SkyBlaster™VSAT

High-speed interactive DVB platform for the enterprise

FEATURING SATELLITE RETURN CHANNEL

SkyBlaster VSAT delivers broadband video and data directly to the LAN or desktop, using a PC-based satellite transmitter as a return channel. With the latest Digital Video Broadcast (DVB) outbound carrier complemented by Gilat's unique satellite return access scheme, PC-users can now enjoy all the benefits of a fully interactive VSAT on a corporate LAN server or desktop. SkyBlaster provides an excellent IP-based solution for broadband corporate communications: Business TV, corporate training, Data Push and Internet-access, and is independent of terrestrial infrastructure.

SkyBlaster, the combination of a PC-based satellite DVB transmitter and receiver, is ideally suited for IP-based private networks. SkyBlaster's hub, typically located at a company's headquarters or at the facilities

of a service provider, delivers a scalable 2 to 40 Mbps pipe, while the satellite return channel provides data rates of 38.4 to 153.6 kbps. SkyBlaster represents a complete, bidirectional satellite DVB solution supported by enhanced Network Management capabilities.

SkyBlaster features an open IP platform, bundled with applications from the most advanced innovators in the industry – Tibco, RealNetworks, Cisco, Optibase, StarBurst and others – to enhance corporate communications:

■ *Corporate training*

■ *Interactive Business TV*

■ *Data Push*

■ *Reliable IP multicast*

■ *Broadband Intranet/Internet access*

Applications

■ *Corporate training*

Based on Gilat's TrainNet™ application, SkyBlaster provides turnkey, one-shop solutions for corporate training requirements at the desktop. Featuring full broadband software video decoding with multicast capabilities, TrainNet provides on-line training directly and simultaneously to hundreds of employee LANs and PCs. In addition, TrainNet provides a comprehensive set of tools for instructors to deliver live, on-line and fully interactive training sessions. Video, audio and other study materials can also be stored locally, on a corporate server, for on-demand employee access.

■ *Interactive Business TV*

Gilat offers IP-based multicast and Intranet technologies that provide interactive business television with MPEG 2 decoding quality. On PC or TV monitors, video streams integrated with interactive data channels add a new dimension to corporate communications, enabling on-line response for a variety of applications. Open-system Internet architecture guarantees support for current and future applications carrying real-time audio, video and data. Gilat provides a turnkey solution, beginning with the customer's video source, continuing with the video encoding server (including the IP multicast data layer) and ending with the video decoder card or software.

■ *Data Push*

SkyBlaster offers an integrated end-to-end Push client/server solution, optimized for satellite delivery and IP

multicast. High-end Push technologies with a range of notification techniques allow companies to proactively deliver corporate information from a variety of sources and to notify employees and management of its availability. Push technology can speed up the information dissemination and critical decision making. Sales-tool delivery via SkyBlaster immediately provides a sales force with critical information, such as competitive updates, new product information, price sheets, presentations, customer news, sales incentives, success stories, etc. Delivery and deployment of software updates via SkyBlaster and Push technology within a corporate network is now a reality. Users receive multi-megabyte software, enjoying automatic installation and updates.
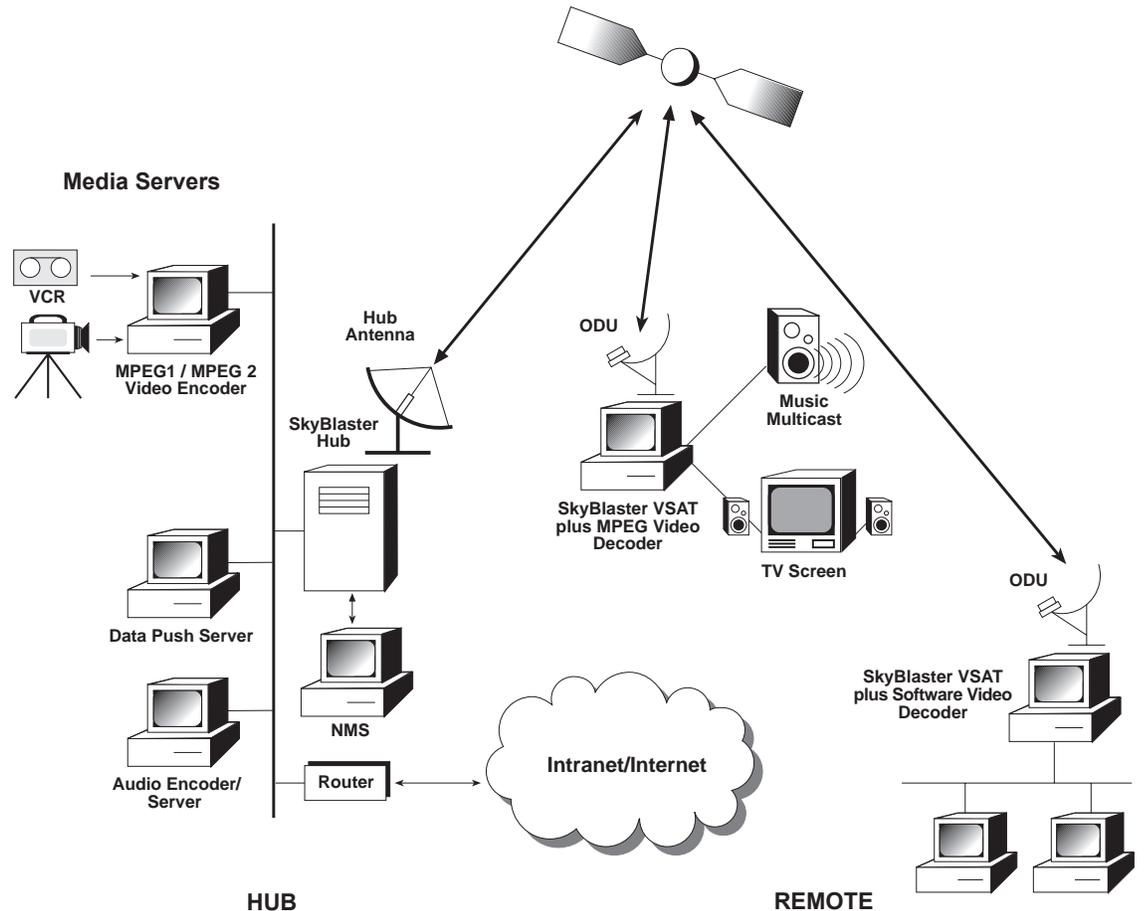
■ *Reliable IP multicast*

SkyBlaster provides a turnkey solution for reliable IP multicast. It offers a solution that turns IP multicast, a non-acknowledged protocol, into reliable data multicasting. Now, business-critical applications that require information to be distributed from a central location to many sites can arrive reliably and without overloading the network. For example, there are software updates for servers, kiosk data, video clip updates, large-image distribution and pricing information for points-of-sale. Satellites, with their inherent broadcast capability, greatly simplify the delivery of IP multicast compared to other alternatives. Today's Internet applications still use an inefficient one-to-one TCP/IP protocol, even though they often communicate information from one-to-many. IP multicast overcomes this problem by allowing a single copy of data to reach all intended destinations, significantly enhancing network performance and efficiency.

■ *Broadband Intranet/Internet access*

Using satellite technology enhanced by Gilat's IP spoofing technology, corporate users can enjoy data rates of more than 1 Mbps while accessing their corporate Web servers or Internet sites. LAN users can also access the global Internet through the SkyBlaster gateway without installing SkyBlaster in their individual PCs.

Media Servers

VCR

MPEG1 / MPEG 2
Video Encoder

Hub
Antenna

SkyBlaster
Hub

Data Push Server

NMS

Audio Encoder/
Server

Router

Intranet/Internet

ODU

Music
Multicast

SkyBlaster VSAT
plus MPEG Video
Decoder

TV Screen

ODU

SkyBlaster VSAT
plus Software Video
Decoder

HUB

REMOTE

Architecture

SkyBlaster VSAT combines two PCI cards:

■ *DVB receiver*

■ *Satellite transmitter*

The DVB receiver card supports a scalable bit rate of 2 to 40 Mbps. Inbound data is transmitted at bit rates of 38.4 to 153.6 kbps, using a patented FTDMA satellite access scheme. The cards can be installed in any standard PC server, supporting data recasting over the LAN, or provided as a stand-alone Indoor Unit (IDU).

The hub station was designed for installation at the customer premises as a private hub. Alternatively, a shared hub can be located at a service provider's site. Single-tier architecture allows for PC

connectivity directly to the application and media servers. As shown in the diagram, any media server connected to the hub, such as a video, audio or data push server, is allocated with a reserved committed bit-rate that guarantees high-speed accessibility. Therefore, multiple streams carrying video, audio and data can operate at the same time without interfering with one another.

The hub station features:

■ *Network Management System (NMS)*

■ *Hub Transmission Server (HTS)*

■ *DVB IP Encapsulation (IPE)*

■ *DVB Satellite Modulator*

■ *Hub Satellite Processor (HSP)*

Satellite Access

SkyBlaster uses a proprietary two-dimensional access scheme. This enables the use of low-cost ODU hardware, minimizes space segment and allows the VSAT network to handle momentary peak traffic loads without significant degradation in response time. The network is immune to outages caused by frequency interference.

Gilat's patented FTDMA scheme provides no back-off in time for retransmissions and consistent utilization of the entire bandwidth by all remote sites. The satellite access scheme, coupled with a transmit slot size that can be optimized to the network, provides superior network throughput stability and load balancing.

Technical Specifications

Network

Architecture	Interactive, star topology
Protocols Supported	Full TCP/IP, UDP
Frequency Band	Ku-band, C-band, Extended C-Band

Hub Station

Outbound Carrier

Protocol:	DVB
Carrier Bit Rate:	2 to 40 Mbps
Modulation:	QPSK
Decoding:	Viterbi/Reed-Solomon
Network Management System (NMS)	Windows NT-4 workstation

Remote Terminal

Inbound Carrier

Bit Rate:	38.4 kbps, 76.8 kbps, 153.6 kbps
Modulation:	MSK

Outdoor Unit

Antenna Size:	55 cm to 1.2 m, Ku- or C-Band
LNB:	Standard TVRO
Up-Converter:	Proprietary
Operating Temperature:	-40° to +60°C
Humidity:	Up to 100%

Indoor Unit (cards)

RF Input / Output:	F connector, 75Ω
Size:	PCI standard
Operating Temperature:	0° to +50°C
Storage Temperature:	-20° to +70°C
Relative Humidity:	10 to 70%
Bus Specifications	32-bit 33 MHz PCI standard
Receiver Frequency Range	L-band 950 to 2150 MHz
Transmitter Frequency Range	950 to 1525 MHz

Operating System	Windows NT 4.0 Server, Windows NT 4.0 Workstation, Windows 95/98
Security (optional)	Fixed key scrambling Conditional access IP encryption

SkyBlaster - Making DVB Fully Satellite Interactive

Large-scale video and data broadcast vendors can leverage the open architecture of SkyBlaster to offer interactive broadband applications to vertical industries and communities of interest. Using DVB standards (compatible with equipment already installed in millions of homes), SkyBlaster provides these networks with a satellite return channel.

Closed user communities are thereby served with an infrastructure that is totally independent of terrestrial lines and telco services. Users enjoy ubiquitous access and permanent (no dialing) online connection to their content provider/service provider.