Rory J. O'Connor
Computing Editor

Tech's part in history

THE VERY computer technology for which the Soviet Union has so long hungered and which finally began to trickle into the country under the leadership of Mikhail Gorbachev may well have helped save his life and kept the nation from plunging into civil war.

Although by the most generous estimates there are only 1.5 million personal computers in the Soviet Union — and perhaps only 2 percent of them have modems — the personal and public communication they made possible last week didn't exist three years ago. By the time hard-liners tired of Gorbachev's reforms moved to attack him, the reforms had swept enough technology into the country to guarantee the people would remain informed.

When NATO officials in Brussels wanted to send a message of support to Boris Yeltsin, they faxed the message to one of the busiest computer links with Moscow, the Sovam Teleport in San Francisco. There, technicians typed it into their computers, turning it into electronic mail that was sent to the computer mailbox of one of the Teleport's 400 users in Moscow. The owner was one Nikolai Kapranov, a top adviser to Yeltsin, who later sent a message back saying he had translated the NATO message and distributed it in the form of leaflets to the "defenders of the Russian parliament." He also had it broadcast on the Russian federation's radio station, and spread the message to the Soviet military.
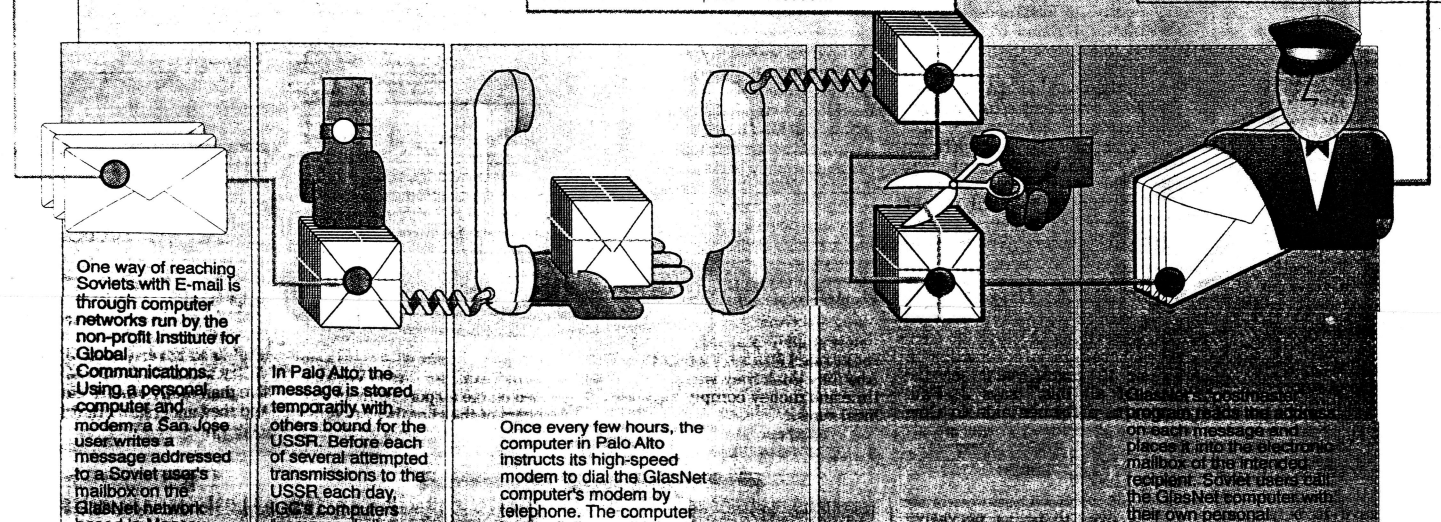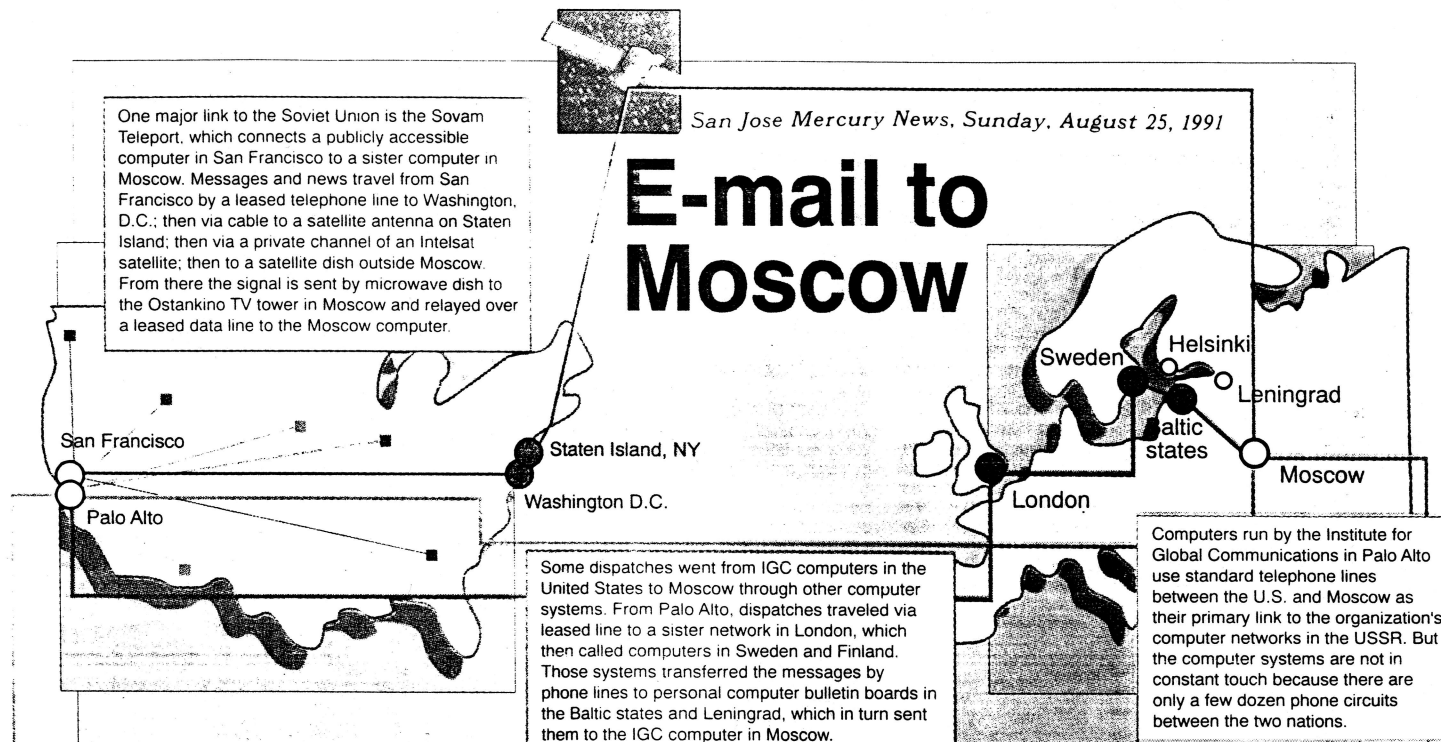
"It was also important for people inside (the) parliament building to know that they have (a) connection with democratical countries and to feel their support," he wrote.

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San Jose Mercury News, Sunday, August 25, 1991

E-mail to Moscow

One major link to the Soviet Union is the Sovam Teleport, which connects a publicly accessible computer in San Francisco to a sister computer in Moscow. Messages and news travel from San Francisco by a leased telephone line to Washington, D.C.; then via cable to a satellite antenna on Staten Island; then via a private channel of an Intelsat satellite; then to a satellite dish outside Moscow. From there the signal is sent by microwave dish to the Ostankino TV tower in Moscow and relayed over a leased data line to the Moscow computer.

Some dispatches went from IGC computers in the United States to Moscow through other computer systems. From Palo Alto, dispatches traveled via leased line to a sister network in London, which then called computers in Sweden and Finland. Those systems transferred the messages by phone lines to personal computer bulletin boards in the Baltic states and Leningrad, which in turn sent them to the IGC computer in Moscow.

Computers run by the Institute for Global Communications in Palo Alto use standard telephone lines between the U.S. and Moscow as their primary link to the organization's computer networks in the USSR. But the computer systems are not in constant touch because there are only a few dozen phone circuits between the two nations.

San Francisco
Palo Alto
Staten Island, NY
Washington D.C.
Sweden   Helsinki
Leningrad
Baltic states
London   Moscow

One way of reaching Soviets with E-mail is through computer networks run by the non-profit Institute for Global Communications. Using a personal computer and modem, a San Jose user writes a message addressed to a Soviet user's mailbox on the GlasNet network

In Palo Alto, the message is stored temporarily with others bound for the USSR. Before each of several attempted transmissions to the USSR each day, IGC's computers

Once every few hours, the computer in Palo Alto instructs its high-speed modem to dial the GlasNet computer's modem by telephone. The computer

on each message and places it into the electronic mailbox of the intended recipient. Soviet users call the GlasNet computer with their own personal

message to the Soviet military.

"It was also important for people inside (the) parliament building to know that they have (a) connection with democratical countries and to feel their support," he wrote.

IN THE small Russian town of Togliatti, the citizens were moved to send a message to MCI International's offices thanking them for the Associated Press news dispatches they were able to read from MCI's computers via the town's Telex machine.

"Your information was the weapon which today is the cause that legal government returned (to) its power," they wrote.

Technology was also at work in the other direction, as Soviets themselves used a loose collection of three dozen bulletin boards to gather first-hand information and pleas for support from Moscow, Leningrad and other cities, funneling them eventually through the Teleport, computers run by the Institute for Global Communications in Palo Alto, the Internet, and other connections.

One U.S. source says Yeltsin even used high-tech communications to reach top aides who were traveling in the United States and elsewhere, telling them to proceed to London and Stockholm to help set up a Russian government in exile.

TECHNOLOGY touched personal lives, too. CompuServe, the big Columbus, Ohio, on-line information service, opened a special forum for coup information and got a surprise series of dispatches from an American businessman, Bob Clough who lives in Moscow. But Clough also used the service to keep in touch with his parents in Menlo Park. Other messages went between anxious friends, between old business associates and new business partners.

Private conversations through the Teleport even helped arrange for several Soviets to leave the country, says operator Mark Graham, thus escaping a coup they feared would return them to a discarded past.

In light of all this, we, too, should discard the thinking of the past that has led us to keep most modern technology out of Soviet hands.

The longer we refrain from helping bring the Soviet Union's technology into the modern age, the more risk we take that a better organized coup, one with leaders that understand technology, will succeed. We should never reach that day. We will regret it if we do.

Write to Rory J. O'Connor at 750 Ridder Park Drive, San Jose 95190. Electronic mail can be sent to roconnor@well.sf.ca.us. or via MCI Mail at mailbox 361-2192. You can call him at (408) 920-5019 or send a fax at (408) 920-5917.

Computers staged news coup

By Rory J. O'Connor
Mercury News Computing Editor

For a frightening 72 hours, American and Russian computer users frantically relied on some of the world's most complex technology — and a few dozen telephone circuits — to exchange news dispatches and messages of support during last week's attempted coup.

The expansion of communications channels and the proliferation of computers within the Soviet Union may help explain why the leaders of the failed coup never shut down the dispatches from the outside world that helped Soviets resist the plot.

After years of isolation, it is now possible — although not easy — to exchange electronic mail and other computer data with the Soviet Union in much the same way it is sent to most other industrialized countries.

In those countries, electronic mail and faxes are routine transmissions, thanks to the international telephone network. A computer user in San Jose with a modem and an account on one of dozens of commercial on-line services can dial into the local telephone network and send a message to a larger computer operated by that service. That computer, in turn, exchanges

Technology has made it very difficult to shut off the flow of information into and out of the USSR.

thousands of messages a day with similar computers via an immense web of telephone wires, fiber-optic cables and satellite links.

The problem with that approach when swapping data with the Soviet Union is that its outdated telephone system requires hordes of operators to connect international calls by hand. American computer users who want to call the Soviet Union can only dial Moscow directly and must compete fiercely for phone lines. AT&T, for example, can only handle 67 simultaneous calls between the United States and Moscow.

Soviet computer users have even more trouble sending messages, because few of them have local telephone lines that permit direct international dialing. So most Soviet-American data exchanges rely on bulk transmissions between large computers, requiring users on either end to make only a local phone call. The big computers must then compete for an international

phone line.

But there are other routes for data to flow into the Soviet Union. If the coup leaders had tried, they might have found it difficult to sever all the connections with outside computers.

"Not many people (there) have real knowledge of how the networks work," said Jeff Lohrmann, acting director of the Peacenet network, a computer system in Palo Alto. Peacenet has several sister networks, including the GlasNet network in Moscow, which serves 75 Soviet computer users.

While Peacenet's usual link with Moscow is over international phone lines, it also rigged a backup link over a more tortuous route. That plan saw Soviet news dispatches gathered through a loose network of personal computer bulletin board systems in Moscow and Leningrad. The dispatches which were sent by local phone calls to the Baltic states, then to Sweden, and then to a

London computer network that maintains an open link with Peacenet.

A few enterprising users in Moscow got their messages out through a "back door": Helsinki. Many telephones in Moscow can directly dial Finland, without the caller having to deal with Soviet operators. That's how American businessman Bob Clough got his dispatches from his home in Moscow to the CompuServe on-line service, which gave nearly 700,000 users a chance to read them.

"If you're used to the everyday hassles of dealing with Soviet telecommunications, you don't see any difference" between regular service and the overloaded lines last week, he said. "If this is your first time, you probably think the authorities are doing a good job of restricting access."

IF YOU'RE INTERESTED

To set up a personal account with the Sovam Teleport, call Jennifer Childs at (415) 931-8500. The set-up fee is $100; usage charges for individuals are $25 per month plus 25 cents per minute on-line. To reach GlasNet through one of IGC's networks, call (415) 923-0900 to set up an account. GlasNet can also be reached through the Internet (glas.apc.org). CompuServe starter kits are available at most stores that sell software.

Inside

Improvement fixers

Windows 3.0, DOS 5, System 7: They're improvements, but sometimes they cause problems. Here are some programs that will help.

Take a test drive

Select Demos, a CD-ROM product, offers more than 1,000 demo programs from software companies large and small.

Adam lets doctors dissect without bodies

MARIETTA, Ga. (AP) — Adam, a small but muscular fellow who wears only sunglasses and a fig leaf, may eventually revolutionize the way medicine is taught and practiced.

While Adam stands at the ready, the click of a computer mouse — directing an interactive software program — peels off his layers, from his skin to his bone marrow.

The software program takes anatomy out of the textbook and puts it into a computer. With it, medical students can dissect without cadavers and doctors can show

patients exactly what they're going to do to them.

"No one has ever illustrated anatomy in this kind of detail," said Greg Swayne, the medical illustrator who's president of A.D.A.M. Software Inc., a medical illustration company. "What we'll end up with is the 'Gray's Anatomy' of the 21st century," he said, referring to the standard anatomy text.

Educators and doctors say they're intrigued by A.D.A.M.

"I've got 20 years teaching anat-

■ Data base ■

Top CD-ROM sellers

The best-selling CD-ROM titles for the second quarter of 1991 are compiled from end-user and dealer sales.

Rank	Title	Publisher
1	Grolier Encyclopedia	Grolier Electronic
2	Microsoft Bookshelf	Microsoft
3	U.S. History/CD-ROM	Bureau Development
4	World Atlas	Software Toolworks
5	Compton's Encyclopedia	Britannica Software
6	Mammals	IBM/Natl. Geographic
7	Reference Library	Software Toolworks
8	Science & Tech Reference	McGraw Hill
9	Magazine Rack	Information Access
10	Multimedia World Fact Book	Bureau Development

Source: Bureau of Electronic Publishing

Mercury News