



# TODAY

OCTOBER 1986

VOLUME 1 NO. 2

## Voice of America Contract Announced

COMSAT Corporation's Space Communications Division (SCD) has won a five-year, \$8 million contract to design and implement a global satellite network for the United States Information Agency.

Voice of America, an international broadcasting component of USIA, will use the digital network, known as the VOA Interconnect System, to upgrade its broadcast relay system between a Washington, D.C. uplink

and stations located in the U.S. and abroad.

The basic contract calls for a system that will interconnect four earth stations within the U.S. and provide access to the INTELSAT system to reach sites in the Caribbean, Europe, and Africa. The network is scheduled to begin operation in 1987.

The contract value could amount to more than \$33 million if all op-

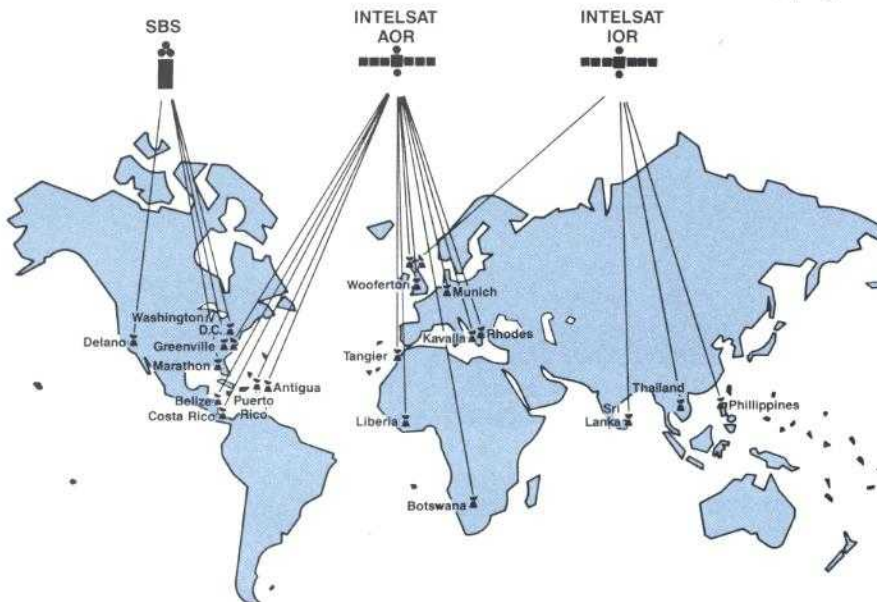
*See VOA, page 6*

## COMSAT, Contel to Merge

As we go to press, COMSAT Corporation and Contel Corporation announced a definitive agreement to merge.

The new company would retain the name COMSAT Corporation. Contel, the nation's third-largest, non-Bell telephone operating company and a leading supplier of advanced information services would become a wholly owned subsidiary.

More details will follow.



A system option calls for 16 relay stations.

## 'Printed Circuit' to Return

Due to popular demand, "The Printed Circuit" is making a comeback. A bi-monthly compendium of employee want ads, "The Printed Circuit" will be compiled and edited by Jocelyn Ward, courtesy of the Security Department where she now works. Ward is the former editor of the publication. The Public Relations Department will publish and distribute "Printed Circuit."

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## Employees Call 'Open Line'



"We hear you," is the message from Chairman Irving Goldstein and President Marcel Joseph.

"Open Line," a telephone answering machine on which employees may leave comments for Goldstein and Joseph, went into operation last month.

One caller noted that shutting off the lights to conserve energy has an adverse impact on efficiency, that employees are having difficulty seeing the CRTs (cathode ray terminals) and other work materials. That caller has already seen action.

Corporate Services inspected work sites, made some adjustments and the result is that all employees now have a minimum of 70 foot-candles of light, well above applicable standards.

Another caller recommended improving the financial reports used to monitor profitability. He said they should include revenues for each division. A different caller inquired about new organization charts.

Other than taking a report when an employee has something stolen at

work, there ought to be some additional kind of follow-up action, according to one caller.

Another proposed establishing a "pool" of technicians at the Labs, thereby enabling departments to use existing resources more efficiently.

One caller took note of Arthur Clarke's contribution to the satellite industry, and suggested that another man, John Robinson Pierce, who she says made equally significant contributions, be the subject of a public relations effort.

A caller from Clarksburg said the names on people's badges were hard to read. The same person also suggested publishing employees' names and pictures so that employees could get to know one another better.

When other actions are taken in response to "Open Line" calls, they will be reported on these pages.

What's on *your* mind? Call "Open Line," extension 6777.

## Telex Switches into High Gear

George Wilson and his staff are in-to networking. People from around the world call, seeking their counsel. The group operates Maritime Services' telex switching center.

The center, located in L'Enfant Plaza, is a world unto its own. Telex machines pound out messages, computers hum as they direct communications traffic, telephones demand constant attention and a printer, recording customer service charges, toils incessantly.

A staff of nine, including the technical support team, runs the center 24 hours a day, seven days a week. They work in unison with the Southbury, Conn. and Santa Paula, Calif. coast earth stations to provide information services to more than 4,700 ships at sea and off-shore facilities.

Various options and deliveries are

possible with the telex service. For instance, standard ship-to-shore and shore-to-ship service is available, and customers can call the telex operators to get numbers or assistance. In addition, options exist for abbreviated dialing, departmental billing, and group addressing. Abbreviated dialing allows customers to speed-dial, substituting a single digit or double alpha-character code for the standard 14 digits required to use telex. Departmental billing breaks out billing by specified organizations and group addressing allows copies to be forwarded to as many as 160 users by selecting one code.

Maritime Services recently introduced a new service, called Maricopy. Using the service, customers make a toll-free telephone call into the center, dictate a message, and the operators

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Telex operator Wilbert Hardnett, supervisor George Wilson answer a ship's call.



# CTP Announces Shared Data Network

A new service offering designed to acquaint customers with very small aperture terminal (VSAT) technology was announced last month by COMSAT Technology Products (CTP).

Starcom Data Services is a private data network providing interactive data communications services at speeds up to 56 kilobits per second for companies with geographically dispersed locations. The service provides users with digital data service quality at analog prices. The customer pays a monthly fee based on the number of locations.

The shared service, which uses a combination of satellite and terrestrial facilities to provide IBM-compatible data communications circuits, is the newest concept using VSAT technology. With VSATs, data can be transmitted to and from the customer's remote locations to the company's main computer center.

On-line applications include credit card verification, customer records management, order entry, electronic funds transfer, inventory control, and financial data transfer.

CTP can provide total, end-to-end service or partial service. Under the total service offering, CTP will provide all components including VSATs, access to the satellite and a network control center, and the necessary land-based connections.

According to Charles Kenmore, vice president and general manager of CTP's Shared Network Services division, a major advantage of a VSAT network is that the customer's network can expand quickly as his company grows.

"We don't have the long delays that are associated with installing land-based data circuits," said Kenmore, noting that installation of terrestrial data circuits can take up to six months and are not even available in all locations.

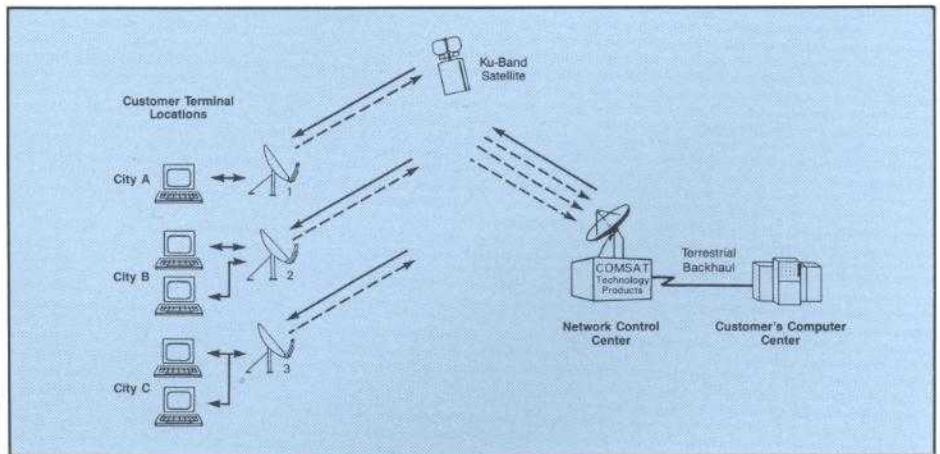
CTP provides 24-hour customer service, and the network control

center is staffed around the clock, 365 days a year. There are 250 installation and service locations which stock the necessary modular components and other parts needed to install and repair equipment quickly. The company intends to provide access to popular business data bases and electronic mail as enhancements to the service.

"We want to help our customers control the cost of their data communications," Kenmore said. "Today the local telcom access lines represent about one-third the cost of the entire long-distance circuit. The local

telephone circuit costs are going up at a minimum of about 10 percent per year. Starcom Data Services insulates the user from these ever-increasing local telephone circuit costs, plus, by using Starcom, they're not dependent on long installation lead times from the local telephone company. Starcom bypasses those local facilities altogether," he said.

"Our mission is to assist the communications manager by offering him an integrated, end-to-end network solution for his data communications requirements," Kenmore said.



**Starcom Data Services provides flexibility.**

## How Starcom Data Services Works

The network consists of VSATs, or small earth stations, a network control center, and the satellite transponder space. There is also a terrestrial leased line connecting the Starcom Data Services network control center to the customer's main computer center. The small earth stations are either roof mounted or placed in a parking lot near the customer's location.

The customer's data terminals are connected to the VSAT Terminal, a small 4- to 6-foot earth station which is located at the customer's remote site. The data is uplinked from the customer's locations to the satellite and received at the network control center in Washington, D.C.

From the network control center the data is sent via terrestrial circuits to the customer's main computer center. The information transmitted from the main computer center to the remote sites follows the same route in reverse (see illustration).



## ACTS: Here Comes the Switchboard in the Sky

COMSAT Laboratories is playing a principal role in developing an advanced new generation of communications satellites.

If the research proves successful, satellites of tomorrow will operate with a technical sophistication that makes today's spacecraft look like simple country cousins in comparison.

That sophistication may well provide an answer to the question that has dogged satellite researchers over the years: how to build even greater effective capacity into satellites, enabling them to handle more and more telephone calls, video broadcasts and computer hook-ups. With that answer, nagging policy issues concerning the allocation of the limited number of satellite slots on the geostationary arc will perhaps be quieted.

Most important to COMSAT Corporation, the technology under development could lead to exciting new uses for satellite communications — and the opening of new markets. In essence, the thrust of the current research effort is to make satellites "smarter" and more efficient.

With "smart" technology onboard the spacecraft, earth stations can be expected to shrink and become simpler. As that happens, prices could fall, causing demand to increase. The result: large numbers of small, inexpensive earth stations would begin cropping up on home rooftops, atop office buildings and even on vehicles. With further advances, perhaps even the wristband radio Dick Tracy used in comic strips 20 years ago is within sight.

COMSAT Labs' research is part of the Advanced Communications Technology Satellite program—ACTS, for short. ACTS is a NASA project aimed at developing an experimental satellite that will combine

for the first time a number of advanced technologies which have developed independently.

COMSAT Labs serves as a subcontractor to RCA, the program's prime contractor. Also on the team are TRW and Motorola.

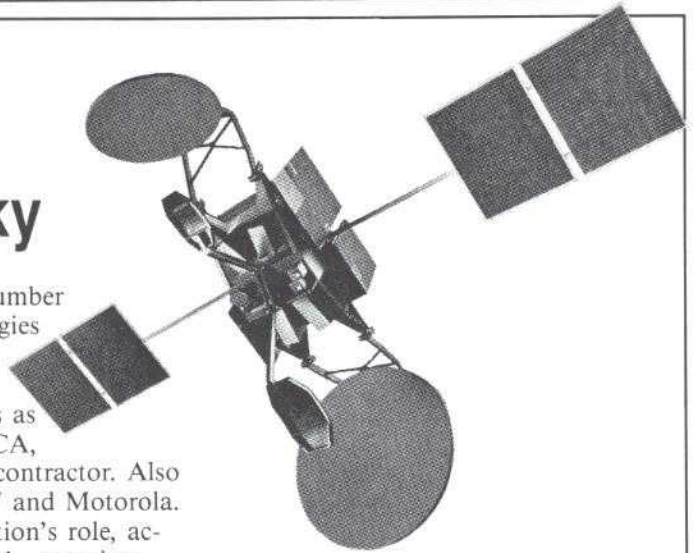
COMSAT Corporation's role, according to Bill Schmidt, associate director of the Labs' ACTS Program management office, is to design, build and install the "brains" of the system. The Labs' ACTS staff of 77 full-time employees draws on expertise from across the Labs, including the Microwave Technology, Network Technology and System Development Divisions and elements of the Design and Fabrication Center. Irv Dostis, ACTS PMO director, heads up the program within COMSAT Corporation.

To appreciate COMSAT Corporation's contribution, it helps to understand generally how the new satellite will work.

Picture two satellites perched side-by-side, 23,000 miles over the United States. One uses today's technology, the other is the ACTS satellite. Satellites don't emit light, but to visualize how the two would work, try to imagine their energy as light.

In this scenario, today's satellite is equipped with a single floodlight shining across the entire United States. Its light is quite dim, but it reaches every corner of the country, allowing earth stations with sufficient power to operate with it. Much of its energy is wasted: it is covering areas that don't need satellite service and its energy is constant instead of being used only when needed.

Continuing the example, the ACTS satellite is equipped with a number of powerful spotlights. Instead of blanketing the entire country with dim light, the ACTS satellite concen-



trates its energy into powerful beams, each of which focuses on a single area at a time. The satellite serves the entire country, but it does so by moving its beams rapidly across the landscape, stopping only for a thousandth of a second to send and receive messages from earth stations below. In fact, the satellite wastes no time searching around for messages. It is programmed to target its beams to a particular area only on a demand basis—that is, when there are messages to be delivered or picked up.

The ACTS satellite, then, uses both energy and time efficiently, enabling it to handle many more transmissions than today's relatively inefficient models. As Schmidt explains it, if the satellite were equipped with four spot beams—one for each time zone, for example—it would have four times the capacity of today's satellite that blankets the entire nation with one beam, because the precious frequency spectrum is used four times.

Several different technologies will be tested through the ACTS program, Schmidt says. The satellite itself will allow researchers to experiment with use of the higher-frequency Ka-band, which operates at 30/20 GHz and offers twice as much capacity as the Ku- and C-band frequencies combined.

On board the satellite, two different systems for sending and receiving messages will be tested. One will han-

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# FACE TO FACE

Joel Alper, president of Space Communications Division, met with 15 employees during the first "Face to Face" meeting. One issue remained unresolved as the "Face to Face" publication went to press. That issue, how Comsat Employees Association (CEA) representatives at Clarksburg can officially account for their CEA-related time, is now being addressed.

Later this month, Alper, Labs Director John Evans, Human Resources Director Carl Washenko and CEA representatives are meeting to resolve the issue.

*ACTS, from page 4*

...dle "high burst rate" transmissions to and from larger, more powerful earth stations, interconnecting the correct up-link and down-link spot-beams by analog switches. The other, called a baseband processor, will handle what are called "low burst rate" transmissions from smaller, less powerful earth stations.

The baseband processor, according to Schmidt, is often described as the "heart" of the system. He compares it to an earth station in the sky. Its job is to take analog signals it receives from the ground, convert them to a digital format, sort them according to destination, store them until there is an available time slot to their destination, retransmit them to earth stations by routing them to the appropriate down-line, and amplifying them as required.

A central part of COMSAT Labs' role, Schmidt says, is to provide the ground-based computer controls—the hardware and software that will choreograph the movement of the satellite's spot-beams and direct the baseband processor. In fact, the Labs' contribution to the project will ensure that the satellite operates at optimum efficiency, using available capacity by placing its energy where it is needed only when it is needed.

Ultimately, COMSAT Corporation's ground controls will be located at the NASA Lewis Research Center in Cleveland, Ohio. For now, the preliminary design of the system's complex controls are contained in a three volume report.

Exactly when those steps will begin to be implemented remains uncertain, according to Schmidt. When NASA began funding ACTS in 1984, plans called for a 1989 launch date. Congress recently decided to provide \$77 million in funding for 1987, assuring the program's completion. The launch date, however, may be delayed until 1991-92. Beyond the launch date, several years of testing will precede any commercial application of the experimental ACTS satellites.

COMSAT Labs' participation in the design of the ACTS satellite represents a valuable investment in the company's future. Once satellites similar to ACTS are ready for commercial duty, COMSAT Corporation will have a leg up in understanding the capacities of the technology and applying them to the marketplace.



Visitors view an exhibit at the COMSAT Laboratories' open house held September 5. The open house gave the public, company employees, and invited guests an opportunity to gain a better understanding of the various projects under development. Dr. John Evans, director of Labs, and his executive directors presented brief overviews. Attendees were then invited to a technology exhibition, complete with experts to answer questions. The event is held annually to comply with the FCC rule that any research and development activity funded with jurisdictional money or rate-payer funds be made equally available to all segments of the public.

*Circuit, from page 1*

The first issue is scheduled to be published October 28. Deadline for submissions is October 13. Send your 'For Sale' and other ads to Jocelyn Ward, Security Department, The Plaza.

## TODAY

*VOA, from page 1*

tions are exercised. Such options include two additional earth stations in the U.S. and up to 16 new relay stations located around the world.


The award means more than just dollars and cents, according to John Champagne, director, Strategic Defense Systems in COMSAT Corporation's government systems marketing operation. Champagne worked in COMSAT Technical Services when the group began talks with VOA. He was one of many people instrumental in making the corporation a winner. Champagne explains that the award brings to close

a two-year sales effort by CTS.

"This is pretty much a total company effort," says Champagne. "CTS is implementing the system; CICI (COMSAT International Communications, Inc.) is the carrier and holds the operating license; the Labs is developing the audio encoder; and the Intelsat Satellite Services group is providing the space segment."

SCD overcame stiff competition to win the business. USIA reports that it initially solicited requests for proposals from 179 prospective vendors. ITT, Spacecom, RCA, American Satellite, IDB Communications Group Ltd., and SCD all pursued the opportunity.

In a written evaluation, VOA states, "COMSAT appears to have an excellent understanding of technical requirements and has devised a configuration which can rapidly and with low risk satisfy current needs. The configuration facilitates expansion to worldwide coverage and is flexible enough to accommodate the anticipated diversity of locations, site-specific capabilities, and local regulatory restrictions."

Champagne believes the company's experience in international communications, plus its "one-stop shopping" (CTS coordinated all company services for VOA) concept helped put it ahead of competitors. 

*Telex, from page 2*

forward the shore-to-ship message via telex. Maricopy calls can be charged to American Express, MasterCard, and Visa credit card accounts.

Telexes going ship-to-shore can be delivered either by phone or U.S. mail.


Customers can even select the international records carrier (IRC) for their messages. The center's computers have access to six IRCs, which are assigned trunk groups in the

switch, according to their traffic requirements.

Vessels depend on the center for a wide range of uses. Many send periodic progress reports to land-based operations while at sea, or contact the harbor pilot as they prepare to enter inland waterways to get navigation assistance to port. The crew can have cash forwarded to predetermined destinations, or keep up with current events by subscribing to Maripress, a news digest service.

Perhaps the most important func-

tion the center can serve is handling distress calls in keeping with the Safety Convention. These calls take priority over all other activity. The center's computers are programmed to clear a satellite channel automatically to ensure that the signal gets through to the proper Rescue Coordination Centers for safety of life at sea.

Satellite communications assure maritime customers immediate information exchange when and where it's needed. Wilson and his staff deliver. 



# Scholarship Recipients Named

The winners of this year's COMSAT Corporation college scholarship program have been announced.

Ann Swearingen, daughter of Daniel Swearingen, director of Maritime Services' engineering group, received a \$500 stipend towards her studies at the University of Virginia.

April Talcott, daughter of John Talcott, senior member of the technical staff in the Labs' Applied Technology Division, also received \$500. She attends the University of Maryland.

A National Merit Scholarship Corporation (NMSC) committee considered students' high school academic records, qualities of leadership and extracurricular accomplishment, school recommendations, student self-descriptions and test scores on standardized college entry tests before selecting the two.

The four-year scholarships are offered for any full-time course of study at a regionally accredited, degree-granting college or university in the United States.

Scholarship applications for 1988 were recently distributed to employees. To compete for the scholarships, individuals must complete secondary school and enter college in 1988; be U.S. citizens; and be a natural or legally adopted child of a full-time,



**President Marcel Joseph presents Ann Swearingen, left, April Talcott, right, with COMSAT Corporation Scholarships.**

retired or deceased employee of COMSAT Corporation or one of its subsidiaries.

Students interested in applying must take the PSAT/NMSQT standardized text on October 18 or 21. Applications must be

returned to Joseph Fabiano, Employee Relations, no later than December 5, 1986.

COMSAT Corporation has sponsored two scholarships per academic year since 1973.

## New Employees

**Alain Briancon**, Member of the Technical Staff, Network Technology Division, COMSAT Labs.

**Angela Casterlin**, Senior Secretary, COMSAT Technology Products.

**Harvey Chalmers**, Member of the Technical Staff, Communications Techniques Division, COMSAT Labs.

**Barton Cregger**, Member of the Technical Staff, Microelectronics Division, COMSAT Labs.

**Warren Crockett**, Program Manager, COMSAT Technical Services.

**John Iuliano**, Regional Sales Manager, Northeast Region, COMSAT Technology Products.

**Randall Geary**, Account Manager, Eastern Region, COMSAT Technology Products.

**Robert Gillette**, Software Developer, COMSAT Technology Products.

**Michael Graham**, Applications Engineering Manager, Western Region, COMSAT Technology Products.

**Ben Levitan**, Digital Engineer, Intelsat Satellite Services.

**Starr Mihill**, Sr. Secretary II, System Development Division, COMSAT Labs.

**David Mulvey**, Account Executive, COMSAT Technology Products.



**Rendell Richards**, Manager, Pricing, Planning and Analysis, COMSAT Technical Services.

**Daniel Rudolph**, Digital Engineer, COMSAT Technical Services.

## Job Changes

**Katy Ackland**, Marketing Communications Specialist, Intelsat Satellite Services.

**Winston Bogaert** to Sr. Program Manager, COMSAT Technical Services.

**Jan Campanaro**, to Administrative Secretary, Intelsat Satellite Services.

**Hope Dobrow**, to Sr. Business Analyst, Finance, World Systems Division.

**Richard Engblom**, to Operations Engineer II, Intelsat Satellite Services.

**Dennis Fruhwirth**, to Director, Finance, Corporate Staff.

**Donna Hoblit**, to Program Cost Analyst, COMSAT Technical Services.

**Jeremy Parker**, to Member of the Technical Staff, Maritime Services.

**Stanley Rothschild**, to Sr. Digital Systems Engineer, COMSAT Technical Services.

**Mark Wickham**, to Digital Systems Engineer, COMSAT Technical Services.

## Promotions

**Barbara Chesney**, to Sr. Secretary, Intelsat Satellite Services.

**Kenneth Garst**, to Manager, Data and Program Administration, COMSAT Technical Services.

**Norma Gourley** to Executive Secretary, Public Relations/General Counsel, World Systems Division.

**Janet Hanlon** to Vice-President, Finance, Space Communications Division.

**Joe Maloney** to Manager, Software Engineering, COMSAT Technology Products.

**Emily Malott**, to Executive Secretary, COMSAT Technical Services.

**Timothy Salerno**, to Senior Technical Specialist, Applied Technology Division, COMSAT Labs.

**Michael Troiano** to Director, Finance, COMSAT Labs.

**Donna Whitt** to Director, Finance, COMSAT Technical Services.