



LINKWAY At-A-Glance

- Adaptive bandwidth assignment and advanced coding for the most advanced mesh VSAT network
- Mesh, star or multi-star hybrid architecture; ATM, Frame Relay, ISDN or IP packet traffic
- Java-based NMS with browser interface for PC-based remote client access through the Web.

Applications

- Point-of-Presence (PoP) for ISPs
- Intranets and virtual private networks for business
- Distance learning and telemedicine
- Extensions of public switched telephone and data networks
- Private telephony, data, and videoconferencing
- Cellular and wireless local loop
- Business continuity
- Maritime

LINKWAY Broadband-on-Demand, Multi-protocol Networking

LINKWAY™ is a hubless VSAT system that enables you to cost-effectively integrate a variety of applications into one network – in mesh, star, or multi-star hybrid topologies. Adaptive on-demand bandwidth and advanced coding engineered into LINKWAY give you broadband connections efficiently and cost-effectively. You save transponder costs and connect seamlessly to your networking applications using IP, ATM, Frame Relay, and ISDN protocols.

The LINKWAY family offers two options: LINKWAY 2100 or *linkway.IP*. All terminals are interoperable over C- or Ku-band fixed satellite services (FSS) satellites with fixed beam, split-beam or cross-strapped configurations.

Simple Installation

Quick-commissioning feature makes LINKWAY VSATs easy to install and operate.

Most Advanced Multiprotocol, Multi-Service VSAT Technology

ViaSat continues to offer the most innovative satellite networking products. LINKWAY incorporates a multitude of operational features into its design, and can operate in ATM, IP, Frame Relay or ISDN protocol modes.

LINKWAY handles circuit- and packet-switched traffic dynamically. Multifrequency TDMA architecture, combined with flexible bandwidth management, significantly reduces recurring space segment costs. Our Java-based network management system software uses a browser interface, enabling quick and flexible remote access from any PC. Our patented transmission technology ensures the highest quality interconnectivity for your multi-service and multi-point networks.

LINKWAY 2100

Expanded transmission rates in the 2100 model allow greater flexibility for users who need star network topologies with asymmetric traffic flow, such as Internet Service Providers, distance learning networks, or corporate intranets. LINKWAY 2100 operates with carrier sizes of 312 kbps, 625 kbps, 1.25 Mbps, 2.5 Mbps, or 5 Mbps.

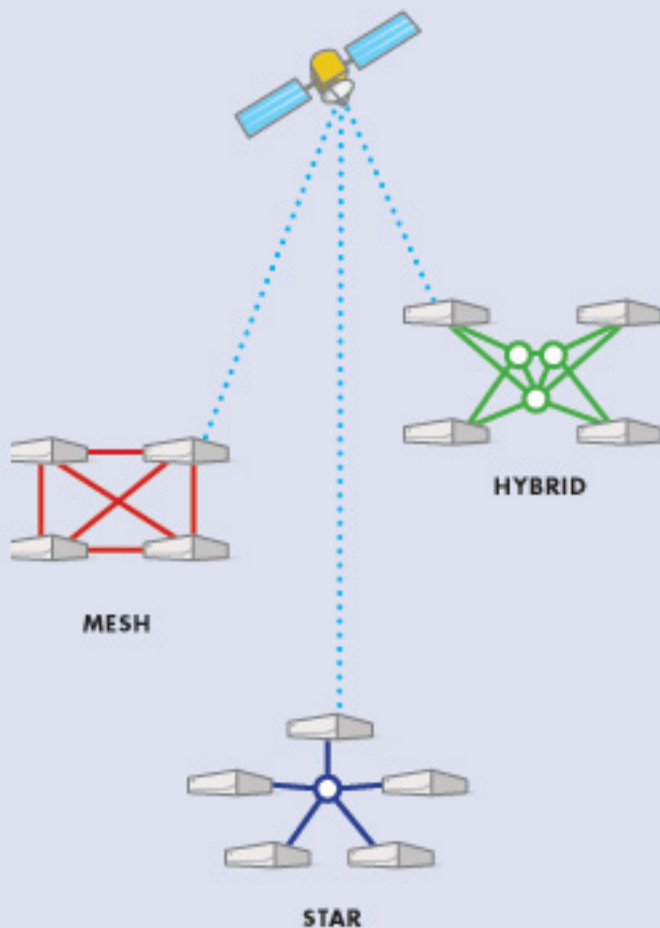
LINKWAY 2100 features an L-band interface to the transmitter to support broadband, multi-transponder applications in one integrated and economical package.

LINKWAY 2100 supports IP, ATM, ISDN and Frame Relay Protocols natively without a need for external protocol converters.

linkway.IP

linkway.IP is a lower cost terminal that is tailored to IP applications, and like the LINKWAY 2100, includes support for RIPV1 and RIPV2. The indoor unit contains an integrated IP port (10baseT Ethernet) and routing capability making it ideal for many applications including ISP point of presence (PoP) connections; Web distribution, push, and data caching; voice over IP; and data and video multicasting.

THREE TOPOLOGIES – ONE PLATFORM



System Description

The LINKWAY Indoor Unit (IDU) contains one integrated IP port and two optional interface ports, which can support ATM, Frame Relay, or ISDN, plus voice services. The plug-in interface ports can be upgraded in the field. Multiple IDUs can be co-located to provide greater data throughput.

Terminal modems can operate in an asymmetric mode for users such as ISPs. An integrated burst modem features fast frequency hopping for both transmit and receive.

The terminal includes a console interface port for unit installation and maintenance, but LINKWAY is designed for stand-alone operation, requiring no local operator control. To configure and monitor remote sites, you can either use the over-the-air satellite connection or dial-in using an external modem and analog line.

The VSAT terminal includes a radio frequency transceiver (RFT) consisting of C- or Ku-band radio equipment along with an antenna and mounting hardware. Typical radio transmit powers are 5, 10, and 20 watt in C-band, and 2, 4, 8, and 16 watt in Ku-band, with uplink power control for added reliability.

Typical antenna sizes are 1.2, 1.8, 2.4 meter in Ku-band, and 1.8, 2.4 and 3.8 meter in C-band. The RFT design eliminates the need for AC power on the roof to reduce your civil work and installation costs. You can deploy LINKWAY with a variety of RFT sizes based on the satellite system, traffic flow, and geographic location of your network.

LINKWAY can be used in a maritime or ground mobile environment using customer-supplied stabilized platforms. Using GPS, system acquisition and timing is automatic, allowing for turn-key mobile networking.

Network Management

LINKWAY terminals are controlled dynamically by a full-featured Network Control Center (NCC) that runs the network management system (NMS) server, and performs bandwidth management. The NMS is a client-server system with an easy-to-use interface, developed in Java, a Web-based technology that provides platform independence plus remote and local access from a standard browser. With this approach, a PC-based remote client can access the NMS server from anywhere in the world.

The NMS user windows make it simple for you to access key information. Network status, burst time plan information, system configuration, call management, alarm status, accounting, diagnostic commands, and performance results are all available with the click of a mouse.

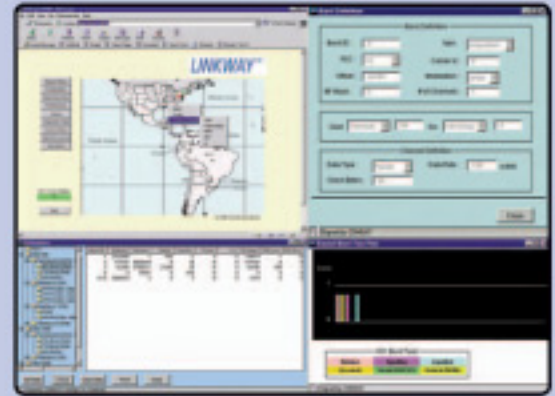
Database files enable sharing of data with other operational tools, such as billing systems. Multiple levels of access control ensure that system security is maintained.

The NCC, which can be collocated with any LINKWAY terminal, manages all the sites in the network via satellite. You can reduce your visits to local remote sites by downloading software upgrades by satellite. Local or remote NCC redundancy can also be provided to ensure reliable network operation, providing automatic network recovery.

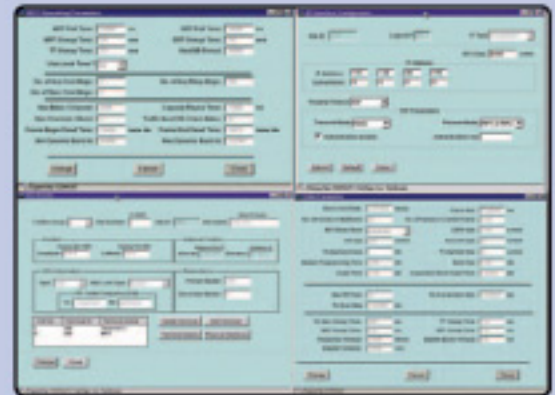
Optional 8-PSK Turbo Modem Option

ViaSat is now offering LINKWAY with an optional high throughput, 8-PSK modem. This revolutionary new modem design, boasts a low noise front end and fast settling synthesizers. It features 8-PSK modulation, Turbo Codes, and a shorter preamble, thereby increasing throughput and reducing BW requirements.

Backwards compatibility with older LINKWAY networks. True to its heritage and large existing installed base, the new LINKWAY maintains the original acquisition burst structure, allowing the New Modems to be seamlessly integrated into existing networks. The new modem continues to offer speeds of 312kps – 5 Mbps and is fully backward compatible with legacy systems, so Modems can be used in the same network.

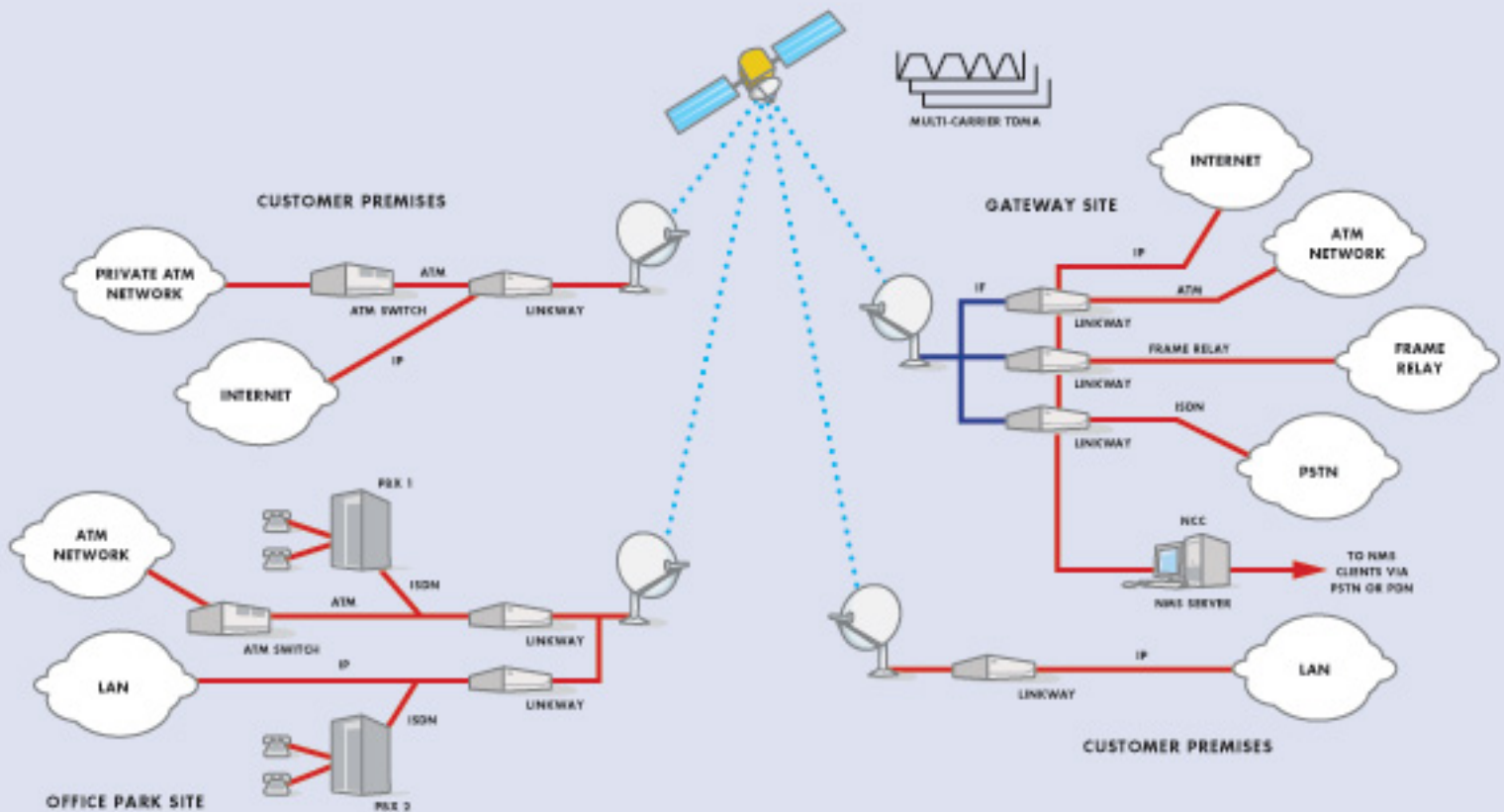


Access LINKWAY's user-friendly Network Management System through the Web.



Critical network information is available to the operator with a click of a mouse.

HYBRID STAR MESH



LINKWAY Site Specifications

LINKWAY 2100

linkway.IP

Physical Interface per LINKWAY IDU:	3 (multiple virtual circuits per physical interface)	1 (multiple virtual circuits per physical interface)
Protocols Supported:	IP, Frame Relay, ATM, and ISDN (ITU-T G.931)	IP
Console Port:	RS-232 electrical on RJ-11 physical	RS-232 electrical on RJ-11 physical
Modems:	GFSK, BPSK and QPSK (Optional)	GFSK, BPSK and QPSK (Optional)
Modem IF Frequency:	950 to 1525 MHz	950 to 1525 MHz
Modem Symbol Rates:	5.0, 2.5, 1.25 Mbps; 625 kbps or 312.5 kbps	5.0, 2.5, 1.25 Mbps; 625 kbps or 312.5 kbps
Forward Error Correction:	Concatenated variable Reed Solomon, Viterbi Coding Turbo Coding (Optional)	Concatenated variable Reed Solomon, Viterbi Coding Turbo Coding (Optional)
Forward Error Correction Rates:	1/2, 2/3, 3/4, 7/8 Turbo rates, 2/3, 3/4 (Optional)	1/2, 2/3, 3/4, 7/8 Turbo rates, 2/3, 3/4 (Optional)
NETWORK INTERFACES		
IP		
Physicals:	10BT IEEE 802.3 Ethernet (RJ-45)	10BT IEEE 802.3 Ethernet (RJ-45)
Interface Clocks:	10 Mbps	10 Mbps
Max data rates:	3 Mbps	3 Mbps
FRAME RELAY		
Physicals:	SCSI-26-pin synchronous serial interface, with transition cables to RS-449, RS-530, and V.35	
Interface Clocks:	642000 Kbps	
Max data rates:	2 Mbps	
ISDN		
Physicals:	E1 or DS-1 (T1), ITU-T G.703/G.704, selectable 75 ohm unbalanced (BNC) or 120 ohm balanced (RJ-45)	
Interface Clocks:	2048 Kbps (E1); 1544 Kbps (T1)	
Max data rates:	30 x 64 Kbps channels (E1); 24 x 64 Kbps channels (T1)	
ATM		
Physicals:	E3 or DS-3, ITU-T G.703/G.704 75 ohm unbalanced (BNC)	
Interface Clocks:	34.368 Mbps (E3); 44.736 Mbps (DS-3)	
Max data rates:	4 Mbps	

ENVIRONMENTAL

Temperature Range:	Operational: 0° C to +40° C Storage: 0° C to +70° C
Relative Humidity:	Operational: 0 to 95% Storage: 0 to 95% (non-condensing)
ELECTRICAL	
Power Supply:	50/60 Hz, Auto-range 100 – 240 VAC
Power Consumption:	300 – 420 VA nominal, depending on the RFT
MECHANICAL	
Dimensions (H x W x D):	3.5 x 17.5 x 14.5 in. (8.75 x 44.5 x 36.83 cm) Mountable in standard 19" rack
Weight:	~11 lb (~5 kg)
OUTDOOR UNITS	
Ku-Band Antennas:	1.2, 1.8, or 2.4m
Ku-Band RFTs:	2, 4, 8, or 16W
C-Band Antennas:	1.8, 2.4 or 3.8m
C-Band RFTs:	5, 10, or 20W
Interfacility link:	Uband
Certifications:	CE,UL, FCC, R&TE, ANATEL



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