▷
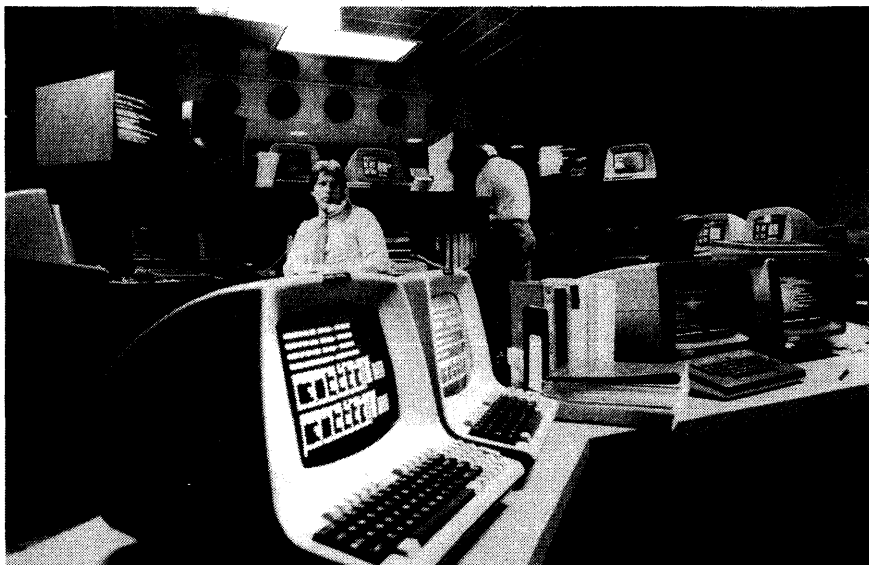
The TYMNET data communications network currently provides local access from more than 400 U.S. cities and more than 35 foreign countries. Nearly two billion data characters move across the network in any working day. Control of this transfer of information is at the TYMNET Network Control Center, pictured above, which operates 24 hours a day.

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▷ firms, for example, whose profit structure is based on their human resources, and whose charges are based on hourly rates for the "people-time" the client uses, a good many RCS vendors simply write off at least some of the field services they perform as overhead against the day that your application begins eating up all those System Resource Units (SRUs), connect time and CPU seconds, or whatever computer charge unit they use to bill you. In fact, the RCS vendor has a vested interest in providing a reasonable amount of timely, high-quality service for "free" to the end user, since it promotes both faster cut-over to the RCS system and a healthy relationship with the customer, who can then be considered a prospect for additional services.

The second key is *specialization*. Most RCS vendors do not attempt to provide services in every possible applications area. Instead, each generally selects a "target market" (or several targets, depending on the size of the company) in which to specialize. The company then concentrates its resources in the chosen application(s), building a solid library of programs, developing a staff of technically knowledgeable field personnel, and promoting a reputation of expertise in that specialty. The chosen area of expertise may be a "vertical" market that concentrates on serving specific industries, such as retail, manufacturing, insurance, banking, or medical, with a variety of industry-oriented applications, or it may be a "horizontal" market that provides general-purpose packages for specific applications, such as accounting, distribution, or transaction processing, that can be used by a wide range of companies.

In terms of competition, this specialization tends to cluster the RCS vendors who serve the same target markets. In some cases, even companies whose primary business is not timesharing are entering the RCS arena to compete against established processing firms in their own areas of specialty. For example, General Motors offers remote computing services to their dealers, certain airlines provide timesharing services to other airlines, and some large financial institutions (particularly banks) share their resources with their correspondent banks. Depending on the potential for opportunities in that market, the number of vendors in the cluster may be great or few, but among those vendors, the competition is bound to be fierce. And the winners are generally those companies who have the best program library and the most convincing field staff.

RECENT TRENDS AND NEW DIRECTIONS

RCS companies can no longer hope to exist solely on the profits made by crunching numbers. Tremendous shifts in the marketplace have greatly affected the timesharing industry, making it necessary for RCS vendors to provide more diversified services to end users. Falling hardware prices have lowered the initial investment demands for new applications, and the traditional RCS user's need to acquire hardware power by subscribing to an RCS has shifted toward the need for software services. The provision of value-added equipment and services, e.g., customer-premises hardware, licensed software, and specialized data bases, is now standard in many RCS firms.

Almost every major RCS vendor now makes various kinds of hardware available to customers who wish to perform various but relatively limited in-house processing functions and to tie into remote computing services for large or special jobs. Equipment offerings span the full range from simple data entry stations, specialty terminals (e.g., POS, graphics), remote line printers, and other non-intelligent devices to intelligent work-stations, desktop computers, minicomputers, and in some cases, full-blow mainframes. Frequently RCS companies provide equipment that is designed or programmed for use with specific applications packages and provided as a turnkey system. Financial arrangements for these on-site systems vary greatly, but most are available for purchase or lease by the customer.

RCS vendors also provide applications software products that can be used first on the remote computing system and, at an appropriate time, moved to the customer's in-house system on a licensed basis. This arrangement is advantageous to both the customer and the vendor: the customer can try out the software product for a few months or a year before buying; the vendors use the potential arrangement as a selling point to prospective RCS customers, maintain some, although reduced, revenue through license fees when the switchover occurs, and retain the customer as an active prospect for additional services. Some RCS vendors have become very successful at selling their software and have created markets independent of their RCS businesses by offering separate packages aimed directly at software customers.

A large number of RCS vendors maintain large specialized data bases for customers' use, which are easily accessible to users via standard telephone lines.

Establishing and maintaining such data bases are capital-intensive tasks which individual organizations ordinarily find prohibitively expensive. Moreover, unless a company wishes to maintain confidential material on the data base, there is no need to undergo the expense of collecting and disseminating information that is already available from an RCS vendor. Well-known organizations, such as Dow Jones, The Source, and Dun and Bradstreet, offer data bases of security prices, investment information, and demographic statistics on a timesharing basis. Numerous other companies offer data bases on wide-ranging subjects, e.g., petroleum prices, horse-breeding information, weather reports, educational statistics, and even popular song titles. It seems likely that the demand for data base services will grow along with the acquisition of personal computers for both business and personal use.

The Impact of the Microcomputers

One of the most profound examples of this trend is that providers of remote computing services have seen the increasing growth in the use of microcomputers not as a threat, but as an opportunity to provide user-oriented products to increasing numbers of users who, because they have no programming experience, need a greater amount of assistance to get programs up and running. Computer Sciences Corporation (Infonet), for example, now provides ▷

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▷ software to hook a user's microcomputer to a network, and the company will actually procure and install microcomputers if necessary. Infonet also buys and downloads to customers a wide variety of microcomputer software packages. The advent of personal computers is expected to account for increased sales of on-line information services from $1.6 billion in 1982 to $3.4 billion by 1985.

We find a good example of this shifting emphasis away from computing power to service offerings in the recent activities of General Electric Information Services Company (GEISCO). Ten years ago, approximately 85 percent of GEISCO's revenues were derived from providing raw computer power to end users, but by 1980, providing computer power accounted for only 32 percent of the company's revenues. Meanwhile, GEISCO gradually began building its consulting services, software applications, and customized networking. Such value-added services now account for 70 percent of GEISCO's gross earnings, thus making the company one of the successful "super-service bureaus" in the industry.

Another RCS industry giant, Tymshare, Inc. has also responded to this service-bureau trend, for example, by expanding its airline reservation and billing network. Automatic Data Processing, Inc. (ADP), which specializes primarily in payroll applications, now offers its local access network, Autonet, as a public value-added data network, using Telenet, Tymnet, International Telex, RCA Globcom, and ITT Worldcom facilities to provide a host of timesharing and network services to an international market. Another force in the industry, McDonnell Douglas Corporation (McAuto), now provides full TSO service, a structured programming facility, graphics, microfilm and microfiche services, and a loosely coupled network for shared access between systems, as well as the traditional integrated batch and interactive services.

Value-Added Networking

Perhaps one of the most significant events in recent RCS history concerns the re-entrance of IBM into RCS business in February, 1982. Dubbed the IBM Information Network, the new service combines remote computing capabilities, network services, and network management offerings. The network consists of IBM 3705 communications controllers in thirteen cities, linked by high-speed transmission lines to a central computer complex in Tampa, Florida, where a number of 30XX processors are located. Customers connect to the network via switched or non-switched facilities and SNA/SDLC, BSC, or ASCII terminals.

Through IBM's Remote Computing Services, users can access over 200 software products for data managment and program development. Grouped into three categories, these offerings include the Information Center for resources in personal computing, the Development Center for DP professionals, and the Data Bank. Additional offerings include a professional office system with electronic mail, aids for CICS program development, and data bases with information on IBM products, publications, and education. In addition, IBM's Network Services permit cus-
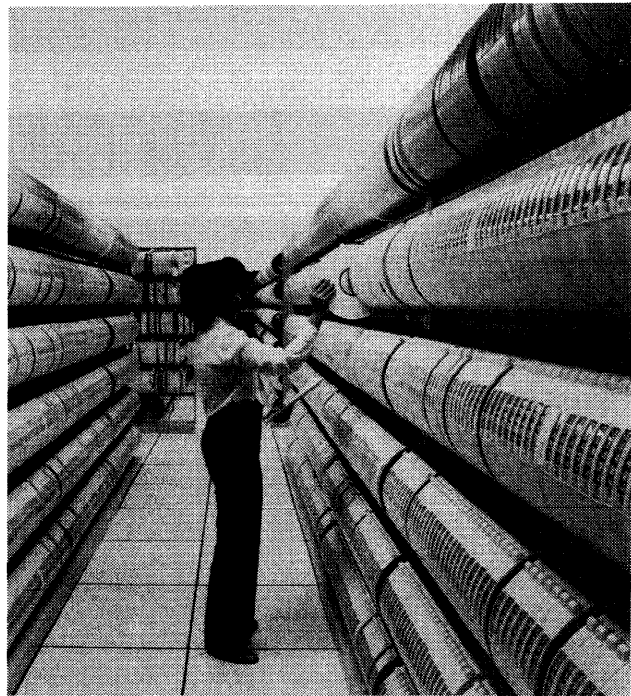
Most RCS vendors offer mass storage services to customers. Pictured here is a part of Comnet's large tape library at its Washington, D.C. data center.

tomers to use the IBM network to link their own terminals and computers in different locations, thus eliminating the need for a company with multiple locations to establish a network of its own. Within its first year, IBM achieved a coup by outbidding a number of established RCS companies for a contract to develop an Insurance Communications Service, a large-scale network to connect approximately 50,000 insurance companies with their independent insurance agents.

IBM's entrance into the RCS market is expected to have far-reaching consequences in the industry. The Information Network provides the pathway to a vast network of facilities management and remote diagnostic and maintenance services, and IBM's entire customer base is fair game for such services. As a basis for its network, IBM is using Systems Network Architecture (SNA), which provides sophisticated IBM customers with a full range of IBM networking capabilities.

IBM's major direct competition in the SNA-compatible market comes from Boeing Computer Services Company, another major contender in the RCS industry. Boeing , one of the leading engineering RCS-based services, provides interactive and batch processing, customer programming, consulting, education and training, software products, and communications networking services. It plans to respond to the IBM challenge by developing the capabilities for microcomputers to interface with its services, by providing custom software packages, and by extending its network services to include network management.

Although not a remote computing service according to themselves (and therefore not listed in our vendor compar- ▷

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▷ ison charts at the end of this report), ABI's AIS/Net 1000 should be mentioned in a discussion of recent industry trends. Announced in June, 1982, Net 1000 offers a user-programming capability that allows users to customize the network services they use. When the user data is transmitted, ABI then provides data processing storages and delivery services in accordance with the user specifications.

Other recently announced value-added network offerings include those of GTE Telenet Communications Corporation (Minet), CompuServe, and United Telecommunications (Uninet). The trend in this direction is clear: major RCS vendors with extensive local access facilities and high-speed lines that interconnect them already in place, have begun to see the value of their telecommunications plant as an asset that can be used not simply as a means to connect their customers to the RCS data center, but also to connect their customers to one another. Adding a value-added network offering is a relatively simple matter that requires minimal additional investment.

With so many value-added offerings now available through RCS vendors, we see ourselves several steps closer to the time when data communications will be as common in the office and in the home as voice communications are today.

Clearly, the future of the RCS industry lies in providing "super services," including microcomputer networks, robotics, and software and hardware communications solutions. An industry that earns $4 billion a year in revenues and grows at a yearly rate of 15 to 20 percent is not going to collapse because the hounds of change bark at its door. In the near future, we will undoubtedly witness many new developments in the RCS industry — developments that will completely alter the traditional definition of remote computing and timesharing services.

INDUSTRY LEADERS

The remote computer service industry is part of an $18 billion computer-service market that is one of the most rapidly expanding computer-related industries in the world today. Although there are approximately 450 vendors currently selling remote computing services, only a handful of those companies gross more than $50 million a year. Competition in the market is keen, and no RCS company has even a ten percent market share.

In 1981, the leading RCS vendors earned anywhere from $100 million to $605 million a year. Control Data Corporation leads the top five industry gaints, followed by ADP, GEISCO, McAuto, and Tymshare. Control Data has maintained its leading position in the industry since 1973. The company grossed an estimated $605 million in revenues from computer services in 1981, and expects to earn approximately $735 million in 1982. Control Data's services include the Cyber 200 Computer Services, Network Information Services, and the Business Information Services, all of which service principal industries in a worldwide market.

The number two spot on the list of industry heavyweights belongs to ADP, a company whose 1981 computing service revenues of approximately $550 million are expected to grow to $675 million for 1982. ADP Network Services, which specializes in payroll applications, has over 100,000 clients worldwide. ADP/Onsite Service offers a full range of software applications, data bases, custom programing and technical support; Autonet, ADP's public access value-added data network, provides access from all major domestic and international business locations.

GEISCO's 1981 revenues were in the $500 million range and are estimated at $650 million for 1982. GEISCO, like many of the major RCS companies, has shifted its emphasis away from raw computer power services, which once comprised 85 percent of its earnings, to other services, such as software applications, data bases, and custom networking. These new services now account for 70 percent of GEISCO's revenues, and the company plans to add more services in the future. In fact, GEISCO has recently acquired software companies that will provide banking applications, as well as products for the rapidly expanding personal home computer market.

McAuto's 1981 computing service revenues reached $455 million, moving it to the number four spot on the roster of industry leaders. McAuto, one of the super-service bureaus, caters to the engineering, chemical, insurance, and health-care industries. The company service the entire United States and 27 cities in foreign countries via the Tymnet network.

Filling the number five position is Tymshare, with $290 million in earnings for 1981 and an estimated $355 million for 1982. Tymshare recently expanded its airline reservation and billing network to provide more value-added services to its customers. Tymnet, one of the most popular network service offerings and a Tymshare subsidiary, provides local phone call access from more than 400 U.S. cities and 35 countries abroad.

Also among the top ten computing service companies are University Computing Corporation, Computer Sciences Corporation, United Telecommunications Group, National CSS, Inc., and Boeing Computer Services, Inc. Average estimated 1982 revenues for these companies are $144 million, and all offer a full range of timesharing services.

IBM is expected to experience a surge in revenues garnered from its IBM Information Network and should join the list of top ten RCS vendors by 1985. ABI's Net 1000 is also in a potential position to become one of the future industry forces. During the next five years we should see a great deal of activity in the evolving timesharing industry as the top companies adjust to the immense pressure to offer more and more diversified services.

WHY REMOTE COMPUTING?

The first commercial remote computing services were established in 1965. The growth and continued success of this ▷

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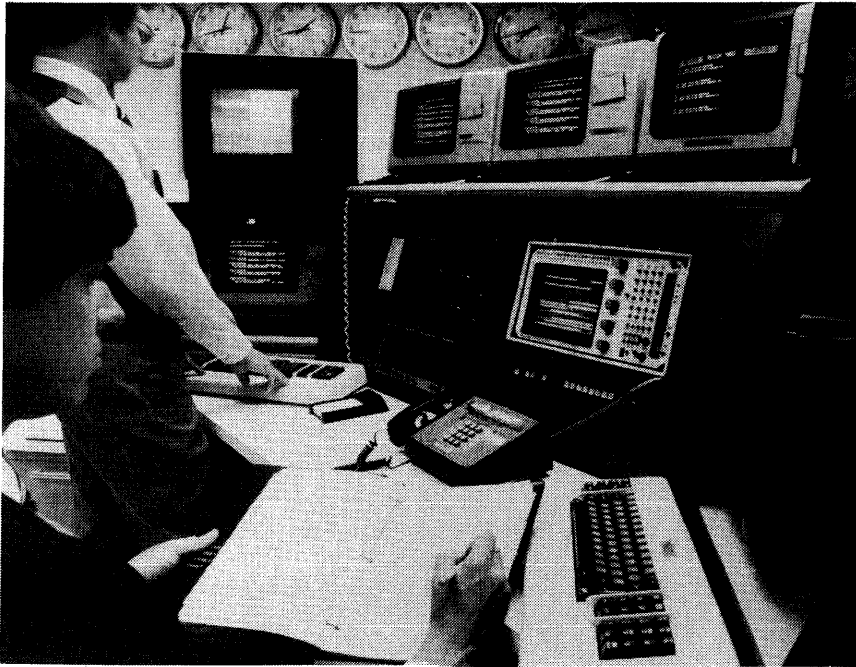
Technicians at ADP's Network Control Center work to ensure round-the-clock, error-free communications via Autonet, ADP's public data network.

▷ industry can be attributed to several factors. First and foremost is the fact that, depending on the amount of actual usage, it is sometimes cheaper to use a small piece of a large computer system than most or all of a small system. However, stiff competition in certain applications areas is currently presented by the highly active minicomputer and microcomputer markets, and a significant number of users have found that the economics and performance of these systems can justify doing the job in-house. Some users prefer not to deal with the problems of ownership, and are willing to pay a little more for the peace of mind gained by relying on an outside company to fix whatever goes wrong.

Another strong incentive for using remote computing is ease of use. The user will typically need only train a terminal operator, and need not be concerned about developing and maintaining a staff of computer operators, programmers, maintenance personnel, etc. Remote computing users have found that it is more cost-effective for a central computing facility like a remote computing company to absorb these costs, and then distribute the computing resources among many users.

It may appear surprising that corporations with extensive in-house computing facilities comprise a large portion of the remote computing customer base. However, a number of circumstances justify the use of timesharing services by these companies. For example, a company's in-house facilities might be devoted to "high-priority" processing (perhaps production management or billing), with little time left for secondary processing functions such as personnel or statistical reporting. It also allows a company to get rid of sticky one-shot problems or complex but infrequently done jobs that are not worth the time and expense to develop and maintain in-house. A remote computing company can effectively supply the supplementary resources needed to perform these and similar functions.

User Benefits

Commercial remote computing services offer numerous attractive benefits to their users. Here are some of the principal reasons for using remote computing services:

* *Flexibility.* Remote computing enables you to buy only as much computing power as you need and (except for fixed terminal costs and minimum service charges) to pay only for what you use. Thus, you can effectively "stretch" or "shrink" the size of your computer installation from day to day as your workload expands or contracts. You can use a remote computing service to handle the peak-period overloads on your in-house computer system. You can explore the possibilities of centralized data bases and management information systems at comparatively low costs and without any long-term commitments. What's more, you can deal simultaneously with two or more remote computing companies and take advantage of differences in their pricing structures, languages, and program libraries.

* *Specialized expertise.* Many RCS companies offer remote computing products dedicated to providing a specific type of service. Examples include dedicated systems for hospital accounting, automobile dealer accounting, text editing, and civil engineering computations.

* *Ease of use.* In general, remote computing terminals are straightforward in operation and easy to learn and use. High-level programming languages, together with conversational-mode compilers and debugging aids, have made programming quite simple and fun to learn. The comparative simplicity of the terminals and their ease of operation have made interactive timesharing an accepted mode of operation for numerous engineers and accountants. ▷

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▷ • *Choice of languages.* Most remote computing suppliers offer a choice of several programming languages, making it quite feasible for each user within your organization to work with the language that best suits his or her own background and the problem at hand.

• *Application programs.* Most of the commercial remote computing companies, provide ready-made programs for specific applications. The availability of suitable application programs can save you thousands of dollars in programming costs and get you up and running much sooner.

• *Value-added networks.* An increasing number of companies now offer nationwide communications networks through which users who are scattered around the country can access one another, thus enjoying the benefits of a widespread communications network with centralized files at a fraction of the cost of establishing and operating one. Some of the most prominent network offerings include Tymnet, Autonet, Uninet, GEISCO, and CompuServe. Tymnet is the largest public network, having over 900 nodes in 400 U.S. cities and 35 foreign countries, as well as the capability of serving 5000 simultaneous users. IBM's Information Network and ABI's Net 1000 are making strong inroads into providing value-added network services and are rapidly becoming forces in the RCS industry.

• *Disaster recovery.* The need for companies to have backup in the event of a major disaster that destroys their data centers has been the topic of much discussion recently. Many RCS companies have responded to this need by offering disaster recovery packages as part of their service offerings. For example, Sunguard Service, a Sun Information Service Company offering, provides IBM 3031 and 3033 mainframes, up to 12M bytes of main memory, and 1.52G bytes of disk storage for up to six weeks as part of its disaster recovery package, which can be obtained on a three-year contract basis. Litton Mellonics provides similar services, and Remote Computing Corporation offers disaster recovery using Burroughs B7800 mainframes. Some RCS firms provide "warm" backup service, whereby a customer uses RCS computers to store backup copies of files and programs at the center for use in an emergency. Other companies provide an operational computer and peripherals, as well as personnel, for use by the stricken company until its damaged data center is operational.

Possible Drawbacks

Despite the many advantages, remote computing can be a mixed blessing. Here are some aspects of remote computing that could potentially present problems:

• *Reliability.* This question should be uppermost in the minds of prospective remote computing users: Just how reliable is the service? Overall, the reliability of the existing remote computing services is more than adequate for most applications of the computational variety.

Most system "crashes" that occur nowadays are of short duration and are quickly followed by effective recovery procedures that minimize their impact upon users' operations. But companies contemplating the use of remote computing for business data processing, where important files must be stored and processed on a timely basis with minimal errors, should pay careful attention to the reliability aspect.

• *Computational efficiency.* The complex software required to coordinate and control the operations of multi-user interactive timesharing systems usually requires large amounts of central processor time and memory space. And, since the customer charges are generally based on computer resources used, the vendor often has no vested interest in improving the efficiency of the software, unless it becomes so severe that it affects the company's ability to compete in the marketplace. As a result, the computational efficiency of many systems is very low. From the user's point of view, this poor efficiency may or may not be a matter of concern, depending upon the manner in which the central processor costs are allocated. Low computational efficiency is less likely to be a problem in remote batch processing systems because their control software requirements are less complex.

• *Data security.* When multiple users share a computer system, challenging problems are encountered in safeguarding the confidentiality and integrity of each user's programs and data files. Most of the commercial remote computing services have paid a good deal of attention to this security problem, combining special access protection with passwords and a variety of other techniques. Prospective users of any remote computing system should make sure that the available security provisions will adequately protect their interests.

• *System loading.* In addition to down-time resulting from the reliability problems discussed previously, a remote computing system may be unavailable when you need it because the system is "saturated." Saturation occurs when a remote computing system is being accessed by the maximum number of users it is capable of serving simultaneously. As the load on a system grows heavier, response times tend to increase, turn-around times get longer, and throughput drops. Finally, when saturation is reached, no more users can be served until someone completes his job and disconnects. Unfortunately, the heavy system loading conditions that are so frustrating for users often represent high-profit situations for the suppliers.

• *Communications costs.* Unless you choose a remote computing company that offers "free" or fixed-cost local access in your area, communications costs can easily represent the largest component of your remote computing bill. One of the problems is that it is usually necessary to use standard voice-grade telephone lines, with a practical data-carrying capacity of 4800 bits per second or more, to transmit teletypewriter data at 110 to 1200 bits per second. Needless to say, the user pays for this inefficiency. ▷

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AVAILABILITY OF APPLICATION PROGRAMS

Table: **APPLICATION / COMPANY** versus **PROGRAM PACKAGES OFFERED** and **USER PROG. DEV. ASSISTANCE***

Column headers (Program Packages Offered): Accounts payable, Accounts receivable, Banking/thrift, Brokerage/investment, Billing, Data base management, Disaster recovery, Educational, Electronic mail, Engineering, Financial planning/modeling, General ledger, Graphics, Hospital/health care admin., Information retrieval, Insurance/actuarial, Inventory control, Library management, Municipal Systems, Numeric control, Operations research, Payroll, Personnel, Project control, Sales analysis, Scheduling, School administration, Scientific, Simulation, Statistical, Text editing/word processing, Typesetting

Column headers (User Prog. Dev. Assistance): Special language, Telephone Consultation, Customers' site consultation, Contract system analysis/design/programming

Companies listed:

- ADP Network Services, Inc.
- Advanced Data Systems
- Algor Computing
- Allied Data
- Altman Information Systems
- American Data
- American Management Systems
- Anstat Incorporated
- Applied Business System, Inc.
- Applied Computer Enterprises
- Applied Financial Systems, Inc.
- Arens Applied Electromagnetics
- ARKOS Associates
- Ask Computer Systems, Inc.
- Aspen Systems Corporation
- Automated Information, Inc.
- Automated Systems, Inc.
- Automation, Inc.
- Autoscript, Inc.
- Avco Computer Services
- Batsch Company, Inc.
- Bob White Computing Services, Inc.
- Boeing Computer Services Company
- Bradford National Computer Services
- Broker Services, Inc.
- BRS Bibliographic Retrieval Services
- Burroughs Corp.
- Business Data Systems
- Business Information Systems, Inc.
- Caddim, Inc.
- Chemical Abstracts Service
- Cisinetwork Corporation
- Citicorp Information Resources
- Citishare Corporation
- Cogito Data Systems
- Commodity Information Service
- Community Computer Corporation
- Comp-U-Card International, Inc.
- CompuData, Inc.
- CompuServe, Inc.
- Computer Corporation of America
- Computer Network Corporation
- Computer Resource Services, Inc.
- Computer Sciences Corporation
- Computer Sharing Services, Inc.
- Computer-Time Corporation
- Computer Usage Company
- Computerized Conferencing and Communications
- Computone Systems, Inc.
- Comshare, Inc.
- Comshare Limited
- Comtech Group International
- CONCAP Computing Systems
- The Conference Board
- The Conference Board of Canada
- Consumers Computer Services
- The Continuum Company
- Control Data Corporation
- Control Data Corporation (Cybernet)
- Cross Information Company

*Bullets indicate types of assistance provided by vendor for users who wish to develop their own applications programs.

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AVAILABILITY OF APPLICATION PROGRAMS

APPLICATION / COMPANY

PROGRAM PACKAGES OFFERED — columns:
Accounts payable · Accounts receivable · Banking/thrift · Brokerage/investment · Billing · Data base management · Disaster recovery · Educational · Electronic mail · Engineering · Financial planning/modeling · General ledger · Graphics · Hospital/health care admin. · Information retrieval · Insurance/actuarial · Inventory control · Library management · Municipal Systems · Numeric control · Operations research · Payroll · Personnel · Project control · Sales analysis · Scheduling · School administration · Scientific · Simulation · Statistical · Text editing/word processing · Typesetting

USER PROG. DEV. ASSISTANCE* — columns:
Special language · Telephone Consultation · Customers' site consultation · Contract system analysis/design/programming

Companies listed:

- CTS Services, Inc.
- Cybershare, Limited
- Cybertek Computer Products, Inc.
- Cycare Systems, Inc.
- Dataline, Inc.

- Datalogics, Inc.
- Data Resources, Inc.
- Data-Tek Corp.
- Datatronic Systems Corporation
- Dialog Information Services, Inc.

- Donald Greiner Corporation
- DTSS Incorporated
- Electronic Data Processing Corp.
- Electronic Data Systems Corporation
- Electronic Data Systems Corp. (Optimum)

- Elite Communication Systems
- Endata, Inc.
- Epsilon, Inc.
- Evansville Data Processing Corporation
- Florida Computer, Inc.

- FRI Information Services, Limited
- General Computer Management Corp.
- Genesee Computer Center, Inc.
- GTE Data Services, Inc.
- Gulley Computer Associates

- Hartley Data Services, Inc.
- HDR Systems, Inc.
- Industrial Life Technical Services, Inc.
- Informatics General Corporation (Fairfield, NJ)
- Informatics General Corp. (Woodland Hills, CA)

- Information Consultants, Inc.
- Information Management International, Inc.
- Information Science, Inc.
- Insurnet, Inc.
- Inter-Care/Digitex

- International Research and Evaluation
- IBM Information Network
- ISI Systems, Inc.
- Jacobsen and Associates, Inc.
- James R. LymBurner & Sons, Ltd.

- John F. Steffen Associates
- Kennedy and Coe
- Landart Systems, Inc.
- Lawler, Matusky, & Skelly Engineers
- Legislative Infomation System

- Litton Computer Services
- Litton Mellonics Information
- Management Analysis By Computer, Inc.
- Manus Services Corporation
- Marshall & Swift Co.

- Martin Marietta Data Systems—IBM Service
- Martin Marietta Data Systems—Cyber 700 Serv.
- May & Speh, Inc.
- McDonnell Douglas—Cyber Service
- McDonnell Douglas—370 Service

- Medical Information Technology, Inc.
- Mini-Probe Corp.
- MJK Associates
- Monchik-Weber Corporation
- Mountain West Research—Southwest

*Bullets indicate types of assistance provided by vendor for users who wish to develop their own applications programs.

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AVAILABILITY OF APPLICATION PROGRAMS

The following chart indicates, for each company, the program packages offered across the application categories and the types of user program development assistance provided.

PROGRAM PACKAGES OFFERED — application categories (columns):
Accounts payable · Accounts receivable · Banking/thrift · Brokerage/investment · Billing · Data base management · Disaster recovery · Educational · Electronic mail · Engineering · Financial planning/modeling · General ledger · Graphics · Hospital/health care admin. · Information retrieval · Insurance/actuarial · Inventory control · Library management · Municipal Systems · Numeric control · Operations research · Payroll · Personnel · Project control · Sales analysis · Scheduling · School administration · Scientific · Simulation · Statistical · Text editing/word processing · Typesetting

USER PROG. DEV. ASSISTANCE* (columns):
Special language · Telephone Consultation · Customers' site consultation · Contract system analysis/design/programming

COMPANY (rows):

- National Computer Network of Chicago
- National Information Systems, Inc.
- NCR Corporation
- Noesis Computing Company
- North County Computer Service
- National CSS, Inc.
- National Data Corporation
- Neshaminy Valley Information Processing
- Network Computing Corp.
- Numerax, Inc.
- Odin Data Systems, Inc.
- Ohio Valley Data Control
- On-line Business Systems, Inc.
- On-line Research, Inc.
- Prodata Systems, Inc.
- Profitool, Inc.
- Programs and Analysis, Inc.
- Progressive Management Services
- Rand Information Systems, Inc.
- REAP, Inc.
- Remote Computing Corp.
- Republic Service Bureau, Inc.
- Ross Systems, Inc.
- Scientific Computers, Inc.
- SDC Information Services
- Securities Data Company, Inc.
- SEI Corporation
- Shaker Computer and Management Services
- Shared Medical Systems
- Simplex Systems Corp.
- Smart Communications, Inc.
- Sophisticated Data Research, Inc.
- Source Telecomputing Corporation
- Spectron Corporation
- Starcom Corporation
- STSC, Inc.
- Sun Information Services Co.
- Sun Information Services Co. (IBM and Cyber Services)
- Systech Inc.
- Tesseract Corporation
- Time Sharing Resources, Inc.
- Time Sharing Systems, Inc.
- Timesharing Unlimited, Inc.
- Tim Formation, Inc.
- Trail Blazer Systems
- Triangle Universities Computer Center
- Tristar Data Systems
- Tymshare Incorporated
- United Information Services, Inc.
- Vista Computer, Inc.
- Washington Library Network
- Westinghouse Information Service
- Western New York Computing Systems
- Xerox Computer Services (BMS)
- Xerox Computer Services (Timesharing)

Bullets indicate types of assistance provided by vendor for users who wish to develop their own applications programs.

Note: Companies that appear in the comparison charts but are not on this list have indicated that they supply no applications programs.

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▷ • *High data storage costs.* The costs associated with online storage of large data files at the remote computer center may rule out some applications that otherwise seem made to order for remote computing. Based on a typical monthly charge of $0.16 per 1,000 characters stored, it would cost $128 a month just to keep a file of 10,000 80-character records on-line. The cost of storing the programs to manipulate the file would further increase the user's monthly bill. (It should be noted, however, that it pays to shop around, since on-line mass storage prices vary considerably from vendor to vendor.)

• *Loss of control.* When interactive timesharing terminals are installed in a company, their ease of use can often lead to their utilization for many problems that could more economically be handled by another means. As a result, the bill for remote computing services is likely to escalate beyond management's wildest dreams. Therefore, it's important to establish and enforce proper control procedures. But controlling the access to and utilization of multiple terminals can be considerably more difficult than administering a centralized computer facility. It can help a lot if the remote computing network requires each user to identify himself with a password and a department or project charge number.

SELECTING A VENDOR

In most metropolitan areas of the United States and Canada, prospective remote computing users can choose from literally dozens of suppliers. Selecting the company that will provide you with the most effective service at the lowest overall cost isn't easy, but it can be done. What's needed is a straightforward, logical selection process that will guide you around the numerous pitfalls which await the unwary. The following procedure, if judiciously applied, will virtually assure the satisfaction of your remote computing requirements in a reliable, economical manner.

1. *Define your requirements.* Before shopping for remote computing services, it's essential to know what you want them to do for you. Try to list all the reasonable applications for remote computing in your organization. Then rank these applications according to their relative importance and urgency. For each of the key applications, define the required computer functions—usually in terms of the inputs to be supplied, the calculations to be performed, the outputs to be produced, and their associated volumes. Specify the exact manner in which all computer inputs and outputs must interface with your existing procedures, forms, and/or data files, as well as any turn-around time requirements that must be met. Finally, determine the present overall cost of processing each application, so that you'll be in a positon to know whether or not remote computing can really save you money.

2. *Survey the available remote computing services.* The first step in narrowing down the field is to find out which remote computing companies are actively marketing their services in your locality and collect the basic information about their capabilities, specialities, and pricing. The comparison charts in this report can help a lot. So can the Yellow Pages of your local telephone directory. The sales representatives for the various remote computing companies will usually be more than pleased to give you brief presentations describing their firms' capabilities and to present you with brochures, price schedules, and sample contract forms.

3. *Choose the most likely candidates.* Now it's time to reduce the list of contenders to the three to six that seem best able to meet your requirements. You simply eliminate from consideration those suppliers that fail to measure up to one or more critical questions such as these:

• Are the company's services available in your area at a competitive cost (including all communication and terminal costs)?

• Does the company offer the programming and technical support services you need?

• Does the company offer the specific programming languages and/or application programs you need?

• Does the company support the type of terminal equipment you need (or already own)?

• Can the company satisfy the requirements, if any, for compatibility with your existing programs and/or data files?

• Does the company appear to be able to meet your requirements for operational reliability and data security?

• Are you satisfied that the company is soundly financed and in the business to stay?

4. *Learn all you can about each remaining candidate.* Now it's time to call in the sales representatives of each of the remaining contenders for in-depth discussions about their capabilities, services, and pricing. By now you'll have a good idea what questions to ask them—and what answers you're looking for. Be sure to find out exactly what each company offers in the way of equipment configuration, program library, programming services, training, documentation, security measures, contract terms, etc. Get the details of each company's pricing structure, including possible "extra" charges for programming, training, manuals, application programs, and other products and services you'll need. Be sure to ask for reference lists of current users. Contact these users, and learn all you can about what their experiences have been; it's likely to be a remarkably informative exercise.

5. *Conduct benchmark tests.* This is probably the most important—and yet the most frequently ignored or misguided—phase of any remote computing selection project. The essence of benchmark testing is the actual preparation and execution of one or more problems which are representative of the user's planned computer workload. The purpose is three-fold: ▷

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> • To find out exactly what's involved in using each supplier's services.

• To determine the service availability, response time, and anticipated throughput that each supplier can deliver at both peak hours (usually around 10 or 11 a.m. and 3 to 4 p.m.) and off-peak times.

• To determine the cost factors for each service on the types of problems you'll be running regularly.

If you'll be writing your own programs, go ahead and prepare one or more of them, in the language of your choice. Then ask each of the prospective suppliers to loan you an appropriate terminal plus the computer time required to compile, test, and execute your programs. If you'll be using a ready-made application program supplied by the vendor, prepare some representative test data, borrow the necessary terminal, and give the program a real tryout. In either case, be sure to: (1) control all test conditions as carefully as you can; (2) make the benchmark programs and data as representative of your actual workload as time permits; (3) run each test at both peak and off-peak hours (and at the same times of day for all prospective suppliers); and (4) keep detailed records of all pertinent timing and cost data, as well as your impressions about the comparative ease or difficulty of using each service.

6. *Make your selection.* By now, you've amassed a great deal of pertinent information. Now it's time to "put it all together." From the results of your benchmark tests, calculate the estimated overall costs of satisfying all your remote computing needs with each supplier's services. Compare these costs with your present costs, and (if appropriate) with the estimated costs of alternative approaches such as a computer of your own or a conventional service bureau. In many cases, one of the remote computing suppliers will now stand out as a clear-cut choice. In others, it may be practical to contract with two or more suppliers and use the one whose offerings turn out to be the most economical for each of your applications.

If neither of the above solutions is appropriate, you may want to turn to some type of weighted point scoring system, in which each supplier is awarded an appropriate number of points for every desirable characteristic (such as availability, response time, languages, terminals, application programs, costs, etc.). But frankly, if it still looks like a really close race, we'd recommend giving preference to the company that made the best showing on your benchmark tests.

7. *Negotiate a suitable contract.* At this point, virtually every remote computing company will ask you to sign its standard contract form. But that's not necessarily your best move. There's a good chance the supplier will offer considerably more favorable contract terms if that's what it takes to land your account. So read the contract carefully. Make sure it clearly defines the company's pricing structure, charges for all additional products and services, hours of service availability, length of commitment, termination provisions, etc. If the supplier writes any programs for you,

make sure it's clear whose property they will be. If you're not completely satisfied with the standard contract terms, ask the supplier to amend them.

You'll notice that most of the standard contracts disclaim any liability for damages arising either from the use of the suppliers' services or their failure to provide the agreed-upon services. If you feel you need more protection, such as guaranteed file security, it certainly can't hurt to ask for it. Discussions with other customers of the service may be especially helpful in this area. And the advice of your company's lawyer is likely to be well worth having to help ensure that you'll get the service and the protection you need.

8. *Make periodic re-evaluations.* Once you've selected the most suitable remote computing service for your needs, it's unwise to assume that it will *continue* to represent your best choice. As a remote computing network becomes more heavily loaded, its performance tends to degrade. As the network's saturation point is approached, the response times to each user's requests are likely to become unbearably long. In addition to user frustration, this condition leads to longer connect times and higher costs. Therefore it's wise to rerun your benchmark problems every month or two under the original test conditions. This will enable you to spot any deterioration in the service and present your supplier with documentary evidence of the fact. If the supplier cannot satisfy you that the original quality of service will soon be restored, remember that numerous other suppliers are anxious for your business. And, if you've written your own programs and used one of the common programming languages, it should be relatively easy to make the switch.

THE COMPARISON CHARTS

To gather the facts for the 186 vendors represented in the comparison charts in this report, we sent initial requests for information to 456 remote computing service vendors located in the United States and Canada in March 1983. A second mailing was made in April to all vendors who did not initially respond to our first query.

Among the 456, we targeted fifty top RCS vendors, based on annual gross revenues derived from on-line services, number of employees, and significance in the market. For any targeted vendor who did not respond after the second mailing, we followed up by phone until we secured the information we needed.

Datapro greatly appreciates the responsiveness and cooperation of the 186 vendors who furnished the information that appears in the following comparison charts.

Since our comparison charts, although comprehensive in the information shown, do not reflect the entire remote computing industry, we have included a list of the names and headquarters addresses of all vendors from whom we received no response, so that readers can obtain information regarding their services. This list follows the list of ▷

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CompuServe uses DEC KI-10 and KL-20 central processors in its Columbus, Ohio data center. CompuServe's central processors can interface with IBM-compatible and other peripherals. The company will install local peripheral devices (e.g., line printers or plotters) at a customer's site.

▷ vendors represented in the comparison charts, and begins on page 70G-900-01t.

The comparison chart entries and their significance to potential remote computing users are explained in the following paragraphs, together with additional useful guidelines for selecting the remote computing service that will most effectively meet your needs.

General Information

Name of service. This entry indicates the name under which a company markets its remote computing services. The name may differ from or be the same as the company name. In cases where a vendor offers services that use completely different hardware and provide distinctly separate services, we have included separate chart entries for each service.

Type of service. In this entry we have listed the general types of services, e.g., remote batch, timesharing, or on-line data bases, offered by a company.

Date operational. This entry tells when the specified remote computing services first became available for regular commercial use. Most remote computing networks require lengthly shakedown periods before settling down to normal operations, so the length of time a service has been operational may serve as a reasonable indication of its reliability—as well as its financial stability. But it is also important to note that few remote computing networks remain really stable for long periods of time; disruptions can occur at any time through addition or consolidation of computer centers, changes in systems software, communications breakdowns, etc.

Data center location. A company's headquarters may not be the same as its data center locations. Also, many companies have more than one data center. This entry lists the cities and states in which a company has data centers that provide remote computing services. Note, however, that we list only the address and telephone of the company headquarters in our list of suppliers.

Areas currently served. Each remote computing company was asked to state the geographical areas it can service effectively, and their answers are reported in the charts. Where specific cities are named, the companies generally offer toll-free access in those cities through local computer centers, communications multiplexers, or foreign exchange facilities.

Equipment

Computers. This entry describes the number and type of central processors that each company currently employs in its remote computing network. The cities in which the computers are located are indicated in some cases. The smaller supporting computers, which are frequently used as communications processors or remote multiplexers, are not listed here because of space limitations.

Space limitations have also precluded the reporting of configuration details such as main storage capacity, type and capacity of mass storage units, and number and speed of central-site peripheral devices. These configuration details may not may not be significant, depending upon your applications. Conventional scientific applications are typically coded in Fortran or Basic, require little or no permanent file storage, and can be run without difficulty on most of the commercial remote computing systems. Conversely, many business data processing applications impose special requirements for mass storage units, central-site peripheral equipment, and compatibility with existing programs and data files. In these cases, it will be necessary to contact the remote computing vendors for details about their equipment configurations and capabilities.

Conversational terminals supported. Remote computing vendors may offer interactive timsharing remote batch processing services, or both. In general, *an interactive timesharing system* can be defined as a computer system that enables multiple users to gain simultaneous access to its facilities and to interact with the system in a conversational mode. This contrasts with *remote batch processing* ▷

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▷ *system* that enables users at remote locations to enter data, initiate the batch-mode execution of programs, and receive the resulting output data. Ideally, either type of system should give each user the impression that all the necessary computational, storage, input/output, and software resources are continuously available and the fact that users actually compete with one another for use of these resources should be completely transparent.

The specific remote terminals that each remote computing system can accommodate for interactive, conversational-mode operations are listed in this entry.

By far, the most widely used timesharing terminals are the ASCII-based displays and teleprinters. Among the more popular teleprinters in this category are Texas Instruments Silent 700 and Omni 800 Series and Digital Equipment's DECwriters. The more prevalent CRT display terminals include the Esprit System ADDS Viewpoint Series, Televido 900s and the Lear Siegler ADM Series.

A large number of timesharing vendors provide support for the IBM 3270 family of interactive terminals and their plug-compatible competition. These terminals include numerous models of stand-alone or clustered configurations, and they communicate with the remote service via synchronous communications. The 3270-type terminals can generally provide higher-speed communications and quicker response time than the asynchronous conversational terminals previously described.

Batch terminals supported. In addition to the conversational-mode terminals which are usually associated with timesharing, many of the remote computing networks also support terminals designed for batch mode transmission and reception of comparatively large volumes of data. Batch terminals greatly extend the spectrum of practical applications for remote computing systems by permitting the entry of previously recorded data and the printing of results at comparatively high speeds.

The most widely supported batch terminal has long been the IBM 2780/3780. Although IBM no longer markets these once popular terminals, their protocol is widely emulated by a wide variety of minicomputers, distributed processing systems, and intelligent terminals.

Among the popular small computers supported as remote batch terminals or workstations are the Digital Equipment PDP-11, Data General Nova and Eclipse, IBM Series/1. Honeywell Level 6 and DPS6, Northern Telecom's, 503A and 585, and the Harris 1650, 1660 and 1670 computers. These independently programmed computers can serve as distributed systems, processing some data locally and providing great flexibility in their communications functions. Their costs, as might be expected, are comparatively high.

Microcomputers supported. Most RCS vendors now support a variety of microcomputers, whose expanded capacities have reached a point where they are giving low-end small business minicomputers a great deal of competition.

IBM personal computers are the most widely supported microcomputers, followed by the TRS-80, the Commodore CBM 400s and 800s, the DEC LSI 11s, the Pixel AP/100, Texas Instruments' 300 Series and 990, the Apple I, II, and II Plus, the Radio Shack II and III, and the Osborne 1. Often, RCS vendors indicate that they can support all microcomputers that exercise ASCII protocol or emulate IBM 3270s.

Other equipment supported. By far the most common "other equipment supported" by RCS vendors are CAD/CAM systems, Calcomp 748 plotters, Hewlett-Packard 7470A plotters, Zeta 1453 flatbed plotters, and Tektronix 4662 and 4663 pen plotters. Many RCS vendors also support color business graphics terminals.

Computer graphics, once largely confined to technical applications, has expanded to include business applications. Computer-aided design/computer-aided manufacturing (CAD/CAM) still represents, however, the largest segment of the computer graphics industry. Due to plummeting hardware costs, more easily used software, and higher quality computer graphics output, barriers to using business graphics have fallen away, and many executives who have discovered the benefits and availability of computer graphics now demand graphics capabilities as part of their computing services options.

Graphic printers and plotters generate hardcopy graphics output. A graphic printer generally lacks the capability for handling intricate designs, but plotters can produce drawings, charts, diagrams, and other graphic copy. Some plotters containing microprocessors can perform computation that was previously performed by a host system; thus, data transmission is compacted on remote or time-shared systems, resulting in reduced transmission costs and higher plotting speeds at the remote end.

Software

Conversational programming languages. This entry lists the programming languages offered by each company for interactive use by customers at remote terminals. The term "conversational" implies a high degree of interaction between the programmer and the computer system throughout the program entry and debugging process.

In most cases, each statement of the source-language program is checked for proper syntax as the user enters it, and any necessary corrections can be made immediately. After the whole program has been entered and checked, one of two basic techniques is usually followed to get it into operation: the program may either be compiled into a machine-language object program and then executed in conventional fashion, or it may be executed immediately in an interpretive mode. Interpretive execution saves compilation time and facilitates program changes, but it also requires that each source-language statement be translated into the appropriate machine instructions every time it is executed—an inherently inefficient process. ▷

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▷ Fortran, Cobol, Basic, and APL are by far the most popular conversational programming languages for remote computing use.

Fortran (FORmula TRANslation) has been the most widely used scientific programming language for more than two decades. It uses symbols and expressions similar to those of algebra to express the procedures for performing computational and logical processes. Though it was designed strictly for scientific applications, Fortran has been successfully used for a wide range of business data processing functions as well. There are many different versions of the Fortran language, but conversions of Fortran programs from one version to another can usually be made with comparatively little difficulty.

Cobol (COmmon Business Oriented Language) was first available in 1960 and is by far the most widely used programming language for business applications. Cobol is generally best used in applications that require relatively simple computational algorithms and/or high volume input/output. Cobol program design emphasizes detailed specification of the properties and structure of input/output files and utilizes easy-to-use English-type language statements that make programs readable enough to be largely self-documenting. Though originally designed for batch-mode processing, recent years have seen the implementation of a number of interactive Cobol compilers.

Basic (Beginner's All-purpose Symbolic Instruction Code) was developed at Dartmouth College to provide nonprogrammers with the capability to write programs in an easy-to-use language that resembles standard mathematical notation. Basic is well suited for use in conversational-mode programming and debugging, and has rapidly gained wide acceptance among suppliers and users of remote computing services. Like Fortran, Basic was designed for scientific and mathematical programming but has also been successfully used for business data processing. Many of the remote computing companies offer extended "supersets" of the Basic language which considerably increase its capabilities. (Note, however, that the use of these extended language facilities in your programs may effectively cause you to become "locked in" to the particular company that offers them.)

Conceived in the early 1960's by Dr. Kenneth E. Iverson of IBM, APL (A Programming Language) was designed to permit clear, concise expression of computational algorithms. APL's proponents claim (with some justification) that it is "more powerful than Fortran and easier to learn than Basic." APL uses a much larger set of symbols and operators and a considerably different syntax than either Fortran or Basic. Its facilities for handling vectors and arrays are especially powerful, yet simple to use.

Other general-purpose languages offered in conversational implementations include Algol, Pascal, and PL/1, together with a variety of symbolic assembly languages. In addition, many of the remote computing companies offer special-purpose languages designed for specialized functions such as list processing (e.g., Lisp and Snobol), text editing, and program debugging.

Batch-mode programming languages. The languages offered by each remote computing company for batch-mode (i.e., non-interactive) compilation are listed in this entry. In general, the batch-mode language processors place a considerably greater emphasis upon the generation of efficient object programs than do their conversational-mode counterparts. Therefore, their use can lead to substantial savings in computer time for "production" programs which are run on a regular basis. Batch-mode compilers for virtually every programming language currently in use are offered by one or more of the remote computing companies. By far the most popular languages for batch-mode use are Fortran for scientific applications and Cobol for business data processing.

Principal applications. For most remote computing users, the range and capabilities of the available application programs rank among the most important factors in choosing a particular supplier. Thousands of dollars worth of programming efforts can often be saved through the use of suitable ready-made programs, and most of the remote computing companies now offer a broad spectrum of programs to choose from.

Because of space limitations, the main comparison charts show only the principal application areas supported by each company—and the entry "business & scientific" is used for the many suppliers that offer hardware and software designed to support both commercial and scientific applications. This information provides a general guideline only for quick comparisons. The charts on pages 70G-900-01g to 01i show which of 32 groups of applications are available from each of the remote computing companies. In addition, the charts indicate what level of support for user program development is available from the vendor.

Communications

Access methods. The most prevalent type of telecommunications facilities supported as access methods to remote computing services are dial-up facilities, voice-grade leased lines, and AT&T's DataPhone Digital Service (DDS). Where a company professes to serve a large region (such as "Entire U.S."), the implication is that the company either offers toll-free 800 service or maintains computer centers, multiplexers, or other toll-free entry points in strategic cities throughout the area.

Networks used. Some RCS services provide access via Tymnet, Telenet, and, to a lesser extent, Uninet public data networks. The cost for this is, in some cases, absorbed into the overall RCS service charge and not billed directly to the user.

Tymnet's network service provides public dial-up access and private dedicated access to over 400 U.S. cities and 35 countries abroad. Users of both Tymshare's remote com- ▷

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▷ puting services and those of other RCS vendors use the Tymnet network to make connections between their sites and the RCS data center.

The Tymnet network is a virtual circuit-switching network composed of a matrix of intelligent node deployed across the country; special nodes called gateways provide interconnections to other public and private networks, as well as international carriers. Tymnet's value-added services include protocol conversion, which allows a wide variety of terminals and computers to communicate with one another.

Telenet packet network services are presently available in 50 states, Canada, Mexico, and 40 other countries. Users can access Telenet through public dial-in ports, private-dial ports, and dedicated lines. Telenet accommodates a wide variety of transmission speeds and protocols.

Uninet is a newer value-added network that provides both switched and private-line services, as well as low-speed, voice-grade, and wideband transmission.

Transmission rates supported, bps. Although an increasing number of RCS vendors can transmit and receive data at up to 56K bps, the large majority transmit data asynchronously from 110 bps to 1200 bps and synchronously at 4800 bps and 9600 bps.

Charges

One of the most complex and confusing aspects of the current remote computing scene is the pricing of the services. There has been no general agreement to date as to the best technique for accounting and charging for the system resources used by each customer. As a result, prospective users are confronted by a bewildering array of rate schedules. The diverse pricing policies make cost comparisons very difficult and accentuate the desirability of benchmark testing. Many vendors offer different pricing options, and users should carefully scrutinize alternate plans to select the one that best suits their needs.

Some remote computing companies impose no minimum monthly charge, while a few charge *only* a single, all-inclusive monthly service fee, and a number of companies offering specialized services bill their customers on a per-transaction or per-item basis. Most companies bill the user for each second of central processor time, while others include the processor time as part of the terminal connect charge. Some companies provide each user with a certain amount of "free" mass storage space, while others do not. Some companies impose a one-time charge for initiation of service, and some have special pricing schedules for certain application programs. In addition, there are usually separate charges for the use of central-site peripheral devices (such as card readers and printers), for punched cards and printer forms, and for extra programming manuals and training courses.

The principal pricing elements for each remote computing company, in both the interactive and remote batch modes, are summarized in the comparison chart entries under the "Charges" heading. The indicated rates usually provide a range, depending on whether use is prime-time or non-prime-time. Many suppliers offer lower rates during non-prime hours, and discounts for volume usage are common. Remember that in addition to the charges listed in the charts, users usually must bear the cost of their terminals, modems, and communications facilities.

Minimum monthly charge. This is the minimum charge, if any, that is imposed for each month of remote computing service. The companies that impose no minimum charge will naturally be of particular interest to users who plan to deal simultaneously with several different suppliers and to very small-volume users.

Terminal connect time. This entry shows the charge for each hour of time during which an interactive or remote batch terminal is "on-line" (i.e., connected to the central computer). ▷
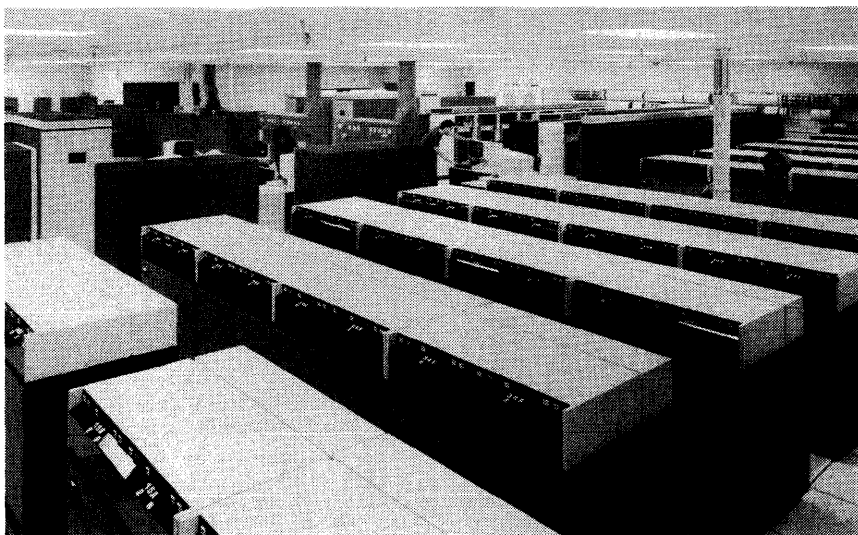
Xerox Computer Services operates from one large data center in greater Los Angeles. Xerox uses IBM 4341s, 3083Bs, and 3033s, Xerox Sigma 9s, and Amdahl 470/V85 to provide timesharing and on-line data base services to U.S. and European markets.

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▷ *Central processor time*. Most remote computing companies impose a specific charge for each minute (or second) of time during which the central processor is working on the user's program. In some cases, this charge varies with the amount of main memory occupied by the program. Other companies allocate their central processor charges on the basis of more complex units with names like "Computer Resource Unit," or simply "Resource Units." Typically, such units are functions of the amount of processor time, main memory space, and input/output activity required by each program. Definitions vary significantly from service to service, and users should contact the vendors for specific delineations of their resource units.

Mass storage. Virtually every remote computing company has large-capacity disk storage units at its computer site. Users can rent as much of this mass storage space as they need for on-line storage of programs and files, at the rates indicated in this entry. The storage space is usually rented in units of one track or sector, whose capacity depends upon the physical format of the available mass storage device. Storage charges may be computed on the basis of either the average or maximum amount of storage used during each month; it's important to find out which basis your prospective suppliers use. Discounts are frequently granted for large-volume storage requirments.

Comments

This final entry on the comparison charts is used to explain or amplify the preceding entries and/or to provide other pertinent information about each company's services.

REMOTE COMPUTING SUPPLIERS

Listed below, for your convenience in obtaining additional information, are the headquarters addresses and telephone numbers of the 186 remote computing companies whose services are described in the comparison charts. Following this list is an additional list of vendors who are believed to be in the remote computing business but who did not respond to our survey questionnaire.

Remote Computing Suppliers Represented in the Comparison Charts.

ADP Network Services, Inc., 175 Jackson Plaza, Ann Arbor, MI 48106. Telephone (313) 769-6800.

Advanced Data Systems, Inc., 4010 Long Beach Boulevard, Long Beach, CA 90807. Telephone (213) 426-8155.

Algor Interactive Systems, Inc., Essex House Ll, Essex Square, Pittsburgh, PA 15206. Telephone (412) 661-2100.

Allied Computer Services, Inc., 170 Mount Airy Road, Basking Ridge, NJ 07920. Telephone (201) 766-5454.

Allied Data, P.O. Box 2406, Olympia, WA 98503. Telephone (206) 456-3535.

Altman Information Systems, 208 South LaSalle Street, Chicago, IL 60604. Telephone (312) 443-1234.

American Data, 4550 Southwest Macadam Avenue, Portland, OR 97201. Telephone (503) 224-9110.

American Management Systems, Inc., 1777 North Kent Street, Arlington, VA 22209. Telephone (703) 841-6000.

Anstat Inc., 1120 Avenue of the Americas, New York, NY 10036. Telephone (212) 840-6868.

Applied Business Systems, Inc., 400 Embassy Square, Louisville, KT 40299. Telephone (502) 491-1050.

Applied Computer Enterprises, 156 William Street, New York, NY 10038. Telephone (212) 962-4037.

Applied Financial Systems, Inc., 951 Mariners Island Boulevard, Fifth Floor, San Mateo, CA 94404. Telephone (415) 574-4940.

Arens Applied Electromagnetics, 435B East Diamond Avenue, Gaithersburg, MD 20877. Telephone (301) 258-0970.

ARKOS Associates, P.O. Box 354, Idaho Springs, CO 80452. Telephone (303) 567-4238.

Ask Computer Systems, Inc., 730 Distel Drive, Los Altos, CA 94022. Telephone (415) 969-4442.

Aspen Systems Corporation, 1600 Research Boulevard, Rockville, MD 20850. Telephone (301) 251-5000.

Automated Information Inc., 6710 Clayton Road, St. Louis, MO 63117. Telephone (314) 644-4050.

Automated Systems, Inc., 345 West Second Street, Dayton, OH 45402. Telephone (513) 223-9522.

Automation, Inc., 1904 Farnam, Suite 200, Omaha, NE 68102. Telephone (402) 342-3346.

Autoscript, 11 Mountain Avenue, Bloomfield, CT 06002. Telephone (203) 236-3554.

Auto Tell Services, Inc., 771 East Lancaster Avenue, Villanova, PA 19085. Telephone (215) 525-9526.

Avco Computer Services, 201 Lowell Street, Wilmington, MA 01887. Telephone (617) 729-7700.

Batsch Company, Inc., P.O Box 246, 17 South 19th Street, Camp Hill, PA 17011. Telephone (717) 761-3260.

Billboard Publications, Inc., 1515 Broadway, New York, NY 10036. Telephone (212) 764-7300.

Bob White Computing Service, Inc., 814 Commerce Drive, Oak Brook, IL 60521. Telephone (312) 887-1550.

Boeing Computer Service Company, 7980 Gallows Court, Vienna, VA 22180. Telephone (703) 821-6200.

Bradford National Computer Service, 1500 Palisade Avenue, Teaneck, NJ 07666. Telephone (800) 526-0172; (201) 833-1020 (in New Jersey).

Broker Services, Inc., 8525 East Orchard Road, Suite 305, Englewood, CO 80111. Telephone (303) 779-8930. ▷

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▷ **BRS Bibliographic Retrieval Services,** 1200 Route 7, Latham, NY 12110. Telephone (518) 783-1161.

Burroughs Corporation, New York City Data Center, 80 Pine Street, New York, NY 10005. Telephone (212) 668-8500.

Business Data Systems, 26 Arcadia Road, Old Greenwich, CT 06870. Telephone (203) 637-8484.

Business Information Systems, Inc., 5128 North Elston Avenue, Chicago, IL 60630. Telephone (312) 685-7130.

Caddim, Inc., 990 Riverview Road, Schenectady, NY 12309. Telephone (518) 785-1709.

Chemical Abstracts Service, P.O. Box 3012, 2540 Olentangy River Road, Columbus, OH 43210. Telephone (614) 421-3600.

Cisinetwork Corporation, 16625 Saticoy Street, Van Nuys, CA 91406. Telephone (213) 781-8221.

Citicorp Information Resources, 763 New Ballas Road South, St. Louis, MO 63141. Telephone (314) 567-1940.

Citishare Corporation, 850 Third Avenue, 14th Floor, New York, NY 10043. Telephone (212) 559-3636.

Citizens Automated Systems, 100 Central Plaza South, P.O. Box 110, Canton, OH 44702. Telephone (216) 489-3738.

Cogito Data Systems, 1101 State Road, Building T, Princeton, NJ 08554. Telephone (609) 924-7200.

Commodity Information Service, Suite 800, 327 South LaSalle, Chicago, IL 60604. Telephone (312) 922-3661.

Community Computer Corporation, 185 West School House Lane, Philadelphia, PA 19144. Telephone (215) 849-1200.

Comp-U-Card International, Inc., 777 Summer Street, Stamford, CT 06901. Telephone (203) 324-9261.

CompuData, Inc., 417 North Eighth Street, Philadelphia, PA 19123. Telephone (215) 592-9982.

CompuServe, Inc., 5000 Arlington Centre Boulevard, Columbus, OH 43220. Telephone (614) 457-8600.

Computer Corporation of America, Four Cambridge Center, Cambridge, MA 02142. Telephone (617) 492-8860.

Computer Network Corporation (COMNET), 5185 MacArthur Boulevard, N.W., Washingotn, D.C. 20016. Telephone (202) 537-2500.

Computer Resource Service, Inc., 6501 North Black Canyon Highway, Phoenix, AZ 85015. Telephone (602) 242-9121.

Computer Sciences Corporation (INFONET), 2100 East Grand Avenue, El Segundo, CA 90245. Telephone (213) 615-0311.

Computer Services, Inc., 3410 East McDowell Road, Mesa, AZ 85203. Telephone (602) 832-8230.

Computer Sharing Services, Inc., Two Tamarac Square, Suite 200, 7535 East Hampden Avenue, Denver, CO 80231. Telephone (303) 695-1500.

Computer-Time Corporation, P.O. Box 485, 17591 Highway 8, Morrison, CO 80465. Telephone (303) 697-4750.

Computer Usage Company, 150 Fourth Street, San Francisco, CA 94103. Telephone (415) 543-3940.

Computerized Conferencing and Communications Center, New Jersey Institute of Technology, 323 High Street, Newark, NJ 07102. Telephone (201) 645-5503.

Computone Systems, Inc., One Dunwoody Park, Atlanta, GA 30339. Telephone (404) 393-3010.

ComShare, Inc., 3001 South State Street, Ann Arbor, MI 48104. Telephone (313) 994-4800.

Comshare Limited, 180 Attwell Drive, Rexdale, Ontario M9W 6H4. Telephone (416) 675-6363.

Comtech Group International, Limited, Five Fairview Mall Drive, Suite 380, Willowdale, Ontario M2J 2Z1. Telephone (416) 492-1480.

CONCAP Computing Systems, 60 98th Avenue, Oakland, CA 94603. Telephone (415) 635-5750.

The Conference Board, 845 Third Avenue, New York, NY 10022. Telephone (212) 759-0900.

The Conference Board of Canada, Suite 100, 25 MacArthur Road, Ottawa K1L 6P3. Telephone (613) 746-1261.

Consumers Computer Services, 2100 M Street, N.W., Room 204, Washington, D.C. 20063. Telephone (202) 387-8963.

The Continuum Company, 3429 Executive Center Drive, Austin, TX 78731. Telephone (512) 345-5700.

Control Data Corporation, 500 West Putnam Avenue, Greenwich, CT 06830. Telephone (203) 622-2455.

Control Data Cybernet Services, 8100 34th Avenue South, Box O, Minneapolis, MN 55440. Telephone (612) 853-5748.

Cross Information Company, 934 Pearl Mall, Suite B, Boulder, CO 80302-5181. Telephone (303) 499-9888; (303) 444-7740.

CTS Services, Inc., 2720 Stemmons Freeway, Suite 805, Dallas, TX 75207. Telephone (214) 637-3344.

Cybershare Limited, 550 Berry Street, Winnepeg, Manitoba R3H OR9. Telephone (204) 775-0181.

Cybertek Computer Products, Inc., 3150 Doolittle Drive, Northbrook, Il 60062. Telephone (312) 564-7050.

Cycare System, Inc., 520 Dubuque Building, Dubuque, IA 52001. Telephone (319) 556-3131.

Dataline, Inc., 175 Bedford Road, Toronto, Ontario M5R 2L2. Telephone (416) 964-9515.

Datalogics, Inc., University Circle Research Center, 11001 Cedar Avenue, Cleveland, OH 44106. Telephone (216) 229-1300.

Data Resources, Inc., 24 Hartwell Avenue, Lexington, MA 02173. Telephone (617) 863-5100. ▷

All About Remote Computing Services

Data-Tek Corp., 1211 Chestnut Street, Suite 400, Philadelphia, PA 19107. Telephone (215) 564-4133.

Datatronic Systems Corporation, Computer Sciences Division, P.O. Box 44128, Panorama City, CA 91402. Telephone (213) 988-5290.

Dialog Information Services, Inc., 3460 Hillview Avenue, Palo Alto, CA 94304. Telephone (415) 858-3785.

Donald Greiner Corporation, 43-53 East Main Street, Mahopac, NY 10541. Telephone (914) 628-6666.

DTSS Incorporated, Ten Allen Street, Hanover, NH 03755. Telephone (603) 643-6600.

Edunet, P.O. Box 364, Princeton, NJ. Telephone (609) 734-1878.

Electronic Data Processing Corporation, 1911 Rowland Street, Riverton, NJ 08077. Telephone (609) 786-1160; (215) 732-9150.

Electronic Data Systems Corporation, 7171 Forest Lane, Dallas, TX 75230, Telephone (214) 661-6000.

Electronic Data Systems Corporation, Optimum Systems Division, 5615 Fishers Lane, Rockville, MD 20852. Telephone (301) 468-1000.

Elite Communication Systems, 7515 Beverly Boulevard, Los Angeles, CA 90036. Telephone (213) 937-5060.

Endata, Inc., 50 Vantage Way, Nashville, TN 37228. Telephone (615) 244-0244.

Epsilon Inc., One New England Executive Park, Burlington, MA 01803. Telephone (617) 273-0250.

Evansville Data Processing Corporation, 1010 South Weinbach Avenue, Evansville, IN 47714. Telephone (812) 479-6951.

Facilities and Services Corporation, 3243 Wilshire Boulevard, Suite 300, Los Angeles, CA 90010. Telephone (213) 385-8282.

Florida Computer, Inc., 99 Northwest 183rd Street, North Miami, FL 33169. Telephone (305) 652-1710.

FRI Information Services Limited, 1075 Bay Street, Suite 940, Toronto, Ontario M5S 2B1. Telephone (416) 961-3020.

General Computer Management Corporation, 7979 Old Georgetown Road, Bethesda, MD 20814. Telephone (301) 656-7300.

General Electric Information Services Company, 401 North Washington Street, Rockville, MD 20850. Telephone (301) 340-4000.

Genesee Computer Center, Inc., 20 University Avenue, Rochester, NY 14605. Telephone (716) 232-7050.

GTE Data Services, Inc., P.O. Box 1548, Tampa, FL 33601. Telephone (813) 224-3131.

GTE Telenet Communications Corporation, 8229 Boone Boulevard, Vienna, VA 22180. Telephone (703) 442-1934.

Gulley Computer Associates, 2300 East 14th Street, Tulsa, OK 74104. Telephone (918) 744-0100.

Hartley Data Service, Inc., 1807 Glenview Road, Glenview IL 60025. Telephone (312) 724-9280.

HDR Systems, Inc., 8404 Indian Hills Drive, Omaha, NE 68114. Telephone (402) 399-1400.

IBM Information Network, Greenwich Office Park, 51 Weaver Street, Greenwich, CT 06830. Telephone (203) 629-2000.

Industrial Life Technical Services, Inc., Two Complexe Desjardin, Suite 1317, Montreal, Quebec H5B 1B3. Telephone (514) 284-1111.

Information General Corporation, Six Kingsbridge Road, Fairfield, NJ 07006. Telephone (201) 575-2800; 21031 Ventura Boulevard, Woodland Hills, CA 91364. Telephone (213) 887-9040.

Information Consultants, Inc., 2021 L Street, N.W., Suite 300, Washington, D.C. 20036. Telephone (202) 822-5200.

Information Management International, Inc., 1101 South Winchester Boulevard, San Jose, CA 95128. Telephone (408) 248-8250.

Information Science, Inc., 95 Chestnut Ridge Road, Montvale, NJ 07645. Telephone (201) 391-1600.

Insurnet, Inc., 1900 Powell Street, Emeryville, CA 94608. Telephone (415) 652-3771.

Inter-Care/Digitex, 2044 Armacost Avenue, Los Angeles, CA 90025. Telephone (213) 826-4500.

International Research and Evaluation, 21098 IRE Control Center, Eagan, MN 55121. Telephone (612) 888-9635.

ISI Systems, Inc., 161 Forbes Road, Brainetree, MA 02184. Telephone (617) 848-4620.

Jacobsen and Associates, Inc., 10229 Lower Azusa Road, Temple City, CA 91780. Telephone (213) 575-7504.

James R. LymBurner & Sons, Ltd., 20 Victoria Street, Toronto M5C 1Y1. Telephone (416) 862-0595.

John F. Steffan Associates, Inc., P.O. Box 28662, 2333 Grissom Drive, St. Louis, MO 63146. Telephone (314) 567-1700.

Kennedy and Coe, United Building, P.O. Box 1179, Salina, KN 67401. Telephone (913) 825-5161.

Landart Systems, Inc., 140 Cedar Street, New York, NY 10006. Telephone (212) 227-6600.

Lawler, Matusky & Skelly Engineers, One Blue Hill Plaza, Pearl River, NY 10965. Telephone (914) 735-8300.

Legislative Information Systems, 705 Stratton Office Building, Springfield, IL 62706. Telephone (217) 782-3944.

Litton Computer Services, 1831 Michael Faraday Drive, Reston, VA 22090. Telephone (703) 471-9200.

Litton Mellonics Information Center, 6701 Variel Avenue, Canoga Park, CA 91303. Telephone (213) 716-2000.

Management Analysis By Computer, Inc., 6803 Boulevard East, Guttenberg, NJ 07093. Telephone (201) 869-2418.

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▷ **Management Concepts, Inc.,** 340 Interstate North, Suite 330, Atlanta GA 30339. Telephone (404) 955-4024.

Management Science Associates, Inc., Shadyside Center, 5100 Centre Avenue, Pittsburgh, PA. 15232. Telephone (412) 683-9533.

Manus Services Corporation, 1700 Westlake Avenue North, Seattle, WA 98109. Telephone (206) 285-3260.

Marshall & Swift Company, 1617 Beverly Boulevard, P.O. Box 26307, Los Angeles, CA 90026. Telephone (800) 421-8042; (213) 624-6451 (in California)

Martin Marietta Data Systems, 6303 Ivy Lane, Suite 300, Greenbelt, MD 20770. Telephone (800) 638-7080; (800) 492-7170 (in Maryland).

May & Speh, Inc., 18 West 100 22nd Street, Oak Brook Terrace, IL 60181. Telephone (312) 620-8060.

McDonnell Douglas Automation Company (McAuto), Box 516, St. Louis, MO 63166. Telephone (314) 232-8021.

Medical Information Technology, Inc., 255 Bent Street, Cambridge, MA 02141. Telephone (617) 354-3000.

Mini-Probe Corporation, 66-05 Woodhaven Boulevard, Rego Park, NY 11374. Telephone (212) 830-0110.

MJK Associates, 122 Saratoga Avenue, Suite 11, Santa Clara, CA 95050. Telephone (408) 247-5102.

Monchik-Weber Corporation, 11 Broadway, New York, NY 10004. Telephone (212) 269-5460.

Mountain West Research, Inc., 1270 East Broadway, Suite 212, Tempe, AZ 85282. Telephone (602) 968-7991.

National Computer Network of Chicago, Inc., 1929 North Harlem Avenue, Chicago, IL 60635. Telephone (312) 622-6666.

National CSS, Inc., 187 Danbury Road, Wilton, CT 06897. Telephone (203) 762-2511.

National Data Corporation, One National Data Plaza, Atlanta, GA 30329. Telephone (404) 329-8500.

National Information Systems, Inc., 20370 Town Center Lane, Suite 130, Cupertino, CA 95014. Telephone (408) 257-7700.

National Library of Medicine, 8600 Rockville Pike, Bethesda, MD 20209. Telephone (301) 496-6308.

NCR Corporation, EFT and Data Services Division, 1700 South Patterson Boulevard, USG-2, Dayton, OH 45479. Telephone (513) 445-4709.

Neshaminy Valley Information Processing, Inc., 4850 Street Road, Trevose, PA 19047. Telephone (215) 322-2285.

Network Computing Corporation, 5301 77 Center Drive, Charlotte, NC 28210. Telephone (704) 525-8810.

Newsnet, Inc., 945 Haverford Road, Bryn Mawr, PA 19016. Telephone (800) 345-1301; (215) 527-8030 (in Pennsylvania).

Noesis Computing Company, 615 Third Street, San Francisco, CA 94107. Telephone (415) 495-7440.

North County Computer Services, Inc., 2235 Meyers Avenue, Escondido, CA 92025. Telephone (619) 745-6006.

Numerax, Inc., 230 West Passaic Street, Maywood, NJ 07607. Telephone (201) 368-0170.

Odin Data Systems, Inc., 425 Bush Street, San Francisco, CA 94108. Telephone (415) 433-2165.

Ohio Valley Data Control, Inc., 2515 Washington Boulevard, P.O. Box 219, Belpre, OH 45714. Telephone (614) 423-9501.

On-Line Business Systems, Inc., 115 Sansome Street, San Francisco, CA 94104. Telephone (415) 391-9555.

Online Computer Library Center, 6565 Frantz Road, Dublin, OH 43017. Telephone (614) 764-6000.

On-Line Research, Inc., 200 Railroad Avenue, Greenwich, CT 06880. Telephone (203) 661-1395.

Prodata Systems, Inc., 2333 Western Avenue,. Seattle, WA 98121. Telephone (206) 682-4120.

Profitool, Inc., 1777 South Harrison Street, Suite 505, Denver, CO 80210. Telephone (303) 758-8820.

Programs and Analysis, Inc., 21 Ray Avenue, Burlington, MA 01803. Telephone (617) 272-7723.

Progressive Management Services, 2828 Anthony Lane South, Minneapolis, MN 55418. Telephone (612) 781-6521.

Rand Information Systems, Inc., 98 Battery Street, San Francisco, CA 94111. Telephone (415) 392-2500.

REAP, Inc., 31 Olympia Avenue, Woburn, MA 01801. Telephone (617) 935-8620.

Remote Computing Corporation, 1076 East Meadow Circle, Palo Alto, CA 94303. Telephone (415) 496-6111.

Republic Service Bureau, Inc., 19110 Van Ness Avenue, Torrance, CA 90501. Telephone (213) 533-0211.

Ross Systems, Inc., 1860 Embarcadero Road, Palo Alto, CA 94303. Telephone (415) 856-1100.

Scientific Computers, Inc., 10101 Bren Road East, Minnetonka, MN 55343. Telephone (612) 933-4200.

SDC Information Services, 2500 Colorado Avenue, Santa Monica, CA 90406. Telephone (800) 421-7229; (800) 352-6689 (in California).

Securities Data Company, Inc., 62 William Street, New York, NY 10005. Telephone (292) 668-0940.

SEI Corporation, 680 East Swedesford Road, Wayne, PA 19087. Telephone (215) 687-1700.

Shaker Computer and Management Services, Inc., 990 Riverview Road, Schenectady, NY 12309. Telephone (518) 785-0978.

Shared Medical Systems, 51 Valley Stream Parkway, Malvern, PA 19355. Telephone (215) 296-6300.

Simplex Systems Corporation, 23 East 26th Street, Fourth Floor, New York, NY 10010. Telephone (212) 889-1337. ▷

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▷ **Smart Communications, Inc.,** 655 Third Avenue, PH, New York, NY 10017. Telephone (212) 486-1894.

Sophisticated Data Research, Inc., 2251 Perimeter Park Drive, Atlanta, GA 30341. Telephone (404) 451-5100.

Source Telecomputing Corporation, 1616 Anderson Road, McLean, VA 22102. Telephone (703) 734-7500.

Spectron Corporation, 1517 South Harvard, Tulsa, OK 74112. Telephone (918) 743-6431.

Starcom Corporation, P.O. Box 592, Starcom Building. Westminister, CA 92683. Telephone (800) 222-6382; (800) 627-3506 (in California).

STSC Inc., 2115 East Jefferson Street, Rockville, MD 20852. Telephone (301) 984-5000.

Sun Information Services Company, 280 King of Prussia Road, Radnor, PA 19087. Telephone (215) 293-8000.

Systech, Inc., 6150 Joliet Road, Countryside, IL 60525. Telephone (312) 352-0365.

Tesseract Corporation, 101 Howard Street, San Francisco, CA 94105. Telephone (415) 543-9320.

Time Sharing Resources, Inc., 777 Northern Boulevard, Great Neck, NY 11021. Telephone (516) 487-0101.

Time Sharing Systems, Inc., 2150 North Prospect Avenue, Milwaukee, WI 53202, Telephone (414) 276-6776.

Timesharing Unlimited, Inc., 240 Great Circle Drive, Suite 326, Nashville, TN 37228. Telephone (615) 367-1469.

Tim Formation, Inc., 1913 Central Avenue, Albany, NY 12205. Telephone (518) 456-6221.

Trail Blazer Systems, 2448 Watson Court, Palo Alto, CA 94303. Telephone (415) 858-2800.

Triangle Universities Computation Center, P.O. Box 12076, Research Triangle Park, NC 27709. Telephone (919) 549-0671.

Tristar Data Systems, Two Keystone Avenue, Cherry Hill, NJ 08003. Telephone (609) 424-4700.

Tymshare Incorporated, 20705 Valley Green Drive, Cupertino, CA 95014. Telephone (408) 466-6000.

United Information Services, Inc., P.O. Box 8551, Kansas City, MD 64114. Telephone (913) 341-9161.

Vista Computer, Inc., 85 Executive Boulevard, Elmsford, NY 10523. Telephone (914) 592-8190.

Washington Library Network, Washington State Library, AJ-11 Capitol Campus, Olympia, WA 98504. Telephone (206) 459-6537.

Weather Services International, P.O. Box B, Bedford, MA 01730. Telephone (617) 275-5300.

West Publishing Company, 50 West Kellogg Boulevard, P.O. Box 3256, St. Paul, MN 55165. Telephone (612) 228-2500.

Western New York Computing Systems, Inc., 2129 Five Mile Line Road, Penfield, NY 14526. Telephone (716) 381-4120.

Westinghouse Information Service, P.O. Box 30, Iowa City, IA 52244. Telephone (319) 354-9200.

Xerox Computer Services, 5310 Beethoven Street, Los Angeles, CA 90066. Telephone (213) 306-4000.

Additional Remote Computing Suppliers

Below are listed the names and headquarters addresses of companies believed to be in the remote computing business, but who did not respond to our two requests for information. We have listed these companies for your convenience in obtaining more information about the services they offer.

Accountants Computer Network, 5650 South Brainard, Suite 102, La Grange, IL 60525. Telephone (312) 354-8988.

ADAP Inc., 214 North 16th Street, McAllen, TX 78501. Telephone (512) 682-9413.

Adfosystems Division, 1259 Route 46, Building 2, Parsippany, NJ 07054. Telephone (201) 335-7800.

ADP Autonet, 175 Jackson Plaza, Ann Arbor, MI 48106. Telephone (313) 769-6800.

ADP International Trade Service, 10 Manor Parkway, Salem, NH 03079. Telephone (602) 898-7000.

Adserve Computing Ltd., 31-36 Foley Street, London W1P 7LB, England. (212) 869-8810.

Advance Business Service, 5908 Robertdale Road, Bedford, OH 44146. Telephone (216) 232-4653.

Advanced Computer Management, 311 North Lindbergh, St. Louis, MO 63141. Telephone (314) 393-5000.

Advanced Data Systems, Inc., 4010 Long Beach Boulevard, Long Beach, CA 90807. Telephone (213) 426-8155.

Advanced Medical Systems, 36 Maple Avenue, Rockville Centre, NY 11570. Telephone (516) 764-5953.

Aetna Data Processing Company, Halsted at 17th Street, Chicago Heights, IL 60411. Telephone (312) 755-3770.

Agency Records Control, Inc., 219 Perimeter Center Parkway, Atlanta, GA 30346. Telephone (404) 393-0750.

Alphatext Limited, 240 Catherine Street, Ottawa K2P 2G8. Telephone (613) 238-5333.

American Automated, 303 North Woodland Boulevard, Deland, FL 32720. Telephone (904) 736-2311.

Amherst Associates Inc., 20 North Clark Street, Chicago, IL 60602. Telephone (312) 332-0500.

A. O. Smith Data Systems, 8901 North Kildeer Court, Brown Deer, WI 53209. Telephone (414) 357-2900.

Applied Computer Services, Inc., P.O. Box 611, Palos Heights, IL 60463. Telephone (312) 448-0837.

Arbitron Ratings Company, 1350 Avenue of the Americas, New York, NY 10019. Telephone (212) 887-1420. ▷

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▷ **Arctic Institution of North America,** University of Calgary, 2500 University Avenue, Calgary T2N 1N4. Telephone (403) 284-7515.

Area Computer Services, Inc., 7890 Ulmerton Road, Largo, FL 33543. Telephone (813) 535-9801.

Aries Information Systems, Inc., 7400 Metro Boulevard, Minneapolis, MN 55435. Telephone (612) 835-2366.

ASA Inc., 245 Worcester Road, Southborough, MA 01772. Telephone (617) 456-8466.

Association Systems Inc., P.O. Box 768, Weehawken, NJ 07087. Telephone (201) 864-1025.

Automatic Data Processing, 405 Route 3, Clifton, NJ 07015. Telephone (201) 365-7300.

AYA Associates Inc., 275-277 Forest Avenue, Paramus, NJ 07652. Telephone (201) 967-0770.

Aztech Corporation, 1621 Connecticut Avenue, N.W., Washington, DC 20009. Telephone (202) 232-5500.

The Babcock & Wilcox Company, 3315 Old Forest Rd, P.O. Box 1260, Lynchburg, VA 24505. Telephone (804) 384-3512.

Baldwin Data Service, 1401 Del Norte Street, Denver, CO 80221. Telephone (303) 893-3533.

Battelle Columbus Laboratories, 505 King Avenue, Columbus OH 43201. Telephone (614) 424-6383.

Beneficial Computer Services, 3700 Wilshire Boulevard, Suite 380, Los Angeles, CA 90010. Telephone (213) 381-8987.

Berkeley Solar Group, 3140 Grove Street, Berkeley, CA 94703. Telephone (415)843-7600.

Biosciences Information Service, 2100 Arch Street, Philadelphia, PA 19103. Telephone (215) 587-4800.

Black's Guide, Inc., 332 Broad Street, P.O. Box 2090, Red Bank, NJ 07701. Telephone (201) 842-6060.

Bloodstock Research Information, 801 Corporate Drive, Lexington, KY 40544. Telephone (606) 223-4444.

BMA Data Processing, Inc., 1174 East 2700 South, Graystone Plaza 21, Salt Lake City, UT 84106. Telephone (801) 486-0033.

Bonner & Moore Computing Company, 2727 Allen Parkway, Houston, TX 77019. Telephone (713) 522-6800.

Bowne Information Systems, Inc., 435 Hudson Street, New York, NY 10014. Telephone (212) 952-4400.

Buc International Corporation, 1881 Northeast 26th Street, Suite 95, Ft. Lauderdale, FL 33305. Telephone (305)565-6715.

Business Applications Group, 5520 Ruffin Road, Suite 101, San Diego, CA 92123. Telephone (714) 560-6343.

Business Information Display, 4202 Sorrento Valley Boulevard, San Diego, CA 92121. Telephone (714) 452-7670.

Business Systems Inc., 1127 South Mannheim Road, Westchester, IL 60153. Telephone (312) 681-6060.

Cableshare, Inc., 20 Enterprise Drive, P.O. Box 5880, London N6A 4L6, Canada. Telephone (519) 686-2900.

Cadcom, 107 Ridgely Avenue, Annapolis, MD 21401. Telephone (301) 268-9010.

Call Computer, 1961 Old Middlefield Way, Mountain View, CA 94043. Telephone (415) 964-5331.

Canada Systems Group, 90 Sparks Street, Mississauga L5K 1B1. Telephone (416)822-5200.

Capitol Services, Inc., 415 Second Street N.E., Washington, DC 20002. Telephone (202) 546-5600.

Cards Inc., 316 Main Street, Elida OH 45807. Telephone (419) 831-3060.

Care Computer Systems, P.O. Box 1408, Bellevue, WA 98009. Telephone (206) 451-8272.

Chase Econometrics/Interaction, 486 Totten Pond Road, Waltham, MA 02154. Telephone (617) 890-1234.

Chemical Information Systems, 7215 York Road, Baltimore, MD 21212. Telephone (301) 321-8440.

Citibase, Citibank Economics, 399 Park Avenue, New York, NY 10043. Telephone (212) 559-8052.

Clyde Enterprises, Inc., 6 DeAngelo Drive, Bedford, MA 01730. Telephone (617) 275-6642.

Colorado Regional Data Center, 1080 Cherokee, Denver, CO 80204. Telephone (303) 534-6622.

Columbia Computing Services, Inc., 8611 South 212th Street, Kent, WA 98031. Telephone (206) 872-0283.

Commodity Information Service, 175 W. Jackson Boulevard, Suite 1021, Chicago, IL 60604. Telephone (312) 922-3661.

Communication Concepts Inc., 1044 Pulinski Drive, Ivyland, PA 18974. Telephone (215) 672-6900.

Compu-Link Corporation, 4000 N. Grand River, Lansing, MI 48906. Telephone (517) 323-4134.

Computer Accounting, Inc., 728 Saint Helens, P.O. Box 1154, Tacoma, WA 98401. Telephone (206) 627-1913.

Computer Assistance, Inc., 1331 South 7th Street, Chambersberg, PA 17201. Telephone (717) 263-5909.

Computer Associates, Inc., 1814 South Main Street, P.O. Box 328A, South Bend, IN 46624. Telephone (219) 232-7921.

Computer Center, Inc., 423 West Monument Street, Baltimore, MD 21201. Telephone (301) 728-3883.

The Computer Company, Interactive Database Systems, 1905 Westmoreland Street, Richmond, VA 23230. Telephone (804) 358-2171.

Computer Consultants, Ltd., 311 North Lindbergh, St. Louis, MO 63141. Telephone (314) 993-5000.

Computer Dynamics, Inc., 4651 King Street, Alexandria, VA 22302. Telephone (703) 578-3000. ▷

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Computer Equipment Information, 419 Boylston Street, P.O. Box 163, Boston, MA 02117. Telephone (617) 247-2290.

Computer Facilities Management, 335 Bishop Hollow Road, Newtown Square, PA 19073. Telephone (215) 353-7408.

Computer Innovations, 55 East Jackson, Suite 1616, Chicago, IL 60604. Telephone (312) 663-5930.

Computer Resource Services, 770 East Sahara, Suite 301, Las Vegas, NV 89104. Telephone (602) 369-2800.

Computer Research Company, 200 North Michigan Avenue, Chicago, IL 60601. Telephone (312) 977-7500.

Computer Task Group, Inc., 800 Delaware Avenue, Buffalo, NY 14209. Telephone (716) 882-8000.

Computerized Management Decisions, Inc., 6535 East 82nd Street, Indianapolis, IN 46250. Telephone (317) 842-3113.

Computers for Marketing Corporation, 88 First Street, Suite 400, San Francisco, CA 94105. Telephone (514) 777-0470.

Comserv Corporation, 1385 Mendota Heights Road, Mendota Heights, MN 55120. Telephone (612) 452-7770.

Concord Computing Corporation, Seven Alfred Circle, Bedford, MA 01730. Telephone (617) 275-1730.

Construction Computer Control, 615 East Michigan Street, Milwaukee, WI 53202. Telephone (414) 278-0500.

Consumer Systems Services Group, 1100 31st Street, Downers Grove, IL 60515. Telephone (312) 325-2109.

Cooper Data Systems, Inc., 636 Baronne Street, New Orleans, LA 70113. Telephone (504) 581-7611.

Cornell Computer Services, 602 Uris Hall, Cornell University, Ithaca, NY 14853. Telephone (607) 256-4981.

Corporate Management Inc., 4200 Aurora Avenue North, Seattle, WA 98103. Telephone (206) 632-0301.

Corporate Time Sharing Service, 30 Rockefeller Plaza, New York, NY 10112. Telephone (212) 246-7733.

Cost Systems Engineers, Inc., 131 East Exchange Avenue, Suite 222, Fort Worth, TX 76106. Telephone (817) 625-1177.

CRC Information Systems, Inc., 333 West 34th Street, New York, NY 10001. Telephone (212) 563-1300.

Creative Socio-Medics, Inc., 437 Madison Avenue, New York, NY 10017. Telephone (212) 421-4688.

Custom Computer Services, Inc., 2210 San Joaquin, Fresno, CA 93721. Telephone (209) 486-4759.

Cydex Corporation, 5953 Laurel Canyon Boulevard, Suite C, North Hollywood, CA 91607. Telephone (213) 766-3281.

Dartmouth College, Kiewit Computation Center, Hanover, NH 03755. Telephone (603) 646-3648.

Data Communications Corporation, 3000 Directors Row, Memphis, TN 38131. Telephone (901) 345-3544.

Data Consultants, 1724 Lyster Drive, Johnstown, PA 15905. Telephone (814) 255-4137.

Data Line Service Company, 885 South Village Oaks Drive, Covina, CA 91724. Telephone (213) 339-9011.

Data Processing of the South, 1043 East Morehead Street, Charlotte, NC 28204. Telephone (704) 875-5100.

Data Processing Center, Inc., 3920 Howard Avenue, New Orleans, LA 70125. (504) Telephone 821-6165.

Data Processing Enterprises, 914 South Hoover Street, Los Angeles, CA 90006. Telephone (213) 380-7200.

Data Technology, Inc., 497 Hill Street, York, PA 17403. Telephone (717) 348-2431.

Data Universal Corp., 1485 Teaneck Road, Teaneck, NJ 07660. Telephone (201) 837-2700.

DataCorp of Virginia Inc., 141 East Market Street, Harrisonburg, VA 22801. Telephone (703) 434-9966.

Datacrown Inc., 650 McNicoll Avenue, Willowdale M2H 2E1. Telephone (416) 499-1012

Datatab, Inc., 770 Broadway, 10th Floor, New York, NY 10019. Telephone (212) 541-9100.

Datatel, Inc., 3700 Mount Vernon Avenue, Alexandria, VA 22305. Telephone (703) 549-4300.

Defense Technical Information, Cameron Station, Building 5, Alexandria, VA 22314. (202) 274-6434.

Delphi Data Systems, Inc, 9905 Hamilton Road, Eden Prairie, MN 55344. Telephone (612) 861-4555.

Dialcom, Inc., 1109 Spring Street, Suite 410, Silver Spring, MD 20910. Telephone (301) 588-1572

Digidat Systems, Inc., 7 Westchester Plaza, Elmsford, N.Y. 10523. Telephone (914) 592-5334.

Digital Solutions, Inc., 100 Menlo Park, Edison NJ 08837. Telephone (201) 549-1700.

Direct Merchandising Service, 400 South Edward Street, Mt. Prospect, IL 60056. Telephone (312) 398-7845.

Disclosure Incorporated, 5161 River Road, Bethesda, MD 20816. Telephone (301) 951-1388.

Distribution Sciences, Inc., P.O. Box 66511, AMF O'Hare, Chicago, IL 60666. Telephone (312) 635-0200.

DLM, Inc., 535 West Arlington Place, Chicago, IL 60614. Telephone (312) 935-4222.

Dow Jones News/Retrieval Service, P.O. Box 300, Princeton, NJ 08540. Telephone (609) 452-2000.

DP&W, Inc. 20-28 Aberdeen Street, Boston, MA 02215. Telephone (617) 437-7700.

Dr. Dvorkovitz & Assoc., P.O. Box 1748, Ormond Beach, FL 32074. Telephone (904) 677-7033.

All About Remote Computing Services

> **Econo Data, Inc.,** 105 West 4th, Cincinnati, OH 45202. Telephone (513) 421-7071

Ecotran Corporation, 21111 Chagrin Boulevard, Beechwood, OH 44122. Telephone (216) 991-9000.

Electro-Data Inc., 1741 Summer Street, Hammod, IN 46320. Telephone (219) 932-6000.

Electronic Processors Limited, 234 Goodwin Crest, Twin Towers West, Birmingham, AL 35209. Telephone (205) 942-2323.

Electronic Tabulating Corporation, P.O. Box 728, Newburgh, NY 12550, Telephone (914) 564-6000.

Erisco, Inc., 1700 Broadway, New York, NY 10019. Telephone (212) 247-2444.

Evaluation and Planning Systems, 1788 Technology Drive, San Jose, CA 95110. Telephone (713) 771-0681.

FDR Online, Inc. 514 C. Street, N. E., Washington, D.C. 20002. Telephone (202) 638-0520.

Financial Management Systems, P.O. Box 4081, Atlanta, GA 30302. Telephone (404) 885-8000.

Financial Services, Inc., 175 Rock Road, Glen Rock, NJ 07452. Telephone (201) 652-6000.

Gancom, Inc., P.O. Box 1459, Harrisburg, PA 17105. Telephone (717) 763-7226.

GMS Systems, Inc., 12 West 37th Street, New York, NY 10018. Telephone (212) 947-3590.

Hal Talmadge and Associates, 6917 East Thomas Road, Scottsdale, AZ. 85251. Telephone (602) 994-9511.

Heritage Computer Corporation, P.O. Box 58, Sheboygan, WI 53081. Telephone (414) 458-9131.

Holmes & Shaw, Inc., 888 Isom Road, San Antonio, TX 78216. Telephone (512) 341-6641.

Hotline Energy Reports, Inc., 70 West Sixth Avenue, Suite 415, Denver, CO 80204. Telephone (303) 623-7130.

Hydro-Air Engineering, Inc., P.O. Box 7359, St. Louis, MO 63177. Telephone (314) 567-7127.

Hydrocomp, Inc., 201 San Antonio Circle, Suite 280, Mountain View, CA 94040. Telephone (415) 948-3910.

III Systems Inc., 763 A Concord Avenue, Cambridge, MA 02138. Telephone (617) 868-1453.

I.P. Sharp Associates, Limited, 2 First Canadian Place, Suite 1900, Toronto M5X 1E3. Telephone (416) 364-5361.

In/Form Data Services, P.O. Box 8558, Philadelphia, PA 19101. Telephone (215) 854-8297.

Info Globe, 444 Front Street West, Toronto M5V 2S9. Telephone (416) 598-5250.

Information & Financial Services, One East Penn Square, Suite 2200, Philadelphia, PA 19107. Telephone (215) 568-3130.

Information Systems Design, Inc., 2500 Misson College Boulevard, Santa Clara, CA 95054. Telephone (408) 727-8100.

Information Systems, Inc., 174 Armistice Boulevard, Pawtucket, RI 02860. Telephone (401) 728-0400.

Inforonics, Inc., 550 Newton Road, Littleton, MA 01460. Telephone (617) 486-8976.

Inline Services, P.O. Box 4717, Tulsa, OK 74104. Telephone (918) 584-4840.

Intellectron, Inc., 6711 Valjean Avenue, Van Nuys, CA 91406. Telephone (213) 988-5670.

Interactive Data Services, Inc., 22 Cortlandt Street, New York, NY 10007. Telephone (212) 205-0713.

Interactive Management Systems, 3700 Galley Road, Colorado Springs, CO 80909. Telephone (303) 574-5050.

Interactive Market Systems, Inc., 19 West 44th Street, New York, NY 10036. Telephone (212) 869-8810.

Interpretive Data Systems, 111 Washington Street, Brookline, MA 02146. Telephone (617) 566-6800.

Kaman Sciences Corporation, 1500 Garden of the Gods Road, P. O. Box 74, Colorado Springs, CO 80933. Telephone (303) 599-1601.

Louisville Tabulating Service, 3 Riverfront Plaza, Louisville, KY 40202. Telephone (502) 582-3356.

Lynch Data Processing, 740-A Industrial Drive, Cary, IL 60013. Telephone (312) 639-2351.

M/A-Com Sigma Data, Inc., 5515 Security Lane, Rockville, MD 20852. Telephone (301) 984-3636.

Management and Computer Services, Inc., 75 Great Valley Coproration Center, Valley Forge, PA 19482. Telephone (215) 648-0730.

Management Computer Services, 2790 Fisher Road, Columbus, OH 43204. Telephone (614) 272-0202.

Management Decision Systems, Inc., 200 Fifth Avenue, Waltham, MA 02154. Telephone (617) 890-1100.

Management Systems Corporation, 200 East South Temple, Salt Lake City, UT 84111. Telephone (801) 524-2000.

Manufacturing Data Systems, Inc., P.O. Box 986, 4251 Plymouth Raod, Ann Arbor, MI 48106. Telephone (313) 995-6000.

Maritime Data Network, Ltd., 102 Hamilton Avenue, Stamford, CT 06902. Telephone (203) 327-6433.

Mark/Ops Division of Northeastern Systems, 636 Beacon Street, Boston, MA 02215. Telephone (617) 266-1930.

Market Buy Market, 5858 Sunset Boulevard, Los Angeles, CA 90028. Telephone (213) 460-5639.

Marketron, 2180 San Hill Road, Menlo Park, CA 94024. Telephone (415) 854-2767.

MBA Systems Automation, 3477 East Livingston Avenue, Columbus, OH 43227. Telephone (614) 231-2130.

All About Remote Computing Services

▷ **McGraw-Hill/Cost Information Systems,** 1101 State Road, Building D, P.O. Box 28, Princeton, NJ 08450. Telephone (609) 921-6500.

Mead Data Central, 200 Park Avenue, New York, NY 10166. Telephone (212) 883-8560.

Meincke, Pearce & Company, P.O. Box 807, 60 Hackensack Blank Road, Weehawken, NJ 07087. Telephone (201) 348-6633.

Membership Services, Inc., 1915 Peters Road, Suite 209, P.O. Box 2, Irving, TX 75061.

Midwest Data Systems, Inc., Data Processing Insurance Square, Celina, OH 45822. Telephone (419) 586-5181.

Money Management Systems, Inc., 303 Wyman Street, Waltham, MA 02154. Telephone (617) 890-2070.

Muco Systems, Inc., 2301 West 22nd Street, Oak Brook, IL 60521. Telephone (312) 986-9014.

Multi-List/McGraw-Hill, 1221 Avenue of Americas, New York, NY 10020. Telephone (212) 997-4056.

National Dynamics, Inc., 2885 Elmwood Drive, Smyrna, GA 30080. Telephone (404) 433-3000.

National Time Sharing, 8404 Niagara Falls Blvd., P.O. Box 70, Niagara Falls, NY 14304. Telephone (716) 297-0553.

Network Data Processing Corporation, 321 3rd Street, S.E., P.O. Box 4828, Cedar Rapids, IA 52401. Telephone (319) 365-8691.

Newfoundland and Labrador Computer Service, P.O. Box 9308, 40 Higgins Line, St. John's Newfoundland A1A 2Y3. Telephone (709) 737-6100.

Northwest Management Service, 2323 Eastlake Avenue, East Seattle, WA 98102. Telephone (206) 329-9990.

OR/MS Dialogue, Inc., 19 Rector Street, 35th Floor, New York, NY 10006. Telephone (212) 425-2665.

Path Systems, Inc., 333 North Turner Street, Manchester, NH 03102. Telephone (603) 625-9662.

PBS Computing, 3550 North Lexington Avenue, St. Paul, MN 55112. Telephone (612) 484-8800.

Pergamon International Information, 1340 Old Chain Bridge Road, McLean, VA 22101. Telephone (703) 442-0900.

Petroleum Information Corporation, P.O. Box 2612, Denver, CO 80030. Telephone (713) 961-5660.

Planning Research Corporation, 1500 Planning Research Drive, McLean, VA 22101. Telephone (703) 556-1435.

Polycom Systems Limited, 133 Wynford Drive, Don Mills M3C 1K1. Telephone (416) 449-3400.

Predicasts, Inc., 11001 Cedar Avenue, Cleveland, OH 44106. Telephone (216) 795-3000.

Print Measurement Bureau, 11 Yorkville Avenue, Suite 502, Toronto M4W 1L3. Telephone (416) 961-3205.

Productivity Specialists, Inc., 370 Willow Tree Court, Hoffman Estates, IL 60008. Telephone (312) 870-8667.

Professional Hospital Service, 12960 Coral Tree Place, Los Angeles, CA 90066. Telephone ((213) 821-2323.

Professional Computer Service, 2321 East 28th Street, Long Beach, CA 90806. Telephone (213) 926-0321.

Proprietary Computer Systems, 16625 Saticoy Street, Van Nuys, CA 91406. Telephone (213) 781-8221.

Pryor Corporation, 400 North Michigan Avenue, Chicago, IL 60611. Telephone (312) 644-5650.

PYCCO Computer Systems, Inc., 710 B. Ogden Avenue, Suite 201, Naperville, IL 60540. Telephone (312) 961-2262.

QL Systems Limited, 1018 Tower B, Place de Ville, 112 Kent Street, Ottawa K1P 5P2. Telephone (613) 238-3499.

Quanta Data Systems, 3229 Carondelet Street, New Orleans, LA 70115. Telephone (504) 891-2808.

Quantitative Medical Systems, 5901 Christie Avenue, Suite 201, Emeryville, CA 94608. Telephone (415) 654-9200.

Quantitative Software Management, 1057 Waverley Way, McLean, VA 22101. Telephone (703) 790-0055.

Quotron Systems, Inc., 5454 Beethoven Street, Los Angeles, CA 90066. Telephone (213) 827-4600.

R.A.I.R., Inc., 465 Castro Street, Mountain View, CA 94041. Telephone (415) 964-0413.

R & W Computer Research Inc., P.O. Drawer 518, Vero Beach, FL 32960. Telephone (305) 562-0359.

Rapid Data Inc., 215 North 5th Street, Redlands, CA 92373. Telephone (714) 793-2855.

Rapidata, Inc., 20 New Dutch Lane, P.O. Box 1049, Fairfield, NJ 07006, Telephone (201) 227-0035.

Regional Data Associates, 75 Paterson Street, New Brunswick, NJ 08901. Telephone (201) 846-7790.

Reynolds & Reynolds, P.O. Box 1005, Dayton, OH 45401. Telephone (513) 443-2000.

Richard M. Walsh Associates, 916 Oak Street, Scranton, PA 18508. Telephone (717) 346-3856.

ROCI Inc., 1457 Ammons Street, Lakewood, CO 80215. Telephone (303) 234-1717.

Robert H. Ross and Company, Inc., 22 Main Street, Denver, PA 17517. Telephone (215) 267-5508.

Rotelcom Data, Inc., 930 Fairport Industrial Park, Fairport, NY 14450. Telephone (716) 381-3090.

R. Shriver Associates, 1259 Route 46, Building 2, Parsippany, NJ 07054. Telephone (201) 335-7800.

SBD Computer Services Corporation, 4744 Baltimore Avenue, Hyattsville, MD 20781. Telephone (301) 864-9200. ▷

All About Remote Computing Services

▷ **Science Dynamics Corporation,** 2140 W. 190th Street, Torrance, CA 90504. Telephone (213) 320-1101.

Science Computer Applications, Inc., 800 Wright Building, Tulsa, OK 74103. Telephone (918) 584-6197.

Scientific Process & Research, 67 Veronica Avenue, Somerset, NJ 08873. Telephone (201) 846-3477.

SDK Medical Computer Service, 850 Boyleston Street, Chestnut Hill, MA 02167. Telephone (617) 232-8005.

Seafirst Computer Services, 13028 Interurban Avenue, South, Seattle, WA 98168. Telephone (206) 583-6606.

Signum Data Group, 8630 Fenton Street, Silver Springs, MD 20910. Telephone (301) 565-20910.

SJV Data Service, Inc., 2020 Industrial Parkway, Elkhart, IN 46516. Telephone (219) 294-6621.

Smart, Inc., 26 Cricket Lane, Wilton, CT 06897. Telephone (203) 762-3279.

Soil Testing Services, 111 Pfingstem Road, Northbrook, IL 60062. Telephone (312) 272-6520.

Solar Energy Research Institute, 1617 Cole Boulevard, Golden, CO 80401. Telephone (303) 231-1206.

State Street Banking Service, P.O. Box A-250, Hanover, NH 03755. Telephone (603) 448-5010.

State Street Bank and Trust, 225 Franklin Street, P.O. Box 351, Boston, MA 02101. Telephone (617) 786-5146.

Statistical Tabulating Corporation, 2 North Riverside Plaza, Chicago, IL 60606. Telephone (312) 454-8000.

Stephens-Nelson, Inc., 1611 116th Street Northeast, Bellevue, WA 98004. Telephone (509) 624-3203.

Sunbelt Data Resources, Inc., 6 Executive Park Drive, Suite 240, Atlanta, GA 30329. Telephone (404) 636-2227.

System Development Corporation, 2500 Colorado Avenue, Santa Monica, CA 90403. Telephone (213) 829-7511.

Systems Data Processing Corporation, 701 Howe Avenue, Sacramento, CA 95825. Telephone (916)929-5740.

Technassociates, Inc., 6001 Montrose Road, Suite 400, Rockville, MD 20852. Telephone (202) 737-3322.

Technical Advisors, Inc., 4455 Fletcher Street, Wayne, MI 48184. Telephone (313) 722-5010.

Tel-A-Data, Inc., 1500 Northwest 167th Street, Miami, FL 33169. Telephone (305) 625-8266.

Teledata, Inc., P.O. Box 364, Hanover, NH 03755. Telephone (603) 448-5005.

Telestat Systems, Inc., 60 Hudson Street, New York, NY 10013. Telephone (212) 227-5082.

Telmar Media Systems, 90 Park Avenue, New York, NY 10016. Telephone (212) 949-4268.

Three PM Inc., 30881 Schoolcraft, Livonia, MI 48150. Telephone (313) 427-2000.

Time Share Corporation, Mt. Support Road, P.O. Box 683, Hanover, NH 03755. Telephone (603) 448-3838.

Timesharing Consultants, Inc., 6420 East Broadway, Suite C300, Tuscon, AZ 85710. Telephone (602) 745-2060.

Timesharing Management, Inc., 806 Massachusetts Avenue, Cambridge MA 02139. Telephone (617) 661-9160.

Total Environmental Systems, 414 North Larch Street, East Lansing, MI 48912. Telephone (517) 482-2500.

Touchette Corporation, 5701 Enterprise Parkway, East Syracuse, NY 13057. Telephone (215) 445-0291.

Tru-Check Computer Systems, Inc., 6 Nursery Lane, Rye, NY 10580. Telephone (914) 967-9300.

TRW Information Services, 505 City Parkway West, Suite 100, Orange, CA 92668. Telephone (714) 937-2000.

TWS Inc., 6400 Westpark, Suite 180, Houston, TX 77057. Telephone (713) 781-5310.

Uni-Coll Corporation, 3401 Market Street, Philadelphia, PA 19104. Telephone (215) 387-3890.

Uninet, Inc., 2546 Broadway, Kansas City, MO 64108. Telephone (816) 221-9700.

University Computing Company, 1930 Hi Line Drive, Dallas, TX 75207. Telephone (214) 655-8894.

University of Southern California, Powell Hall 204, University Park, Los Angeles, CA 90007. Telephone (213) 743-5520.

Users, Inc., 1250 Drummers Lane, Valley Forge, PA 19482. Telephone (215) 687-9400.

USS Engineers and Consultants, Inc., 600 Grant Street, Room 3383, Pittsburgh, PA 15230. Telephone (412) 391-8115.

Venture Computing Company, 5555 W. Loop South, Houston, TX 77401. Telephone (713) 668-3448.

Virginia Data Center, 888 Norfolk Square, Norfolk, VA 23502. Telephone (804) 857-0681.

Wang Data Center, 20 South Avenue, Burlington, MA 01803. Telephone (617) 272-8550.

Warner Computer Systems, Inc., 52 Woodbine Street, Bergenfield, NJ 07621. Telephone (201) 692-9400.

Warrington Associates, Inc., 601 2nd Avenue, South, Hopkins, MN 55343. Telephone (612) 935-3300.

Williams & Associates, 1549 Los Osos Valley Road, San Luis Obispo, CA 93401. Telephone (805) 541-3610.

Wismer Associates, Inc., 22134 Sherman Way, Canoga Park, CA 91367. Telephone (213) 884-5515.

Woodward, Ryan, Sharp and Davis, 3 Park Avenue, New York, NY 10016. Telephone (212) 689-4100.

Wyle Data Services, 15302 Bolsa Chica Road, Huntington Beach, CA 92649. Telephone (714) 898-5656.

XRT, Inc., P.O. Box 214, Broomall, PA 19008. Telephone (215) 353-9000.□ ►

All About Remote Computing Services

COMPANY	ADP Network Services, Inc.	ADP Network Services, Inc.	Advanced Data Systems, Inc.	Algor Interactive Systems, Inc.	Allied Computer Services, Inc.
GENERAL					
Name of service	Remote Computing Services	ADP/Onsite Service	Advanced Data Systems	Algor Computing	Allied Computer Services, Inc.
Type of service	Timesharing, batch, on-line data base, distributed microprocessor	—	—	Timesharing	Timesharing, remote batch
Date operations began	1969	1978	1971	1977	1979
Data center locations	Ann Arbor, MI; Waltham, MA; London, England	—	Long Beach, CA	Pittsburgh, PA	Basking Ridge, NJ
Areas currently served	Worldwide	U.S. England, Western Europe, Canada	Pacific Southwest	National	Metropolitan New York
EQUIPMENT					
Computers	DECsystem 10s, Magnuson M80/4, Amdahl 470/V6	DEC 2020s	IBM System 34	Prime 750, Pixel AP/100	NAS 7031 in Basking Ridge
Conversational terminals supported	All async. at 100, 300, 1200 bps and other graphics terminals	All asyn. 100, 300, 1200 bps terminals and other graphic terminals	IBM 5251	All ASCII terminals	—
Batch terminals supported	IBM 2780, 3780 and compatible bisync., terminals	IBM 2780/3780 and compatible bisync. terminals	—	None	IBM 3780, 2780, HASP
Microcomputers supported	DEC LSI II Onyx C8002, IBM PC	—	—	Pixel AP/100	—
Other equipment supported	Calcomp 748, HP 1051, Zeta plotters	—	—	All Cad/Cam Tektronix-compatible terminals; Calcomp, HP, Houston Instruments	—
SOFTWARE					
Conversational programming languages	Fortran, Cobol, Basic, Macro 10,C	Fortran, Basic, Cobol, Macro 10,C	RPG	Basic, Fortran, Fortran 77, Pascal	Cobol, PL/1, Assembler
Batch-mode programming languages	Fortran, Cobol, Basic, Macro 10,C	Fortran, Basic, Cobol, Macro 10,C	RPG	None	Cobol, PL/1, Assembler
Principal applications	Treasury management, economic forecasting, strategic planning, project and data base management, graphics	Treasury management, economic forecasting, strategic planning project and data base management, graphics	Accounting	Computer-aided design, finite element, engineering	Customer supplies applications
Principal industries served	Banking, financial services, manufacturing, insurance, accounting, government	Banking, financial services manufacturing, insurance, accounting, government	All industries	—	Major corporations
COMMUNICATIONS					
Access methods	Dial up, leased lines, dial-out bisync.	Dial up, leased lines, dial-out bisync.	Dial-up	Dial-up, leased lines, DDS	Dial-up, leased lines, DDS
Networks used	Autonet (proprietary) connected with Telenet	Autonet	—	Telenet	—
Transmission rates supported, bps	110-1200 bps async. 2000-9600 bps bisync.	110-1200 bps	—	Up to 9600 bps	300-9600 bps
CHARGES					
Min. monthly charge:					
Interactive	None	$6,000	Contact vendor for pricing	$100/mo.	—
Remote batch	None	$6,000		—	$100
Terminal connect time:					
Interactive	None	—	—	$5.00-$20.00	$12.50/hr.
Remote batch	None	—	—	—	$15.00/hr.
Central processor time:					
Interactive	$0.027/CRU	Included	—	$0.19 per unit	$0.86 /sec.
Remote batch	$0.012 - .02/CRU	Included	—	—	$0.43 /sec.
Mass storage:					
Interactive	$0.06-0.65/100 ch./mo.	Included	—	$0.19/1000 chars./mo.	—
Remote batch	$.06-0.65/1000 ch./mo.	Included	—	—	—
COMMENTS	ADPNS is a division of ADP serving over 100,000 clients around the world; ADPNS provides ready-to-use software packages, customized software	ADP/Onsite Services includes mainframe computers, an international data network, the full range of ADPNS applications software and data bases, custom prog.	Company offers services tailored to customer's needs	Stand alone Cad Systems and finite element systems available	—

All About Remote Computing Services

COMPANY	United Information Services, Inc.	Vista Computer Inc.	Washington Library Network	Weather Services International	West Publishing Company
GENERAL					
Name of service	DEC-10 Service	VISTA	WLN	WSI, Pilot Brief, SuperSports	Westlaw
Type of service	Timesharing, interactive, remote batch	Timesharing	On-line data base	Timesharing, on-line data base	On-line data base
Date operations began	1967	January, 1980	1977	1977	1976
Data center locations	Pittsburgh, PA; Kansas City, MO; Boston, MA; London, England	Elmsford, NY	—	Bedford, MA; Atlanta, GA	St. Paul, MN
Areas currently served	U.S., Canada, U.K.	Northeastern U.S.	Pacific Northwest, Southeastern U.S. and in-ternational	Worldwide*	U.S., Canada, Europe via Eurolex
EQUIPMENT					
Computers	DEC system—10 (18)	DGC Eclipse S/140 (2) DGC Nova 4X (1)	Amdahl V-8	DEC PDP/11	IBM 3033 in St. Paul
Conversational terminals supported	ASCII, EBCDIC, Diablo, Correspondence, TTY, 2741-compatible terminals	DGC, ADDS, Hazeltine	IBM 370, Hazeltine Mod 1, Teletype	All ASCII terminals at 300-1200 bps	Compatible with most conversational terminals; Westlaw Custom terminals
Batch terminals supported	IBM 2780, 3780 and compatible terminals	—	IBM JES 2, 3780	—	—
Microcomputers supported	Apple, IBM PC, TI, vector graphics	—	—	Colorgraphics terminals	Several models supported
Other equipment supported	—	—	—	—	—
SOFTWARE					
Conversational programming languages	Basic, Cobol, Fortran, APL, Macro, Oliver	MUMPS, Vista Standard MUMPS (VSM)	PL/1, Wylbur, Assembler	Assembler	PL/1, Assembler
Batch-mode programming languages	Basic, Cobol, Fortran, APL	—	PL/1, Assembler	—	PL/1
Principal applications	Financial, banking, pro-ject management, sales, marketing, data base management	Publishing, accounting	Library applications accounting system	Weather information	Legal research, tax research
Principal industries served	Banking	Publishing, medical, food brokerage	Libraries	T.V., radio, energy, agriculture, academia	Legal, accounting, government
COMMUNICATIONS					
Access methods	Dial-up, leased lines	Dial-up, leased lines	Dial-up, leased lines	Dial-up, leased lines, packnet networks	Dial-up
Networks used	Uninet	—	Telenet	Tymnet, Telenet	Tymnet, Telenet
Transmission rates supported, bps	110-1200 bps (inter-active); 2000-19.2K bps	300, 1200 bps (async.)	300-4800 bps	300-1200 bps	1200 bps
CHARGES					
Min. monthly charge:					
Interactive	$300	$800.00/mo. fixed	Contact vendor for pricing	$60.00**	Plan 1 is $100/hr. for charge*
Remote batch	$300	—		—	
Terminal connect time:					
Interactive	$43.00/hr.	—	—	Contact vendor	$115/1-3 hrs.**
Remote batch	—	—	—	—	—
Central processor time:					
Interactive	$0.07/SU	—	—	—	—
Remote batch	—	—	—	—	—
Mass storage:					
Interactive	$0.05/3.2K bytes/day	—	—	—	—
Remote batch	$0.05/3.2K bytes/day	—	—	—	—
COMMENTS	Services include consult-ing, systems analysis and design, custom pro-gramming, maintenance	$800.00/month minimum charge includes 1 port, 6m bytes storage, 9am-5pm unlimited access		*SuperSport-U.S. only **Charges based on hours of service/mo. for 30 cps service and 120 cps ser-vice; discounts available	Main emphasis on interactive legal research for lawyers *Several plans available **Declining rates after first 3 hrs.

All About Remote Computing Services

COMPANY	Western New York Computing Systems	Westinghouse Information Services	Xerox Computer Services	Xerox Computer Services	
GENERAL					
Name of service	Western New York Computing Systems	Computing Services	Business management systems	General Timesharing Service	
Type of service	Timesharing	Timesharing, remote batch, on-line data base	On-line data base	Timesharing	
Date operations began	October, 1971	1968	1970	1978	
Data center locations	Penfield, NY	Iowa City, IA; Reston, VA; Marlboro, MA; Longmont, CA	Los Angeles, CA	Los Angeles, CA	
Areas currently served	Western New York State	Nationwide	Continental U.S., Europe	Continental U.S., Europe	
EQUIPMENT					
Computers	Data General Nova (6), Prime Model 400 (2), Model 2250 (1); Alpha micro (1)	IBM 3031, 3033	IBM 4341, 3083B, 3033; Amdalhl 470/U8, Xerox Sigma 9	Xerox Sigma 9, IBM 3033	
Conversational terminals supported	All ASCII terminals	All ASCII and EBCDIC terminals	Xerox 1340, 1340A, 1330, 1350, 820-II; any ASCII async. terminal	Xerox 1340, 1340A, 1330, 1350, 820-II; any ASCII async. term.	
Batch terminals supported	IBM 2780	IBM 3780 emulating terminals; RJE batch terminals	Xerox 1350	Any intelligent remote batch terminal using HASP protocol	
Microcomputers supported	—	—	Xerox 820-II	Xerox 820-II	
Other equipment supported	—	Calcomp, Tektronix, IBM plotters; graphics, laser printing, optical scanning	—	—	
SOFTWARE					
Conversational programming languages	Cobol, Fortran, Basic, Info, Supercomp II	Basic, Cobol, Fortran, Pascal, PL/1, APL	Proprietary "Plain English" language	Basic, Cobol, Fortran, APL	
Batch-mode programming languages	—	Cobol, Fortran, PL/1, RPG, Assembler	—	Basic, Cobol, Fortran, APL	
Principal applications	Credit union accounting, membership billing systems, work measurements	Business accounting, educational	Accounting, distribution, utility billing, municipal govt., manufacturing	Financial management, analysis & modeling, forecasting, simulation, inquiry, reporting	
Principal industries served	Credit unions, radiology groups, manufacturing	Business, education, Federal government	Manufacturing, distributions, local government utilities	Manufacturing, distributors, local government, utilities	
COMMUNICATIONS					
Access methods	Dial-up, leased lines	Satellite, dial-up, leased lines, value-added	Dial-up, leased lines	Dial-up, leased lines	
Networks used	—	Tymnet, Telenet, Uninet	Tymnet, Xerox	Tymnet, Xerox	
Transmission rates supported, bps	300-9600 bps	Up to 56K bps	300-9600 bps	300-2400 bps	
CHARGES					
Min. monthly charge:					
Interactive	$5.00-$9.00/hr. (Nova)	Contact vendor	$1200	$500	
Remote batch	—	for pricing		$500	
Terminal connect time:					
Interactive	$5.00-$9.00/hr. (Nova)	—	See comments	$10.00/hr.	
Remote batch	—	—	—	$10.00/hr.	
Central processor time:					
Interactive	$0.01/1K chr./mo.	—	See comments	$15.00/CPU	
Remote batch	—	—	—	$15.00/CPU	
Mass storage:					
Interactive	$0.05/1Kchr./mo.	—	See comments	$0.012/2048 bytes/day	
Remote batch	—	—	—	$0.012/2048 bytes/day	
COMMENTS	Specialize in customizing systems to user's requirements.	Company provides a variety of services to educational institutions	Charges based up on transaction entered, storage used, and lines printed; over 20 applications available to manufacturers, distributors, local government	Technical consulting, systems design, customized programming, documentation; training programs available	

All About Remote Computing Services

COMPANY	Tesseract Corporation	Time Sharing Resources, Inc.	Time Sharing Systems, Inc.	Timesharing Unlimited Inc.	Tim Formation, Inc.
GENERAL					
Name of service	Personnel Management System*	VM/CMS	TSSI	Timesharing Unlimited Inc.	Tim-Sharing
Type of service	On-line transaction processing	Timesharing	Time-sharing, remote batch	Timesharing, on-line data base	Timesharing
Date operations began	1975	1969	January, 1968	September, 1976	1976
Data center locations	Santa Clara, CA	Hauppauge, NY	Milwaukee, WI	Nashville, TN	Albany, NY
Areas currently served	U.S.	Continental U.S.	U.S.	U.S.	Northeastern New York
EQUIPMENT					
Computers	Amdahl V8, IBM 4341	IBM 370/158 (4)	Burroughs B7800 Series (2) in Milwaukee	BTI 4000/25, BTI 5000	Prime 750
Conversational terminals supported	IBM 3270, 3101	All async. terminals	Any ASCII terminal up to 1200 bps	All async. 110, 300, 1200 bps terminals	All ASCII terminals at 10, 30, 120 cps
Batch terminals supported	IBM HASP	IBM 2780, 3780, 3270 compatible terminals	Burroughs RJE, IBM 2780/3780	—	—
Microcomputers supported	—	IBM PC and compatible terminals, Apple II Plus	—	—	—
Other equipment supported	Laser printing	A variety of CRTs and pen plotters	—	—	—
SOFTWARE					
Conversational programming languages	Cobol, Fortran, PL/1	Basic, Cobol, Fortran, PL/1, APL, VM-TOTAL/APL	Cobol, Fortran, Basic, Algol	Basic	Basic, Cobol, Fortran
Batch-mode programming languages	Cobol, Fortran, PL/1	Basic, Cobol, Fortran, PL/1, APL, VM-TOTAL/APL	Cobol, Fortran, Basic, Algol, WFL	—	—
Principal applications	Human resource management, insurance billing, health claims processing	Accounting, financial, modeling, data base management, graphics, statistical analysis, electronic mail	Accounting, construction, credit union, insurance, engineering, manufacturing	Accounting, specialized data base management, medical	Business, financial budgeting, modeling
Principal industries served	Insurance, administration, cross industries	Banking, manufacturing, health services, distribution, insurance, utilities, petroleum, holding companies	Credit union, insurance, construction, manufacturing	Manufacturing, distributors, third-party insurance, utility company, brokerage firms, medical, dental	Businesses, government
COMMUNICATIONS					
Access methods	Leased lines	Dial-up, leased lines	Dial-up, leased lines, DDS	Dial-up, leased lines	Dial-up
Networks used	Tymnet, private lines	Tymnet, TSRNET	Tymnet, proprietary	—	—
Transmission rates supported, bps	Up to 9600 bps	300, 1200, 4800 bps	110-9600 bps	110, 300, 1200 bps	110, 300, 1200 bps
CHARGES					
Min. monthly charge:					
Interactive	$1000	No mininum	$100	—	$25.00
Remote batch	—	—	$100	—	
Terminal connect time:					
Interactive	None	$15.00/hr.(300 bps)*	Contact vendor for pricing	$1.00-$5.00/hr.	$10.00/hr.
Remote batch	—	—		—	
Central processor time:					
Interactive	Per transaction	$0.28/SRU	—	None	$0.50/CPU
Remote batch	—	—	—	None	
Mass storage:					
Interactive	Per unit	$1.00/cyl/day	—	$0.10-$0.30/1000 ch/mo	$0.50/1000 chars./mo.
Remote batch	—	—	—	—	
COMMENTS	*Other services are Benefit Plan Administration System and Claims Processing System	Company offers Micro-Library Support System, Insight/Visicalc Interface; investment data base *$24/hr. (1200 bps); $30/hr. (4800 bps)	Discounts for volume and non-prime use; software customization and development service	Rates vary depending on time of day and gross storage; tape backups and storage available for occassional users	Bulk rates available for dedicated ports and block storage; 50% discount for non-prime time

All About Remote Computing Services

COMPANY	Trail Blazer Systems	Triangle Universities Computation Center	Tristar Data Systems	Tymshare Incorporated	United Information Services, Inc.
GENERAL					
Name of service	Expediter	Triangle Universities Computaiton Center	Tristar Data Systems	Tycom IV, X, 370	APEX/SL Servie; Supra service
Type of service	Timesharing	Timesharing, remote batch	On-line services, data entry	Timesharing, remote batch, on-line data base	Timesharing, interactive, remote batch
Date operations began	June, 1971	1966	February, 1961	1966	1967
Data center locations	Palo Alto, CA	Research Triangle Park, NC	Cherry Hill, NJ	Cupertino, CA; Dallas, TX; Fremont, CA; Valley Forge, PA	Kansas City, MO; Pittsburgh, PA; Boston, MA; London, England
Areas currently served	Continental U.S.	North Carolina, Eastern U.S.	Northeastern U.S.	U.S., Western Europe, Japan	U.S., Canada, U.K.
EQUIPMENT					
Computers	BTI 8000 (1), BTI 5000 (11) In Palo Alto	IBM 3081-016, 370/168	WCR Century 301, Intertec micros	Over 70 IBM, Amdahl, DEC, Honeywell, and Xerox mainframes; mid-range mini systems	CDC 174, 175; Cyber 730 (APEX); Cray 1 Model S/2000, CDC Cyber front end (SUPRA)
Conversational terminals supported	All ASCII terminals	ASCII terminals up to 1200 bps	—	Any ASCII, EDCDIC, or correspondence termi-nals at 10, 15, 30, or 120 cps	TTY at 10, 30, 120 cps; IBM 2741; Megatek, Tektronix graphics; HP
Batch terminals supported	IBM 2780, 3780	—	—	IBM 2780, 3780, HASP, and compatible units	IBM 2780, 3780, HASP, CDC 22UT, CDC 200
Microcomputers supported	IBM PC, Apple II, III	Apple, IBM PC, some CP/M-based systems	Intertec Vector 9000, Corvus Concept	IBM PC, DEC Rainbow 100, TI 990 Model 1, Pegasus	Apple, IBM PC, TI, HP
Other equipment supported	—	—	—	Digital plotters	Calcomp plotters
SOFTWARE					
Conversational programming languages	Basic, Pascal	Fortran, PL/1, APL, Snobol	Basic, Cobol, PL/1	Basic, Cobol, Fortran, PL/1, APL Sail, Focus	Basic, Cobol, Fortran, Cray Fortran, APL, IDM, Lisp, Pascal, Super For-tran, Super Basic
Batch-mode programming languages	Cobol, Fortran	Most major languages	Basic, Cobol, PL/1	Basic, Cobol, Fortran, PL/1, APL Sail, Focus	Basic, Cobol, Fortran, Cray Assembler, Pascal, Compass, Snobol, Lisp
Principal applications	On-line freight billing and rating	Educational, scientific, engineering	Accounting, data base management, coupon redemption, directory maintenace	Business, government, scientific	Engineering, scientific, data base, liner pro-gramming, financial modeling, business
Principal industries served	Transportation	Educational institutions	Wholesale, distribution	Utilities, banking, insurance, manufacturing, energy, accounting	Energy, manufacturing, distribution, AEC, elec-tronics
COMMUNICATIONS					
Access methods	Dial-up, leased lines, DDS	Dial-up, leased lines	Dial-up	Dial-up, leased lines, SNA	Dial-up, leased lines
Networks used	Proprietary	Telenet, Edunet	Proprietary	Tymnet, Tymshare	Uninet
Transmission rates supported, bps	300, 1200 bps	110, 300, 1200 bps (TSO Wylbur); 4800 (RJ)	300-1200 bps	Up to 9600 bps	110-1200 bps (inter-active); 2000-19.2K bps
CHARGES					
Min. monthly charge:					
Interactive	$1000	$5.00 (combined)	$300	Contact vendor e	$300
Remote batch	—		$250	for pricing	$300
Terminal connect time:					
Interactive	Included in monthly chg.	Contact vendor	—	—	$47.75/hr. (APEX)*
Remote batch	—	for pricing	—	—	$29.00/hr. (APEX)*
Central processor time:					
Interactive	Included in monthly chg.	—	—	—	$0.38/SU (APEX)**
Remote batch	—	—	—	—	$0.22/SU (APEX)***
Mass storage:					
Interactive	Included in monthly chg.	—	—	—	$0.013/1K by/day
Remote batch	—	—	—	—	$0.013/1K by/day
COMMENTS		Non-profit educational organization; commercial use must be justified on basis of specialized data bases or software avail-able; no user consulting provided	Tristar offers conver-sion service from/to various disk and tape formats	Prices vary by equipment, time of use, transmission rates; Tymnet subsidiary provides local phone access and overseas access	Services include consul-ting, systems analysis and design, custom programming *$20.00/hr. (SUPRA) **$0.10/SSSU (SUPRA) ***$0.50/SSU (SUPRA)

All About Remote Computing Services

COMPANY	Sophisticated Data Research, Inc.	Source Telecomputing Corporation	Spectron Corporation	Starcom Corporation	STSC, Inc.
GENERAL					
Name of service	SDR/TS	The Source	Spectron Corp.	Starcom	APL Plus Service
Type of service	Timesharing, remote batch	On-line data base	Remote on line	Timesharing, on-line data base	Timesharing, consulting, programming
Date operations began Data center locations	May, 1978 Atlanta, GA; Chicago, IL	June, 1979 McLean, VA	November, 1969 Tulsa, OK	November, 1980 Santa Clara, CA; Beverly Hills, CA	1969 Rockville, MD
Areas currently served	Nationwide	U.S., overseas via telecommunications	Tulsa, OK	U.S.	Worldwide
EQUIPMENT					
Computers	Perkin-Elmer 8/32 in Atlanta	Prime 750 (10) in McLean; some have Intel microprocessors	IBM S/38 Mod 5	Prime computers	Amdahl 470 V/6-II, IBM 3033-U16
Conversational terminals supported	Any standard ASCII terminal	—	IBM 5251-11, 12	All ASCII 300 bps terminals	Any async. ASCII and EBCDIC terminal up to 1200 bps
Batch terminals supported	—	—	—	All ASCII 300 bps terminals	IBM 2780, 3780, HASP, RSCS Systems 3, Data 100 Harris, Sycor, Four Phase
Microcomputers supported	IBM PC and most others with communications software	Any standard micro-computer	—	Apple, TRS-80, TI, Pet, Heath, Compucolor, Exidy	TRS-80 Model III, IBM PC
Other equipment supported	—	—	—	Contact vendor	HP plotters
SOFTWARE					
Conversational programming languages	Basic, Fortran	Support Basic, Fortran, Pascal	RPG III, Query, DFU	Basic, Cobol, PL/1, RPG I, JCL	Basic, Cobol, Fortran, PL/1, APL, Assembler
Batch-mode programming languages	Fortran	—	RPG III, Query, DFU	Basic, Cobol, PL/1, RPG I, JCL	All System 370
Principal applications	Marketing and survey research only	News, stock information, air schedules, electronic mail, electronic shop-ping, data base manage-ment	Financial	General timesharing	Corporate planning, materials, manufacturing, funds, insurance, PC software, information
Principal industries served	Marketing research	Small businesses, individuals	General business	All industries	All industries
COMMUNICATIONS					
Access methods	Dial up, DDS, WATS, (user expense)	Direct-dail, WATS	DDS	Dial-up	Dial-up, leased lines
Networks used	Contact vendor	Tymnet, Telenet, Uninet, Sourcenet	AIS Net 1000	Omninet	Tymnet, Transpac, Datex-P
Transmission rates supported, bps	1200-9600 bps	300, 1200 bps	4800 bps	300 bps*	Up to 9.6K bps
CHARGES					
Min. monthly charge:					
Interactive	None	$100 one-time hook-up	$375	$10.00/mo. min.	Prices vary according to service
Remote batch	None	$20.75/hr.(7am-6pm)	$375	—	
Terminal connect time:					
Interactive	$10/hr.	—	—	$3.60/hr. (plus Omninet)	$15.00/hr./30 char/sec.*
Remote batch	Contact vendor	—	—	—	Contact vendor
Central processor time:					
Interactive	Cost by procedure	—	$325/hr.	None	$13/CRU
Remote batch	Cost by procedure	—	$325/hr.	—	Contact vendor
Mass storage:					
Interactive	None	See comments	—	$0.05/1K bytes/mo.	$12.00/mbyte/day
Remote batch	None	—	—	—	Contact vendor
COMMENTS	Total system devoted to marketing research data analysis from editchecks and data cleaning through crosstab and MVA	Storage available on sliding scale from $.50/2048 chars. to $.10/record; $7.75/hr. non-prime time; $10.00/mo. mininum	Supports IBM MAPICS with multiple users	*Company is now upgrad-ing to 1200 bps	Service includes consult-ing and customized programming *Prices increase as char-acters per second increase

All About Remote Computing Services

COMPANY	Sun Information Services Company	Sun Information Service Company	Sun Information Services Company	Sun Information Services Company	Systech, Inc.
GENERAL					
Name of service	FASTFORM, SRPF	Project Management Services	Network Service-IBM	Network Service-Cyber	Bulletin Data Services; Systech
Type of service	Timesharing, remote batch, on-line data base	Timesharing, remote batch, plotting	Timesharing, data bases, decision support	Interactive, remote batch	Timesharing, on-line bulletin, price services
Date operations began	1980	June, 1976	1976	1976	1977
Data center locations	Dallas, TX; Chicago, IL; Philadelphia, PA	Dallas, TX; Philadelphia, PA	Dallas, TX; Philadelphia, PA	Dallas, TX	Countryside, IL
Areas currently served	Cointinental U.S.	Continental U.S.	Continental U.S.	Continental U.S.	U.S.
EQUIPMENT					
Computers	IBM 4300 and up	IBM 308Xs	IBM 3081(2), 3033(2) in Dallas; IBM 3033(1), 3031(1) in Philadelphia	Cyber 750 (1) in Dallas	HP 3000 Series 44 (2)
Conversational terminals supported	All IBM-3270 compatible terminals	IBM 327Xs	IBM 3270, 8775 all async. terminals	All async. terminals	HP and most ASCII terminals
Batch terminals supported	All IBM-compatible terminals	All IBM-compatible terminals	IBM 2770, 2780, HASP 3780, 3776, 3777	CDC 200UT, IBM 2780, 3780, and HASP	RJE-supported terminals
Microcomputers supported	—	IBM PC	All personal computers	All personal computers	Any ASCII terminal
Other equipment supported	—	—	—	—	Laser page printer
SOFTWARE					
Conversational programming languages	Cobol, Assembler	Basic, Cobol, Fortran, APL, and others	TSO, CMS, Wylbur, APL	Basic, Cobol, Fortran 4+5, Compass	Cobol, Fortran, RPG, SPL, Transact
Batch-mode programming languages	Cobol, Assembler	Basic, Cobol, Fortran APL, and others	Basic, Cobol, Fortran, Pascal, PL/I, RPG	Basic, Cobol, Fortran 4+5, Compass	Cobol, Fortran, RPG, SPL Transact
Principal applications	Utilities	Project management	Financial, health, project management, environmental management	Engineering, contour mapping, graphics, data management, mathematics	Financial, accounting, manufacturing, on-line newsletters, electronic mail, subscription fulfillment
Principal industries served	All industries	Cost industry	Manufacturing, defense, utilities, construction, financial	Petrochemicals, engineering	Accounting, distribution, manufacturing
COMMUNICATIONS					
Access methods	Dial-up, leased lines	SNA dial-up, leased lines	Dedicated network, dial-up	Dedicated network, dial-up	Dial-up, leased lines, X.25 packet network
Networks used	Proprietary	Tymnet	Tymnet, Inwats, proprietary	Tymnet, Inwats, proprietary	Tymnet
Transmission rates supported, bps	Up to 19.2K bps	2400, 4800 bps	Up to 56K bps	Up to 9600 bps	300-1200, 9600 bps
CHARGES					
Min. monthly charge:					
Interactive	$11,000/license	—	—	—	$100/mo./Systech*
Remote batch	$2,250/license	—	—	—	—
Terminal connect time:					
Interactive	—	TSO $5.58/CMS	$14.00/connect hr.	$13.00/connect hr.	$5.00/hr.**
Remote batch	—	—	$18.00/connect hr.	$15.00/connect hr.	—
Central processor time:					
Interactive	Minimal	$5.58-$2.68 (Prime)*	$5.58/CWU	$0.20/SWU (prime)	$0.04/sec.
Remote batch	—	$3.35-$1.12(Weekend)	$2.65/CWU	$1.10/SWU (prime)	$0.04/sec.
Mass storage:					
Interactive	—	$0.065/MSU/wk.	$0.065/wk (mass)	$0.15/PRU/mo.	$0.01/sector/mo.***
Remote batch	—	—	$0.065/wk (mass)	$0.15/PRU/mo.	$0.01/sector/mo.
COMMENTS	FASTFORM is end user-oriented system that facilitates data entry into on-line computer facility; SRPF allows printing of pooled JES SYSOUT	Sun Plan II includes proprietary products: Premis, Picom, Sun Plot, Pi-graph *$4.19-$1.48 overnight	Service offers disaster recovery, software development centers, specialized applications for health, government compliance, project management		*$12.00 mo. (Bulletin Data Services) **$4.00/hr.-$10.50/hr. ***$0.0075K char./mo.

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All About Remote Computing Services

COMPANY	Ross Systems, Inc.	Scientific Computers, Inc.	SDC Information Services	Securities Data Company, Inc.	SEI Corporation
GENERAL					
Name of service	INTAC	Interactive Data Processing	ORBIT*	Securities Data Company, Inc.	SEI Corporation
Type of service	Timesharing	On-line, remote batch	Timesharing, on-line retrieval	On-line data base	Trust-Aid System
Date operations began	1974	1960	1972	1975	1972
Data center locations	Palo Alto, CA	Minnetonka, MN	Camarillo, CA;	New York, NY	Wayne, PA; Culver City, CA
Areas currently served	Worldwide via Tymnet	Continental U.S.	Worldwide	U.S.	U.S., Canada
EQUIPMENT					
Computers	DEC PDP 11/70 (3), VAX 11/780 (4) in Palo Alto	National AS 5/3 (2), IBM 4341 (1)	Amdahl V7 (2) in Camarillo, CA	Prime 750 (3)	Prime 50 Series, IBM 4341
Conversational terminals supported	Any ASCII terminals up to 120 cps	IBM 3270, 2780, 2760; TTY	Any ASCII terminals up to 1200 bps	Most ASCII terminals	DEC LA 120, LAB 6, VT131
Batch terminals supported	IBM 2780, 3780	IBM 3780	Contact vendor	—	—
Microcomputers supported	DEC Professional 350	IBM PC, Apple	Burroughs B20, IBM PC, Apple II	—	Convergent Technologies WS 110 Workstation
Other equipment supported	HP 7221 plotters	—	—	—	Line printers
SOFTWARE					
Conversational programming languages	Basic, Cobol, Fortran, Pascal, Macro	Cobol	Contact vendor	Basic, Cobol, Fortran IV, Fortran 77, PL/1, Info, Facts	Fortran
Batch-mode programming languages	Basic, Cobol, Fortran, Pascal, Macro	Cobol, BAL	—	Basic, Cobol, Fortran IV, Fortran 77, PL/1, Info, Facts	—
Principal applications	Financial planning and reporting	—	Information management, text and data retrieval, research information retrieval	Financial	Trust banking
Principal industries served	All industries	Distribution, manufacturing, insurance, direct mail	Commercial and government research centers	Underwriting, syndication	Banking
COMMUNICATIONS					
Access methods	Dial-up, leased lines	Dial-up, leased lines	Dial-up, leased lines, public packet network	Dial-up	Dial-up, leased lines
Networks used	Tymnet, Uninet	—	Tymnet, Telenet	Telenet	Proprietary
Transmission rates supported, bps	300-1200 bps*	1200-9600 bps	110-1200 bps	300, 1200 bps	300-1200 bps
CHARGES					
Min. monthly charge:					
Interactive	None	Unit rated*	Contact vendor for pricing	Contact vendor for pricing	Contact vendor for pricing
Remote batch	None	—			
Terminal connect time:					
Interactive	$9.20-$11.50/hr.	—	—	—	—
Remote batch	$6.75/hr.	—	—	—	—
Central processor time:					
Interactive	12.5¢-19¢/CPU sec.	—	—	—	—
Remote batch	9.9¢-11.5¢/CPU sec.	—	—	—	—
Mass storage:					
Interactive	$0.05-$0.25/block	Unit rated	—	—	—
Remote batch	—	—	—	—	—
COMMENTS	Systems can be installed from timesharing environment to in-house computer *Higher speeds upon request	*Contact vendor for pricing	Company offers software packages for on-line information retrieval *Search Master Systems Information Retrieval System, Search Service	Services are New Issues of Corporate Securities, New Issues of Tax-Exempt Debt, Mergers & Acquistions	All prices per application

All About Remote Computing Services

COMPANY	SEI Corporation	Shaker Computer and Management Services, Inc.	Shared Medical Systems	Simplex Systems Corporation	Smart Communications, Inc.
GENERAL					
Name of service	Fundtrac System	Shaker Computer and Management Services	SMS*	Solar, Mars, Simplex Systems	Smart Computer-Aided Language Translation
Type of service	On-line securities and funds management	Timesharing	Timesharing, remote batch, on-line data base	Timesharing, remote batch	On-line data base
Date operations began	1969	1976	1969	1968	1977
Data center locations	Lexington, MA	Schenectady, NY	Malvern, PA	New York, NY	New York, NY
Areas currently served	U.S.	Northeastern U.S.	U.S. (47 states)	Northeastern U.S.	U.S.
EQUIPMENT					
Computers	DEC PDP/10, PDP 11/70, VAX; IBM 4331, 4341	Prime computers	IBM 3081, 3033	IBM 370/145, 4331	Burroughs B6800 (1)
Conversational terminals supported	DEC LA 120, VT131	—	IBM, DEC, Four Phase, and others	—	TTY async. at 300 or 1200 bps
Batch terminals supported	—	Most ASCII terminals	IBM HASP, 3780, and others	IBM, ITT	TTY async. at 300 or 1200 bps
Microcomputers supported	—	Various microcomputers supported	Four Phase, DEC	—	All async. 300 or 1200 TTY
Other equipment supported	—	—	—	—	—
SOFTWARE					
Conversational programming languages	Fortran	Basic, Cobol, Fortran	Cobol, Fortran, APL	Cobol	Language translators
Batch-mode programming languages	—	Cobol, Fortran, PL/1, RPG	Cobol, Fortran, APL	Cobol, BAL	Algol
Principal applications	Securities and funds management	Accounting, financial, engineering	Accounting, finance, analytical	Accounting	Software documentation, engineering, manfacturing
Principal industries served	Banking	Municipal, professional	Health care	Insurance, maintenance, accounting	Computers, manufacturing, product support
COMMUNICATIONS					
Access methods	Dial-up, leased lines	Dial-up, leased lines	Leased lines	Dial-up, leased lines	Dial-up
Networks used	Tymnet	—	Own network	—	—
Transmission rates supported, bps	300-1200 bps	1200 bps	1200-9600 bps	1200, 2400, 4800, 9600 bps	300, 1200 bps
CHARGES					
Min. monthly charge:					
Interactive	Contact vendor	$100.00	Contact vendor	—	$12/hr.+$0.08
Remote batch	for pricing	—	for pricing	$650	—
Terminal connect time:					
Interactive	—	$5.00/hr.	—	Negotiated with	$12/hr.
Remote batch	—	—	—	each net	—
Central processor time:					
Interactive	—	None	—	See comments*	$12/hr.
Remote batch	—	—	—	—	—
Mass storage:					
Interactive	—	None	—	—	—
Remote batch	—	—	—	—	—
COMMENTS	All prices per application		*Hospital/Physician Financial Management and Data Base Systems	Systems design and programming available *Contact vendor for more pricing information	Service allows preparation of English-language translations within 48 hours; suitable for large documents

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COMPANY	Online Computer Library Center	On-line Research, Inc.	Prodata Systems, Inc.	Profitool, Inc.	Programs and Analysis, Inc.
GENERAL					
Name of service	OCLC Bibliographic Network	See comments	AIR Easy On-line, On-line Data Management	Contract Management Information System	Programs and Analysis, Inc.
Type of service	On-line data base, timesharing	Timesharing, on-line batch, table print-out mail service	On-line data base	Timesharing and turnkey systems	Timesharing, remote batch
Date operations began	August, 1971	1980	1958	October, 1977	1968
Data center locations	Dublin, OH	Greenwich, CT	Seattle, WA; Portland, OR; Spokane, WA	Denver, CO; Bridgeport, CT	
Areas currently served	U.S., Canada, Mexico, U.K.	U.S.	Northwestern U.S.	U.S.	New England, New York, Southeastern U.S.
EQUIPMENT					
Computers	Tandem 16 (1), 10-3; Xerox Sigma 9 (10), IBM 4331 (1), D116 Digital Computer Controls	Prime 550	NAS 3000, TI990	Prime 400, 550, 150, 150II	Honeywell DRS 8/50, IBM 4331 (2), 4341 (11)
Conversational terminals supported	Beehive, Ramtek	All models	Most ASCII and 3270-emulating terminals	ADM 31, 32, 42; TVI 950	All ASCII at 10 to 120 cps
Batch terminals supported	—	—	TI 770, 771 at 1200 bps	—	—
Microcomputers supported	Most with RS-232-C interface	—	IBM PC and others	—	—
Other equipment supported	Xerox 9700	—	Printers	—	—
SOFTWARE					
Conversational programming languages	Cobol, Assembler, TAL	Cobol, Fortran	Cobol, Adpac, CICS	Basic, Fortran	Basic, Cobol, Fortran, PL/1, Algol, RPG II
Batch-mode programming languages	Cobol	Cobol, Fortran	Cobol	—	Basic, Cobol, RPG
Principal applications	Library support (catalog, acquisition, serials control, inter-library loan)	Advertising, media research, marketing, direct mail, taxation, corporate libraries	Accounts receivable, manufacturing, distribution	Accounting, project management	Accounting, financial
Principal industries served	Libraries, education	Advertising, CPA firms, foreign corporations, and other industries	Medical, dental, sporting equipment, garment industry, distributors	Construction, engineering	Health care, education, government, financial, pharmaceutical, garment industry
COMMUNICATIONS					
Access methods	Leased lines	Dial-up	Dial-up, leased lines, DDS	Dial-up, leased lines	—
Networks used	Tymnet	—	CICS	Telenet	—
Transmission rates supported, bps	300, 1200, 2400 bps	300, 1200 bps	1200, 4800 bps	1200-9600 bps	110-9600 bps
CHARGES					
Min. monthly charge:					
Interactive	Based on data base usage	Prices vary according to service	See comments	—	Contact vendor for pricing
Remote batch			—	—	
Terminal connect time:					
Interactive	None	—	—	$12.00	—
Remote batch		—	—	—	—
Central processor time:					
Interactive	None	—	—	$0.04	—
Remote batch		—	—	—	—
Mass storage:					
Interactive	None	—	—	$0.10/1000 chars.	—
Remote batch		—	—	—	—
COMMENTS	OCLC provides libraries with computer-based services	Services include U.S. Census of Agriculture, Salary Gross-ups, Direct Mail Marketing, Response, Frost & Sullivan abstracts	Charges dependent on number of accounts, entries, file use and charges, number of transactions, and reporting requirements	Company offers construction and engineering software	Company offers dedicated business, engineering, and scientific data processing services; prices based upon application and/or computer requirements

All About Remote Computing Services

COMPANY	Progressive Management Services	Rand Information Systems, Inc.	REAP, Inc.	Remote Computing Corporation	Republic Service Bureau, Inc.
GENERAL					
Name of service	On-line/480	Rand Information Systems, Inc.	REAP, Inc.*	Remote Computing Corp.	Computer Services
Type of service	Timesharing, data base management	Timesharing, on-line database	Timesharing, remote batch	Timesharing, disaster recovery	On-line batch
Date operations began	March, 1972	1973	1976	October, 1968	November, 1961
Data center locations	Minneapolis, MN; San Diego, CA	San Francisco, CA	Woburn, MA	Palo Alto, CA	Torrance, CA
Areas currently served	Minnesota, Southern California	U.S.	U.S.	Continental U.S., Hawaii, Alaska	U.S.
EQUIPMENT					
Computers	DEC 11/70(2) in Minneapolis; DEC 11/34 (1) in California	IBM 370/158, 370/158 AP in San Francisco	Honeywell DPS 8/44, Burroughs 4800, 2900	Burroughs B7800 (1), IBM Series I (1), Datamedia 932 Micro (1)	IPL 4443 (2) in Torrance, CA
Conversational terminals supported	Any ASCII async. at 300 or 1200 bps	All IBM-compatible terminals	Any ASCII terminal	Most ASCII terminals to 120 cps and RJE	IBM 3270
Batch terminals supported	—	All IBM-compatible terminals	IBM 2780, NSI 7600, Televideo 910, 925	Data 100, IBM 2780, Burroughs DC 1000	—
Microcomputers supported	Sanyo, Televideo, Raypro	—	Altos	IBM PC, Apple II, Osborne	—
Other equipment supported	—	—	Retail POS devices	HP plotters	—
SOFTWARE					
Conversational programming languages	Basic, On-line/480	Cobol, Fortran, Assembler, PL/1, Interact	PL/1	Basic, Cobol, Fortran, PL/1, Algol	Cobol
Batch-mode programming languages	—	Cobol, Fortran, Assembler, PL/1	Cobol, PL/1	Basic, Cobol, Fortran, PL/1, Algol	Cobol, Fortran, RPG II, Assembler
Principal applications	General accounting educational administrator, library	Business, custom on-line, batch services, financial, text editing, software development	Inventory, accounts receivable/payable, general ledger	Business, thrift, banking, modeling, investment analysis	Busines, financial, jobcasting, payroll
Principal industries served	Clinics, education, distribution, retail, manufacturing	Banking, financial, stock market, network communications	Retail	Banking, thrift, investment	Business
COMMUNICATIONS					
Access methods	Dial-up, leased lines	Dial-up, leased lines	Dial-up, private network	Dial-up, leased lines	Dial-up, leased lines, satellite
Networks used	—	VTAM/NCP	Telenet	Tymnet	Cylix
Transmission rates supported, bps	300, 1200 bps	300 to 19.2K bps	1200, 2400 bps	Up to 9600 bps	4800, 9600 bps
CHARGES					
Min. monthly charge:					
Interactive	$650 Unlimited port*	Contact vendor for pricing	Contact vendor for pricing	$100.00	Contact vendor for pricing
Remote batch	$5.00			$100.00	
Terminal connect time:					
Interactive	$15.00 over 10 min.**	—	—	$14.00	—
Remote batch	$5.00	—	—	$16.00	—
Central processor time:					
Interactive	—	—	—	Contact vendor	—
Remote batch	—	—	—	—	—
Mass storage:					
Interactive	$0.03/512 chars.		—	$3.50/Mbyte	—
Remote batch	—		—	—	—
COMMENTS	*250/20 hrs. $l0.00/l0 hrs. **$11.00 over 20 min.	Offers IMS, CICS, TSO (SPF), Interact; provides interactive services, batch services, discounts for time and financial commitments; consulting and data base	*Formerly Teledata, Inc.	Several data bases available including NYSE, AMEX, OTC, commodities and SLP	Company provides customized software for batch or on-line applications

All About Remote Computing Services

COMPANY	NCR Corporation	Neshaminy Valley Information Processing	Network Computing Corporation	Newsnet, Inc.	Noesis Computing Company
GENERAL					
Name of service	EFT & Data Services Division*	Neshaminy Valley Information Processing	Remote Computing Service	Newsnet	Noesis Computing Company
Type of service	Remote batch, on-line services, on-line data base	Timesharing	Timesharing, remote batch	On-line data base	Timesharing
Date operations began	1964	1973	1971	April, 1982	1978
Data center locations	Thirty data center locations throughout U.S.	Philadelphia, PA; New York, NY; Washington, D.C.	Charlotte, NC	Bryn Mawr, PA; Silver Spring, MD	San Francisco, CA
Areas currently served	Nationwide	U.S., Canada, Europe	U.S.	U.S., international	U.S.
EQUIPMENT					
Computers	NCR V8575M Criterions; NCR 5330, 118 Comprocessor	IBM 370/3033 (2), 370/158 (2), 3081; IBM 4341 in New York	Amdahl 470/V-8	Prime 750 (2) in Silver Spring, MD	HP 3000 Series III (2)
Conversational terminals supported	NCR CRTs and ATMs; ISC and Burroughs terminals	TTY ASCII terminals, IBM 3270 or equivalent	All IBM SNA terminals	All async. ASCII devices	Any ASCII terminal
Batch terminals supported	NCR POS terminals (STARCOM Retail)	IBM 2780, 3780 or equivalent; IBM HASP	All IBM SNA terminals	—	IBM 2780, 3780
Microcomputers supported	NCR 721-101 (EFT)	Any that emulate IBM	IBM PC	Any microcomputer with 80-column display and modem	IBM, DEC, HP, and others with RS-232-C interface
Other equipment supported	NCR 6540, 658-201, 635-109, 6441-302, 647-903, 6441 matrix printer, and others	HP, IBM, plotters	—	—	HP graphics plotters
SOFTWARE					
Conversational programming languages	NCR Neat 3, Cobol	Basic, Cobol, Fortran, APL, CMS, CICS, Assembler, Roscoe, Wylbur	Cobol, Fortran	—	Powerhouse
Batch-mode programming languages	NCR Neat 3, Cobol	Cobol, Fortran, PL/1, RPG II, Pascal	Cobol, Fortran	—	Basic, Cobol, Fortran
Principal applications	Accounting, financial, banking, insurance, engineering, retail, sales, education, statistics	Business, payroll, sales, analysis, accounting, statistics, project management, graphics	Accounting, financial, engineering	Specialized business newsletters	Order processing, accounting, data base management
Principal industries served	Retail, financial, banks; all industries with magnetic tape media	Distribution, banking, finance, medical, insurance, manufacturing, media, legal, and others	Utilities, manufacturing	Telecomnmunications, electronics, computers, publishing, broadcasting, agriculture, food	Trade associations, publishers
COMMUNICATIONS					
Access methods	Dial-up, leased lines; DDS (Starcom Financial)	Dial-up, DDD, dedicated lines	Dial-up, leased lines	Direct-dial network access	Dial-up, leased lines
Networks used	Proprietary (EFT, NCR Compass)	Tymnet, Telenet	AIS Net/1000	Tymnet, Telenet, Uninet	Uninet
Transmission rates supported, bps	1200-9600 bps	110-9600 bps	14.4K, 1200, 2400, 4800 bps	300, 1200 bps	1200, 2400, 4800 bps
CHARGES					
Min. monthly charge:					
Interactive	Contact vendor	No minimum charge	Contact vendor	$15.00	None
Remote batch	for pricing	—	for pricing	—	—
Terminal connect time:					
Interactive	—	$7.00/hr.	—	$18.00/hr. (minimum)	$10.00/hr.
Remote batch	—	$5.00/hr.	—	—	$10.00/hr.
Central processor time:					
Interactive	—	Varies	—	No charge	$0.09/sec.
Remote batch	—	Varies	—	—	$0.09/sec.
Mass storage:					
Interactive	—	$1.00/MUS disk/1000	—	No charge	$0.01-$.07/256 ch./mo.
Remote batch	—	$1.00/MUS disk/1000*	—	—	$0.01-$.07/256 ch./mo.
COMMENTS	*Includes EFT, NCR Compass, COM, CIF, Starcom Financial, Starcom Retail System	No charge for paging; RACF protection is available; NVJP operates 24/hrs./day, 365/day/year; *50% discount for non-prime time		Company offers over 100 data bases and Newsflash, a current news service	Complete software for associations and publishers; pre-installation support for customers purchasing their own HP 3000

All About Remote Computing Services

COMPANY	North County Computer Services, Inc.	Numerax, Inc.	Odin Data Systems, Inc.	Ohio Valley Data Control, Inc.	On-line Business Systems, Inc.
GENERAL					
Name of service	NCCS Timesharing	Numerax IV	Odin	Ohio/Kanauha Valley Data Control	On-line Business Systems, Inc.
Type of service	Timesharing, on-line data base	On-line	Remote batch, batch processing, off-line data retrieval	On-line data base, timesharing	Custom on-line and batch services
Date operations began	1968	March, 1982	1968	1966	1969
Data center locations	Escondido, CA	Paramus, NJ	San Francisco, CA	Belpre, OH; Dunbar, WV; Wheeling, WV; Beckley, WV	Santa Clara, CA
Areas currently served	North America	U.S.	U.S.	Southeast Ohio, West Virginia	Continental U.S.
EQUIPMENT					
Computers	DEC 11/70 (5) DEC VAX 11/750 (1)	IBM 3101 Model 20	Computer Hardware, DG Eclipse C-350	B4800 (2), SRI/DCS (2), B3700 (1), B1855 (2), DEC PDP 11/34, 11/44	Amdahl 470 V/8, IBM 4341 Group 2 and Group 12
Conversational terminals supported	Any ASCII terminal	—	—	Hazeltine, ADDS, DEC-compatible equipment	All IBM-compatible terminals
Batch terminals supported	—	—	Datacorders	Burroughs, NCR, and others	All IBM-compatible terminals
Microcomputers supported	DEC microcomputers	IBM PC	—	Burroughs B20	—
Other equipment supported	Printronix and Hewlett Packard plotters	—	—	COM	—
SOFTWARE					
Conversational programming languages	Basic, Fortran, Macro	—	Cobol	Basic, Dibol	Basic, Cobol, Fortran, Wylbur, Superwylbur, Assembler
Batch-mode programming languages	Cobol	—	Cobol	Cobol	Cobol, Fortran, PL/1
Principal applications	Accounting, manufacturing	Accounting, financial, traffic/transportation, purchasing	Accounting, financial	Financial, general business	Accounting, personnel, business, engineering, manufacturing, financial
Principal industries served	General business, manufacturing	Shippers, distributors, receivers, carriers	All industries	Financial, thrift	Business, manufacturing, financial
COMMUNICATIONS					
Access methods	Dial-up, leased lines	Dial-up, leased lines	Dial-up , leased lines	Dial-up, leased lines	Dial-up (WATS), leased lines
Networks used	Telenet, Datapac	—	—	Proprietary	Tymnet
Transmission rates supported, bps	300-1200 bps	—	—	Up to 9600 bps; RJE up to 50K bps	Up to 9600 bps
CHARGES					
Min. monthly charge:					
Interactive	$650	$500/mo.	Contact vendor for pricing	—	Contact vendor for pricing
Remote batch	$650	—		—	
Terminal connect time:					
Interactive	$10.00/hr.	$30/hr.	—	Varies	—
Remote batch	$6.00/hr.	—	—	Varies	—
Central processor time:					
Interactive	$80.00	None	—	Included in connect time	—
Remote batch	$40.00		—		—
Mass storage:					
Interactive	$60.00/M bytes	None	—	$0.035/mo./512 bytes	—
Remote batch	$60.00/M bytes		—		—
COMMENTS	Company offers User-ll, DBMS, Digicalc, Command, and MFG software	Company offers freight rate maintenance, tariff watching, on-line industry news, on-line industry classified & electronic mail service		Strong experience & support in bank applications with remote job entry terminal computers & on-line applications terminals; business systems applications terminal	Company offers custom-designed information management solutions; specializes in personnel, benefits, & claim processing services; provides soft. progrm. for dp

All About Remote Computing Services

COMPANY	Medical Information Technology, Inc.	Mini-Probe Corporation	MJK Associates	Monchik Weber Corporation	Mountain West Research, Inc.
GENERAL					
Name of service	Meditech Timesharing Service	Mini-Probe Corp.	MJK Associates	Star	Mountain West Info. Services Cntr.
Type of service	Timesharing, on-line data base	Timesharing	Timesharing, on-line data base	Timesharing	Timesharing
Date operations began	1970	1972	1972	June, 1970	January, 1980
Data center locations	Cambridge, MA	Rego, NY	Santa Clara, CA	New York, NY	Tempe, AZ
Areas currently served	U.S.	Northeastern U.S.	U.S., Canada, Europe, Far East, Australia	Northestern and Mid-western U.S.	Western and Southwestern U.S.
EQUIPMENT					
Computers	Data General MV 6000, DEC PDP/11, Data General C300 Series	DEC PDP/11	HP 3000 III	HP 3000 Series III	Prime 400
Conversational terminals supported	Virtually any ASCII terminal	Hazeltine	All RS-232-C terminals	HP Block Mode plotter	All ASCII terminals
Batch terminals supported	All real-time processing	—	—	—	—
Microcomputers supported	Charles River Data System	All Z80-based	TRS-80, Apple, IBM PC	Any microcomputer running CP/M 2.2	All Z80-CP/M based
Other equipment supported	—	—	Tektronix 4662 plotter	—	Plotters
SOFTWARE					
Conversational programming languages	MIIS,* MIIS Standard**	—	Basic, Cobol, Fortran, SPL	Cobol	Fortran
Batch-mode programming languages	—	—	Basic, Cobol, Fortran, SPL	Cobol	Cobol
Principal applications	Complete financial and patient care applications	Accounting	Financial	Securities, investment accounting	Simulation, statistical, economic modeling
Principal industries served	Hospital, commercial laboratories	Most industries	Investment	Accounting (CPA), investment counsellors	Energy, utilities, environmental consulting
COMMUNICATIONS					
Access methods	Dial-up, leased lines	Leased lines	Direct dial	Dial-up, leased lines	Dial-up, FX, inbound WATS
Networks used	Proprietary	—	Tymnet	—	—
Transmission rates supported, bps	2400 bps	1200 bps	110-1200 bps	300-2400 bps	300, 1200 bps
CHARGES					
Min. monthly charge:					
Interactive	Contact vendor	Contact vendor	$30.00*	See comments	$50.00
Remote batch	for pricing	for pricing	—	—	—
Terminal connect time:					
Interactive	—	—	$16.00/hr.	—	—
Remote batch	—	—	—	—	—
Central processor time:					
Interactive	—	—	$0.14/sec.	—	$2.50/min.
Remote batch	—	—	—	—	$2.50/min.
Mass storage:					
Interactive	—	—	$0.13/sec.	—	$0.05/Mbyte/day
Remote batch	—	—	—	—	—
COMMENTS	*Meditech Interpretive Information System **Mumps dialect	Minimum monthly charge is $750	*$10.00 charge for on-line data base service	Rates based on number of securities and reporting required	Company offers statistical modeling software including Perm, PAS, QP

All About Remote Computing Services

COMPANY	National Computer Network of Chicago, Inc.	National CSS, Inc.	National Data Corporation	National Information Systems, Inc.	National Library of Medicine
GENERAL					
Name of service	National Computer Network of Chicago, Inc.	VP/CSS	NETS	National Information Systems	Medlars
Type of service	—	Timesharing, remote batch, on-line data base	Timesharing	Timesharing	On-line biomedical data bases
Date operations began	December, 1969	December, 1968	1967	1972	1971
Data center locations	Chicago, IL	Stamford, CT	—	Cupertino, CA	Bethesda, MD
Areas currently served	Continental U.S., Canada, worldwide via Uninet	Continental U.S., Canada, United Kingdom, France	U.S., overseas	U.S	U.S.
EQUIPMENT					
Computers	DEC system 2060 (2), Honeywell 1648 (1)	IBM 3081D, 3033-U12; Amdahl V6-II, V8; all in Stamford, CT	DEC PDP/10 (7), PDP 11/70 (7), TI 990, Univac 494 (4), Univac 1100 (2), Data General 130 (29)	DEC 2060 (1), DEC 2020 (1)	IBM 3033
Conversational terminals supported	All ASCII at 10, 30, or 120 cps; IBM 2741	TTY and all compatible terminals	Any ASCII or EBCDIC to 1200 bps; RJE to 9600	VT100, Datamedia DECwriter, TI and most others	Teletype
Batch terminals supported	—	IBM HASP 1130, 2780, 3780, 3741	Univac 200, 400; IBM 2780, 3780	—	—
Microcomputers supported	—	Datapoint 1560 Series, IBM PC, Apple II, TRS-80	—	TRS-80, IBM, PL, Osborne, Apple, any CP/M or DOS-based micro	—
Other equipment supported	—	Most graphics CRTs, plotters, voice-response graphics CRTs	—		—
SOFTWARE					
Conversational programming languages	Basic, Cobol, Fortran, Max Basic, APL, Pascal, Macro, Snobol	Basic, Cobol, Fortran, APL, PL/1	Basic, Cobol, Fortran	Accent R	Elhill
Batch-mode programming languages	Cobol, Fortran	Basic, Cobol, Fortran, APL, Pascal, PL/1	Cobol, Fortran	RPG II	Assembler, PL/1
Principal applications	Business, financial, stocks/commodities, data base options, portfolio analysis, statistics	Information management, financial, business analysis, accounting, demographics, engineering	Merchandising services, money transfer systems, pharmacy, credit, data base management	Data base management, human resource management, project, mangt., leverage leasing analysis	Biomedicine
Principal industries served	Financial	General business	All industries	All industries	Medical schools, hospitals, research
COMMUNICATIONS					
Access methods	—	Dial-up, leased lines	—	Dial-up, leased lines	Dial-up
Networks used	Uninet	Proprietary	—	Uninet	Tymnet, Telenet
Transmission rates supported, bps	—	All speeds to 56K bps	—	Up to 9600 bps	300-1200 bps
CHARGES					
Min. monthly charge:					
Interactive	None	$300/mo./account	See comments	$250	$15.00
Remote batch	None	$300/mo./account	—	$250	—
Terminal connect time:					
Interactive	$5.00-$10.00/hr.	$17.00/hr. to 1200 bps	—	$7.50/hr.-300 band	$15.00-$22.00
Remote batch	—	None	—	—	—
Central processor time:					
Interactive	$1.20-$2.00/CPU min.	$0.275/ARU*	—	$0.08/sec.	—
Remote batch	—	$0.11-$0.165/ARU	—	$0.05/sec.	—
Mass storage:					
Interactive	$0.75/1K chars./mo.	$0.79/cylinder (on-line)	—	$0.24/mo./1000 chars.	—
Remote batch	$1.00/2560 chars./mo.	$0.005/cylinder (mount)	—	$0.24/mo./1000 chars.	—
COMMENTS	Maximum cost of DEC 20 CPU time is $25.00/hr.; cost for terminal connect time varies between prime & non-prime time; volume disct/unlimited usage rates available	Company offers Nomad, economic, demographic, securities data bases; full range of graphics, services, training; *Application Resource Unit	Charges based on transaction rates for all services except on-line pharmacy and time share; can be tied into network for order		Data bases include Medline, Toxline, Chemline, Health, Planning and Administration

All About Remote Computing Services

COMPANY	Management Analysis by Computer, Inc.	Management Concepts, Inc.	Management Science Associates, Inc.	Manus Services Corporation	Marshall & Swift Company
GENERAL					
Name of service	Remote computer time-sharing	Management Concepts, Inc.	On-line Marketing Decision Support System	Manus Timesharing	Marshall & Swift Computerized Cost
Type of service	Timesharing	Timesharing, remote batch	Timesharing, on-line data base	Timesharing	—
Date operations began	1977	1970	1978	1969	1977
Data center locations	Guttenberg, NJ	Atlanta, GA	Pittsburgh, PA	Seattle, WA	Los Angeles, CA
Areas currently served	Northeastern U.S.	Southeastern, Southwestern U.S.	New York, NY; Chicago, IL; U.S. via Telenet	Pacific Northwest	U.S., Canada
EQUIPMENT					
Computers	Pixel AP/100 (Unix OS) Alpha micros	Prime 750, Prime 400, in Atlanta, GA	DEC VAX 11/780 (3)	DEC 11/70, DEC 11/780	Prime 850
Conversational terminals supported	—All ASCII terminals	All ASCII terminals at 300 and 1200 bps	Most ASCII terminals	DEC VT52, VT100 Series, LA Series	Wide variety of terminals supported
Batch terminals supported	—	—	—	—	—
Microcomputers supported	—	—	Radio Shack, Apple II, IBM PC, most CP/M-based terminals	DEC DECmate, Rainbow, Professional	Any that will run CP/M Version 2.2
Other equipment supported	—	—	Varian 9211 printer/plotter		—
SOFTWARE					
Conversational programming languages	Basic, Cobol, Fortran, APL, Pascal, Pascal C, Forth, Lisp	Basic, Cobol, Fortran, Info	Basic 2, Fortran	Cobol, Fortran, Basic Plus, Basic Plus 2, Dibol	Fortran, Basic, Basic C
Batch-mode programming languages	—	Fortran, Cobol, RPG, Info	Basic 2, Fortran		Fortran, Basic, Basic C
Principal applications	Accounting, sales analysis, spread sheets	Accounting, financial, insurance, pension	Marketing and advertising research	Accounting, wholesale distribution, direct response marketing	Construction costs
Principal industries served	Newspaper, distribution	Real estate, insurance associations	Manufacturers of consumer packaged goods	General business, wholesale distribution, automotive parts wholsalers, fuel oil dealers	Insurance, assessors, real estate appraisers
COMMUNICATIONS					
Access methods	Dial-up	Dial-up, leased lines	Dial-up, leased lines, DDS, Telenet	Dial-up, leased lines	Leased lines
Networks used		—	Telenet	—	Telenet
Transmission rates supported, bps	300, 1200 bps	300, 1200-9600 bps	300, 1200 bps	300-4800 bps	300, 1200 bps
CHARGES					
Min. monthly charge:					
Interactive	$30.00/mo.	$300	See comments	$75.00	—
Remote batch	—	—	—	—	—
Terminal connect time:					
Interactive	$10.00/hr.	$5.00-$9.00/hr.	—	$6.50-$4.50	$12.00
Remote batch	—	—	—	—	$24.00
Central processor time:					
Interactive	$0.006/CPU	$0.05-$0.12/sec.	—	No charge	None
Remote batch	—	—	—	—	—
Mass storage:					
Interactive	$0.075/Block/mo.	$0.05-$0.12/1000/ch.	—	$75.00/MB/mo.	$0.02/property/day
Remote batch	—	—	—	—	—
COMMENTS			CPU costs depend on priority, time of day, and resources used; network access costs depend on speed and access plan selected and are based on charac. transmitted	Fully supported software packages for industries served	Charges based on cost per report and on-line time range from $1.00 to $2.00 per report. One report equals one structure

All About Remote Computing Services

COMPANY	Martin Marietta Data Systems	Martin Marietta Data Systems	May & Speh, Inc.	McDonnell Douglas Automation Co. (McAuto)	McDonnell Douglas Automation Co. (McAuto)
GENERAL					
Name of service	MMDS IBM Services	Cyber 700 Series	DP Service Bureau	Cyber	370 Service
Type of service	Timesharing, remote batch, network service, on-line data base	Timesharing, remote batch, network service, on-line data base		Timesharing, remote batch	Remote job entry, TSO service, graphics
Date operations began	1971	1981	1976	1976	1967
Data center locations	Orlando, FL	Denver, CO	Oak Brook Terrace, IL	St. Louis, MO	St. Louis, MO; California
Areas currently served	U.S., Overseas via Tymnet	U.S., overseas via Tymnet	Continental U.S.	U.S., Overseas	U.S., Overseas
EQUIPMENT					
Computers	IBM 3033 (2), 3081 (3), 3042 (2), 4341 (3)	CDC Cyber 170/730, 170/750	National AS/7000 (2), Prime 750, Prime I 750	CDC Cyber 176, 855, 835 (2), 825 Cyber 760 (2)	IBM 3033 (2), IBM 308X (6) in St. Louis, MO; IBM 3033 (3), IBM 308X
Conversational terminals supported	ASCII terminals at 110 to 1200 bps; IBM 3270 emulation	IBM 2741, TTY, APL	ASCII, 3270, and ADDs Regent compatible terminals	Any ASCII 100-1200 bps graphics terminals	IBM 3741, 3270, graphics, TTY compatible terminals at 110, 300, 1200 bps
Batch terminals supported	IBM HASP/JES, 2780, 3780, 2770, 3741; IBM workstations	CDC 200UT, IBM HASP	All IBM-compatible terminals	CDC 200, VT IBM HASP, compatible terminals; others through 370 service	IBM 2770, 2780, 3780, HASP and compatible units
Microcomputers supported	Any that emulate ASCII (300-1200 bps) or IBM 3270	DEC PDP/11	Apple II, Plus Altos, TRS-80, IBM PC, Pixel	—	—
Other equipment supported	CAD/CAM, Calcomp, DEC VAX, all plotters	Modcomp, CAD/CAM, DEC VAX, all plotters	—	CAD/CAM	—
SOFTWARE					
Conversational programming languages	Basic, Cobol, Fortran, PL/1, APL, Snobol, Watfiv	Basic, Cobol, Fortran, APL, Pascal, Compass	Basic, Cobol, Fortran, PL/1, Assembler, RPG, Info, Data Base, Fortran 77	Basic, Cobol, Fortran, HPL, Mimdac, System 2000	Basic, Cobol, Fortran, PL/1, DL/1, BAL, MRCS
Batch-mode programming languages	Cobol, Fortran, APL, PL/1, Assembler, RPG	Cobol, Fortran, Algol, Pascal, Compass	Basic, Cobol, Fortran, PL/1, Assembler, RPG II, Pascal	Basic, Cobol, Fortran, HPL, Mimac, Simscript	Cobol, Fortran, PL/1, DL/1, BAL, MRCS
Principal applications	Accounting, manufacturing, distribution, financial, engineering, scientific, personnel, claims benefits	Engineering, scientific, numeric modeling, energy, data management	Business, manufacturing, accounting, financial, insurance, direct mail	Engineering, scientific, graphics, data base management	Business, manufacturing, engineering, graphics, data base management, insurance, facilities management
Principal industries served	Manufacturing, education, government, general business	Scientific, technical, government, education	All industries	All industries	All industries
COMMUNICATIONS					
Access methods	Dial-up, leased lines, DDS	Dial-up, leased lines, DDS	Dial-up, leased lines	Dial-up (800 service)	Dial-up (800 service)
Networks used	Tymnet, Telenet, Datapac, Uninet, TWX	Tymnet, Telenet	—	Tymnet	Tymnet
Transmission rates supported, bps	110-56K bps	110-9600 bps	300-9600 bps	110-1200 bps	110, 300, 1200 bps
CHARGES					
Min. monthly charge:					
Interactive	Contact vendor	Contact vendor	Contact vendor	None	None
Remote batch	for pricing	for pricing	for pricing	None	None
Terminal connect time:					
Interactive	—	—	—	$9.00-$34.00/hr.	$9.00-$34.00/hr.
Remote batch	—	—	—	$18.00-$28.00/hr.	$18.00-$28.00/hr.
Central processor time:					
Interactive	—	—	—	$0.10-$0.20/MRV	$4.50-$9.00/VRU
Remote batch	—	—	—	$0.15-$0.50/MRV	$3.50-$7.50/VRU
Mass storage:					
Interactive	—	—	—	$0.008/sector/day	$2.50/Mbytes/day
Remote batch	—	—	—	$0.008/sector/day	$2.50/Mbytes/day
COMMENTS	Enhanced TSO service, Wylbur, structured programming facility; disk files shared between batch and interactive service; disk file security system	Central processor charges are in SRU, an algorithmic combination of central processor usage, memory use, and data transfer to on-line peripherals		Disk files shared between computers; company offers full access to 370 Service, Structured System Analysis Methodology, and network for share access	Full TSO service interactive debug, structured program facility, remote job entry graphics; full access to other McAuto services; microfilm, microfiche also avail.

All About Remote Computing Services

COMPANY	ISI Systems, Inc.	Jacobsen and Associates, Inc.	James R. LymBurner & Sons Limited	John F. Steffen Associates, Inc.	Kennedy and Coe
GENERAL					
Name of service	Massachusetts Auto Insurance System	JAI On-line Computer Services	Economists' Statistics	John F. Steffen Associates, Inc.	Data Processing Services
Type of service	On-line data base	On-line real time inter-active data base utiliz-ing JAI software	On-line data base	Timesharing, on-line database	Remote batch
Date operations began	1970	February, 1969	1976	1968	1961
Data center locations	Wilmington, MA	Temple City, CA	Toronto, Canada; Pittsburgh, PA	St. Louis, MO	Salina, KN
Areas currently served	U.S., primarily New England	U.S., Australia	Worldwide	U.S.	Kansas, North Oklahoma, South Nebraska
EQUIPMENT					
Computers	IBM 3083, 3033 AP in Wilmington	Data General MV8000 (2) in Temple City, CA	Compustar 30 in Toronto	Prime 400 (2)	IBM 4331
Conversational terminals supported	IBM 3270-compatible terminals	ASCII-compatible terminals	All async. 300 and 1200 bps terminals; other graphics	All types	IBM 3278
Batch terminals supported	Will support distributed processors (8100, 4341)	IBM HASP	—	—	IBM 3741, IESI 6000, Datacorder II (3780 Protocol)
Microcomputers supported	—	—	Apple I, II, III; TRS-80, NEC, Atari, Commodore, IBM PC, HP, In-tertel, Sony, TI, Xerox	IBM PC	IESI 6000, Datacorder II
Other equipment supported	Microfiche equipment	—	—	—	—
SOFTWARE					
Conversational programming languages	IDMS-DC, Cobol	Cobol	Basic, APL	Fortran, Basic, Cobol	—
Batch-mode programming languages	Cobol	Cobol	Basic, APL	Fortran, Basic, Cobol	Cobol
Principal applications	Massachusettes Auto In-surance, Assigned Risk Auto Insurance	Manufacturing, finance, cost accounting, market-ing engineering	Economics, investment, financial modeling, management	Real estate, financial, engineering	Accounting, financial
Principal industries served	Insurance	Manufacturing	Insurance, brokerage	Real estate, construc-tion	Attorneys, accountants, manufacturing, engineer-ing, commercial feedlots
COMMUNICATIONS					
Access methods	Dial-up, leased lines	Dial-up, leased lines	Dial-up	Dial-up	Dial-up, leased lines
Networks used	Telenet, proprietary	General Telephone (PTC, GTC, etc.)	Datapac	Telenet	
Transmission rates supported, bps	150-9600 bps	1200-9600 bps	300, 1200 bps	300, 1200 bps	1200-9600 bps
CHARGES					
Min. monthly charge:					
Interactive	Contact vendor	$300	$200	$100	None
Remote batch	for pricing		—	—	None
Terminal connect time:					
Interactive	—	All other charges	None	$20.00/hr.	None
Remote batch	—	contingent on applica.	—	—	None
Central processor time:					
Interactive	—	—	None	$0.04/CPU	None
Remote batch	—	—	—	—	Per transaction
Mass storage:					
Interactive	—	—	None	$0.50/block	None
Remote batch	—	—	—	—	None
COMMENTS	Company offers paramet-ric rating of private passenger or commercial autos, revolving credit billing, merit rating & surcharge billing, forms/reports on fiche		The Economist's Statis-tics data base is avail-able on magnetic tape; graphics and analysis packages available		Services available for most businesses in the financial and accounting application areas

All About Remote Computing Services

COMPANY	Landart Systems Inc.	Lawler, Matusky & Skelly Engineers	Legislative Information Systems	Litton Computer Services	Litton Mellonics Information Center
GENERAL					
Name of service	LaserLINK	LMS Time Sharing Service	Illinois General Assembly Bill Status System	LCS	Litton Mellonics Information Center
Type of service	Timesharing	Timesharing, remote batch	On-line data base	Timesharing, remote batch	Timesharing, remote batch
Date operations began	1973	October, 1978	January, 1979	1971	1968
Data center locations	New York, NY	Pearl River, NY	Springfield, IL	Washington, D.C.; Reston, VA	Canoga Park, CA; Carson, CA; San Diego, CA
Areas currently served	Worldwide	Northeastern U.S.	U.S.	Continental U.S.	U.S.
EQUIPMENT					
Computers	DEC-2060 (2), DEC-2020 (1), Xerox 9700 Laser, Xerox 1050 Scanner	HP 3000 III	IBM 3031, 4341	IBM 3033, 4341	IBM 3033 MVS/JES2
Conversational terminals supported	TTY-compatible VT100	All ASCII terminals	IBM 2741, Teletype 33/35	TTY-compatible, IBM 327X, personal computers	IBM 3277, 3278, 3279, 2741; TTY 33, 35, 43; miscellaneous ASCII terminals
Batch terminals supported	TEK, HP, Zeta	IBM 2780, 3780	—	IBM HASP, 2780, 3780, SDLC	IBM HASP, 2780, 3780, (bisync.), 3776, 3777 (SDLC) System 3, System 6, 6670
Microcomputers supported	Apple, TRS-80, Osborne, All CP/M	HP 125 and other terminal-emulating microcomputers	All with IBM 2741 or TeleType 33/35 communications protocol	Microcomputers in TTY, 3270 protocol, or SDLC	IBM PC, Apple II, III; TRS-80, Monroe, Osborne, Keypro
Other equipment supported	—	Graphics terminals, plotters	—	Graphics, engineering plotters	900A electrostatic plotting
SOFTWARE					
Conversational programming languages	Fortran, Cobol, Basic	Basic, Cobol, Fortran, APL, Query	Cobol	Basic, Cobol, Fortran, PL/1, TSO, Wylbur, CICS, CMS, APL	Basic, Cobol, Fortran, APL, other proprietary software
Batch-mode programming languages	—	Basic, Cobol, Fortran, RPG	Cobol	Fortran, Cobol, PL/1, RPG, Mark IV, Easytrieve, etc.	Cobol, Fortran, PL/1, RPG, Pascal, LISP/Reduce
Principal applications	Banking, brokerage, financial, computer-assisted publishing	Business, engineering, scientific, graphics, modeling	Status of legislation	Business, scientific engineering, data base management, financial	Business, scientific, engineering
Principal industries served	Financial, publishing, manufacturing	Service industries	Government	Business, scientific engineering, statistical, financial, manufacturing	All industries
COMMUNICATIONS					
Access methods	Dial-up, leased lines	Dial-up, leased line	Dial-up	Dial-up, leased lines, DDS	Dial-up, dedicated lines, DDS
Networks used	Tymnet	—	None	Telenet, Bell, proprietary	Telenet
Transmission rates supported, bps	300, 1200 bps	300-2400 bps	300 bps	All transmission rates	300-9600 bps
CHARGES					
Min. monthly charge:					
Interactive	None	None	$550 Ann. Fee	None	All charges computed on job set basis
Remote batch	—	None	—	None	
Terminal connect time:					
Interactive	Contact vendor	$9.60/hr.	—	See comments	See comments
Remote batch	—	$15.00/hr.	—	None	—
Central processor time:					
Interactive	$0.25/CPU second	$0.14/sec.	—	$0.0573/computer sec.	—
Remote batch	—	$0.12/sec.	—	$0.0573/computer sec.	—
Mass storage:					
Interactive	$0.02/page/day	$0.03/1000 chars./mo.	—	Contact vendor	—
Remote batch		$0.03/1000 chars./mo.	—	Contact vendor	—
COMMENTS	Company offers laser printing (Xics-Xerox Intergrated Composition System), Tell-A-Graf, Epic, and Plot 97	Company offers general computing services plus specialty services including project control, human resources software, statistics and graphics		Rates dependent on line speed and service (TSO, WYLBUR, CICS, CMS)	Company quotes a variety of charges for computer processing and computer connect time; discounts available on non-prime hours; software packages available

All About Remote Computing Services

COMPANY	Industrial Life Technical Services	Informatics General Corporation	Informatics General Corporation	Information Consultants, Inc.	Information Management International, Inc.
GENERAL					
Name of service	IST	Data Services Operations	Recon IV, Life-Comm	ICI, Host, Versus	Medi-Visit Plus
Type of service	Timesharing, remote batch, on-line data-base	Timesharing, remote batch	On-line database, remote batch	Timesharing, data base service, legal support service	Remote batch with clerical functions in-house
Date operations began	October, 1974	1972	1979	1974	1981
Data center locations	Montreal	Fairfield, NJ	Riverdale, MD	Washington, D.C.	Palo Alto, CA; Metairie, LA
Areas currently served	Canada, Northeastern U.S.	Continental U.S.	U.S.	Worldwide (ICI, Host), U.S. (Versus)	U.S.
EQUIPMENT					
Computers	Amdahl 5860, Amdahl 480/V8, DEC PDP/11, Burroughs 6700	NAS AS/7000 (2), NAS AS/9000, IBM 370/158	NAS 5000, Amdahl 470/V6-11	DECsystem 2060 (2)	Burroughs 4800 (2), IBM 870 (1)
Conversational terminals supported	IBM 2741, 3270 TTY and compatible units	All ASCII-compatible terminals; IBM 3270	TTY, IBM 3270	Most ASCII terminals	Cromemco, Burroughs
Batch terminals supported	IBM 2780, 3780, HASP and compatible units	IBM 2780, 3780, and HASP and equivalent	HASP, 3780 360/20	IBM 2780, 3780 and compatible terminals	—
Microcomputers supported	—	IBM PC, Apple II	IBM PC	Apple, IBM, DEC and others	Cromemco, Burroughs
Other equipment supported	Tektronix plotter, Calcomp plotter, Xerox 9700	Four and eight pen plotters	—	Tektronix plotters (ICI)	—
SOFTWARE					
Conversational programming languages	APL, PL/1, Wylbur, Fortran, Cobol, Assembler	Fortran, Cobol, Basic, PL/1, Assembler	TSO, SAS, PL/1, ALC, Cobol, Roscoe	Basic, APL, Pascal	Cobol
Batch-mode programming languages	Fortran, Cobol, PL/1, Watfiv, RPG, Assembler, Mark IV	Fortran, Cobol, PL/1, Assembler	Cobol, ALC, PL/1	Cobol, Fortran (ICI)	Cobol
Principal applications	Accounting, statistical, financial, engineering	General business planning and control	Litigation support, insurance policy administration	Data base management, financial, accounting, statistics, litigation support, docket control, casetracking, financial	Statistical reporting, billing, word processing
Principal industries served	Government, health care sector, agri-businesses, small firms	Fortune 1500 companies, financial institutions and Federal government	Legal (Recon IV), Insurance (Life-Comm)	Accounting firms, government, engineering, publishers, law firms, financial, industrial	Home health care
COMMUNICATIONS					
Access methods	Dial-up dedicated	Dial-up, leased line	Dial-up, leased lines	Dial-up, leased lines, packet network	Dial-up, leased lines
Networks used	Datapac	Telenet, Tymnet	Telenet/proprietary	Tymnet, Telenet	—
Transmission rates supported, bps	Up to 19.2K bps	300, 1200, 2400, 9600 bps	300 bps-56K bps	110-1200 bps	—
CHARGES					
Min. monthly charge:					
Interactive	$250	Combined with batch	None	None	Contact vendor for pricing
Remote batch	$250	$300 after 3rd mo.	None	—	
Terminal connect time:					
Interactive	$3.00-$6.00/hr.	$7.00-$20.00/hr.	$7.20/hr.	Contact vendor	—
Remote batch	$9.00-$12.00/hr.	$15.00/hr.	$25.00/hr.	—	—
Central processor time:					
Interactive	$20.75/CPU min.	$0.10/IRU*	$0.224-.504/sec.	—	—
Remote batch	$20.75/CPU min.	$0.10/IRU*	$0.224/sec.	—	—
Mass storage:					
Interactive	$0.0115/10,000 by/d	$19.00-$38.50/cylin.	$0.04/Trk/day	—	—
Remote batch	$0.0115/10,000 by/d	$39.00-$75.00/cylin.	—	—	—
COMMENTS	Access to CDC 750, 7600 and 855 computers; specialized applications available	ExecuStation provides terminal emulation and error-checked file transfer for popular micros *IRU includes CPU, I/O, Core & proprietary software surcharge		ICI offers Accent-R and System 1022 DBMS and electronic mail; Host provides service to design, implement, operate, and maintain on-line data base	

All About Remote Computing Services

COMPANY	Information Management International, Inc.	Information Science, Inc.	Insurnet, Inc.	Inter-Care/ Digitex	International Research and Evaluation
GENERAL					
Name of service	On-line Accounting; Automated Collec. Cont.	INSCI/80	RCSC	PBAR	Inform. and Tech. Transfer Database
Type of service	On-line accounting applications, on-line data base	Remote on-line	On-line data base	Timesharing, on-line patient billing	Timesharing, on-line data base
Date operations began	1971	1978	1981	1978	1972
Data center locations	San Jose, CA (On-Line Accounting); Palo Alto, CA (Automated Collection Control)	Montvale, NJ	Nationwide	Los Angeles, CA; Santa Anna, CA	Minneapolis, MN; Madison, WI
Areas currently served	Western U.S.	Continental U.S	U.S	U.S	U.S., international
EQUIPMENT					
Computers	Burroughs 4800	IBM 4300; Microdata 8000, 6000	Honeywell Ultimate Level 6	Datapoint, Digitex	IBM 370/145, 370/168, 3033
Conversational terminals supported	Burroughs	Adds Regency 40 and Viewpoints (120 cps); TTY-compatible CRTs	ADDS and Ultimate Viewpoint (IBM compatible)	Datapoint	All ASCII terminals
Batch terminals supported	—	—	ADDS and Ultimate Viewpoint (IBM compatible)	Datapoint	IBM HASP
Microcomputers supported	—	—	—	Digitex	Televideo 806, 816
Other equipment supported	—	—	—	—	CAD/CAM, DSS, DBMS
SOFTWARE					
Conversational programming languages	Cobol	Basic, English AD-Hoc Report Retrieval	Basic	—	Basic, Cobol, Fortran, APL, Algol, Pascal, Assembler
Batch-mode programming languages	Cobol	—	—	—	Basic, Cobol, Fortran, APL
Principal applications	Order entry, accounts receivable/payable, inventory, personnel, automatic notice generation, trust accounting	Payroll services, human resources information, reporting services	Financial management, data base management, policy and claims information, word processing	Medical, accounting	Business, scientific, engineering, data base management, decision support, modeling, information retrieval
Principal industries served	General business, credit and collection	All industries	Insurance	Health care industry	Business, industry, labor, government, academia
COMMUNICATIONS					
Access methods	Dial-up, leased lines	Dial-up, dedicated lines, WATS	Dedicated lines, local dial-up	Dial-up, leased lines	Dial-up, leased lines
Networks used	—	—	Proprietary	—	Telenet
Transmission rates supported, bps		1200 bps	300-1200 bps	1200 bps	300-9600 bps
CHARGES					
Min. monthly charge:					
Interactive	Contact vendor	Fixed monthly charge/	Contact vendor	$55*	$230
Remote batch	for pricing	employee/file	for pricing	—	$230
Terminal connect time:					
Interactive	—	No charge	—	—	$35.00/hr.
Remote batch	—	—	—	—	$35.00/hr.
Central processor time:					
Interactive	—	No charge	—	—	$2.50/CPU min.
Remote batch	—	—	—	—	—
Mass storage:					
Interactive	—	No charge	—	—	$0.75/1K chars./mo.
Remote batch	—	—	—	—	$1.00/1920 chars./mo.
COMMENTS		Company also offers budgeting & position control reporting service, vacation/attendance information, job evaluation reporting service, benefit statement preparation	Company offers agency/ company interface	*There is also a charge of $.66 per active account processed	Company offers consulting and programming of customer application data base development services

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All About Remote Computing Services

COMPANY	FRI Information Services Limited	General Computer Management Corporation	General Electric Information Services Company	Genesee Computer Center, Inc.	GTE Data Services Inc.
GENERAL					
Name of service	FRI Interactive Time-sharing Service	Remote computing services	GEISCO Mark 3000 Service	Genesee Services	RCS
Type of service	Timesharing, on-line data base, remote batch processing	Timesharing, remote batch	Remote computing, consulting design and implementation	Remote batch, timesharing, distributed processing	Timesharing
Date operations began	1968	1969	1965*	1968	November, 1971
Data center locations	Montreal, Quebec	Bethesda, MD	Rockville, MD; Oak Brook, IL; Amsterdam	U.S., Canada, Europe, Australia, South Africa	Tampa, FL
Areas currently served	U.S, Canada	Northeastern, Southeastern U.S.	Worldwide	U.S., Canada, Europe, Israel, Australia, Taiwan, South Africa	North America
EQUIPMENT					
Computers	IBM 4341 (2) in Montreal	Digital Systems Galaxy 15 (2)	IBM 3081 (3), MVS/TSO/JES 2, and Mark 3000 Service	CDC Cyber 175, 176	Quad Honeywell DPS8/70 and IBM-compatible VM/CMS
Conversational terminals supported	All TTY-compatible and 3270-compatible terminals	All terminals with sync. and async. protocol	Telminet, VT100,. IBM 3270, TV 950 and others	Any ASCII terminal at 10 or 30 CPS; most ASCII at 120 cps	TTY and compatible terminals at 10, 15, 30 and 120 cps; IBM 3270
Batch terminals supported	—	All terminals with sync. and async. protocol	IBM HASP and others	RJE terminal at 2000 and 4800 bps; CDC 200UT, HASP, X780	IBM 2780 or 3780 interface protocol
Microcomputers supported	All ACSII micro-computers	Victor 9000	IBM PC	DEC PDP/11, PDT-11, Radio Shack, TRS-80, Models II, III, 12, 16	—
Other equipment supported	—	Graphics, CAD/CAM, color	HP 7221, Tektronix 4010, 4014, and IBM 3279	Plotters	—
SOFTWARE					
Conversational programming languages	Fortran	Basic, Cobol, Fortran	FCS-EPS (Decision Support System)	Basic, Fortran	Fortran, Pascal, Basic, APL, PL/1, Cobol
Batch-mode programming languages	Fortran	Basic, Cobol, Fortran	FCS-EPS (Decision Support System)	Basic, Fortran	Fortran, Pascal, Cobol, APL, PL/1
Principal applications	Portfolio management, investment analysis, banking, economics	Accounting, financial, large-file handling	Financial modeling and analysis	Engineering, scientific, optics & mechanical engineering	Business, graphics, engineering, financial modeling, data base systems, fleet management
Principal industries served	Financial, investment counsellors, pension funds, research organizations	Financial applications for all industries	Banking, manufacturing, services, energy	Optical consulting engineers, architects	—
COMMUNICATIONS					
Access methods	Dial-up, leased lines	Dial-up, leased lines	Dial-up, leased lines	Dial-up, over-the-counter	Dial-up
Networks used	Tymnet, Telenet, Datapac	Telenet	GEISCO Worldwide Network	Control Data, Cybernet	
Transmission rates supported, bps	300, 1200, 9600 bps	300-19.2K bps	300-9600 bps	110, 300, 1200, 2000, 4800 bps	Telenet
CHARGES					
Min. monthly charge:					
Interactive	$50.00/mo.	None	Contact vendor	None	See comments
Remote batch	$50.00/mo.	—	for pricing	None	—
Terminal connect time:					
Interactive	$4.00/hr.	$15.00/hr.	—	$9.00-$44.00/hr.	—
Remote batch	$4.00/hr.	$15.00/hr.	—	$21.60/hr.	—
Central processor time:					
Interactive	$0.45/service unit	$15.00/hr.	—	$42/SBU	—
Remote batch	$0.27/service unit	$15.00/hr.	—	$0.09-$0.33/SBU	—
Mass storage:					
Interactive	$0.015/512 bytes/wk.	$1.00/16,384/char.	—	$0.017/1280/char./day	—
Remote batch	$0.015/512 bytes/wk.	$1.00/16,384/char.	—	$0.017/1280/char./day	—
COMMENTS	Company has on-line financial and investment-related data bases; discounts available for non-prime time		*FCS-EPS on Mark 3000 Service available		Offers general timesharing services plus large library of applications; principally serves GTE Corporation; prices negotiable per contract

All About Remote Computing Services

COMPANY	GTE Telenet Communications Corporation	Gulley Computer Associates	Hartley Data Service, Inc.	HDR Systems Inc.	IBM Information Network
GENERAL					
Name of service	MINET	Gulley Computer Associates	—	HDR Systems	IBM Information Network
Type of service	Medical information data bases, electronic mail network	Timesharing	Timesharing, remote batch	Timesharing, remote batch, and on-line data-base	Remote computing services
Date operations began	1982	May, 1980	1967	1972	February, 1982
Data center locations	Washington, D.C.	Tulsa, OK	Glenview, IL	Omaha, NE; Washington, D.C.	Tampa, FL; Atlanta, GA; Chicago, IL; Dallas, TX; Houston, TX; L.A., CA; New York; Phila, PA U.S
Areas currently served	—	Central U.S.	North Central U.S.	Central U.S.; International Network	U.S
EQUIPMENT					
Computers	DEC 20	HP 1000	DEC 11/44	Control Data, Cyber 170/730 in Omaha, NE; NOAH, relational data base in Omaha, WA	IBM 3705, 30xx
Conversational terminals supported	All async. terminals at 300-1200 bps	All async. terminals at 300 and 1200 bps	VT100, VT52	Most ASCII compatible terminals, IBM 2741, etc.	IBM sync. 3270, 3101, 3102 ASCII terminals
Batch terminals supported	—	—	VT100, VT52	CDC 200, IBM HASP IBM 2780/3780, 3270	IBM 2772-1, 2780, 3776, 3777, 3780, 3790, 8100
Microcomputers supported	Personal computers equipped with RS-232-C interface	TRS-80, IBM PC	DECmate	CDC-RMF, CDC, Apple II, IBM PC, Atari, Datapoint, Tektronix	IBM PC
Other equipment supported	—	—	Plotter	CAD, Tektronix, HP plotters	IBM Displaywriter, CPT/TWX 33-35
SOFTWARE					
Conversational programming languages	—	Fortran	Fortran, Dibol	APL, Basic, Cobol, Fortran Database, Algol, Pascal, Sovial, IFPS, SPSS, SIR	Basic, Cobol, Fortran, PL/1, APL, Dialog/Helps, Pascal
Batch-mode programming languages	—	Fortran	RPG	Fortran, Cobol, Algol, Pascal, Sovial, GMAP, APL	Cobol, PL/1, Assembler
Principal applications	Clinical information	Engineering, business	Membership, circulation, mailing lists, time accounting	Business, scientific, engineering, data base management	Insurance, business, financial planning, graphics, statistical analysis, project management
Principal industries served	Physicians, allied health-care professionals	Manufacturing, refining, natural gas processing, engineering	Publishers, associations, consulting engineers	Railroad, hospitals planning & evaluation, utility, manufacturing, education, government	Insurance, business, government, education
COMMUNICATIONS					
Access methods	Dial-up	Dial-up	Dial-up	Dial-up, leased lines	Leased lines, SNA/SDLC, BSC
Networks used	Telenet	—	—	Tymnet, WATs (proprietary)	IBM Infor. Netw.; access to Telenet avail.
Transmission rates supported, bps	300-1200 bps	300, 1200 bps	300, 1200 bps	110-9600 bps	—
CHARGES					
Min. monthly charge:		None			
Interactive	—	None	All charges vary with application	No minimum	$200/mo. minimum*
Remote batch	—				—
Terminal connect time:		$10.00/hr.			
Interactive	$24.00-$27.00/hr.	None	—	$6.00-$13.00/hr.	Contact vendor
Remote batch			—	$10.00-$20.00/hr.	—
Central processor time:		Varies			
Interactive	—	None	—	$0.05-$.10/SRU*	Contact vendor
Remote batch	—		—	$0.025-$.05/SRU*	—
Mass storage:		$0.079/12K char./day			
Interactive	—	None	—	Consulting assistance in	$.08 Mbyte/day
Remote batch	—	Specialties are chemical	—	commercial, educational	—
COMMENTS	Company provides services for the American Medical Association	engineering, mechanical engineering, civil engineering, heat exchangers	Company offers customized package software	and governmental areas *SRU (System Resource Unit) is a function of I/O, central memory, central processor time, and application charges	Over 200 IBM software packages supported on VM and MVS; the IBM Information Network Data Bank is available. *Other charges based primarily on usage

All About Remote Computing Services

COMPANY	Edunet	Electronic Data Processing Corporation	Electronic Data Systems	Electronic Data Systems (Optimum)	Elite Communications Systems
GENERAL					
Name of service	Edunet	EDP	EDS	EDS/OSD; Optimum Systems Div.	Elite Communications Systems
Type of service	Timesharing	On-line data base	On-line, remote batch, timesharing	remote computing, time-sharing	Timesharing, on-line data base
Date operations began	1979	1962	1962	1967	1977
Data center locations	Canegie Mellon, CCNY, Cornell, Dartmouth, U of Del., MIT, MSU, Wayne State University*	Riverton, NJ	Dallas, TX; Richardson, TX; Camp Hill, PA; San Francisco, CA	Rockville, MD; access to five regional data centers via Edsnet	Los Angeles, CA
Areas currently served	U.S., overseas	Mid-Atlantic states	U.S., Overseas	U.S., including Alaska, Hawaii, Puerto Rico	Los Angeles County
EQUIPMENT					
Computers	DECsystem 2060, KL-10, PDP11/45; IBM 3033, 4341; Amdahl 470/46-II; IBM 370/168; Honeywell	AS/5000	IBM 3081K, NAS 9060, Amdahl, Univac, and others (113 mainframes)	IBM 3033 (2) in Rockville, MD	Prime 750, 600MB
Conversational terminals supported	All standard-ASCII terminals	IBM 3270-compatible terminals	IBM 3178, 3278, 3279, ITT Courier, Raytheon, Harris, Trivex	ASCII, EBCDIC, TTY, Correspondence, IBM - compatible & IBM 3270 full-screen compatible	DECwriter 120; any printer or video terminal
Batch terminals supported	Site dependent	—	IBM 2030, 3777, 4300; Harris	IBM 2780, 3780, HASP; Data-100, and compatible units	—
Microcomputers supported	Site dependent	—	IBM PC, Apple, TRS-80, Osborne	Any IBM-compatible terminals	Prime
Other equipment supported	Calcomp plotters, Xerox 9700 printer, floating point systems array processors, Compugraphic	—	Tektronix, HP plotters	Business graphics	OCR
SOFTWARE					
Conversational programming languages	Basic, Cobol, Fortran, Algol, Pascal, Assembler, PL/1, RPG, VS APL, Lisp, Bliss, Snobol, Simula, TSO, Wylbur	Designed for application specialties	APL	Basic, Cobol, Fortran, PL/1, APL, SAS, TSO/SPF, Superwylbur, Roscoe, Tell-a-graph TSO	Fortran
Batch-mode programming languages		Designed for application specialties	Cobol, Assembler, PL/1, REG	Cobol, Fortran, Super-wylbur, and others	—
Principal applications	Research, education	Circulation fulfillment, health and welfare record-keeping	Administration, accounting, financial, personnel, engineering, data base management, office automation	Data base management, full-screen application development software from Applied Data Research	Time and billing calendar, docket, general accounting
Principal industries served	Education	Publishing, health and welfare funds	Banking, thrift, credit unions, health care, insurance hospitals, retailing distribution, government, education	Government, commercial, financial	Legal, all industries (accounting)
COMMUNICATIONS					
Access methods	Dial-up, Telenet, Tymnet	Leased lines	VTAM, BTAM	TTX Dial-up to 1200 bps bisy. dedicated, DDS	Dial-up, leased lines
Networks used	Tymnet, Telenet, Uninet	—	Edsnet (proprietary)	Tymnet, Edsnet (proprietary)	—
Transmission rates supported, bps	300-1200 bps	4800, 9600 bps	Up to 56K bps	Up to 9600 bps	300, 1200 bps
CHARGES					
Min. monthly charge:					
Interactive	No minimum	Contact vendor for pricing	Contact vendor for pricing	Contact vendor for pricing	$100/attorney
Remote batch	—				—
Terminal connect time:					
Interactive	$10.00-$17.00/hr.	—	—	—	—
Remote batch	—	—	—	—	—
Central processor time:					
Interactive	—	—	—	—	—
Remote batch	—	—	—	—	—
Mass storage:					
Interactive	—	—	—	—	—
Remote batch	—	—	—	—	—
COMMENTS	Restricted to non-profit organizations. *Also W. Mich. U., U of Minn., Triangle U. Comp. Centr., Notre Dame, Rice, USC, Stanford, U. of Wis., Yale, U. of Col.		Company provides facilities management, systems integration, program management, turnkey installation, micrographic services	Company owns and markets Superwylbur for word processing, text editing, and remote job entry; provides CICS, TSO; Superwylbur interactive services; batch	

All About Remote Computing Services

COMPANY	Endata, Inc.*	Epsilon, Inc.	Evansville Data Processing Corporation	Facilities and Services Corporation	Florida Computer Inc.
GENERAL					
Name of service	Datafile	Epsilon on-line	Affordable Information Management (AIM)	Wholesale & Re-insurance Accounting	FCI
Type of service	—	Remote batch, on-line data base, service bureau	Timesharing	Timesharing, remote batch	Timesharing
Date operations began	1970	1969	1977	October, 1980	1975
Data center locations	Bluebell, PA Nashville, TN	Burlington, MA; San Mateo, CA; Dallas, TX; Chicago, IL	Evansville, IN	Los Angeles, CA	Miami, FL
Areas currently served	Continental U.S.	U.S.	Midwestern U.S.	California	Northeastern U.S., Florida
EQUIPMENT					
Computers	Burroughs, Univac, and IBM, Medium Systems (total 6)	Itel AS/6, IBM 4341 (2), HP 3000 (2) all in Burlington, MA	DEC 11/70, DEC VAX	Honeywell Level 6/DPS6	VAX 11/70, 11/750
Conversational terminals supported	—	HP terminals	All RS-232-C terminals	Honeywell VIP	—
Batch terminals supported	Burroughs Poll Select	IBM 3777 remote job entry	GE Terminet	IBM HASP	—
Microcomputers supported	Data General Nova/Eclipse	HP 125	—	—	All DEC-compatible terminals
Other equipment supported	—	—	—	—	—
SOFTWARE					
Conversational programming languages	Cobol, Assembler	Basic, Fortran	Basic, Cobol, Dibol, Able	Cobol	Basic, Cobol, Fortran
Batch-mode programming languages	—	Basic, Fortran	Basic, Cobol, Dibol, Able	Cobol	—
Principal applications	Distribution, accounting	Subscription fulfillment, sales lead fulfillment, data base management, direct-response marketing research	Business applications	Property-casualty insurance	Accounting, financial
Principal industries served	Wholesalers of hardgoods and beverages	Travel, publishing, non-profit organizations, pharamaceutical, educational, political	Business, professions, industrial	Insurance	Country clubs
COMMUNICATIONS					
Access methods	Leased lines	Dial-up, leased lines, DDS	Dial-up, leased lines	Dial-up, leased lines	Dial-up
Networks used	Proprietary	RC (AT&T)	—	—	Telenet
Transmission rates supported, bps	1200-9600 bps	300-9600 bps	300, 1200 bps	1200-9600 bps	300-9600 bps
CHARGES					
Min. monthly charge:					
Interactive	Contact vendor	Contact vendor	No minimums	Contact vendor	$400
Remote batch	for pricing	for pricing	—	for pricing	—
Terminal connect time:					
Interactive	—	—	—	—	$15.00/hr. (300bps)*
Remote batch	—	—	—	—	—
Central processor time:					
Interactive	—	—	—	—	—
Remote batch	—	—	—	—	—
Mass storage:					
Interactive	—	—	$44.80/500K/chars.	—	Contact vendor
Remote batch	—	—			
COMMENTS	*Formerly NLT Computer Services Corp.	Remote services available to Epsilon's data base management clients; options include file inquiry, data entry, file manipulation, output & word processing	Company has large directory of user-available programs; most charges based on units of work rather than time		Company offers proprietary software packages, contract programming services, system peripherals usage and facilities management *$17.00/hr. (1200 bps)

All About Remote Computing Services

COMPANY	Cybertek Computer Products, Inc.	Cycare Systems, INC.	Dataline, Inc.	Datalogics, Inc.	Data Resources, Inc.
GENERAL					
Name of service	Insurance Systems Services	Patient-health care management systems	Dataline Timesharing Network	DL/OS	Data Resources, Inc.
Type of service	Remote on-line and batch processing services	Time sharing, remote batch, on-line data base	Timesharing	Timesharing, remote & local batch, data entry	On-line data base, timesharing
Date operations began	1970	June, 1970	1969	1969	1969
Data center locations	Northbrook, IL	Dubuque, IA; Spokane, WA	Toronto, Ontario	Cleveland, OH; Chicago, IL	—
Areas currently served	Nationwide	U.S., Canada	Canada, U.S.	U.S.	U.S., Canada, Europe
EQUIPMENT					
Computers	IBM 3033, NAS 3/5, IBM 370/138, in Northbrook, IL	IBM 4341 (3) in Dubuque, IA; IBM 434I in Spokane, WA; Honeywell DPS6 (5) in Dubuque, IA	DEC system 1070 (3), DEC system 1090 (3)	Honeywell, Sigma	Burroughs B7800 (4)
Conversational terminals supported	IBM 2741, 3277, 3278; DECwriter; misc. ASCII, Cybertek Inf. Man. 3200	IBM, Honeywell, Zentec	All ASCII terminals up to 120 cps	All ASCII terminals	IBM 2741; all ASCII terminals up to 120 cps
Batch terminals supported	IBM HASP/JES, IBM 2780, 3780, 3776, 370, 30XX, 308X, 43XX; Data 100	IBM, Honeywell, Zentec	IBM 2780, 3780 and equivalent units	IBM 2780, 3780, HASP and compatible units	IBM 2780, 3780, Burroughs DC 1000 or compatible terminals
Microcomputers supported	IBM 3270 bisync. emulation	—	All async. ASCII terminals	IBM PC and compatible units	Apple II, IIe; IBM PC, and other TTY-compatible micro-computers
Other equipment supported	—	—	Houston Instruments DP 853	—	HP, Calcomp, Tektronix plotters
SOFTWARE					
Conversational programming languages	Cobol, BAL	Cobol, BAL	Basic, Cobol, Fortran, APL, Marco, Simula	Basic, Cobol, APL, Text	Basic, Fortran, APL, Algol, EPS, Text, Dris-can, Retrieve
Batch-mode programming languages	Cobol, BAL	RPG, DYL 280	Cobol, Fortran, APL, Macro, Simula	Basic, Fortran, Cobol, APL, RPG	—
Principal applications	Life, health, annuity, (fixed and FPA), and universal life insur-ance applications	Accounting, financial, management	Business, banking, financial, statistical, engineering	Accounting, financial, statistical, scientific	Business and financial analysis econometric information services, data retrieval
Principal industries served	Life insurance	Medical	Financial, banking, manufacturing, whole-sale, governments	Banking, financial, manufacturing, health care, municipalities	Banking, investment, manufacturing, energy, health, electronics, transportation
COMMUNICATIONS					
Access methods	Dial-up, leased lines, DDS	Dial-up, leased lines, DDS	Dial-up, leased lines	Dial-up, leased lines, DDS	Dial-up, leased lines
Networks used	Tymnet	Tymnet	Tymnet, Telenet, Data-pac, proprietary	Telenet	Tymnet, Umnet, proprietary (Drinet)
Transmission rates supported, bps	300, 1200, 2400, 4800 bps; 56K bps	4800, 9600 bps	Up to 120 cps	100-1200 and 4800 bps	300-1200 bps
CHARGES					
Min. monthly charge:					
Interactive	Contact vendor	Contact vendor	Conact vendor	None	$325
Remote batch	for pricing	for pricing	for pricing	None	$325
Terminal connect time:					
Interactive	—	—	—	$10.00-$18.00/hr.	$28.00/hr.
Remote batch	—	—	—	Varies	$40.00/hr.
Central processor time:					
Interactive	—	—	—	$0.02-$0.08/CRU	$0.064-$0.183/CRU*
Remote batch	—	—	—	$0.02-$0.16/CRU	$0.064-$0.183/CRU*
Mass storage:					
Interactive	—	—	—	$.40-$.80/2048/ch/mo.	$0.093-$0.99/kb/mo.
Remote batch	—	—	—	$.40-$.80/2048/ch/mo.	$0.093-$0.99/kb/mo.
COMMENTS		Company offers remote batch, shared on-line, distributed and turnkey systems	*CPU charges vary with amount of main storage used; reduced rates for non-prime time; dis-counts for volume; major software systems incl. accntg., financial	Company offers fixed-price port agreement, discounts for large volumes, and non-prime time usage	*CRU(Compute Resource Unit) is a measure of overall system through-put. Company offers Economic Information Systems at charges of $4000-$100,000/yr.

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COMPANY	Data-Tek Corp.	Datatronic Systems Corporation	Dialog Information Services, Inc.	Donald Greiner Corporation	DTSS Incorporated
GENERAL					
Name of service	Data-Tek Corp.	Datatronic Systems Corporation	Dialog Infor. Retrieval, Knowledge Index	Universal Fulfillment Fund Raising System	DTSS
Type of service	On-line timesharing, on-line data base, remote batch	Timesharing	On-line data base	On-line, remote batch	Timesharing
Date operations began	1971	1960	1972	1968	1972
Data center locations	Philadelphia, PA	Panorama City, CA	Palo Alto, CA	Mahopac, NY	Lebanon, NH
Areas currently served	New York City	U.S.	Worldwide*	U.S.	U.S.
EQUIPMENT					
Computers	HP 300 Series III, IBM 440 MB Disc, 1600 BPI Tape	IBM, HP	National Advanced Systems AS/9060 (2)	IBM 4341, Four Phase IV/65	Honeywell DPS 8/44
Conversational terminals supported	HP 2621 ASCII; HP 2622, 2624, 2626; DECwriter	IBM 2741, IBM PC, Apple, TTY, any ASCII async. terminal	Any ASCII terminal	IBM 3270, 3780	Any ASCII terminal
Batch terminals supported	—	IBM HASP, 3780; IBM Datamaster, IBM Displaywriter, IBM Sys/23, IBM Series/1	—	Any 3780-compatible terminals	—
Microcomputers supported	HP 125, Datapoint 1500	IBM PC, Apple, TRS-80, and others	Any ASCII terminal	TRS-80, Model II	Apple, IBM and compatible terminals, TRS-80
Other equipment supported	—	Plotters, COM	—	Sys 6	Most graphic devices
SOFTWARE					
Conversational programming languages	Cobol II, Fortran	Basic, Cobol, Fortran	—	Cobol	Basic, Cobol, Fortran, PL/1
Batch-mode programming languages	Cobol II, Fortran	Basic, Cobol, Fortran, PL/1, RPG, Lisp	—	Cobol	Basic, Cobol, Fortran, PL/1
Principal applications	Order processing, inventory control, accounting, engineering, job-cost accounting, project management, financial	Accounting, financial, engineering, manufacturing, automation	All subject fields	Publishing, fund raising, membership	All industries
Principal industries served	Manufacturing, health care, distribution, engineering, construction	Manufacturing, business, scientific, commerical	All industries	Publishing, non-profit groups (Universal Fund Raising System)	All industries
COMMUNICATIONS					
Access methods	Dial-up, leased lines	Dial-up, leased lines, DDS	Dial-up	Leased lines	Dial-up, leased lines
Networks used	Tymnet, Telenet	Proprietary	Tymnet, Telenet, Uninet, Dialnet, Telex	—	Tymnet, Telenet, Uninet
Transmission rates supported, bps	300-1200 bps	300-9600 bps; 128K, 256K bps	110, 300, 1200 bps	4800 bps	110-4800 bps
CHARGES					
Min. monthly charge:					
Interactive	$50	$1.00/mo.	None	Contact vendor for pricing	None
Remote batch	—	$1.00/mo.	—		None
Terminal connect time:					
Interactive	$10.00/hr. ($330/mo.)	$5.00/hr.	$15.00-$100/hr.**	—	$2.50
Remote batch	—	$5.00/hr.	—	—	—
Central processor time:					
Interactive	$0.08/CPU sec.	$5.00/hr.	—	—	$0.06/CRU
Remote batch	$0.08/CPU sec.	$5.00/hr.	—	—	$0.03/CRU
Mass storage:					
Interactive	$0.05/sect; 256 by/mo.	None	—	—	$0.06/1000 char.
Remote batch	$0.05/sect; 256 by/mo.	None	—	—	$0.06/1000 char.
COMMENTS			As of April, 1983 company had 120 gigabytes of data online *Knowledge Index-U.S. only **$24.00/hr.-Knowledge Index	Software is available for license	

All About Remote Computing Services

COMPANY	The Conference Board	Conference Board of Canada	Consumers Computer Services	The Continuum Company	Control Data Corporation
GENERAL					
Name of service	Conference Board Data Base	Aeric System	Dial-Tyme	System Management Accounts; TCMS	Business Information Services
Type of service	On-line data base	On-line economic information and forecasting service	Remote batch, time-sharing, on-line data base	Remote on-line and batch, NJE, timesharing	—
Date operations began	1978	1974	1979	1976	1969
Data center locations	Ithaca, NY; Ann Arbor, MI; Bala Cynwyd, PA; Fairfield, NJ; Lexington, MA; Philadelphia, PA	Ottawa, Canada	Washington, D.C.	Austin, TX	Cleveland, OH; Brussels
Areas currently served	Worldwide	Canada	Northeastern U.S.	U.S.	U.S., Canada, Europe, Australia, Japan
EQUIPMENT					
Computers	—	IBM 4341	IBM 370/158 (3) in Washington, D.C.	IBM 3033U, System 158	Multiple, large-scale, interconnected IBM mainframes
Conversational terminals supported	All ASCII terminals	All ASCII terminals	Teletype 33, 35, 37, 43, and compatible terminals	IBM 327X or compatible terminals	IBM 2741, 2780, 3780, 327X; TTY 33/35, ASCII terminals
Batch terminals supported	—	—	IBM 3780, 2780, 360/20	IBM 3780, SNA, 2780	IBM 2780, 3780, or equiv.; IBM S/360 and S/370 processors
Microcomputers supported	Any with modem	—	IBM PC, Apple, TRS-80	Personal computers with communications	IBM PC, all async. ASCII, bisync. 2780/3780 or equiv.; 327X bisync. or SNA
Other equipment supported	—	—	Xerox 9700	Printers	HP, Tektronix, IBM XY/750, Soltec pen plotters; Nicolet-Zeta plotters; Tektronix CRTs
SOFTWARE					
Conversational programming languages	—	Fortran, APL, Troll	SAS, SPSS, BMBP, TSP, TPL, Osiris, Wylbur, TSO/SPF, Easytrieve, MPSX	VS/APL	Basic, Fortran, PL/1, APL, SAS, S/L, Data Management
Batch-mode programming languages	—	—	Cobol, Fortran, PL/1, ALC	Cobol, Assembler	Cobol, Fortran, PL/1, Assembler, SAS, Mark III Easytrieve
Principal applications	Financial, economics, marketing, forecasting, planning	Econometrics, market research, model simulations	Statistics, accounting	Insurance, disaster recovery, sales proposals, illustrations	Financial, operations, marketing, inquiry and reporting, data base management, risk analysis, planning, modeling
Principal industries served	All industries	—	Insurance, government	Insurance, financial planning	Banking, brokerage, insurance, manufacturing, health care, real estate, utilities, Federal and local government
COMMUNICATIONS					
Access methods	Dial-up	Dial-up, leased lines	Dial-up, leased lines	VTAM. SNA/SDLC, dial-up	Dial-up, leased lines
Networks used	Tymnet, Telenet, proprietary	Datapac	800 number	Tymnet	Proprietary
Transmission rates supported, bps	—	—	300-9600 bps	1200, 4800, 9600 bps	Up to 4800 bps
CHARGES					
Min. monthly charge:					
Interactive	See comments	None	None	Contact vendor for pricing	$200 (mininum)
Remote batch	—	None	None		—
Terminal connect time:					
Interactive	—	$16.50/hr.	$8.00/hr.	—	$6.40-$18.00/hr.*
Remote batch	—	—	None	—	—
Central processor time:					
Interactive	—	$1.65/cpu sec.	$0.15/sec.	—	$0.26-$0.09/proc. unit
Remote batch	—	—	$0.15/sec.	—	—
Mass storage:					
Interactive	—	$1.05/512K bytes/day	$0.04/TRK/day	—	$0.075/3440 by/day
Remote batch	—	—	$0.04/TRK/day	—	—
COMMENTS	Annual $500 or $650 fee and on-line vendor charges	Company specializes in Canadian and provincial economic forecasts and data bases and offers complete packages for $5,400/year for conference Board members			*Depends on time of day and line class **$.045 (reference); $.02 (data base) Trained representatives work with customers to define needs/solutions

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COMPANY	Control Data Cybernet Services	Cross Information Company	CTS Services	CTS Services	Cybershare, Limited
GENERAL					
Name of service	NOS, Cyber 200 Services	C/NET	CTS/DTSS	Resolve	Cybershare
Type of service	Remote batch	Timesharing, on-line data base	Timesharing	Timesharing	Timesharing, remote batch
Date operations began	1963	1980	1979	1981	1972
Data center locations	Minneapolis, MN	Boulder, CO	Northeastern U.S.	Texas	Winnipeg, Canada
Areas currently served	U.S., Can., Mex., S. Afr., Europe, Brazil, Venezl., Japan, Isrl., Aust., N.Z.	Worldwide	Worldwide	Southwest	Canada, U.S.
EQUIPMENT					
Computers	Over 40 large-scale Control Data computers	DEC/VAX/11/780	Honeywell 6627	Ultimatt Minicomputers	CDC Cyber 170/174, HIS 66/440
Conversational terminals supported	ASCII terminals at 10, 30, or 120 cps; conversational terminals at 14 cps	All async. terminals at 300-1200 bps	All ASCII terminals up to 1200 bps	All ASCII terminals up to 1200 bps	TTY 33/35, IBM 3270 compatible
Batch terminals supported	Various RJE terminals; CDC mode 4A (200VTG), 2780, 3780, HASP	None	IBM 2780/3780	—	IBM HASP, 3780; CDC 200
Microcomputers supported	—	Any ASCII terminal	IBM, Apple	All compatible ASCII terminals	Apple, TSR-80, IBM PC
Other equipment supported	—	—	Plotters	Displayphone	—
SOFTWARE					
Conversational programming languages	Basic, Cobol, Fortran, Algol, Pascal, Compass	Basic, Cobol, Fortran	Basic, Cobol, Fortran, PL/1, Algol, APL	Pick Basic	Basic, Cobol, Fortran, APL, RPG
Batch-mode programming languages	Basic, Cobol, Fortran, Algol, Pascal, Compass	Basic, Cobol, Fortran	Basic, Cobol, Fortran, PL/1, Algol, APL	Pick Basic	Basic, Cobol, Fortran, APL, RPG
Principal applications	Manufacturing, construction, utilities, petroleum, mining, engineering, scientific, government, management	Communications, educational networking	Financial, data base management, statistical analysis	Accounting, data base management	Accounting, brokerage and investment, engineering, sales analysis, educational
Principal industries served	All industries	All industries	Financial, real estate, manufacturing	Financial institutions, real estate, business, CPAs, and management sciences	All industries
COMMUNICATIONS					
Access methods	—	Tymnet, direct dial, leased lines	Dial-up or leased lines	Dial-up, leased lines	Tymnet, Telenet, Datapac
Networks used	—	Tymnet	Tymnet, Telenet, Uninet	Local	—
Transmission rates supported, bps	Up to 9600 bps	300-1200 bps	100-4800 bps	300-9600 bps	110, 300, 1200, 2600, 9600 bps
CHARGES					
Min. monthly charge:					
Interactive	$100	None	$10.00/mo.	Fixed cost ports	None
Remote batch	$9.00-$44.00/hr.*	—			None
Terminal connect time:					
Interactive	$26.00/hr.	$12.00/hr. or less	$12.00/hr.	Fixed cost ports	$12.00/hr.
Remote batch	—	—			Negotiable
Central processor time:					
Interactive	$0.42/sec.	$0.25 cpu sec. or less	$0.11/CRU	Fixed cost ports	$0.25/SRU
Remote batch	$0.09-$0.30/sec.	—			$0.11/SRU
Mass storage:					
Interactive	$0.016/1280 chars./day	$75.00/Mbyte	$0.30/Unit	$55/Mbytes	—
Remote batch	$0.016/1280 chars./day	—			—
COMMENTS	Also see Network Information Services, a division of Control Data Corporation *Plus $0.12-$0.25/K char. transformed	Company also offers advanced office automation systems, electronic mail, computer conferencing	Over 1,000 applications and routines are available through the libraries on the CTS system; CTS can provide development of specialized applications	Development of specialized applications can be provided; unlimited usage on port rental	

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COMPANY	Computer Sharing Services, Inc.	Computer Usage Company	Computer Usage Company	Computerized Conferencing and Communications*	Computer-Time Corporation
GENERAL					
Name of service	C STOCK	MVS/Wylbur/APL/CICS/ TSO(SPF)/VM/CMS	Remote Computing Services	Electronic Information Exchange System	—
Type of service	On-line data base, timesharing	—	Timesharing, remote batch, on-line data base	Computer conferencing	Timesharing
Date operations began	1974	1975	1955	1976	1970
Data center locations	Denver, CO	Los Angeles, CA; New York, NY; San Francisco, CA; Chicago, IL; Sunnyvale, CA	Sunnyvale, CA	Newark, NJ	Morrison, CO
Areas currently served	Rocky Mountains and Northwestern U.S.	U.S.	U.S.	U.S., Europe	Denver, CO
EQUIPMENT					
Computers	Tandem Non-Stop II (1) in Denver, CO	Amdahl 470 V/6-11, 3031-equivalent	Amdahl 470 V/6-11, Nasco 7031	Perkin, Elmer 3230 in Newark, NJ	DEC PDP 11/70, Prime 550, 150
Conversational terminals supported	Dataspeed 40, VT100	ASCII 10-120 cps or correspondence terminals	TTY, 3270 compatible terminals	Any ASCII terminal	Virtually all RS-232-C compatible
Batch terminals supported	Dataspeed 40, VT100	All IBM-compatible terminals	All IBM-compatible terminals	—	—
Microcomputers supported	IBM PC	—	All compatible with IBM operating environments MVS and VM	Any ASCII terminal	IBM PC, others with ASR 232 async.
Other equipment supported	—	—	Plotters	—	Plotters
SOFTWARE					
Conversational programming languages	—	APL, Wylbur, CICS, CMS, TSO	APL, CMS, CICS, TSO, Wylbur	Interact	Basic, Cobol, Fortran, PL/1
Batch-mode programming languages	—	Basic, Cobol, Fortran, PL/1, Assembler, Pascal, Algol	Basic, Cobol, Fortran, PL/1, Assembler, Pascal, Algol, RPG Watfor	—	—
Principal applications	Inventory control, transaction processing	Business, scientific	Business, scientific, manufacturing, insurance	Computer-aided communications	General business, accounting, financial, engineering
Principal industries served	Telephone industry	—	—	All industries	Business
COMMUNICATIONS					
Access methods	Dial-up	—	Dial-up, leased lines	Dial-up lines up to 1200 bps	Dial-up, dedicated (multiplexed)
Networks used	—	Tymnet, Inbound WATS	Tymnet, Inbound WATS	Telenet, Uninet	—
Transmission rates supported, bps	300, 1200 bps	—	300, 1200, 4800, 9600 bps; 50K bps	300, 1200 bps (dial-up)	300-9600 bps
CHARGES					
Min. monthly charge:					
Interactive	$5.00*	Contact vendor for pricing	Contact vendor for pricing	$75/account	$100
Remote batch	$5.00			—	—
Terminal connect time:					
Interactive	—	—	—	$7.00-$9.50/hr.	$10.00-$30.00
Remote batch	—	—	—	—	—
Central processor time:					
Interactive	—	—	—	—	—
Remote batch	—	—	—	$10.00/hr.	—
Mass storage:					
Interactive	—	—	—	$1.00/50K bps/mo.	$12.00/M/2500
Remote batch	—	—	—		
COMMENTS	*Charges are scaled, based on usage for transaction processing	Company offers IDMS, SPSS, SAS, SAS-GRAF-SAS-ETS, Dylakor, Biomed, Quail, Simscript, Mark IV, Easytrieve and other software packages		Company offers electronic mail, computer conferencing, electronic notebooks, tailored communications structures *New Jersey Institute of Technology	Company offers custom development, packaged applications, general business utilities, PC software, minicomputer facilities management

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COMPANY	Computone Systems, Inc.	ComShare, Inc.	Comshare Limited	Comtech Group International, Limited	Concap Computing Systems
GENERAL					
Name of service	Keypact	Computer Services	Commander II, CPV	Paymaster, Financialman, Cashmaster, Autopay*	Civil Engineering Services
Type of service	—	Timesharing, software, on-line data base	Timesharing	Over-the-counter batch, on-line data entry, time-sharing	Timesharing
Date operations began	1965	1966	1969	1965	1965
Data center locations	Atlanta, GA	Ann Arbor, MI; Chicago, IL; Toronto, Canada; London, England	Toronto, Canada	Toronto, Montreal, Van Couver, Edmunton, Winnigeg, Waterloo	Oakland, CA
Areas currently served	U.S., Canada	Worldwide	Canada, U.S., Europe	Canada	U.S.
EQUIPMENT					
Computers	IBM 360/65, 4341	IBM 4341 (1) in Ann Arbor, MI; Xerox Sigma 9 (44) in Toronto and London; Amdahl VA (3) in IL	Xerox Sigma 9 (4)	IBM 4341, DEC PDP 11/70	DEC PDP/11 Systems
Conversational terminals supported	All ASCII terminals at 30 to 120 cps	Any teletype-compatible terminals	All ASCII compatible to 1200 bps; RBT at 2400 bps; graphics, micros	VT52, VT100	All ASCII terminals
Batch terminals supported	—	—	IBM 2780, IBM HASP, Data 100	—	—
Microcomputers supported	—	Apple II, IBM PC	All microcomputers	—	—
Other equipment supported	—	—	HP, Calcomp plotters	—	TEC 4010-compatible display terminals, large-format plotters
SOFTWARE					
Conversational programming languages	Cobol, Fortran, RPG	Pascal and others	Basic, Cobol, Fortran, APL, Assembler, Pascal	Basic	Fortran
Batch-mode programming languages	—	—	Basic, Cobol, Fortran, APL, Assembler, Pascal	Cobol	—
Principal applications	Financial, insurance agriculture	Financial, marketing, human resource management	Decision support systems, personnel and data base management	Payroll, personnel, labor, distribution, inventory, accounting, sales analysis, word processing	Civil engineering, land surveying, structural engineering, subdivision design and plotting
Principal industries served	Insurance, agriculture	All industries	Natural resources, financial, banking manu-facturing, distribution	All industries	Private engineering, land development, city and county public works
COMMUNICATIONS					
Access methods	—	Dial-up	Dial-up, leased lines, DDS	Shared, private	Local and national network
Networks used	—	—	Telegrid, Datapac, Telenet	—	—
Transmission rates supported, bps	—	—	Interactive-120 bps; RBT-4800 bps	300, 1200 bps	10-1200 bps
CHARGES					
Min. monthly charge:					
Interactive	$25.00-$30.00	Contact vendor for pricing	None	Contact vendor for pricing	$2.50-$200
Remote batch	—		None		—
Terminal connect time:					
Interactive	$1.20/min.	—	$12.00-$28.80	—	$8.00-$18.00
Remote batch	—	—	$20.40-$26.40	—	—
Central processor time:					
Interactive	—	—	$0.10-$0.15	—	$0.12-$0.22
Remote batch	—	—	$0.05-$0.18	—	—
Mass storage:					
Interactive	Contact vendor	—	$0.005-$.20/2048/ch	—	$0.03/512/chars./day
Remote batch		—	$0.005-$.20/2048/ch	—	
COMMENTS	Dedicated system for life insurance sales, feed and meat formula-tion, and turnkey mar-ket information	ComShare is an inter-national software and services firm with specialties in decision support systems for main-frames, microcomputers, timesharing	Comshare offers System W decision support soft-ware on timesharing ser-vice for in-house IBM mainframes and IBM PCs; also offer Profiles/3000 personnel system	*Ordermaster, Finar, Word-11, Tele-accounting	Company also installs mini and micro systems with engineering and graphics software; remote services demonstration tion and training

All About Remote Computing Services

COMPANY	CompuData, Inc.	CompuServe, Inc.	Computer Corporation of America	Computer Network Corporation (Comnet)	Computer Resource Services, Inc.
GENERAL					
Name of service	CompuData, Inc.	CompuServ, Inc.	Comet Electronic Mail	Alpha	CRS
Type of service	Timesharing	Timesharing, on-line data base	Time-shared electronic mail service	Timesharing, remote job entry, facilities management	Turnkey sales, timesharing
Date operations began	1979	1969	1978	1967	1970
Data center locations	Philadelphia, PA	Columbus, OH; Dublin, OH	Cambridge, MA	Washington, DC	Dallas, TX; Houston, TX; Miami, FL; Phoenix, AZ; Las Vegas, NV; Salt Lake City, UT
Areas currently served	Delaware Valley	U.S.	International	U.S. via national network; Washington, D.C.	Southeastern and Southwestern U.S.
EQUIPMENT					
Computers	Point 4 minicomputer	DEC 10, 20, VAX in both Columbus and Dublin	Dual DEC PDP 11/70s in Cambridge, MA	IBM and IBM compatible	Alpha Micro 1062
Conversational terminals supported	Most ASCII terminals	Any ASCII terminal	Any ASCII terminal	IBM 2741, TTY 33/35, compatible units at 10 to 120 cps	ASCII or correspondence terminals
Batch terminals supported	—	—	Any ASCII terminal	IBM 2780, 1130, 360/20, compatible units at 2000-9600 bps	—
Microcomputers supported	All Z-80-based micro-computers	Apple I, II; TRS-80 IBM, Commodore, Fortune	—	Any IBM-compatible microcomputer	Alpha Micro
Other equipment supported	—	Any plotter hooked to communications terminal	—	Plotters	—
SOFTWARE					
Conversational programming languages	Basic	Basic, Cobol, Fortran APL, Bliss	—	All OS/MVT, MVS, TSO, Wylbur	Basic
Batch-mode programming languages	—	Basic, Cobol, Fortran, APL, Bliss	—	All OS/MVT, MVS	—
Principal applications	Student administration, accounting, payroll, mailing solicitation	Financial, consumer information, marketing	—	Business, scientific, engineering, graphics, medical	Manufacturing, membership, hospital administration, scientific
Principal industries served	Business, educational institutions	All industries, consumers	—	Government, consulting, hospitals, accounting, banking	Health care, manufacturing, hotel/motel industry
COMMUNICATIONS					
Access methods	Dial-up, leased lines	Dial-up	Direct Distance Dialing	Dial-up, leased lines, WATS	—
Networks used	—	CompuServe	Tymnet, Telenet	Proprietary	—
Transmission rates supported, bps	300-9600 bps	110-9600 bps	300, 1200 bps	300-9600 bps	—
CHARGES					
Min. monthly charge:					
Interactive	$700/mo. flat charge*	$100/mo.	$60/mail box*	Contact vendor for pricing	Contact vendor for pricing
Remote batch	—	$100/mo.			
Terminal connect time:					
Interactive	$20.00/hr.	$16.50/hr. (300bps)		—	—
Remote batch	—	40% discount		—	—
Central processor time:					
Interactive	—	$0.032/SRU		—	—
Remote batch	—	40% discount		—	—
Mass storage:					
Interactive	—	$0.065/3200 char.		—	—
Remote batch	—	$0.065/3200 char.		—	—
COMMENTS	*Flat charge per line; unlimited use	Additional capabilities include micro interfaces for uploading and downloading data, value-added network, private videotex, electronic mail, data bases	*Customers with 25 or more mailboxes qualify for discount	Offers nationwide OS/MVT-, MVS-compatible timesharing and remote entry over wide range of service times, terminal speeds, and charges; graphics pckg. avail.	

All About Remote Computing Services

COMPANY	Computer Sciences Corporation (Infonet)	Computer Sciencs Corporation (Infonet)	Computer Sciences Corporation (Infonet)	Computer Services, Inc.	Computer Sharing Services, Inc.
GENERAL					
Name of service	CSTS II	CSVS	Distributed Network Service	Computer Services International	DTSS
Type of service	Timesharing, remote batch, on-line data base	Timesharing, remote batch, on-line data base	Microcomputer/ mainframe integrated systems	Timesharing	Interactive, remote job entry, timesharing, re-mote batch
Date operations began	1970	1974	1980	1972	1967
Data center locations	Los Angeles, CA; Wash., D.C.; Mex., Spain, S. Africa, Australia	Beltsville, MD	Customer site	Mesa, AZ	Denver, CO
Areas currently served	U.S., Canada, Mexico, Europe, Asia, S. Afr. S. Amer., Australia	U.S., Canada, Mex., Eur., Asia, S. Africa, S. America, Australia	U.S., Canada, Mex., Eur., Asia, S. Africa, S. America, Australia	International	Continental U.S., over-seas
EQUIPMENT					
Computers	Univac 1180 (15)	IBM 4341 (1), IBM 3083 (1)	—	IBM 4331-K2	Honeywell DPS Level 66 (3) in Denver, CO
Conversational terminals supported	All TTY-compatible correspondence terminals; IBM 3270	All TTY-compatible correspondence terminals, IBM 3270	All TTY-compatible correspondence terminals	Almost any conversa-tional terminal	TTY 33, 35; IBM 2741 and compatible units
Batch terminals supported	IBM 2780, 3780	IBM 2780, 3780, HASP	IBM 3780	—	IBM 2780 and compatible units
Microcomputers supported	IBM PC, Intertec, SuperBrain, Victor, DEC, Apple II	IBM PC, Intertec, Super-Brain, Victor, DEC, Apple II	IBM PC, Intertec, Super-Brain, Victor, DEC, Apple II	—	Vector 4, IBM PC, Apple II, TRS-80
Other equipment supported	—	—	—	—	Tektronix 4010, 4027; HP 7221, 7470A; Zeta 8, Houston Instruments PTC5
SOFTWARE					
Conversational programming languages	Basic, Cobol, Fortran	All standard IBM languages and PL/1	M Basic	APL, Pascal	Basic, Cobol, Fortran, PL/1, APL, Algol, QED, Lisp, Snobal, GMAP
Batch-mode programming languages	—	—	—	—	Basic, Cobol, Fortran, PL/1, APL, Algol, QED, Lisp, Snobal, GMAP
Principal applications	Financial and marketing systems	Data base systems	Financial systems	Pensions, accounting, multi-level market accounting, general business	Budgeting, investment banking, inventory con-trol, graphics, data base management, light-ing design
Principal industries served	U.S. government, manufacturing,financial, commercial	U.S. government, manufacturing, finan-cial, commercial	U.S.government, manufacturing,financial, commercial	Insurance, accounting, general business, marketing	Telephone industry, in-vestment banking, light-ing industries
COMMUNICATIONS					
Access methods	Local dial-up to Worldwide Network	Local dial-up to Worldwide Network	Local dial-up to Worldwide network	Dial-up, leased lines	Dial-up
Networks used	Proprietary	Proprietary	Proprietary	Telenet	Tymnet, Telenet
Transmission rates supported, bps	—	50-1200 bps asyn.; to 4800 bisyn*	50-1200 bps async.*	300, 1200, 9600 bps	110, 300, 1200, 3000, 4800 bps
CHARGES					
Min. monthly charge:					
Interactive	Contact vendor	Contact vendor	Contact vendor	$10.00-$14.00/hr.	$100*
Remote batch	for pricing	for pricing	for pricing	—	$100
Terminal connect time:					
Interactive	—	—	—	—	$10.00-$30.00/hr.
Remote batch	—	—	—	—	$10.00-$30.00/hr.
Central processor time:					
Interactive	—	—	—	$0.05-$0.10 CPU	$0.05-$.25/unit
Remote batch	—	—	—	—	$0.04-$.15/unit
Mass storage:					
Interactive	—	—	—	$2.58/mo./Mbytes	$1.20/4096 chars./mo.
Remote batch	—	—	—		$1.20/4096 chars./mo.
COMMENTS	Allow customers to select pricing tailored to particular application; customers can support large data bases, con-versational or process-ing applications	*RJE-2400 to 9600 bps	Interfaces to host data base, graphics, and electronic mail systems *2400-4800 bps bisync.; RJE 2400-9600 bps		*Prices quoted are for DTSS Commercial Division; contact vendor for DTSS Telecommunications Division charges

All About Remote Computing Services

COMPANY	Caddim, Inc.	Chemical Abstracts Service	Cisinetwork Corporation	Citicorp Information Resources	Citishare Corporation
GENERAL					
Name of service	GDS/BDS Timesharing CADD Service	CAS Online	Cisinetwork	Thrift Processing Division	Citishare
Type of service	Timesharing	On-line data base	Timesharing, remote batch, on-line data base and text processing	Transaction processing	Timesharing
Date operations began	1982	1980	1970	1970	1977
Data center locations	Schenectady, NY	Columbus, OH	Van Nuys, CA Philadelphia, PA	St. Louis, MO; Chicago, IL; Buffalo, NY; Boston, MA	New York, NY; Atlanta, GA
Areas currently served	Northeastern U.S.	U.S., international	U.S.	Continental U.S.	U.S., Canada, limited access overseas
EQUIPMENT					
Computers	Prime 750, 550	IBM 3081, 370/168 in Columbus, OH	Amdahl V7, IBM 3031, 3081	CDC Omega III (3), NAS 5000 (2), NAS 7000 (1), Burroughs B7700, B6700	DEC System 2060 (3) in New York, NY; Honeywell DPS 8/52 (2) in Atlanta, GA
Conversational terminals supported	Tektronix	IBM 2741; HP 2621, 2623, 2647; TEK, TI, TRS-80	All ASCII and EBCDIC terminals	IBM 3600, ISC, Olivetti 800, Burr TC, TRW	All ASCII terminals
Batch terminals supported	—	—	IBM 2780, 3780/JES 2, IBM HASP	—	IBM 2780, 3780 and compatible terminals
Microcomputers supported	—	Apple, Atari, DEC, IBM, TEK, TI, TRS-80, Commodore	IBM PC	TI 990	—
Other equipment supported	Plotters, digitizers	—	HP 7221 B four-color plotter, Zeta 1453 SX flat bed plotter, Color Graphics CRTs, Calcomp	Not applicable	Plotters
SOFTWARE					
Conversational programming languages	Fortran	CAS On-line Command Language	VSAPL, VSCBOL, VSFortran, Pascal/VS, RPG, PL/1, PL/C	Not applicable	Basic, Cobol, Fortran, APL, Assembler, PL/1, GMAP
Batch-mode programming languages	Basic, Cobol, Fortran	—	Pascal, Fortran, Cobol, PL/1, Assembler, TSO, CICS	Cobol, Assembler	Basic, Cobol, Fortran, APL, Assembler, GMAP
Principal applications	Engineering, architecture	Chemistry, chemical engineering, substance and bibliographic information	Financial systems, econometrics, education systems, scientific banking systems, engineering, management	Banking/thrift	Business, financial, economics, financial modeling, graphics
Principal industries served	Building industry	Manufacturing, chemical research, pharmaceuticals	Banking, financial, real estate, educational institutions, municipal governments, manufacturing	Thrift institutions	Banking, brokerage, insurance, commercial
COMMUNICATIONS					
Access methods	Dial-up, leased lines	Dial-up	Dial-up, leased lines, DDS, SNA, X.25	DDS	Dial-up, leased lines
Networks used	—	Telenet, Tymnet	Tymnet, Cisinet (in Europe)	Leased lines	Tymnet, Telenet
Transmission rates supported, bps	Up to 56K bps	300 or 1200 bps	300-4800 bps	1200-9600 bps	Up to 1200 bps
CHARGES					
Min. monthly charge:					
Interactive	Contact vendor for pricing	$50 one-time for opening account	$300	$3500*	$250/mo. (DEC)*
Remote batch			$300	NA	—
Terminal connect time:					
Interactive	—	$35.00/hr*	$17.00/hr.	NA	$7.50-12.00
Remote batch	—	—	$12.00/hr.	NA	$3.00/hr. prime (DEC)**
Central processor time:					
Interactive	—	—	$0.014/unit	NA	$0.01/CRU (DEC)***
Remote batch	—	—	$23.10/CRU	NA	$0.01/CRU (DEC)***
Mass storage:					
Interactive	—	—	$0.012/KB/day	NA	$0.02/day/2560****
Remote batch	—	—	$0.011/track/day	NA	$0.02/day/2560****
COMMENTS	Complete training available	User may input molecular structure diagram for searching on text or graphics terminals *Flatcharge for searches and hit charges	Offers shared-file security system under OS/MVS; offers many well-known packages including project/2, SAS/GRAPH, etc.	*Charge based on number of accounts on file and activity	*$11.50/hr.(Honeywell) **$5.75/hr.(Honeywell) ***$.09/CRU(Honeywell) ****$.007/day/1000 chars. (Honeywell)

All About Remote Computing Services

COMPANY	Citizens Automated Systems	Cogito Data Systems	Commodity Information Service	Community Computer Corporation	Comp-U-Card International, Inc.
GENERAL					
Name of service	Canton On-line Service	See comments	Commodity Information Service	CCC	Comp-U-Store
Type of service	On-line services	On-line, batch and turnkey	On-line data base, timesharing	—	Interactive electronic shopping system
Date operations began	1970	Late 1960s	1969	1969	1981
Data center locations	Canton, OH; North Carolina	Princeton, NJ	Chicago, IL	Philadelphia, PA	Stamford, CT
Areas currently served	North, Southeast	U.S., Canada	U.S.	Delaware Valley	U.S.
EQUIPMENT					
Computers	IBM 4341 Model 4 (2) in Canton, OH	Amdahl 470 V5 (Petro-data), IBM 370/158 (Cogito), NCR Criterion (Mainstream)	Harris 210, Perkin Elmer 3210	BTI 4000 in Philadelphia, PA	—
Conversational terminals supported	Many IBM-compatible terminals available	Courier 2260	LA 36, TTY 43, TI 700, Hazeltine 1410	DECwriter printers at 10, 30, and 120 cps; video terminals	Any serial, async., ASCII personal computer or terminal
Batch terminals supported	IBM	—	IBM 2780	—	—
Microcomputers supported	Several IBM-compatible microcomputers	Convergent Tech. (Cogito)	Apple, Cromemco	—	—
Other equipment supported	Remote printers	—	Hewlett-Packard plotters	—	—
SOFTWARE					
Conversational programming languages	Cobol	—	Fortran	Basic	—
Batch-mode programming languages	Cobol	—	Fortran	—	—
Principal applications	Banking	Accounting, financial, burner service (Petro-data); educational (Cogito); fleet maintenance (Mainstream)	Commodity prices	Accounting, job costing	Shopping system for over 50,000 name-brand products at prices up to 40% off list
Principal industries served	Banks, savings and loans, service bureaus	Heating industry, secondary and private schools, fleet operations	Commodity futures industry	—	—
COMMUNICATIONS					
Access methods	Dial-up, real-time, on-line	Leased lines	Dial-up	—	Dial-up
Networks used	IBM	—	Insprint	—	CompuServ, Tymnet, Telenet
Transmission rates supported, bps	—	2400-9600 bps	1200 bps	—	300-1200 bps
CHARGES					
Min. monthly charge:					
Interactive	Contact vendor	Contact vendor	$0.35/CPU/sec*	Contact vendor	$25 Annual Fee
Remote batch	for pricing	for pricing	$0.20/CPU/sec.	for pricing	None
Terminal connect time:					
Interactive	Varies	—	$14.00/hr.	—	$18.00/hr. (prime)*
Remote batch	—	—	$8.00/hr.	—	—
Central processor time:					
Interactive	Special pricing	—	—	—	None
Remote batch	—	—	—	—	—
Mass storage:					
Interactive	—	—	$0.13/mo./sector	—	None
Remote batch	—	—	$0.13/mo./sector	—	—
COMMENTS	Service only available to financial companies at present	Three services offered: Petrodata, Cogito, and Mainstream	*$100.00/min./mo.	Victor dealer; micro systems available	*Prime is Monday-Friday, 9am-5pm EST; $5.00/hr. for non-prime

All About Remote Computing Services

COMPANY	Bob White Computing Services, Inc.	Boeing Computer Services Company	Boeing Computer Services Company	Boeing Computer Service Company	Bradford National Computer Service
GENERAL					
Name of service	BWCS Banking Services	Mainstream - CTS	Mainstream-TSO	Mainstream EKS/VSP	Bradford National Computer Service
Type of service	Remote batch, on-line data base	Timesharing, remote batch; on-line data base	Timesharing, remote batch, on-line data base	Timesharing, remote batch, on-line data base	Timesharing, remote batch, systems and development, disaster
Date operations began	1979	May, 1970	February, 1973	January, 1975	1975
Data center locations	Oak Brook, IL Bloomington, IL	Vienna, VA	Vienna, VA	Seattle, WA	Teaneck, NJ
Areas currently served	U.S.	Continental U.S., Alaska Canada, United Kingdom, Japan, Saudi Arabia	Continental U.S., Alaska Canada, U.K., Japan, Saudi Arabia	Continental U.S., Alaska, Canada, U.K., Japan, Saudi Arabia	U.S.
EQUIPMENT					
Computers	IBM 4341 (1), 370/148 (2)	IBM 3081, 3033s in Vienna, VA	IBM 3033s in Vienna, VA	Cyber 760 (2), Cyber 720 (2), IBM 3031 (2) Cray 15 2 Megs all in Seattle, WA	IBM 3033 (2)
Conversational terminals supported	All IBM-compatible terminals	TTY and compatible units at 10, 30, or 120 cps; IBM 2741 compatible, IBM 3270	TTY and compatible at 10, 30, 120 bps; IBM 2741 compatible, at 14.8 cps; IBM 3270	TTY compatible units at 10, 30, 120 bps; IBM 2741 compatible units at 14.8 cps	All IBM-Compatible terminals
Batch terminals supported	—	IBM 2780, 3780, 360/20, 1130, 6670, or IBM HASP terminals	IBM 2780, 3780, 6670, 1130, or any other IBM HASP terminals	COPE, IBM HASP, IBM 2780, 3780 CDC 200UT	All IBM-Compatible terminals
Microcomputers supported	—	All with ASCII protocol; those with IBM 3270 emulation or RJE protocols; any using BCS	All with ASCII protocol those with IBM 3270 emulation or RJE protocols; any using BCS	All with ASCII protocol, those with IBM 3270 emulation or RJE protocols; any using BCS	Panasonic, Texas Instruments, IBM
Other equipment supported	—	—	—	—	—
SOFTWARE					
Conversational programming languages	—	Basic, Cobol, Fortran, PL/1, Assembler, Pascal, VS/APL	Basic, Cobol, Fortran, PL/1, Assembler, Pascal	Basic, Cobol, Fortran, APL, Compass, SPSS, System 2000, Simscript	110 individual packages
Batch-mode programming languages	Cobol, Assembler	Basic, Cobol, Fortran, PL/1, Assembler, VSAPL	Basic, Cobol, Fortran, PL/1, Assembler	Cobol, Fortran, APL, Compass, Simscript, SPSS	Cobol, Fortran, PL/1, Pascal, Basic, Assembler and others
Principal applications	Accounting	Business, financial, data base management, graphics, statistics, on-line application development	Business, data base management, graphics, statistics, on-line application development	Structures, mechanical design, decision services simulation, building energy, support services	Financial
Principal industries served	Banking, financial	Energy, manufacturing, government, telecommunications	Energy, manufacturing, government, telecommunications	Energy, manufacturing, government, telecommunications	All industries
COMMUNICATIONS					
Access methods	Dial-up, leased lines	Dial-up, leased lines, continuous access	Dial-up, leased lines, continuous access	Dial-up, leased lines, continuous access	Dial-up, leased lines
Networks used	Proprietary	Proprietary-BCSNET	Proprietary-BCSNET	Proprietary-BCSNET	Tymnet, Telenet
Transmission rates supported, bps	9600 bps	2400, 4800, 7200, 9600 bps	2400, 4800, 7200, 9600 bps	2400, 4800, 7200, 9600 bps	Up to 56K bps
CHARGES					
Min. monthly charge:					
Interactive	Contact vendor	None	None	None	Contact vendor
Remote batch	for pricing	None	None	None	for pricing
Terminal connect time:					
Interactive	—	$4.00-$24.00/hr.	$4.00-$24.00/hr.	$12.00-$24.00/hr.	—
Remote batch	—	$4.00-$24.00/hr.	$4.00-$24.00/hr.	$12.00-$24.00/hr.	—
Central processor time:					
Interactive	—	$0.06-$0.16/CSU/ARU	$1.00-$3.00	$0.14-$0.22/CCU	—
Remote batch	—	$0.03-$0.16/CSU/ARU	$0.50-$3.00	$0.015-$0.125/CCU	—
Mass storage:					
Interactive	—	$0.19-$1.25*	$0.06/3350*	$0.0010-$0.0070*	—
Remote batch	—	$0.19-$1.25*	$0.06/3350*	$0.0010-$0.0070*	—
COMMENTS	Company offers full range of banking and thrift applications processing, including 24-hour ATMs	*Per 212.8K bytes/sec.	*Per trk./day	*Per 640 chars./day	Languages include Cobol, Fortran, PL/1, Pascal, Basic, Assembler, Easytrieve, Scan, Autotab II Roscoe, and others

All About Remote Computing Services

COMPANY	Broker Services, Inc.	BRS Bibliographic Retrieval Services	Burroughs Corp.	Business Data Systems	Business Information Services, Inc.
GENERAL					
Name of service	Broker Services	BRS	New York City Data Center	On-line Commercial Services	Business Information Systems, Inc.
Type of service	On-line data base, timesharing	On-line services	Timesharing	On-line data base	Remote batch
Date operations began	1978	1976	1971	1979	1964
Data center locations	Denver, CO	Albany, NY	New York, NY	Old Greenwich, CT	Chicago, IL; Cleveland, OH; Ft. Lauderdale, FL; Charlotte, NC; Phoenix, AZ; Los Angeles, CA
Areas currently served	U.S., Canada	U.S., Canada, Europe, Japan	Continental U.S., Worldwide	Metropolitan New York, Connecticut	U.S.
EQUIPMENT					
Computers	Prime 400 (2)	NAS 9050	Burroughs B6700, B6800	BTI 4000, 5000, GA 2500	IBM 370/168 in Chicago, IL
Conversational terminals supported	All ASCII terminals	Any ASCII terminal	All TTY-compatible terminals up to 1200 bps	Televideo 920, ADS, LA 20; all ASCII-compatible up to 1200 bps	Ontel
Batch terminals supported	—	—	Burroughs B80, B800, B1800; IBM 2780	—	—
Microcomputers supported	All ASCII-compatible terminals	Any that support ASCII terminals	Burrough B20	Pick/OS compatible, GA	Radio Shack II, III, 16; IBM PC; Apple II Plus
Other equipment supported	—	—	—	—	—
SOFTWARE					
Conversational programming languages	Basic, Cobol, Fortran, PL/1	Cobol, Assembler	Basic, Cobol, Fortran, APL	Basic	Basic, Cobol
Batch-mode programming languages	—	Cobol, Assembler	Cobol, Fortran, Algol, PL/1	—	Basic, Cobol
Principal applications	Stock options analysis, general computing	On-line data base creation, retrieval, and maintenance	Business, scientific	Business, distribution, accounting	Accounting, financial reporting
Principal industries served	Brokerage firms banking and trust, investment counselling	Publishing, information industry	Banking, insurance, real estate, radio advertising	Distributors, manufactures, whole-salers	Public accounting
COMMUNICATIONS					
Access methods	Dial-up, leased lines	Dial-up, leased lines	Dial-up, leased lines	Dial-up, leased lines	Dial-up
Networks used	Telenet	Telenet, Tymnet, Uninet	Telenet	Bell Systems	—
Transmission rates supported, bps	300-9600 bps	300, 1200 bps	100 to 9600 bps	300-1200 bps	—
CHARGES					
Min. monthly charge:					
Interactive	$295*	See comments	None	$450	—
Remote batch	—	—	—	—	$100
Terminal connect time:					
Interactive	$2.50 (timesharing)**	See comments	$15.00/hr.	—	—
Remote batch	—	—	—	—	Per translation
Central processor time:					
Interactive	$0.04 (timesharing)	—	$0.76/sec.	—	—
Remote batch	—	—	$0.76/sec.	—	Per translation
Mass storage:					
Interactive	$0.10/4096 char./day	See comments	$0.02/1K chars./day	—	—
Remote batch	—	—	$0.02/1K chars./day	—	—
COMMENTS	Company offers special-ized stock options analysis and portfolio service *NC for timesharing **$7.50 via Telenet	Charges for data bases based on annual mininum fee for various services	Page printer services available on Burroughs B9270 laser printer	Software offered can be migrated to micro systems running Pick/OS	

All About Remote Computing Services

COMPANY	Ask Computer Systems, Inc.	Aspen Systems Corporation	Automated Information, Inc.	Automated Systems, Inc.	Automation, Inc.
GENERAL					
Name of service	ASKNET remote Processing Service	Aspen Search	Computer Service	Time Sharing Services	Automation, Inc.
Type of service	On-line data base, remote computing	On-line text data base	Timesharing	Timesharing, remote batch	Timesharing, remote batch
Date operations began	Los Altos, CA; Chicago IL; Boston, MA; Orange, CA; Syosset, NY	1969	1969	1966	1967
Data center locations		Rockville, MD	St. Louis, MO	Dayton, OH	Omaha, NE
Areas currently served	U.S.	U.S.	St. Louis area	Ohio	Eastern Nebraska, Central Iowa
EQUIPMENT					
Computers	HP 3000 Series III (3) in Los Altos, CA; HP 3000 Series 64 (5) in Los Altos, CA	Itel AS/6, IBM 4341	DEC PDP 11/70 (3), VAX 750 (1), PDP 11/34 (1), IBM 370/145	Datapoint ARC	DEC PDP 11/70, Honeywell 66/05
Conversational terminals supported	Any HP-compatible terminal	Most ASCII terminals	All ASCII terminals	Datapoint 3600, 8200, 8220	ASCII terminals (30 and 120 cps)
Batch terminals supported	—	—	DEC-compatible terminals	—	Any 2780-compatible terminal
Microcomputers supported	—	All ASCII-compatible terminals	DEC	Datapoint	—
Other equipment supported	—	—	—	—	—
SOFTWARE					
Conversational programming languages	Fortran	—	Basic, Cobol, Dibol	Databus	Basic + 2
Batch-mode programming languages	—	—	Basic, Cobol, Dibol	Databus, Cobol	Cobol
Principal applications	Manufacturing, accounting	On-line data base building, searching, and retrieval	Accounting, inventory control	Accounting, financial	Accounting, business
Principal industries served	Manufacturing	Commercial, publishing, legal, governments	Business	Construction, public accounting, business	Distributors, retailers, manufacturing, construction
COMMUNICATIONS					
Access methods	Dial-up, leased lines, DDS	Dial-up	Dial-up, leased lines	Dial-up	Dial-up
Networks used	Tymnet; Ask's own communications network	Telenet	—	Proprietary	—
Transmission rates supported, bps	1200, 2400, 4800 9600 bps	300-1200 bps	Up to 9600 bps	1200 bps	300, 1200, 2400 bps
CHARGES					
Min. monthly charge:					
Interactive	$500-$1500 1-time chr	—	Contact vendor for pricing	$100	$100
Remote batch	—	—		$100	—
Terminal connect time:					
Interactive	$1075/mo. port charge*	$35.00-$60.00/hr.	—	$12.00	$17.50/hr.*
Remote batch	—	—	—	$18.00	$3.00/hr.**
Central processor time:					
Interactive	—	—	—	—	—
Remote batch	—	—	—	—	$75.00
Mass storage:					
Interactive	Varies by product	$0.27/K char./yr.	—	$0.016/1280 chars./day	$40.00/mbyte/mo.
Remote batch	—	—	—	$0.016/1280 chars./day	$1.00/mbyte/day
COMMENTS	*$875/mo. ea. addition All Asknet users can accrue credits toward eventual purchase of turnkey system terminal		Authorized distributor for DEC		*Flat rate charges for interactive system, available on one-year contract **Per transaction charge on remote batch

All About Remote Computing Services

COMPANY	Autoscript, Inc.	Auto Tell Services, Inc.	Avco Computer Services	Batsch Company, Inc.	Billboard Publica- tions, Inc.
GENERAL					
Name of service	Autoscript, Inc.	Auto Tell Services, Inc.	MVS/TSO; VM/CMS	Batsch Spectracomp	Billboard Information Network
Type of service	Timesharing	Timesharing	Timesharing, remote batch, transaction	Conversion of data base information to typeset pages	On-line data base
Date operations began	1977	1968	1958	1964	1981
Data center locations	Bloomfield, CT	Villanova, PA	Wilmington, MA; Cincinnati, OH	Camp Hill, PA	Teaneck, NJ
Areas currently served	Connecticut	U.S.	Worldwide	U.S.	U.S.
EQUIPMENT					
Computers	DEC PDP 11/34 in Bloomfield, CT	Bunker Ramo 1028, Honeywell 1250	IBM 3033 (3), 3083, 4341	DEC mainframe, Compugraphic 8600 output	IBM 3440
Conversational terminals supported	VT101, VT100, VT52	Datanet 30, ICL 1501	IBM 2741, 3270 and compatibles; TTY 33/35	All ASCII terminals	All Teletype- compatible terminals
Batch terminals supported	—	—	IBM HASP, 2780, 3270 and compatibles	Virtually any type	—
Microcomputers supported	—	TI 300 Series	Most micros with ASCII async. TTY and 3270 support	Virtually any type	Apple, Radio Shack, Commodore, Osborne
Other equipment supported	—	—	FR 80 graphic recorder, Aplicon color plotter, Tektronix devices	See comments	—
SOFTWARE					
Conversational programming languages	—	Fortran	Basic, Cobol, Fortran, Pascal/VS, Assembler	Shaffstall Mediacom 3300	—
Batch-mode programming languages	—	Fortran	Cobol, Fortran, PL/1, RPG, Pascal/VS, VS Basic	—	—
Principal applications	Retail pharmacy	Accounting, parts inventory control	Accounting, scientific, engineering, manufactur- ing statistics, finan- cial, graphics, data base management	All industries	Provide information to music industry
Principal industries served	Pharmaceutical	Auto dealers	Banking, financial, insurance, industry, education, government	All industries	Music industry
COMMUNICATIONS					
Access methods	Dial-up, leased lines	Dial-up	Dial-up, leased lines, WATS	Dial-up	Dial-up
Networks used	Proprietary	Outward Wats	Tymnet, Telenet, proprietary	—	Tymnet
Transmission rates supported, bps	—	1200 bps	110 to 19.2K bps	300 and 1200 bps async. 2400 bps bisync.	300, 1200 bps
CHARGES					
Min. monthly charge:					
Interactive	$300	Contact vendor	—	See comments	—
Remote batch	—	for pricing	—	—	—
Terminal connect time:					
Interactive	—	—	$4.00-$30.00/hr.	—	$24.00/hr.
Remote batch	—	—	$10.00-$30.00/hr.	—	—
Central processor time:					
Interactive	—	—	$380-$1800/ACU hr.	—	$0.25-$5.00/report
Remote batch	—	—	$380-$1800 ACU hr.*	—	—
Mass storage:					
Interactive	—	—	$0.50/19,000 chr/day	—	—
Remote batch	—	—	$0.05/19,000 chr/day	—	—
COMMENTS		Average charges for accounting-$750/mo; parts inventory control-$350/mo.	Company provides exten- sive library of applica- tion and development software, facilities management, color and black and white graphics *Not applicable-VM/C	Charges based per 1000 characters processed; contact vendor for com- plete pricing; company can supply phototype from virtually any mainframe or WP	Company provides song titles, popular music charts, radio station playlists to music industry

All About Remote Computing Services

COMPANY	Allied Data	Altman Information Systems	American Data	American Management Systems, Inc.	Anstat, Inc.
GENERAL					
Name of service	Allied Data Timeshare Services	AIS Computer Services	American Data	Amshare	Anstat, Inc.
Type of service	Timesharing	Timesharing	On-line data base	Timesharing	On-line services
Date operations began	1967	1980	—	1974	1971
Data center locations	Olympia, WA; Aberdeen, WA; Port Angeles, WA	Chicago, IL	Portland, OR; Medford, OR	Arlington, VA	New York City
Areas currently served	Northwestern U.S.	U.S.	Northwestern U.S.	U.S.	Eastern U.S.
EQUIPMENT					
Computers	Dec 11/70 in Olympia, WA	HP 3000	IBM 4341, Tandem NSII	DEC 2060 (4)	Burroughs B4800 (3)
Conversational terminals supported	ASCII DEC Computable VT100	Any ASCII terminal at 300, 1200 bps	IBM 3270	All ASCII terminals up to 1200 bps	—
Batch terminals supported	—	IBM 2780, 3780	IBM 2780, 3780	IBM HASP	—
Microcomputers supported	—	IMS, Columbia	All with 3780 emulation	All emulating ASCII terminals up to 1200 bps	—
Other equipment supported	—	—	—	Tektronix, HP, Calcomp plotters	—
SOFTWARE					
Conversational programming languages	Basic Plus 2, Dibol User II Data Base Application Generator	Fortran, Cobol, Basic, SPL	Cobol	Cobol, Fortran, Basic, APL, Bliss, Macro, Pascal	Basic, Cobol, Fortran, Assembler, RPG
Batch-mode programming languages	—	—	Cobol	Cobol, Fortran, Data Base/Query	—
Principal applications	Accounting, financial, order entry, payroll, word processing	Financial and investment analysis, accounting	On-line bank processing, ATM Services	Business, scientific, data base management, information management	Accounting, financial
Principal industries served	Independent telephone companies, accounting, forest products	Banking, insurance, brokerage	Financial, banking	Federal, state, and local governments, transportation	Manufacturing, distributing
COMMUNICATIONS					
Access methods	Dial-up	Dial-up	Leased lines	Dial-up, leased lines, WATS	Dial-up, leased lines
Networks used	—	—	—	Amsnet, Telenet, Compunet	—
Transmission rates supported, bps	1200 bps	110, 300, 1200, 4800 bps	2400, 4800, 9600 bps	Up to 1200 bps async. Up to 9600 bps bisync.	—
CHARGES					
Min. monthly charge:					
Interactive	$65.00	—	Contact vendor for pricing	$100	$1500 (min mo. charge)*
Remote batch	—	—		—	—
Terminal connect time:					
Interactive	$7.00/hr. (6am, M-F)	$6.00/hr.*	—	—	No charge
Remote batch	—	—	—	—	—
Central processor time:					
Interactive	—	$0.03/CPU	—	$0.14/RU (prime time)	No charge
Remote batch	—	$0.03/CPU	—	$0.06/RU (non-prime)	—
Mass storage:					
Interactive	$0.05/block (1st 5000)	$0.10/256 char./mo.	—	$0.005-$.02/2560*	No charge
Remote batch	—	$0.10/256 char./mo.	—	—	—
COMMENTS	Custom tailoring to fit end-user requirements; hardcopy reports on fiche or paper	*no contract, no minimum; 12-mo. contract available; Custom programming services and bulk storage available		*Char./day Customized software development offered	*Monthly charges based on number of CRTs used; includes interactive display and report preparation

All About Remote Computing Services

COMPANY	Applied Business Systems, Inc.	Applied Computer Enterprises	Applied Financal Systems, Inc.	Arens Applied Electromagnetics	Arkos Associates
GENERAL					
Name of service	ABS Time Sharing Service	Applied Computer Enterprises	IPS, TABS, MMF*	Presentation Graphics	Arkos
Type of service	Commercial timesharing and remote batch	Timesharing, on-line data base	Remote batch, on-line data base	Timesharing	On-line, multi-user
Date operations began	1976	1978	1972	1969	1979
Data center locations	Louisville, KY	New York City	Dallas, TX	Gaithersburg, MD	Idaho Springs, CO; Billings, MT
Areas currently served	U.S.	U.S., Foreign*	U.S.	U.S.	U.S.
EQUIPMENT					
Computers	Prime 750 in Louisville, KY	Prime 400, 450, 550 in New York, NY	IBM 3033, 3081, 4341	HP 3000	Altos
Conversational terminals supported	All ASCII terminals	Any RS-232-C ASCII async. terminal	IBM 3270	HP 2647, 2648; Ramtek 6211, Chromatics XX99 Series, Tektronix 4010	TVI 950
Batch terminals supported	Data 100, Prime 2250	—	IBM HASP	—	—
Microcomputers supported	TRS-80, Apple, Texas Instruments, IBM PC, Acros, Hewlett-Packard, Commodore	—	—	All HP 3000 minicomputers	Altos
Other equipment supported	Tektronix, Calcomp, HP plotters	—	—	HP 7221 Series 4/8 plotters, Nicolet Zen drum plotters, HP 2631 printers, Tektronix plotters	—
SOFTWARE					
Conversational programming languages	APL, Basic, Cobol, Fortran, PL/1, RPG II	Fortran, PL/1	Cobol	Fortran	Basic, Cobol
Batch-mode programming languages	Cobol, Fortran, RPG, RPG II, PL/1	Fortran, PL/1	Cobol	—	Basic, Cobol
Principal applications	Business, engineering, scientific, mining, manufacturing, financial modeling	Financial	Financial	Graphics	Nursing, radiology, emergency, productivity reporting, simulations, micro-costing, data base management, physicians
Principal industries served	Distilleries, mining, engineering, hospitals	Financial	Banks, corporations, utilities	All industries	Hospitals, medical offices, clinical practices
COMMUNICATIONS					
Access methods	Dial-up via packet network	Dial-up, leased lines	Dial-up, leased lines	Dial-up	Dial-up with modems
Networks used	Tymnet	Telenet	Tymnet, Telenet, proprietary	—	—
Transmission rates supported, bps	300-9600 bps	300-9600 bps	9600 bps	—	1200 bps
CHARGES					
Min. monthly charge:					
Interactive	—	$200/mo.	Contact vendor for pricing	See comments	$10.00/dept/unit period
Remote batch	—	—		—	—
Terminal connect time:					
Interactive	$15.00-$26.00/hr.	—	—	—	$35.00/hr.
Remote batch	—	—	—	—	—
Central processor time:					
Interactive	$0.01/sec.	—	—	—	$35.00/hr.
Remote batch	$0.01/sec.	—	—	—	—
Mass storage:					
Interactive	$0.60/1000 chars./mo.	—	—	$20.00/mo./1K 256-b	—
Remote batch	$0.60/1000 chars./mo.	—	—	—	—
COMMENTS	System runs under Primos with with approx. 200 applications packages	*Can provide service wherever Telenet node is available	*IPS-Investor Processing System; MMF-Money Market Fund Processing; TABS-The Automated Bond System	$8.00/hr. connect time (prime time); $4/hr. (non-prime); $1000 initial charge per dedicated port; CPU time is $.07/sec. (prime time) and $.04/sec. (non-prime)	Company offers special software applications for hospital departments as part of consulting services