SATELLITE

BROADBAND

SUMMARY

Prepared by:
Garry Hausfeld
Hausfeld Consulting
PO Box 1186
Dee Why NSW 2099
Australia

ghausfeld@ieee.org

Last Updated: May 2002

The purpose of this document is to present a brief summary of equipment suppliers and satellite operators involved in the Satellite Broadband Internet Access market. The information contained here has been filtered from marketing brochures and presentations, internet web sites, and personal discussions with industry players. The information is not intended to be complete or exhaustive, and not all of the information could be easily verified, so that the document may contain some errors or omissions, and will undoubtedly become out-of-date very quickly. Anyone wishing to provide updates or corrections to this document may contact the author on the email address shown above.

ACT NETWORKS
Product name:
Web site: http://www.acti.com/ not working April 2002
Company: ACT Networks, California, USA
Note: Formerly manufacturer of equipment to multiplex voice fax and data onto IPL circuits. See below for Clarent.

ADAPTEC
Product name: Satellite Express
Company: Adaptec, Inc, California, USA
Note: Satellite products division of Adaptec spun off to Broadlogic Inc, in September 1998. See below for Broadlogic.

ADVANTECH AMT
Company: Advantech AMT, Montreal Canada
Web site: http://www.advantechamt.com/
Note: See subsidiary SPL/ACT Wireless below for satellite modem products.

ALCATEL SPACE
Product name: Alcatel 9780
Web site: http://www.alcatel.com/space/activities/earth_multi.htm
Company: Alcatel, France, Space Division

Description: Two-way broadband interactive system supporting all IP applications. Outbound link using DVB-S up to 53Mb/s. Return channel using DAMA SCPC from 16kb/s to 384kb/s. Developing 2Mb/s return channel and TDMA return channel version. User interface Ethernet 10/100BaseT. Aimed toward corporate customers and ISPs. In Jan 2001 Alcatel signed agreement with STM Wireless to market STM Wireless VSAT products for IP access. Not clear if Alcatel 9780 product is actually re-badged STM Wireless product. Alcatel also leader of Skybridge consortium, see below.

ALCATEL SKYBRIDGE
Product name: Skybridge
Web Site: http://www.skybridgesatellite.com/
Company: SkyBridge, France, an Alcatel company

Description: Originally a LEO satellite system using 80 satellites at Ku band. Now also includes GEO based services on existing satellites. No information on proposed user terminals, but understood to be talking with IPStar.

ANDREW - COMTIER
Product name: DVB FreedomIP
Web site: http://www.comtier.com/products.htm
Company: ComTier - An affiliate of Andrew Corporation, California USA.

Description: Two-way broadband interactive system for Internet IP and Interactive Digital TV. Outbound using standard DVB/MPEG-2 up to 30Mb/s. Return channel using multi carrier on demand TDMA, with information rates from 200kb/s to 3Mb/s. Flexible, star, mesh or broadcast network topology. Suitable for direct-to-home DTH or direct-to-office DTO. Claims to be 25%-30% lower cost than competitors.

ATECOM
Product name: ATM Vision, ATM Condor
Web site: http://www.atecom.com/
Company: ATecoM GmbH, Germany

Description: Supplier of video over ATM products. No specific satellite products.

B2C2
Product name: Sky2PC
Web site: http://www.b2c2.com/index.html
Company: B2C2 Inc, California USA

Description: One way DVB/MPEG based receive only PCI cards or external USB receiver. No indication of any plans for two-way or DVB-RCS products.

BARCONET
Product name: TITAN
Web site: http://www.barconet.com/homepage.htm
Company: Barconet NV, Belgium

Description: Formerly a division of Barco group, now demerged as an independent company. Manufactures video distribution systems, including DVB/MPEG. TITAN are satellite DVB receivers and decoders. No specific product for internet.

BROADLOGIC
Product name: Satellite Express
Web site: http://www.broadlogic.com/
Company: BroadLogic Inc, California USA

Description: Former manufacturer of DVB based receivers/routers. This business has been sold to VBox Communications in January 2002, see below. Broadlogic now focus on providing semiconductor chips only.

CLARENT
Product name: SkyPerformer, NetPerformer, ACTView
Web site: http://www.clarent.com/products/
Company: Clarent Corporation, California

Description: Formerly ACT Networks? Mostly a supplier of VOIP related products, for muxing voice, fax and data into an IP stream over a network (NetPerformer). Satellite version (SkyPerformer) allows point to point and point to multipoint for WAN connections. ACTView network management software controls network components via in-band packets.

COMBOX
Product name: SatStream, WebStream
Web site: http://www.combox-i.com/ note: does not appear to be working.
Company: ComBox Ltd, Israel

Description: One way DVB/MPEG2 based receive only PCI card (SatStream) or stand alone (WebStream). Up to 53Mb/s downlink, using telco return link. Central configuration unit to manage access, bandwidth allocation and billing at satellite hub. No two-way product plans known. Brochures dated 1998 in hand, but web site appears to be no longer active. Company possibly defunct or renamed.

COMSAT
Product name: Linkway, Linkstar
Company: Comsat Labs, USA.
Company bought out by Lockheed Martin Global Telecommunications, and VSAT products sold to ViaSat. See ViaSat below.

COMTECH EFDATA
Product name: SpectraCast
Web site: http://www.comtechefdata.com/
Company: Comtech EF Data Corporation, USA, a subsidiary of Comtech Telecommunications Corporation

Description: Various components of one way DVB based IP broadcast system, including gateway data multiplexers, DVB modulators, and IRDs. Outbound DVB/IP carrier up to 56Mb/s. Standalone receiver units with 10/100baseT user interface and inbuilt IP router. SNMP network management.
Also have a range of IP optimised modems (CiM) for SCPC links carrying IP traffic. These incorporate TCP acceleration, data encryption and transparent bridge capability, along with turbo code option for efficient bandwidth use.

DARIM
Product name:
Web site: http://www.darvision.com/
Company: Darim System Co, Korea

Description: Mostly video related products, including MPEG encoders, IP video streaming products, broadcast and video surveillance. No specific satellite related products.

EMS TECHNOLOGIES
Product name: DVB-RCS, SpaceMux
Web site: http://www.ems-t.com/STG/broadband/broadband_overview.asp
Company: EMS Technologies, Inc., Georgia USA
EMS Technologies, Space & Technology Group, Montreal, Canada.

Description: Manufactures a two-way DVB/RCS platform for satellite broadband internet access. Outbound DVB/MPEG2 broadcast stream. Return link system fully complies with DVB/RCS standard, with TDMA system providing up to 2Mb/s per return link. Satellite Interactive Terminal (SIT) user terminal combines a DVB/MPEG2 receiver with DVB/RCS transmitter in a single box, supporting up to 8Mb/s downstream and 2Mb/s upstream. Return Link Sub-System (RLSS) is also offered as an independent system that can be integrated with existing IP/DVB forward link equipment and network management systems from multiple vendors. Main customer to date includes Eutelsat.
The Space Technologies group of EMS Technologies, was created in 1999 from the purchase of the satellite products division of Spar Aerospace Ltd, and builds on previous experience of Spar developing TDMA VSAT systems. EMS manufactured the SS/TDMA system on-board the Intelsat IX satellites. EMS has also produced the first satellite on-board DVB/RCS processor (SpaceMux) to be launched on the Anik F2 satellite.

FLASH NETWORKS
Product name: NettGain
Web site: http://www.flashnetworks.com/
Company: Flash Networks Ltd., Israel
Flash Networks Inc., New Jersey, USA

Description: Provider of software products for protocol optimisation over wireless and satellite links. NettGain uses the proprietary BST protocol, combined with compression and smart acknowledgments, to improve performance of TCP/IP over satellite links by increasing possible transmission speeds and maximise bandwidth utilisation. Interfaces into networks as a proxy server, or as a transparent solution.
Recent customers include Matsushita Inter-Techno in Japan, Janko Electronic Co in China, and AT&T Wireless in the USA.

GILAT

Product name: SkyBlaster VSAT
Web site: http://www.gilat.com/gilat/
Company: Gilat, Israel

Description: Two-way broadband interactive PC-based satellite networking for IP applications. Outbound link using DVB up to 35Mb/s. Return channel using Gilat unique FTDMA return access scheme from 38.4kb/s to 153.6kb/s. Star network topology. Two PCI cards, one for DVB receiver, and one for satellite transmitter. Networks in operation in USA, Europe & South America. Selected by Optus in Australia for direct to home services.
Other products include:
WebSAT: Similar to above, but aimed at higher end ISP PoPs, SCPC return channels, built in IP accelerator technology. This product line acquired by L-3 Communications in March 2001, see summary for L-3 below.
DialAway IP: SCPC mesh DAMA system.
Skystar Advantage: Star topology TDMA VSAT network.
FaraWay VSAT: SCPC mesh DAMA system.
Recent broadband internet customers include StarBand in USA, StarOne in Brazil, Bharti Broadband in India, PMI & AzCom in Philippines.

HARMONIC DATA SYSTEMS

Product name: CyberStream
Web site: http://www.harmonicdata.com
Company: Harmonic Data Systems, Inc., California USA.
a wholly owned subsidiary of Harmonic, Inc.

Description: CyberStream is a family of IP-over-broadband products, including an IP Encapsulator, a variety of receiver devices and VSAT terminals. Products are available individually or as complete end-to-end systems. CyberStream One-way uses DVB/MPEG mixed IP and video stream, up to full transponder QPSK or 8PSK, supporting both unicast and multicast (push). Receivers available as USB or PCI card, and as standalone router/receiver. CyberStream Two-way uses TDMA inbound channels from 9.6k to 192kb/s. CyberStream Enterprise 2 VSAT terminals provide two-way system support up to 64Mb/s outbound rates and are Linux based. CyberStream Two-way product includes embedded SATurbo IP acceleration.

HUGHES NETWORK SYSTEMS
Product name: DIRECWAY
Web site: http://www.hns.com/products/direcway_terminals/intro.htm
Company: Hughes Network Systems, California, USA

Description: Two way broadband internet access system. Star topology. Outbound link uses a proprietary broadcast carrier, similar to DVB, based on HNS one way product DirecPC, up to 45Mb/s. Return channels using shared TDMA carriers of 64kb/s or 128kb/s, based on HNS VSAT TDMA system PES. Systems currently in operation for DTH services in USA, Europe and South America. Telstra is using this system for remote areas in Australia.
Other products include:
PES: "Personal Earth Station" star network TDMA VSAT for corporate networks.
TES: "Telephony Earth Station" mesh DAMA SCPC system for voice or data up to 64kb/s. Used for Intelsat DAMA system.
See also Spaceway satellite operator.

INFOGLOBAL
Product name: IVI
Web site: http://www.infoglobal.es/principal_ing.asp
Company: InfoGLOBAL, S.A., Spain

Description: InfoGlobal is mainly an Engineering, Consulting & R&D company focussed on IP related activities. IVI product is intended for use in an asymmetric (one-way) broadband system. IVI Gateway is the customer terminal, standalone unit that receives from satellite and connects to terrestrial for return channel. IVI Switch is the hub system, which sends data via satellite through a separate third party IP encapsulator and modem. IVI Switch manages IVI Gateway units, provides call records, etc. Not much detail provided on web site.

INTERNATIONAL DATACASTING
Product name: SuperFlex, EchoNet
Web site: http://www.intldata.ca/products/sfoverview.cfm
Company: International datacasting Corp, Ottawa, Canada

Description: One way DVB/MPEG2 based broadcast product. Up to 45Mb/s downlink, using separate third party return link (telco, VSAT, DVB/RCS, DAMA). Standalone receiver units with ethernet interface. No two-way product plans known.

IPRICOT

Product name: IPRICOT, IPR-Sxxxx
Web site: http://www.ipricot.com/broadbandprod/index.htm
Company: IPricot SA, France
IPricot North America, Inc, Montreal, Canada

Description: Primarily a manufacturer of router-receivers for satellite, wireless and cable applications. Satellite receivers are all stand-alone DVB/MPEG based receivers, no PCI cards. Various models receive from 72Mb/s to 130Mb/s from the satellite, and output from 2Mb/s to 90Mb/s sustained to a user ethernet interface. IPR-S1100 satellite IP router-receiver includes support for 8PSK and 16QAM, web management, SNMP, IP multicasting, etc. IPR-S2000 Two Way Satellite IP Router combines a one way DVB/IP receiver system, with a proprietary CDMA ATM based mesh VSAT system. Aimed at providing one-way internet backbone access, plus two way mesh intranet connections, for corporates.
Prior to September 2000, the company was known as DotCom SA.
Recent customers include New Skies Satellites, GlobeCast, and Tandberg Television.

IPSTAR/THAICOM

Product name: iPSTAR
Web site: http://www.thaicom.net/ipstar.html
Company: Shin Satellite Public Company Ltd

Description: Shin Satellite, operator of the Thaicom satellites, has for several years been developing a low cost, high capacity satellite system (the "iPSTAR Broadband Satellite System"). iPSTAR will provide a satellite-based Last Mile broadband Internet service. The iPSTAR-1 satellite will be launched in 2003. Through their US based R&D partner they have developed two-way broadband satellite terminal hardware using efficient digital coding & compression. The first generation user terminal is expected to be available in year 2001. The user terminal will be made available and applicable to current conventional satellites with about 2-3 times performance /bandwidth improvement and will be forward compatible with the iPSTAR satellite system.
Distributors already signed up include BayCom of Malaysia, and China Railway Communication Co., Ltd. of China.

KENCAST DATACASTING

Product name: Fazzt
Web site: http://www.kencast.com/products.html
Company: KenCast, Inc., Connecticut, USA

Description: Provides software solutions for reliable data broadcasting over satellite systems. Fazzt Digital Delivery System allows large files to be reliably, securely, and efficiently delivered to many remote stations at high speeds. Reliable one-way broadcast with or without a return link using compression and forward error correction schemes. Supports IP multicast, UDP/IP and TCP/IP at over 20Mb/s.

LOCKHEED MARTIN GLOBAL TELECOMS (LMGT)

Product name: Linkway, Linkstar
Company: Lockheed Martin Global Telecommunications
Bought out Comsat Corporation, then sold VSAT product group from Comsat Labs to Viasat. See Viasat below.

L-3 COMMUNICATIONS – SATELLITE NETWORKS

Product name: ISAT, WebSAT
Web site: http://www.l-3com.com/snd/html/products_intro.html
Company: L-3 Communications, Satellite Networks Division, NY, USA

Description: Manufacturer who inherited the products of former satellite product suppliers LNR, STS, and Aydin. Products include: A DVB video modulator capable of 1.5M to 161Mb/s. The model 2760A TDMA system is compatible with Intelsat standard IESS-317A. The ISAT VSAT system is capable of star or mesh operation, where each remote includes a processor to combine voice, video and internet into a single transmitted carrier. WebSat is an enhancement of the ISAT product line designed specifically for two-way Internet connections between ISP and internet backbone hub, with integrated IP accelerator over the satellite link, and rates up to 4Mb/s per carrier. ISAT was formerly a Gilat product, acquired by L-3 Communications in March 2001.

LOGIC INNOVATIONS

Product name: ?
Web site: http://www.logici.com/
Company: Logic Innovations, California USA, subsidiary of Xyratex UK.

Description: Logic Innovations manufactures IP Encapsulator and Transport Stream Multiplexer.
The IP encapsulator plays an integral role in an IP data broadcast headend by encapsulating IP packets into an MPEG-2 transport stream per DVB. The transport stream multiplexer inserts data into unused bandwidth of a DTV transmission, and is specifically targeted at DTV broadcasters.

MENTAT

Product name: SkyX
Web site: http://www.mentat.com/
Company: Mentat Inc., California, USA

Description: Mentat provides products that enhance the performance of IP based traffic over satellite by transparently replacing the TCP/IP protocol with the proprietary SkyX protocol over satellite links.
SkyX Gateway products are standalone boxes which are introduced at each end of a satellite link and are completely transparent to applications and end users, requiring no proxy settings or other changes to either the user PC or servers. The XR10 is designed for satellite links of up to 10 Mbps or for use as a remote node in combination with the XH45 for hub-spoke networks. The XH45 is designed for links of up to 45 Mbps or for use as a hub with multiple XR10 units. Suitable for internet backbone links or SCPC VSAT connections.
SkyX Client/Server system performs the same function as the Gateway product, but consists of a SkyX Server box at the satellite hub and SkyX Client software on the end user PC. The SkyX Client/Server system overcomes the deficiencies of TCP/IP in satellite-based networks, while remaining entirely transparent to end-user applications. The SkyX Client is suitable for use with any satellite receiver card or unit. Suitable for use on any one-way DVB/MPEG internet access systems, which do not have their own built-in IP acceleration protocols.

ND SATCOM

Product name: SkyWAN, DVB-RCS, webSNG
Web site: http://www.ndsatcom.com
Company: ND SatCom Gesellschaft für Satellitenkommunikationssysteme mbH, Germany

Description: Previously a subsidiary or Nortel Networks and DaimlerChrysler Aerospace (DASA) , ND Satcom is now 90% owned by Augusta Technologies of Germany and SES Astra of Luxembourg.
ND Satcom DVB-RCS system meets relevant open DVB standards for two way IP access. Outbound DVB/MPEG based IP stream up to 72Mb/s. Return channels to DVB-RCS spec up to 2Mb/s. Produced DVB-RCS system for use on new SES Astra “BBI” Ka-band satellite broadband service.
SkyWAN is a MF-TDMA based mesh VSAT network system. Multi-carrier TDMA frequency hopping system with up to eight carriers each with aggregate bit rate up to 3584kb/s. Bandwidth on demand up to 2Mb/s per site and up to 255 sites per network. Dynamically manages multiple sites and links to efficiently share up to 28Mb/s satellite capacity. Incorporates SNMP based network management system. User interfaces LAN or Frame relay. Voice, fax possible via FRAD. Video conferencing available.
NDSatcom webSNG is a specially equipped, fully automated webcasting satellite uplink vehicle enabling live reporting and on-demand video streaming to the Internet from anywhere in the world.
Recent customers include SES Astra, German Bundeswehr, Globecast, Williams, and Papua New Guinea.

NDS
Product name: NDS MediaStorm
Web site: http://www.nds.com/solutions/mediastorm_system.html
Company: NDS group PLC, UK

Description: Mainly a supplier of video broadcast and distribution systems. NDS MediaStorm equipment combines with various third party hardware to provide a broadband content distribution system (datacasting). MediaStorm server manages bandwidth, delivers multicast files, multicast streams, high-speed Internet data, and cached Web pages, and schedules and inserts content for play out to the end users. VideoGuard/CastGuard provides security control and conditional access. NDS MediaStorm includes compression and multiplexing hardware, as well as an IP encapsulator. IP over DVB/MPEG broadcast stream, with choice of return path using third party hardware (PSTN, VSAT, etc). IP reception of up to 18Mb/s.

NEC
Product name: NEXTAR-BOD
Web site: http://www1n.mesh.ne.jp/necomscsd/sat/sat/vsat/vsat.html
Company: NEC, Japan

Description: Data VSAT system. Available as NEXTAR-AA/TDMA star network, or NEXTAR-BOD star/mesh DAMA network. Data rates up to 2Mb/s.
Also, NEXTAR-BOD-Router product, up to 8Mb/s data rates with carriers dynamically assigned depending on IP data and destination network. Integrated TCP spoofing. Combines Intranet (mesh) & internet backbone (star) connections. Can incorporate voice/fax applications.

NERA
Product name: ?
Web site: http://satcom.nera.no/
Company: Nera Satcom AS, Norway

Description: DVB-RCS two way IP access system. This product development recently moved from Nera Broadband Wireless division to Satcom division. For two years, Nera web site has claimed that development of satellite terminals & gateways for DVB-RCS are underway, but still no product details are provided.

NEWTEC
Product name: ?
Web site: http://www.newtec.be
Company: Newtec Cy, Belgium

Description: Primarily a manufacturer of high data-rate modems, particularly DVB related modulators, demodulators, multiplexers. Announced late 2000 that they were developing a DVB-RCS two way IP access system based on chipsets from Canadian company SpaceBridge Semiconductor. First services now in place for Belgacom. Wider product commercialisation planned for mid 2001.

NORSAT
Product name: Norsat Full Services Network, Broadband Satellite Outdoor Units
Web site: http://www.norsat.com/
Company: Norsat International Inc, Canada

Description: Originally a manufacturer of RF equipment, Norsat has a range of "Universal" Broadband Satellite Outdoor Units (antenna plus transceiver) suitable for use with any of the two-way satellite access products, at either Ku or Ka band frequencies.
Norsat also market a DVB-IP Data platform which provides one way DVB/MPEG2 based IP broadcast, using either terrestrial or third party satellite return channel.
Up to 120Mb/s outbound TDM channel, and up to 8Mb/s SCPC or 2Mb/s DVB-RCS return channels. Basic system is called "Integrated Services Network". Then "Full Services Network" adds redundant and load sharing units. Includes component products: "ipe IN A BOX" IP encapsulator; and Return Channel Router.
Formerly known as SpectraWorks product, and sold through Scientific Atlanta.
Recent customers for DVB/IP platform include Singtel Aeradio, China Netcom, China People's Daily.

NORTEL DASA
See ND Satcom

NOVRA
Product name: Novra
Web site: http://www.novra.com/main.htm
Company: Novra Technologies Inc., Winnipeg, Canada

Description: SG50 standalone DVB/IP receiver with ethernet user interface. SR50 transceiver incorporates a return path capability when used with external VSAT SCPC modem. DVB-RCS user terminal said to be in development. DissemMedia hub server software for one-way DVB/IP broadcast hub. Small company first appeared NAB April 2001.

PACE
Product name: DigiBox
Web site: http://www.pace.co.uk/paceproducts/index.asp
Company: Pace Micro Technology PLC, UK

Description: Manufacturer of set top boxes for digital video including satellite DVB. Customers include various satellite TV broadcasters, including Star TV in HK. Active in video over IP products, and VOIP through subsidiary VegaStream. No products for IP over satellite or DVB-RCS.

PARADISE DATACOM
Product name: P300 Modem
Web site: http://www.paradise.co.uk/
Company: Paradise Datacom Ltd, UK, an INTELEK plc company

Description: Manufacturer of satellite modems and transceivers. Modems primarily intended for point-to-point SCPC links. Data rates up to 5Mb/s. The P300i Series Internet Router Modem brings together the functions of a Paradise Modem and Router with Mentat SkyX protocol acceleration and data compression to maximise the passage of TCP/IP data through a satellite channel. Designed specifically to minimise the effects of satellite delay on a TCP/IP pipeline. Turbo code option is available on modems.

PHILIPS
Product name: Philips, iFusion
Web site: http://www.digitalnetworks.philips.com
Company: Philips Digital Networks, Philips Electronics NV, Netherlands

Description: Manufacturer of set top boxes for digital satellite reception based on DVB/MPEG standards for video, audio & data services. No information on any DVB-RCS products.
Press release about new iFusion product combining video broadcast and IP broadband connectivity, but no product brochures yet available.

RADYNE COMSTREAM
Product name: IPSat, IPSat Plus, MRT
Web site: http://www.radynecomstream.com/doc/broch-satint.html
Company: Radyne ComStream Inc, USA

Description: Manufacturer of satellite and cable equipment for IP voice & TV (Tiernan). IPSat product based on previous Comstream VSATPlus TDMA star network product. Provides up to 72Mb/s TDM outbound stream (not DVB) to max 2000 sites. Up to 512kb/s TDMA or 2Mb/s SCPC return channels. Protocols optimised for TCP/IP. Remote power control of VSATs. Remotes capable of switching from TDMA to SCPC return channels automatically for transmitting large files.
MRT multiple receiver terminal is a rack mounted unit containing up to 12 SCPC receive only modems. Could be used at hub station for either IPSat or a third party DVB/IP system to provide SCPC return channels.

SCIENTIFIC ATLANTA
Product name: SpectraWorks, Skylinx
Web site: http://www.sciatl.com/customers/products.htm
Company: Scientific Atlanta, USA

Description: Scientific Atlanta has now refocussed on video products, for satellite and cable TV systems. Their other satellite divisions have been sold to other companies. For SpectraWorks DVB/IP system see Norsat. For Skylinx VSAT system see Viasat.

SCI-WORX
Product name: DVBeam, DVBox
Web site: http://www.sci-worx.com/
Company: Sci-worx GmbH, Germany

Description: Formerly called Sican. A technology licensing and design company specialising in communications, multimedia and networking applications. Primary interest in ASIC chip design, but also has a range of products for DVB receiving. DVBeam receiver cards are PCI cards to receive either video or data DVB/MPEG streams. Download at up to 12Mb/s. DVBox Satellite Modem is stand-alone receiver with USB interface at up to 10Mb/s. DVBox LAN router is stand-alone receiver with ethernet interface & integrated router, up to 40MSym/s. Products marketed to North America and Asia through California office.

SCOPUS
Product name: CODICO
Web site: http://www.scopus.co.il/
Company: Scopus Network Technologies, Israel

Description: Supplier of digital video compression technology for the broadcast industry. Includes complete end-to-end system solutions for the delivery of Digital TV & Data over Broadband Networks. Video products include CODICO MPEG encoders, multiplexers, receivers, and video over IP streamer. Includes video over ATM products. While supplying encoders and receivers for DVB video, there is no specific product for internet over DVB. Customers include Chengdu National TV in China, and World Cup 2002 network for Korea Telecom.

SHIRON
Product name: InterSKY
Web site: http://www.shiron.com/intersky.htm
Company: Shiron Satellite Communications Ltd, Israel.

Description: Two way IP access system. Outbound DVB/IP broadcast carrier up to 72Mb/s. Return channels up to 384kb/s (2Mb/s option) using FDMA/DAMA bandwidth on demand. Automatic power control, billing interface, IP multicasting. Aimed at links to ISPs from internet backbone provider. Recent customers for broadband internet access network include Bacom in Nigeria, @Contact in Alaska and Textron of Philippines.

SKYSTREAM NETWORKS
Product name: SMR, EMR, zBand
Web site: http://www.skystream.com/products/satellite.stm
Company: Skystream Networks Inc, California, USA

Description: Provides components, which can be integrated into a one-way broadband satellite delivery solution. Source Media Router (SMR) is an IP encapsulator for satellite DVB/MPEG transport of IP traffic. SMR-26 supports encryption. Edge Media Router (EMR) is a DVB receiver that extracts IP content from incoming DVB MPEG-2 transport streams and routes it via WAN Interfaces Fast Ethernet onto last-mile broadband networks for multi-point delivery. Management software E-Manager Controls multiple EMRs through in-band multicasting commands using SkyStream Multicasting Management Protocol (SMMP) and/or out-of-band control commands using SNMP. zBand Content Delivery Software is an open and secure, scalable software platform for advanced IP content distribution management. Includes a full-featured software development kit to allow custom solutions.

SPL/ACT WIRELESS
Product name:
Web site: http://www.spl.co.uk/
Company: SPL/ACT Wireless, UK, subsidiary of Advantech AMT

Description: Manufacturer of satellite terminals, modems, receivers and antenna controllers, mostly intended for SCPC point to point or multicast applications. SCPC modems with data rates up to 2Mb/s. DVB variable rate receivers up to 8Mb/s only, in stand alone or PCI card form.

SSE TELECOM
Product name: iP^3 Gateway
Web site: http://www.sset.com/ not working April 2002!!
Company: SSE Telecom Inc., California

Description: Manufacturer of satellite terminals and modems. iP^3 Gateway intended primarily as a point-to-point IP backbone or peering connection. Provides TCP/IP acceleration using a proprietary protocol over satellite for transport of IP data and VOIP. Up to 5Mb/s per satellite carrier, multicarrier up to 15Mb/s, with future option of DVB up to 45Mb/s. Point-to-point, star and hubless mesh connectivity.
Note: This company share price dropped to almost zero in 2001 and web site now disappeared so may have been taken over or gone bankrupt.

STM WIRELESS
Product name: SpaceWeb Broadband
Web site: http://www.stmi.com/broadband.html
Company: STM Wireless, Inc, California, USA

Description: Two way IP access system. Uses DVB/IP broadcast system from Harmonic Data Systems (Cyberstream) for the outbound link, up to 48Mb/s. Return channel by one of STM Wireless VSAT systems. Up to 192kb/s using TDM/TDMA VSAT system. Up to 384kb/s using X.DAMA VSAT system. Aimed at markets from consumer up to corporate networks and ISP links. Signed agreement Jan 2001 for Alcatel to market STM Wireless VSAT products. Recently provided broadband network products for CTTNet in China.

TANDBERG TELEVISION
Product name: Tandberg
Web site: http://www.tandbergtv.com/prodsys/prod_index.asp
Company: TANDBERG Television Systems AS, Norway

Description: Primarily a provider of television distribution and broadcast systems. Partners with various third party manufacturers to provide combined broadcast and broadband networks. Partners include SkyStream, Logic Innovations and IPricot.
TT7116 IP Streamer is intended for interfacing satellite DVB network with local internet. Receives DVB/MPEG2 transport stream containing Multi-Program Transport Stream (MPTS) and converts to Single Program Transport Streams (SPTS) each on its own IP Multicast group. Ethernet 100baseT IP output.

TECHNISAT
Product name: SkyCast, DVB SmartWare, Sky2PC/SkyStar
Web site: http://www.t-data.lu/
Company: TechniSat Data Services S.A., Luxembourg

Description: One way DVB/IP broadcast system. SkyCast DVB/MPEG data broadcast platform. Outbound up to 4Mb/s (34Mb/s available on request). DVB SmartWare hub software to manage multipoint and enhance TCP data delivery. Sky2PC/SkyStar are DVB data receivers available in PCI card or standalone (USB) connection. Systems operational on Astra and Eutelsat satellites.

THOMSON BROADCAST
Product name: THOMSON
Web site: http://www.thomsonbroadcast.com/
http://www.thomson-multimedia.com/
Company: Thomson Broadcast & Network solutions, division of Thomson Multimedia Inc, USA

Description: Thomson Broadcast business manufactures various digital video distribution systems including satellite, terrestrial and telco (ATM). Includes satellite broadcast and SNG equipment for DVB/MPEG video, including receivers. No specific internet products.

VBOX COMMUNICATIONS
Product name: Satellite Express
Web site: http://www.vbox.to
Company: VBox Communications, Ltd., Israel

Description: Manufacturer of set-top boxes and IP integrated receivers. Acquired Satellite Express product range from Broadlogic. One way DVB based receive only PC cards or stand alone receiver/router. Up to 68Mb/s. Provide user terminal equipment only, not gateway hub equipment.

VIACAST

Product name: FORTE, IP-Companion, Quantum-MSR, One.to.One, PRONTO, MAESTRO
Web site: http://www.viacasting.com/
Company: ViaCast Networks Inc, Maryland USA

Description: One way DVB/IP broadcast system. FORTE Gateway products include "entry-level" and "carrier-class" systems for IP encapsulation and broadcast at up to 80Mb/s. DVB multiplexer and video encoder available. Supports 8PSK and turbo code options. The IP-COMPANION is a fully DVB compliant standalone high-speed satellite receiver/router providing IP data at speeds from 2Mbps to 75Mbps, with ethernet interface. The QUANTUM-MSR is a fully DVB compliant standalone Multimedia Satellite Receiver, with ethernet interface. The One.to.One is a high-speed multi-media satellite receiver solution with PC USB interface. PRONTO is a software package that operates in tandem with ViaCast's gateway and satellite receivers to deliver content acceleration.
MAESTRO is ViaCast's Network Management System. From a central uplink or headend, the network operator can monitor, control and configure ViaCast's DVB receivers: IP-COMPANION and QUANTUM-MSR. Maestro operates "in-band" over the WAN broadcast link to control the remote receivers.
ViaCast is approved for use with ViaSat's ArcLight 2-way VSAT system. Customers include Satworks and DeltaSat in Europe, HexTel in the Mid-East, and Orblynx USA.

VIASAT

Product name: ArcLight, LinkStar, LinkWay, Skylinx, StarWire
Web site: http://www.viasat.com/products/vsat/access.htm
Company: Viasat, Inc, California, USA

Description: Viasat has been a manufacturer of VSAT systems for some years. The recent purchase of Comsat Labs, and the purchase of Scientific Atlanta's VSAT division a couple of years ago, has added to their capabilities.
ArcLight: Two way point to multipoint star network VSAT system. Outbound DVB/IP carrier up to 45Mb/s. Return channels up to 512kb/s based on proprietary CDMA access methods. Maximum 32,000 remotes. Integrated routers optimised for TCP/IP. Per user traffic records for billing. User interface 100BaseT Ethernet. Includes web caching, conditional access and IP multicasting. System originated from Viasat.
LinkStar: Two-way bandwidth on demand broadband system. Outbound DVB/IP carrier up to 60Mb/s. Return channels using DVB-RCS (including turbo coding) at up to 1.15Mb/s. Web based network management interface, provides configuration, traffic statistics and call detail records. SNMP interface available. Up to 10,000 sites per RNCC, and up to 100,000 sites using multiple hubs. System originated from ComsatLabs.
LinkWay: Mesh point-to-point TDMA bandwidth on demand VSAT system. LinkWay.IP provides cheaper customer terminals optimised for IP access in star network to a hub site. Fully interoperable with LinkWay2000 and LinkWay2100 mesh VSAT terminals to allow a choice of mesh, star or hybrid topologies. Dynamic bandwidth on demand. IP user interface 10baseT ethernet. Remotes use uplink power control. Supports IP multicasting. Java based NCC with browser interface for remote access. Point to point link data rates up to 2Mb/s. System originated from ComsatLabs.

Skylinx: Mesh SCPC/DAMA circuit switched bandwidth on demand VSAT system. Skylinx.IP2 provides an overlayed DVB/IP broadcast carrier at up to 30Mb/s, with SCPC/DAMA used for return channels up to 2Mb/s. Can integrate star network IP access with mesh corporate voice/data network requirements. Mesh voice at 8kb/s and fax up to 14.4kb/s. System originated from Scientific Atlanta.

StarWire: Mesh SCPC/DAMA circuit switched bandwidth on demand VSAT system. Provides point to point data links either clear channel or with integrated IP router, on demand up to 2Mb/s. Can also carry voice fax and video conferencing. Various user interfaces. System originated from Viasat.

Customers include WildBlue in USA, and Boeing Connexion for inflight broadband access, Star Cruises of Malaysia, Bharat Electronics in India, BAIIT in China, Eutelsat and Intelsat. Formerly developing terminals for Astrolink until that system was cancelled. Alliance with Loral Skynet to provide Immeon bandwidth-on-demand service in USA.

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