Broadband IP Network
via Satellite

VIPERSAT Networks Inc. History

1981 Vitalink satellite communications Division founded.

1988 Vitacom is spun out of Vitalink as separate company. Focus is on U.S. Market.

1994 Vitacom purchased by Cable & Wireless.

1995 Vitacom opens office in Beijing, China

1997 Vitacom purchased by Global Light Communications

1998 Vitacom ships first IP based network (CAS Internet Application) – the

Vipersat Solution is born.

1999 Vitacom's IP based products division and China organization purchased by

NeTrue Communications, a Global Light Company.

2002 VIPERSAT Networks Inc. is started by previous mgt. team and privately owned.

Vipersat World Presence
Via Customer Applications

North America
Customer Applications
Distance learning
VoIP
IPVC
Streaming Video
Internet

Europe
Customer Applications
Enterprise Infrastructure
VoIP
IPVC
Streaming Video
Internet

China
Customer Applications
Telemedicine
Distance learning
Enterprise Infrastructure
VoIP
IPVC
Streaming Video
Internet

Japan
Customer Applications
Distance learning
VoIP
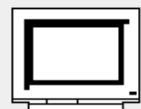IPVC
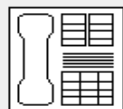Streaming Video
Internet

South America
Customer Applications
VoIP
IPVC
Streaming Video
Internet

South East Asia
Customer Applications
Distance learning
VoIP
IPVC
Streaming Video
Internet

South Africa
Customer Applications
VoIP
IPVC
Streaming Video
Internet

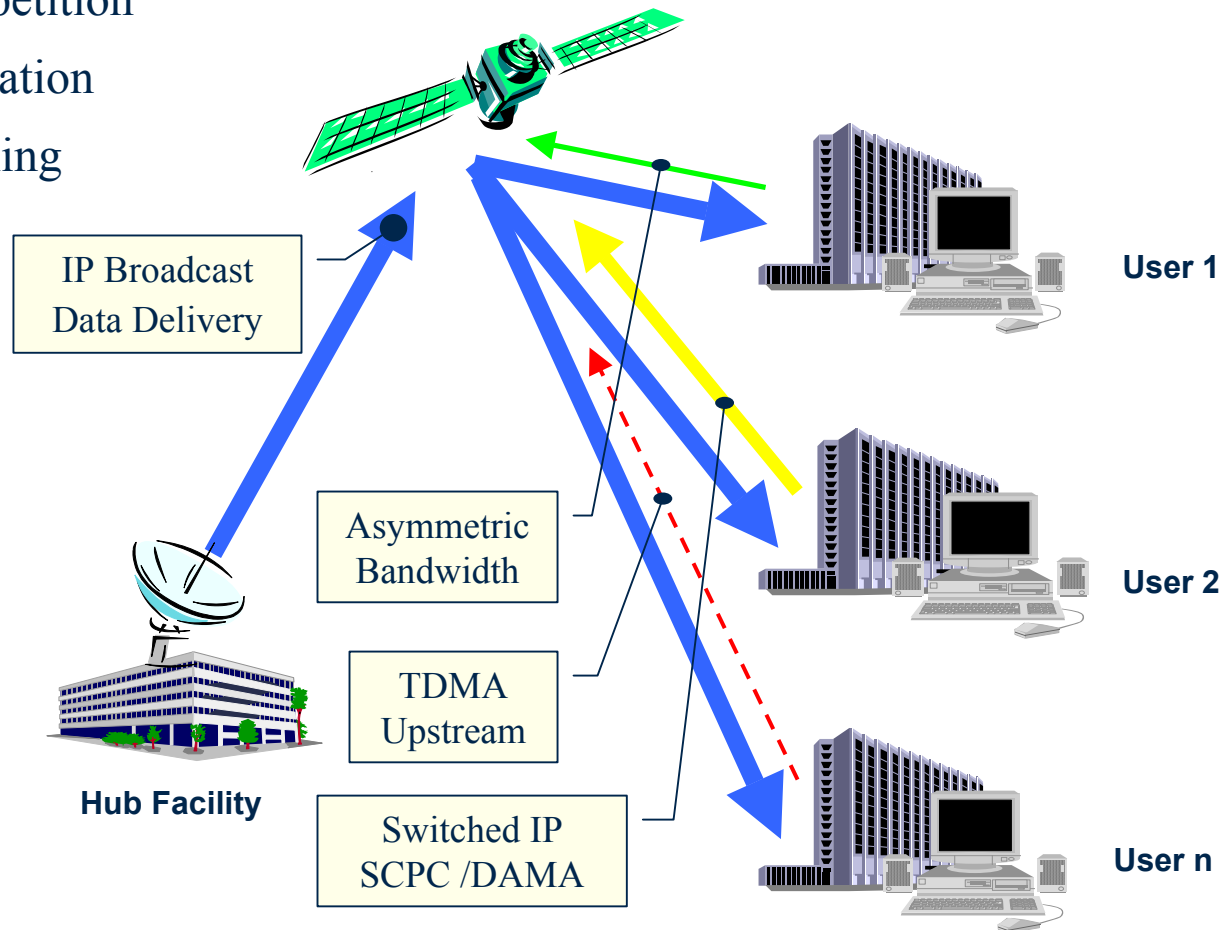Streaming Video | VoIP Gateways | Internet / Intranet | IPVC H.323 | Enterprise Infrastructure | Distance Learning | Telemedicine

VIPERSAT IP Advantage
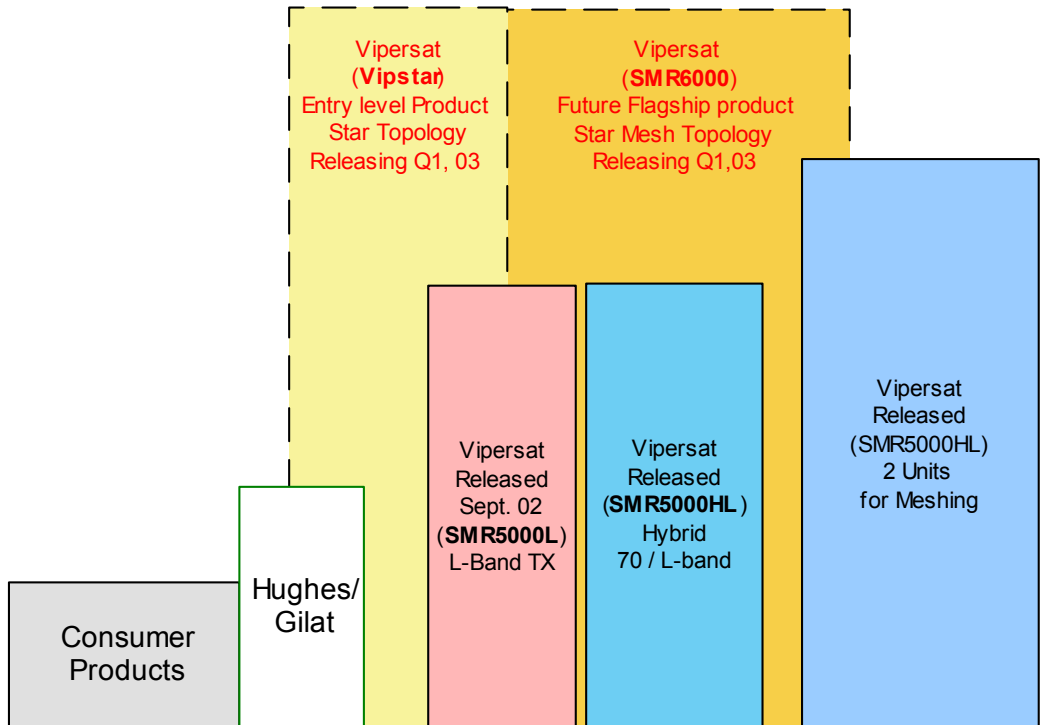
- Satellite Space Segment Management
- Scaleable Hub 1/10th Competition
- Dynamic Bandwidth Allocation
- Dynamic Upstream Switching
  - Load
  - Application
- Broadcast Interactive
- Asymmetrical Bandwidth
- IP Redundancy
- Packet Priority
- Single Hop Solutions

IP Broadcast
Data Delivery

Asymmetric
Bandwidth

TDMA
Upstream

Hub Facility

Switched IP
SCPC /DAMA

User 1

User 2

User n

VIPERSAT Networks, Inc.

Presence in the Market

Applications / Features

100Mbps Ethernet
TCP/IP Acceleration (Spoofing)
Integrated DVB receiver
Block Encryption

IPVC (Meshed)
VoIP Gateways (Meshed)
Data Rates (9.6Kbps - 5 Mbps Meshed)

MF-TDMA (64Kbps - 2Mbps)
IPVC
VoIP Gateways
Auto Access Switching (Load or Applications)
Data Rates (9.6 - 5Mbps)
Turbo Products Code

TDMA (Star Topology)
Streaming Video (RX only)
VoIP (Low Quality)
Rural Telephony
Point of Sale
Data Rates (2.4Kbps - 512Kbps)

Vipersat
(**Vipstar**)
Entry level Product
Star Topology
Releasing Q1, 03

Vipersat
(**SMR6000**)
Future Flagship product
Star Mesh Topology
Releasing Q1,03

Vipersat
Released
(SMR5000HL)
2 Units
for Meshing

Vipersat
Released
Sept. 02
(**SMR5000L**)
L-Band TX

Vipersat
Released
(**SMR5000HL**)
Hybrid
70 / L-band

Hughes/
Gilat

Consumer
Products

VIPERSAT Solutions

VIPERSAT Core Products

- VMS Network Management System
  - ➤ *Opt. Automatic Upstream switching (load and Applications)*
  - ➤ *Opt. STDMA or TDMA*
  - ➤ *Opt. Web based DAMA IP Meshing software*
- Satellite Modem Router (SMR5000) Family
  - ➤ *Opt. SMR5000 (70 / 70)*
  - ➤ *Opt. SMR5000HL (70 / L-band)*
  - ➤ *Opt. SMR5000L (L-band / L-band)*

VIPERSAT Value Added Products

- ➤ *KU-Band 2,4,8,16 Watt (OTU) Outdoor Transmit Unit*
- ➤ *C-band 5,10,20,25 Watt (OTU) Outdoor Transmit Unit*
- ➤ *L-Band Block Up converters (BUC)*
- ➤ *Opt. Remote Integration Kits*
- ➤ *Opt. VoIP Gateways*
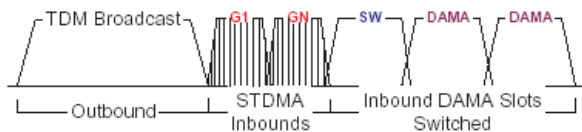- ➤ *Opt. Antennas (1.2 and up), LNA's and LNB's*

SMR5000 Family

- Full 2-way over satellite solution using wideband Outbound with Multiple Access Inbound channels utilizing STDMA or TDMA (Fixed / Dynamic BOD)

- Standard IP Interfaces with embedded routing / firewall filtering connectivity between Network Nodes

- Dynamic Bandwidth Allocation with Dynamic Power Control (DPC)

- Programmable data rates: 9.6 Kbps to 4.92 Mbps Inbound and Outbound

- Star / Virtual Mesh / Full Mesh Topologies supported

- Entrance link options:

  - 70 MHz or 140 MHz

  - 70 MHz TX and L-Band Rx

  - L-band TX and L-band RX (Available Sept. 02)

- High Speed Upstream Switching supported:

  - Manual and Scheduled

  - Automatic (Application & Load)
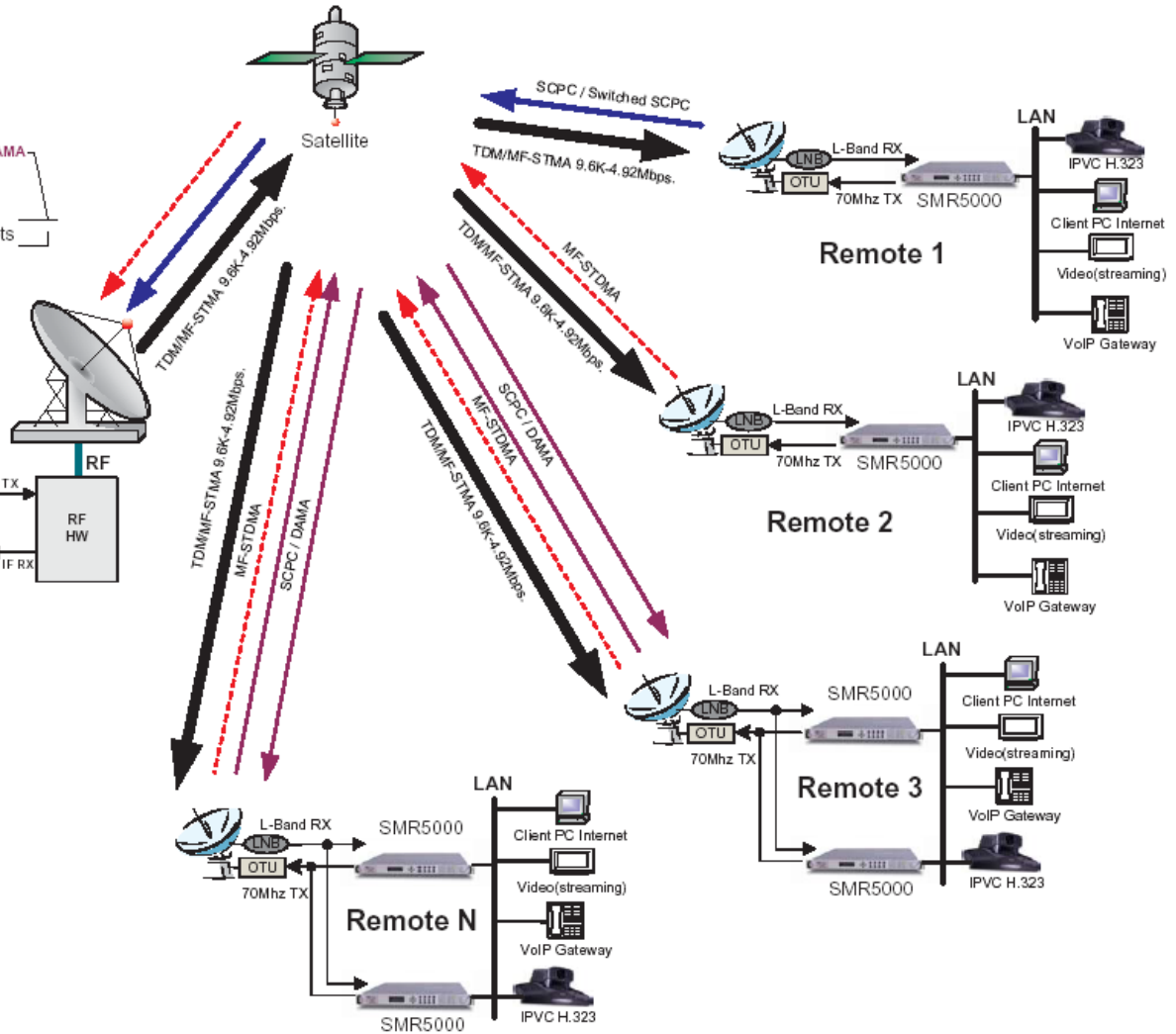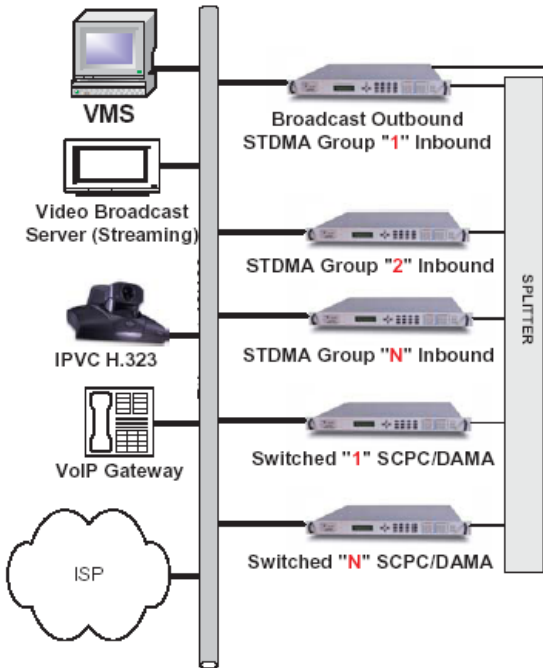
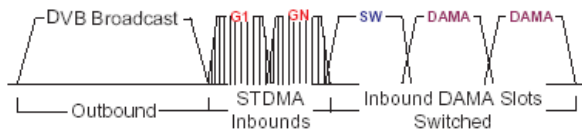# Example: TDM/MF-STDMA
(Switched IP SCPC/DAMA)

VIPERSAT Networks, Inc.

Channel Plan

- TDM Broadcast — G1 ... GN — SW — DAMA — DAMA
- Outbound | STDMA Inbounds | Inbound DAMA Slots Switched

Satellite

SCPC / Switched SCPC

TDM/MF-STMA 9.6K-4.92Mbps.

MF-STDMA

TDM/MF-STMA 9.6K-4.92Mbps.

TDM/MF-STMA 9.6K-4.92Mbps.

SCPC / DAMA

MF-STDMA

TDM/MF-STMA 9.6K-4.92Mbps.

SCPC / DAMA

MF-STDMA

Remote 1
LAN — IPVC H.323 — Client PC Internet — Video(streaming) — VoIP Gateway
L-Band RX — LNB — OTU — 70Mhz TX — SMR5000

Remote 2
LAN — IPVC H.323 — Client PC Internet — Video(streaming) — VoIP Gateway
L-Band RX — LNB — OTU — 70Mhz TX — SMR5000

Remote 3
LAN — Client PC Internet — Video(streaming) — VoIP Gateway — IPVC H.323
L-Band RX — LNB — OTU — 70Mhz TX — SMR5000 — SMR5000

Remote N
LAN — Client PC Internet — Video(streaming) — VoIP Gateway — IPVC H.323
L-Band RX — LNB — OTU — 70Mhz TX — SMR5000 — SMR5000

CENTRAL HUB

APPLICATIONS | **SATELLITE EQUIPMENT**

- VMS — Broadcast Outbound STDMA Group "1" Inbound
- Video Broadcast Server (Streaming) — STDMA Group "2" Inbound
- IPVC H.323 — STDMA Group "N" Inbound
- VoIP Gateway — Switched "1" SCPC/DAMA
- ISP — Switched "N" SCPC/DAMA

SPLITTER

IF TX — RF — RF HW — IF RX

Example: DVB/MF-STDMA (Switched IP SCPC/DAMA)
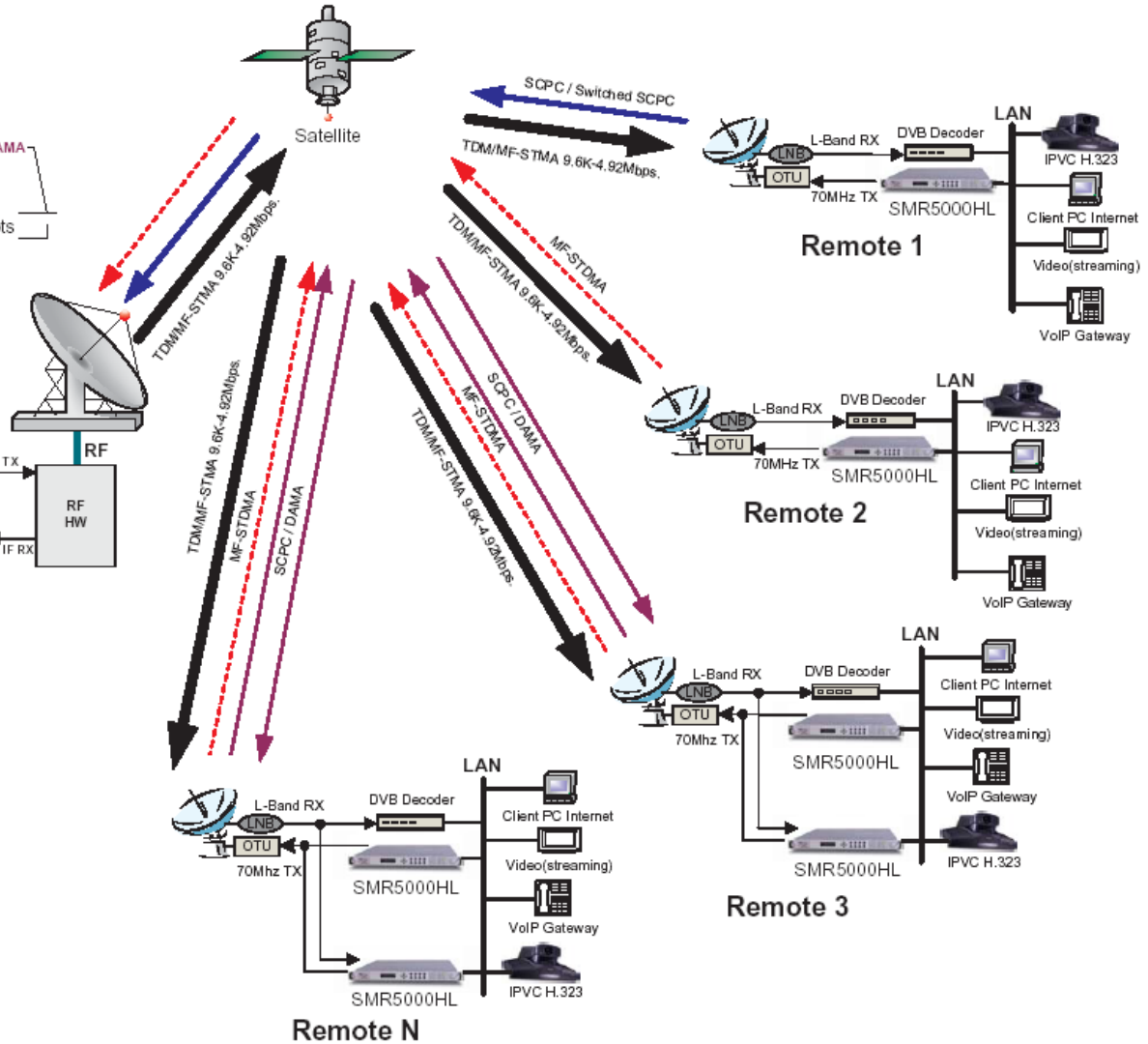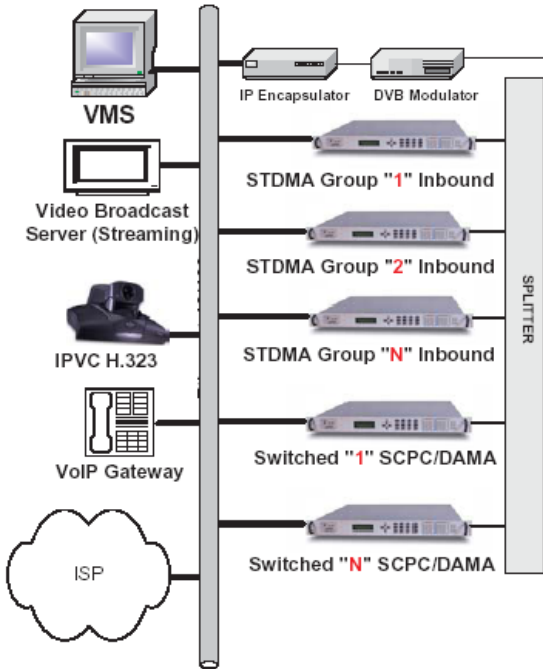
Standard Hybrid Remote Station

VMS

Video Broadcast
Server (streaming)

IPVC H.323

VOIP

ISP

Ethernet 10/100

SMR5000HL

70 MHz Uplink

L-Band RX

C or KU-Band
OTU
100MHz
ocxo osc

LNB
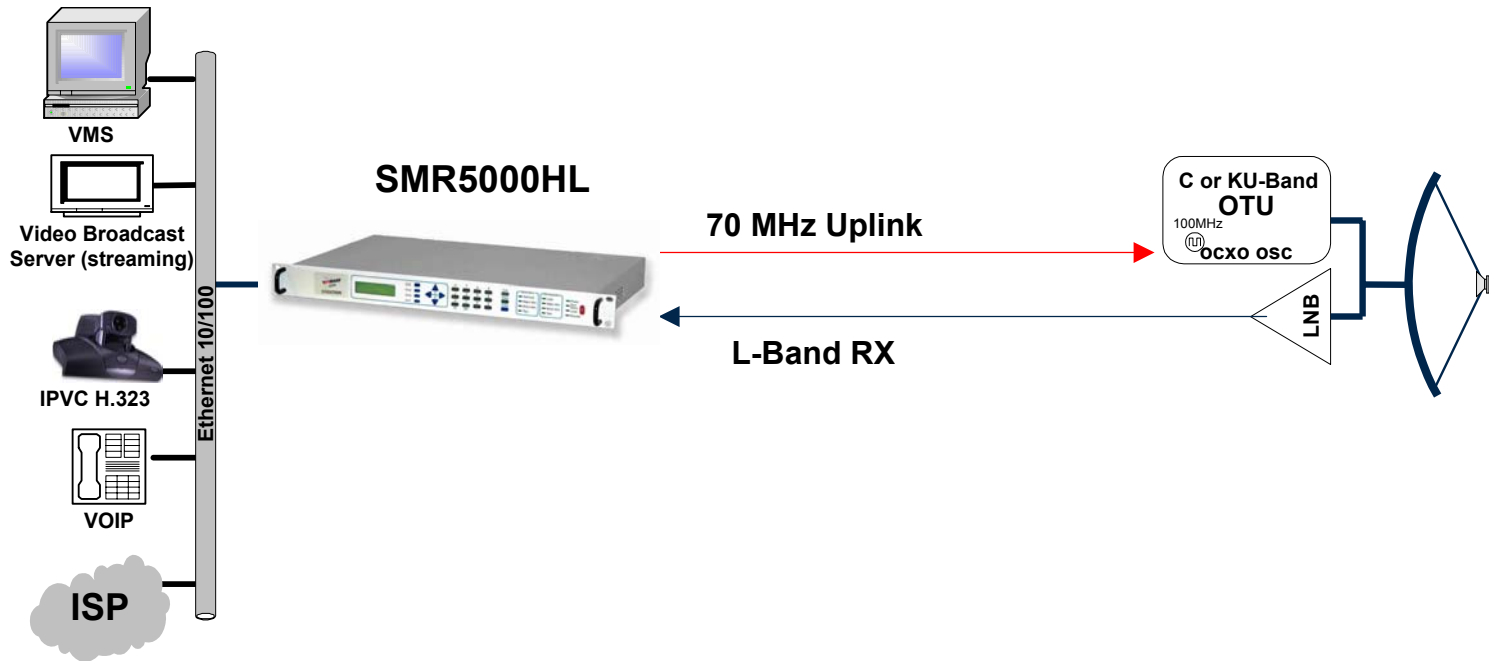
"New" L-band TX & RX Remote Station

VMS

Video Broadcast Server (streaming)

IPVC H.323

VOIP

ISP

Ethernet 10/100

SMR5000L

L-Band Uplink

L-Band RX

C or KU-Band
L-band BUC

LNB

DVB Remote Station

VMS

Video Broadcast Server (streaming)

IPVC H.323

VOIP

ISP

Ethernet 10/100

SMR5000HL

DVB Decoder

70 MHz Uplink

L-Band RX

C or KU-Band OTU

100MHz

OCXO OSC

LNB
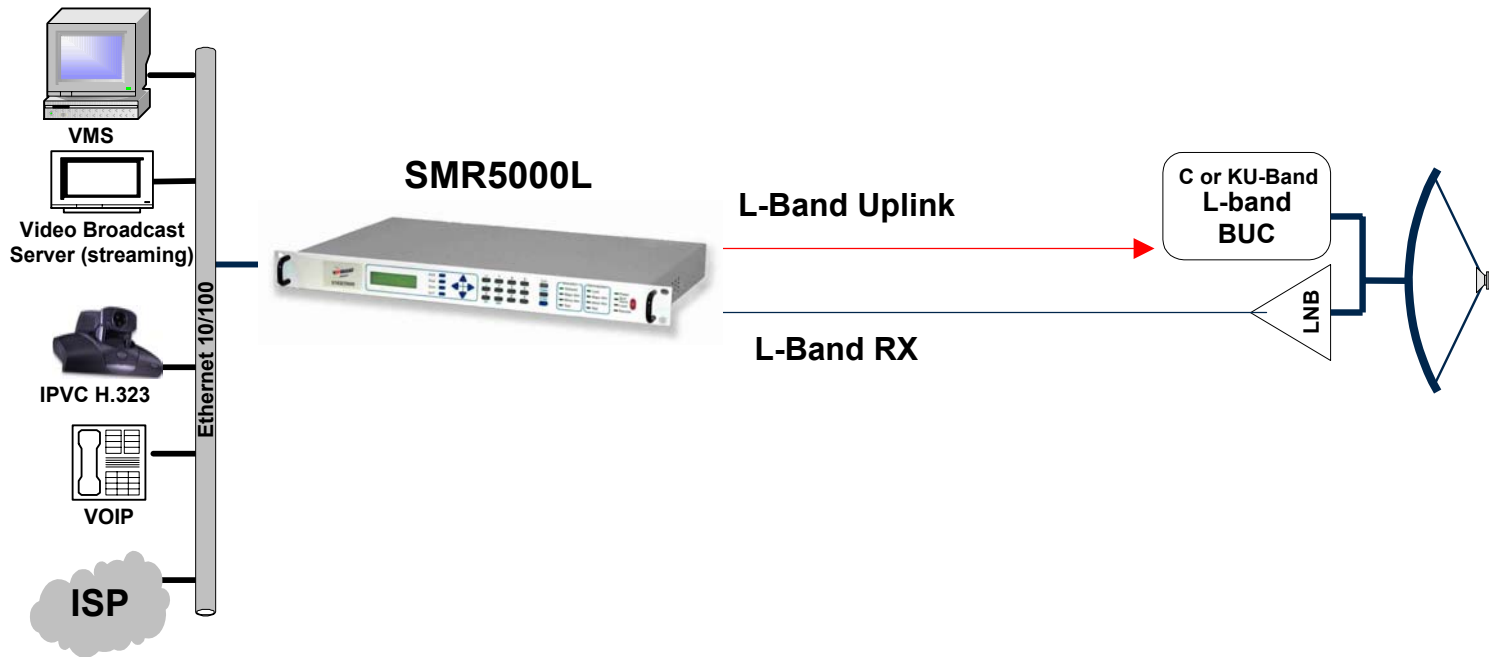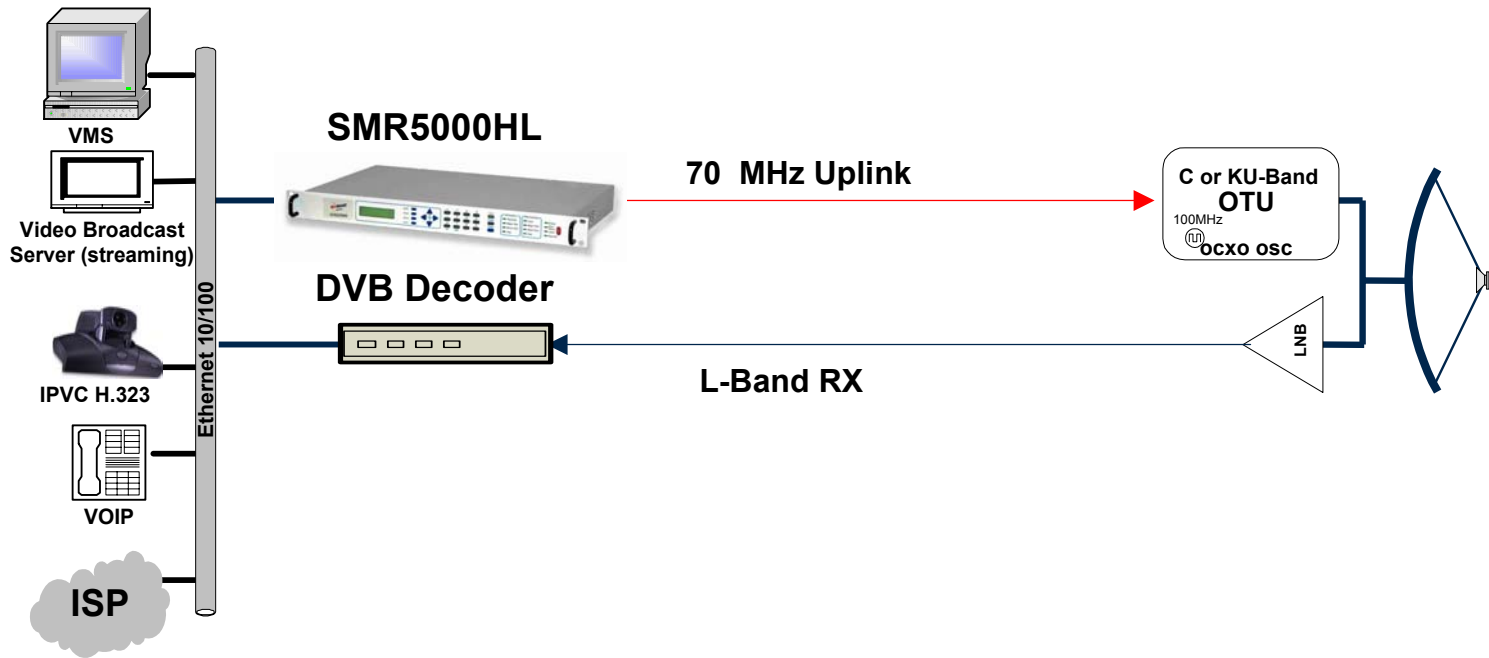
L-band TX DVB Remote Station

VMS

Video Broadcast Server (streaming)

IPVC H.323

VOIP

ISP

Ethernet 10/100

SMR5000L

DVB Decoder

L-Band TX

L-Band RX

C or KU-Band L-band BUC

LNB
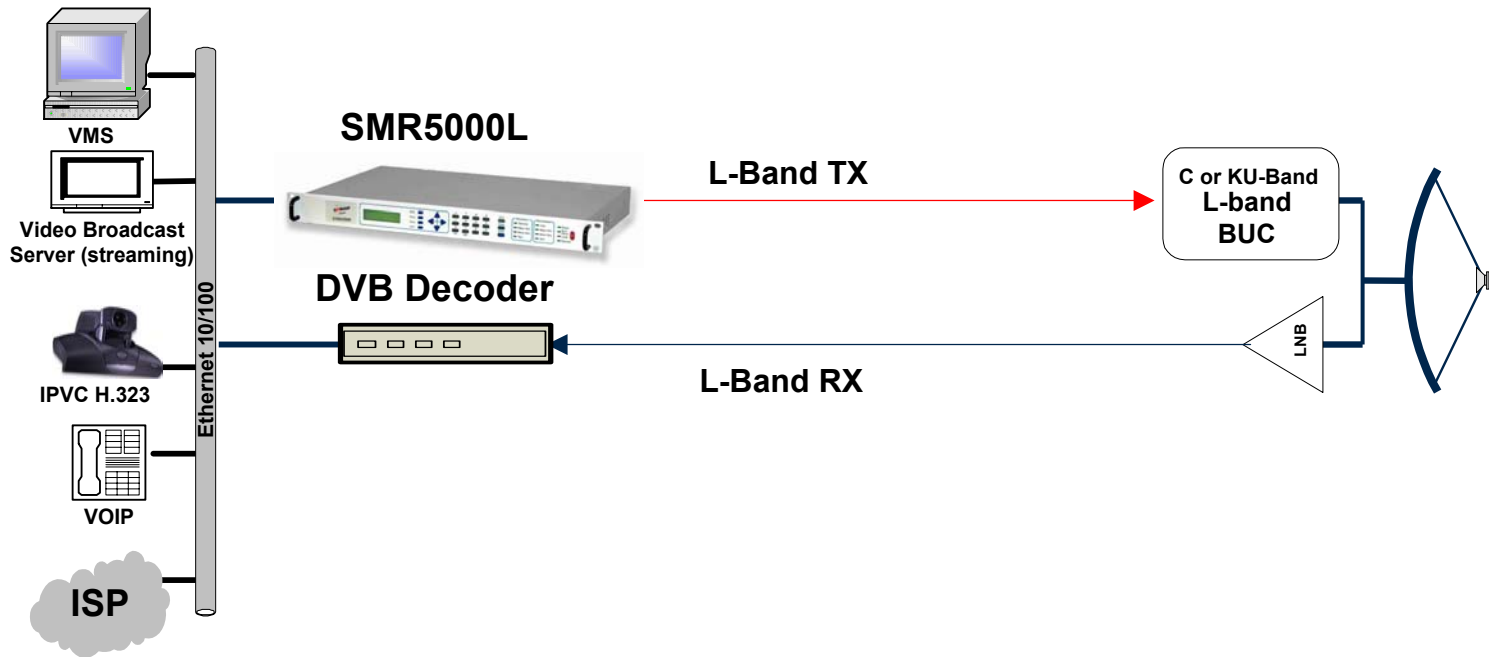
STDMA Functions

- Selective Time Division Multiple Access (STDMA)

- STDMA Operates in a Star Network with switching capabilities

- STDMA supports 100's to 1000's of low rate users

- STDMA can switch from conditional access to non-conditional access for additional bandwidth and throughput performance

- STDMA Operates in Fixed or Dynamic Bandwidth Mode

- STDMA Networks are cost effective solutions with a scaleable hub cost 1/10th the competitors

TDMA Functions

- Time Division Multiple Access (TDMA)
- TDMA Burst Demodulator with Capabilities from 512K - 2Mbps per group

- TDMA Operates in a Star Network with switching capabilities

- TDMA supports 100's to 10,000's of low rate users

- TDMA can switch from conditional access to non-conditional access for additional bandwidth and throughput performance

- TDMA Operates in Fixed or Dynamic Bandwidth Mode

- TDMA Networks are cost effective solutions which give high performance

Applications

- Kiosk Solutions (VoIP, V/C, Internet with Pre-paid Cards)

- VoIP with Priority

- IP Video Conferencing

- Broadcasting Video Streaming

- IP Multicasting, Video and Data distribution

- Telemedicine

- Distance Learning

- Disaster Recovery

- Gas & Oil Infrastructures

- Military Communications

- Enterprise Infrastructures

- POS (Point of Sale)

Network Management System

- Inband NMS using VMS

- Allows system dynamic component configuration, port configuration, satellite link statistics reporting and adjustment

- Upstream switching mgt. and Dynamic switching configuration

- Graphical map overlay to allow intuitive representation of systems component location

- Dynamically allocating and re-assigning satellite transponder channel allocation

- Controls Multiple Access Bandwidth On Demand

- Controls the Video Conferencing Scheduling via Web
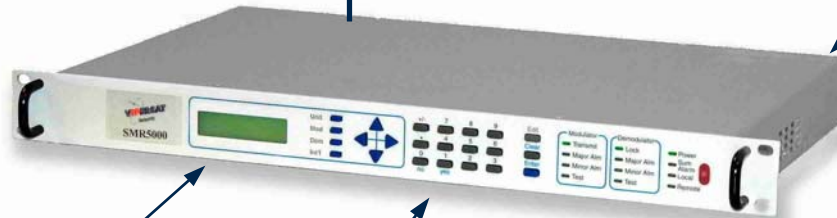
- Global Access

- Redundancy available

SMR5000 Monitor & Control

Telnet
Configuration & Statistics

VMS
Network Management

Direct Terminal Connection
Configuration & Statistics

Front panel display

Front panel soft key setup

Summary

- Complete and compliant IP high-speed broadband via satellite

- Best-of-breed products and solutions

- Fully proven network management system, time-tested over 15 years while maintaining cutting edge technology

- Most advanced and reliable multimedia content distribution system

- A flexible, scalable and expandable architecture that supports open and standards-based systems

- Leading edge switching capabilities

- Space segment savings, up to 50% with dynamic bandwidth mgt.

- Efficient and cost effective solutions

- Strong development and software support team

- New leading edge solutions in Development

- Scaleable Hub cost 1/10th of the competitors

Compatible today and expandable tomorrow !