



**ViaSat**

# SEMINARIO

## **Nuove tecnologie e servizi avanzati nell'ambito delle reti satellitari in banda Ka di ultima generazione**

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ViaSat, Inc.

Università degli Studi Tor Vergata

21 novembre 2011

# VIASAT BACKGROUND

**ViaSat**

Innovative  
Technology Provider

- Best strategic partner for end-to-end satellite networks
- Founded in 1986
- Executed IPO in 1996 (Nasdaq:VSAT)
- Headquartered in Carlsbad, California
- Approximately 2,000 employees worldwide

Constant Pursuit  
of Excellence



ENERDYNE  
a ViaSat company

JAST  
a ViaSat company

Scientific  
Atlanta

ViaSat  
Comsat Laboratories

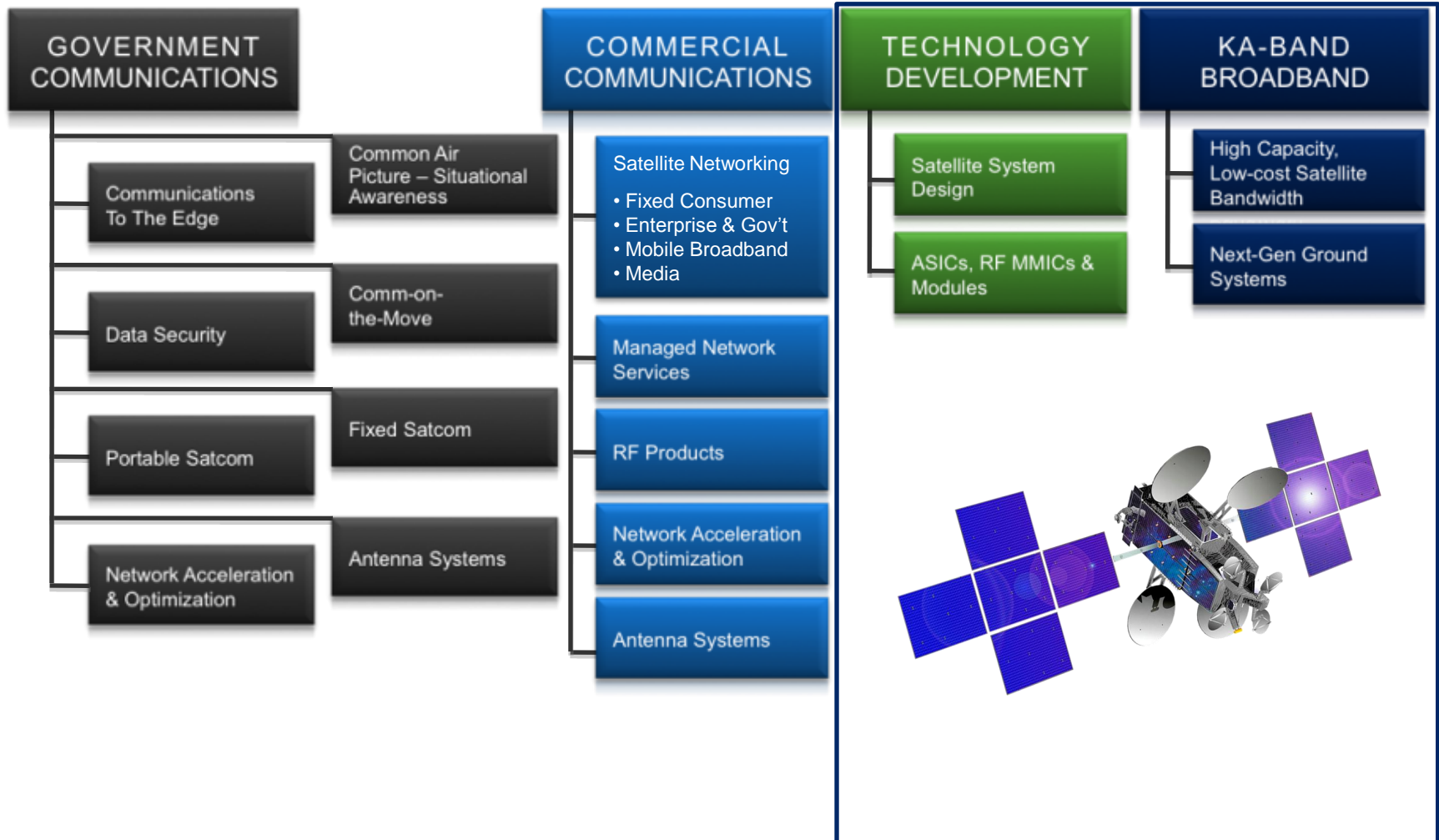
ICT INTELLIGENT  
COMPRESSION  
TECHNOLOGIES  
a ViaSat company

ecc  
A ViaSat Company

Delivers  
Exceptional Value

- Unmatched networking expertise and technical capabilities by relentlessly pursuing innovative excellence
- Scale, mind power and organization to pursue the most challenging communication environments

# PRODUCTS AND SERVICES



# ... IT'S ABOUT HIGHLY COMPELLING TELECOMMUNICATION SERVICES



**Volume**



**Security**



**Speed**



**Mobility**

**Ka-band systems have flexibility to offer custom services to meet very different customer needs all on the same satellite network.**



**Service**



**Reliability  
Availability**



**Cost**

# BROADBAND EXPECTATIONS

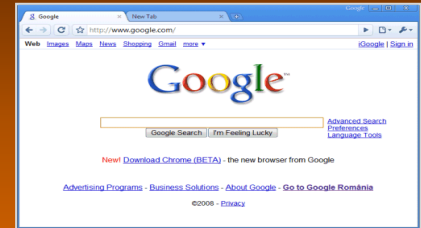
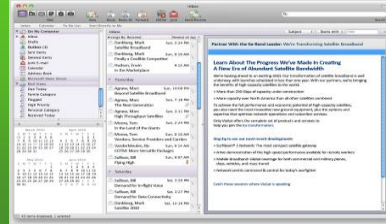


Broadband = *Everything over IP*

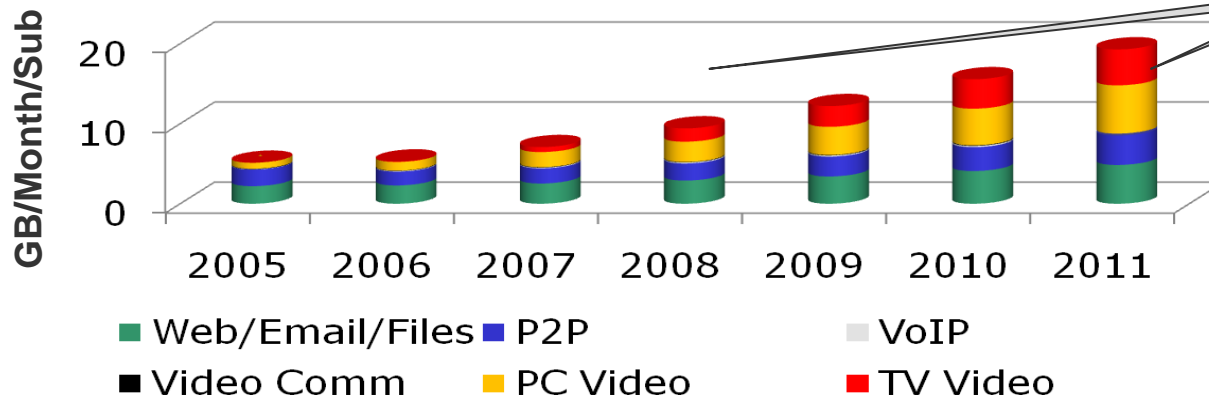
- » Standard Interfaces
- » The faster, the better
- » With appropriate QoS

Increasing appetite for bandwidth

- » More than Browsing

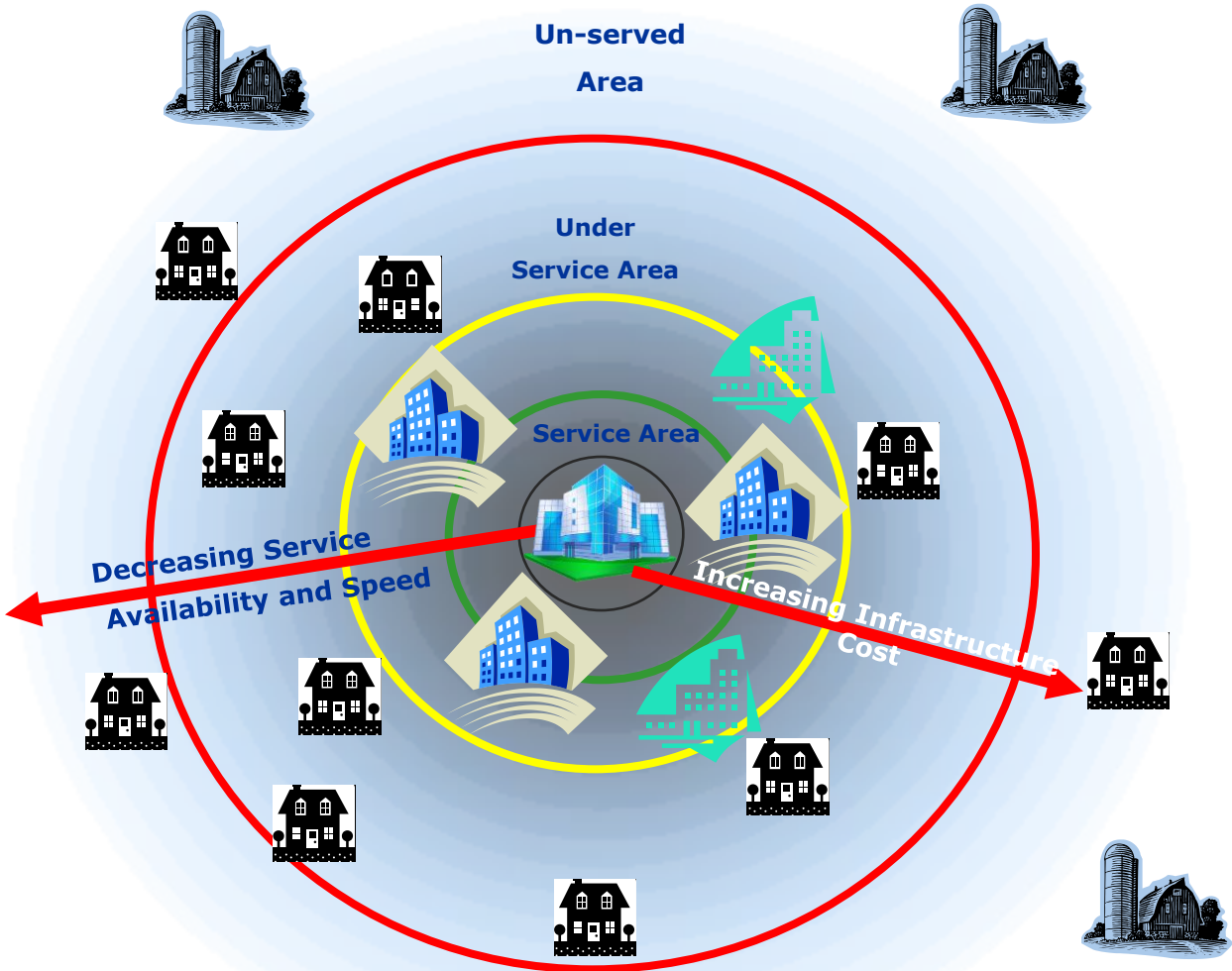


Per User Data Consumption

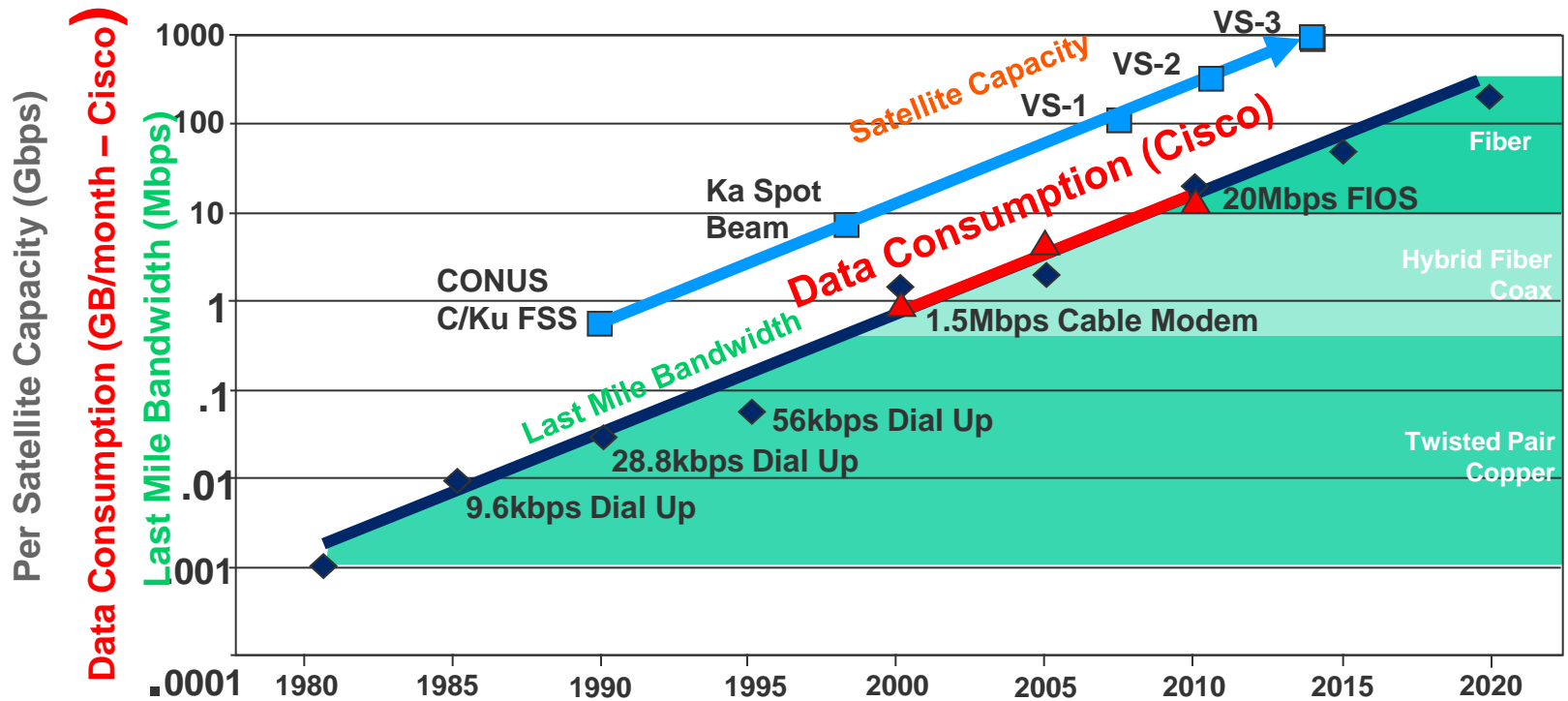


In the past three Years Per User Data Consumption has Tripled

# MOVING SATCOM FROM UN-SERVED TO UNDER-SERVED MARKETS



# TO REMAIN COMPETITIVE, SATELLITE TECHNOLOGY MUST EVOLVE AT TERRESTRIAL RATES



Satellite Technology Improvement Can Keep Pace With Terrestrial Technology Improvement



# VIASAT BROADBAND INITIATIVE – ADVANTAGES AT A GLANCE

**ViaSat**

- Large Under-served and Un-served Market
- Customer Demand For Faster Speed
- Terrestrial Competitive Service
- Highest Capacity Satellite Infrastructure
- Lowest Cost Per Bit
- Coverage Concentrated In Best Markets
- Turn Key Wholesale Business Model

## Technical Focus:

Moving from flexible general purpose satellites, to next generation very high capacity, special purpose, Ka-band spot beam satellites

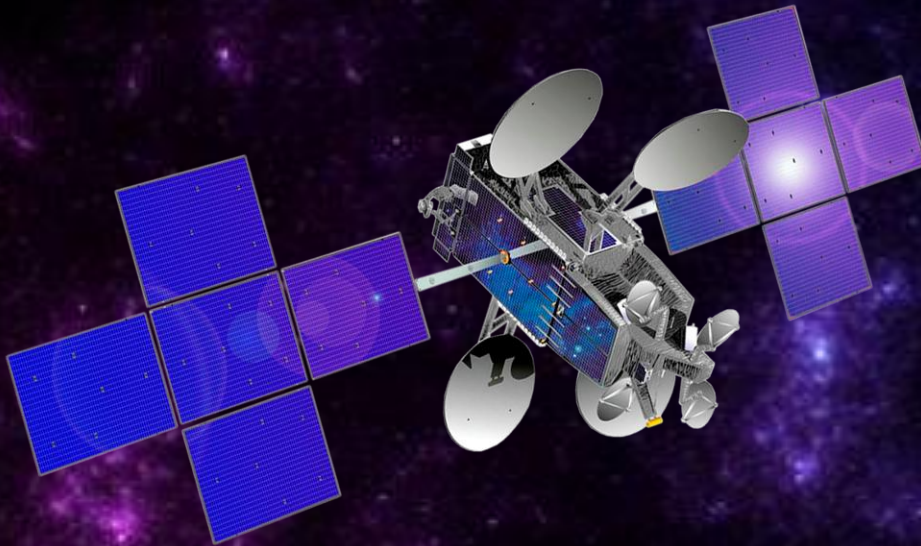
ViaSat is leading the market in this technical evolution





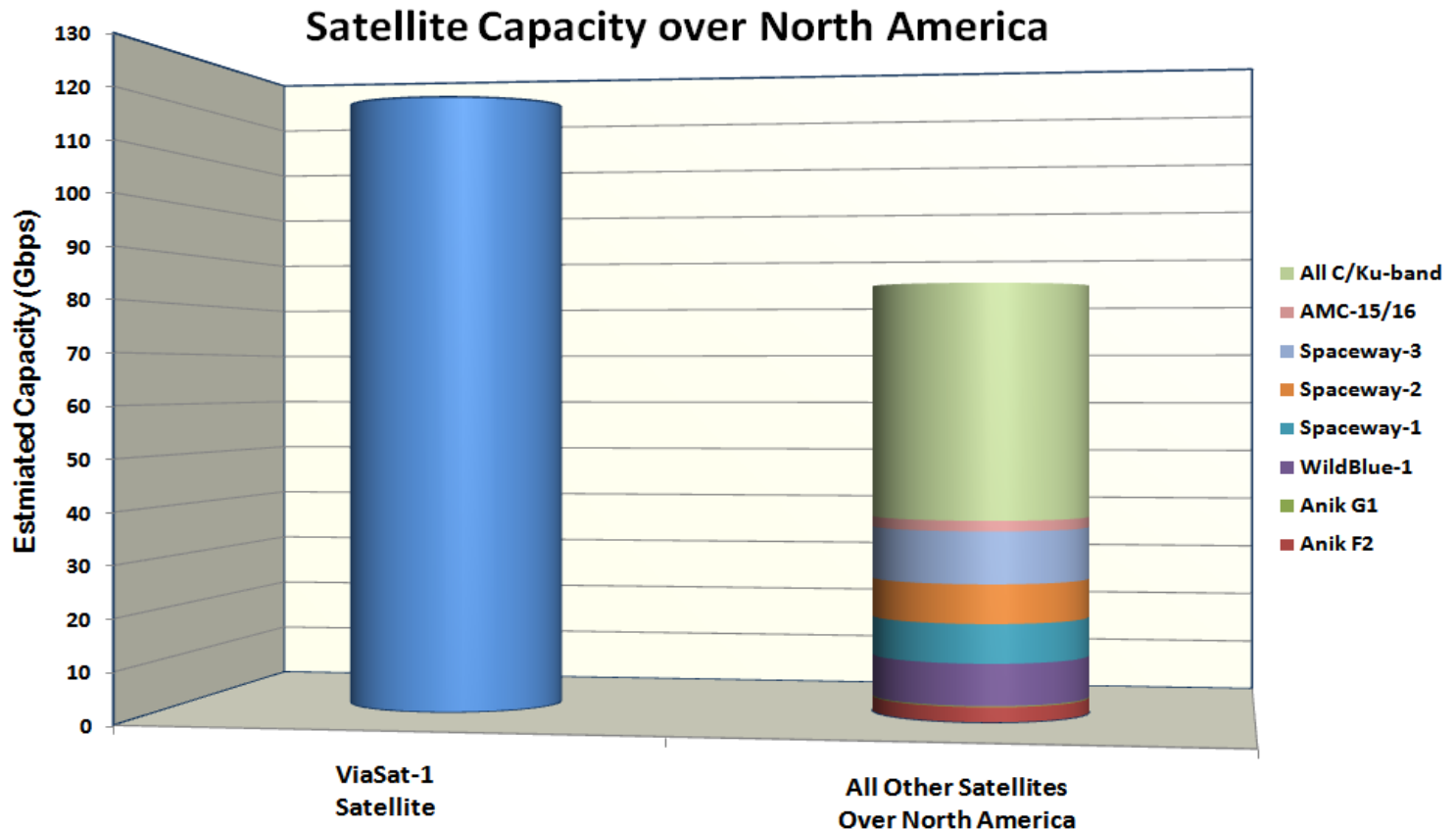
# VIASAT-1: WORLD'S HIGHEST CAPACITY SATELLITE

**ViaSat**



- » Launched on October 19, 2011  
Highest Capacity Satellite
- » Service Open for 2 Million Satellite Subscribers
- » Unprecedented Speeds and Internet Media Capabilities

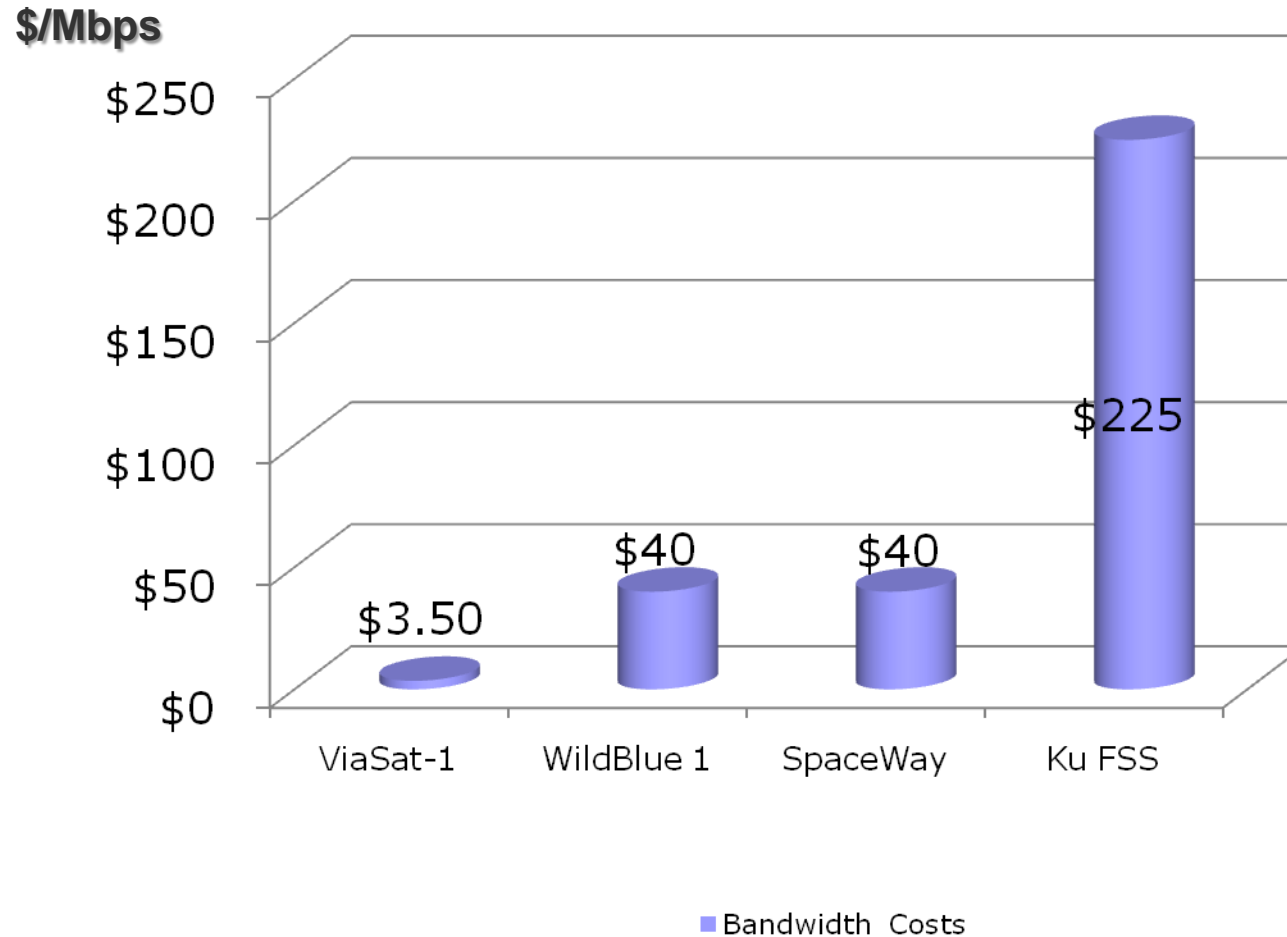
# VIASAT-1 SATELLITE – EXTRAORDINARY CAPACITY!



**ViaSat-1 has more capacity than all current satellites above North America ... ALL COMBINED!**

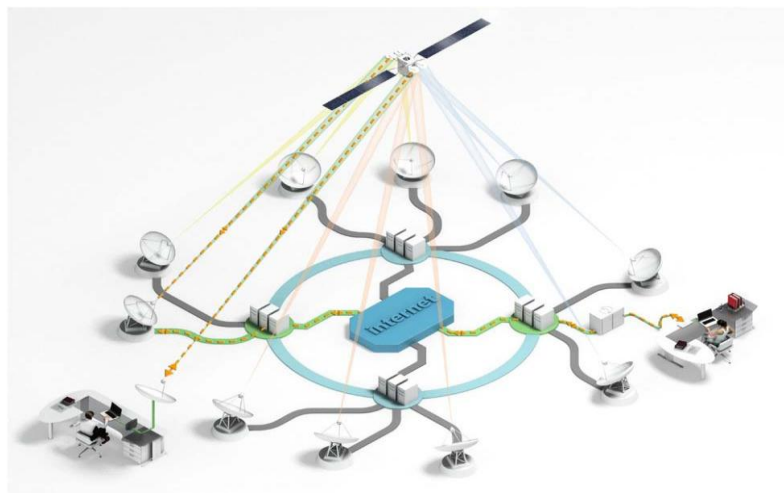
# CAPITAL EFFICIENCY

### Estimated Bandwidth Capital Costs (Satellite On Orbit)



# Efficient Network Topology

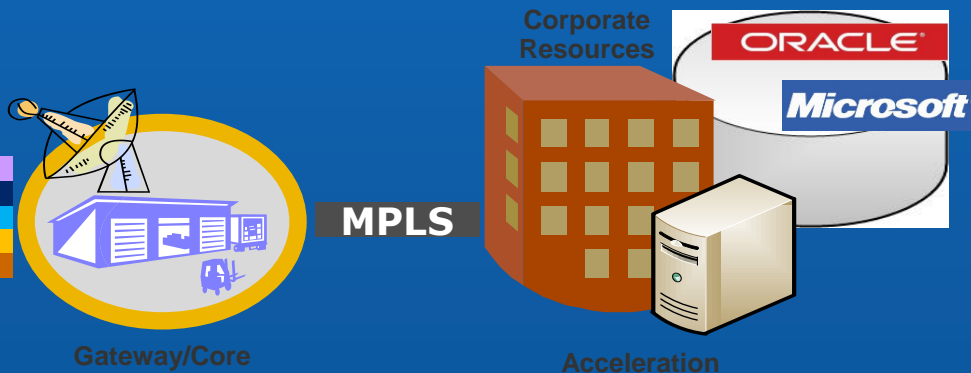
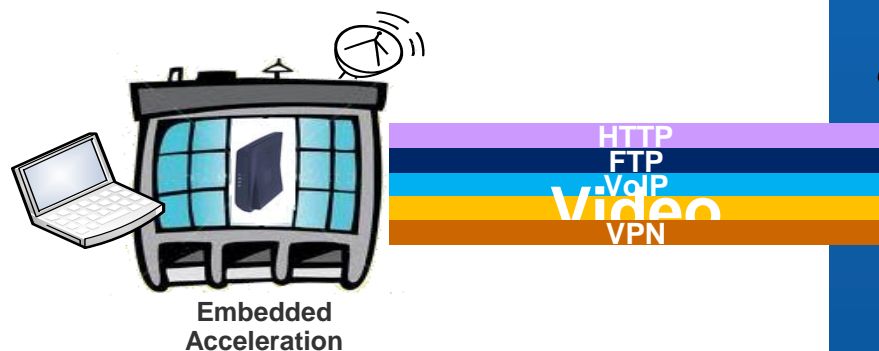
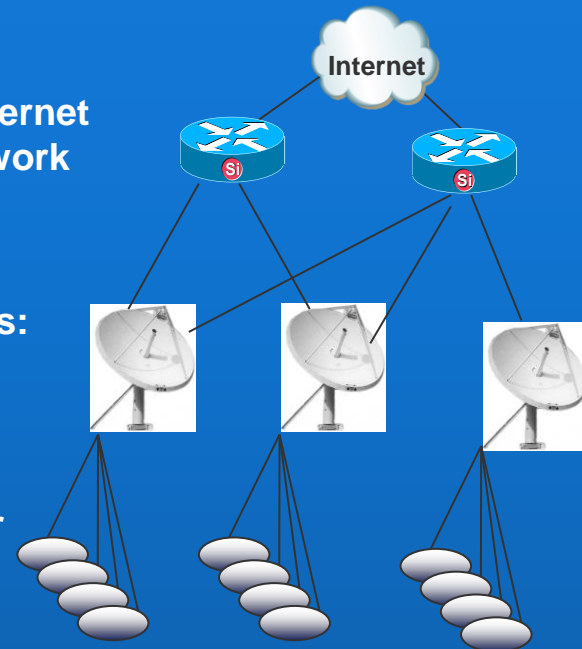
## Ingredients for a high-throughput, multispot beam Ka-band satellite system architecture



Core Nodes enable Internet Access or private network connectivity

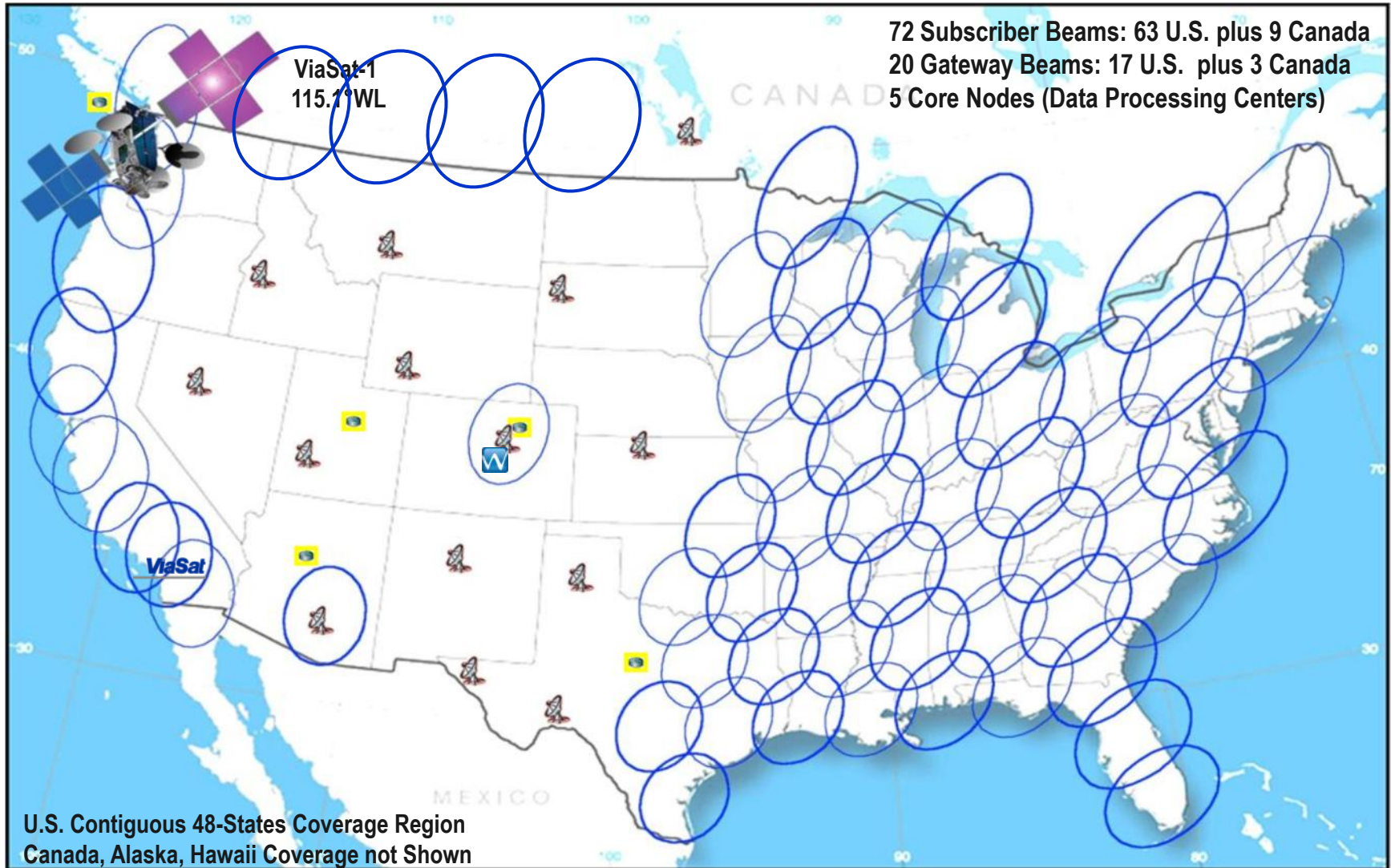
Satellite Gateways connect to Core Nodes: two for redundancy

A set of spot beams connect to a particular Satellite Gateway



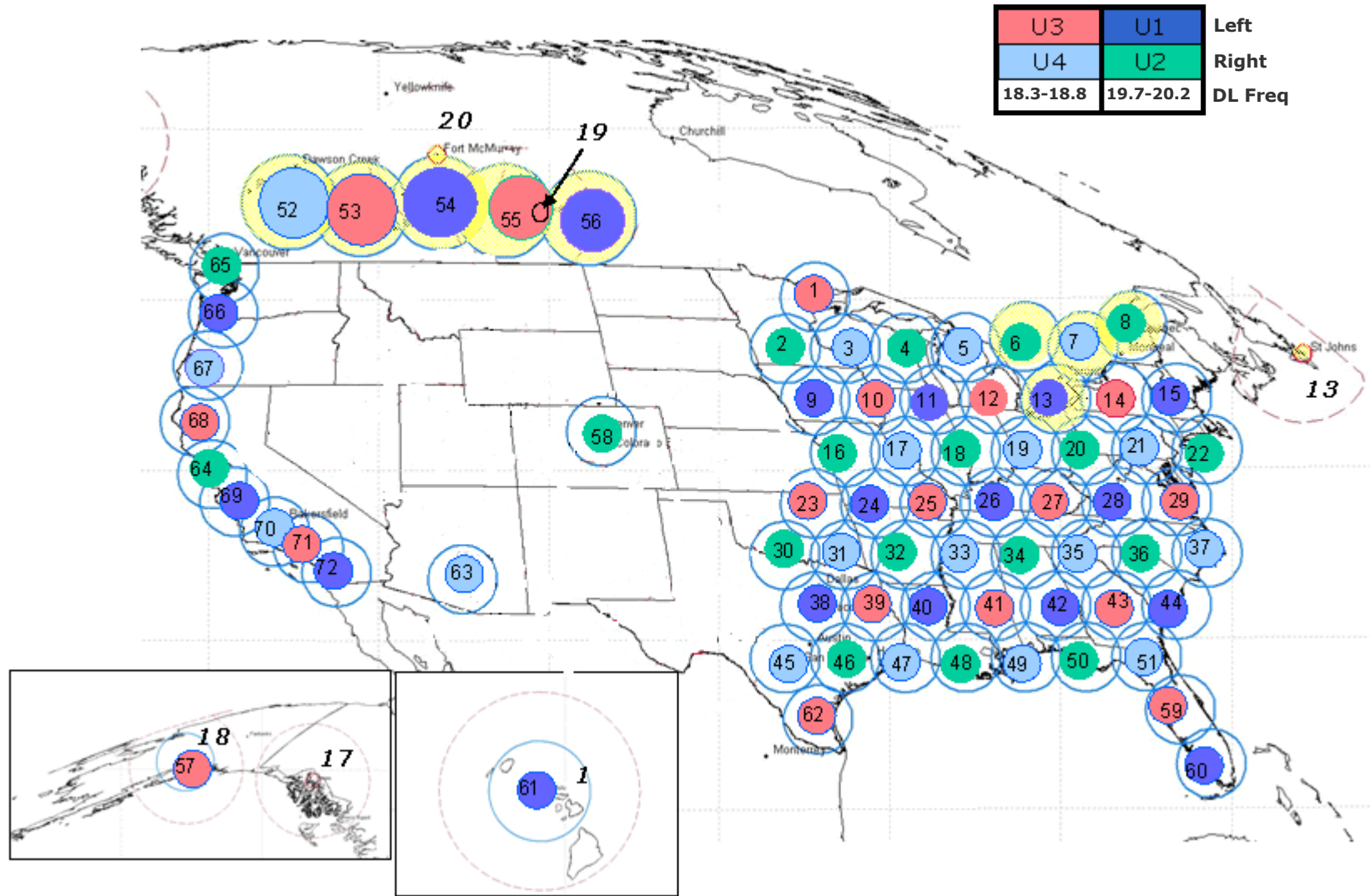
# VIASAT-1 COVERAGE TARGETS HIGHER POPULATION DENSITY

**ViaSat**





# ViaSat-1 Ka-Sat High Capacity Satellite Frequency Reuse



# VIASAT PROVIDES THE COMPLETE GROUND SEGEMENT

**ViaSat**



Baseband  
Equipment

Gateway  
Antenna

User Equipment



# LEADING THE MARKET IN KA BAND GATEWAYS

**ViaSat**

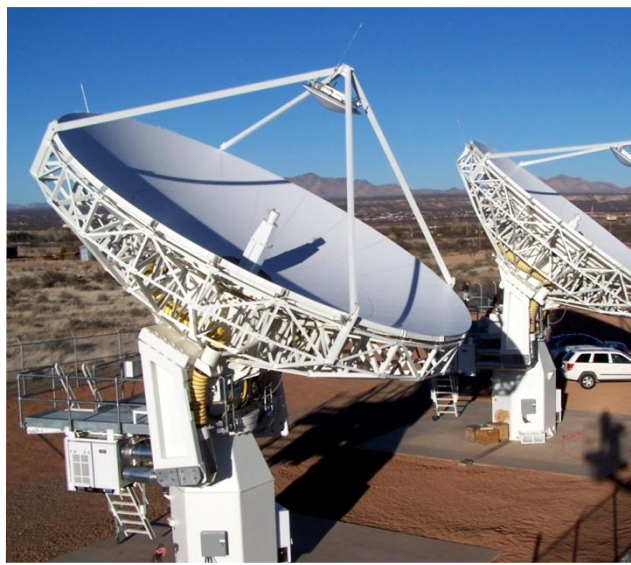


Over 100  
Commercial  
Ka-band  
Gateways

# KA BAND ENTERPRISE SYSTEMS FROM 7 TO 13 METERS



7.3m



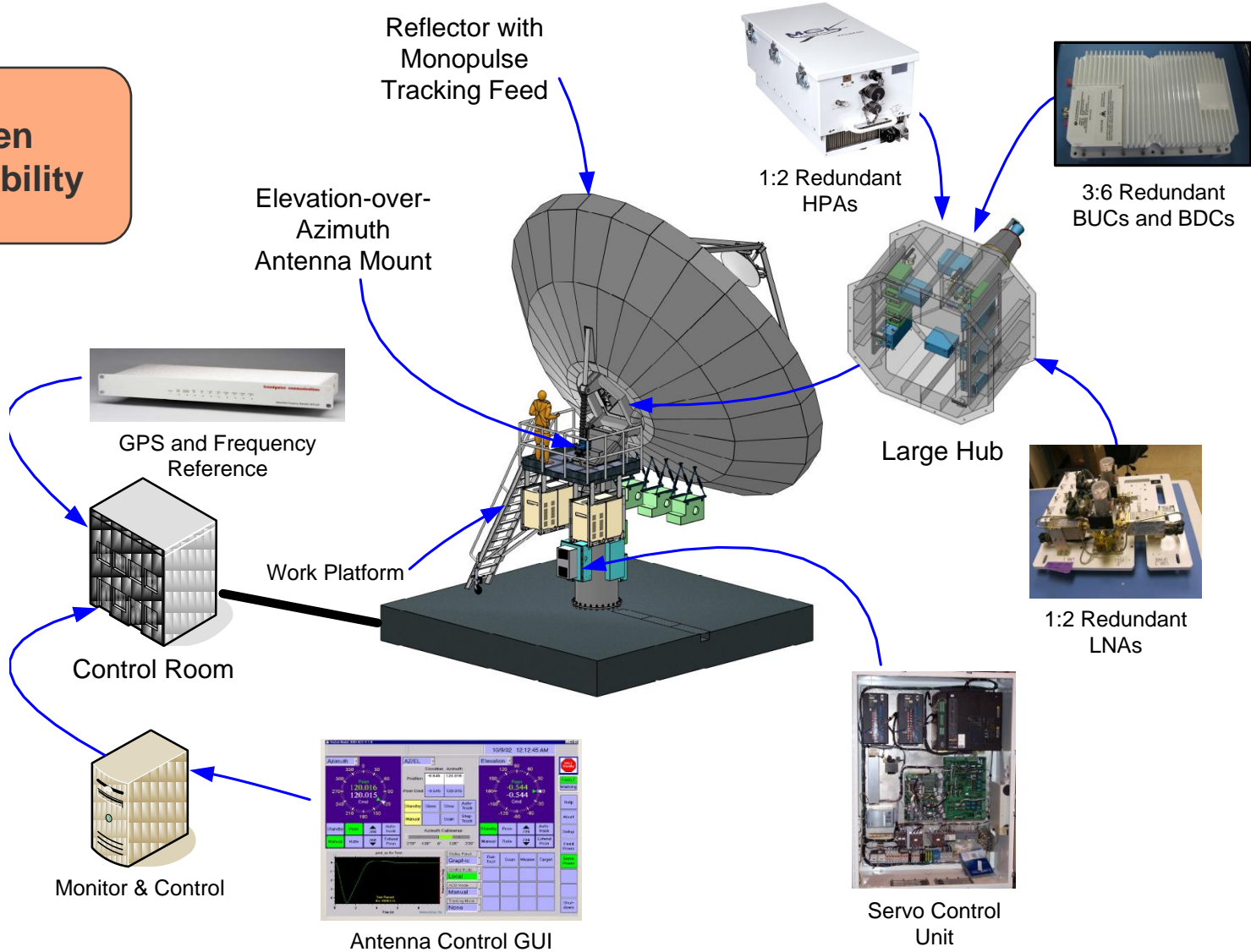
9.1m



13.5m

# LOW RISK DESIGN INTEGRATES PROVEN TECHNOLOGY

**Proven Capability**





# SURFBEAM: FASTEST GROWING VSAT NETWORK IN THE WORLD

**ViaSat**

- » Over 900,000 Terminals Installed
- » WildBlue: Fastest Growing Ka-Band Network Worldwide
- » Higher Speeds
- » Support for Media-Rich Internet Content



## SurfBeam 2 Home Terminal



# MARKETS: RESIDENTIAL, ENTERPRISE, DEFENSE, MOBILE



# CONSUMER NETWORKS

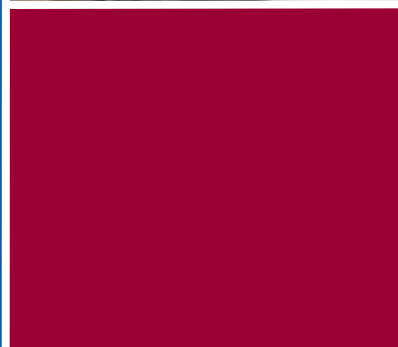
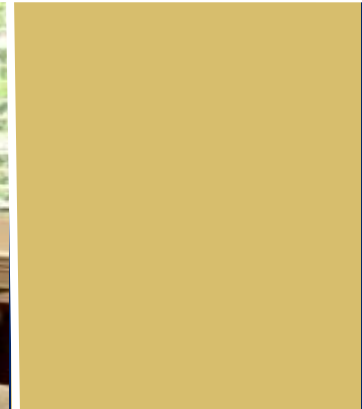
**ViaSat**

Specifically designed for mass market access with a WiMAX based network



Rely on our expertise as the proven KA-Band leader

- › Fastest growing consumer broadband network ever
- › Applications & Speed to Satisfy Customers





# INTERNET FOR THE HOME, THE CAFE, AND LEISURE

**ViaSat**

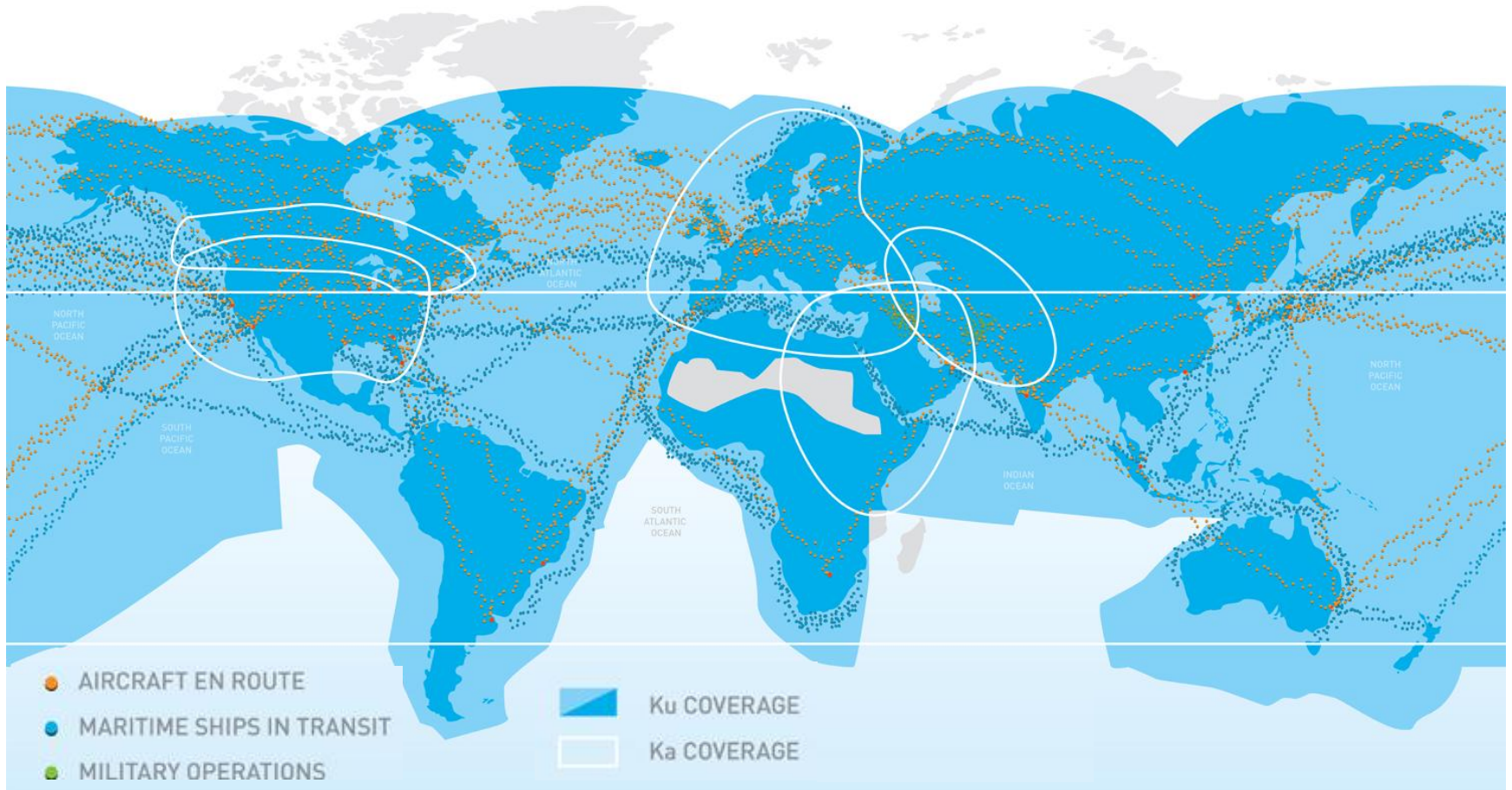




# WORLDWIDE MOBILE SERVICE COVERAGE

**ViaSat**

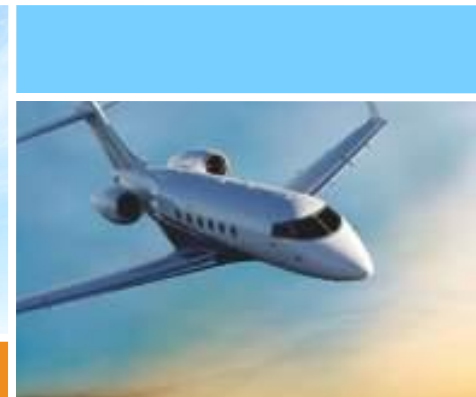
YONDER®



# MOBILE NETWORKS

**ViaSat**

- » Unsurpassed global broadband coverage
- » True broadband experience to small antennas
  - › Forward link rates up to 30 Mbps
  - › Return link rates up to 1024 kbps
  - › Apertures as small as 30cm
- » Web browsing, e-mail, VPN, voice, media





# BROADBAND AT THE SPEED OF FLIGHT

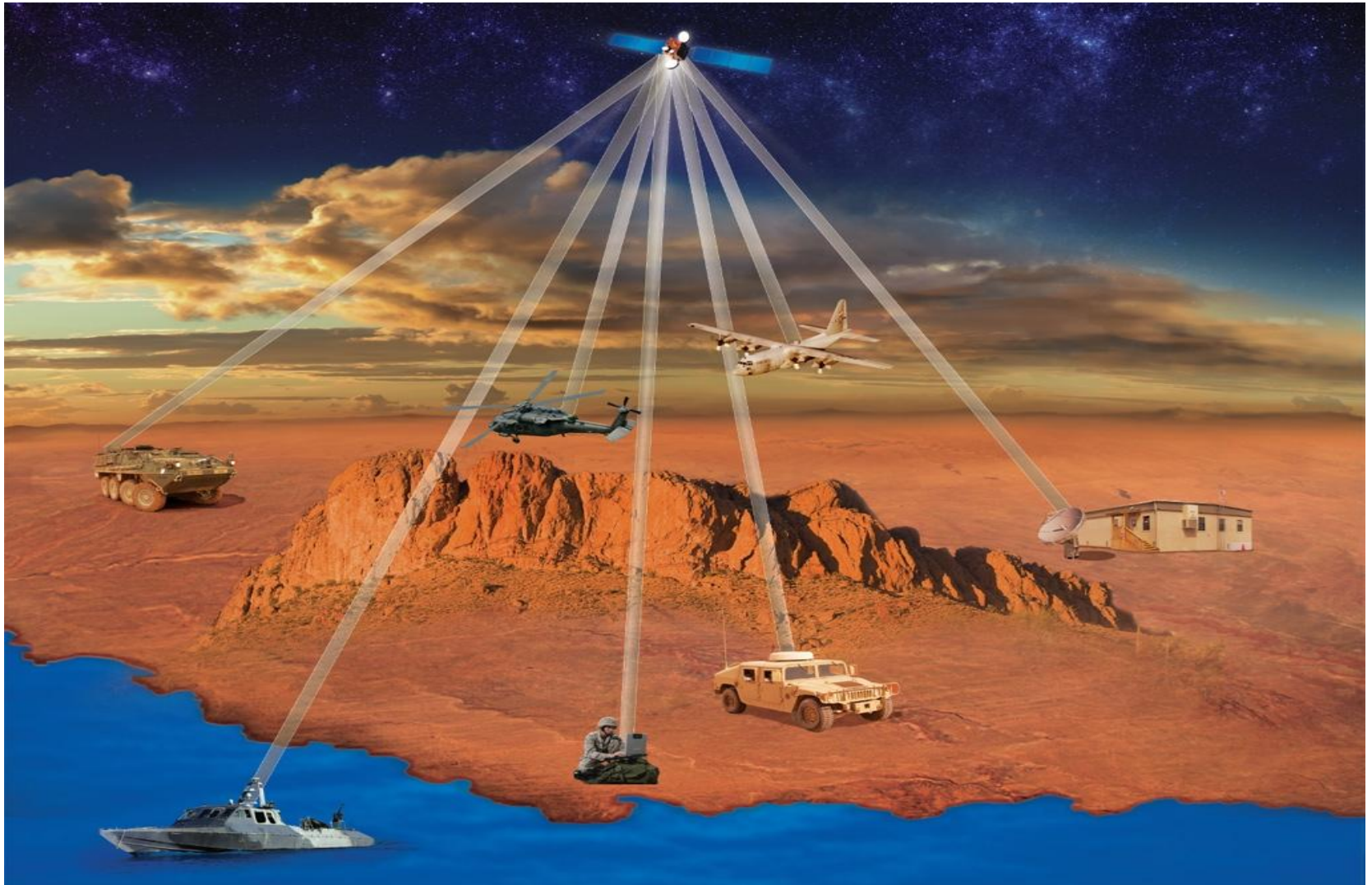
**ViaSat**

GENUINE BROADBAND!



# MOBILE COMMUNICATIONS FOR GOVERNMENT

**ViaSat**

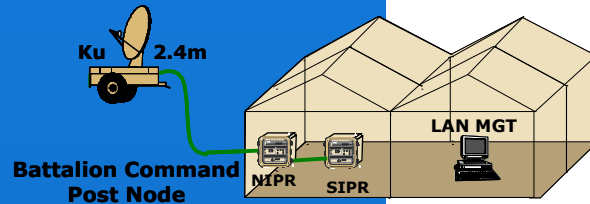


# TACTICAL TERMINAL PROPOSITION

FASTER, SMALLER, EASIER!



## Until Yesterday...



- 2.4m Trailer plus baseband vehicle
- 3Mbps Mesh
- 2-8Mbps Point-to-Point

## Today

- .5m Portable
- 5 Mbps Transmit
- 30 Mbps Receive





# KA-BAND PORTABLE TERMINAL

**ViaSat**

- Easily portable high-speed connectivity
- 30Mbps Rx – 20Mbps Tx
- 75 or 50 cm petal antenna
- Ruggedized for operation in harsh environments
- Utilizes affordable, high-capacity Ka-band satellite bandwidth
- Supports high-speed live video uplinks
- Quick set-up using built-in antenna pointing aid for rapid satellite acquisition
- Integrated 4-port IP router
- Web GUI local management and SNMP-based remote management and control



# KA-BAND PORTABLE TERMINAL

**ViaSat**

Video applications

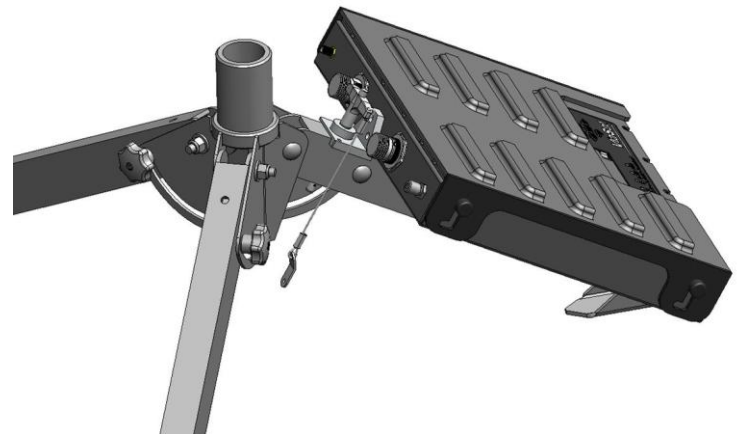
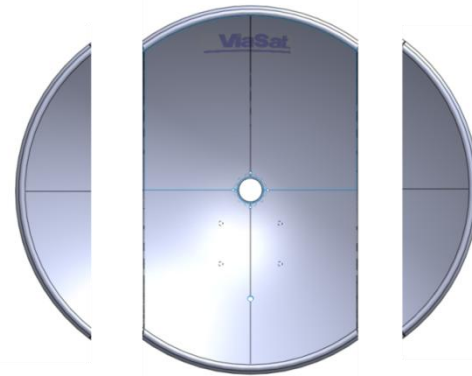
High throughput data applications

Always On – rapid Internet access

Satellite news gathering

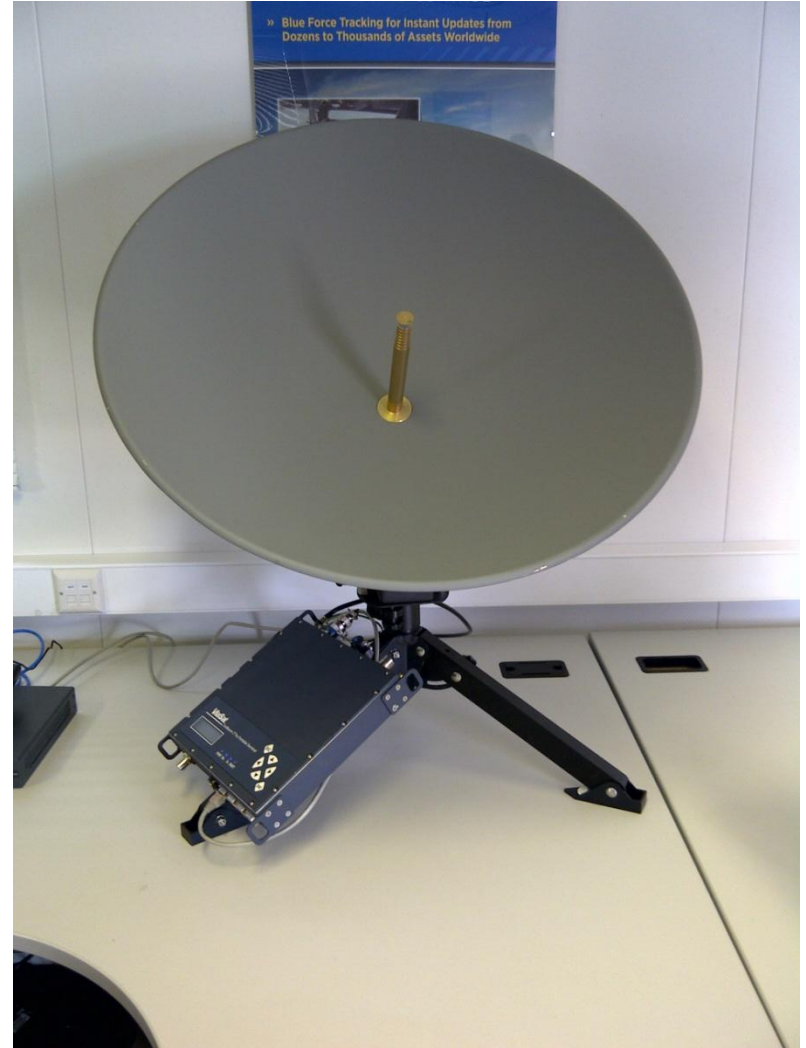
Disaster relief support

Emergency medical response reporting



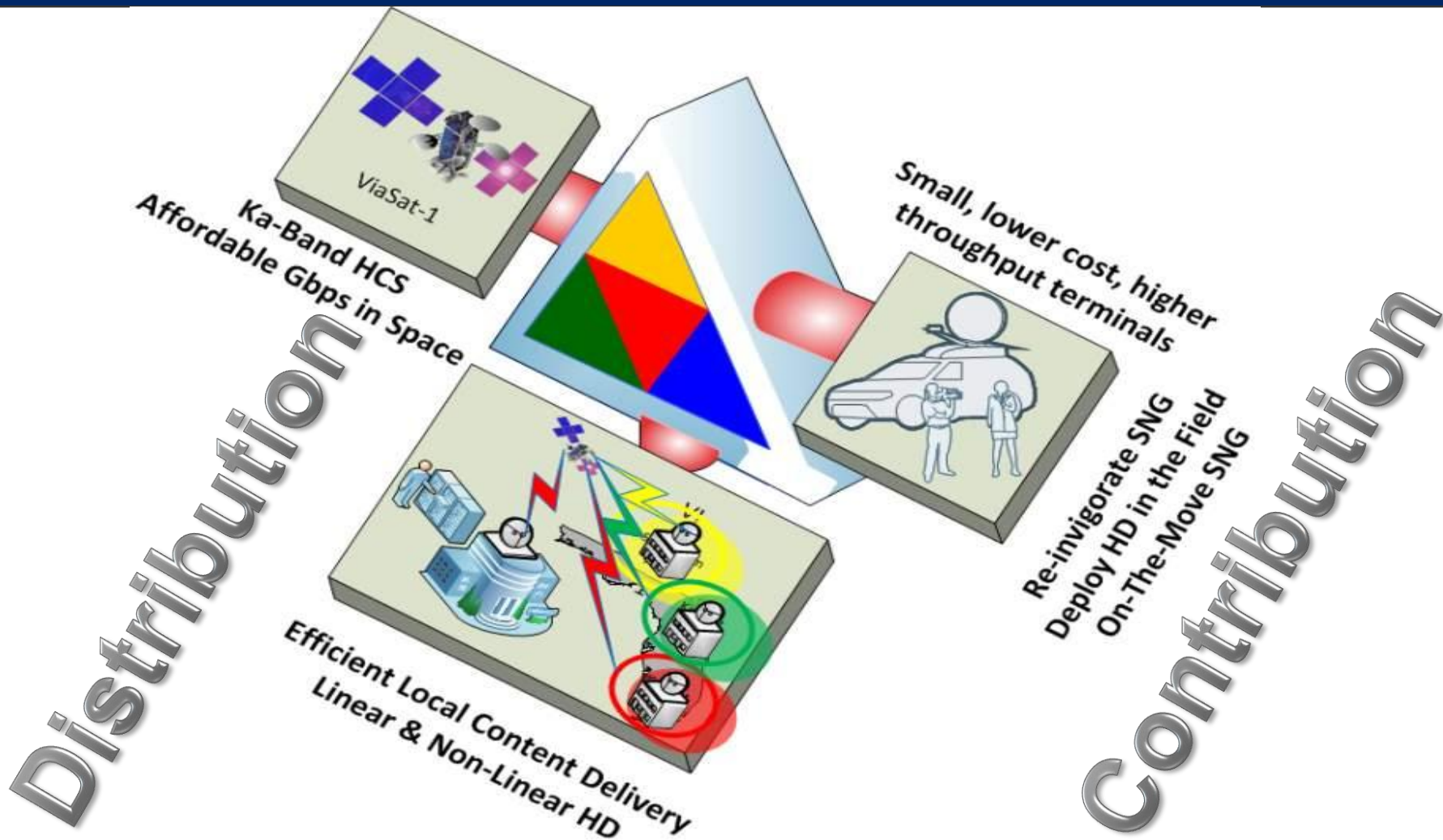


# A FEW PICTURES...



# VALUE PROPOSITION FOR BROADCAST & MEDIA

**ViaSat**

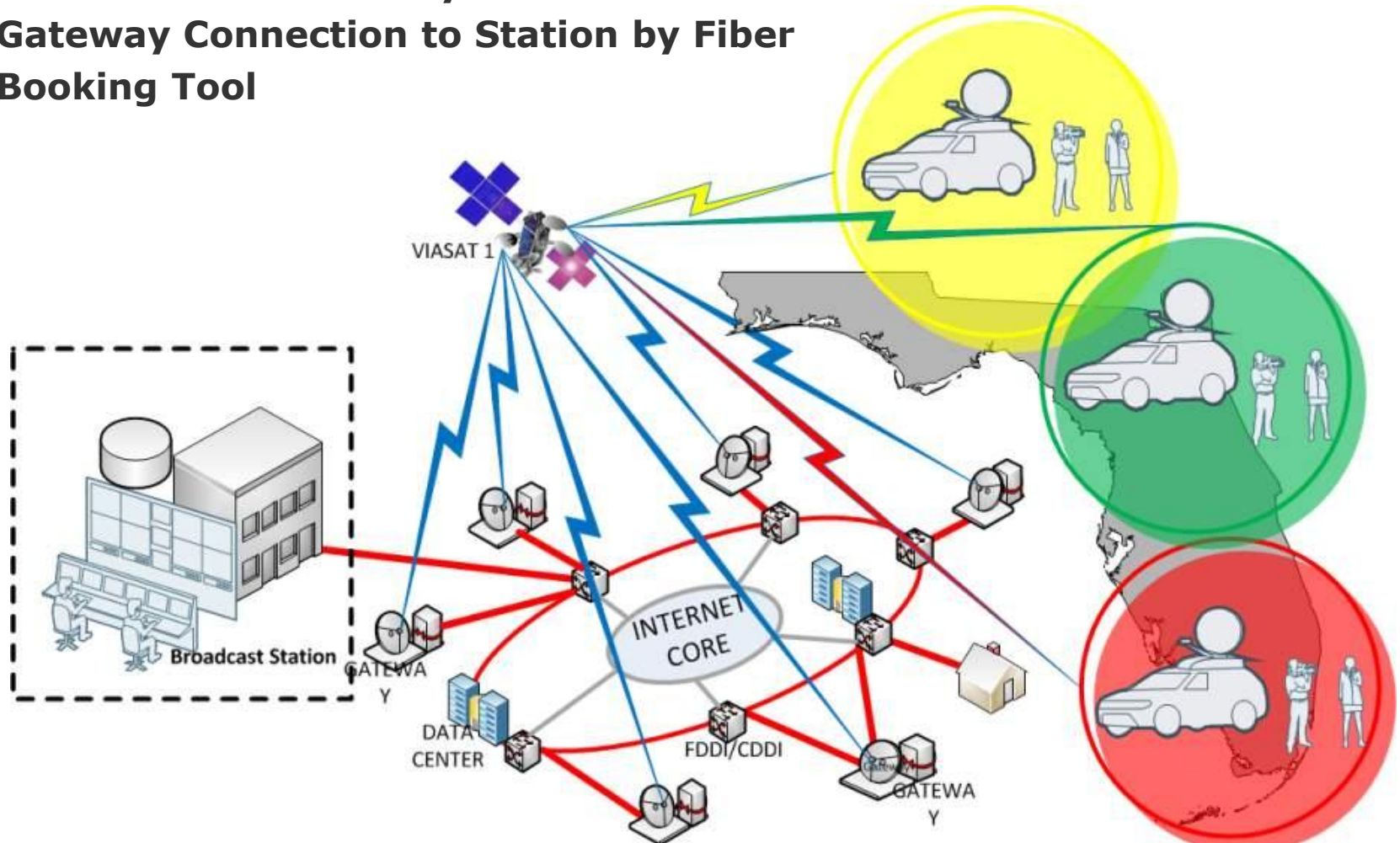


**Ka-Band HTS: The Game Changer for Broadcast & Media**

# SNG – CONTRIBUTION NETWORK

## Field Contribution

- ◆ Connection to Gateway via Satellite
- ◆ Gateway Connection to Station by Fiber
- ◆ Booking Tool





# EUTELSAT – MTHREE SNG VAN

**ViaSat**



# FORMING A GLOBAL ALLIANCE

**ViaSat**

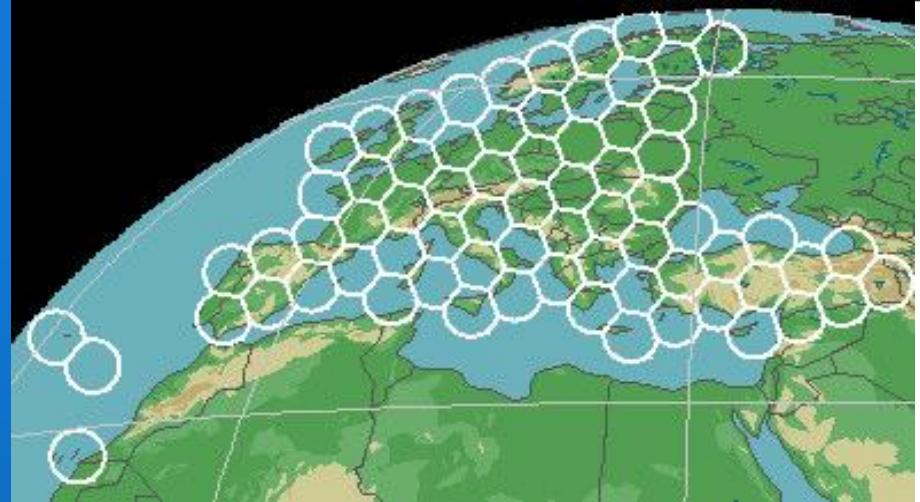
Over 250 Gbps in Space or Under Construction



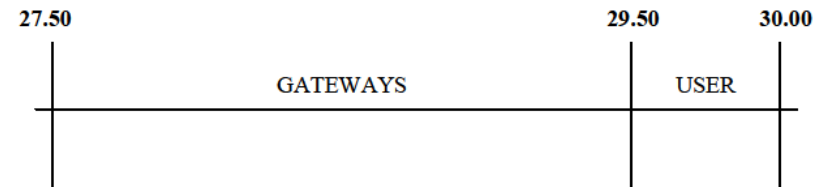
- » ViaSat's Regional High-Capacity Satellite Partners
- » SurfBeam<sup>®</sup> 2 Next Generation Ground Segment

# EUTELSAT'S KA-SAT

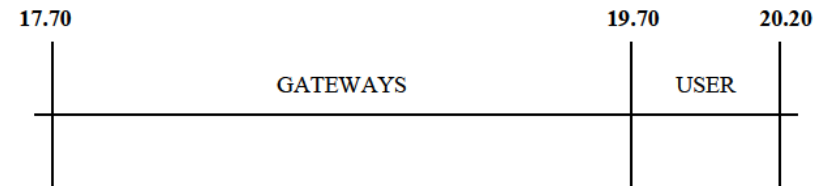
- Satellite: 70 Gb/s on KA-SAT, thanks to
  - Ka-band spectrum
  - Multi-spot beams
  - High frequency reuse (20 times)
  - ...with a very effective ground technology
  - 10 gateways all over Europe
  - ...linked to the main European PoP and Internet backbone
  - ViaSat SurfBeam 2 technology



## Uplink



## Downlink



# VIASAT'S CONSUMER MARKET EXPERIENCE



ViaSat offers “Broadband Internet via Satellite” in the U.S. under the WildBlue brand with over 400,000 customers in the 48 contiguous United States

- ViaSat's services company
  - Established: 1998
  - First Commercial Service: 2005
  - Acquired by ViaSat December 2009
- Approximately 300 employees
- We operate a U.S. nationwide broadband network
  - 2 Ka-band spot beam satellites, plus additional leased capacity
  - 13 Gateway Earth Stations
  - Network Operations Center
  - Data Centers
- Customer Call Centers



New WildBlue  
Corporate Headquarters  
Denver, Colorado, USA





# WILDBLUE LEGACY NETWORK ARCHITECTURE



## Subscriber Terminals



**SurfBeam  
subscriber  
terminals**

## Satellite Connectivity



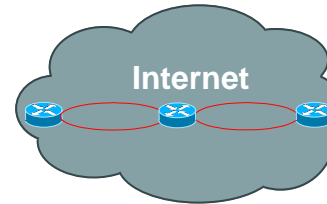
**High capacity  
Ka-band spot  
beam  
satellites**

## Gateway Earth Stations



**Unmanned  
Remote  
Gateway Earth  
Stations**

## Fiber Connectivity



**Fiber  
connectivity,  
Google email,  
customer  
portals**

## Operations & Business



**Network  
operations,  
Business  
systems**

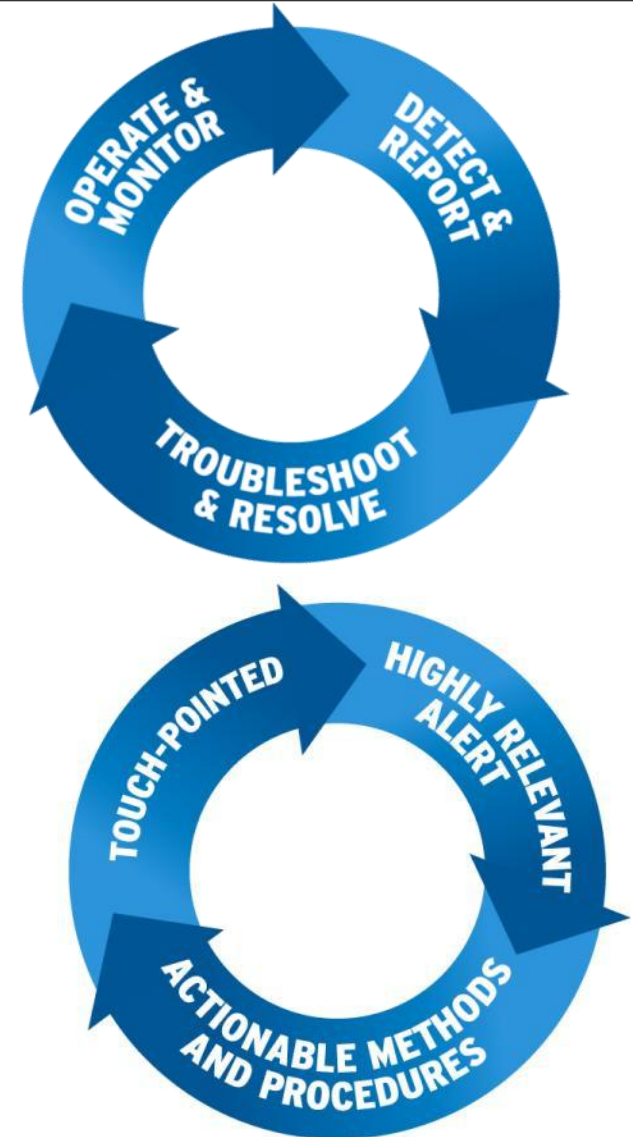
# HIGHLY EFFICIENT NETWORK OPERATIONS

## Network Operations Prime Directive...

- Operate the network
- Monitor network performance
- Detect and report problems
- Quickly troubleshoot and resolve

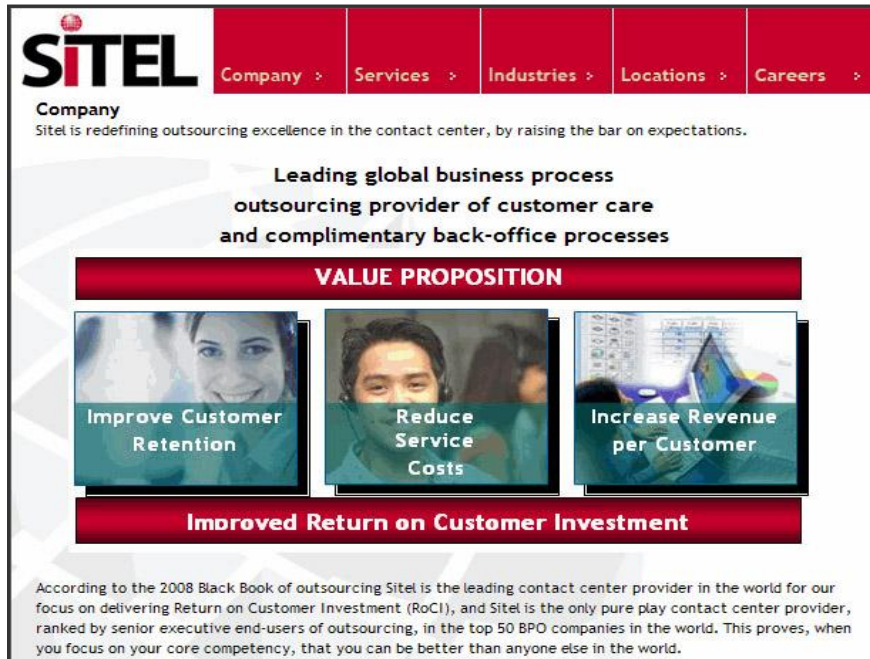
## ... and How We Accomplish It

- All systems fully touch-pointed
- Alarms processed, correlated and relevant
- Methods & Procedures actionable
- Escalation paths immediately available
- On-Site Work Force (OSWF) on call
- Spares on-site and at depots



# TWO CUSTOMER CARE PROVIDERS: SITEL AND CLOUD 10

**ViaSat**



**SITEL** Company > Services > Industries > Locations > Careers >

**Company**  
Sitel is redefining outsourcing excellence in the contact center, by raising the bar on expectations.

Leading global business process  
outsourcing provider of customer care  
and complimentary back-office processes

**VALUE PROPOSITION**

- Improve Customer Retention
- Reduce Service Costs
- Increase Revenue per Customer

**Improved Return on Customer Investment**

According to the 2008 Black Book of outsourcing Sitel is the leading contact center provider in the world for our focus on delivering Return on Customer Investment (RoCI), and Sitel is the only pure play contact center provider, ranked by senior executive end-users of outsourcing, in the top 50 BPO companies in the world. This proves, when you focus on your core competency, that you can be better than anyone else in the world.



**CLOUD 10 CORPORATION** Home > About Us > Our Services > Career Center > Press Room > Contact Us

**CAREER CENTER**

Looking for a part-time job?  
It may be closer than you think!

**CORPORATE CAREERS**

**AT HOME PROFESSIONALS**

**Traditional Call Center**  
We use the Sitel Facility in Las Vegas,  
Nevada

Escalation call center in Denver, Colorado

NOC monitors Customer Care tickets, correlates to network elements, and accepts reverse alerts from Customer Care

**“Work from Home”**  
Highly Distributed Call Center Model

# BOTH WHOLESALE AND RETAIL

**ViaSat**

- Approximately 50% Retail Distribution
  - Sold under the WildBlue brand
  - Over 2000 retail dealers
- Approximately 50% Wholesale Distribution
  - Typically branded “ ... Powered by WildBlue”
- Enterprise Distribution
  - Approximately 50 Value-Added Resellers
  - Enterprise is expected to grow quickly with ViaSat-1 capacity

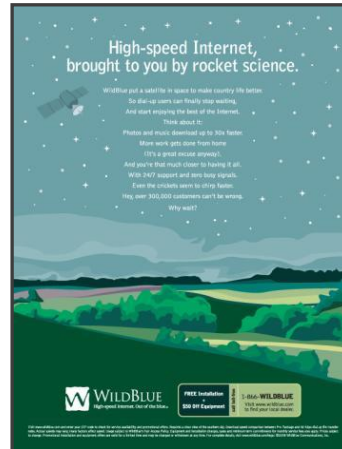




# RETAIL MARKETING AND SALES



## Direct Mail Campaigns



## Magazines



WB201-Q4 2x2 Newspaper Ad  
Size: 3.5" x 4" • Blk: 10/26/08

## Local Newspapers



## Television Advertising and "Infomercials"

# CURRENT RESIDENTIAL PACKAGES



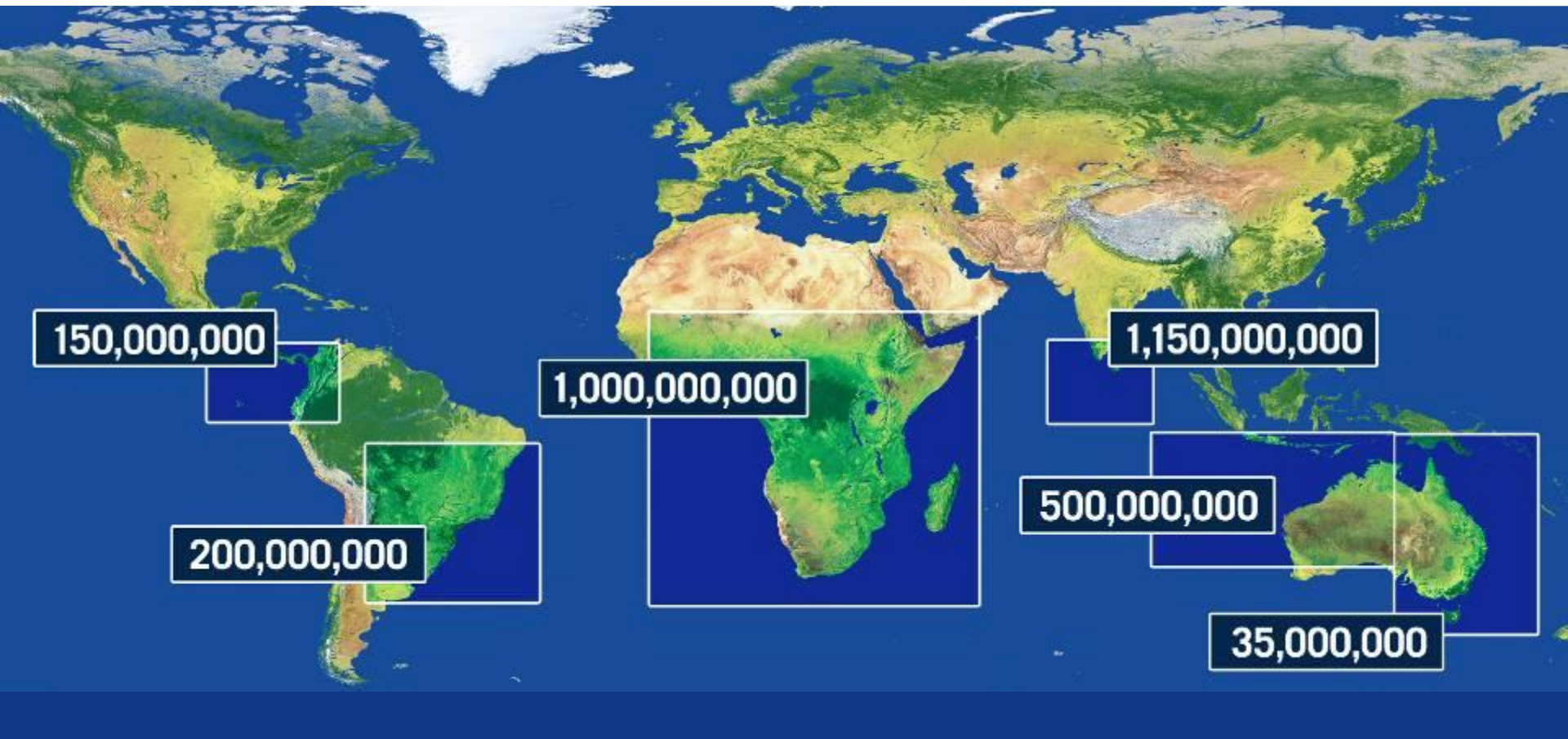
<p><b>Light Internet User</b></p> <p>Usage Style: You e-mail frequently and visit the Web for information and news.</p>	<p><b>Moderate Internet User</b></p> <p>Usage Style: You e-mail frequently, surf the Web heavily, download music, shop online, and share photos.</p>	<p><b>Heavy Internet User</b></p> <p>Usage Style: You have multiple computers in simultaneous use, either by family members or for business. You frequently download music, videos, and send and receive large files.</p>
<p>512 kbps x 128 kbps</p>	<p>1 Mbps x 200 kbps</p>	<p>1.5 Mbps x 256 kbps</p>
<p><b>VALUE PACKAGE</b></p>	<p><b>SELECT PACKAGE</b></p>	<p><b>PRO PACKAGE</b></p>
<p>SPEED</p> <p>DOWNLOAD FILES UP TO <b>10x</b> FASTER THAN DIAL-UP!</p> <p>PRICE</p> <p><b>\$49<sup>95</sup></b> MONTH</p> <p>OUR MOST POPULAR PACKAGE</p>	<p>SPEED</p> <p>DOWNLOAD FILES UP TO <b>20x</b> FASTER THAN DIAL-UP!</p> <p>PRICE</p> <p><b>\$69<sup>95</sup></b> MONTH</p>	<p>SPEED</p> <p>DOWNLOAD FILES UP TO <b>30x</b> FASTER THAN DIAL-UP!</p> <p>PRICE</p> <p><b>\$79<sup>95</sup></b> MONTH</p>



# O3B AND VIASAT: CONNECTING THE UNCONNECTED



Constellation of 8 Ka Satellites  
Will Serve 150 Countries in Asia, Africa, Latin America, Middle East



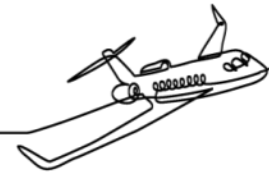
# VIASAT BROADBAND BUSINESS IS TAKING OFF ... QUITE LITERALLY



ViaSat-1 Satellite



More than 1,000,000 SurfBeam terminals delivered.



WildBlue-1 Satellite



SurfBeam 2 terminals in full production.



Over 75 Ka-band Systems Delivered

- ViaSat's financial strength
- ViaSat's successful track record in major DoD and commercial programs
- Focus in high-throughput satellite design
- Focus in Ka-band systems development
- Worldwide service coverage with special focus in user satisfaction.

VIASAT, YOUR CHOICE!

**ViaSat**

