



1776 K STREET NW  
WASHINGTON, DC 20006  
PHONE 202.719.7000  
FAX 202.719.7049

7925 JONES BRANCH DRIVE  
McLEAN, VA 22102  
PHONE 703.905.2800  
FAX 703.905.2820

[www.wileyrein.com](http://www.wileyrein.com)

July 2, 2007

Gregg L. Elias  
202.719.7360  
[g Elias@wileyrein.com](mailto:g Elias@wileyrein.com)

Marlene H. Dortch  
Secretary  
Federal Communications Commission  
445 12<sup>th</sup> Street, SW  
Washington, DC 20554

Re: Ex Parte Notice  
WT Docket No. 06-150

Dear Ms. Dortch:

On Friday, June 29, 2007, Donna Bethea-Murphy, Vice President, Government Affairs of Iridium and Gregg Elias of Wiley Rein LLP met with Dana Schaeffer, Jeff Cohen and Carol Simpson of the Public Safety and Homeland Security Bureau to discuss the satellite issues surrounding the 700 megahertz auction. Iridium urged that the Commission require satellite back-up for public safety applications and that the Commission not impose specific technical mandates to achieve this result. The attached materials were distributed during this meeting. Please contact the undersigned with any questions.

Sincerely,

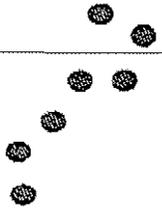
*/s/ Gregg L. Elias*

Gregg L. Elias

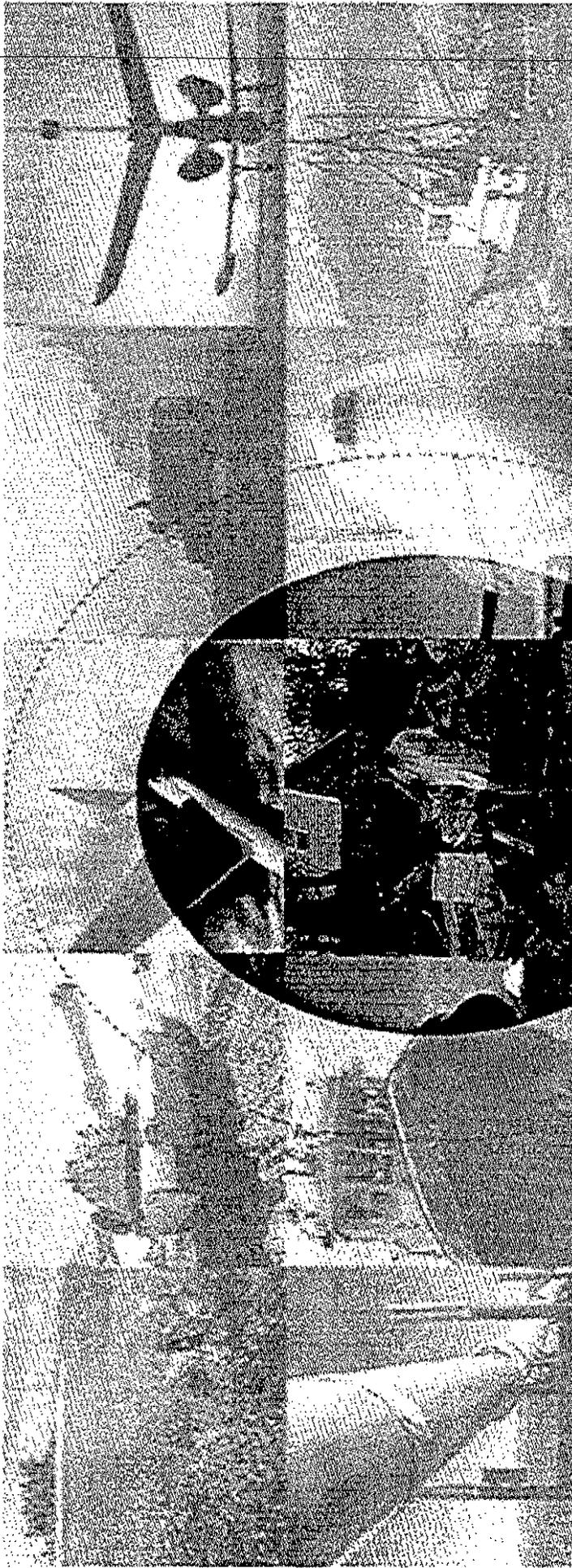
GLE/dws

Attachments

cc: Dana Shaffer  
Jeff Cohen  
Carol Simpson



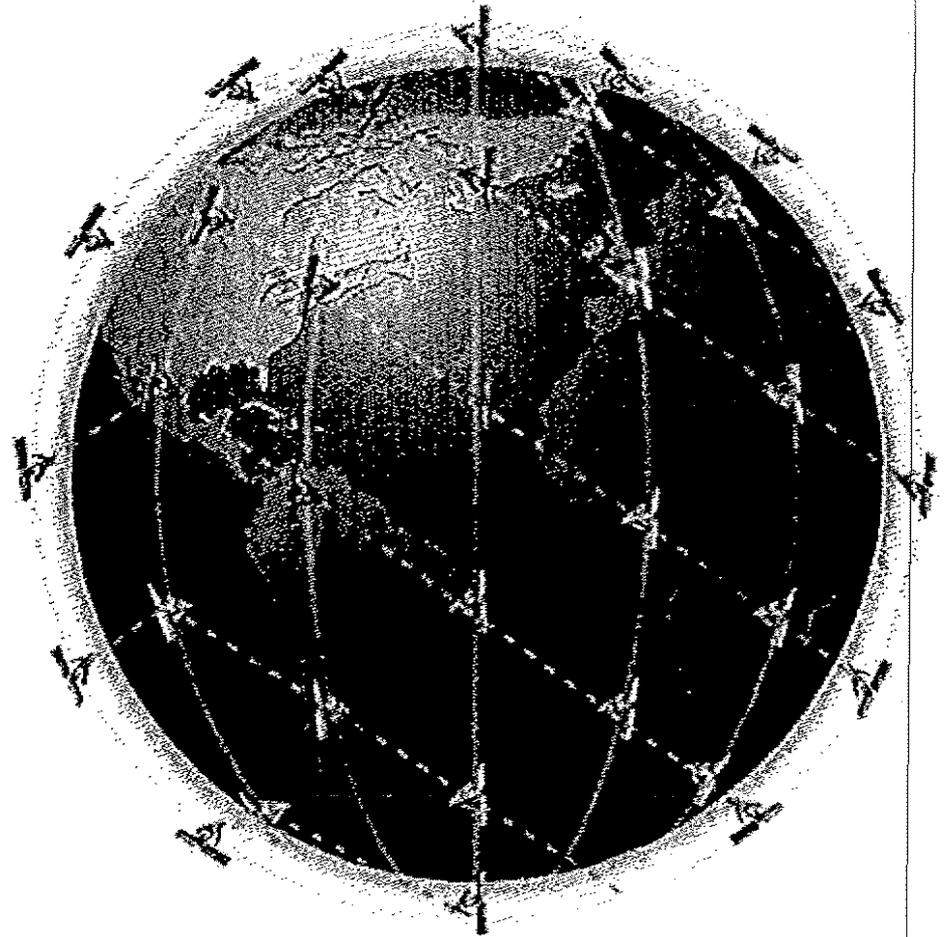
# IRIDIUM



# Iridium Satellite Constellation

IRIDIUM

- 66 satellites in polar orbit
- Communications routed over inter-satellite links
- Not dependent on regional terrestrial facilities
- Uninterrupted by impact of natural disasters



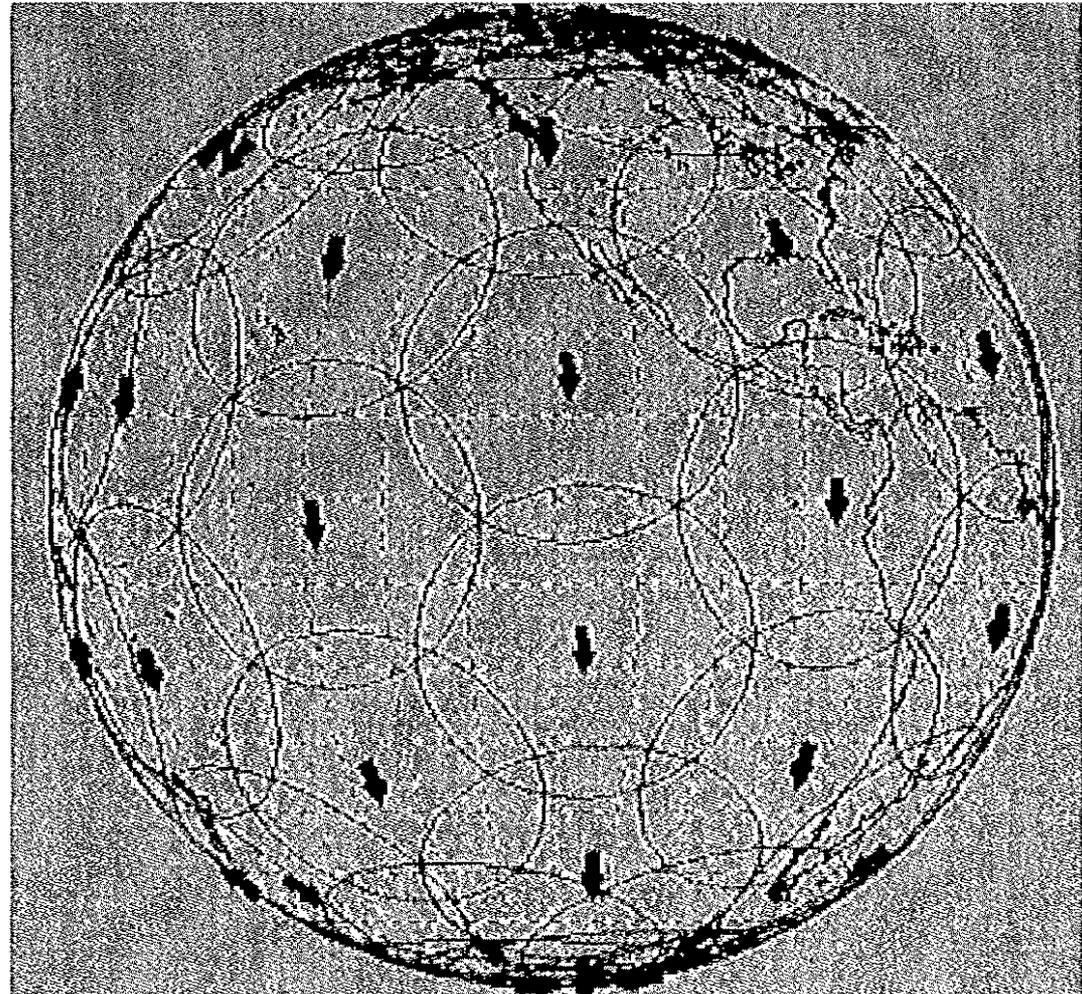
# True Global Service

IRIDIUM

Truly ubiquitous  
coverage

Global Iridium country  
code eliminates need  
for regional dialing

System of choice for  
United States DoD for  
global operations



# Iridium Call Routing

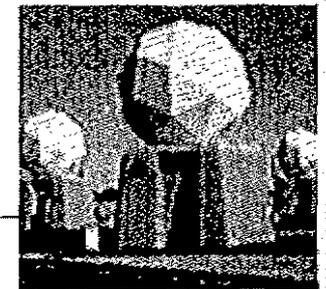
IRIDIUM



*Iridium's call path is highly secure and disaster proof. Calls seamlessly transit inter-satellite links, never relying on ground transport. Iridium to Iridium calls go directly from satellite phone to satellite to phone.*

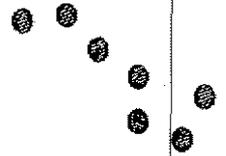


Iridium Handset



Iridium Gateway  
Tempe, Arizona

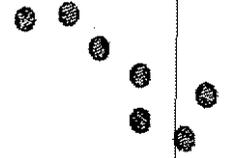
# Iridium Network Services



IRIDIUM

- Services available:
  - Mobile voice (handheld and vehicle mounted)
  - Fixed voice (single and multi-line)
  - E-mail
  - Asset tracking and reporting
  - Mobile to mobile, mobile to PSTN and PSTN to mobile
  
- Interoperable with other technologies e.g., VHF, UHF, other satellite systems, cellular, etc.
  
- All services operate totally independent of any reliance on electrical power, regional towers or connections to local terrestrial communications

# Iridium Supported Technologies

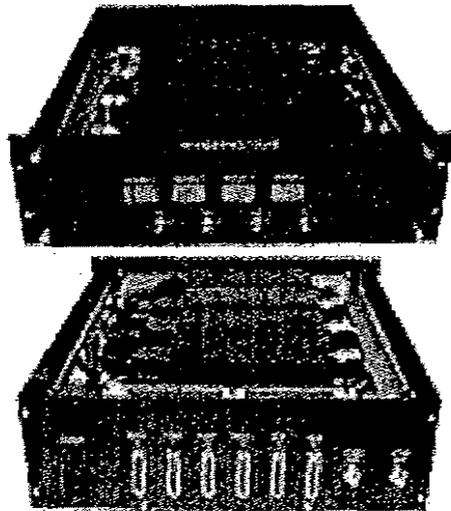


IRIDIUM

- 
- Voice
  - Circuit Switched Data
  - Short Message Service (SMS)
  - Short Burst Data
  - Netted service (currently in test for 2007 launch)

# Equipment Configurations

IRIDIUM



Multi-Channel  
Fixed Service



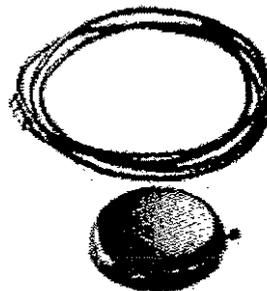
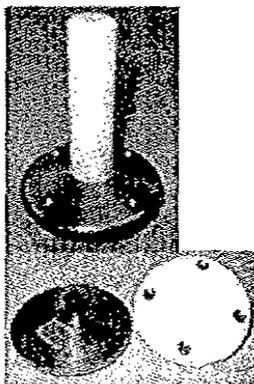
Handheld



Vehicular Mount and  
Docking Stations



Solar Chargers

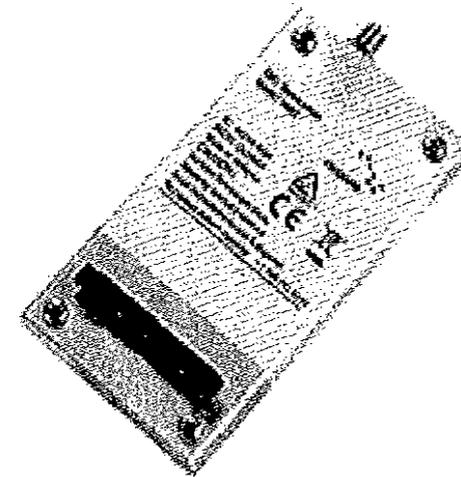


A variety of fixed  
antenna options

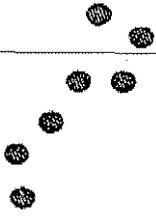
# Iridium Short Burst Data Modem

IRIDIUM

- OEM module
- Integrated into products
- Global SBD service
- Transmit and receive capability
- Low latency
- Widely used for
  - Asset tracking
  - Remote control
  - Environmental monitoring
- 106.4 mm Long x 56.2 mm Wide x 13 mm High
- Available packaged with internal GPS, battery and antenna



# Asset Tracking Applications

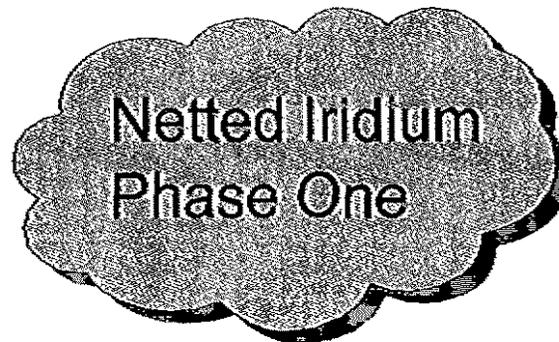
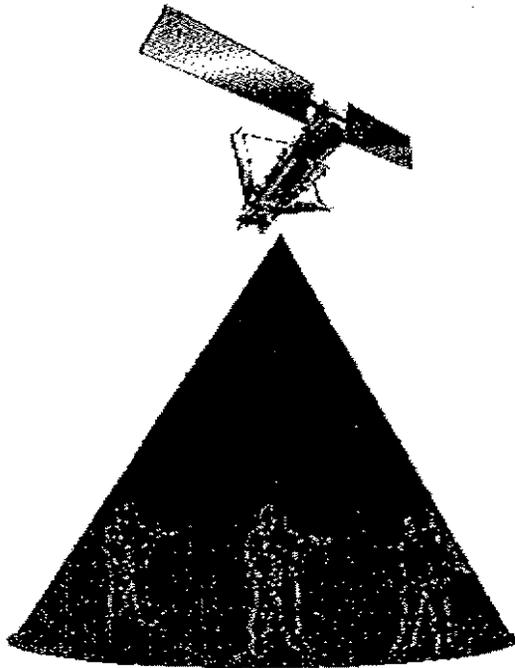


IRIDIUM

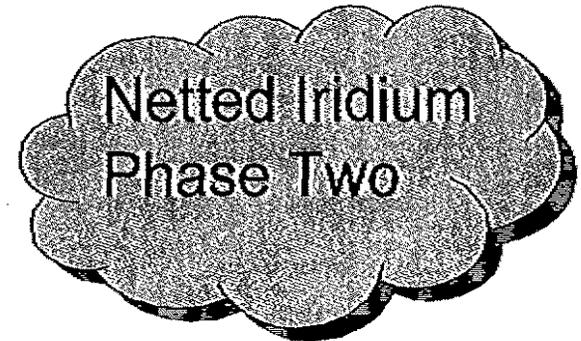


# Netted Iridium

IRIDIUM



2007



2007 +

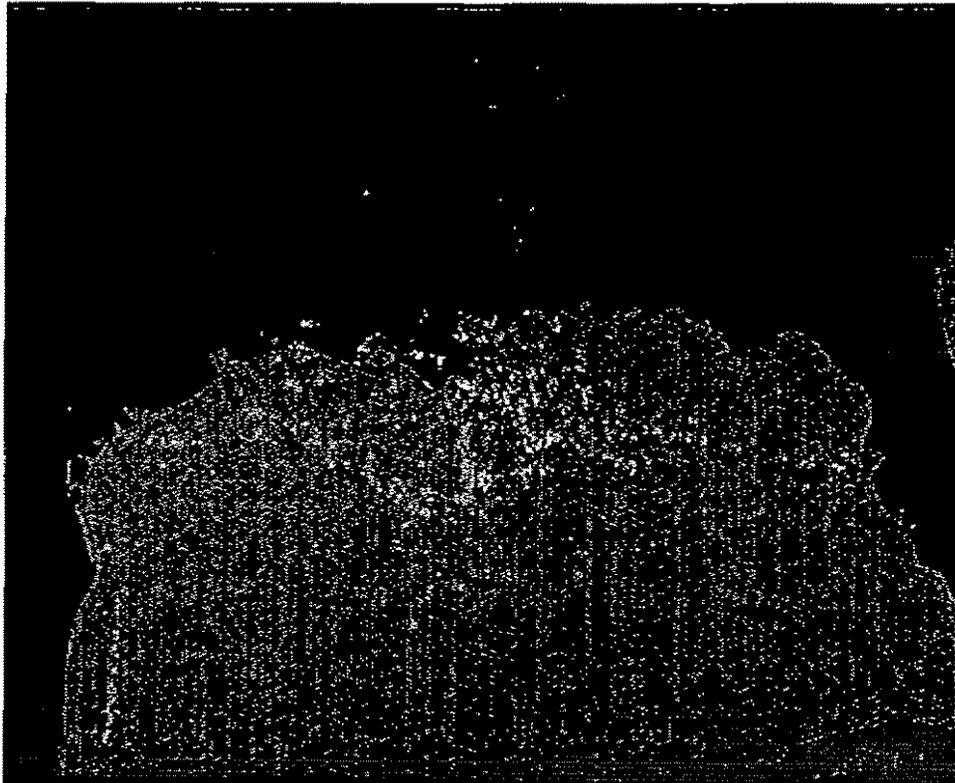
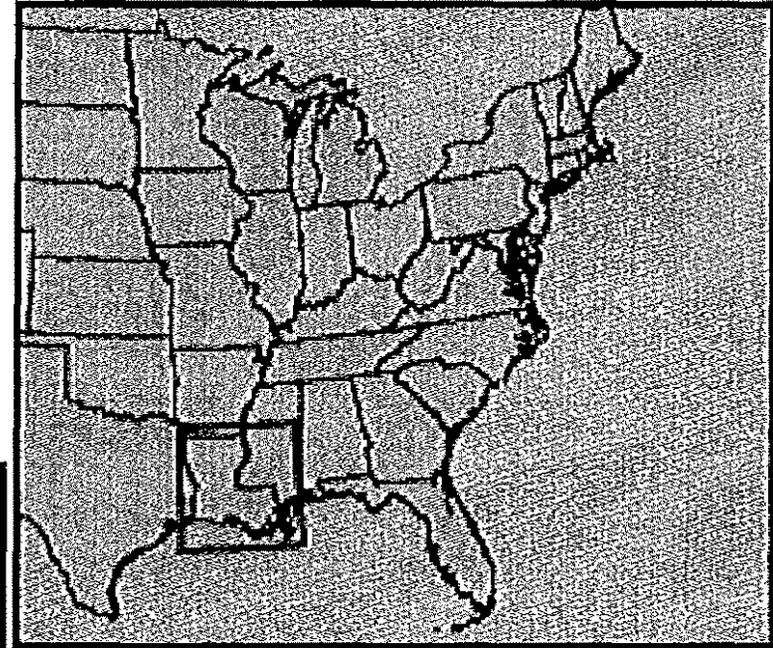
- Allows one user to talk/transmit data to many users simultaneously.
- Allows for integrating/relaying terrestrial radios and tying into terrestrial trunked radio systems.
- Ideal for crises -- rapid deployment, reliability, security.

# Iridium Voice and Data Traffic in the Gulf Region

August 19, 2005

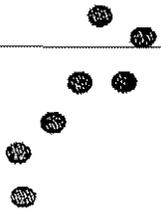
IRIDIUM

- Late August -- Iridium used along Gulf coast by commercial vessels; oil & gas installations.

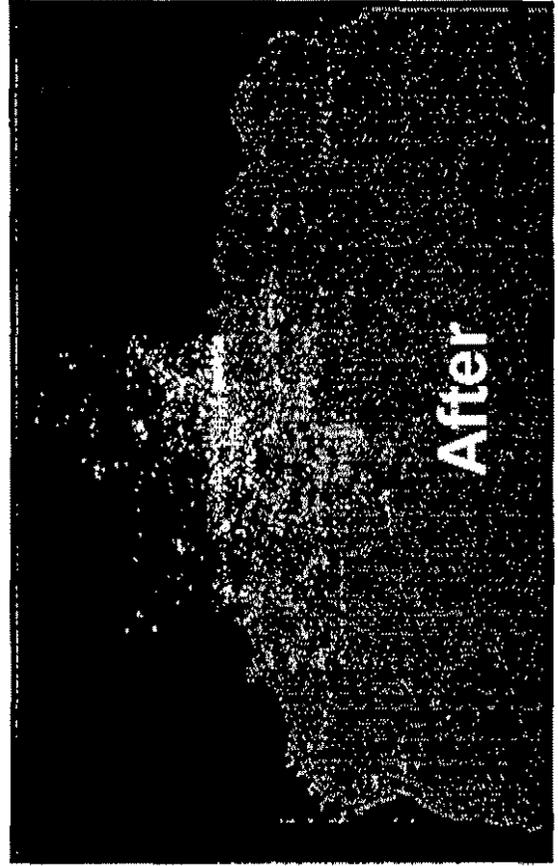
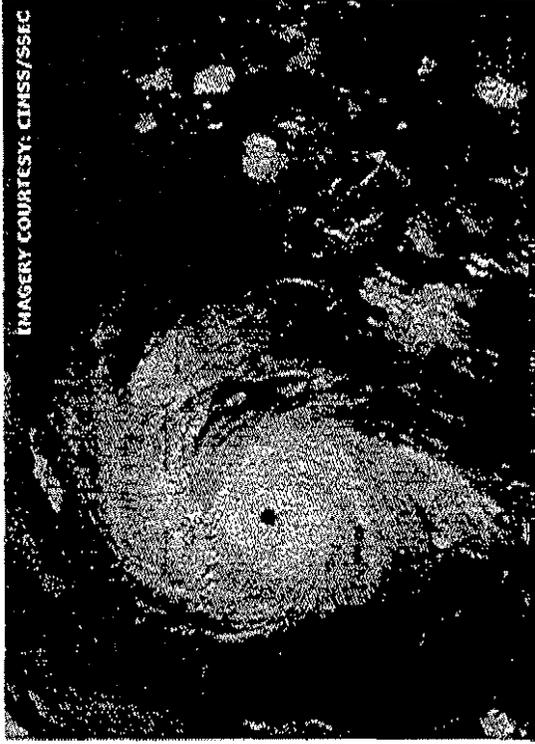
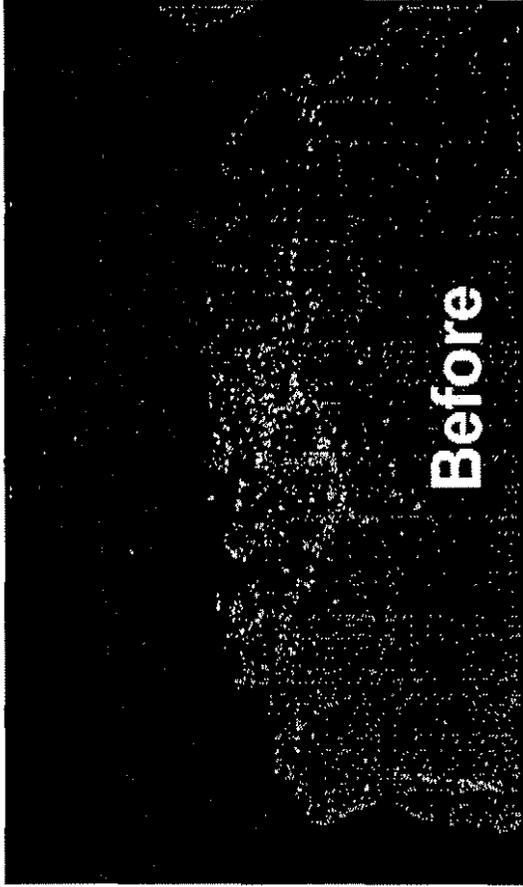


- Each white dot represents voice or data call on system.

# Iridium Usage 2005 Atlantic Hurricane Season



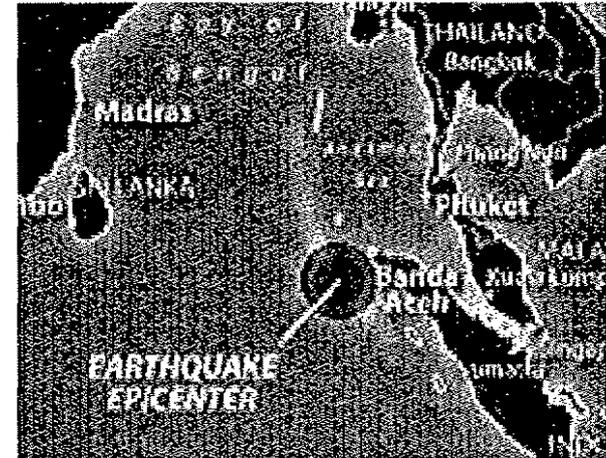
IRIDIUM



# Historical usage of Iridium for Disaster Recovery

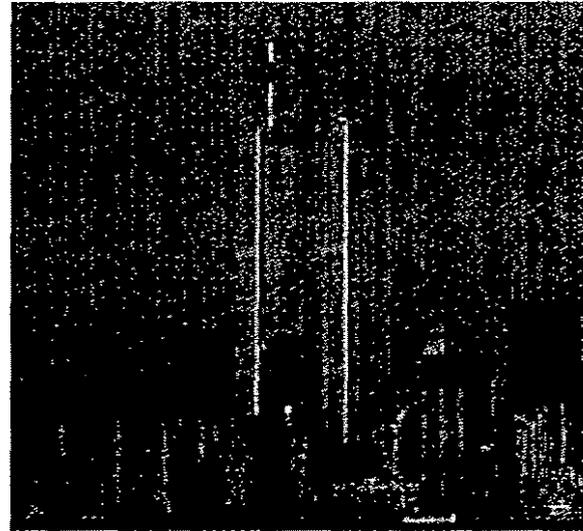
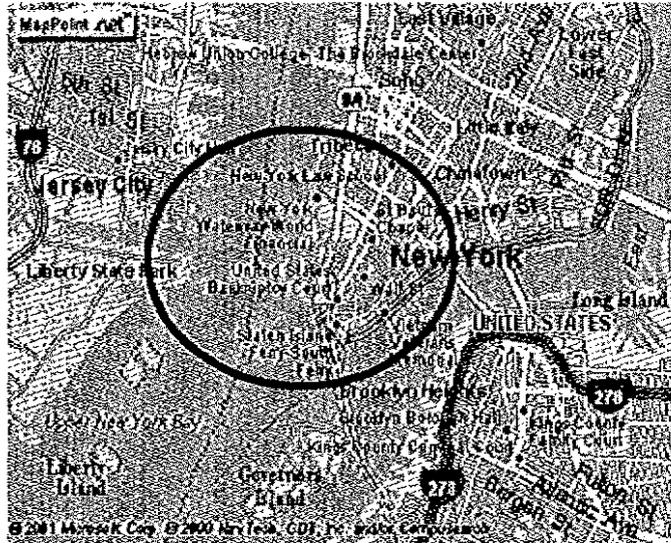
IRIDIUM

- Taiwan Earthquake (1999)
- South Pole rescue (2001)
- September 11 (2001)
- Asian Tsunami (2004)
  - Reopened Northern Sri Lanka communications to assist relief efforts
  - Temporary Authority to operate in Pakistan in support of the crisis
- Hurricane Season in US and Caribbean (2005)
- Pakistani Earthquake (2005)



# September 11, 2001 Testimonial

IRIDIUM

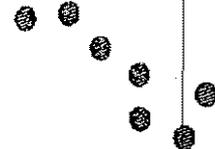


“Shortly after the World Trade Towers were struck, Verizon lost all service from their West Street Central switching office. My cell phone was essentially useless, as was our landline home line. I walked out to a clear area on our street and turned on my Iridium handset.

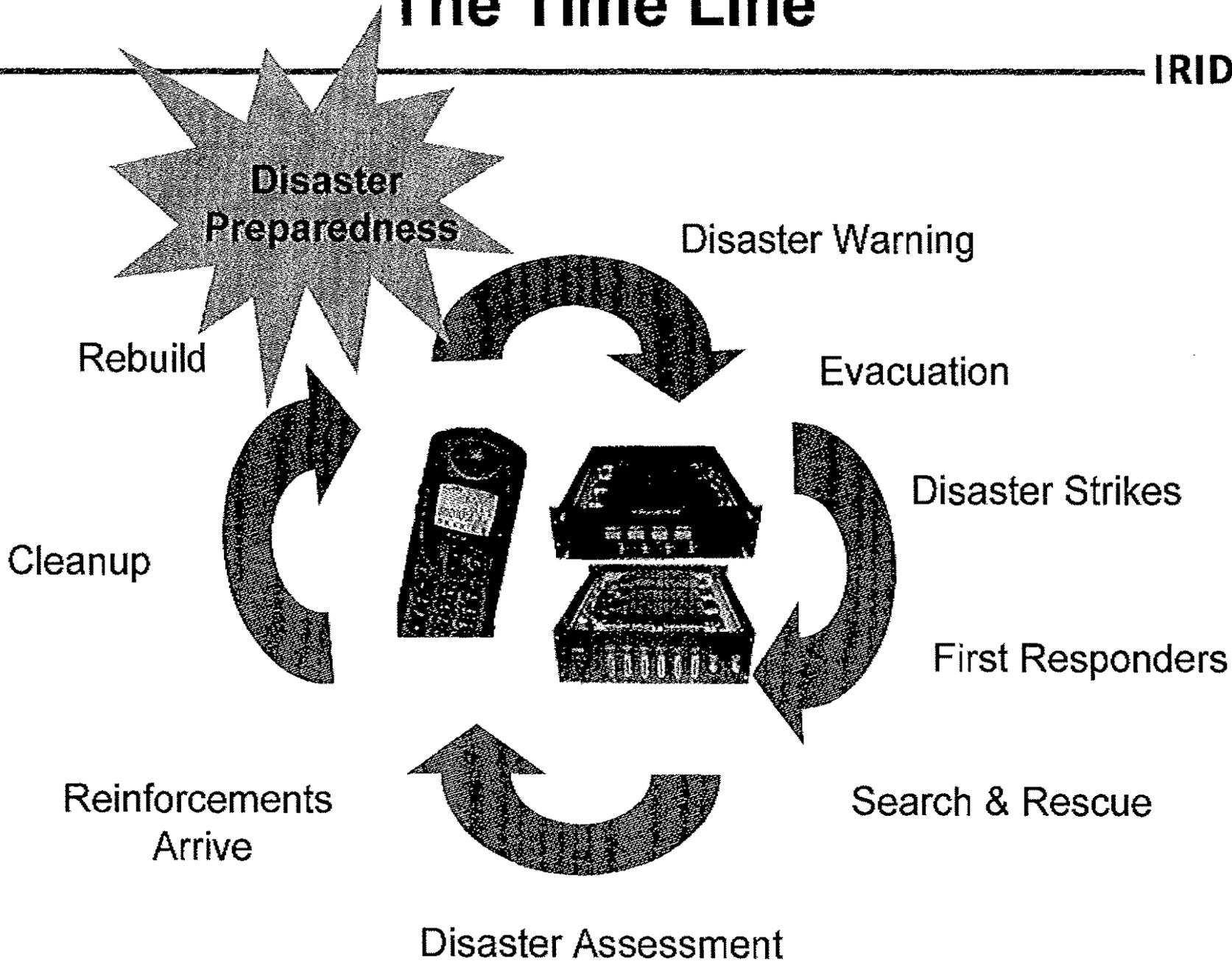
It quickly responded with "Registered" and the signal came up. It meant more than I can say to have that call go through at that moment. I carry my Iridium handset regardless of how short a trip may be. Your service is an indispensable communications tool.”

*Gerald Anzano  
ING Asset Management*

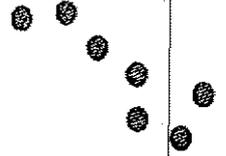
# The Time Line



IRIDIUM



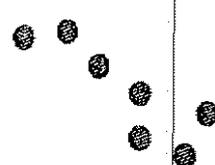
# Improvement Opportunities



IRIDIUM

- 
- User education – solution choices
    - Multiple systems available
    - Specific capabilities
    - Varied requirements (over time, between tasks)
  - Equipment pre-positioning
    - Network operators, service providers, users
  - User training
    - e.g. dialing, “line-of-sight”
  - Application adoption
    - e.g. tracking, monitoring
  - Interoperability
    - Wide variety of systems employed

# Conclusions



IRIDIUM

- 
- Disasters can occur at any time and anywhere
  - Only system capable of providing service anywhere in the world
  - Instantly available when relief workers first arrive on-site
  - Throughout recovery period, Iridium service is available on both a mobile and fixed basis
  - No advance contractual arrangements/reservations necessary
  - Iridium equipment readily available -- rental and purchase
  - Complements longer term, less mobile solutions



# *Satellite Industry Overview*

U.S. Department of Commerce – Thursday, December 16<sup>th</sup> 2004



LOCKHEED MARTIN

SES AMERICOM

NORTHROP GRUMMAN

An SES GLOBAL Company



HUGHES NETWORK SYSTEMS



Globalstar



IRIDIUM

Verestar



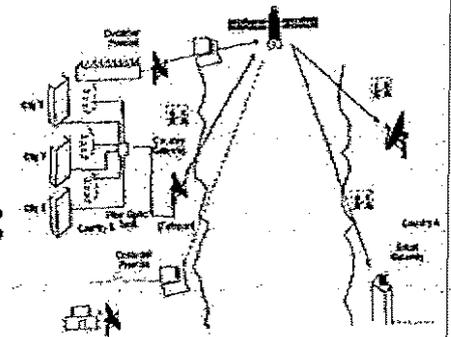


## *Value of Satellite Systems*

- Value of satellite systems grows with widely distributed networks and mobility of users

- **Satellite systems perform most effectively when:**

- interconnecting wide distributed networks,
- providing broadcasting services over very wide areas such as a country, region, or entire hemisphere
- providing connectivity for the “last mile” in cases where fiber networks are simply not available for interactive services.
- providing mobile wideband and narrow band communications
- Satellites are best and most reliable form of communications in the case of natural disasters or terrorist attacks - fiber networks or even terrestrial wireless can be disrupted by tsunamis, earthquakes, etc..





# Satellite-Fiber Comparison

*Comparing Satellite and Fiber Characteristics*

<i>Capability</i>	<i>Fiber Optic Cable Systems</i>	<i>Geo Satellite in a Global System</i>	<i>Meo Satellite in a Global System</i>	<i>Leo Satellite in a Constellation</i>
<i>Transmission Speed</i>	<i>10 Gbps-3.2 Terabits/second*</i>	<i>Single Sat 1 Gbps-10 Gbps</i>	<i>Single Sat 0.5 Gbps- 5 Gbps</i>	<i>Single Sat .01 Gbps-2Gbps</i>
<i>Quality of Service</i>	<i><math>10^{-11}</math> <math>10^{-12}</math></i>	<i><math>10^{-6}</math> <math>10^{-11}</math></i>	<i><math>10^{-6}</math> <math>10^{-11}</math></i>	<i><math>10^{-2}</math> <math>10^{-9}</math></i>
<i>Transmission latency</i>	<i>25 to 50 ms</i>	<i>250 ms</i>	<i>100-150 ms</i>	<i>25-75 ms</i>
<i>System Availability w/o Backup</i>	<i>93 to 99.5%</i>	<i>99.98% (C-Ku band) 99% (Ka band)</i>	<i>99.9% (C-Ku band) 99% (Ka band)</i>	<i>99.5% (L-C-Ku band) 99% (Ka band)</i>
<i>Broadcasting Capabilities</i>	<i>Low to Nil</i>	<i>High</i>	<i>Low</i>	<i>Low</i>
<i>Multi-casting Capabilities</i>	<i>Low</i>	<i>High</i>	<i>High</i>	<i>Medium</i>
<i>Trunking Capabilities</i>	<i>Very High</i>	<i>High</i>	<i>Medium</i>	<i>Low</i>
<i>Mobile Services</i>	<i>Nil</i>	<i>Medium-to-High</i>	<i>High</i>	<i>High</i>

FOCUS - 2 of 2 DOCUMENTS

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September 23, 2005 Friday

Final Edition

**SECTION:** A Section; A12

**LENGTH:** 838 words

**HEADLINE:** Crisis Communications Network Criticized;  
FCC Chairman Urges More Mobile, Rugged System as Firms Prepare for Rita

**BYLINE:** Arshad Mohammed and Yuki Noguchi, Washington Post Staff Writers

**BODY:**

With Hurricane Rita bearing down on the Texas coast, Federal Communications Commission Chairman Kevin J. Martin said yesterday that the nation's emergency first responders need a mobile, wireless system that allows them to talk to one another in times of crisis anywhere in the country.

The lack of such a system slowed recovery efforts after Hurricane **Katrina**. Police, fire and rescue personnel struggled to work together after electric power failed and the telecommunications network in Mississippi, Louisiana and Alabama was extensively damaged.

Yesterday Martin called for developing more rugged first responder networks and making greater use of satellite technology that does not depend on vulnerable ground infrastructure. "When radio towers are knocked down, satellite communications may be the most effective means of communicating," Martin said at a hearing of the Senate Commerce Committee. "If we learned anything from Hurricane **Katrina**, it is that we cannot rely solely on **terrestrial** communications."

Telecommunications companies yesterday positioned mobile equipment to be ready for the new storm.

Bethesda-based satellite company Iridium Satellite LLC worked to get 8,000 to 10,000 of its phones delivered after **Katrina** hit, but this time, the company called FedEx Corp. in advance to distribute phones to areas near Rita's projected path, said Greg Ewert, an executive vice president.

Ewert said that it was difficult to get as many phones to Texas because some are still being used in the New Orleans area and that he hopes many will travel with the emergency workforce into Texas. "It's definitely putting pressure on us," he said. "If it's just as bad as **Katrina** and it hits Houston, then we'll be strained to get the same amount of phones out there."

Calls by military and emergency workers caused satellite phone traffic to spike to 3,000 percent of usual levels after **Katrina**, Ewert said. To get more airwave frequency to accommodate that volume, Iridium had to get approval from the FCC and other similar agencies around the world.

Cingular Wireless LLC also rushed to prepare yesterday, stationing 30,000 gallons of gas, 16 temporary cell towers, more than 200 generators and about 120 technicians on standby to wait for Rita. In less than a month, Cingular has had to move such equipment from New Orleans and the Gulf Coast area where Hurricane **Katrina** hit, to North Carolina where Hurricane Ophelia was projected to hit, and now to Texas.

Crisis Communications Network Criticized; FCC Chairman Urges More Mobile, Rugged System as Firms Prepare for  
Rita The Washington Post September 23, 2005 Friday

The fact that such piecemeal solutions are still required four years after the Sept. 11, 2001, terrorist attacks made emergency communications a national priority has drawn criticism.

"How many times do things like this need to happen before we . . . recognize that we need to make hard decisions, to give public safety the resources they need to do the job?" said Robert LeGrande, deputy chief technology officer for the District.

Hurricane **Katrina** has revived calls in Congress to set a date for police, fire departments and emergency medical services to take over radio frequencies set aside for them nearly a decade ago but still used by television broadcasters. The 9/11 Commission Report, which documented in painful detail the inability of police and firefighters to communicate with one another as they tried to save people in the World Trade Center, cited freeing those frequencies as one of its key recommendations.

Martin said yesterday that first responders need "smart radios" that can hop between available networks, and he also urged the creation of a more sophisticated national alert system to warn people of disasters, using the Internet and other newer technologies.

Public safety experts said it could take years to create a truly seamless communications network for police, fire and rescue workers. Many factors are to blame, they said, including the difficulty of getting various public-safety groups to work together at the local level and the huge cost of replacing existing equipment.

Most police, fire and emergency medical departments buy their own systems independently and often dislike giving up control of them. Gerald R. Faulhaber, a professor at the University of Pennsylvania and former FCC chief economist, described "the politics of control" at the local level as one of the greatest obstacles.

"The police chiefs fight tooth and nail to maintain control over their radios and their channels. The fire chiefs fight tooth and nail to maintain control over their radios," he said. "Who is going to take on the police chief? Who is going to take on the fire chief?"

David Aylward, the director of ComCARE, a nonprofit group that seeks to improve first-responder communications, said that while long-term issues are discussed, more could be done to make better use of existing networks.

"What isn't years away is connecting agencies together and backing it up with redundant satellite and satellite links. That could be done in six months, and it's a travesty that it wasn't done and that it isn't done," he said.

**LOAD-DATE:** September 23, 2005

1 of 20 DOCUMENTS

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June 26, 2006 Monday  
Final Edition**SECTION:** Financial; D01**LENGTH:** 750 words**HEADLINE:** Satellite Phone Firm Focuses on Crisis Network;  
Now-Profitable **Iridium** Plans Deal With MedStar Health**BYLINE:** Chris Kirkham, **Washington Post** Staff Writer**BODY:**

Seven years after the rapid, \$6 billion collapse of its predecessor, Bethesda-based **Iridium** Satellite LLC is turning a profit on its satellite telephone service as demand for disaster-proof communications grows among government agencies and private businesses.

The company plans to announce today a deal to provide an emergency satellite phone network for MedStar Health, the nonprofit owner of **Washington Hospital** Center and Georgetown University **Hospital**. The sale is one of many **Iridium** Satellite has made since last year's hurricane season when, in the view of **Iridium** executives, emergency responders "woke up" to the need for a communication service that could let them talk even as cellphone networks and landlines fail.

**Iridium** relays calls from its handsets across a globe-spanning network of 66 satellites.

The privately held company has reported a profit for five consecutive quarters, according to figures released by the company. For the three months ending March 31, it reported earnings of \$12.6 million, a 73 percent increase from the comparable quarter in 2005.

The company sent thousands of its phones to the Gulf Coast after Hurricane Katrina, when satellite phone traffic surged and federal officials called for creation of a system that would allow emergency workers to more dependably communicate during severe crises.

"What this hurricane proved to everyone is that there are more extreme elements out there than most people wanted to believe or were willing to believe," said Greg Ewert, an executive vice president of **Iridium** Satellite. "Most people are racing back to review disaster recovery plans, and this marketplace has now opened up to us."

Satellite communication systems are still costly -- MedStar expects its 96-handset system to cost \$300,000 to \$400,000, including phones and service -- and **Iridium's** goal now is to focus on niche groups that need the services the most. Emergency-response agencies are one example, Ewert said, but the maritime, aviation and petroleum industries are also potentially important markets.

Large marine fishing companies and operators of offshore drilling rigs are customers that cannot risk communication breakdowns, Ewert said. Since the hurricane season, **Iridium** Satellite also has had inquiries from hotel chains, insurance companies and construction crews.

The company's competitors include California-based Globalstar Telecommunications Ltd.

Satellite Phone Firm Focuses on Crisis Network; Now-Profitable Iridium Plans Deal With MedStar Health The  
Washington Post June 26, 2006 Monday

**Iridium** Satellite's predecessor, **Iridium LLC**, focused on selling individual handsets to global travelers, thinking satellite phones would be a popular alternative to cellphone roaming fees. But the handsets were bulky and the service was expensive.

"I think there were a lot of people who were naive about the demand," said Herschel Shosteck, president and chairman of the Silver Spring-based Shosteck Group, a global communications consulting firm. "What you got was the self-delusion of true believers who thought there was a big market for this stuff, when actually the market is very specialized and constrained."

**Iridium** filed for bankruptcy in August 1999 after its 66-satellite network failed to attract customers. Silver Spring investment firm Syncom Management Co. and other investors bought the satellites for \$25 million in late 2000 and re-fashioned the company as **Iridium Satellite LLC**.

The reborn **Iridium** initially got back on track by winning a \$72 million Defense Department contract shortly after it was formed. But commercial sales have steadily increased since its inception.

Seventy percent of its \$50.9 million in first-quarter 2006 revenue was from commercial sales, according to the company. **Iridium** says calls now average about \$1 a minute, less than in the early years.

The company operates as a wholesaler, selling directly only to the Pentagon. Other sales are handled by a network of partner companies. The MedStar deal was organized by Roadpost Inc., an international telecommunications broker.

Disaster recovery has not been the only impetus for **Iridium** Satellite's growth. Ewert said the technology also is used to track shipping containers or weather patterns.

The growth in global satellite communications is expected to continue, analysts say.

"Right now the satellite is being deemed as a sort of communication insurance," said Patti Reali, a Pennsylvania-based research director for Gartner Dataquest. "They're the only companies that work over the poles and over the oceans, so they have a key market they're able to target."

**LOAD-DATE:** June 26, 2006