



BRIDGE



TECHNOLOGIES™

VB440 Uncompressed Media Appliance

Monitoring, analysis & presentation of IP media streams
for studio production environments;
MCRs, OB Vans, centralized production & playout facilities

Outline

1. Bridgetech Introduction

2. VB440 Introduction

VB440 Appliance, custom display mounts

Instrument View ; interface for network & camera engineers

Widglets & APIs ; operational interface for production engineers

2. Applications (any IP based media facility)

MCRs / OB Vans

Centralized / remote production

Playout facilities

3. Key Features & Functionality

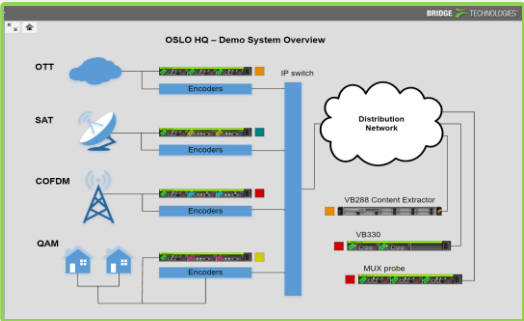
Interface Design, key operational tools

Expert View, setup and in-depth analytics

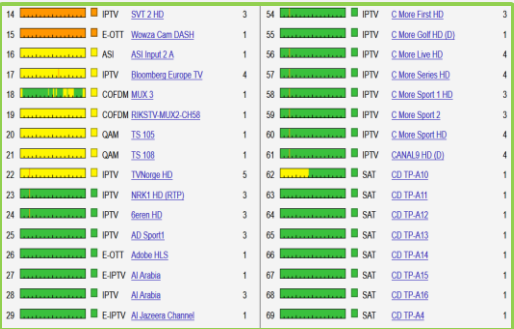
4. Order Codes, BOMs and Licenses

'Compressed Media' video service monitoring systems

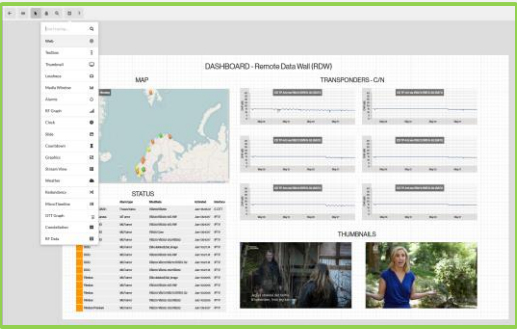
GRAPHIC VIEW



CORRELATION & REPORTING



RDW REMOTE DATA WALL



RVW REMOTE VIDEO WALL



VBC MANAGEMENT SYSTEM



VB288 CONTENT EXTRACTOR



VB120/ 262/ 252 CABLE AND TERRESTRIAL



VB120/ 272 SATELLITE



VB220 GigE / 260 SERVICES



VB330 10G / 2000 SERVICES



MicroVB™



INGRESS



TURNAROUND & PAYOUT

DISTRIBUTION NETWORKS

LAST MILE, ACCESS & HOME NETWORKS



VB440 Introduction

'uncompressed media' appliance

Technical Highlights

- . ST 2022-6 SDIoIP
- . ST 2022-7 redundancy
- . ST 2110-20/21/30/40
- . AES 67
- . NMOS IS-04/ 05/ 07
- . PTP v2 SMPTE 2059 / IEEE 1588-2008
- . Flow PCAP capture

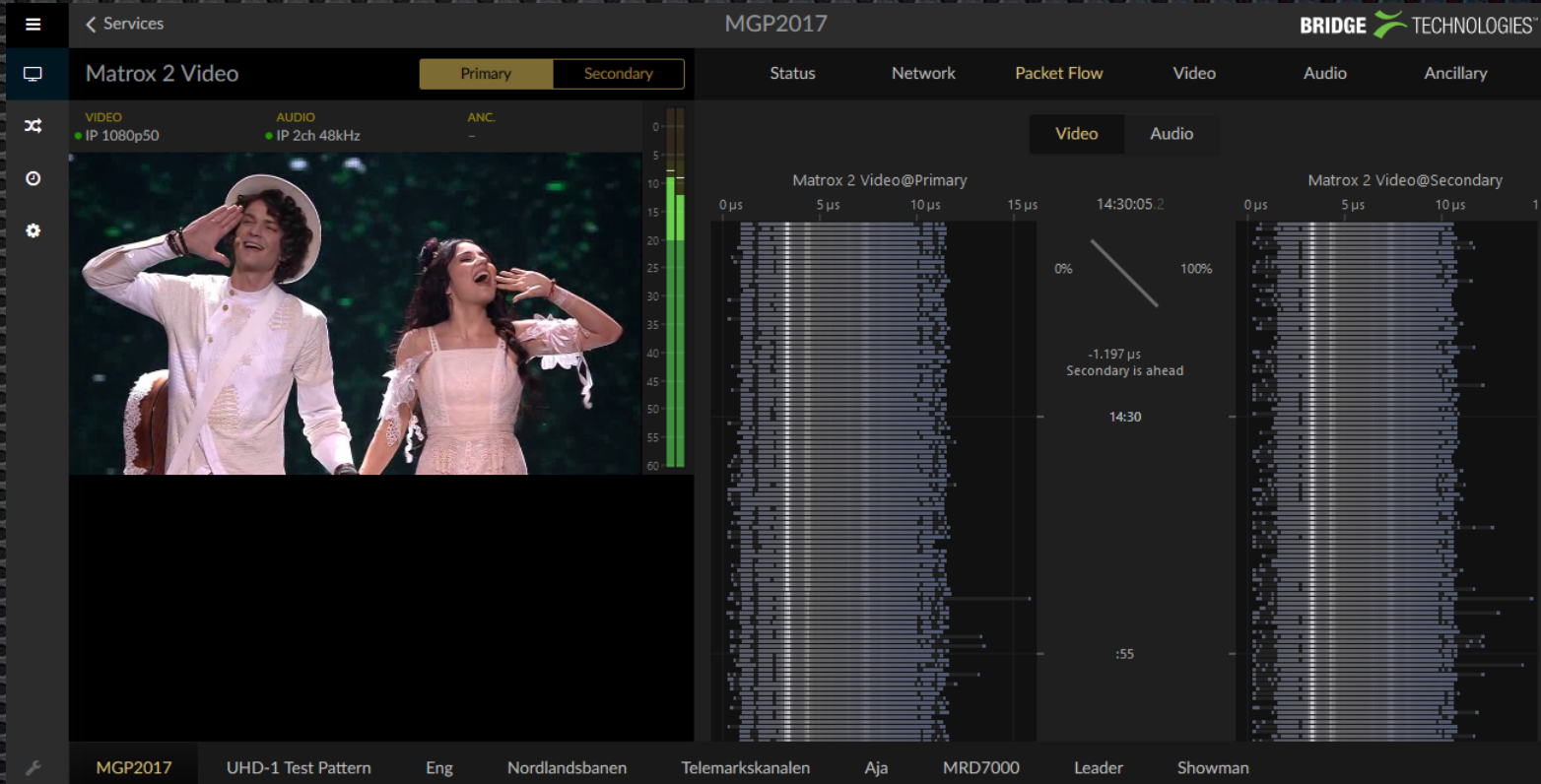
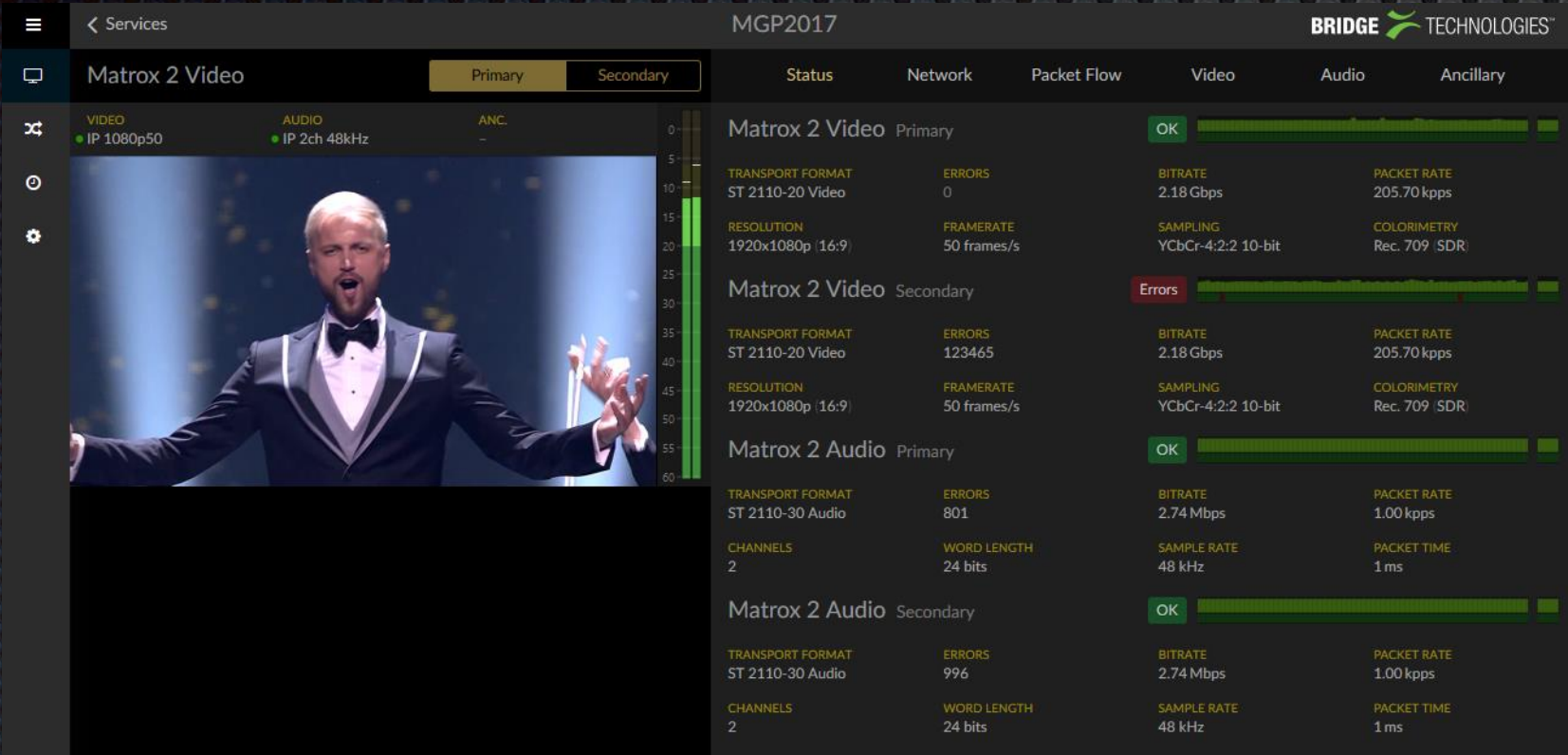
Custom Display Mounts

Tabletop and 19' Rack
for single or dual Interface View and Widglet displays



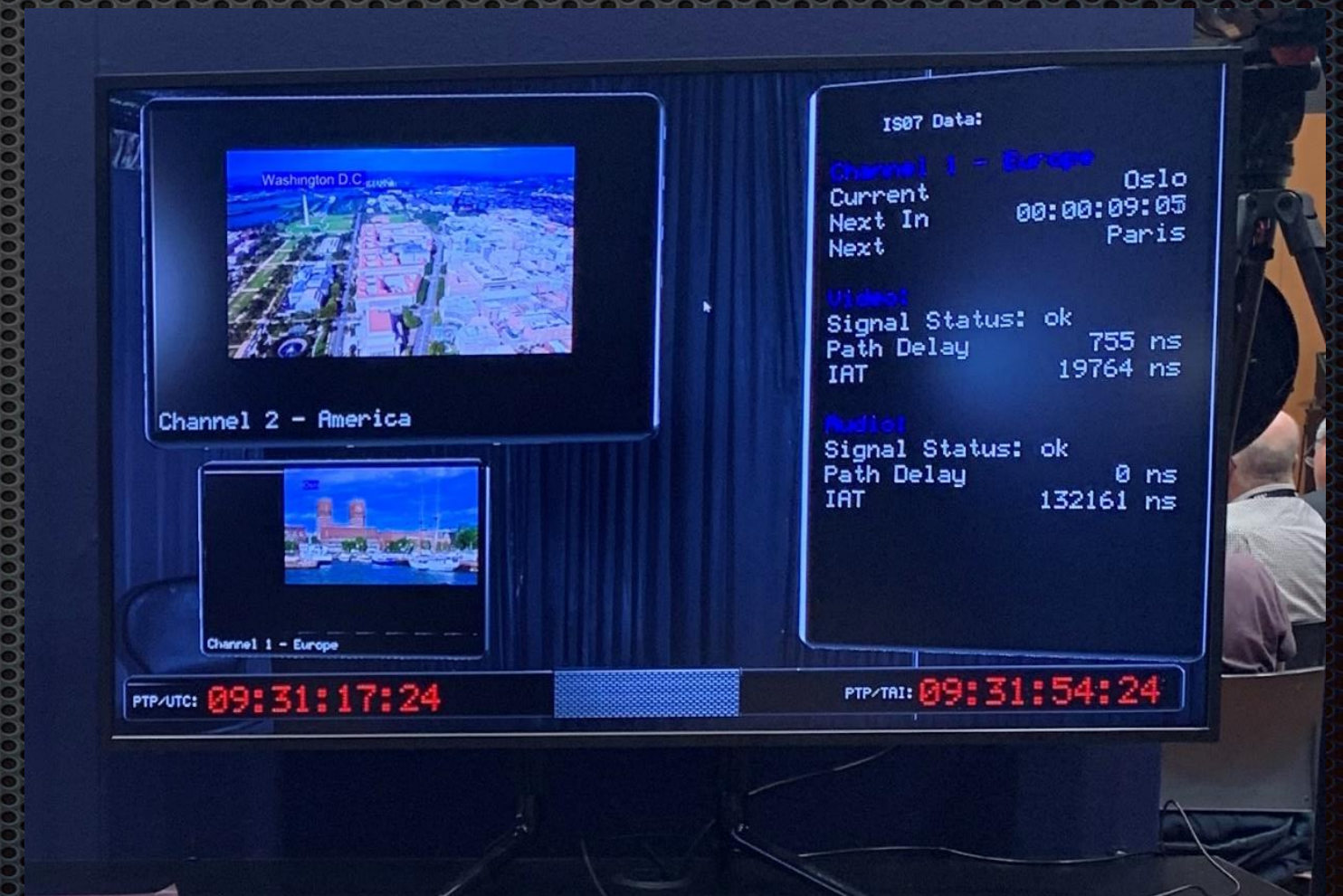
Instrument View

Web-based interfaces for network & production engineers
Detailed stream, network and picture Analytics



Widglets & APIs

Enabling custom media presentation



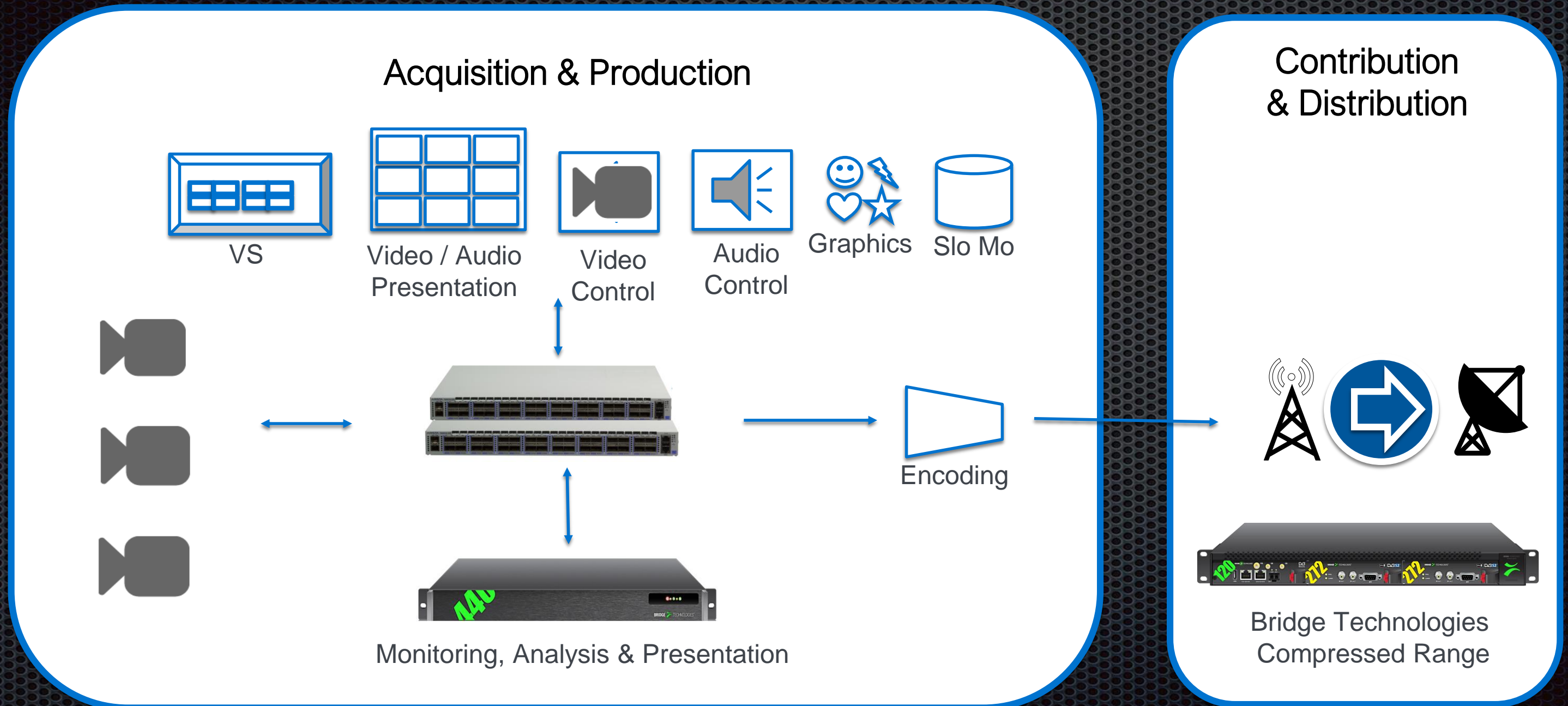
VB440 Applications

(any IP based media facility)

VB440



1. IP-Based MCRs / OB Vans

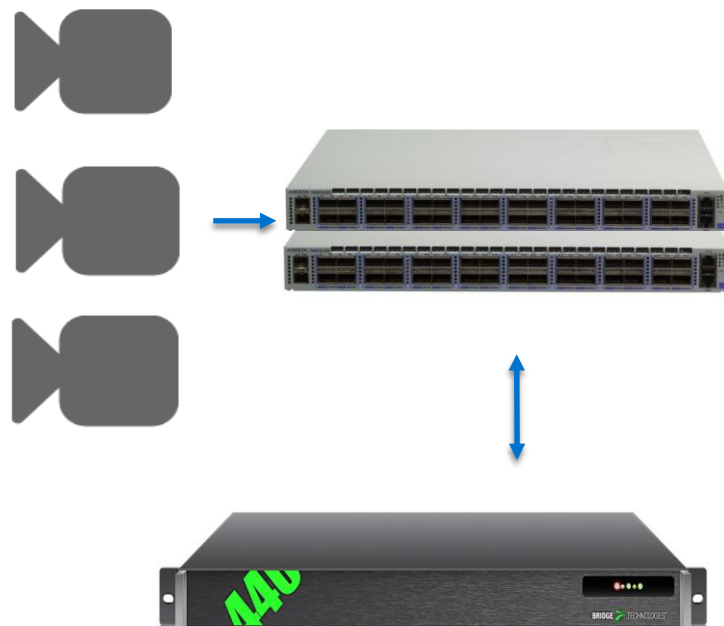


1. Camera Painter Position (OBVan)



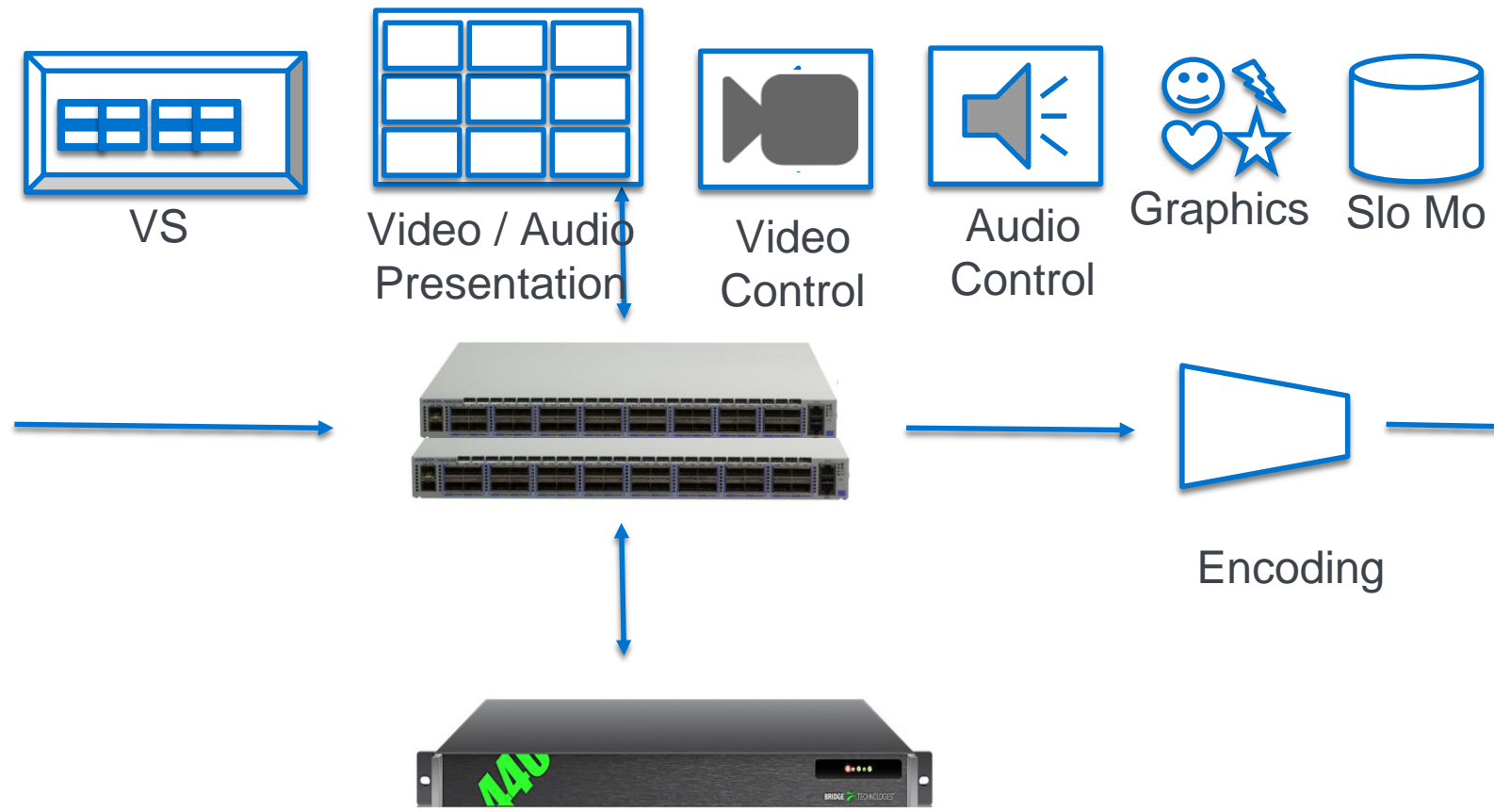
2. Centralised / Remote Production

Acquisition



Analysis & Presentation

Production



Analysis & Presentation

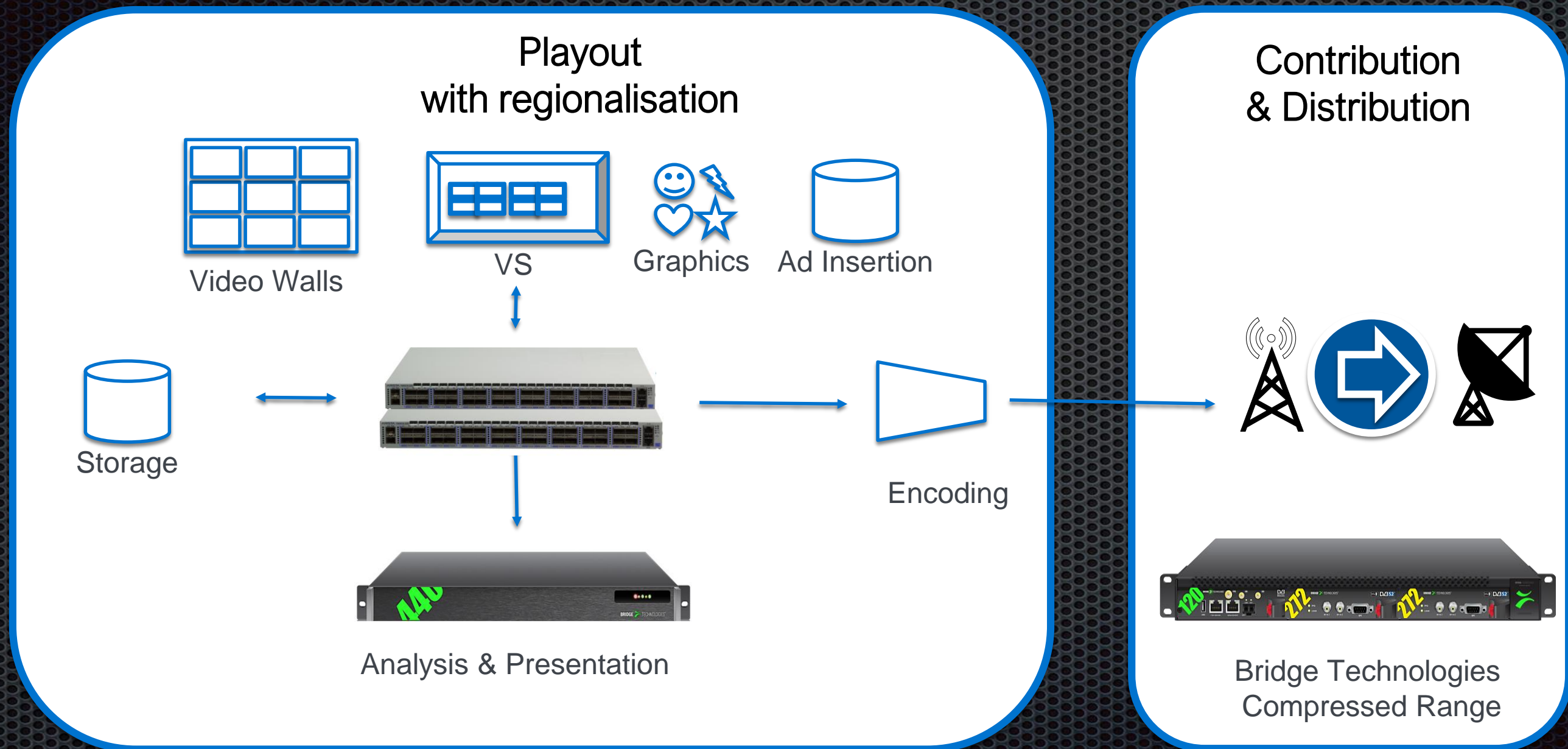
Encoding

Contribution & Distribution



Bridge Technologies
Compressed Range

3. Playout Environments



VB440 Setup, Key Features & Functionality

VB440 Menu

Flows

Service Monitoring & Analytics

Status - Stream and Flow

Network Behavior, Information and Packet Loss

Packet Flow

Video Picture Analytics


Audio Loudness

PTP

Expert View – Setup, Alarming & Historical Performance























Menu & Flows

Flows

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Search...

Show Unmonitored

	Aja@Primary	 8 days	ST 2022-6 SDI/IP	1920x1080p25	239.0.20.9:50020
	Aja@Secondary	 8 days	ST 2022-6 SDI/IP	1920x1080p25	239.0.20.10:50020
	MRD7000 audio	 9 days	ST 2110-30 Audio	16ch 48 kHz	239.192.0.201:10000
	MRD7000 video	 9 days	ST 2110-20 Video	1920x1080p24	239.192.7.200:10000
	Matrox 1 Audio@Primary	 9 days	ST 2110-30 Audio	2ch 48 kHz	239.0.30.1:50030
	Matrox 1 Video@Primary	 9 days	ST 2110-20 Video	1920x1080p50	239.0.20.1:50020
	Matrox 2 Audio@Primary	 9 days	ST 2110-30 Audio	2ch 48 kHz	239.0.30.3:50030
	Matrox 2 Audio@Secondary	 9 days	ST 2110-30 Audio	2ch 48 kHz	239.0.30.4:50030
	Matrox 2 Video@Primary	 9 days	ST 2110-20 Video	1920x1080p50	239.0.20.3:50020
	Matrox 2 Video@Secondary	 9 days	ST 2110-20 Video	1920x1080p50	239.0.20.4:50020
	Matrox 3 Anc@Primary	 9 days	ST 2110-40 Anc.	239.0.40.5:50040	

Services

Services

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Q Search...

Aja

Aja@Primary, Aja@Secondary

MRD7000

MRD7000 audio, MRD7000 video

TestGrp

MRD7000 audio, MRD7000 video, Waterfall Audio

Nordlandsbanen

Matrox 1 Audio@Primary, Matrox 1 Video@Primary

MGP2017

Matrox 2 Audio@Primary, Matrox 2 Audio@Secondary, Matrox 2 Video@Primary, Matrox 2 Video@Secondary

Blender

Matrox 3 Anc@Primary, Matrox 3 Audio@Primary, Matrox 3 Audio@Secondary, Matrox 3@Primary, Matrox 3@Secondary

UHD-1 Test Pattern

Matrox 3 Audio@Primary, Signal Generator@Primary

Telemarkskanalen

Matrox 4 Anc@Primary, Matrox 4 Anc@Secondary, Matrox 4 Audio@Primary, Matrox 4 Audio@Secondary, Matrox 4 Video@Primary, Matrox 4 Video@Secondary

Waterfall

Waterfall Audio, Waterfall UHD Video

Aja

MRD7000

TestGrp

Nordlandsbanen

MGP2017

Blender

UHD-1 Test Pattern

Telemarkskanalen

Waterfall

Service Menu

Status – Service & Flows

MGP2017

< Services

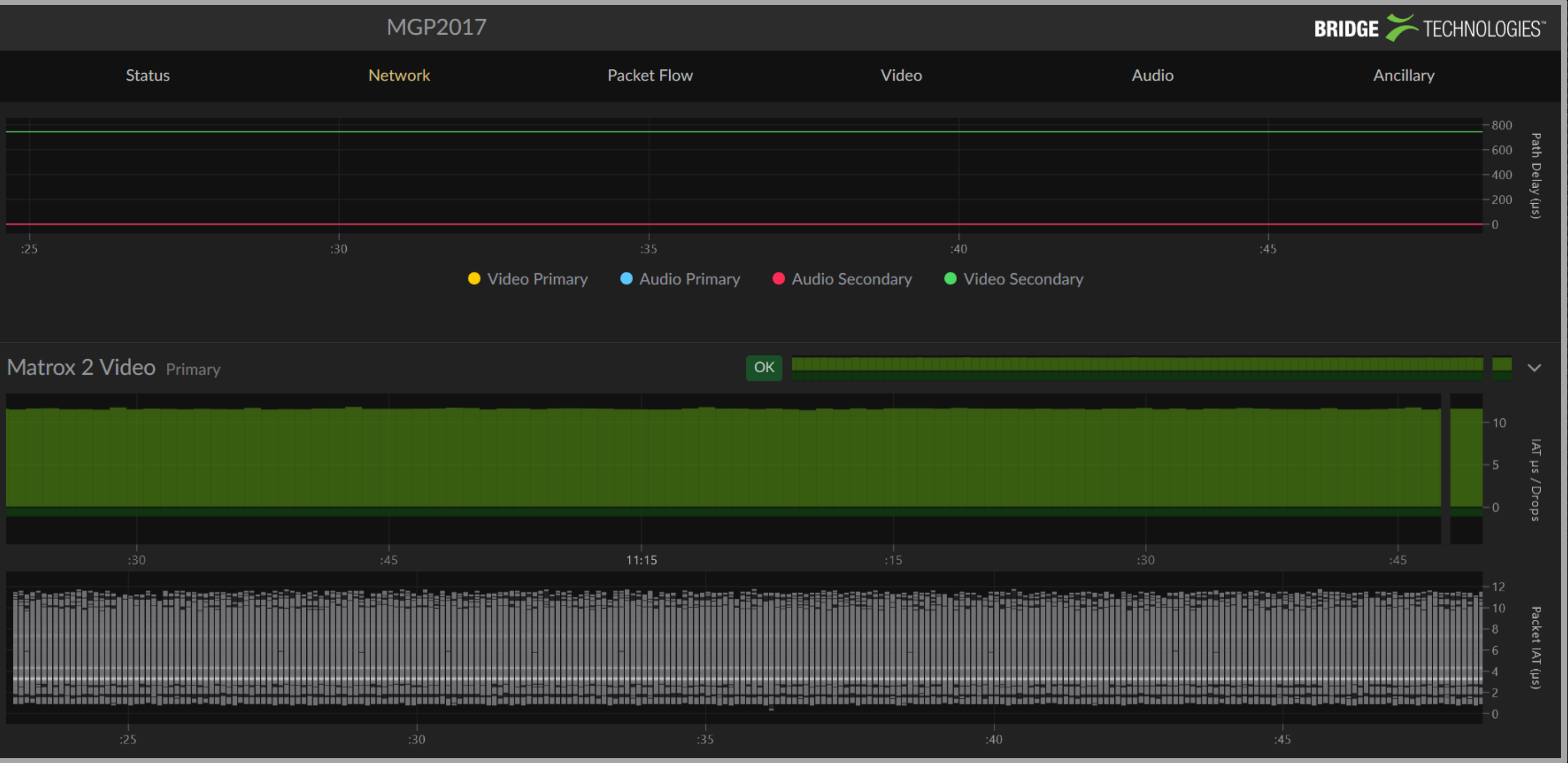
Matrox 2 Video Primary Secondary

VIDEO AUDIO ANC.

- IP 1080p50
- IP 2ch 48kHz
-

Status	Network	Packet Flow	Video	Audio	Ancillary
Matrox 2 Video Primary TRANSPORT FORMAT ST 2110-20 Video RESOLUTION 1920x1080p (16:9) Matrox 2 Video Secondary TRANSPORT FORMAT ST 2110-20 Video RESOLUTION 1920x1080p (16:9)	ERRORS 336191 FRAMERATE 50 frames/s ERRORS 540642 FRAMERATE 50 frames/s	OK BITRATE 2.18 Gbps SAMPLING YCbCr-4:2:2 10-bit Errors BITRATE 2.18 Gbps SAMPLING YCbCr-4:2:2 10-bit	PACKET RATE 205.70 kpps COLORIMETRY Rec. 709 (SDR) PACKET RATE 205.70 kpps COLORIMETRY Rec. 709 (SDR)		
Matrox 2 Audio Primary TRANSPORT FORMAT ST 2110-30 Audio CHANNELS 2	ERRORS 4677 WORD LENGTH 24 bits	OK BITRATE 2.74 Mbps SAMPLE RATE 48 kHz	PACKET RATE 1.00 kpps PACKET TIME 1 ms		

Network Information – Path Delay & IAT

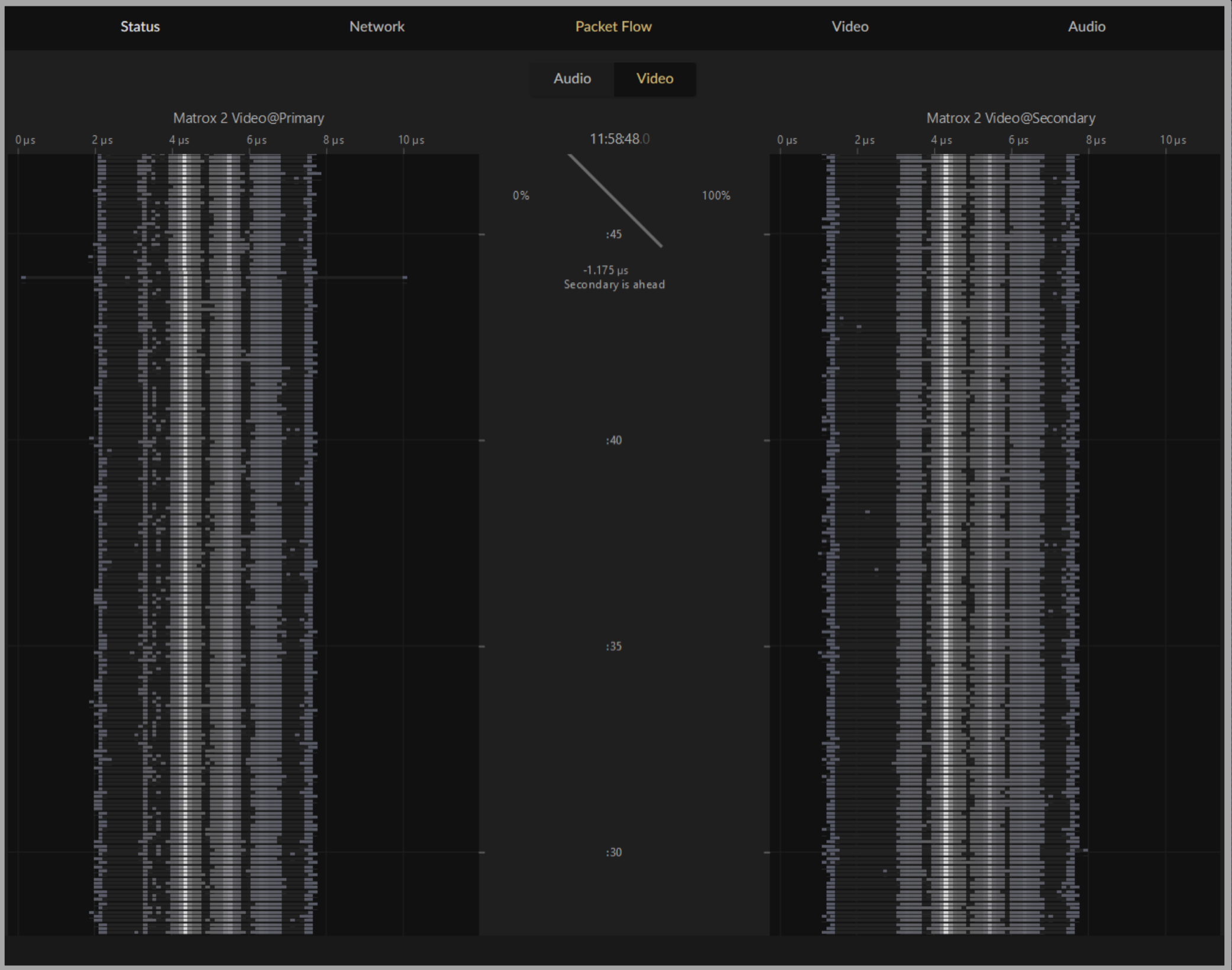


Network Information – Stream Info

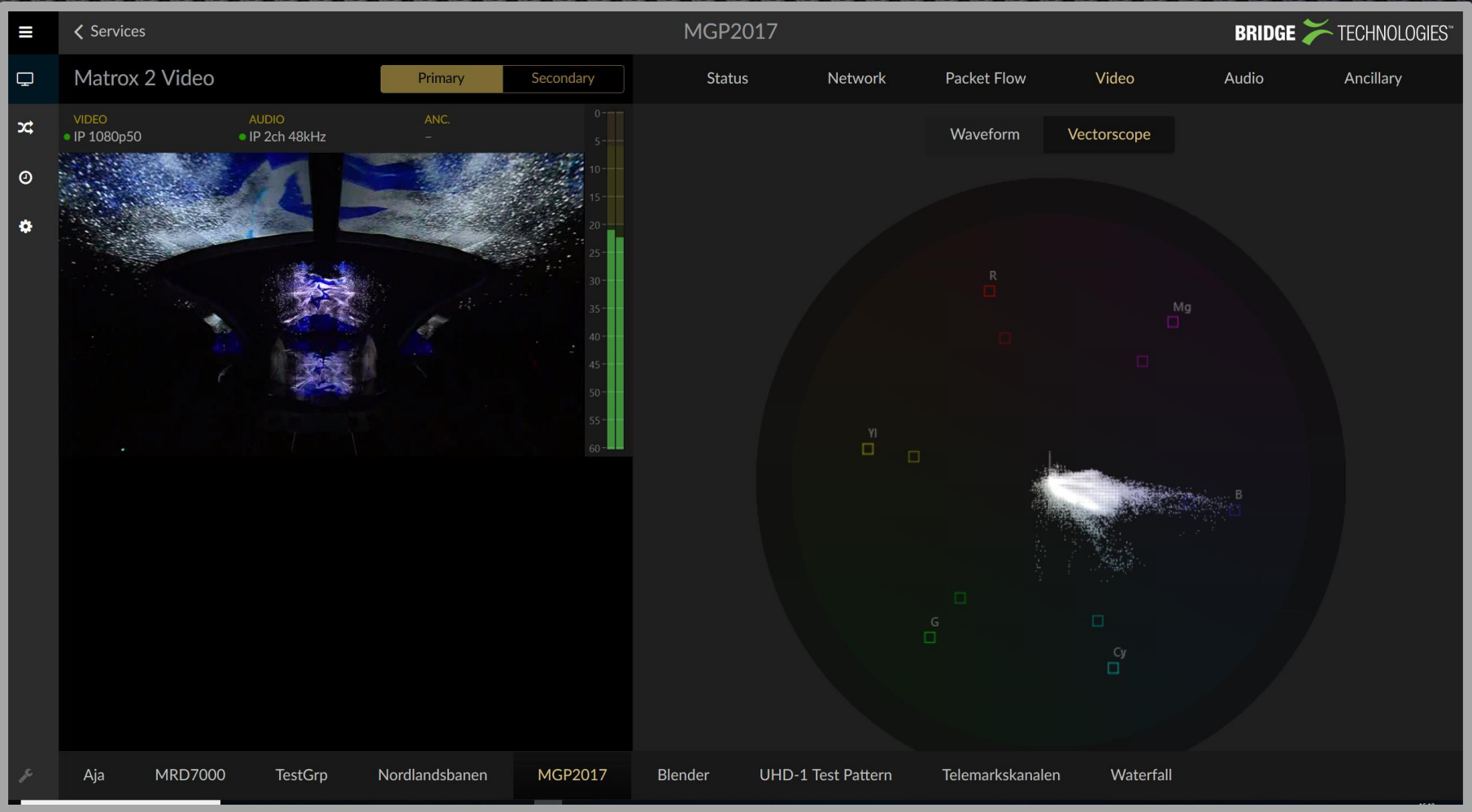
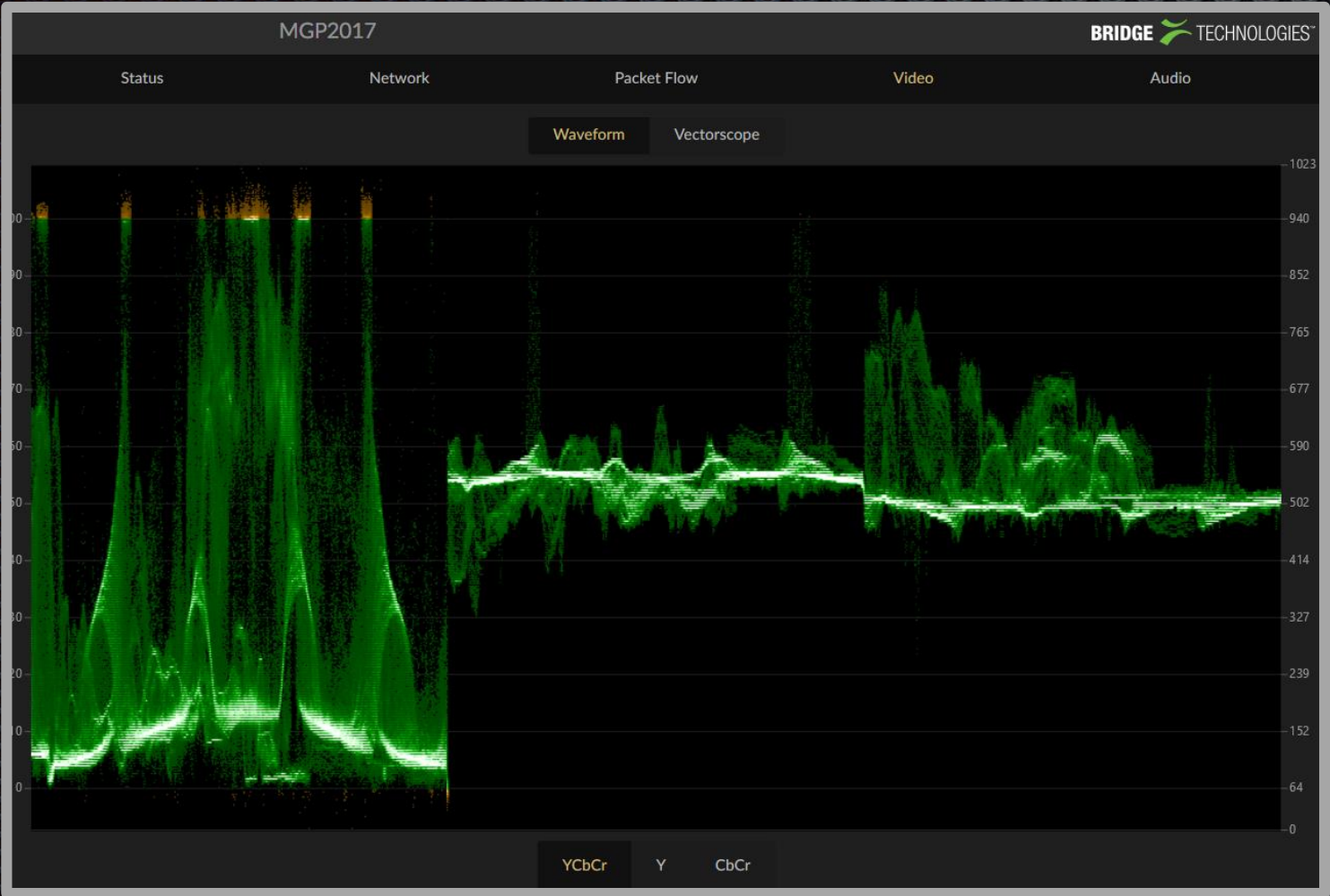
TRANSPORT FORMAT	SIGNAL	IP ADDRESS	INTERFACE
ST 2110-20 Video	4 days	239.0.20.3:50020	Primary up
ERRORS	PACKET LOSS	MALFORMED HEADERS	QUEUE OVERFLOWS
336191	336191	–	–
FEC STATUS	IP SOURCE	MAC SOURCE	IP TTL
–	10.100.0.90	00:20:fc:32:00:c2	128
AVG IAT	MIN IAT	MAX IAT	IP DSCP
4.665 μs	0.013 μs	772.578 ms	25
AVG BITRATE	MIN BITRATE	MAX BITRATE	AVG PACKET RATE
2.18 Gbps	1.83 Gbps	2.54 Gbps	205.70 kpps
AVG DELAY	MIN DELAY	MAX DELAY	RTP PAYLOAD TYPE
744 μs	-174255 μs	47.022 ms	96

 Capture

Packet Flow




Picture & audio analysis



PTP timing

PTP

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Network Status

Status	Network Interface	Speed	Receive Bitrate	PTP State	Time
up	MGMT1 (em1)	1 Gbps	<div><div></div>19 kbps</div>		
up	MGMT2 (em2)	1 Gbps	<div><div></div>6 kbps</div>		
up	Primary (p6p1)	100 Gbps	<div><div></div>36.3 Gbps</div>	● Slave	2019-06-05 16:09:18 ↻
down	Secondary (p6p2)	–			2019-06-05 16:09:18 ↻

PTP Clocks

Domain	Preference	Grand Master	Clock Identity	Vendor	Time Delta	Time Source	Clock Class	Accuracy	Network
127	1 ★	00:09:0d:ff:fe:00:df:20	24:8a:07:ff:fe:7e:3e:c8	Mellanox Technolog...	0.2 μs	GPS (32)	● Synchronized (6)	± 100 ns (33)	Primary
127	2	00:09:0d:ff:fe:00:df:20	24:8a:07:ff:fe:7e:3e:c8	Mellanox Technolog...	0.2 μs	GPS (32)	● Synchronized (6)	± 100 ns (33)	Secondary

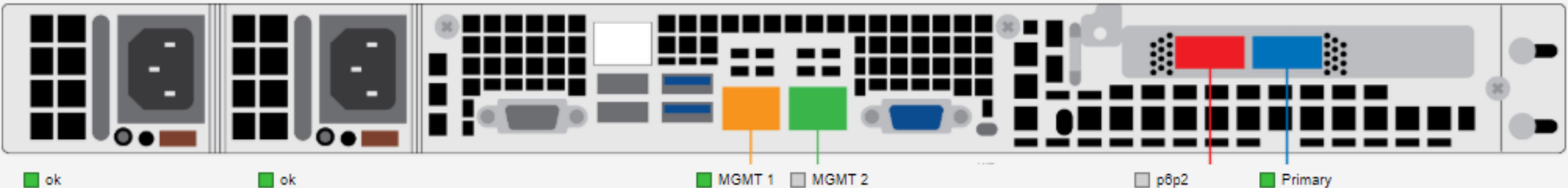
★ denotes the currently elected clocks

Expert View Overview



Main Alarms Multicasts MW RDP Traffic Ethernet Setup Data About

Summary CPU usage Eii graphing



NTP/timesync ■
Updated: 1 secs ago
Freq offset: -7.129 ppm
Timezone: CET
Time: Jan 7 13:41:15

Counters and alarms
Last cleared:

Probe
Name: demoprobe
Location:
Access: Read-only

Traffic
RX data: 6.531 Gbps
Monitored data: 6.531 Gbps

ETH Info
Joined: 24
Unicasts: 0
Multicasts: 2
IGMP ver: 3
VLAN tag: Disabled

ETH Alarms per type
No signal: 2 ■
CC skips: 0 ■
MLR >= thresh: 0 ■
IAT >= thresh: 0 ■
RTP alarms: 0 ■
Other alarms: 0 ■

OTT Info
Channels: 0
Profiles: 0

Network interfaces

Interface	Link	Speed	Description	IPv4 address	IPv6 address	Timestamp
em1	■	1.000 Gbps	Internet-facing Management	185.102.108.142/22	fe80::3bd6:d3ca:3f5e:217f%em1...	kernel
em2	■	n/a	em2			kernel
p6p1	■	100.000 Gbps	Primary	10.100.0.37/16	fe80::ee0d:9aff:fea4:cd2a%p6p1...	hardware
p6p2	■	n/a	p6p2			hardware

Expert View Setup

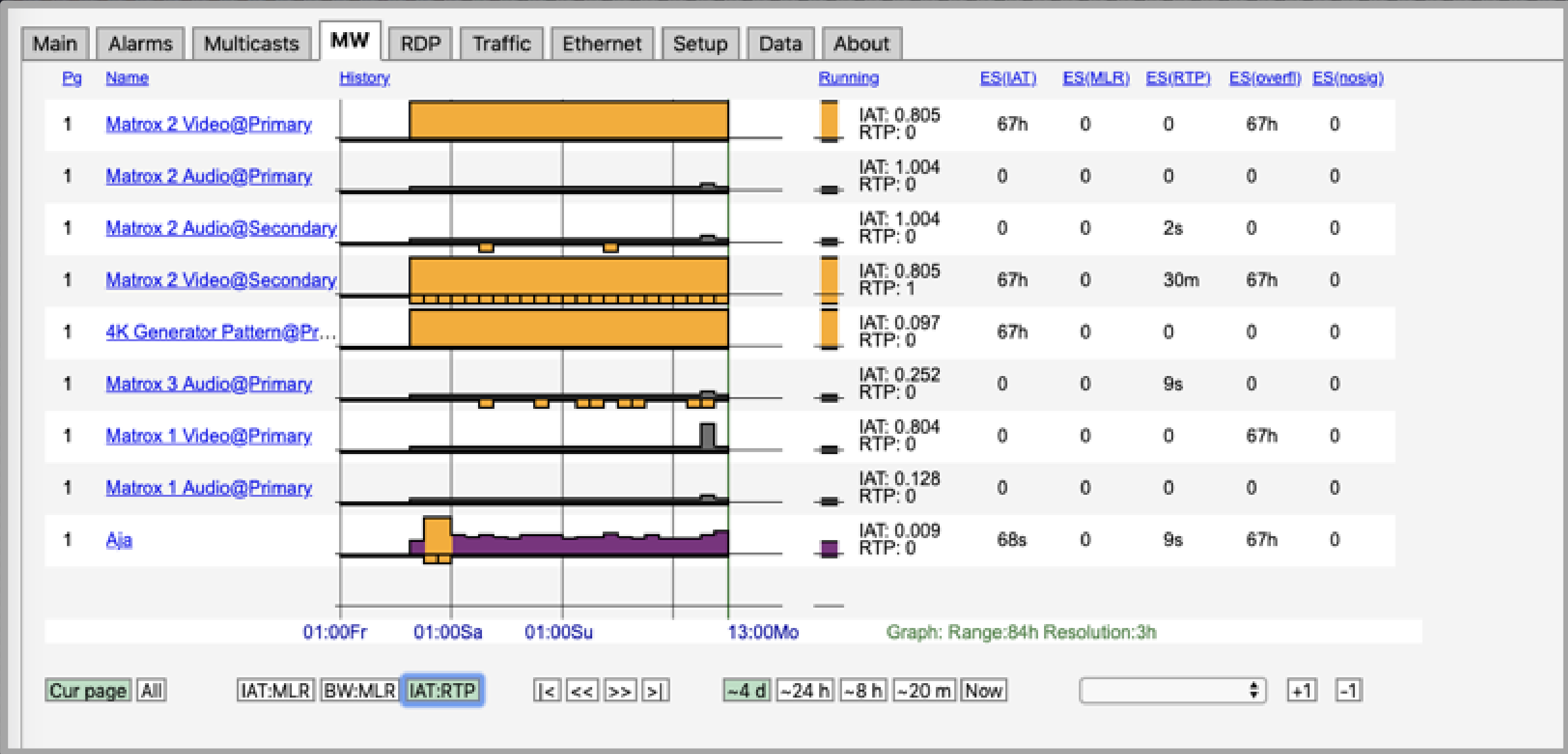
Edit Multicast

GeneralSSMETRUncompressed

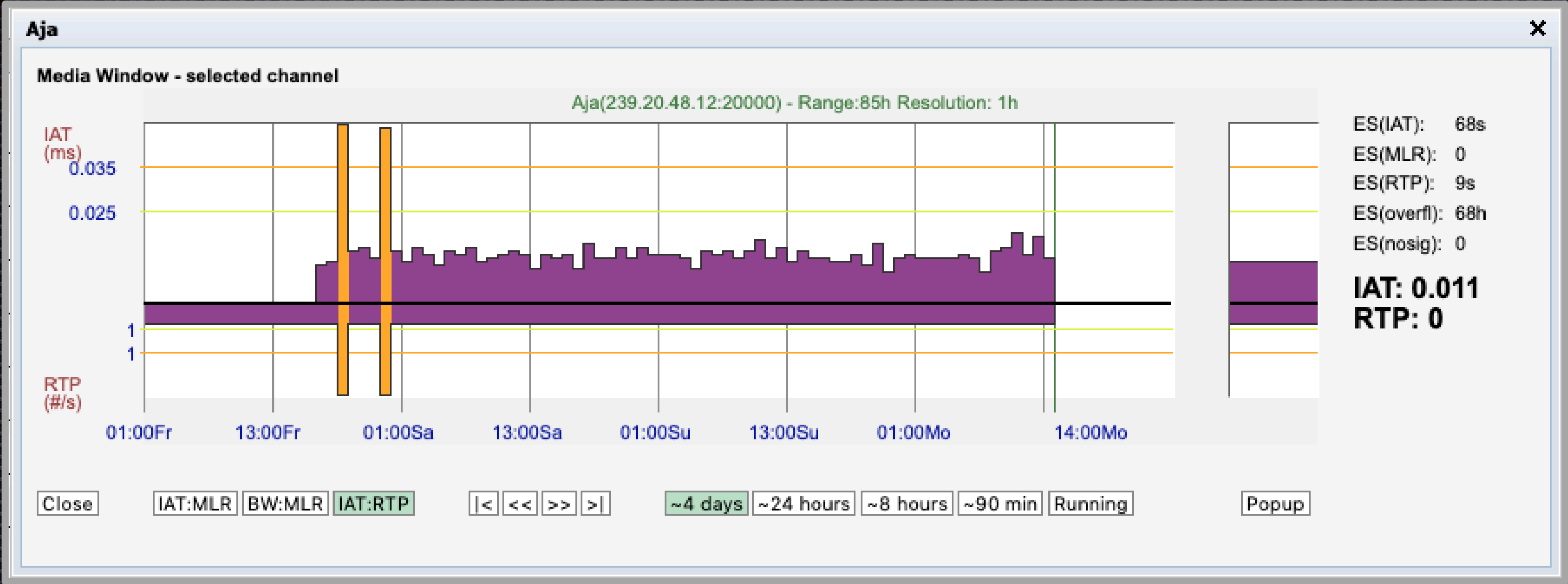
Property	Value	Description
Name	Matrox 2 Video@Seconds	Identifier for referring to this stream
Group Names	MGP2017	Groups that this stream belongs to
Address	239.0.20.4	Multicast/unicast address
Port	50020	Multicast/unicast port
Ethernet thresholds	VB440 Training	Defined in Multicasts/Ethernet thresh.
VBC thresholds	Default	Defined in Setup/VBC thresh
Join stream	<input checked="" type="checkbox"/>	Check to monitor stream
Join interface	p6p1 - Primary	On which interface to monitor stream
Page	Page 1	On which page to display stream

Expert View

Comparative network performance



4 Day historical view



RTP performance analysis

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Main
Alarms
Multicasts
MW
RDP
Traffic
Ethernet
Setup
Data
About

Parameters
Summary
History
Detect
NMOS
Join
Streams
Ethernet thresh.

Joined multicasts

Name	Signal	Page	CPU	Input	Mapping	RTP drops	RTP dups	RTP ooo	RTP lag	Min I	Jitter	Hole sep	Num holes
Matrox 2 Video@Pri...	4d	1	24	p6p1	ST 211...	336191	0	0	0	1			
Matrox 2 Audio@Pri...	13d	1	24	p6p1	ST 211...	4677	0	0	0	46			
Matrox 2 Audio@Se...	131m	1	24	p6p1	ST 211...	5098	0	0	0	1			
Matrox 2 Video@Se...	3d	1	24	p6p1	ST 211...	540694	0	0	0	1			
Signal Generator@...	-----	1	24	-	-----	0	0	0	0	0			
Matrox 3 Audio@Pri...	21h	1	24	p6p1	ST 211...	5628	0	0	0	1	953	>= 65535	28
Matrox 3 Audio@Se...	4d	1	24	p6p1	ST 211...	3331	0	0	0	11	756	>= 65535	10
Matrox 3@Primary	43h	1	24	p6p1	ST 211...	239171	0	0	0	1	55131	17407	4869
Matrox 3@Secondary	28h	1	24	p6p1	ST 211...	326716	0	0	0	1	62576	>= 65535	16
Matrox 1 Video@Pri...	12h	1	24	p6p1	ST 211...	320869	0	0	0	1	58304	>= 65535	20
Accumulated	131m		1		n/a	1782375	0	0	0	1	63158	1	16169

Alarm Tables & Summaries

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Blade alarms

Select by location

Site:

Blade: All

Select by alarm

☐ Show only Active alarms

VBC alarm: IAT error

Select by stream info

Stream name:

Service name:

PID:

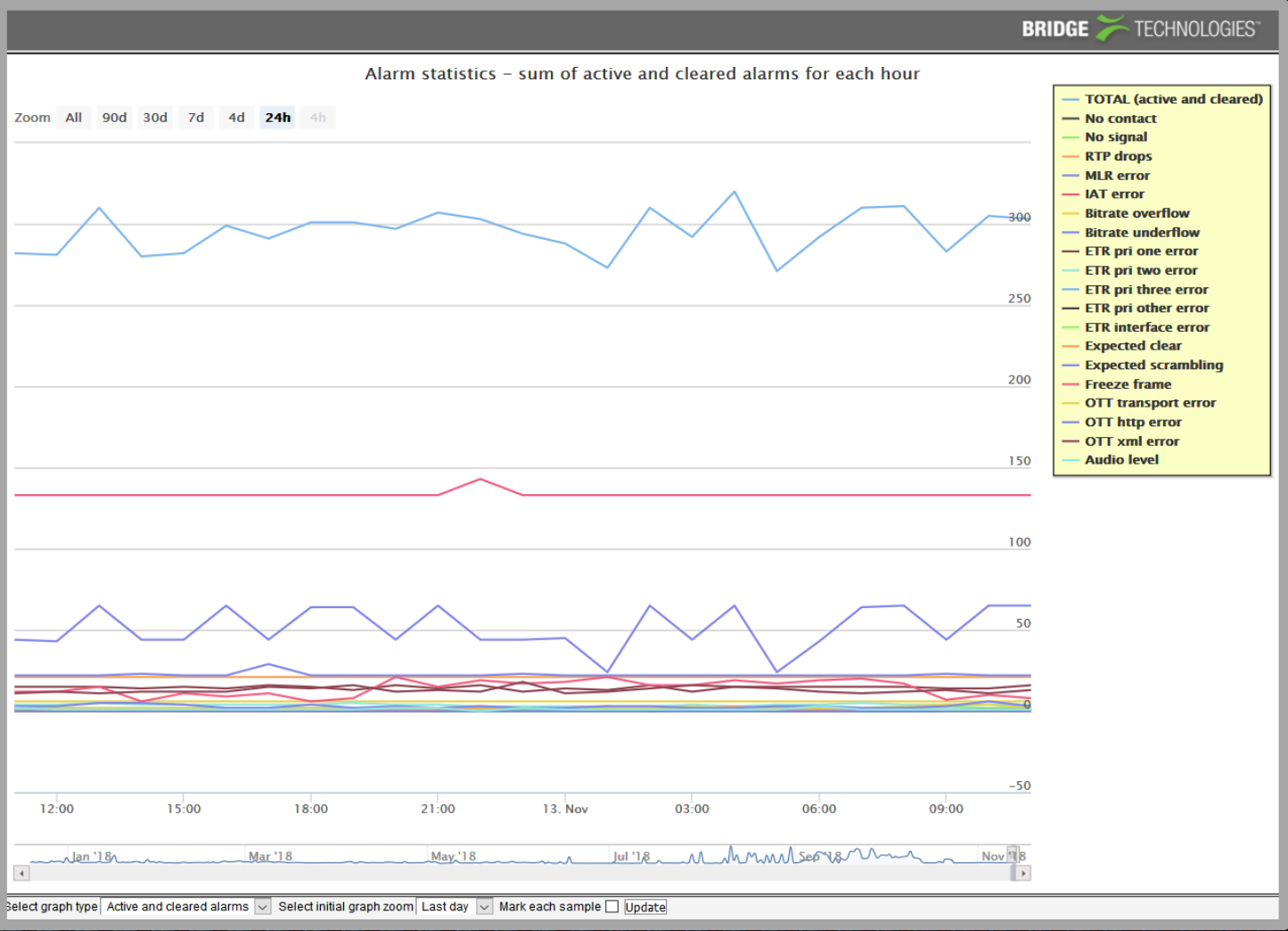
Select by time

Start time:

End time:

Alarms active in selected period will be shown

#	Sev	Status	Time	Site	Blade	Interface	Stream	VBC alarm	Description
1	0	Cleared	Nov 13 11:21:52 - Nov 13 11:22:03	VB220-V...	ASI-COFDM	IPTV	Fox HD	IAT error	IAT >= warning-threshold (45.032 >= 45)
2	0	Cleared	Nov 13 11:18:25 - Nov 13 11:18:36	VB220-V...	ASI-COFDM	IPTV	Fox HD	IAT error	IAT >= warning-threshold (47.973 >= 45)
3	0	Cleared	Nov 13 11:12:55 - Nov 13 11:13:06	VB220-V...	ASI-COFDM	IPTV	Fox HD	IAT error	IAT >= error-threshold (54.055 >= 50)
4	0	Cleared	Nov 13 10:59:49 - Nov 13 11:00:00	VB220-V...	ASI-COFDM	IPTV	Fox HD	IAT error	IAT >= error-threshold (50.772 >= 50)
5	0	Cleared	Nov 13 10:59:41 - Nov 13 10:59:52	VB220-V...	ASI-COFDM	IPTV	Fox HD	IAT error	IAT >= warning-threshold (47.505 >= 45)
6	0	Cleared	Nov 13 10:50:54 - Nov 13 10:50:58	VB120	VB120	IPTV	Nat Geo Wild HD	IAT error	IAT >= error-threshold (172.458 >= 50) (IAT >= error-threshold (188.962 >=...
7	0	Cleared	Nov 13 10:50:54 - Nov 13 10:50:58	VB120	VB120	IPTV	HISTORY HD	IAT error	IAT >= error-threshold (190.093 >= 50) (IAT >= error-threshold (194.957 >=...
8	0	Cleared	Nov 13 09:31:35 - Nov 13 09:31:46	VB220-V...	ASI-COFDM	IPTV	Fox HD	IAT error	IAT >= warning-threshold (49.991 >= 45)
9	0	Cleared	Nov 13 09:28:46 - Nov 13 09:28:57	VB220-V...	ASI-COFDM	IPTV	Fox HD	IAT error	IAT >= warning-threshold (47.371 >= 45)
10	0	Cleared	Nov 13 09:20:52 - Nov 13 09:20:57	VB120	VB120	IPTV	Nat Geo Wild HD	IAT error	IAT >= error-threshold (188.381 >= 50) (IAT >= error-threshold (188.463 >=...
11	0	Cleared	Nov 13 09:20:52 - Nov 13 09:20:57	VB120	VB120	IPTV	HISTORY HD	IAT error	IAT >= error-threshold (195.202 >= 50) (IAT >= error-threshold (196.947 >=...
12	0	Cleared	Nov 13 09:07:23 - Nov 13 09:07:34	VB220-V...	ASI-COFDM	IPTV	Fox HD	IAT error	IAT >= error-threshold (56.012 >= 50)
13	0	Cleared	Nov 13 08:46:10 - Nov 13 08:46:21	VB220-V...	ASI-COFDM	IPTV	Fox HD	IAT error	IAT >= warning-threshold (47.660 >= 45)
14	0	Cleared	Nov 13 07:50:51 - Nov 13 07:50:55	VB120	VB120	IPTV	Nat Geo Wild HD	IAT error	IAT >= error-threshold (168.098 >= 50) (IAT >= error-threshold (196.903 >=...
15	0	Cleared	Nov 13 07:50:51 - Nov 13 07:50:55	VB120	VB120	IPTV	HISTORY HD	IAT error	IAT >= error-threshold (187.940 >= 50)
16	0	Cleared	Nov 13 07:29:53 - Nov 13 07:30:04	VB220-V...	ASI-COFDM	IPTV	Fox HD	IAT error	IAT >= warning-threshold (46.334 >= 45)
17	0	Cleared	Nov 13 07:28:22 - Nov 13 07:28:33	VB220-V...	ASI-COFDM	IPTV	Fox HD	IAT error	IAT >= error-threshold (55.354 >= 50)
18	0	Cleared	Nov 13 06:56:41 - Nov 13 06:56:52	VB220-V...	ASI-COFDM	IPTV	Fox HD	IAT error	IAT >= warning-threshold (49.233 >= 45)
19	0	Cleared	Nov 13 06:20:49 - Nov 13 06:20:54	VB120	VB120	IPTV	Nat Geo Wild HD	IAT error	IAT >= error-threshold (180.131 >= 50)
20	0	Cleared	Nov 13 06:20:49 - Nov 13 06:20:54	VB120	VB120	IPTV	HISTORY HD	IAT error	IAT >= error-threshold (171.358 >= 50) (IAT >= error-threshold (178.042 >=...
21	0	Cleared	Nov 13 06:12:51 - Nov 13 06:13:02	VB220-V...	ASI-COFDM	IPTV	Fox HD	IAT error	IAT >= warning-threshold (48.056 >= 45)
22	0	Cleared	Nov 13 05:46:40 - Nov 13 05:46:51	VB220-V...	ASI-COFDM	IPTV	Fox HD	IAT error	IAT >= error-threshold (55.529 >= 50)
23	0	Cleared	Nov 13 04:52:31 - Nov 13 04:52:42	VB220-V...	ASI-COFDM	IPTV	Fox HD	IAT error	IAT >= error-threshold (50.783 >= 50)
24	0	Cleared	Nov 13 04:50:48 - Nov 13 04:50:52	VB120	VB120	IPTV	Nat Geo Wild HD	IAT error	IAT >= error-threshold (168.480 >= 50) (IAT >= error-threshold (191.445 >=...
25	0	Cleared	Nov 13 04:50:48 - Nov 13 04:50:52	VB120	VB120	IPTV	HISTORY HD	IAT error	IAT >= error-threshold (196.496 >= 50)
26	0	Cleared	Nov 13 04:46:11 - Nov 13 04:46:22	VB220-V...	ASI-COFDM	IPTV	Fox HD	IAT error	IAT >= warning-threshold (46.636 >= 45)
27	0	Cleared	Nov 13 04:05:55 - Nov 13 04:06:06	VB220-V...	ASI-COFDM	IPTV	Fox HD	IAT error	IAT >= error-threshold (55.804 >= 50)
28	0	Cleared	Nov 13 04:05:37 - Nov 13 04:05:48	VB120	VB120	IPTV	TV3 HD (N)	IAT error	IAT >= error-threshold (175.796 >= 50)
29	0	Cleared	Nov 13 04:03:56 - Nov 13 04:04:07	VB220-V...	ASI-COFDM	IPTV	Fox HD	IAT error	IAT >= error-threshold (50.027 >= 50)
30	0	Cleared	Nov 13 03:31:56 - Nov 13 03:32:07	VB220-V...	ASI-COFDM	IPTV	Fox HD	IAT error	IAT >= warning-threshold (46.279 >= 45)
31	0	Cleared	Nov 13 03:20:46 - Nov 13 03:20:51	VB120	VB120	IPTV	Nat Geo Wild HD	IAT error	IAT >= error-threshold (188.858 >= 50)
32	0	Cleared	Nov 13 03:20:46 - Nov 13 03:20:51	VB120	VB120	IPTV	HISTORY HD	IAT error	IAT >= error-threshold (170.980 >= 50) (IAT >= error-threshold (197.475 >=...
33	0	Cleared	Nov 13 02:46:58 - Nov 13 02:47:09	VB220-V...	ASI-COFDM	IPTV	Fox HD	IAT error	IAT >= warning-threshold (46.512 >= 45)
34	0	Cleared	Nov 13 02:20:17 - Nov 13 02:20:18	VB220-V...	ASI-COFDM	IPTV	Sky Calcio 8 HD	IAT error	IAT >= error-threshold (203.344 >= 50)
35	0	Cleared	Nov 13 02:20:17 - Nov 13 02:20:18	VB220-V...	ASI-COFDM	IPTV	NDR FS HH HD	IAT error	IAT >= error-threshold (182.767 >= 50)
36	0	Cleared	Nov 13 02:20:17 - Nov 13 02:20:18	VB220-V...	ASI-COFDM	IPTV	NDR FS NDS HD	IAT error	IAT >= error-threshold (188.038 >= 50)
37	0	Cleared	Nov 13 02:20:17 - Nov 13 02:20:18	VB220-V...	ASI-COFDM	IPTV	C More Golf HD (D)	IAT error	IAT >= error-threshold (193.563 >= 50)
38	0	Cleared	Nov 13 02:19:42 - Nov 13 02:19:53	VB220-V...	ASI-COFDM	IPTV	Sky Calcio 8 HD	IAT error	IAT >= error-threshold (165.465 >= 50)
39	0	Cleared	Nov 13 02:19:42 - Nov 13 02:19:53	VB220-V...	ASI-COFDM	IPTV	NDR FS HH HD	IAT error	IAT >= error-threshold (170.410 >= 50)
40	0	Cleared	Nov 13 02:19:42 - Nov 13 02:19:53	VB220-V...	ASI-COFDM	IPTV	NDR FS NDS HD	IAT error	IAT >= error-threshold (191.764 >= 50)
41	0	Cleared	Nov 13 02:19:42 - Nov 13 02:19:53	VB220-V...	ASI-COFDM	IPTV	C More Golf HD (D)	IAT error	IAT >= error-threshold (176.800 >= 50)
42	0	Cleared	Nov 13 01:50:45 - Nov 13 01:50:49	VB120	VB120	IPTV	Nat Geo Wild HD	IAT error	IAT >= error-threshold (187.126 >= 50) (IAT >= error-threshold (192.109 >=...
43	0	Cleared	Nov 13 01:50:45 - Nov 13 01:50:49	VB120	VB120	IPTV	HISTORY HD	IAT error	IAT >= error-threshold (174.160 >= 50) (IAT >= error-threshold (186.227 >=...
44	0	Cleared	Nov 13 01:42:38 - Nov 13 01:42:49	VB220-V...	ASI-COFDM	IPTV	Fox HD	IAT error	IAT >= warning-threshold (46.852 >= 45)
45	0	Cleared	Nov 13 01:10:14 - Nov 13 01:10:25	VB220-V...	ASI-COFDM	IPTV	Fox HD	IAT error	IAT >= warning-threshold (49.788 >= 45)
46	0	Cleared	Nov 13 00:43:36 - Nov 13 00:43:47	VB220-V...	ASI-COFDM	IPTV	Fox HD	IAT error	IAT >= warning-threshold (46.341 >= 45)
47	0	Cleared	Nov 13 00:20:43 - Nov 13 00:20:48	VB120	VB120	IPTV	Nat Geo Wild HD	IAT error	IAT >= error-threshold (195.731 >= 50)
48	0	Cleared	Nov 13 00:20:43 - Nov 13 00:20:48	VB120	VB120	IPTV	HISTORY HD	IAT error	IAT >= error-threshold (196.281 >= 50)



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