



# Red Helix

Always evolving. Always there.

**BRIDGE**  **TECHNOLOGIES™**

# Ensuring high-quality broadcast delivery

Production Terrestrial Headends Cable  
IP Networks Hospitality OTT Satellite

## Introduction

If you want to monitor and improve the quality of broadcast content delivered over linear and satellite networks, OTT, IPTV and VoD over IP networks, or overcome the technical challenges of delivering SMPTE 2110 / 2022, our Bridge Technologies monitoring solutions let you pinpoint and resolve performance-degrading issues to protect digital media service quality.

As Bridge Technologies' partner in the UK, we at Red Helix can show you the full range of monitoring tools online, in our Cyberlab or at your place of work.

We also provide dedicated training and support to make sure your teams see the full value of their Bridge Technologies investments.

## Contents

• IP Monitor Probe - VB120 .....	2
• IP Network Probe - VB220 .....	3
• IP Monitor Probe For Appear TV - VB220 ATV .....	4
• IPTV & OTT Monitoring Probe - VB330 .....	5
• ASI Switched Dual Input - VB242 .....	6
• ASI Intelligent Redundancy Switch - VB243 .....	7
• DVB-T/T2 Terrestrial RF Input Module- VB252 .....	8
• ISDB-T Terrestrial RF Input Module - VB256 .....	9
• DVB-C QAM/VSF Digital Cable - VB262 .....	9
• DVB-S/S2 Satellite Input Module - VB272 .....	10
• DVB-S/S2 Intelligent Redundancy Switch - VB273 .....	11
• Production Analytics ST 2110 - VB440 .....	12
• Objective QoE Content Extractor - VB288 .....	13
• VBC Controller Server - VBC .....	14
• Remote Data Wall - RDW .....	16
• Archive Server & VBC TimeLine .....	17
• Access/Home Network Monitoring - microVB System .....	18
• Portable IP Probe - NOMAD .....	19
• Mobile App - PocketProbe .....	20

## IP Monitor Probe - VB120

The VB120 broadcast probe offers a cost-effective and powerful monitoring solution, covering the most commonly available signal formats. In particular, the VB120 is capable of monitoring IP unicasts and multicasts, OTT/ABR streams as well as a whole range of RF formats.

The VB120 probe hardware is custom designed and built to telco-grade standards for maximum reliability and minimum maintenance. Each VB120 blade consumes less than 12W of power. This substantially reduces power consumption and air conditioning needs in installations.

The VB120 can be paired with a full set of interface blades to cover signal formats such as DVB-T/T2, DVB-S/S2, DVB-C/C2, QAM-B, 8VSB, ISDB-T and ASI. The ability to continuously measure all your media services makes the VB120 invaluable for confidence monitoring, thus facilitating a more rapid network expansion. In addition, the VB120 can perform deep analysis of the broadcast signal, reducing the need to travel to remote locations when changes in the system are made or to find the reason behind alarms.

The VB120 features a fully-fledged ETSI TR 101 290 monitoring engine used to monitor enabled inputs, one monitoring engine per input working in parallel. The basic VB120 monitors DVB, ASI and IP monitoring enabled through the IP Monitoring and Analysis option. Additional RF inputs may be included by adding demodulator blades to the system.

Each Bridge Technologies ETSI TR 101 290 engine performs Priority 1, 2 and 3 measurements in addition to monitoring vital CA parameters, CA monitoring being of vital importance as CAS errors may lead to equally severe impairments as ETSI TR 101 290 Priority 1 errors. The monitoring engine may also be configured to check signal scrambling. PSI/SI and PSIP tables are analysed and presented as table summary and hex dump, the latter enabling analysis of proprietary descriptors.

Bit rates are measured at TS, service and PID level, and the ETSI TR 101 290 engine also monitors RF parameters for optional demodulator inputs. Fully configurable round-robin functionality enables sequential monitoring of several transport streams per monitoring engine. More details can be found in the ETR290 pages.

It is possible to monitor OTT/ABR streams at master play-out or at the CDN origin server in all common streaming formats using the OTT option. Streaming formats supported currently include Microsoft Smoothstream™, Apple HLS™, Adobe HDS™, MPEG-DASH and basic RTMP.

The innovative RDP technology (Return Data Path) that comes as standard on the VB120 enables easy re-routing of remote signals from regional locations into a central location for decryption and advanced signal analysis. RDP reduces the need for truck rolls and the on-site visits that would otherwise be necessary by skilled and expensive engineers. The VB120 recording functionality allows alarm triggered or manually initiated recordings from any enabled input.



The VB120 has been designed to support all modern encapsulation standards including ISO/IEC13818-1 Transport Streams and MFRTTP. The VB120 continuously measures signal loss, packet loss and packet jitter. These vital parameters are presented through Bridge Technologies' own patented MediaWindow™ technology. MediaWindow™ allows for current and historical data to be displayed in an intuitive and visual way for easy understanding of the media flows in an IP network.

Alarm handling is one of the main tasks of the VB120 Broadcast Probe, and all measurements are checked against user-defined thresholds for alarm generation. A sophisticated threshold template system gives the user full alarm handling control at probe, TS, service and PID level, ensuring that only relevant alarms are displayed.

Management and control for the basic VB120 is available through a separate 10/100/1000-T Ethernet interface; the IP-enabled VB120 may alternatively be managed in-band through the 10/100/1000-T video interface or through the SFP video interface. Standalone access is achieved through the use of any standard modern web browser, avoiding the need for a dedicated client application.

With SNMP trapping and the comprehensive Eii™ (External Integration Interface) XML export the VB120 Broadcast Probe is easily integrated into existing NMS systems either directly or through the optional VBC Controller Server (VBC).

# IP Network Probe - VB220

The VB220 Probe is the perfect choice in any network where digital video is carried across an IP-based infrastructure. Built specifically to high-end industry needs, this network service tool is ideal for both pure IP networks and hybrid networks with IP transport cores such as in digital cable and terrestrial networks.

The VB220 probe hardware is custom-designed and built to telco-grade standards for maximum reliability and minimum maintenance. Each VB220 blade consumes less than 12W of power. This substantially reduces power consumption and air conditioning needs in installations.

The VB220 can be paired with a full set of interface blades to cover signal formats such as DVB-T/T2, DVB-S/S2, DVB-C/C2, QAM-B, 8VSB and ASI. It is possible to monitor OTT/ABR streams at master play-out or at the CDN origin server in all common streaming formats using the OTT option. Streaming formats supported currently include Microsoft Smoothstream™, Apple HLS™, Adobe HDS™, MPEG-DASH and basic RTMP.



A single VB220 blade is capable of monitoring up to 260 IP multicasts as found in FTTH IPTV systems. Three VB220 blades can be placed in one 19" 1RU chassis, giving a total of 780 streams monitored in a small form factor.

The VB220 is ideally suited for network core and region use. It is an invaluable helpmate for any network engineer attempting multicast detection on multiple VLANs or in the process of IGMP tracking. Fault finding in complex IP networks just got a lot easier.

The monitoring of critical parameters such as loss distance measurements and detailed jitter values will give operators invaluable and precise feedback about network performance. With the patented MediaWindow™, historical data can be easily accessed for meaningful visualisation of media flow in IP networks. Whether establishing or modifying service settings on complex routers and switches, the VB220 facilitates the whole process.

The power of confidence monitoring is further enhanced by continuous monitoring and alarming for vital parameters like bandwidth overflow/underflow, RTP errors and signal loss. Based on a highly sophisticated threshold template system, alarm granularity can be set to reflect actual status, irrelevant alarms being effectively masked. The unique FSM™ framework also allows checking and continuous monitoring of middleware and network services vital to customer QoE.

The VB220 may be used with optional demodulator interfaces, resulting in a very compact monitoring solution particularly suited for systems that use IP distribution to regional nodes. The VB220 monitors IP, ASI and optional demodulator inputs simultaneously, and the transport stream and service compare mechanism makes it easy to validate correct local insertion at regional head-ends.

The VB220 can be expanded with the ETR290 option for full video monitoring and analysis functionality according to TS 101 290 as used in head-end and studio environments.

SNMP trapping and XML export enable the IP probes to be implemented in any NMS system with alarm generation; either directly from the probes themselves, or via the VBC server for advanced alarm correlation and filtering. Each VB220 contains the Eii (External Integration Interface) API for seamless and easy integration into any third party system.

Each IP probe runs an HTTP server with the client as a web browser, so there is no need to install custom software on computers needing access to the measurement data. The HTTP traffic is compressed between the probe and the client web browser to allow successful operation across limited bandwidth management networks.

# IP Monitor Probe For Appear TV - VB220 ATV

1RU & 4RU Card - The ATV-220 PROBE is similar to the flagship VB220 controller blade for all applications in any network where digital video is carried across an IP infrastructure. Built with a form factor for deployment in Appear TV's range of chassis, the ATV-220 provides an unique capability of reducing the infrastructure needs in any HeadEnd or remote location.

Available for Appear TV's 4RU and 1RU chassis (XC-Series), the ATV-220 offers a highly-developed efficient solution for digital media monitoring either as part of a complete monitoring system, or when used with third-party network management systems. Embodying a range of market-leading technologies the ATV-220 gives engineers a complete and detailed view into the data stream.



The ATV-220 can, as the standard VB220, be specified to order with all the options available in the comprehensive Bridge Technologies product line such as: up to 8 advanced ETR290 engines for detailed analysis and Gold TS Protection for media streams; up to 5 OTT engines for analysis and continuous monitoring of manifest and playlist syntax, DVB-T2MI parsing and alarming; optional second GigaBit interface and full SCTE-35 signaling analysis.

All these options in addition to the standard features of 260 streams monitoring, the built-in Eii (External integration interface), and the award winning web GUI of the device.

The ability to monitor continuously 260 streams makes the ATV-220 blade a powerful tool. With full support for both the MPEG-2 TS and RTP encapsulation standards carrying all modern coding formats, the ATV-220 is perfect for network core or regional site use.

This can be an invaluable remote helpmate for any network engineer attempting multicast detection on multiple VLANs or in the process of IGMP tracking. Fault finding in complex IP based broadcast networks just got a lot easier.

The monitoring of critical parameters such as loss distance measurements and detailed jitter values will give operators invaluable and precise feedback of network performance. With the patented MediaWindow™ historical data can be easily accessed for meaningful visualisation of media flow in IP systems. Whether establishing or modifying service settings on complex routers and switches, the ATV-220 facilitates the whole process.

The power of confidence monitoring is further enhanced by continuous monitoring and alarming for vital parameters like bandwidth overflow/underflow, RTP errors and signal loss. Based on a highly sophisticated threshold template system alarm granularity can be set to reflect actual status, irrelevant alarms being effectively masked. The unique FSM™ framework also allows checking and continuous monitoring of middleware and network services vital to customer QoE.

The ATV-220 takes up only one slot in an Appear TV chassis, resulting in a very compact monitoring solution particularly suited for systems that use IP distribution to regional nodes. The ATV-220 monitors IP via its optical and electrical 10/100/1000T Ethernet interface for simultaneous monitoring, enabling a unique service comparison mechanism that makes it easy to validate correct local insertion at regional head-ends.

SNMP trapping and XML export enable the ATV-220 to be implemented in any NMS system with alarm generation; either directly from the probes themselves, or via the VBC server for advanced alarm correlation and filtering. Each ATV-220 contains the Eii (External Integration Interface) API for seamless and easy integration into any 3rd party system.

Each ATV-220 runs a HTTP server with the client as a web browser, so no need to install custom software on computers needing access to the measurement data. Modern web 2.0 techniques such as AJAX are used to facilitate advanced interface behaviour in a standard web browser.

# IPTV & OTT Monitoring Probe - VB330

The VB330 Probe is the flagship in Bridge Technologies product offering towards broadband and media operators. With dual 10G Ethernet connectivity and a massive multiprocessor architecture the VB330 can deliver monitoring and analytics of thousands of streams and a multitude of technologies in real-time and in parallel.

The VB330 is deployed either on dedicated embedded hardware, as a pre-configured and pre-installed appliance or as a software-only solution. This gives the operator greater flexibility when it comes to tailoring the monitoring solution towards the underlying system architecture in the best possible manner. Feature parity is ensured across the various deployment options, varying only in factors such as scalability, power consumption and longevity. The web-based user experience and feature availability stays the same across all the deployment alternatives.

The VB330 APPLIANCE runs on pre-selected platform and offers a scalable and future-proof high-end monitoring solution. The VB330 APPLIANCE is pre-loaded with software and fully tested at the factory prior to customer delivery. Standard product warranty of 24 months applies.

The VB330 APPLIANCE comes with a dual 10/25/40/50/100Gbps NIC for video network connectivity. The VB330 APPLIANCE solution is supplied by BRIDGE Technologies and is characterised by the following main attributes: Intel Xeon Gold 6126 2.6 GHz CPU, 48GB DDR4 ECC RAM, 240GB solid state disk, Dual 10/25/40/50/100Gbps network interface card, dual PSU, custom-designed aluminium server front. The APPLIANCE server weighs approximately 15 kg, fits in a 1RU rack slot and has a depth of approximately 50 cm.

The VB330 running on the appliance server hardware is future proof in terms of scalability due to its massive parallel CPU resources and dual 100Gbps network interface capabilities. No installation needed. The operator can start using the product immediately without having to spend time doing server installations.

## VB330 Software

The VB330 is also available as a Cent-OS/RHE install software image that can be installed on suitable server hardware or in cloud environments by the end user. This allows for installation onto already existing server or cloud-based infrastructure. Some consideration is required in order to match software driver capabilities against the infrastructure to run the VB330 on.

## VB330 Embedded Hardware

The VB330 utilises the same visual and intuitive approach to monitoring and analytics as other probes. The VB330 is aimed at monitoring the full cross section of services commonly found in media related network operations. As such the VB330 is very much a multi use tool to monitor network performance involving signal formats and areas as diverse as video IP multicast, video OTT/ABR streaming, voice trunks, video-on-demand unicast, Ethernet packet micro bursts, PCAP recording and general traffic protocol inspection.



## Remote PHY/L2TP

VB330 comes with support for Remote PHY/L2TP, making it suitable for unpacking and monitoring the multicasts targeted towards the Remote PHY CCAP nodes. Remote PHY is an approach that literally takes the PHY chip out of a box and puts it at the end of an IP network.

One of the philosophies of Remote PHY is to put the least amount of hardware and software at the endpoint and keep the complexity centralized. Remote PHY infers centralized DOCSIS software. This allows the same software model to be used for I-CCAP and Remote PHY CCAP. Remote PHY, I-CMTS, and M-CMTS can all coexist in the same chassis and use the same software base and configuration systems.

This is a very powerful concept for feature velocity and backward compatibility. Remote PHY works and works well. The design of remote PHY is built on top of open standards such as Ethernet, IPv4, IPv6, L2TPv3, and CableLabs MHA. Remote PHY will allow CCAP devices to be deployed in more creative manners such as using digital fiber in the HFC plant. For cable operators, this will allow their network to have higher performance with lower OpEx, lower CapEx, and an evolutionary path for FTTH.



# ASI Switched Dual Input - VB242

The VB242 ASI input option card allows operators real-time high density ASI monitoring or switched ASI round-robin monitoring for remote or head-end applications. Each VB242 card has six BNC inputs. The operator can operate the module in two different modes: either the first two of the inputs are monitored concurrently and with continuous ETSI TR 101 290 analysis, or its six BNC inputs are sequentially monitored in a round-robin fashion.

Together with the VB120 or VB220 controllers, the VB242 is perfect for existing infrastructures in the head-end and the regional edge-multiplexer/modulator/transmitter site.



The VB242 interface module can operate in two different modes: either two of the inputs are monitored full time with continuous ETSI TR 101 290 analysis, or its inputs are sequentially monitored in a round-robin fashion.

Using two VB242 interface modules in a 1RU chassis allows full time monitoring of five ASI streams in parallel – two streams from each of the interface modules and one stream from the ASI input of the controlling VB120 or VB220 probe. This high density solution is very useful for monitoring in head-ends where ASI infrastructure is used.

It is also possible to combine a VB242 with a different input interface module – for instance, one of the demodulators in the interface product range.

The Enhanced Chassis can be populated with one VB120 controller blade and two VB242 ASI input modules, giving a total of five ASI inputs concurrently monitored. Alternatively, 12 inputs can be monitored in a round-robin fashion, plus one VB120 ASI input concurrently monitored locally on the VB120 module (HD-BNC input).

The monitoring unit is controlled as part of a system via the VBC Controller as a stand-alone unit using a regular web-browser, or even by a third party management system.

# ASI Intelligent Redundancy Switch - VB243

The VB243 provides full dual path redundancy for ASI signals with autonomous operation and deep signal analysis on both signal paths for the ultimate switching decision making. Front panel controls with illuminated buttons offer local override control and a clear visual indication of the active switching path.

The redundancy switch offers three distinct modes of operation making it suitable for any real-life operational challenges. These are Automatic mode, Manual mode and SuperLocal mode.



The VB243 INTELLIGENT REDUNDANCY SWITCH has multiple layers of redundancy. The 1RU chassis offers dual redundant power supplies and the VB243 switching card has magnetically latching relays to protect against signal disruption even during a complete loss of power.

The VB243 switch module actively taps off a small portion of the input signal from both inputs, amplifies it and then feeds it to the neighbouring VB242 ASI input module via two factory fitted cables. This allows monitoring and analysis to take place on both inputs simultaneously for switching purposes. If any problem in any parameter is detected preset rules apply and the unit will check the opposite input for the same failure and perform a switch if no failure is detected.

To avoid switch flapping a minimum switchback time can optionally be configured. All the parameters in the implementation of the TS 101 290 specification can be utilised as switching criteria.

In automatic mode the VB243 system is fully independent and makes its own switching decisions based on the preset switching rules. In manual mode the unit can be controlled from any overlying NMS system via the extensive XML-based Eii (External Integration Interface) or via SNMP triggers.

The VB243 also features a unique superLocal mode feature to deliberately cut off overlying NMS control for emergency manual override situations via the front button panel. All parameters can be controlled via the built-in web GUI. The web GUI also gives a visual overview of parameters used in switch decisions and system status.

The VB120 blade offers a bonus HD-BNC ASI input port with TS 101 290 analysis support that can be used for ad-hoc monitoring in addition to the two main ASI input ports used on the VB242 blade should the need arise.

# DVB-T/T2 Terrestrial RF Input Module- VB252

The VB252 is a dual input DVB-T/T2 input interface module that enables monitoring of digital terrestrial transmissions. Two modules may be housed in a 1RU chassis together with a controlling VB120 or VB220 probe, providing high monitoring capacity occupying a minimum of rack space. In addition to monitoring typical RF parameters, the monitoring solution optionally allows advanced analysis of the T2MI protocol in DVB-T2 systems; signal integrity is verified layer by layer.

The VB252 also supports the T2 Lite standard with full analysis of T2 Lite transmissions.

All this analysis functionality is complemented by the renowned Bridge Technologies ETSI TR 101 290 monitoring engine to ensure standards conformance at all levels



In a typical DVB-T/T2 system transmitter, sites are fed via IP infrastructure or via satellite distribution. The Bridge Technologies range of interfaces and interface modules makes it easy to monitor the complete signal chain end-to-end.

The VB120/VB252 combination enables monitoring of up to 50 IP multicasts, thus monitoring IP network distribution together with DVB-T2 transmissions. It is even possible to equip the monitoring chassis with a VB272 satellite interface module, which is valuable if combined IP and satellite distribution to transmitter sites is used.

Similarly, the VB252 can be used with a VB242 ASI input module, enabling high density ASI and DVB-T/T2 monitoring.

The basic VB252 supports one COFDM RF input. The second input of the VB252 can be enabled by the customer via a software licencing option. This flexibility allows probe capacity to be tailored to individual system needs, and increase as a monitoring system is expanded to include more transport streams.

The Advanced RF Option adds impulse response graphing and analysis to the VB252, making it possible to check reflection conditions at the probe location. Configurable threshold limits determine when an alarm should be raised due to reflection changes in time or power.

Impulse response analysis results are presented as a user-friendly graphical GUI, facilitating reflection measurement interpretation. Licence upgrades are performed by entering a licence key in the regular probe GUI and can therefore be performed remotely.



## ISDB-T Terrestrial RF Input Module - VB256

The VB256 ISDB-T input module expands Bridge Technologies' digital terrestrial monitoring capabilities to encompass the Latin American and Japanese terrestrial markets. Supporting both ISDB-T/SBTVD-T standards, it enables customers operating in these regions to fully monitor their ISDB-T transmissions.

Two modules may be housed in a 1RU chassis together with a controlling VB120 or VB220 probe, providing high monitoring capacity occupying a minimum of rack space. The VB256 will enable the monitoring of multiple RF parameters, supporting 6, 7 and 8 Mhz channels.



The demodulated transport stream is then presented to the card's ETR 290 engine for full priority 1, 2 and 3 analysis. Each VB256 card has two independent inputs, allowing two channels to be monitored continuously. Multiple channels may also be assigned to a VB256 input, enabling the tuner to cycle round up to 100 channels and providing a dense yet compact monitoring solution.

## DVB-C QAM/VSB Digital Cable - VB262

The VB262 Dual QAM/8VSB input option offers monitoring of cable TV signals as found in ITU-T J.83 Annex A/B/C QAM networks and DTT signals found in 8VSB networks. A chassis can be equipped with a VB120 or VB220 probe controller that has one or two VB262 RF input cards under its control.

A complete configuration with a fully licenced VB120 provides real-time monitoring and alarming for four QAM or VSB RF inputs, 50 IP MPTS/SPTS multicasts, upgradeable in steps of 10 from an initial 10 streams, and an ASI TS input and output.



ETSI TR 101 290 analysis is performed in parallel for the QAM/8VSB inputs, the ASI input and the IP input. If the VB220 is used as master card, the IP monitoring capacity is increased to an impressive 260 MPTS/SPTS multicasts in addition to the RF inputs.

The combined unit is ideal for hybrid networks where IP is used as a carrier from head-end to the regional edge multiplexer/modulator/transmitter. The built-in round-robin functionality allows sequential analysis of multiple QAM or VSB multiplexes, making it possible to monitor the total broadcast contents of a cable transmission system using a single VB262.

Each RF input port can be programmed to scan through 50 individual frequencies in a round-robin fashion.

## DVB-S/S2 Satellite Input Module - VB272

The VB272 input card offers monitoring and analysis of QPSK/8/16/32APSK signals found in DVB-S/S2 satellite transponders. A chassis can be equipped with a VB120 or VB220 probe controller and up to two VB272 input cards under its control.

A complete configuration with a fully licenced VB120 and two VB272 interface cards provides real-time monitoring and alarming for up to four DVB-S/S2 RF inputs, 10 IP MPTS/SPTS multicasts (upgradable to 50 streams) and one ASI TS input and output. Full ETSI TR 101 290 analysis is performed on all DVB-S/S2 inputs, the ASI input and the IP input in parallel.



If the VB220 probe is used as master card, the IP monitoring capacity is increased to an impressive 260 MPTS/SPTS multicasts. The VB272 DVB-S/S2 card is delivered with one input and the second input can be enabled by a simple licence upgrade.

Together with the VB120 or VB220 controller, the operation of the VB272 is via an intuitive web interface. A GUI provides a graphical overview of scanning status and ETR290 TS data as well as a full constellation diagram of the transponder together with all relevant RF levels.

The combined unit is ideal for hybrid networks where IP is used as a carrier from head-end to the satellite uplink station. The built-in round-robin functionality allows sequential analysis of multiple VB-S/S2 multiplexes, making it possible to monitor a complete transponder using a single VB272 interface card.

The VB272 also comes equipped with full power/tone control of RF input switches and can also use the DISEqC 1.1 protocol for additional switch control. With support for modern modulation types such as 16 or 32 APSK, the VB272 is future-proof, plus, it's delivered with standard 75 Ohm F-connectors or as an optional factory-ordered VB272-SMA with 50 Ohm SMA connectors.

# DVB-S/S2 Intelligent Redundancy Switch - VB273

The VB273 Intelligent Redundancy Switch provides full dual path redundancy for satellite signals with autonomous operation and deep signal analysis on both signal paths for the ultimate switching decision making. The solution is ideal for providing fast and robust redundancy switching for permanently installed satellite up-links or in outside broadcast systems.

Front panel controls with illuminated buttons offer local override control and a clear visual indication of the active switching path. The redundancy switch offers three distinct modes of operation - automatic, manual and superlocal - making it suitable for any real-life operational challenges.



The VB273 has multiple layers of redundancy. The 1RU chassis offers dual redundant power supplies and the VB273 switching card has magnetically latching relays to protect against signal disruption, even during a complete loss of power.

The VB273 switch module actively taps off a small portion of the input signal from both inputs, converts it to L-band if required, amplifies it and then feeds it to the neighbouring VB272 DVB-S/S2 input module via two factory-fitted loop cables. This allows monitoring and analysis to take place on both inputs simultaneously.

If any problem in any parameter is detected, pre-set rules apply and the unit will check the opposite input for the same failure and perform a switch if no failure is detected.

To avoid switch flapping, a minimum switchback time can optionally be configured. All the parameters in the implementation of the TS 101 290 specification can be utilised as switching criteria.

In automatic mode, the VB273 system is fully independent and makes its own switching decisions based on the pre-set switching rules. In manual mode, the unit can be controlled from any overlying NMS system via the extensive XML-based Eii (External Integration Interface) or via SNMP triggers.

The VB273 also features a unique superlocal mode feature to deliberately cut off overlying NMS control for emergency manual override situations via the front button panel. All parameters can be controlled via the built-in web GUI. The web GUI also gives a visual overview of parameters used in switch decisions and system status.

The hardware is custom designed and built to telco-grade standards for maximum reliability and minimum maintenance. The complete redundancy solution consumes less than 25W of power. This substantially reduces power consumption and air conditioning needs in installations.

# Production Analytics ST 2110 - VB440

The VB440 IP probe provides a breakthrough for the monitoring and analysis of high-bitrate broadcast media traffic as defined in ST2110 and ST2022-6 for core broadcasting networks, production studios, master control centres and outside broadcast vehicles and venues. It enables production teams to continuously survey all layers of media transportation on an IP network and facilitates quick rectification of potential problems, helping to maximise Quality of Service (QoS).

IP packet behaviour analytics is an essential real-time need when dealing with the modern infrastructures capable of transporting uncompressed ST2110 video and audio. With a production environment dominated by operations personnel and non-movable deadlines, enabling the total understanding of advanced connectivity with the use of advanced paradigms recognised by staff to give accurate and meaningful information on par with an audio meter or a waveform/ vector-scope, utilized by the industry since the beginning of broadcast.

With support for interface speeds from 10, 25, 40, 50 and up to 100 Gigabit on dual interfaces, even the largest of media networks can be accommodated with analysis of SD, HD, HD HDR, 4K, 4K HDR and 8K. ST2022-7 redundancy is also monitored and analysed when connected to both primary and secondary networks. PTP is provided with ST2059-2 clock analysis, clock source detection/listing and clock accuracy and class, providing troubleshooting and continuous monitoring of this critical infrastructure in a production network – including accurate path-delay for individual flows.

The VB440 can accommodate eight simultaneous users, from local or remote locations over secure https. It features a user interface provided by an HTML-5 standard web browser, and can be provided with Instrument View aluminium kits in broadcast form factors that enable touch screen operation. This gives production teams access to an analytics solution for large numbers of streams and multiple resolutions in real-time and in parallel in multiple locations.

The VB440's intuitive packet displays together with the MediaWidow™, provides insight into behaviourism unprecedented by other standard tools, instilling confidence in production crews exposed to modern IP infrastructures. Analytics providing single or multiple stream correlation will immediately reveal any potential critical factor of the transport with intuitive tools and displays. Errors, however minuscule, are displayed and severity can be easily judged by any operator. Media metadata and deep packet analytics data is also available when vendor interoperability and signalling integrity have to be established.

Also built in is traditional colorimetry, with a full vector-scope consisting of Rec.601, 709 and 2020 compatibility, thus ensuring colour saturation issues that can arise in a mixed standard and HDR (High Dynamic Range) environment. Also, the system provides audio metering and audio listening for 8 stereo pairs following the picture.



Any flow, or signal, on the network can be selected in the 'flow overview' or services can be manually bonded into full services consisting of video, audio and ancillary data for easy selection in the 'service selection view', or the fast access buttons in the lower edge of the gui. Great care has gone into making sure fast access to source selection, and keeping the context of the task, while viewing different signals.

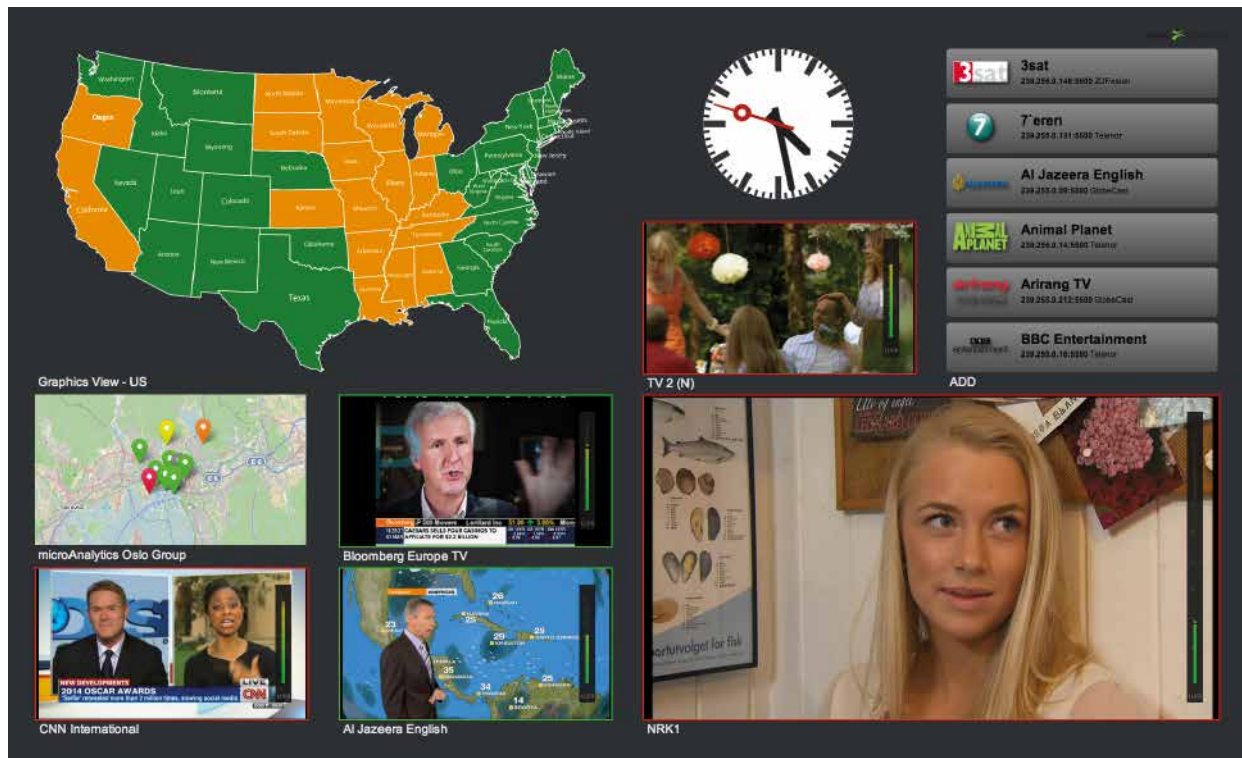
The technology is a Widglets™ API HTML5 video monitor for the VB440, that allows the probe to become truly multifunctional beyond its current widespread deployment for monitoring IP networks, extending its usefulness well beyond test and measurement.

By leveraging the Widglets API, users can, for example, now deliver a full-motion, colour-accurate and ultra-low latency video monitoring capability to any location or any application where it is needed: all that is required is a laptop and a network connection. Take a camera painter, for instance. Today, the number of cameras that can be analysed is typically restricted to a very few at a time – and with limited views available. More can be analysed – but with the need to acquire and deploy multiple space-consuming boxes.

With the Widglets API, a user can have multiple cameras with multiple waveform vectorscopes and streams via a single HTML5 video monitor view; different people in different places can view all this data, instead of splitting it by location or technician. As such: using the new Widglets API for the VB440 patently has incredibly positive implications for remote production.

# Objective QoE Content Extractor - VB288

The VB288 performs objective video and audio monitoring of MPEG-2, H.264/MPEG-4 and H.265/HEVC streams and offers a unique web browser-based remote video-wall capability providing full visual status from anywhere. The VB288 enables operators to inspect massive amounts of content services beyond human eyeball capability with dependable alarming on objective parameters having QoE impact. In addition to providing automated Objective QoE of large amounts of services, the VB288 Content Extractor offers thumbnail and metadata extraction and alarming for up to 100 TV multicast streams concurrently.



The VB288 CONTENT EXTRACTOR with its 4 mosaic video walls, is ideal for visual at-a-glance monitoring in the NOC, VOC, head-end or remotely via any standard web browser.

The VB288 is typically inserted before scrambling insertion in the head-end and the extracted metadata and decoded imagery is fed to the VideoBridge Controller. Disruption of descrambling services is one of the main causes for service production disruptions in the head-end, and for the first time cost-effective monitoring of scrambling is available. The VB288 can optionally have the same OTT Engine analysis as probes, including post-CDN tokens and MPEG-DASH.

Closed Captioning option is also available with live captioning view, future proof raw binary stream storage, archive support for proof of compliance format. CEA-608 (NTSC), CEA-708(DTVCC), SCTE-20 from MPEG2 and H.264 are supported.

Further applications are in middleware scenarios for generating channel mosaics or for extracting channel metadata such as picture resolution, video bandwidth or wide screen signalling information. Each VB288 runs an HTTP server with the client as a web browser, so there is no need to install custom software on computers needing access to the measurement data.

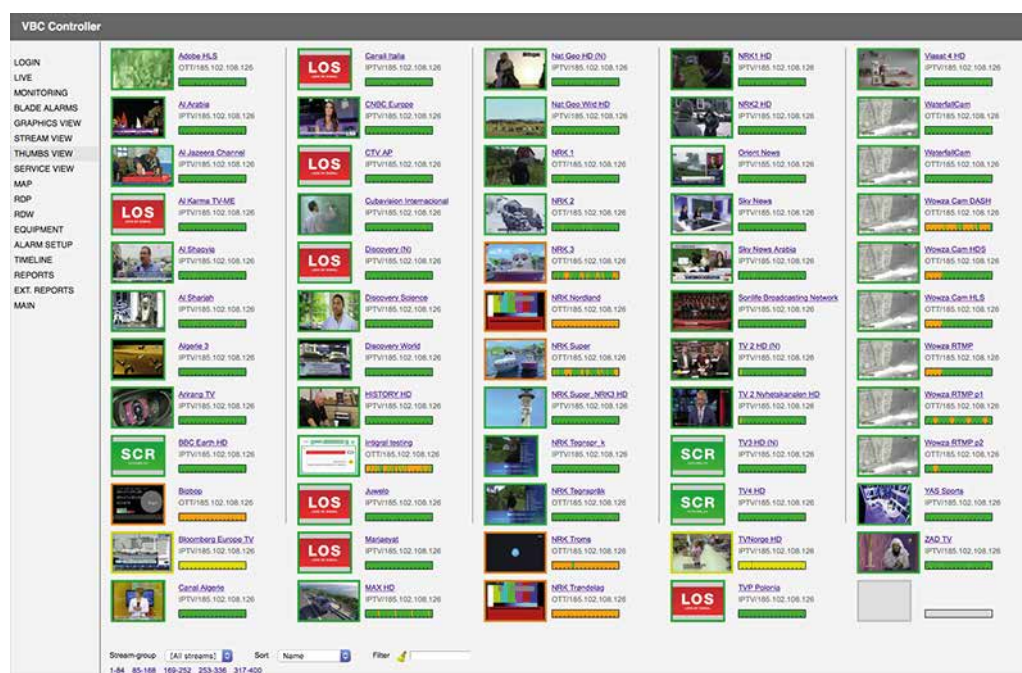


# VBC Controller Server - VBC

VBC offers central management and status displaying of all monitored services, providing a window into the performance of the television distribution operation. The VBC gives unprecedented insight into network health and the flow of all types of media streams throughout the network.

Key elements in the VBC include: configuration management, stream performance comparison at multiple points, worst-performer identification, drill-down analysis, stream and service status monitoring, graphical alarm historical data-display with the Microtimeline™ technology, Visio™ map import with active alarm indication, trend graphing over up to two years, SNMP multi-destination trap forwarding, alarm logging and SLA report generation.

VBC has a built in MAPs view, allowing to geotag probe locations and display alarms in a map view. Timeline view on ARCHIVE Servers, enables storage of monitoring data for long periods of time allowing operators to compare various values between them; for example EPG, jitter, media loss rate, thumbnails, audio levels, VMAF and MOS scores. RDW (Remote Data Wall) is a display technology controlled by the VBC, allowing you to create a visual representation of network activity, enabling potential problems to be rapidly identified and appropriate corrective action taken.



The VBC provides multiple views to make it simple to obtain system status overview, and it makes previously unintelligible data meaningful. Error patterns are easily discovered, meaning that an error may be quickly pin-pointed and corrected.

As the VBC can be used for both high level monitoring and detailed signal inspection, it provides a common monitoring GUI for both non-technical staff and system engineers; this facilitates communication within the organisation. Multiple browser-based clients can connect to the server through HTTP. Full access control with individual user preferences and setup is available.

Only users with administrator rights are allowed to define new equipment sites consisting of one or more VideoBRIDGE devices. Individual users are allowed to control already registered devices and to view gathered statistical data on a per site basis. Multiple site data views, combined with strict user access control, all add up to provide flexibility and uncompromising security.

The integrated Reports function, enable automatic or custom generation of enterprise level reports that visualise system performance trends in addition to presenting vital parameters, such as service availability for both management and engineering use. The Reports give full SLA and proof-of-delivery functionality to the VBC system.

## VBC Controller Server (cont'd)

With the TS service view option the VBC can present individual services inside transport streams from all probes for monitoring and comparison. The Service thumbs view displays thumbnail pictures for individual services, including services within an MPTS stream, provided that one or more VB288 Content Extractors are present in the configuration.

The VBC alarm view provides information about current and historical alarms, and alarm logs are stored in XML format on the VBC server.

The VBC server may be accessed by several users simultaneously. An administrator manages users and their access rights, and a user can only view information concerning sites that he has access rights to. A user with read-only access can only view alarms whereas a user with read/write access can alter equipment settings at the sites he has access to.

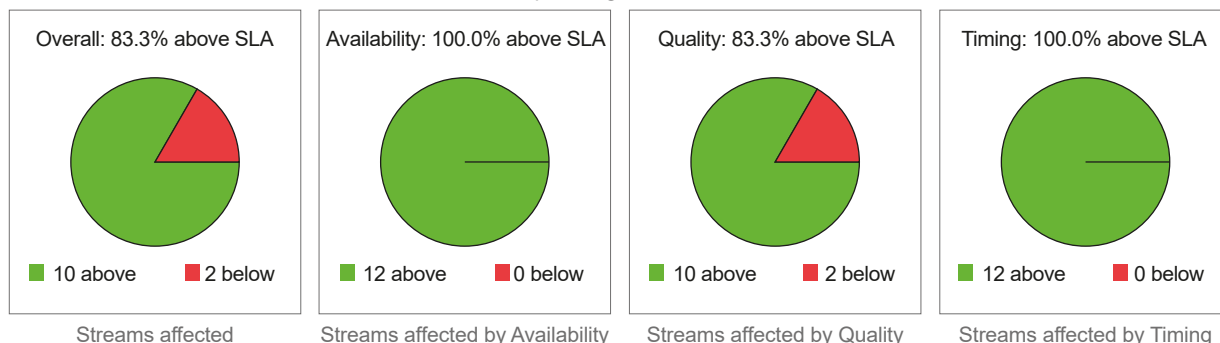
Often probes in a system should be configured identically or similarly, and the VBC's configuration control tools make it easy for an administrator to copy the configuration of a probe to other probes. Considering the number of parameters that constitute a probe configuration this is an important feature that makes life a lot easier for the system administrator.

Remote software upgrades may also be performed through the VBC GUI. Through the VBC the user may access the regular graphical user interface of each component in the system, thus allowing detailed configuration control and status read-out.

The VBC Reports enable generation of reports showing statistics of the key parameters availability, quality and jitter. Trend graphs display how these key quality parameters develop over time, and by setting parameter limits it is easy to see whether or not the system performance is in accordance with an SLA.

### Streams above and below SLA thresholds

The error-seconds are summed for each stream and compared against SLA



The extended reports function enables full overview of all ETSI TR 101 290 parameters over long periods of time gathered and presented on a PDF document.

The Graphics Option allows Visio™ formatted maps to be imported into VBC with active data objects defined. This allows visual alarm status to be mapped onto the drawings. The drawings could typically be geographically maps, system diagrams or rack drawings.

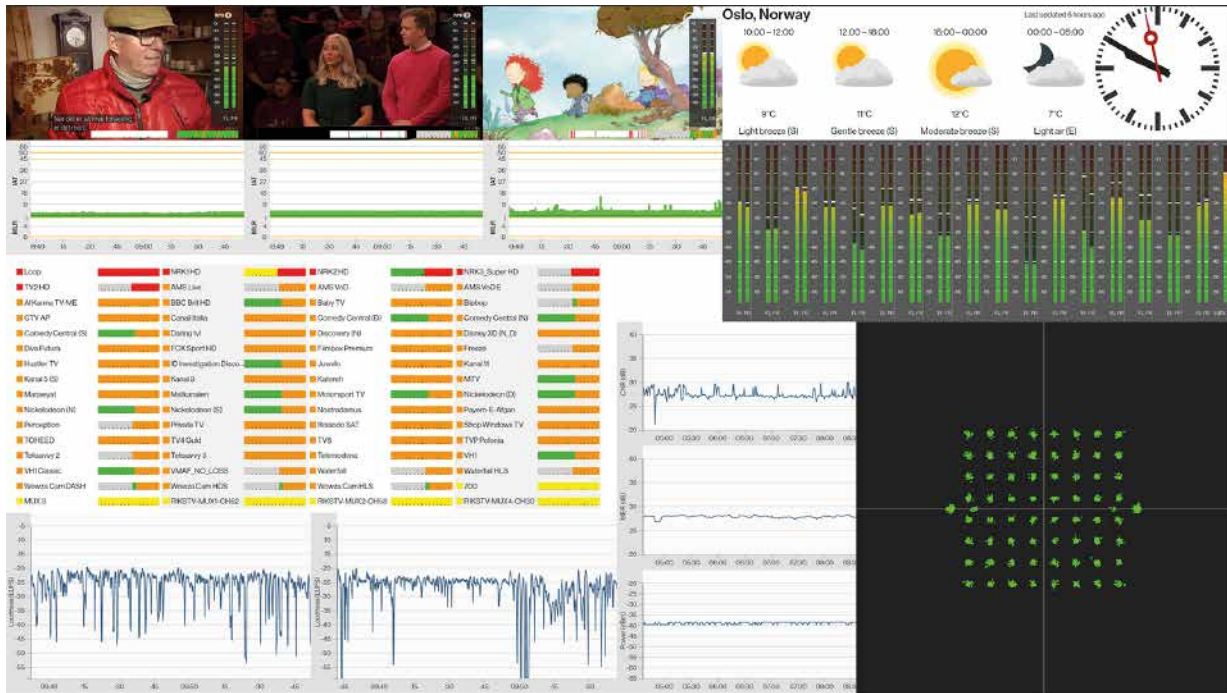
The VBC supports an easy to use interface to the Return Data Path (RDP) functionality of individual probes. This is useful for visualising and changing the RDP settings of all the probes in a consistent manner.

There is also a synchronization mode where the VBC operator can select that only one RDP should be active at a time. This is useful when comparing the signal at various points in the network and avoids sending multiple signals to a single destination.

To support 3rd party equipment the VBC will send alarms as SNMP traps and it allows an administrator to configure a maximum of four SNMP trap destinations. Traps may be aggregated in order to reduce the number of traps being sent. The VBC further offers a machine readable XML-based interface called Eii (External Integration Interface). This can be used to extract data directly for further manipulation by 3rd party applications.

# Remote Data Wall - RDW

Remote Data Wall (RDW) allows those responsible for network monitoring and management to quickly and easily create a visual representation of network activity, enabling potential problems to be rapidly identified and appropriate corrective action taken. Depending on the size or complexity of the network being monitored, RDW can spread from a single screen to multiple screens in a videowall format – but requires no specialist skills to install.



Remote Data Wall enables users with no special skills to create displays, extending over multiple screens in a video wall format.

"The real magic in what we do isn't so much collecting data about the network. The magic is in how we turn that data into information that is actionable in real time – and that's the role of Remote Data Wall," Simen K. Frostad, Chairman, BridgeTech.

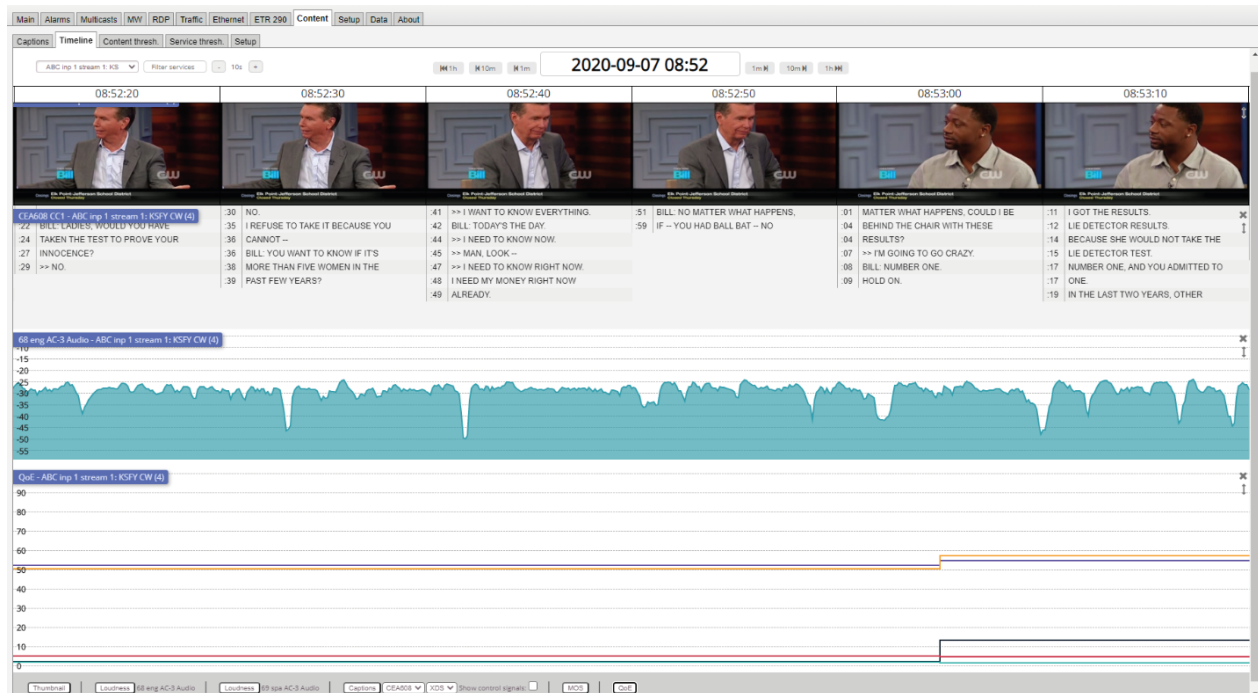
"It's another example of our philosophy of 'making complexity simple'. We're delighted that the CSI Awards judging panel has recognised the vital role that Remote Data Wall can play in helping ensure maximum network uptime and Quality of Service."

Because it is HTML5/browser-based, Remote Data Wall does not require specialist hardware or cabling. It can be viewed locally – in a control room, for example – or remotely from a distant location. Significant flexibility is provided to users in enabling them to select precisely which data should be displayed, and how.

Mix services from multiple VB288s and others Probes on the same RDW. Data can also be gathered from outside sources – from third-party systems, for example, and external information sources such as weather stations, personnel management systems, and booking schedules. A widget can display, for example, windows from the Dataminer management system, mirroring the layout and appearance of the window to maintain a familiar look.

# Archive Server & VBC TimeLine

The Archive Server provides data recording capacity in a simple connect-and-forget form. When connected to the VBC controller and configured through a simple setup routine, the Archive Server automatically activates the VBC's Timeline analysis capability for an enormously powerful new way to analyse historical data in depth. It's a new graphical data analysis technology that allows users to play through recorded data in an NLE-style Timeline display to observe correlations and patterns of errors occurring over any time period.



Users can scrub through the data at any point in the recorded archive, opening and collapsing data tracks, and zooming in to observe fine detail on all the visible tracks. The Timeline shows content thumbnails, alarm markers and all the metrics familiar from the MediaWindow™ displays, making visual navigation through the data simple and quick.

Users can drag and drop data tracks to group them in any order for convenience. Engineers can search through the chain of events that led up to service failures, and generate reports for remedial action or fulfilment of regulatory SLA obligations.

The Timeline functionality enables operators to go back and explore, understand, verify and document in complete detail what happened at any given time, or look for patterns over longer periods of time to identify and eliminate problems.

The Archive Server and Timeline capability also simplifies detailed and comprehensive reporting for regulatory verification of closed caption conformance, loudness and other parameters. The easy-to-set-up archive server units can be added quickly to any Bridge Technologies monitoring system, and subsequently function without further attention.



# Access/Home Network Monitoring - microVB™ System

The microVB™ system is a breakthrough in both form-factor and functionality for real-time analysis of access network and customer home network performance. This unobtrusive device provides deep packet inspection and end-to-end visibility in broadcast quality media delivery over any IP based infrastructure including OTT media in unmanaged networks.

Combined with the Bridge Technologies microVB Device Controller (MDC) server software, Operators can now maintain 24/7 confidence monitoring from head end to customer home.



Forget those expensive truck-rolls and keep your Opex under control. Just pop a microVB™ into an envelope and mail to the subscriber directly. No setup knowledge is required because the microVB™ is literally plug and play.

Upon installation the microVB™ is auto discoverable and your operations centre will be ready to go. Once plugged in you need never touch the microVB™ again; just let it go on running. The microVB™, as its name implies is small, even down to its price tag. The microVB™ will give you instant performance feedback on video quality, packet delivery analysis and set-top-box performance and communications.

Home networking environments are becoming more complex. This complexity makes it semi-impossible to identify whether the problems experienced are due to the home infrastructure or to the network.

The introduction of new devices and new services (broadband data, voice, video) compound the whole complexity and error identification process even further. The microVB™ is a revolution in thinking. Now, 24/7 monitoring at the customer site as a part of a network-wide monitoring process is an affordable proposition. Putting an engineer on-site assumes the problem will manifest itself during the customer call which is all too often not the case.

The microVB™ sidesteps all the legal, commercial and maintenance risks of hosting software, because it comes on its own hardware which is secure, low cost and non-service affecting.

The microVB™ forwards alarm states to its own microVB™ server system. The whole process is automated and fits into the overall architecture of the total system.

Not only will the Operator be able to look at the end-points in a network but by using the industrial strength VideoBridge IP-Probes will also enjoy a system-wide overview. Pinpointing potential and actual problems before they become service affecting is the only way to lower service costs and hinder subscriber churn.

The microVB™ can operate passively or acquire its own IP address via DHCP. The microVB™ can further be deployed right at the edge of the network at the DLSAM or Access Switch layer for cost effective and powerful monitoring of network issues. Packaged as a complete turnkey system, a microVB™ kit consists of microVB™ devices and the MDC server software itself.

The system can be expanded to an unlimited number of microVB™ devices. Each microVB™ system can be pre- or retro-fitted to any installation, irrespective of set-top box and network architecture.

## Default Features

The microVB's are sold in batches of 50 units. The first unit is bundled with the server software called MDC (microVB Device Controller). The MDC is capable of managing 100 microVB units in its basic state.



## Portable IP Probe - NOMAD

NOMAD and NOMAD-PRO, cover all the monitoring needs encountered in hybrid IP multicast, OTT and RF networks. It is the ultimate all-in-one monitoring and analysis solution for the technician on the move.

NOMAD features a plethora of award-winning and patented technologies, the culmination of many years of accumulated engineering knowledge and R&D in IP and broadcast monitoring.

NOMAD is a breakthrough design with almost every conceivable interface for media signal monitoring and analysis. Featuring optical/electrical Gigabit Ethernet, ASI in/out, DVB-C QAM cable, DVB-T/T2 COFDM terrestrial, DVB-S/S2 satellite and external 1PPS GPS time-reference, NOMAD can analyse all RF transmitted DVB signals as well as OTT and multicast/unicast IP transmissions.



With comprehensive IP packet analysis tools, NOMAD is ideal for IP transport understanding regardless of media transported. NOMAD also is shipped with the ultimate in user friendly setup. The unit contains a Wi-Fi zone, and by pointing a laptop towards this, NOMAD is ready for use without further configuration.

As technologies become more and more complex, using NOMAD will give invaluable insight into modern media signal behaviours without the need for deep operator knowledge of the media technology used. Cut from a single brick of aluminium, NOMAD sets a new standard for both finish and ruggedness. It is also of very light weight and is the perfect companion to a laptop.

NOMAD ships with extensive functionality for superior digital media understanding right out of the box.

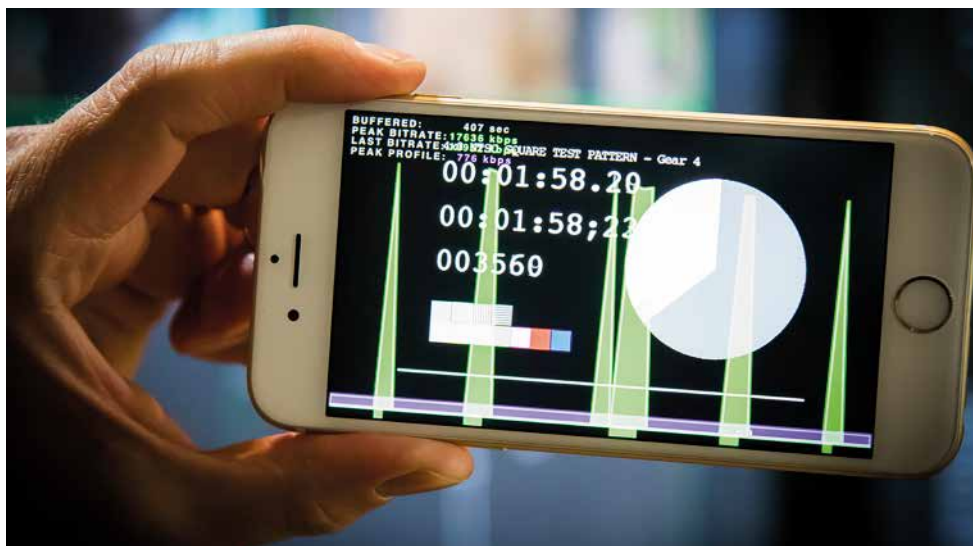
Additionally, NOMAD has a substantial additional set of extended analysis options, enabling it to outperform the most comprehensive systems on the market in functionality. This also allows NOMAD to be an ideal laboratory tool for desktop analysis in the most demanding environment, and sets a new benchmark of affordability in the industry.

With the rapid growth in the numbers of offshore VSAT systems, and the increasing bandwidth consumption of each installation, a simple, reliable and affordable way of monitoring RF performance is urgently required. NOMAD provides the solution. Capable of analysing RF parameters such as MER, CNR, Eb/N0 and channel power, NOMAD is powerful and highly portable, self-contained and built to withstand the rigours of the offshore environment.

Designed to replace old-school PCI cards, USB-based dongles and other laptop-dependent devices, NOMAD is a complete free-standing unit with its own CPU and can be left to monitor signals by itself without the need for a host system.

## Mobile App - PocketProbe

PocketProbe for iPhone or Android, enables objective post-CDN analysis of real network performance in a streaming media environment. The new updated apps incorporate the latest version of the OTT Engine at the heart of Bridge Technologies' award-winning VB series of media monitoring IP probes. These enable analysis and confidence validation of HTTP variable bit-rate streams from any location.



PocketProbe can provide continual validation of OTT streams, with detailed analysis of HLS, Smoothstream, RTMP and MPEG-DASH, and at-a-glance displays that present data in instantly-understandable form through graphic displays and multiple overlays.

The app can be used by service engineers and operational staff to test real world behaviours with a wide range of operators. Accurate status of bit-rates used and profile changes is displayed in real time, giving instant understanding of provider delivery capability. Together with hardware probes used pre-cloud, the post-cloud location of the PocketProbe enables excellent correlative understanding of CDN and provider abilities.

The FULL version contains the ability to validate HDS and SmoothStream manifest files and store 25 streams with all profiles.

The FREE application can validate 5 HLS streams in round robin, analyze and alarm on manifest consistency, playback media in the various profile bit-rates and graphically display the actual chunk download patterns and bit-rates.

The PocketProbe enables objective analysis of real network performance of streaming media in a very simple to use, easy to understand application.

# Ensuring high-quality broadcast delivery

Production Terrestrial Headends Cable  
IP Networks Hospitality OTT Satellite



**Red  
Helix**

Always evolving. Always there.

**BRIDGE**  **TECHNOLOGIES™**

## Contact us

For all Bridge Technologies sales, support & training enquiries, please contact:

**Red Helix**

**Tel:** 01296 397711

**Email:** [info@redhelix.co.uk](mailto:info@redhelix.co.uk)

**Web:** [www.redhelix.co.uk](http://www.redhelix.co.uk)

