

IBC ROSS NEWS

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Production Switchers and Video Servers



Ross' Triple Track Roadmap

Ross is devoted to three tracks at once, Individual, HCS and Cloud & Virtualized Software.

Delivering Exceptional Video Experiences

OPTIMIZED



Individual Optimized

- Individual Optimized
- Sell on their own or part of a solution
- Can be “Hyperconverged” in their own right

Hyperconverged On-Prem

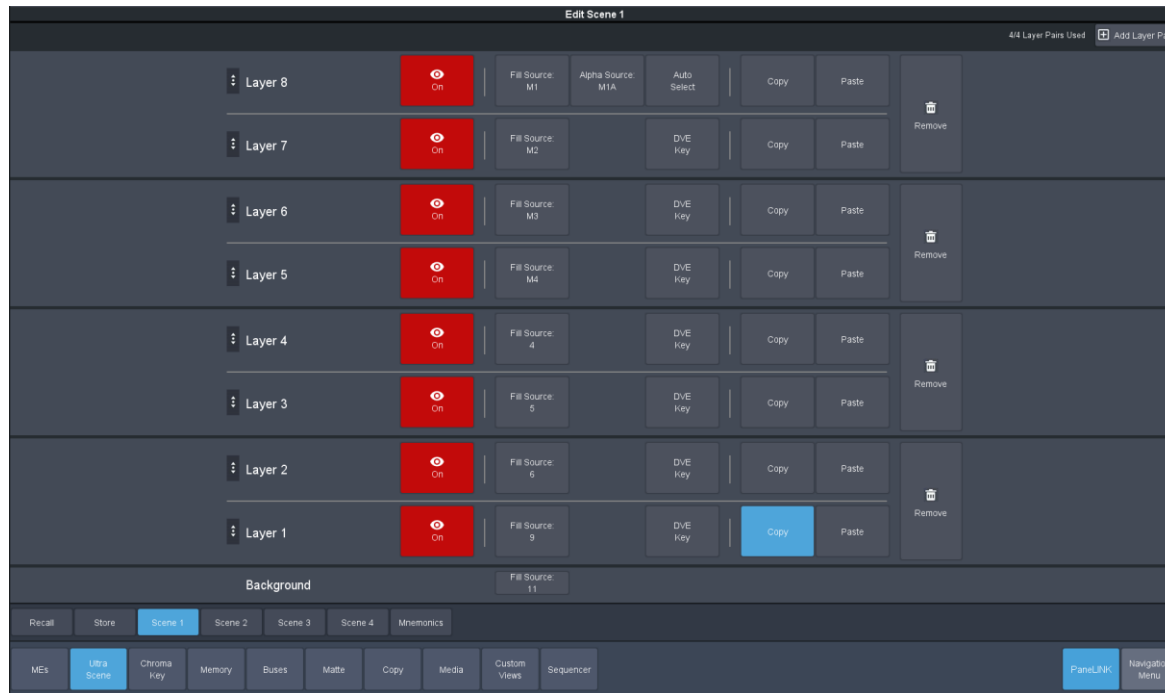
- Blend of Hardware and Software based processing
- Based around Ultrix as a Key Platform
- Leverages Ross' hardware expertise and ability for very efficient and cost-effective real-time processing.

Cloud & Virtualized Software

- Predominantly Virtualized CPU based processing
- Leverages public and private cloud technology.

CARBONITE Ultra

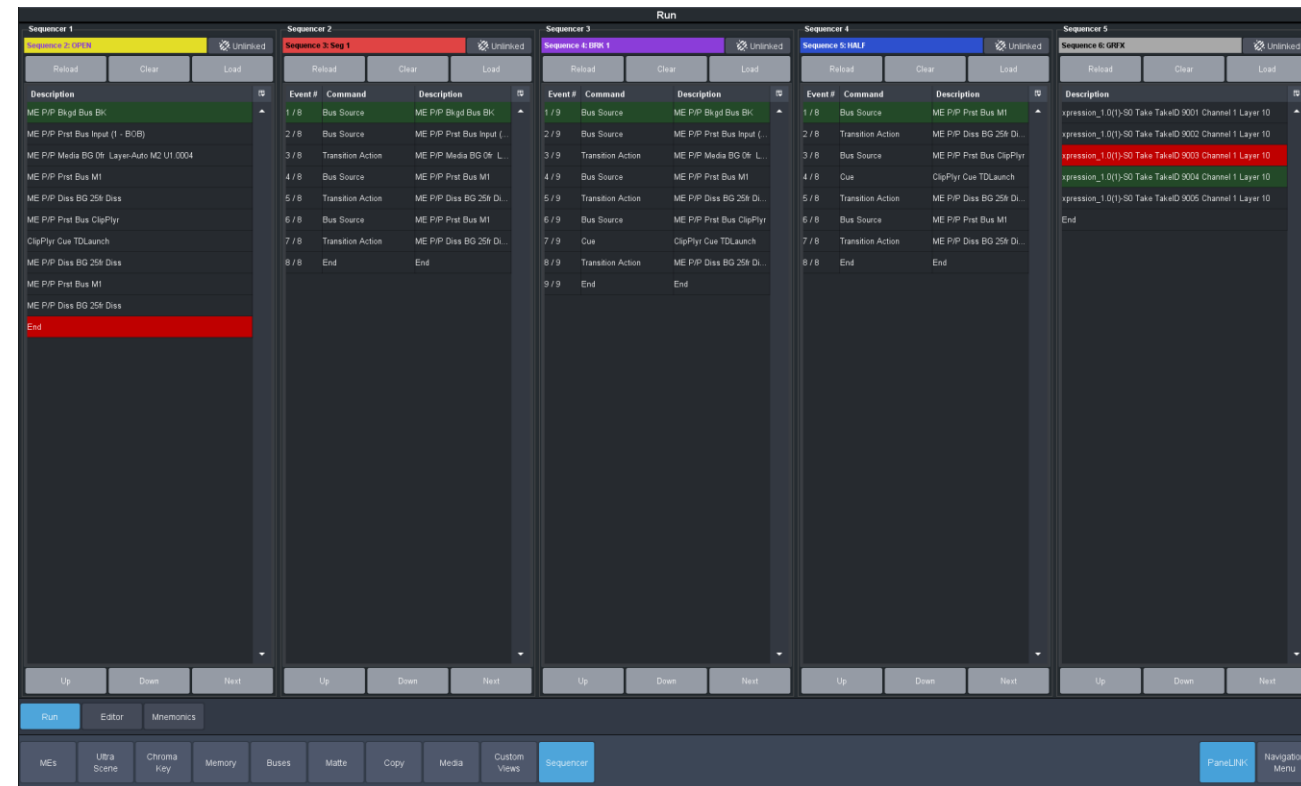
Ultrascene – New layering tool, HD Only



- UltraScene enables users to build simple compositions using layers and a background
- Layers can be added in pairs and up to 4 independent 2 layer scenes can be created
- All Layers can be combined into a single composition
- UltraScene can be independently Recalled using Effects dissolves which includes dynamic assignment recalls
- Scenes can be included with memory recalls for full Attribute control however layer/scene configuration will not be modified

Sequencers – simple event automation

- Drop sequences of tasks / events / device controls onto a DashBoard Playout sequencer
- Multiple Sequencers can be linked or run independently
- Custom Controls and RossTalk can Load / Advance and “Next” sequencers
- Create Repeatable Simple Show productions without the complexity of knowing which button to press next!



Output Rotators –Ultra and in HD ONLY



- With portrait hung monitors onset becoming more common a new Switcher Mode will allow users to trade resources for the ability (on 3 select outputs) to Rotate the display and select the region of interest to Crop.
- FSFC count drops to 12 to activate the required resources.

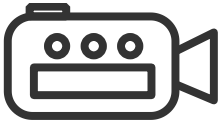
HYPERCONVERGED



Hyperconvergence Definition

Combining what were formerly multiple independent products into a unified, software-defined package that works together.

The Past



Video Camera



Camera



Calculator



Phone



GPS



Computer

The Present

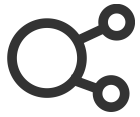


Smart Phone



Smart Phone Applications

Hyperconvergence Advantages



Simplicity



Flexibility



Sustainability



Lower TCO



Extended life



Streamline
Workflows

Hyperconvergence-Simplicity

One platform, endless configurations



Ultrix FR5



Signal Routing



Audio Processing



Multiviewers



SDI/IP signal processing

Production Switching

Mixing

Functionality enabled with Hyperconverged blades:

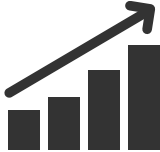
Hyperconvergence Platform-Streamlined Workflows



Simpler setup



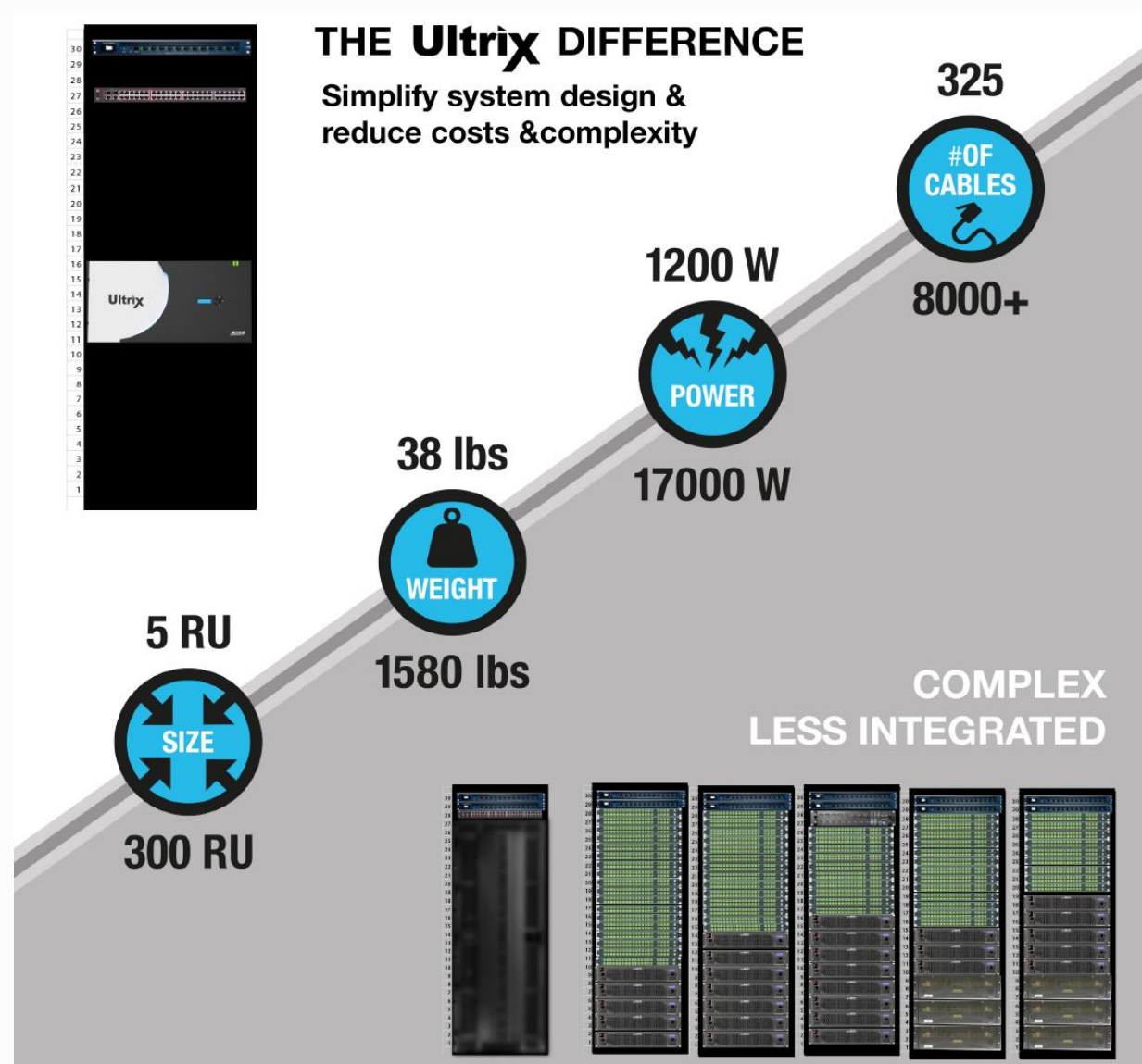
Reuse of
control clients



Tighter integration =
more productivity

Hyperconverged: sustainability

- Less Power
- Less HW lowers space/cooling requirements
- SW features extend useable product life
- Decrease weight lowers shipping and remote production impacts



Ultrix

Ultrix |

Ultra Powerful, Interconnected Routing, Multiviewer, Processing Platform

Software Enabled SmartFabric:

- Complexity made Simple
- Expand capabilities as requirements change

Robust Design:

- Maximum reliability within a super compact platform offering superior functionality as future demands

World's First 12G Platform:

- True 12G router
- 12G Software Defined Multiviewer
- 12G Clean/Quiet Switch
- 12G audio processing platform
- 12G software defined UHD Gearbox

Ultrix |

Ultra Powerful, Interconnected Routing,
Multiviewer, Processing Platform

4 Frame Sizes

- 1RU: Up to 36x36
- 2RU: Up to 72x72
- 5RU: Up to 160x160
- 12RU: Up to 288x288

SmartFabric



What's New?

ULTRIX-FR12

Ultrix | FR12

- EXTENDS ULTRIX I/O CAPACITY WHILE MAINTAINING ALL ITS CAPABILITY
- SAME I/O BOARDS AS 1RU, 2RU, & 5RU CHASSIS
- NEW FRAME ENHANCEMENTS
- GROUNDBREAKING NEW FRONT DOOR
- REVOLUTIONARY PRICE/PERFORMANCE



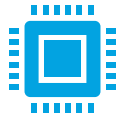
Ultrix | FR12-Greater capacity

Ports



- Up to 288x288
- 6144x6144 Audio Fabric with Up to 2048x2048 Discrete audio I/O
- Up to 48 Multiviewers, each with 100 PIPs

Proc



- 288 (12G) Audio Embedder/Deembedders
- 288 (12G) Clean/Quiet Switches
- 288 (3G/12G) Framesyncs (New I/O board)
- 128x64 Virtual Audio Mixer

Size



- 12RU chassis
- 2RU External Controller
- 2RU redundant power

System



- Up to (1) 8ME Ultrix Acuity Switcher
- Up to (8) Ultrix Carbonite Switchers



Ultrix | FR12-physical layout

- Front to Back Cooling
- External Power Connections
- Hot swappable Reference
- Dual GigE for control plus LTC input
- Dedicated SDPE controller slot
- 16 I/O slots (2 of which are double slot openings)



Ultrix | FR12-physical layout

- Removable front door
- Replaceable crosspoint module
- Separate door for primary fan modules
- Front USB ports for keyboard/mouse

Not just bigger, but BETTER

- More thermal capacity
- More power budget
- More internal connectivity



ULTRIX-FR12

SMART DOOR

Ultrix | FR12 SMART DOOR

- First of its kind (patent application underway)
- Hyperconvergence extended
- Designed to improve engineering efficiency
- High resolution
- Password protected
- Dashboard enabled
- Comes with key preconfigured panels



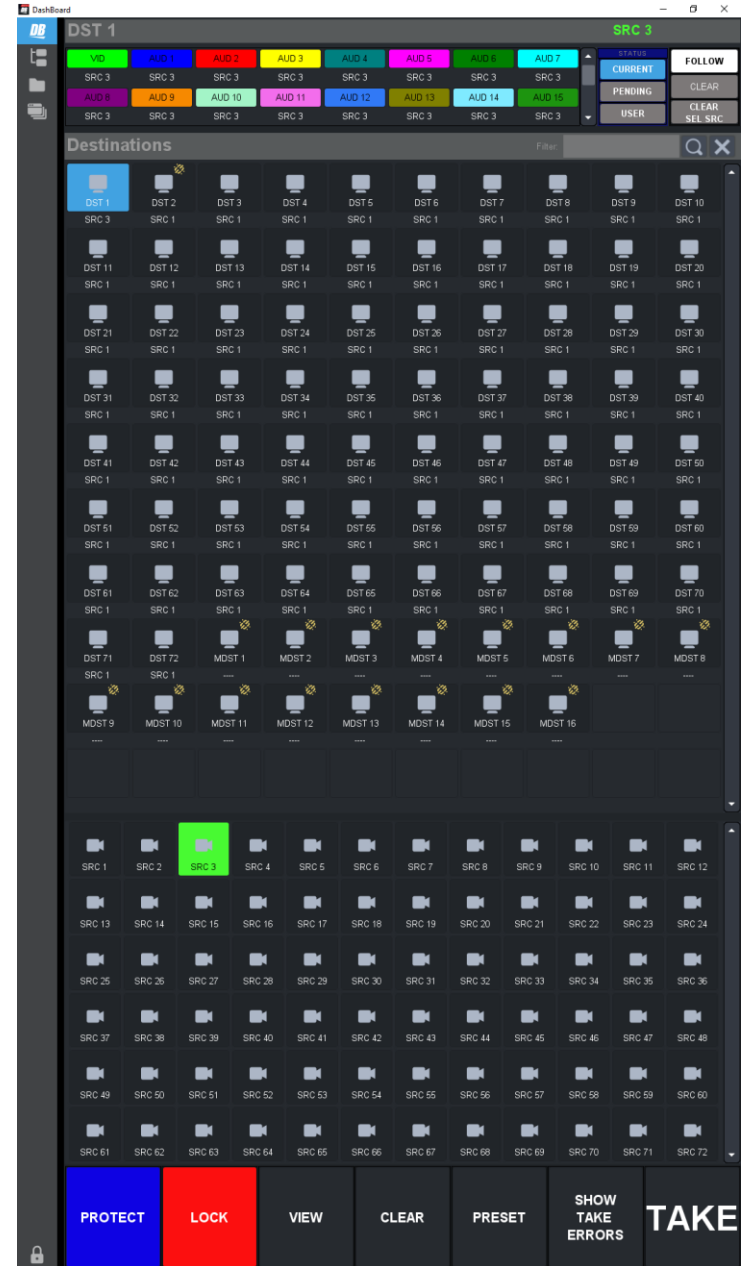
Ultrix | FR12 SMART DOOR-Alarming

- Priority View of System alarms
- Configurable severity and hysteresis
- Sortable
- Quick link to port/function by click

The screenshot displays the Ultrix FR12 SMART DOOR-Alarming interface. The top section shows a list of system alarms with columns for Severity, Description, and Date / Time. The alarms are color-coded by severity: red for critical, yellow for warning, and green for normal. Below the alarm list, the 'System Information' window is open, showing details for the device 'UltrixBCS@192.168.20.160'. The 'Network' tab is selected, displaying 'Information' (Active ENET, ENET 1 Link, ENET 2 Link, ENET MAC), 'Settings' (Address, Subnet Mask, Gateway), and 'Services' (SSH, FTP, Walk about). The 'Permitted Clients' section shows a list of clients with 'Add', 'Delete', and 'Delete All' buttons. The bottom of the interface has a navigation bar with 'Refresh', 'Upload', 'Reboot', and 'Close' buttons.

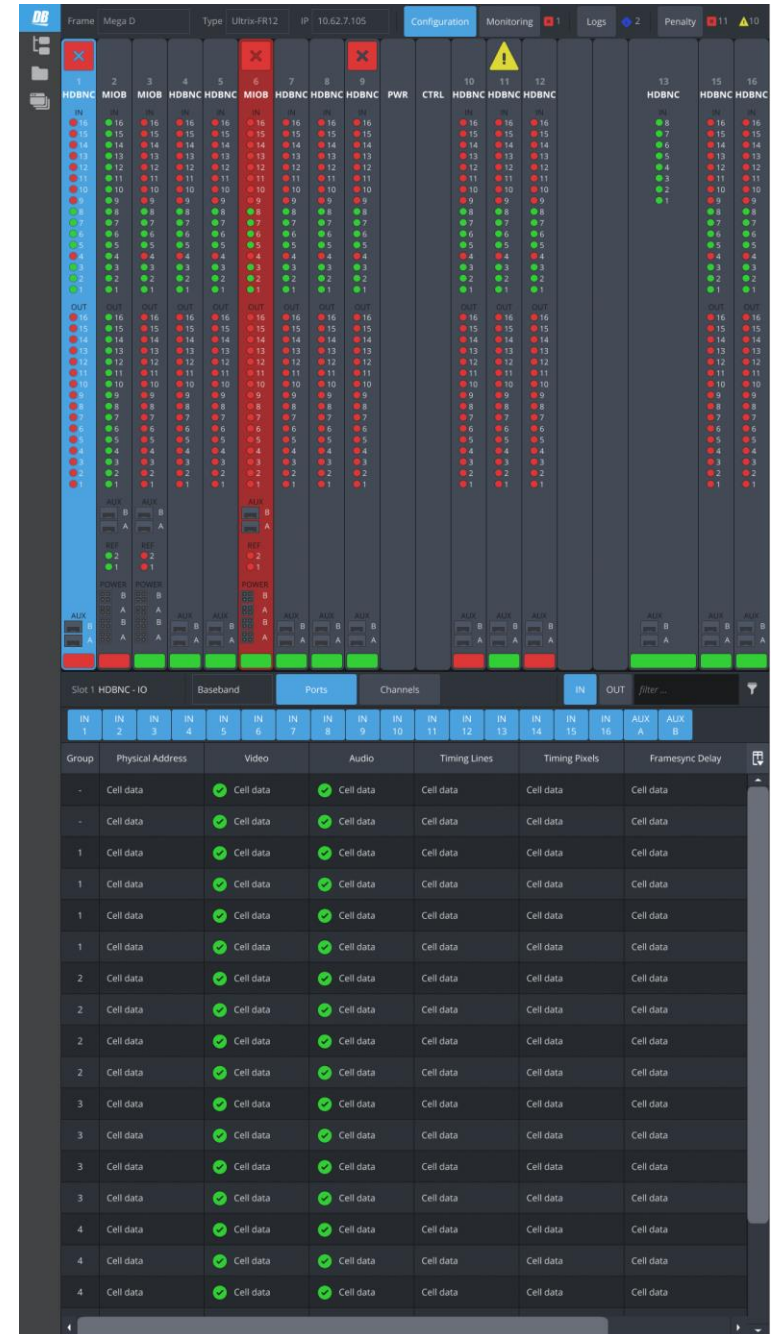
Ultrix | FR12 SMART DOOR-Control

- PB routing control
- Configurable
- AFV and breakaway
- Salvos
- Destination status

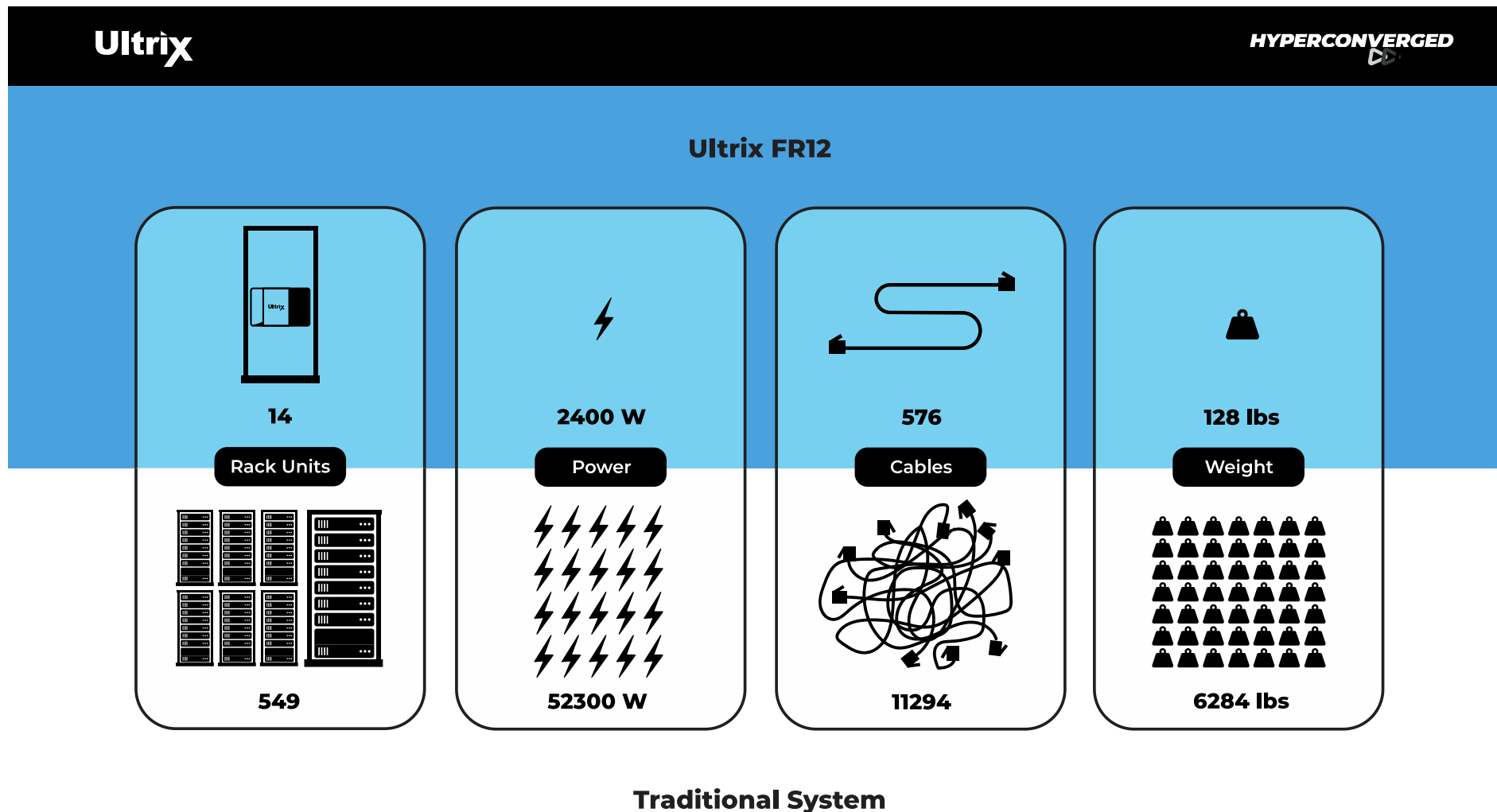


Ultrix | FR12 SMART DOOR-Configuration

- Quick access to individual ports
- Signal status of all ports
- Heads up alarm notifications
- Parametric control



Ultrix | FR12 Hyperconvergence Defined



Learn more at rossvideo.com/ultrix

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Hardware Overview

Frames and I/O Boards

Ultrix Overview | Complexity Made Simple.

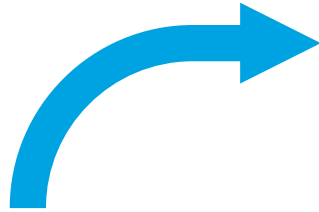
- **Software Enabled:**
Expand capabilities as requirements change with cost effective software licensing; significantly reducing the total cost of ownership.
- **Integrated Solutions:**
 - Routing
 - Multiviewers
 - Audio Switching Fabric
 - Control
- **Robust:**
Count on maximum reliability with a compact routing platform that offers superior functionality and a design for future needs.
- **Flexible I/O**



Ultriscape

- **Feature rich**
 - Integrated audio metering
 - Border, Tally lamps, and UMD
 - Layout templates for quick configuration
 - Custom layouts supported
- **Simple control and configuration**
 - Configure/update a single or multiple multi-viewers across many frames quickly using DashBoard
 - Recall Layouts and switch MV PIP's via HW or SW control panels
- Up to 49 MV's in 12RU frame
- Up to 27 MV's in 5RU frame
- Up to 12 MV's in 2RU frame
- Up to 6 MV's in 1RU frame
- 100 PIP's per MV output (2700 total PiP's)-There is not another system in the world with that flexibility

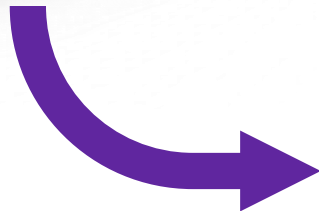
Compatibility | Frame and Panel



Ultrix
A · C · U · I · T · Y



TouchDrive Panel



Ultrix
CARBONITE



TouchDrive Panel

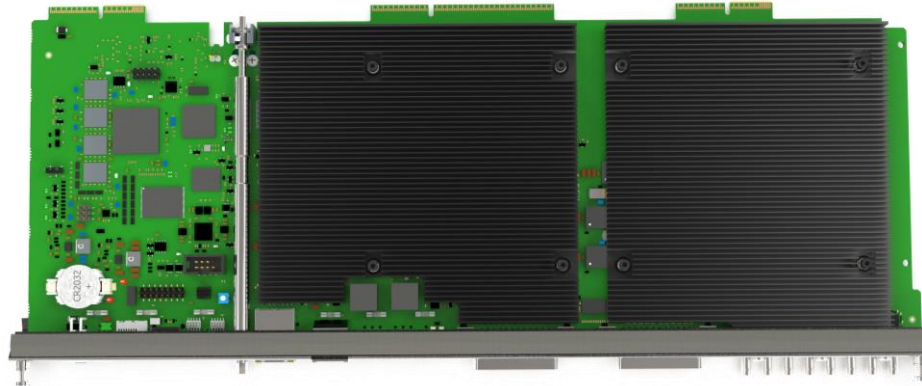
Ultrix Acuity | ME Production power

- **12G Internal Architecture**
 - 1080p to UHD Conversion per ME Bus
- **6 BKGD Buses (Split ME + U1/U2)**
- **6 Full Function Keyers per ME**
 - Including Ross First, 2 Box - one Keyer
- **6 UHD DVE per ME or 14 HD/3G DVE**
- **4 Video + Alpha Media Stores per ME**
 - 2 Channels Include Audio (MS 1 & 2)
 - 8GB Ram Cache



Ultrix Acuity | ME Production power

- **Acuity MultiFeed / SplitME**
 - 4 Definable PGM Outputs
 - 2 Definable PV Outputs
 - Split A/B with 2 Additional Utility Buses
- **Bus Based Switching**
 - 18 ME Buses, 6 Background bus with 12 Keyer Buses for 6 Video and 6 Alpha Channels
- **ME Outputs = Ultrix Sources**
 - 18 ME Outputs, 4 PGM, 2 PV, 8 MediaStore (4V+4A) and 4 User Outputs Direct Entry to Ultrix



Ultrix Acuity | Familiarity

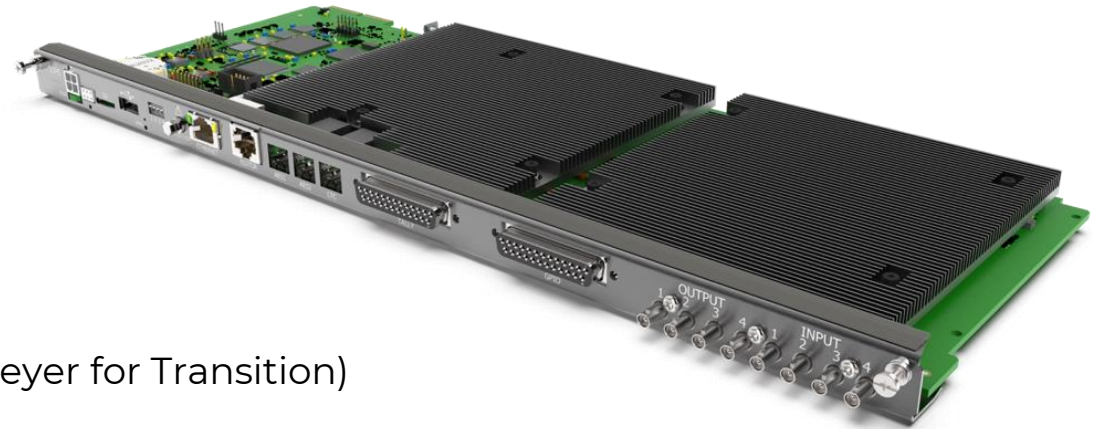
- **Operationally:**
 - It's an Acuity
 - It's an Ultrix
 - Acuity - Direct access to all "Logical" Inputs
 - Ultrix - Direct access to Acuity Internal Source and ME Outs (4ME = 72 Re-Entry)
 - Shared Concurrent Access to the "Virtual" Aux Buses
 - Tally and UMD in the Ultrix MVs
- **OverDrive Compatible:**
 - Massive Internal Audio Mixer!
Perfect For Automation Control!



Ultrix Carbonite | What is it?

- **Each SDPE blade:**

- Independent Carbonite switcher
- 2 Full ME (HD/3G/UHD)
- 4 miniMEs (HD/3G), 2 miniMEs (UHD)
- 6 Full Function Keyers per ME (+ 7th Keyer for Transition)
- 2 Full Function Keyers per miniME
- 2D DVE: 12 (HD/3G), 6 (UHD)
- 4 Video + Alpha Media Stores
 - 2 Channels include Audio (MS 1 & 2)
 - 8GB RAM Cache
- USB Clip Player (HD)
- Input Processing
 - HD/3G: FSFC, Proc Amp & Colour Correction - All Inputs
 - UHD: 4x FSFC, 4x Proc Amp & Colour Correction – Independently Assignable





GRAPHITE

Cloud Production Center



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OUR CLOUD SOLUTION

GRAPHITE

Production Switcher

XPression

Graphics

Media I/O

Ingest and Playout

overdrive

Automated Production Control

inception

Newsroom

streamline

Production Asset Management

 INTERSTELLAR

Remote Contribution

GRAPHITE

Multiviewer

ROSS[®]

Developed Technologies


softGear

Ground to Cloud

caprica

Device Control

ROSS PLATFORM
MANAGER 

Enterprise Services

Integrated Partner Supplied Technologies

NDI Discovery

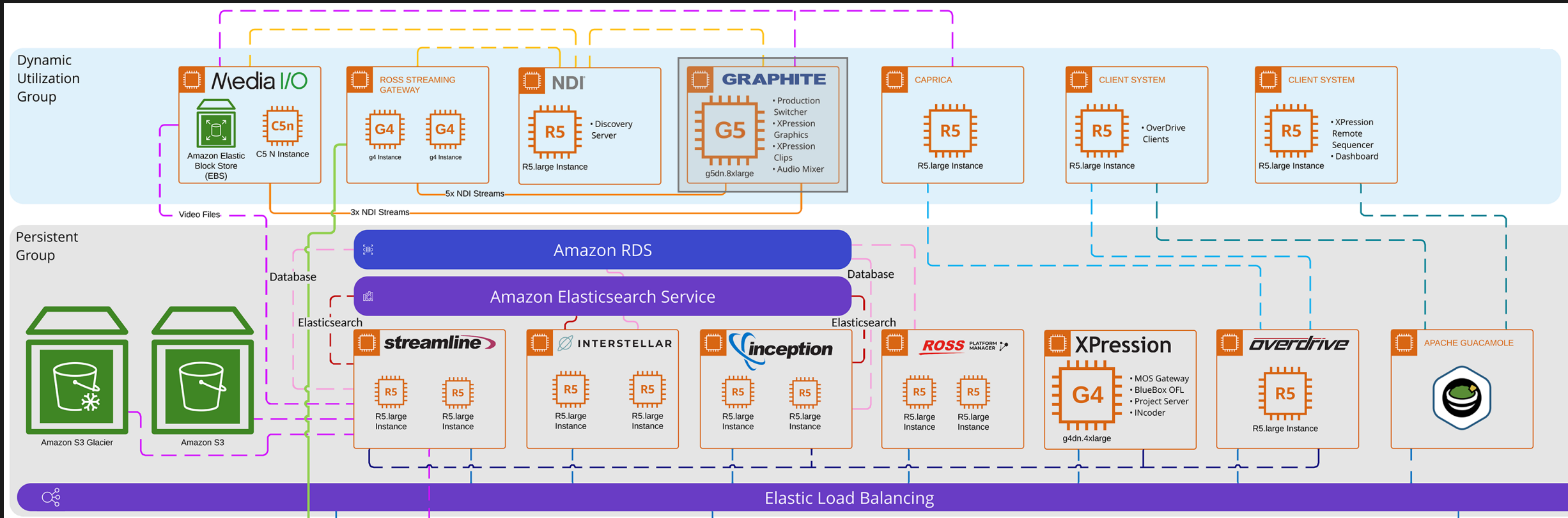
Virtual Desktop Streaming

GRAPHITE 

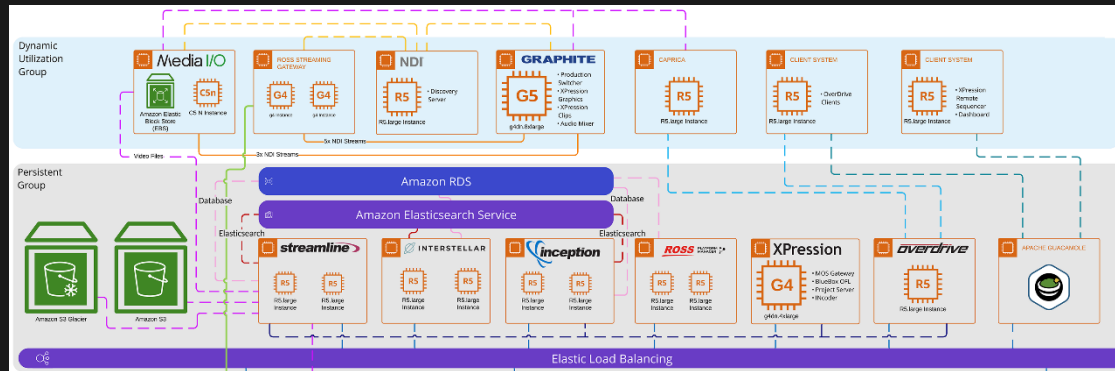
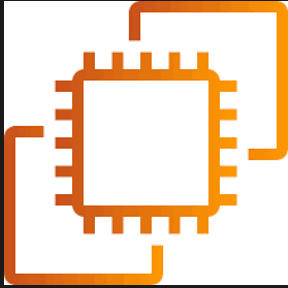
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ROSS[®]
LIVING LIVE!

Cloud Live Production solution



Cloud Live Production solution



- Full suite of live production creation tools in AWS
- Software Virtualized Carbonite Production Switcher
- Software Virtualized RAVE Audio Mixer
- XPression Graphics and Clips
- RPM Software Licensing
- G5.8xLarge

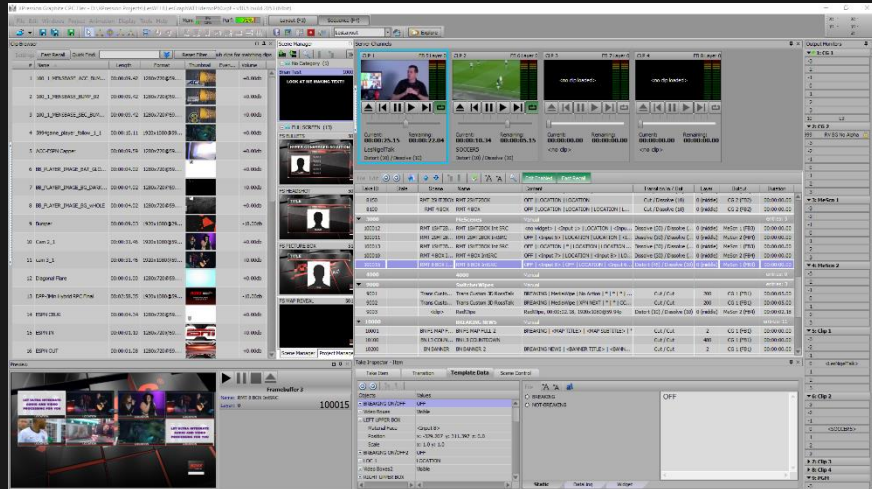
Familiar Switcher operation

Carbonite Control

- DashBoard SoftPanel
- DashBoard ViewControl
- TouchDrive Control Surfaces

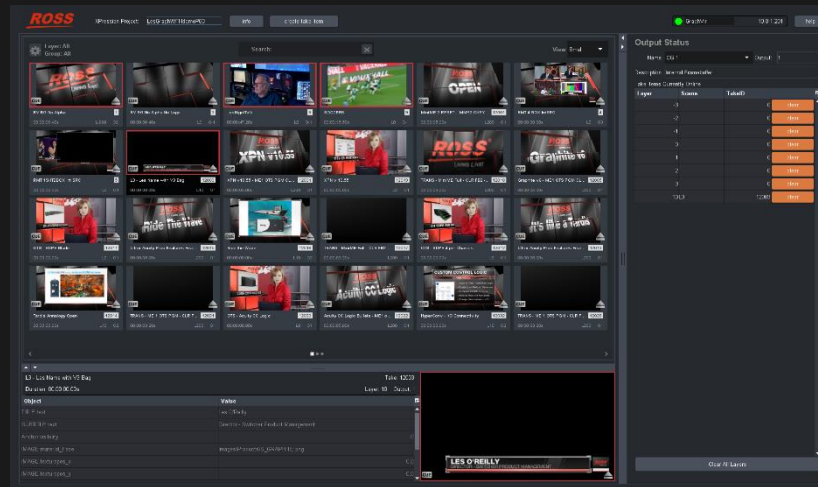


Xpression Graphics and Clips



XPression UI Choices

- Standard Studio UI
- DashBoard Integration



RAVE Audio

Mix the Audio from Anywhere

- DashBoard Interfaces

The screenshot displays the RAVE Audio software interface. At the top, there is a 'Folder Config' table with columns for 'Label', 'Source', 'Audio Source', 'Stream Type', and 'RTV Input'. Below this is an 'Audio2 Source Audio Input' window with a grid of 16 input slots. The bottom part of the screenshot shows a detailed list of audio sources with columns for 'Label', 'Source', 'Audio Source', 'Stream Type', and 'RTV Input', along with checkboxes for 'Mute', 'Solo', 'PFL', and 'AFV Set'.

The screenshot displays the RAVE Audio software interface showing a multi-channel audio mixer. The mixer has 16 channels, each with a 'Bal. C' (Balance) knob, a 'Mute' button, a 'Solo' button, and a 'PFL' (Pre-Fader Listen) button. The channels are labeled 'Audio1' through 'Audio16'. The mixer also features a 'Main' output and a 'Monitor' output. The interface includes various controls such as 'AFV Set' (Auto-Follow Volume) buttons, 'Solo Clear' buttons, and a 'Navigation Menu' at the bottom.

Available Models at launch

Graphite CPC Editions

- Graphite CPC 8
- Graphite CPC 12
- Graphite CPC 18

XPression Add-Ons

- Graphite CPC Studio SCE
- Graphite CPC Studio Dual
- Graphite CPC Studio Flex

- All XPression Workflow Tools supported using standard order codes

Graphite cpc 8 includes

- 3 ME Carbonite Switcher
- 6 Keyers per ME (No DVE Limits)
- 8 Inputs (New Source Router!)
- 2 Outputs – PGM and MV
- 1 MV Head
- 8 Audio Faders (Mono or Stereo)
- Main Mix, Monitor + 2 Aux Mix
- XPression Prime Graphics
- XPression Clip Player



Graphite cpc 12 includes

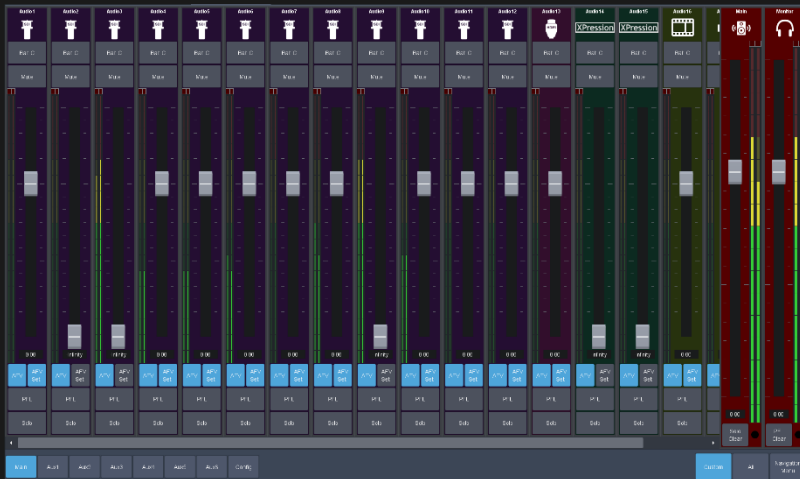
- 3 ME Carbonite Switcher
- 6 Keyers per ME (No DVE Limits)
- 12 Inputs (New Source Router!)
- 2 Outputs – PGM and MV
- 1 MV Head
- 12 Audio Faders (Mono or Stereo)
- Main Mix, Monitor + 4 Aux Mix
- XPression Prime Graphics
- XPression Clip Player



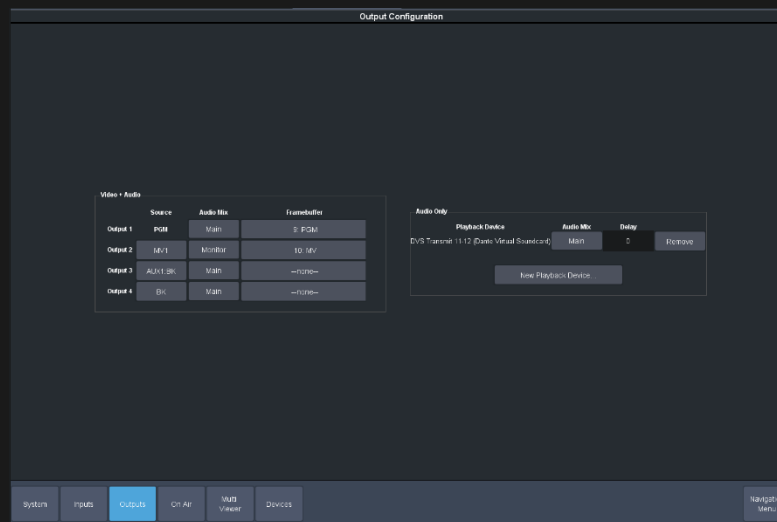
The screenshot displays the 'Source Configuration' interface, which is a table with columns for Text, Carbonite, TouchDrive, Icon, Alpha, Device, TSL, Input Router, Sync, and Panel Follow. The table lists 14 input sources, including 10 video inputs (Input 1-10) and 4 audio inputs (Input 13-14). The video inputs are configured with Carbonite (Large) and TouchDrive (Medium) settings, while the audio inputs use Carbonite (Small) and TouchDrive (Medium). The Input Router column shows various routing options like FS-MAIN (CLIP1-5) and DESKTOP-4RU8L43 (GPPC1-4). The Sync column is set to Normal for video inputs and N/A for audio inputs. The Panel Follow column is set to --none-- for video inputs and CLPS for audio inputs.

Text	Carbonite	TouchDrive	Icon	Alpha	Device	TSL	Input Router	Sync	Panel Follow
Input 1 1	Large	Medium	📺	1A Shaped	--none--	Off	FS-MAIN (CLIP1)	Normal	--none--
Input 2 2	Large	Medium	📺	2A Shaped	--none--	Off	FS-MAIN (CLIP2)	Normal	--none--
Input 3 3	Large	Medium	📺	3A Shaped	--none--	Off	FS-MAIN (CLIP3)	Normal	--none--
Input 4 4	Large	Medium	📺	4A Shaped	--none--	Off	FS-MAIN (CLIP4)	Normal	--none--
Input 5 5	Large	Medium	📺	5A Shaped	--none--	Off	FS-MAIN (CLIP5)	Normal	--none--
Input 6 6	Large	Medium	📺	6A Shaped	--none--	Off	FS-MAIN (CLIP5)	Normal	--none--
Input 7 7	Large	Medium	📺	7A Shaped	--none--	Off	DESKTOP-4RU8L43 (GPPC1)	Normal	--none--
Input 8 8	Large	Medium	📺	8A Shaped	--none--	Off	DESKTOP-4RU8L43 (GPPC2)	Normal	--none--
Input 9 9	Large	Medium	📺	9A Shaped	--none--	Off	DESKTOP-4RU8L43 (GPPC3)	Normal	--none--
Input 10 10	Large	Medium	📺	10A Shaped	--none--	Off	DESKTOP-4RU8L43 (GPPC4)	Normal	--none--
Input 11 11	Medium	Medium	⚡	11A Shaped	--none--	Off	--none--	N/A	--none--
Input 12 12	Medium	Medium	👁️	12A Shaped	--none--	Off	--none--	N/A	--none--
Input 13 CLP 1	Small	Medium	🎵	CLP 1A Shaped	AMP_0.2 S1-1	Off	5: Clip 1	N/A	CLPS
Input 14 CLP 2	Small	Medium	🎵	CLP 2A Shaped	AMP_0.2 S1-2	Off	6: Clip 2	N/A	CLPS

Graphite cpc 18 includes

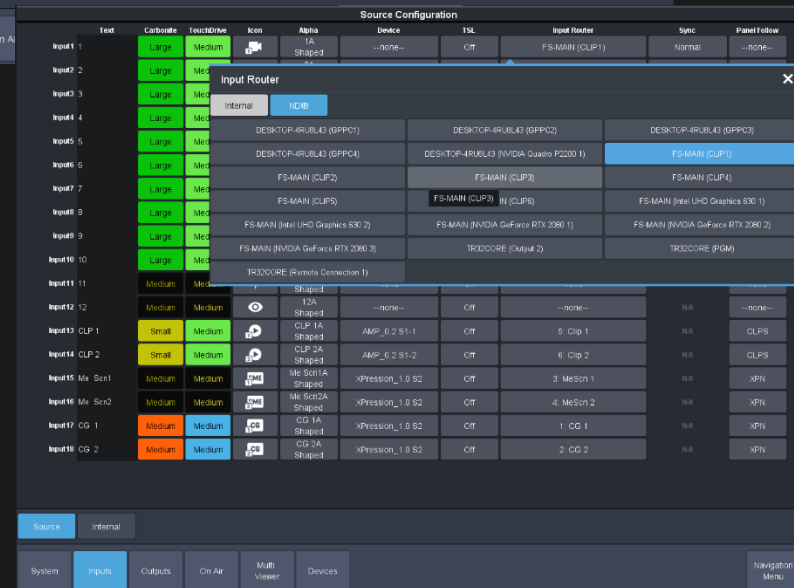
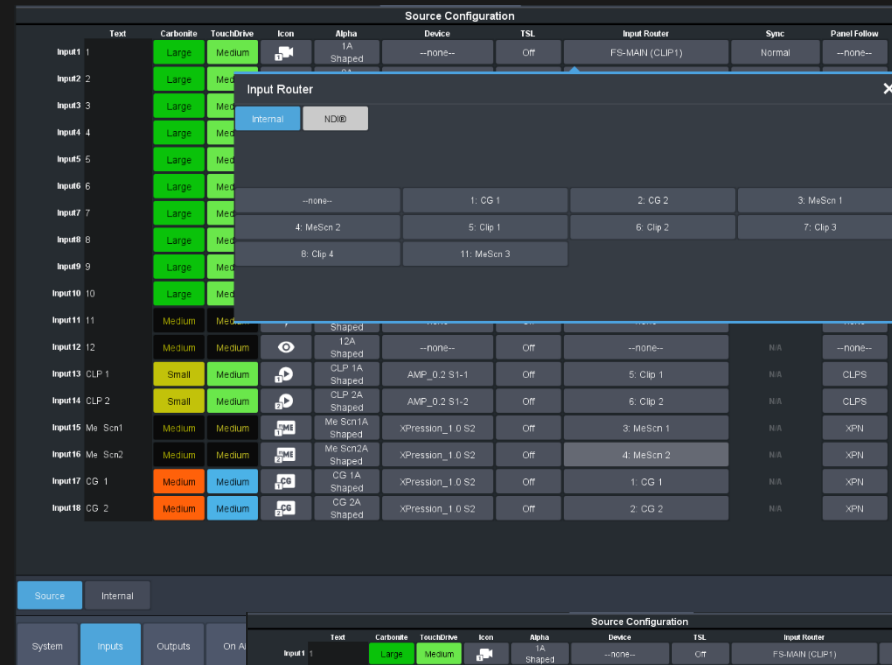


- 3 ME Carbonite Switcher
- 6 Keyers per ME (No DVE Limits)
- 18 Inputs (New Source Router!)
- 4 Outputs – PGM, MV + 2 Aux
- 1 MV Head
- 18 Audio Faders (Mono or Stereo)
- Main Mix, Monitor + 6 Aux Mix
- XPression Prime Graphics
- XPression Clip Player



Graphite cpc Inputs

- Each Model Includes a total number of simultaneous Inputs
- These Include the selections of the Local XPression Graphics and Clip Channels.
- Example: CPC 8 has 8 Inputs and using the Source Input Router selections can be made from Local or Network Sources. Utilizing 2 inputs for Graphic and Clip channels leaves 6 Inputs to select from the network!



Graphite cpc Input Router

Text	Carbonite	TouchDrive	Icon	Alpha	Device	TSL	Input Router	Sync	Panel Follow
Input 1 1	Large	Medium	Icon	1A Shaped	--none--	Off	FS-MAIN (CLIP1)	Normal	--none--
Input 2 2	Large	Med							
Input 3 3	Large	Med							
Input 4 4	Large	Med							
Input 5 5	Large	Med							
Input 6 6	Large	Med							
Input 7 7	Large	Med							
Input 8 8	Large	Med							
Input 9 9	Large	Med							
Input 10 10	Large	Med							
Input 11 11	Medium	Med							

Custom Controls

Bank 8 : REM IO 2

Command	Description	Time (H:MM:SS)	Event #
Input Router	Input Router (FS-MAIN (CLIP2))	00:00:00	1/2
Input Router	Input Router (FS-MAIN (CLIP3))	00:00:00	1/2
End	End	00:00:00	1/2

Create/Edit Event

Command Category: Switch Installation

Switch Installation: [Select]

Switch Installation: [Select]

Input: [Select]

Source: 0

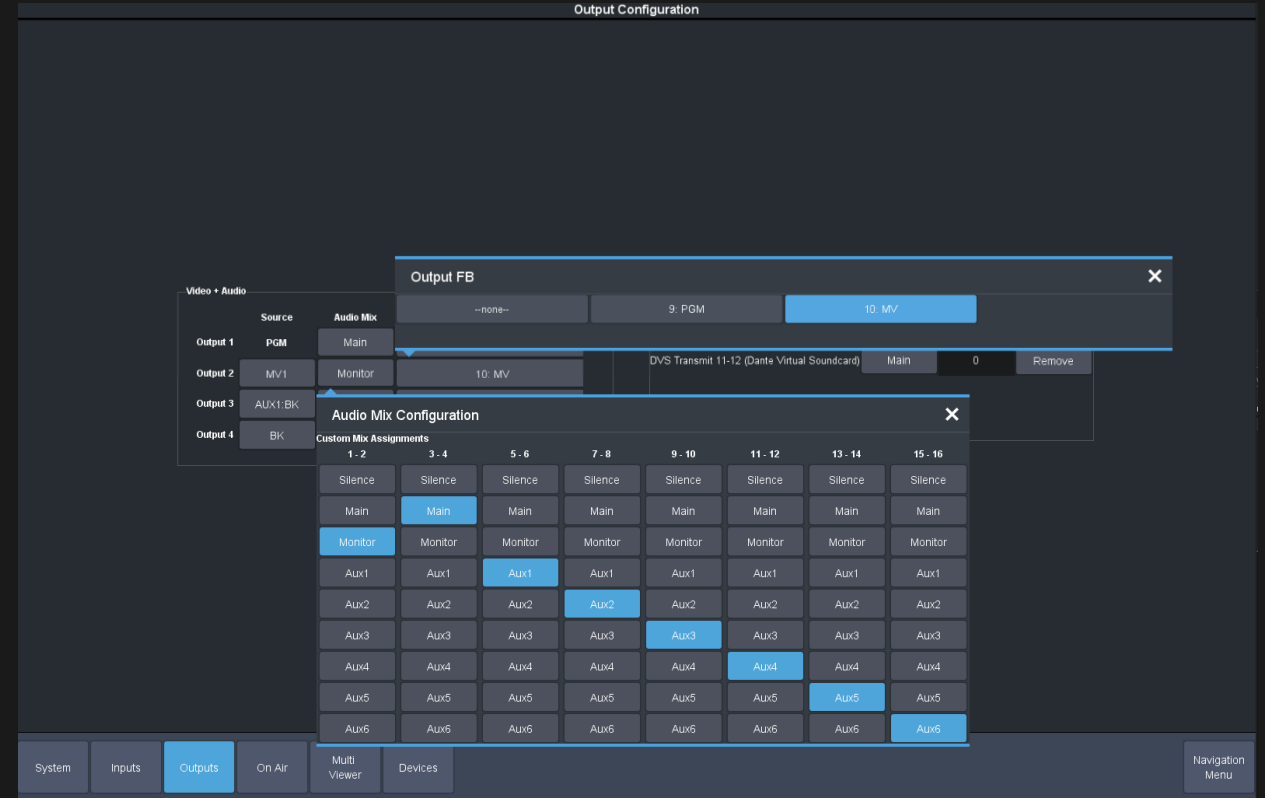
Value: FS-MAIN (CLIP3)

Install Apply Refresh Done

- Input Assignments are stored with the Show Files
- Input Router is independent of the Memories and Custom Controls.
- Dynamically Change Input Router through the Production.
- Build Custom Controls to change Input Router Assignments.

Graphite cpc Outputs

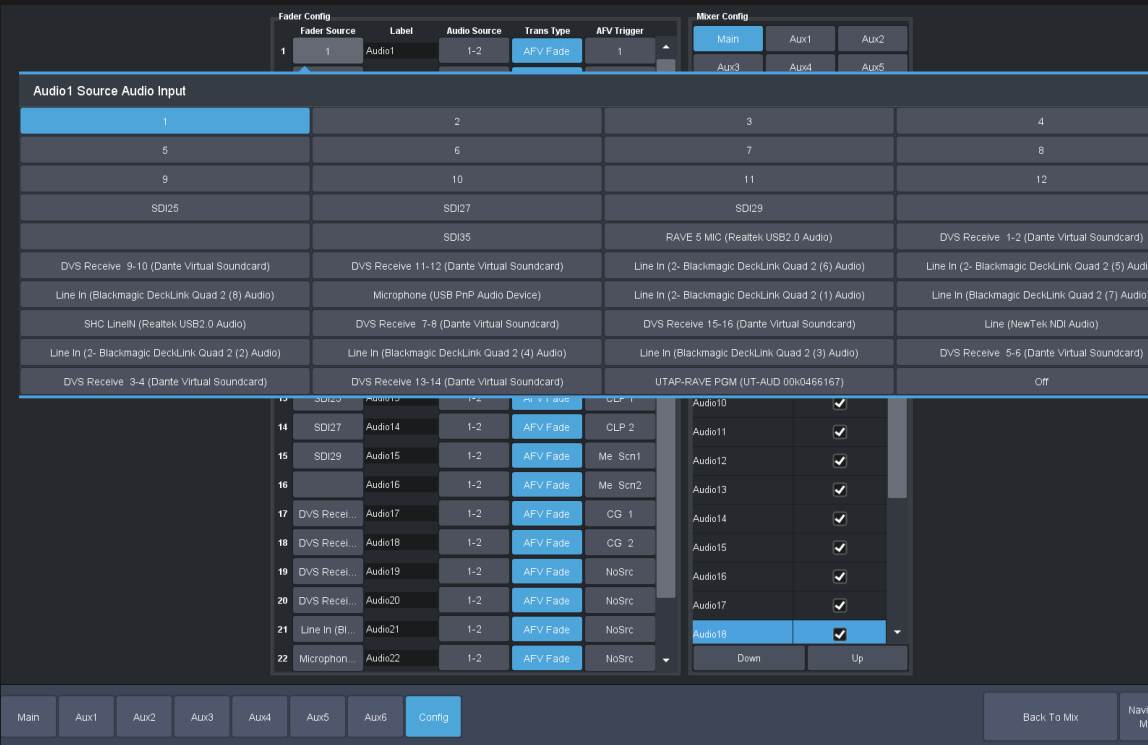
- Output 1 is Always PGM. This can be assigned to any “framebuffer” that has been configured. System auto configures NDI Framebuffers Currently
- Outputs 2-4 are selectable just like a Carbonite but require Output Mapping to the desired Framebuffer
- Audio Channels are mapped from the Available Audio Mixer Channels independently per Output



RAVE Audio fader configuration

Faders can be routed any audio channel from:

- Video/Audio Inputs – Local or Network Video Sources carry embedded audio. Select the Source and then the Channel either Mono or Stereo Pairs.
- Windows Audio Devices are also selectable. Dante Virtual Sound Cards, LAWO AES67 Virtual Sound Cards, NDI Audio Source and any other device that shows up is available!



Audio Only Destinations

- In addition to “embedded” Audio Output. Users can configure Audio Only Destinations
- Audio Only Destinations are selected from the Available Windows Audio Devices.
- Dante Virtual Sound Cards, LAWO AES67, NDI Audio and Dedicated Windows Audio Devices.
- Each can have individual Mix Selections and Delay assignments.

The screenshot shows the 'Output Configuration' window. At the top, there is a 'Playback Device' table with columns for device name, audio type, and other details. Below this is a table for 'Audio Only' configuration with columns for Source, Audio Mix, and Framebuffer. To the right, there is a 'Play' button and a 'Save' button. At the bottom, there is a navigation menu with tabs for System, Inputs, Outputs, On Air, Multi Viewer, and Devices.

Playback Device	Audio Type	Other
DVS Transmit 9-10 (Dante Virtual Soundcard)	27G2G4 (NVIDIA High Definition Audio)	DVS Transmit 13-14 (Dante Virtual Soundcard)
Speakers (Blackmagic DeckLink Quad 2 (4) Audio)	DVS Transmit 15-16 (Dante Virtual Soundcard)	DVS Transmit 7-8 (Dante Virtual Soundcard)
Speakers (2- Blackmagic DeckLink Quad 2 (5) Audio)	Speakers (Blackmagic DeckLink Quad 2 (3) Audio)	Front Headset (Realtek USB2.0 Audio)
DVS Transmit 3-4 (Dante Virtual Soundcard)	LG HDR 4K (NVIDIA High Definition Audio)	Speakers (2- Blackmagic DeckLink Quad 2 (1) Audio)
DVS Transmit 5-6 (Dante Virtual Soundcard)	Speakers (2- Blackmagic DeckLink Quad 2 (6) Audio)	Speakers (2- Blackmagic DeckLink Quad 2 (2) Audio)

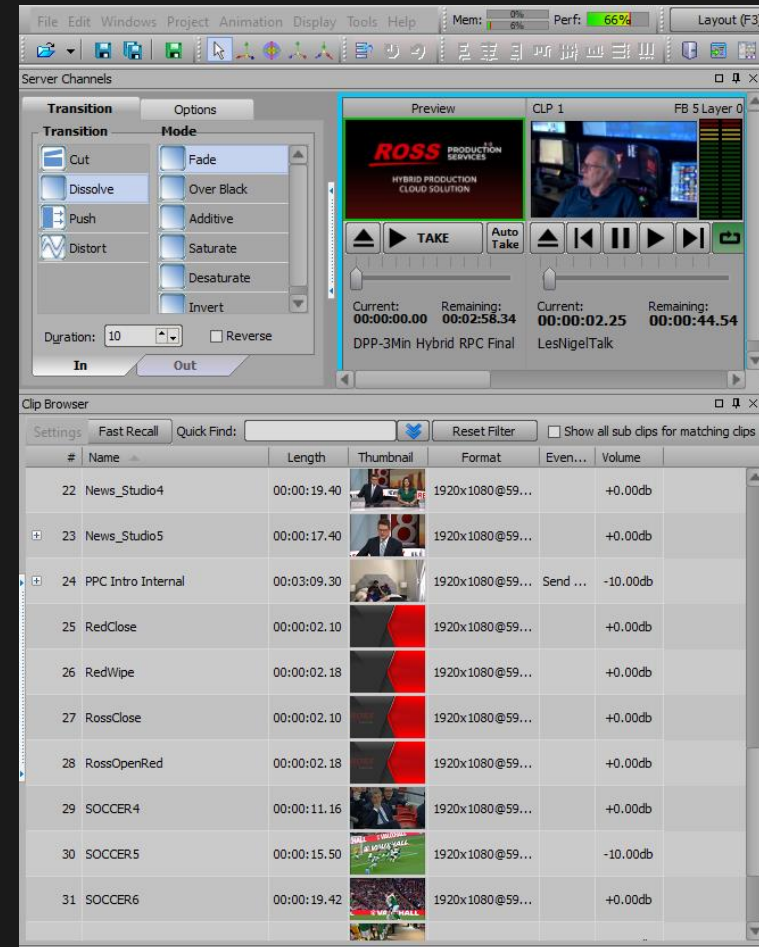
Output	Source	Audio Mix	Framebuffer
Output 1	PGM	Main	9: PGM
Output 2	MV1	Monitor	10: MV
Output 3	AUX1.BK	Main	--none--
Output 4	BK	Main	--none--

The screenshot shows the 'Audio Only' configuration panel. It contains a table with columns for Playback Device, Audio Mix, and Delay. There is a 'Remove' button next to the delay value and a 'New Playback Device...' button below the table.

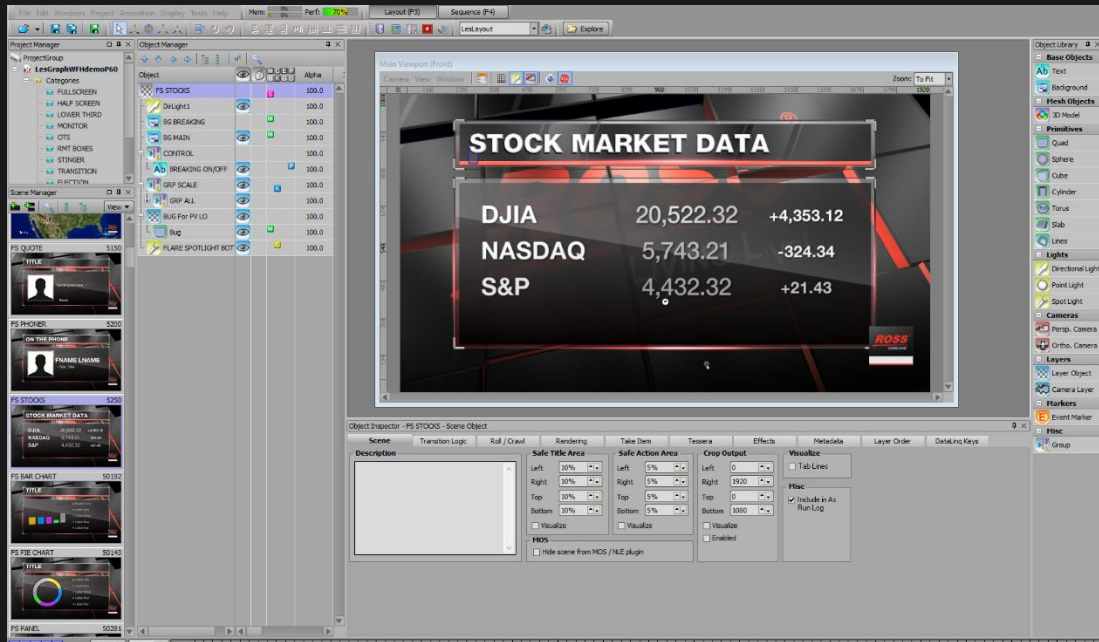
Playback Device	Audio Mix	Delay
DVS Transmit 11-12 (Dante Virtual Soundcard)	Main	0

Xpression Clip channel included

- XPression Clip single channel included.
- Only Clip/Server integration with true Preview and “In channel” Transitions.
- Manual quick cue with “Auto Take” via the Preview Window
- Sequencer based Playlists. Multiple Playlists via Groups!
- Add MOS for Newsroom integration of Graphics and clips



Xpression Prime CG Included



Full XPression Motion Graphics Prime Edition:

- Available upgrades to Studio SCE, Studio Dual and Flex Editions
- Add Datalinq
- Add Project Server
- Add MOS Workflow
- No other cloud production system offers a fully interwoven 3D Graphics Platform inside their Production Solution!

The switcher is the 3d render engine...



Scene based workflow enabled

The Majority of the “LOOK” is decided and designed in the Creative Department

Many of our customers are already implementing centralized graphics teams that build the entire project and then deploy

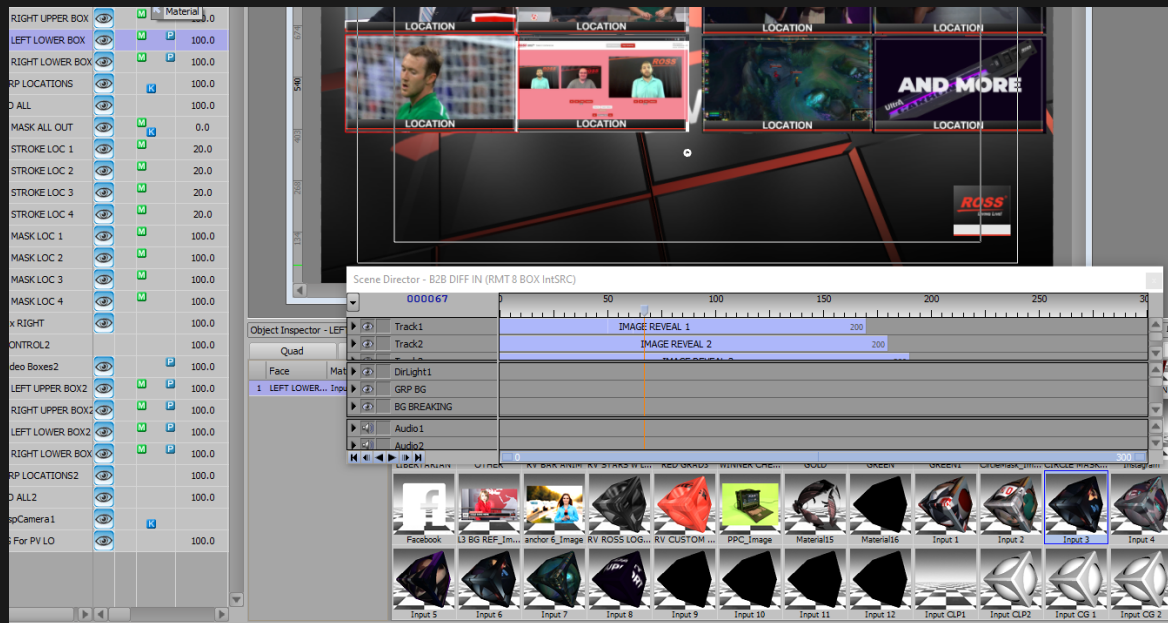
The Missing piece has always been that a TD is required to build switcher effects / memories to integrate the graphics.

The TD is not deciding how this will look or “work” but rather they are integrating the switcher and compositing into the design vision delivered to them



Switch effects are graphics effects

From the scene director users have the full capability of defining the graphics look and the source assignments!



In a MOS driven workflow opening the template plugin to now select sources while editing graphics

The sequencer is now able to power the show. Build custom controls to drive the sequencer which in turn drives the production switcher and effects systems!

Me or scene ... It's not one or the other



The Cloud Production Center was not designed to force users and operators into a new paradigm

We have kept the Traditional ME operation and configuration to empower users to transition comfortably onto a platform that can offer new capabilities

If Scene based creation is not desired users can build their “ME Effects” in the same way they would on a hardware based system.



GRAPHITE

Cloud Production Center



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Questions