

Datapro

Communications Perspective

Technologies, Systems, Strategies

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Profile on US Sprint

US Sprint achieved its current configuration following the merger of the nation's third- and fourth-largest long-distance carriers into a new subsidiary on July 1, 1986. GTE Sprint Communications Corp. and U.S. Telecom Inc. combined their customers and then doubled their number to over 5 million users in US Sprint's first year of operations. Unfortunately for US Sprint, the new company was plagued with problems caused by its rapid expansion, including billing errors, organizational headaches, an inability to implement major deals, and internal squabbles between parents GTE Corp. and United Telecom. The major dilemma affecting US Sprint's long-term outlook, however, was a string of ongoing losing quarters stretching back to Sprint's founding as a subsidiary of the Southern Pacific Railroad.

Since then, the nation's third-largest interexchange carrier has staged an impressive upswing in its fortunes, solving most of its problems and turning the corner to profitability. Contributing to US Sprint's considerable achievements are the following milestones:

- The carrier's completion of the first nationwide fiber optic network in early 1988, stretching 20,000 route miles; encompassing all major metropolitan centers; and containing three redundant coast-to-coast backbone trunks. The new network can be operated more economically and supports practically error free, digital transmission.

- The first U.S. carrier to deploy Signaling System Number 7 (SS7) in significant proportions, in November 1988. SS7 allows US Sprint to speed call processing and offer advanced calling features and business services through a separate (out-of-band) signaling network.

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US Sprint

(Continued from Page 1)

- The federal government's award to US Sprint of 40 percent of the huge FTS2000 network contract, by which Sprint will provide data, video, and voice services to government agencies over a 10-year period beginning in fall 1989. (AT&T won the remainder of the contract.) The value of this contract to US Sprint is estimated at over \$10 billion.

- United Telecom's purchase of an additional 30.1 percent interest in US Sprint from GTE, completed on January 3, 1989 and effectively removing GTE from Sprint's chain of command. Before the purchase, United Telecom and GTE were equal partners. United may purchase some or all of GTE's remaining interest in US Sprint through December 31, 1995.

- An agreement to purchase Private Transatlantic Telecommunications System Inc. (PTAT), combined with Britain's Cable & Wireless, allowing US Sprint to provide international communication services.

- US Sprint's first financial gain of \$27.5 million on revenues of \$984 million for the quarter ending March 1989.

These foregoing events solidified US Sprint's position as the nation's third-largest carrier with over 6 million customers and more than 6 percent of the long-distance market. Despite its victories, however, the service provider faces stiff competition and could suffer more indignities at the hands of an increasingly aggressive AT&T.

The dominant interexchange carrier has landed some powerful

punches in recent months, including its own accelerated network modernization/digitization program; flexible pricing strategies widely questioned as unlawful; and a string of favorable or at least neutral rulings by the FCC. The FCC's March 1988 decision to abandon rate-of-return regulation of AT&T in favor of price caps will likely drive down long-distance prices even further. To counter such moves, US Sprint and competitor MCI both filed suits to overturn AT&T's controversial custom network arrangements under Tariff 12.

US Sprint will not lose its stake in the long-distance market at this point. Its assets lend it enormous stability; for instance, its hugely profitable Telenet data communications subsidiary is the largest U.S. public data network and the world's largest supplier of private packet switched networks, and its Meeting Channel is the largest service provider in the hot videoconferencing market. In addition, many large businesses are spreading their network risks by contracting with more than one carrier. According to US Sprint, it conducts at least some business with over 90 percent of all *Fortune* 500 companies. The following sections provide information about US Sprint's corporate structure, financial position, and services offered to business customers.

US Sprint Corporate Structure

US Sprint operates as an independent subsidiary of United Telecom, a local exchange telephone company with operating units serving 3,000 communities in 19 states. Corporate headquarters for US Sprint are located at US Sprint Place, 8140 Ward Park-

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Technology in the Driver's Seat

As a result of a collision between a commercial jet and a small private plane over San Diego in 1983, Dr. Gerard K. O'Neill, an amateur pilot and professor of physics at Princeton University, began to develop a high-accuracy navigational system for aircraft, hoping that future calamities could be avoided. His intent was to provide tools for collision avoidance, two-way communications, and emergency locating. As a result of his efforts, Geostar, now a \$20 million company in Washington, DC, was formed.

Today, the trucking industry uses Geostar to help truckers stay in touch with their dispatchers. Trucking companies need to know the location of their trucks at all times but do not like having the truckers pull off the road to call from a payphone, which wastes valuable time. Truckers and their dispatchers also detest "deadheading," the sometimes unavoidable practice of dropping off a shipment in one city and then driving empty for hundreds of miles to pick up another load.

Geostar alleviates these problems through a technology called Radio Determination Satellite Service (RDSS). Geostar, which uses equipment from Hughes Network Systems to provide one-way communications from truck to dispatcher, now plans to offer a companion C-band receiver as an optional upgrade. Trucking company dispatchers will transmit messages to Geostar headquarters, where the messages will be multiplexed onto a single data carrier and transmitted from Geostar's earth station to a satellite. Data will then be sent from the satellite to trucks equipped with a C-band receiver. The truck will receive the message and automatically acknowledge receipt. A Hughes Mobile Data Terminal (MDT) will store and display messages or forward

them to ancillary devices. The driver will be able to store and review up to sixteen 128-word messages from headquarters.

The MDT currently allows drivers to recall messages from memory, edit free-form messages, and transmit messages from the truck to headquarters. The keyboard can be handheld or mounted in a fixed position on the dashboard. The MDT has a 4-line, 20-character alphanumeric liquid crystal display (LCD). The keyboard has 30 buttons that allow the driver to send messages of up to 91 characters. The MDT is activated with an ON key; it automatically deactivates itself after several minutes of inactivity. The driver can compose up to 10 preformulated messages that can be sent en route. These messages can be previewed and edited before being transmitted.

In May of this year, the FCC authorized Geostar to use C-band capacity on a GTE Spacenet domestic satellite to offer two-way RDSS transmission. (Eventually, Geostar hopes to have its own RDSS-dedicated satellites in operation, probably to be launched by Arianespace.) Geostar calls this two-way service System 2C. The system will continue to use L-band for transmission from the vehicles to the satellite, but downlinks will go via C-band. System 2C, according to Geostar, can transmit up to 1 million messages at a cost of five cents per message. The system comprises GTE satellite capacity (L-band frequencies handled by transponders on GTE Spacenet III; C-band frequencies handled by Spacenet II), a personal computer keyboard and a six-inch microsat satellite dish in each vehicle, and the Geostar control center in Washington, DC (soon to be backed up by a second control center in Montrose, Colorado). Geostar expects to offer System 2C in September 1989.

A software package called Fleetview is used with Geostar. Installed at the dispatch center, Fleetview, a menu-driven program that runs on an IBM PC AT, converts vehicle position and status reports from Geostar into information on a color map display that shows major roads and highways. Users can customize this map to show warehouses and other important points.

Information from the trucks can be stored for later retrieval. In addition, Fleetview displays a vehicle's route over a certain time period, and the program can alert dispatchers to specific information they need to know about (for example, a truck entering or leaving New York). Fleetview is manufactured by Techwest of Richmond, British Columbia, a division of Fleet Aerospace Corporation.

Messages by Meteor

Arthur D. Little, Inc., a management consulting firm in Cambridge, Massachusetts, estimates that today there are 50 million Americans employed in some type of occupation that requires them to somehow stay in touch with some central point (*Telecommunications*, January 1989, p. 75). One of Geostar's rivals for a share of this market is Pegasus Message Corporation's Load-Track communication system. Pegasus, located in Herndon, Virginia, uses an interesting technology called meteorburst transmission (MBT). MBT is not really new to the communications scene, but recent technical advances have made it viable for mobile communications. Various government agencies have used MBT in the past, as have companies that must monitor pipeline installations.

This technology employs the billions of micro-meteor particles that fall toward the earth every day (more in summer than in winter). As the micro-meteors evaporate, they form a kind of mirror that reflects VHF signals in the 40MHz to 100MHz range over a distance of about 1,200 miles. MBT usually operates in the 30MHz to 50MHz range.

Pegasus is currently targeting the trucking industry as the primary customers for its Load-Trak system, which it has offered since 1987 (*Via Satellite*, June 1989). Pegasus has two master stations, one located in Tennessee and the other in Kentucky. Trucks are equipped with a Loran receiver, a radio modem, a digital microprocessor, and a whip antenna. Drivers on the road enter messages into a 40-

character driver's console that stores the messages in its memory and waits for a channel opening. When a channel becomes available, the message is transmitted via meteorburst to one of Pegasus' master stations. From there, messages are sent to Pegasus' network control center in Herndon via a GTE Spacenet satellite or by AT&T dedicated leased lines. Customers access the network control center by dial-up or dedicated leased lines. Messages are also transmitted from the dispatcher, to a master station, and then to the truck(s). Later this year, Pegasus intends to install more master stations in Kansas, Idaho, and Utah.

In this system, meteor showers effectively take the place of a satellite. Unlike satellites, however, meteors do not have to be constructed and launched. Consequently, Pegasus points out, the cost of the Load-Trak service is well below that of satellite-based mobile radio systems. On the other hand, satellite transmission has a better track record and a higher profile in the public's mind than has MBT. Nor is satellite transmission as subject to the vagaries of weather and climate.

Either technology, of course, is better than having drivers pull off the highway in search of an operational payphone to call their dispatchers.

The trucking industry is not the only one interested in these services. The U.S. Coast Guard, for example, is buying 15 Geostar receivers for use in seagoing operations.

Systems such as Geostar and Pegasus' Load-Trak help trucking companies save significant time and sums of money. Now other potential users are beginning to realize the benefits of these systems. The American Mobile Satellite Corporation (AMSC, formerly the American Mobile Satellite Consortium) predicts that mobile satellite communications will have nearly 300,000 users by 1992. Other industries and services likely to use these systems are law enforcement agencies, fire-fighting agencies, ambulance services, railroads, energy-related companies, and companies with fleets of service vehicles. Although it is unlikely that RDSS and MBT will add to the mythic proportions of the modern-day "knights of the road," these technologies will at least keep drivers behind the wheel and in front of a full payload.

—Charles A. Haggerty

ISDN and its Future in FAX

Facsimile offers the most effective means of transmitting hard copy documents between distant sites. But for facsimile to be an effective means of communications, users with different machines must be able to communicate with each other. For this reason, vendors adhere to standards set in 1981 by Study Group XIV of the International Telegraph and Telephone Consultative Committee (CCITT). These standards include specifications for the direction of scanning; the size of the scan line; the number of scan lines per millimeter; and phasing, synchronization, and modulation techniques. Adherence to the standards ensures that new machines are compatible with virtually all business facsimile devices made now and in the future.

The CCITT standards are divided into three primary Groups—1, 2, and 3. *Group 1* facsimile devices operate at four to six minutes per page with FM analog modulation. *Group 2* devices operate at two to three minutes per page with AM analog modulation. *Group 3* facsimile devices operate at one minute or less per page, employ digital techniques, and use redundancy reduction and bandwidth compression to enhance speed.

Proposed standards for Group 4 include specifications for digital networks, packet switched networks, circuit switched circuits, satellite, T1, and ISDN, although no decision has been reached on a standard modem for the use of Group 4 machines on public switched telephone network (PSTN) facilities. In addition to digital high speed (in the area of 56K bps) and high resolution (at least 200 by 200 lines per inch [lpi] if not as high as 400 by 400 lpi), other advantages of Group 4 include error-free transmission, message handling (multiple addresses and store-and-forward), plain-paper printing (using laser printers), and good gray scale reproduction. Geared toward public packet data networks, rather than the

standard telephone lines used by the first three CCITT groups, Group 4 units are expected to have enhanced communications capabilities for intelligent copier and computer interface. Currently, three classes of Group 4 machines have been defined:

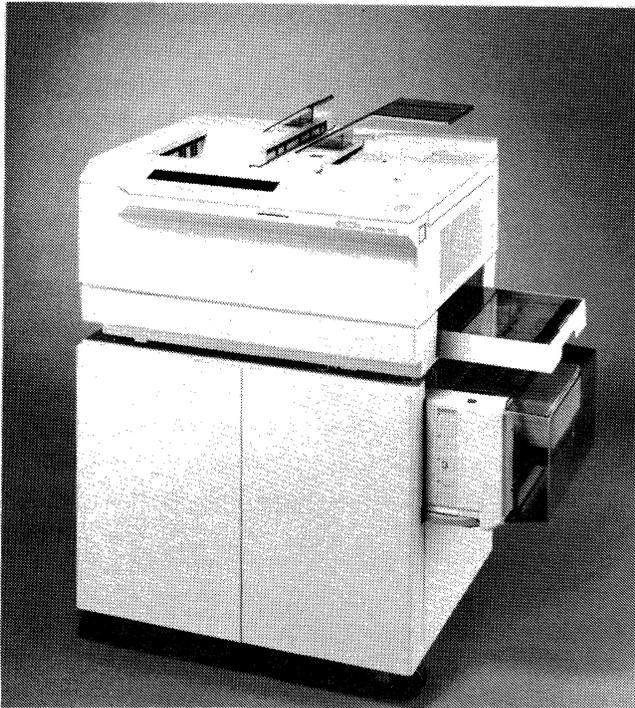
- **Class 1**—for the transmission and reception of image documents. Standard image resolution is 200 by 200 lpi, with 240 by 240 lpi, 300 by 300 lpi, and 400 by 400 lpi as optional.

- **Class 2**—designated for the transmission of image documents and the reception of image, character, and mixed-mode (image and character) documents. Standard image resolution is 200 by 200 lpi and 300 by 300 lpi; 240 by 240 lpi and 400 by 400 lpi are optional.

- **Class 3**—for the transmission and reception of image, character, and mixed-mode documents. Standard image resolution is 200 by 200 lpi and 300 by 300 lpi; 240 by 240 lpi and 400 by 400 lpi are optional.

Group 4 technology is much more than a step up from Group 3; it requires a completely different transmission facility. Some of the basic differences between a typical Group 3 unit and a typical Group 4 prototype unit concern ISDN transmission, use of laser printers, higher data rates, and faster transmission times. For the last few years, facsimile manufacturers have been waiting for the CCITT to formally adopt standards for Group 4 facsimile, but this delay has not stopped manufacturers including Canon, Fujitsu, NEC, and Ricoh from getting a head start.

One of these vendors, Canon (Lake Success, New York), unveiled a feature-packed, plain-paper facsimile called the FAX-L6500 at Canon Expo '89. The FAX-L6500 provides advanced Group 3 and Group 4 document handling and relay capabilities. Using Canon's unique adaptation of optical charac-



Ricoh's R830D demonstrates the first U.S. Group 4 mixed-mode facsimile adapter for ISDN. Connected to an IBM PC AT and transmitting to its Ricoh R830D Group 4, Class 1 fax machine, shown here, the prototype offers a glimpse at facsimile's expanded capabilities when used with ISDN.

ter recognition (OCR) technology, the FAX-L6500 allows true facsimile networking without prior programming. Equipped with one of Canon's most sophisticated laser reprographic systems, the FAX-L6500 provides 400-by-400 dpi resolution and transmission speeds as fast as 1.5 seconds per page.

Canon describes the high-end FAX-L6500 as the first "image terminal" to provide true networking for both Group 3 and Group 4 facsimiles; it not only accepts documents from any Group 3 or Group 4 terminal but also relays them to any other such terminals without preprogramming. Three advanced command modes give FAX-L6500 users more control over facsimile communications, providing greater efficiency and economy.

The Canon FAX-L6500 line competes with Ricoh's R830D Group 4 plain-paper facsimile machine. The product can be connected to digital networks operating up to 64K bps to achieve error-free transmissions at about 1.5 seconds per page.

Fujitsu Imaging Systems of America (Danbury, Connecticut), primarily a telecommunications company, approaches facsimile from a communications

perspective. Its telecommunications bent is illustrated in its product line's high transmission speeds and halftone transmission capabilities. Fujitsu places strong emphasis on research and development: the company's Group 4 facsimile units were incorporated in the first U.S. field trials of an ISDN in 1987. Fujitsu's dex Express 7800 is one of the most advanced machines available, offering laser printing, high-resolution transmission and reception and optional Group 4 capability.

NEC America Incorporated (Melville, New York) develops, manufactures, and markets a complete line of advanced communication products and software for public and private networks. Its BIT-IV-S, the latest addition to NEC's line of facsimile products, is a plain-paper Group 4, Class 1 standard console unit that transmits to other Group 4 terminals as fast as three seconds per page. The BIT-IV-S has Group 3/Group 2 compatibility and utilizes a 9600 bps automatic fallback and step-up modem.

Using high-end laser printing technology, Ricoh (West Caldwell, New Jersey), in June 1988, introduced its R830D plain-paper fax machine, which uses digital networks for facsimile transmissions. Its first U.S. Group 4 mixed-mode facsimile adapter for the Integrated Services Digital Network (ISDN) was introduced at ICA in May 1989.

The R830D conforms to the CCITT Group 4, Class 1 standard, connects to digital networks operating at up to 64K bps, and transmits an error-free standard page in about four seconds at resolutions of up to 400 dots per inch. The R830D transmits between any number of locations in the U.S. and abroad. In addition to providing Group 4 capability for transmission to other Group 4 fax machines, the R830D retains its capability for communicating over ordinary telephone lines with standard fax machines conforming to CCITT Group 3 or 2, or Group 1 (North American six-minute FM) standards. Features such as protocol conversion permit transfer broadcast from Group 4 to Group 3 units.

Ricoh's R830D Group 4 facsimile machine played a key role in exhibits sponsored by AT&T and Northern Telecom at the ISDN Showcase. The demonstrations were the largest and most diverse exhibit of ISDN applications ever presented in the U.S. The showcase was staged as part of the International Communications Association (ICA) Exposition. In the showcase, nearly 40 exhibitors demonstrated about 60 ISDN applications involving

voice communication, video transmissions, still imaging and data transfers between computers, as well as facsimile machines.

Ricoh's ICA demonstration featured a prototype CCITT Version '88 Group 4, Class 3 mixed-mode fax adapter, the first such unit ever displayed in the U.S. Connected to an IBM PC AT and transmitting to its commercially available Ricoh R830D Group 4, Class 1 fax machine, the prototype offered a glimpse of the expanded capabilities that facsimile will provide when ISDN becomes widespread. The demonstration also showcased the integration of computers and facsimile machines that will be common among ISDN users.

Existing Group 3 facsimile machines transmit information as image data in a line or dot format, about 200 by 100 lpi in standard resolution. In contrast, mixed-mode Group 4, Class 3 transmissions combine image files with character-coded data, whereby characters are identified as such, minimizing the line capacity required to transmit the message.

ISDN supports voice, data, fax, and video transmission over standard twisted-pair telephone wire at speeds up to 64K bps. ISDN users can fax documents while simultaneously speaking to the recipient. The Ricoh prototype adapter is designed specifically for ISDN lines and meets the CCITT Version '88 Group 4, Class 3 protocol developed for mixed-mode communications. In addition to communicating with the installed base of Group 4, Class

1 machines, the Ricoh prototype adapter communicates with remote workstations equipped with the adapter, where transmitted text and graphics can be edited.

The mixed-mode adapter has the potential to be a highly effective communication device for desktop publishing applications. The prototype allows mixed-mode documents created with desktop publishing software to be transmitted to remote typesetting facilities for camera-ready composition of both type and graphics. The prototype currently supports Aldus PageMaker software.

As currently configured, the adapter connects to a computer workstation through a small computer system interface (SCSI) port. The demonstration at ICA included the Ricoh PC Laser 6000 laser printer and the Ricoh IS30 scanner, which, like the Group 4 adapter, support resolutions of 300 dots per inch (dpi). The adapter also permits resolutions of 240 and 200 dpi.

With ISDN in place, fax manufacturers will be well positioned to provide future fax users with the kind of Group 4 equipment that will allow them to get the most out of ISDN and other digital lines. Group 4 machines of the future promise users greatly reduced transmission speeds (less than five seconds), image manipulation, full color, and superior-quality plain-paper output. In addition, users can expect error-free transmission and reduced communication costs—tremendous user benefits.

—Carol Skvarla

US Sprint

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US Sprint employs approximately 14,000 workers in 49 states and serves about 6 million interexchange customers. The president and CEO, William T. Esrey, is serving as an interim president until a permanent replacement is found for the previous president, Robert Snedaker, who last year took early retirement. Esrey is also president and CEO of United Telecom.

US Sprint also owns a subsidiary data communications company, Telenet Communications Corporation, which was formed by the merger of GTE Telenet and U.S. Telecom-Data Communications company in 1986.

US Sprint, a centrally organized company, divides its businesses primarily into geographic regions. The carrier streamlined its sales and marketing groups in late 1987, reducing the number of business units from eight to four. In early 1988, US Sprint joined the ranks of other information-intensive corporations by creating the position of Chief Information Officer (CIO) with direct responsibility for all MIS operations and removing these responsibilities from the company's financial department. The CIO, Executive Vice President Clifford R. Hall, reports directly to the president.

US Sprint's business is divided into three regional Business Market Groups, a National Accounts group, and the Telenet subsidiary. These units are outlined briefly below:

Eastern Business Market Group, headquartered in Reston, Virginia. President: Raymond J. O'Brien.

Central Business Market Group, headquartered in Dallas, Texas. President: Roger Vernier.

Western Business Market Group, headquartered in Burlingame, California. President: J. Bowmar Rodgers.

National Accounts, headquartered in Atlanta, Georgia. President: David Dorman.

Telenet Communications Corporation, headquartered in Reston, Virginia. President: Paoli I. Guidi.

A US Sprint separate subsidiary, Telenet is the world's largest public data network with approximately 50 percent of the U.S. market. It is also the largest provider of private packet switched data networks with one third of the world market (*Business Week*, August 29, 1988). Telenet was formed as a private venture in 1972 and offered its first public service in 1975; the company was acquired by GTE in 1979 and merged with United Telecom's public data network, U.S. Telecom-Data Communications Company (formerly Uninet), in 1986. Telenet data traffic has been migrated to US Sprint's fiber network.

The Telenet Public Data Network serves over 500 dial-up access centers throughout the U.S. and provides service to over 80 international locations in more than 30 countries. It supports over 2,500 hosts and handles over 1 million terminal sessions each day. Telenet was the first U.S. public data network to implement the X.25 access protocol and has offered dial-up or dedicated service since its inception. Transmission rates range from 300 bps to

T1 (1.544M bps). On the high-speed side, Telenet offers a T1/packet solution called Telenet Integrated Digital Network (IDN) supporting T1 and packet-switching formats over a single network. Other available services include an international electronic mail/messaging service, Telemail; a document exchange service, Telenet Electronic Data Interchange (EDI); a hard copy electronic delivery service, Telemail Xpress; and a transaction processing service, Telecard.

US Sprint Financial Position

US Sprint posted its first operating profit for the quarter ending March 1989, earning \$27.5 million on revenues of \$984 million. Earnings were \$0.73 per share versus \$0.33 per share for the first quarter of 1988, an increase of 121 percent. The gain ended 10 consecutive quarters of operating losses since the carrier began operations after GTE Sprint and U.S. Telecom merged operations on July 1, 1986. The company had been moving toward profitability since about third-quarter 1987; in fact, US Sprint reported a \$14 million profit for the fourth quarter of 1988 before writing off interim network equipment used in the transition to the fiber network, turning the gain into a \$181 million loss. US Sprint's future outlook looks healthy because of benefits afforded by its modern all-fiber optic network, an increasing number of lucrative contracts signed with large customers, long-term revenues provided by the FTS2000 contract with the federal government, and new opportunities in the public payphone and international markets.

In 1986, US Sprint's first year of operation, the carrier lost \$334.3 million on revenues of \$1.172 billion; it lost \$1.101 bil-

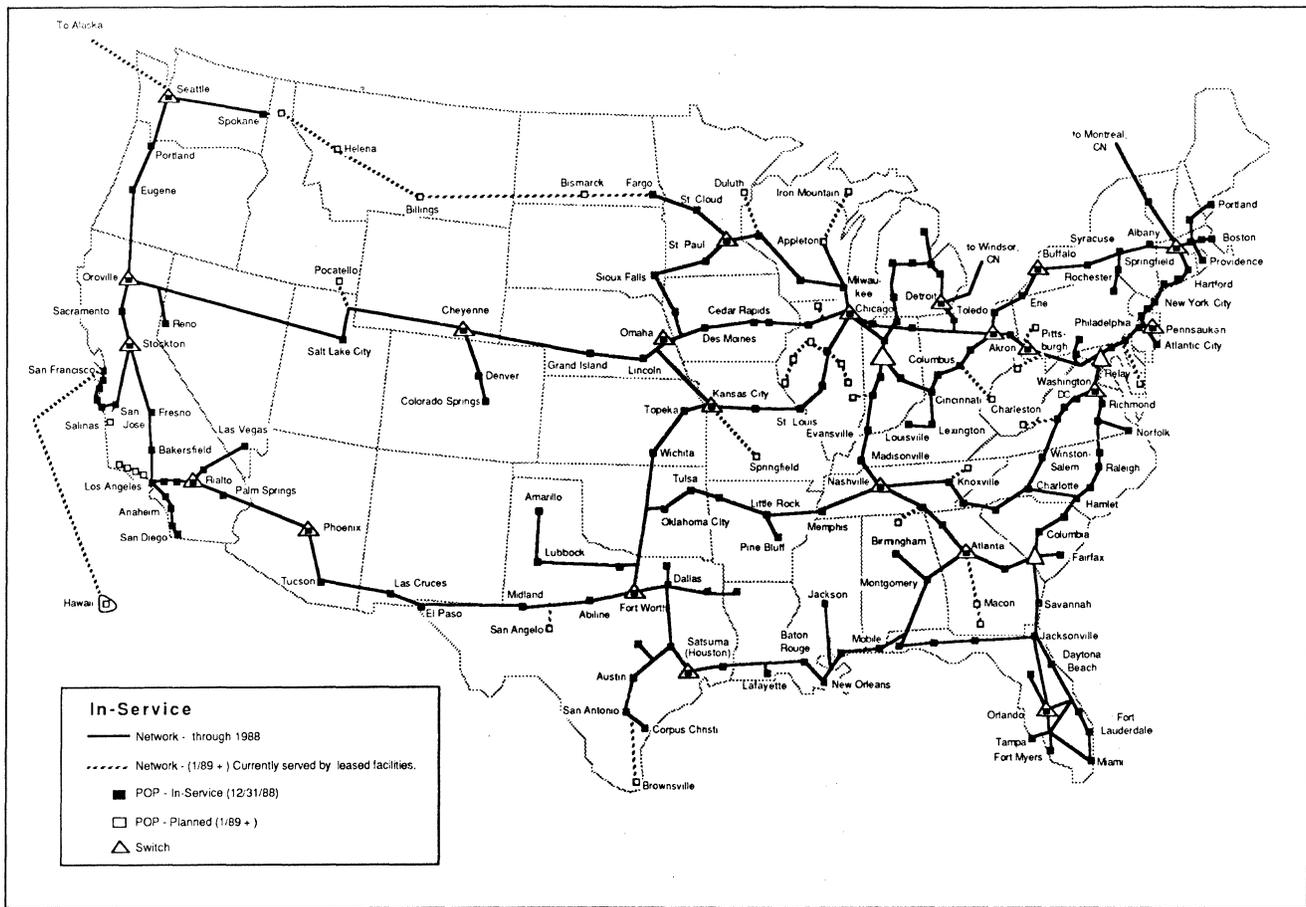


Figure 1. US Sprint's Nationwide Digital Fiber Optic Network.

lion on revenues of \$2.672 billion in 1987; and lost \$409 million on revenues of \$3.405 billion in 1988. US Sprint assets total \$3.480 billion. US Sprint's primary parent, United Telecom, had net income of \$508.9 million in 1988, a net loss of \$51.5 million in 1987, and net income of \$180.5 million in 1986. Total assets, year-end 1988, amounted to \$9.817 billion. United Telecom is the second-largest independent (non-Bell) telephone company after GTE Corp.

US Sprint Business Services

Although the bulk of US Sprint's business is derived from residential long-distance service, an increasing proportion is going to business customers. A trend for large carriers—including US Sprint—is to encourage businesses away from private line offerings toward high-end switched facilities. This trend is reflected in price increases for various elements in the carrier's private line offerings, while prices for

switched facilities have remained stable or dropped. US Sprint phased out voice grade private line offerings when it cut over to its present all-digital fiber optic network.

The carrier still claims a pricing advantage over AT&T and follows AT&T's lead in rate cuts, but it does not always match them. From the time it was incorporated in July 1986 through year-end 1988, US Sprint cut prices six times for a cumulative reduction of 22 percent. It offers a number of service options for business customers, including detailed call record reports, accounting code service, subaccount billing under a single master account, directory assistance, and travel card calling. All dial-up services are billed in six-second increments. Current US Sprint business services are summarized below. In addition to these, the carrier plans to introduce "900" services for use by major information providers.

Dial 1 WATS. A virtual banded service using existing business lines in equal access areas. Virtual banding permits any line to terminate at any point in the U.S., Puerto Rico, the U.S. Virgin Islands, and various international locations. It is intended for users with 30 to 700 monthly call-hours. Usage charges are based on a tapered rate structure that is usage and time-of-day sensitive.

Advanced WATS. A virtual banded service primarily for non-equal access areas. Access is obtained via dedicated access lines (DALs); T1 access is optional. It is intended for users with 50 to 500 monthly call-hours. Usage charges are based on a tapered rate structure that is usage and time-of-day sensitive.

Advanced WATS Plus. A virtual banded service for medium-volume customers. Access is obtained via WATS Access Lines (WALS) and WATS Access Line Extensions (WALEs). It is

intended for users with 50 to 650 monthly call-hours. Rates are tapered so that they decrease after the first 25 hours of use, after 50 hours of use, and again after 100 hours of use, in total for each location.

Ultra WATS. A virtual banded service for high-volume customers with 700 or more monthly call-hours from a single location. Access is obtained through T1 lines or DALs. Rates are based on a measured rate structure. The structure differs from that of Dial 1 and Advanced WATS—in each of five bands, one rate applies regardless of the number of hours used.

Banded WATS. A traditional WATS service intended for users with 50 to 500 monthly call-hours. Access is obtained via DALs. Usage rates are based on five service bands, each encompassing a geographic area, and are time-of-day sensitive. Each succeeding band represents a higher rate and a longer distance from the originating location. A corresponding rate is assigned to each band for each originating location. A separate, tapered rate structure applies to all calls within each band. Rates decrease after the first 25 hours of use, after 50 hours of use, and again after 100 hours of use in all five bands.

FONLINE 800 Service. A virtual banded, inward bound (toll free) calling service that operates over regular dial-up lines. FONLINE 800 is intended for small-to-medium sized businesses with up to \$6,000 in monthly 800 service calling. Both intrastate and interstate calls can be received over the same line, where allowed. Calls can originate from the U.S. and Canada. Usage rates

are tapered to provide greater discounts as volume increases.

Direct 800 Service. A virtual banded, inward bound (toll free) calling service intended for customers with between 200 and 500 monthly call-hours. Calls can originate from the U.S. and Canada. Access is provided by dedicated lines. Usage rates are based on a tapered rate structure.

ULTRA 800 Service. A virtual banded, inward bound (toll free) calling service intended for customers with over 500 monthly call-hours. Calls can originate from anywhere in the U.S. and Canada. T1 access is used to terminate the calls. Usage rates are based on a tapered rate structure.

Virtual Private Network (VPN). VPN is a software-defined network for large users with multiple locations and annual inter-LATA voice expenditures of over \$600,000. It provides the appearance, features, and functionality of a dedicated private network through the use of shared transmission facilities. Pricing for VPN service comprises installation charges, access charges, VPN feature charges, and usage charges.

International Services. Through its GLOBAL FON alliance with Cable & Wireless, US Sprint offers a gateway to digital voice, data, facsimile, and videoconferencing between the U.S. and Europe. Service is also available to Canada and the Caribbean.

FONCARD (Fiber Optic Network Card). FONCARD service is offered to US Sprint subscribers traveling anywhere in the continental U.S. and Hawaii. Calls can be placed from either a touch-tone or rotary phone by dialing (800) 877-8000. FONCARD calls are used to calculate volume discounts.

VPN 56. VPN 56 is a switched 56K bps digital service available to US Sprint customers with T1 network access. It is designed to extend US Sprint's fiber optic network to customers' on-net service locations through either a PBX or a multiplexer.

Interstate Private Lines. US Sprint supplies leased private line facilities through its *Clearline 1.5 Digital Service* for T1 transmission. Clearline 1.5 is a dedicated, point-to-point facility transmitting at speeds up to 1.544M bps (DS1 rate). A fractional T1 service, provided in multiples of 56K bps, will be available in September 1989.

Meeting Channel. The Meeting Channel provides a two-way (interactive) videoconferencing service using full-motion color and interactive audiocommunications. The service primarily uses Sprint's fiber optic network; however, satellite connections are also available. The Meeting Channel provides all necessary facilities to conduct video meetings, including satellite earth stations, video codecs, videoconferencing equipment, training, and all network services. It is the largest videoconferencing network in the world, with over 450 public and private meeting rooms located in 24 countries.

Enterprise Services. Enterprise Services is a bundled service program designed for large, multilocation customers spending over \$15,000 per month on US Sprint services and for Network WATS customers. It consists of four application-based modules: Desktop communications, Conferencing services, Telecommunications equipment, and Information services.

—Lance Lindstrom

At the LATA Level

Ameritech

Illinois—Illinois Bell Telephone (IBT) announced a joint sales agency agreement allowing General DataComm, Inc. (GDC) to act as an agency for Illinois Bell when representing the data service offerings of IBT's digital data transport services. Services include the Digital Data Service, Basic Data Service, Packet Switching Network, Switched Data Service, High Capacity Service, and Novalink Fiber Optic Service. GDC will offer these services along with its own customer premises equipment which is needed to access Illinois Bell's services. IBT has been using authorized agencies since 1984 to sell its voice products, such as Centrex. Through their service contracts, IBT agencies offer a wide range of data products and services. General DataComm provides systems, solutions, and equipment for information networks worldwide. GDC is based in Middlebury, Connecticut.

Kentucky—The Public Service Commission has approved Cincinnati Bell's tariff request to reduce Message Telecommunication Service rates approximately 30 percent. It became effective May 2, 1989.

Wisconsin—Products marketed by Wisconsin Bell as "System 1

and System 5" are being renamed "Ameritech Premiere Communications Services" to provide uniform product recognition across Ameritech's operating companies. The services provide optional ESS central office feature packages designed for one-to-six line business and residential customers. Standard features include intercom, call hold, call pickup, user transfer, and conferencing. Optional features are call waiting, call forwarding, alternate answering, and convenience dialing. Single Line service offers touch-tone calling, call hold, call forwarding variable, call waiting, speed call 6, and three-way calling.

BellSouth

Tennessee—The Franklin exchange can now call the Spring Hill exchange under the Optional Calling Plan "One-Way Optional Extended Point-to-Point Calling."

NYNEX

New York—New York Telephone (NYT) introduced Common Line 800 service in the Albany, Buffalo, Binghamton, New York Metropolitan, Poughkeepsie, and Syracuse LATAs. The service allows customers to accept 800 calls on their existing local exchange service. It uses NYT's 800 database to translate an 800 service number into a local 10-digit number which is

routed as a local exchange call through the network.

New York—The New York Department of Service plans to institute regulations to govern Providers of Operator Services. Consumer complaints regarding Operator Services companies' charges and practices prompted the commission to act. The commission determined that complaints stem from a lack of public awareness about the companies, the inability of these providers to give consumers accurate price information on request, the existence of additional surcharges imposed by the host establishment, and the consumer's inability to choose to access another provider. The commission will address these concerns by establishing regulations for the Operator Services Companies. These regulations will maintain an adequate level of protection for the consumer.

Southwestern Bell

Kansas—The Kansas Corporation Commission has granted United Telephone Co. a rate increase. Originally, United requested a \$3.8 million rate hike and planned to increase basic local residential service rates an average of 65 percent. However, the granted increase was 89 percent less than the original request.

As a result of the reduced increase, basic local monthly service rates for residential and business customers will not increase. Some customers will actually see their rates decrease. The commission ordered United Telephone to lower its rates for residential and business service connections. The access portion of residential service connections will drop from \$29.35 to \$19.45, and for businesses the rates will fall from \$44.25 to \$32.70. Zone mileage rates will also be lowered. Rates that will increase include Directory Assistance (from 30 cents to 40 cents), Custom Calling (3 percent increase), Directory Listings (33 percent increase), and Extended Area Service (a 25 cent

fee will be added to basic local service rates). Most of the rate increase will affect services—key trunk, private line, and rotary hunt—utilized primarily by business customers.

Texas—GTE Southwest Inc. revised its General Exchange Tariff rates. Services affected by the rate reductions include Local Calling Scope rates for business, Extended Area Service, Custom Calling services, and Customer-Owned Coin or Credit Card Operated Telephone services.

U S WEST

Oregon—The Oregon Public Utility Commission (OPUC) is conducting hearings on proposed rate reductions for customers of U S WEST Communications. The

commission is recommending rate reductions averaging 3.7 percent for residential and 28.4 percent for business customers. The commission stated that the cost differences between residential and business service are not justified; hence the greater reductions for business service. U S WEST has filed testimony opposing the commission's assessment. OPUC initiated the proposal, stating its investigation revealed that U S WEST's revenues exceeded authorized limits in several areas of operation.

—Becky Duncan

Rate Watch

This month's "Rate Watch" reports on intrastate intraLATA rate changes in California, Georgia, Illinois, New York, and Texas. No changes occurred in the five states covered by "Rate Watch" in the toll, WATS, or analog private line markets.

In the Digital Data Service (DDS) market, California, Georgia, New York, and Texas showed

no changes. In Illinois, DDS rates changed as follows:

—2400 bps rates increased 0.8 percent, raising the five-state average by 0.1 percent;

—4800 bps rates decreased 0.3 percent, reducing the five-state average by 0.1 percent;

—9600 bps rates increased 1.3 percent, raising the five-state average by 0.2 percent;

—56K bps rates increased 0.1 percent, raising the five-state average by 0.01 percent.

Georgia, Illinois, New York, and Texas reported no changes in T1 (high capacity) rates. California decreased T1 rates by 15.7 percent, reducing the five-state average by 2.4 percent.