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MSAT NEWS

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Trials teams attract considerable interest

TMI Communications teams travelling through remote areas of Canada were often stopped by local residents looking for more information about MSAT® services, says Allister Pedersen who recently made a 12-day journey through northern British Columbia and the Yukon.

"In Whitehorse, we didn't even manage to get to our hotel before people stopped us and began asking questions," says Mr. Pedersen.

Photos: Allister Pedersen/CRC

Nigel Bell, of Industry Canada's Pacific Region, tries out the MSAT Network's circuit-switched data abilities from a spot alongside the Skeena River near Prince Rupert, B.C. Mr. Bell accompanied Allister Pedersen of TMI Communications on the trial run so that he could evaluate MSAT services as an emergency telecommunications tool.

"Other drivers who saw the MSAT logo on the side of our van would just pull over and ask if the service they had heard so much about was available yet."

The trip was one of three that were undertaken by TMI staff, including Mr. Pedersen and John Jones from Industry Canada's Communications Research Centre who are on secondment to TMI. They travelled in vehicles equipped for the MSAT Service as part of the Alpha trials of the MSAT Network (see "TMI engineers delighted following early tests," *MSAT News* No. 15, Fall 1995). The western trip was made by Mr. Pedersen and Nigel Bell, Emergency Telecommunications Co-ordinator for Industry Canada's Pacific Region.

Other areas covered include remote parts of eastern Canada, Labrador, northern Quebec and the northern shore of Lake Superior. The testers made hundreds of calls in all, enabling TMI engineers to evaluate sound and transmission quality and the effectiveness of the support systems that will keep track of billing information.

The additional exposure was an extra benefit of the trip, says Mr. Pedersen. A wide variety of people — from fishing resort workers to local media — got to try out the system. "One of these encounters even led to an impromptu interview with a local television station."

The one disappointment was that the crew was not able to help any motorists in distress. "This was the one time in my life when I was ready to deal with any emergency that came along and we didn't see so much as someone changing a flat the whole trip," Mr. Pedersen notes. ●

EMERGENCY TRIAL DEMONSTRATES MSAT NETWORK CAPABILITY

In the future, the MSAT Network could be a valuable tool for officials co-ordinating communications to support disaster relief efforts.

This January, a number of West Coast researchers conducted a trial at Industry Canada's Cloverdale site in Surrey, B.C., to demonstrate a role that MSAT services could play during a large-scale emergency.

The researchers were evaluating an approach to emergency communications suggested by Peter Andersen of Simon Fraser University (SFU). In addition to Prof. Andersen, the trial team included Nigel Bell, Emergency Telecommunications Co-ordinator for Industry Canada's Pacific Region, Steve Hillman, a network specialist from SFU, Terry Spurgeon of Transport Canada, and Kevin MacQuiggan, a radio amateur with a special interest in high-speed wireless packet development.

Maintaining reliable communications during disasters is a major challenge, says Mr. Bell. An earthquake, for example, can completely disrupt most existing communications. Many North Americans will remember that after the California earthquake in the fall of 1992, even the most powerful news organizations in the world were unable to get much information from the disaster area.

The trial made use of DirecPC™, a satellite system with a communications protocol that enables a computer to communicate through two separate connections at the same time. During the trial, keystroke commands and validation messages were sent to Telesat Canada through an Internet connection using a modem and an MSAT Communicator®. In response, data were downloaded through the second connection established through Anik E at a rate of up to 400 kbps.

With this system, disaster relief teams could request information over the Internet and receive large data files such as aerial photographs or maps very quickly, explains Mr. Bell. "During the trial, we downloaded a three megabyte file in less than three minutes."

In order to simulate a possible disaster scenario, a Honda portable generator was used to provide power to all the equipment used at Cloverdale. "Everything worked as we had hoped," says Mr. Bell. ●

VIA TRIES GMSS SERVICE

VIA Rail Canada Inc. has begun experimenting with the Government Mobile Satellite Service (GMSS) in its attempt to find an emergency communication system that will be reliable everywhere on its rail network.

The passenger rail service has installed two units on board trains — one on the eastern network and the other on the western — to determine whether GMSS can provide the reliable communications VIA needs for safety reasons. Neither conventional radio nor cellular service can offer coverage along enough of the train routes to meet the standards required by VIA.

Two test runs have been completed to date and VIA officials are satisfied with the results so far, says John Cooper, Radio Services, Via Rail Canada Inc. "During the second test, from Toronto to Vancouver, they experienced only 10 minutes of travel time when they were not able to make contact — most of this in cuts, tunnels or avalanche sheds."

The VIA installations are a real test of the equipment, says Al Kingan, Director, Government Mobile Satellite Service. "Trains are a very harsh environment for electronic equipment. The units are exposed to constant vibration, a wide range of humidity levels and high temperatures."

DND USES GMSS DURING EXERCISE

The Department of National Defence (DND) used GMSS for operational communications during an exercise in Iqaluit, N.W.T., in December.

Four sets of GMSS equipment were used — two that went north with the troops and two that were set up at the military airport in Saint-Hubert, Quebec. "We have received a preliminary report that indicated DND was very pleased with the equipment's performance," says Wayne Lewis, Service Manager.

NEW SERVICES ATTRACT INTEREST

GTIS clients are very excited by a recent announcement that aeronautical service will be available with GMSS, says Keith Fagan, Manager, Business Development.

The proposed service is based on an aeronautical terminal consisting of a modified Westinghouse MSAT Communicator and an aeronautical antenna subsystem developed by CAL Corporation of Ottawa (See "Ottawa firm makes satcom possible for light aircraft," *MSAT News* No. 15, Fall 1995). CAL has tested the service on fixed-wing aircraft and is considering developing a unit for helicopters.

Also of great interest to potential GMSS customers are the new transportable MSAT Communicators, which are now in commercial production, says Al Kingan, Director, GMSS. "GTIS has some preproduction units that it has been demonstrating to interested clients."

FOR MORE INFORMATION ON GMSS

Government employees looking for information about GMSS may contact their GTIS Account Manager in the nearest GTIS Telecommunications Services Office.

Moncton, N.B. . . . . (506) 851-6100	Winnipeg, Man. . . . . (204) 983-4321
Halifax, N.S. . . . . (902) 426-2398	Regina, Sask. . . . . (306) 780-7722
St. John's, Nfld. . . . . (709) 772-4900	Edmonton, Alta. . . . . (403) 495-2464
Montreal, Que. . . . . (514) 283-4926	Vancouver, B.C. . . . . (604) 666-6668
Ottawa-Hull . . . . . (819) 956-4444	Victoria, B.C. . . . . (604) 363-3656
Toronto, Ont. . . . . (416) 973-6179	

Please note that GTIS offices in the National Capital Region have recently moved. As a result, their phone numbers have changed. ●

Convenient and easy-to-use faxing for the MSAT Network

Reliable fax service will soon be available for MSAT Service users as a number of companies are developing systems for use with the mobile satellite communications network.

One of the systems under development is MobilFax™ from Montreal-based Transys Networks Inc. It will enable users to send faxes to anyone else on the MSAT Network or on the public-switched telephone network (PSTN) and should be ready for use by June.

MobilFax™ will be available in a software version so laptop computers can transmit and receive faxes when connected to an MSAT Communicator, and in a hardware version that will allow direct transmission using regular fax machines.

Standard fax machines have a number of drawbacks when they are used in a wireless environment, including long transmission times and inadequate error correction abilities, explains Antoine Karam, Director of the MobilFax™ project at Transys. The company has incorporated a number of unique features into its systems to overcome these limitations, including the following:

- using sophisticated data file-compression techniques to achieve higher effective transmission speed, which will, in turn, reduce airtime — transmission times will average less than one minute per "average-content" fax page
- incorporating an error correction process to improve throughput and eliminate streaking.

The new MobilFax™ system will also provide a "mailbox" feature that will be very convenient for many MSAT Service users. The mailbox will store incoming messages. For outgoing messages, if the destination fax machine is busy, the message can be stored and sent when the line is free. This way, the customer does not have to use valuable airtime repeatedly trying to make a connection. Similarly, users can have their incoming messages stored until they want to retrieve them using either an MSAT Communicator or the PSTN. ●

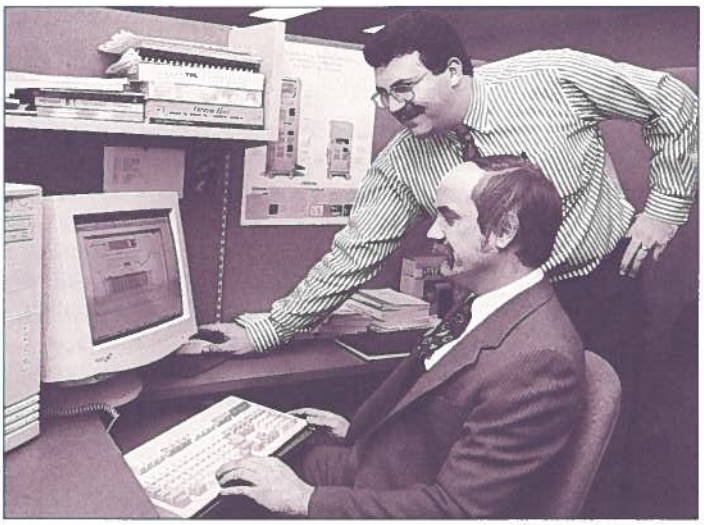

Photo: John Brebner/CRC

Neville Miller (seated), TMI Applications Development Manager, and Antoine Karam of Transys study the display screen for the network management console, which will be used for troubleshooting for the MobilFax™ network.

MSAT service providers

Here is a list of contact names and numbers for the national service providers that have signed on with TMI Communications.

Mobility Canada . .1-800-927-0125

Glentel 1-800-784-1721

Government Mobile Satellite Service . . . .(819) 956-4444
or contact your local GTIS account manager.

Infosat Telecommunications . .1-800-871-3011

For more information about MSAT service providers, call TMI Communications at 1-800-216-MSAT. ●

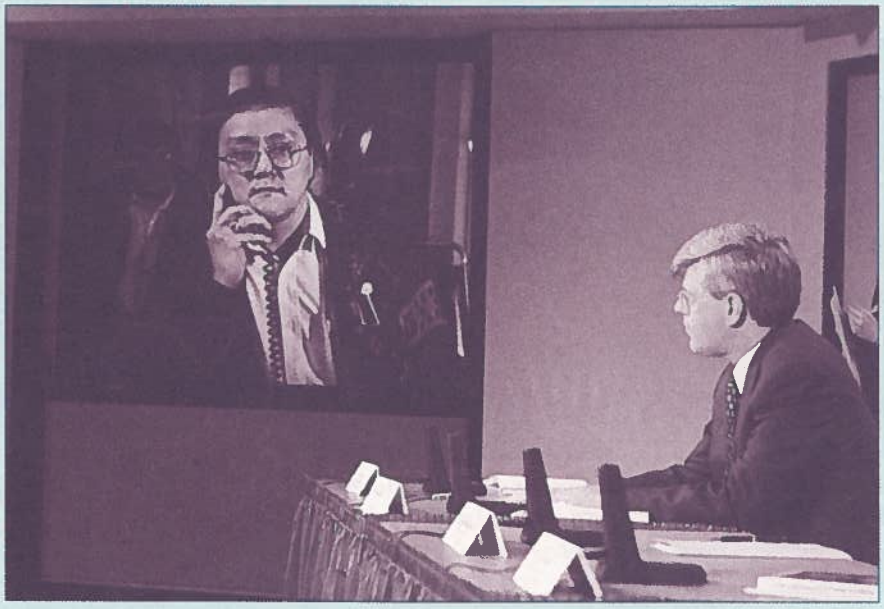

Photo: Waisglass Communication Services

Industry Minister John Manley and Joe Kunuk, Mayor of Iqaluit, take part in a video conference using the MSAT Network. Their conversation was one of the events during the January 11 launching ceremony for Mobility Canada's satellite telephone service. Glentel Inc. of Burnaby, B.C., announced a similar service a week earlier. Both companies will use the MSAT Network to deliver their service.

PAGING COMES TO THE MSAT NETWORK

Calian Technology Ltd. will be producing a series of converters so conventional pagers can be used with the MSAT Network.

Pagers can be purchased and operated for a much lower cost than other wireless communication devices because they are miniature radio receivers with no transmission capabilities. They are preset on a single frequency and can pick up digital signals only.

The key to paging technology is a complex process whereby the pager synchronizes itself to two repetitive signals sent from the base station. Once synchronized, the pager is able to determine when a signal is being sent to it and only it. The MSAT Network uses a similar system to set up calls with individual mobile telephones.

When turned on, pagers look for a repetitive signal called a square wave or comb signal. The pager has a "clock" that is synchronized with that signal. When the pager manages to lock on to the signal, it has attained "bit sync." The pager then looks for another, more complex signal. This is a specific sequence of ones and zeros. After many attempts, the pager will match its preprogrammed "frame sync" code to the identical transmitted code and set another timing sequence.

The pager system economizes on spectrum use by sending only part of the address code over the airwaves. Imagine, for example, that a particular address code is "3472." The last digit of the code, the "2," is not sent because it corresponds to the particular address slot used by this pager. When "347" is broadcast in the appropriate address slot, the pager understands this as "3472" and wakes up. The device then sounds a beep or, depending on the options available, performs a more complex task. ●

MSAT satellite increases options for remote telemetry

Companies offering telemetry systems to monitor environmental conditions in remote areas will now able to offer more options to their customers.

"There are a number of features that will be possible with the MSAT Network that we cannot provide now," explains Byron Leib, Director, Marketing and Sales, Cadham Hayes Systems Inc. This firm has developed a number of software products that allow its customers to collect environmental data from remote sites.

Photo: Environment Canada

This Environment Canada water-flow monitoring unit, located on the north shore of the St. Lawrence River near Quebec City, uses the RealNet system developed by Ottawa's Cadham Hayes Systems Inc.

The firm developed its RealNet (short for Realtime Network Management System) in 1992 for an Environment Canada water-flow monitoring program. "We modified a relational database management system that we had already developed to handle time-series data for the project," explains Mr. Leib. "When we were finished we had a system that could be used for a wide variety of environmental monitoring tasks."

The system consists of the RealNet software and a product called Grabber, which extracts the information a customer wants from a data stream. "It is a tool kit that gives you a variety of options," Mr Leib says. These range from alerts sounding at a central location when events happen, such as water levels reaching flood level, to displays of current and historical data. The system also keeps track of matters such as the battery level of the remote equipment.

For most of the current installations (without a return communications link), RealNet enables users to collect data sent from remote sites but does not allow users to change the configuration of equipment at a remote site from their home base. Currently, a technician must visit the site and set up the equipment to change the kind of data received. "That is a fairly serious limitation because there are times when you may want to change the frequency of data collection," explains Mr. Leib. "For example, someone monitoring conditions that could lead to forest fires might want data more often during a dry spell."

With the MSAT Network system, Cadham Hayes customers will be able send signals to the remote equipment to change the way they collect data without having to send a technician to the site.

For more information, please contact Byron Leib at (613) 789-8649 or by fax at (613) 789-5207. ●

MSAT News

MSAT News is produced by Industry Canada to increase awareness of the MSAT Program and related technologies. It is published on an as-required basis, approximately once every three months. The department will continue to publish the newsletter until the project is completed.

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