



Cisco AnyRes: 5 reasons to win in ABR

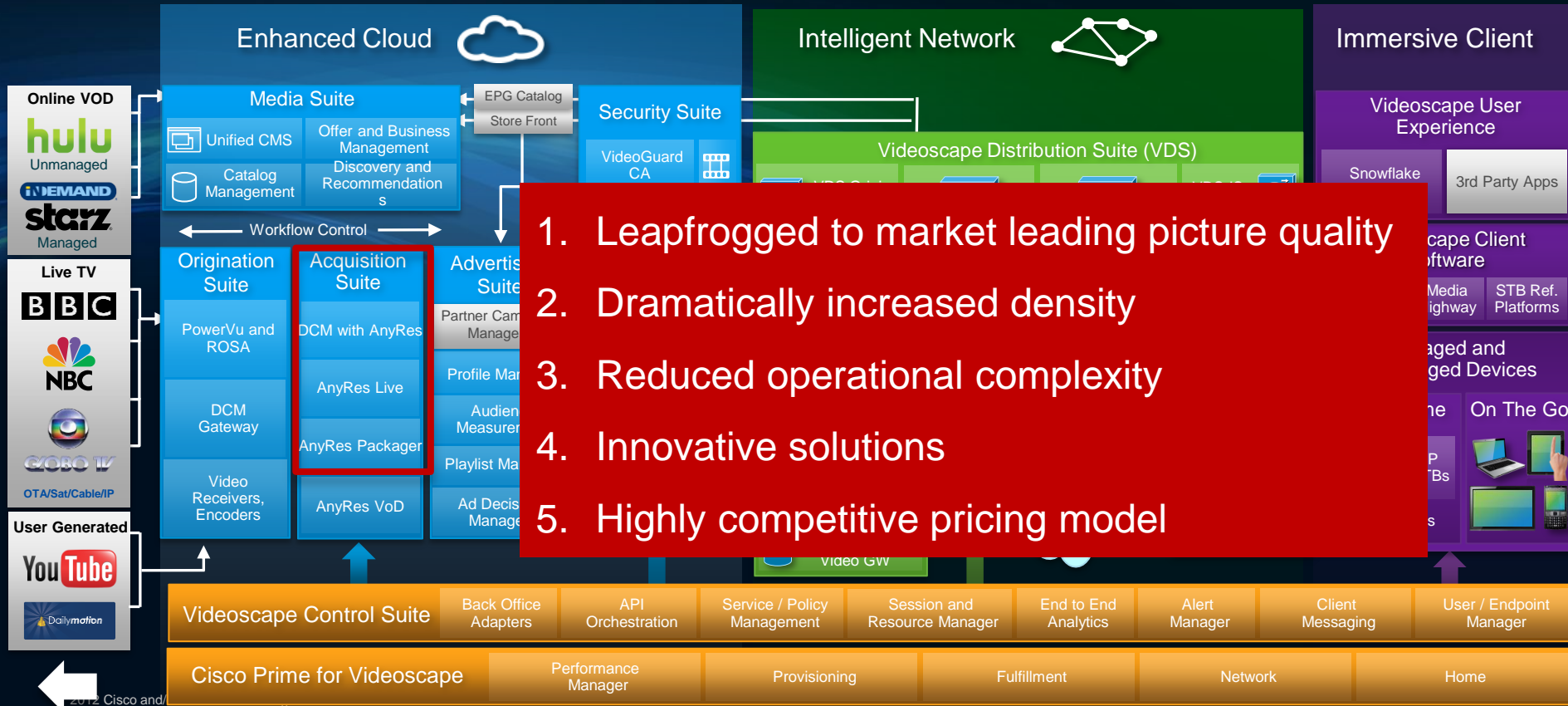


Agenda

- Introduction
- 5 Reasons to win in ABR
- Solutions
- Sales Supporting Resources
- Summary

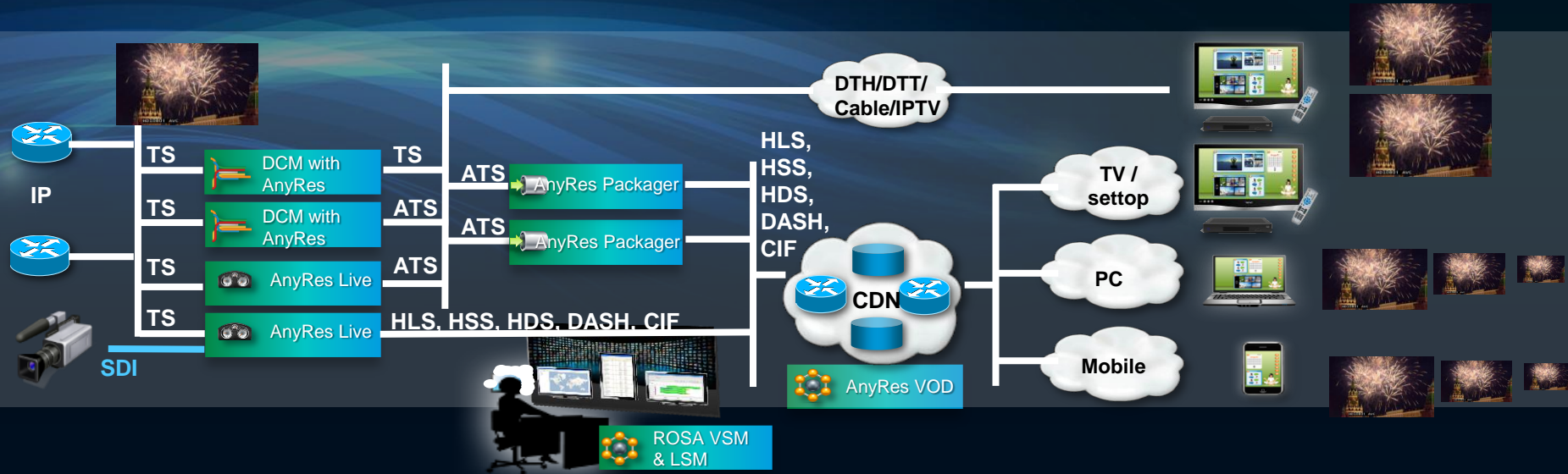
Videoscape Unity Architecture

Acquisition Suite – AnyRes Live



Multiscreen Distribution Solution

Cisco AnyRes Technology





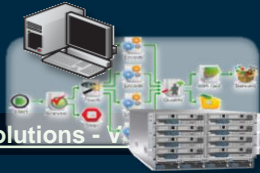


AnyRes is our new branding
former CMP, CME, CTM

Acquisition Suite



The Cisco Live and File based encoding & transcoding solutions supports resolution from the lowest mobile resolution to the highest 1st screen resolution

Formats	Product	Form Factor	Description
<u>Live / Linear</u>			
<ul style="list-style-type: none"> • Transcoder / Transrater • ATS: external encap • Managed network 	Cisco DCM with AnyRes		<ul style="list-style-type: none"> • HW based • Dense / High Quality • Multiple resolutions and streams
<ul style="list-style-type: none"> • Live ABR encoding • Internal encap / DRM • ATS: external encap • Metadata Processing • Unmanaged network 	Cisco AnyRes Live		<ul style="list-style-type: none"> • x86 based family of linear encoding appliances, UCS variant • Multiple formats, resolutions and streams
<ul style="list-style-type: none"> • Linear, VOD, JIT Encapsulation • DRM / Encryption • Metadata Processing 	Cisco AnyRes Packager		<ul style="list-style-type: none"> • Linux Software • Multichannel Processing • Extensible
<ul style="list-style-type: none"> • Large live deployments • Complex operations • Redundancy control of AnyRes Live & AnyRes Packager 	VSM & Linear Stream Manager		<ul style="list-style-type: none"> • Manage multiple devices from a single, easy-to-use, user interface
<u>File based solutions - v-on-demand</u>			
<ul style="list-style-type: none"> • High-volume video-on-demand 	Cisco AnyRes		<ul style="list-style-type: none"> • End-to-end transcoding workflow management

Cisco Advantages in Multiscreen Transcoding and Packaging



Picture Quality and BW Efficiency

Continuous investment in optimizing core codec tools

Picture Quality optimized to fit all screens

Increased coding efficiency reduces bandwidth usage



High Density OPEX / CAPEX Savings

Ultra-high density, low power consumption

Less cabling reduces operational costs



Service Uptime

Service availability:
Maintain 99.999% uptime
Very fast switching times

Reliability:
Redundancy by design

Device, Port, Transport
Stream, Service, and
publishing redundancy



Flexibility and Modularity

Both Hardware and
Software modularity

Field replaceable interface
and processing cards

Electronic “pay-as-you-grow”
licensing mechanism

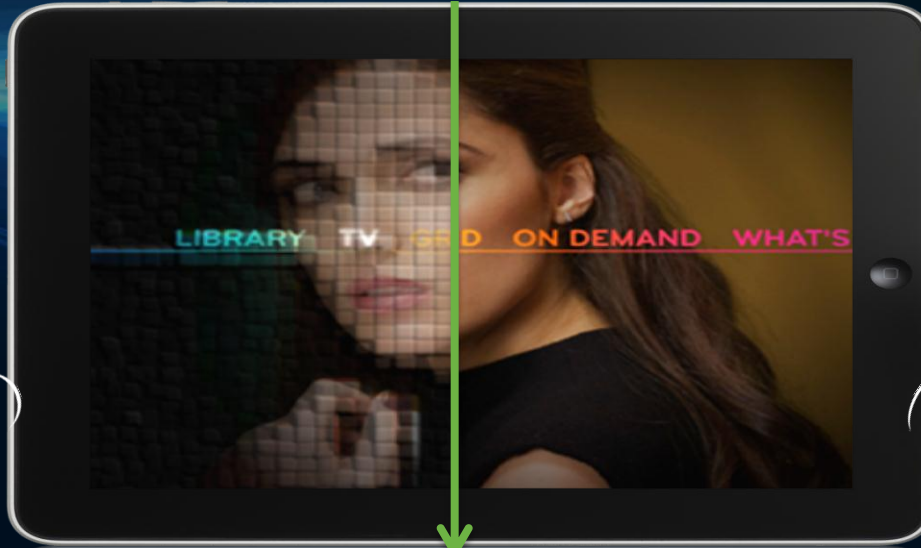
Rich feature set

The background of the slide features a series of flowing, wavy lines in shades of blue and green, creating a sense of motion and depth. These lines are concentrated in the upper half of the slide, with some lines extending downwards towards the text.

5 reasons to win in ABR

Major Picture Quality Improvements

- ✓ Reliability
- ✓ Stability
- ✓ Cost-effective



- ✓ Quality
- ✓ Compression
- ✓ HEVC



Past: A continuous video experience

Now and beyond: A high-quality,
TV-like experience, anywhere

Density Improvements

- Scenario:
SP operating 80 SD and 20 HD channels
Addressing PC, iPad, mobile

Solution	Gen.2 CMP	Gen.3 AnyRes Live	DCM with AnyRes
Space	48 RU	18 RU	8 RU
Blades	60	17	n.a.
Net level	100%	32%	25%

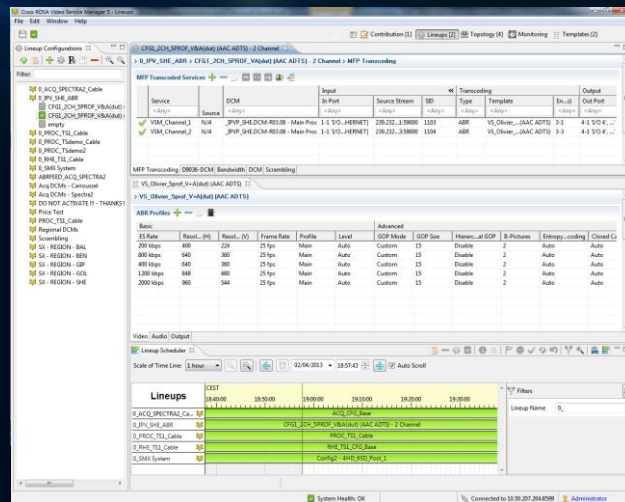
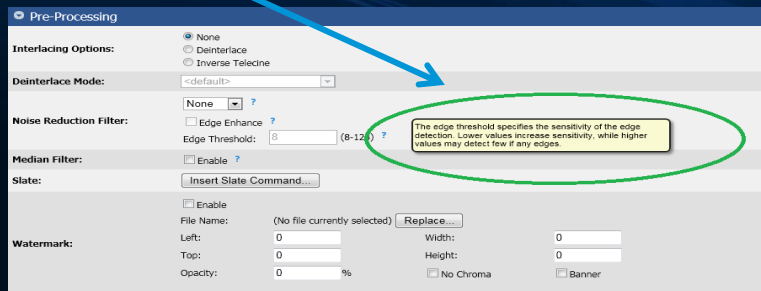
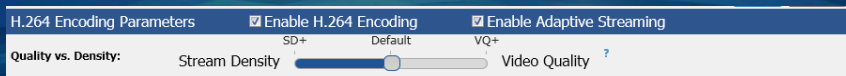
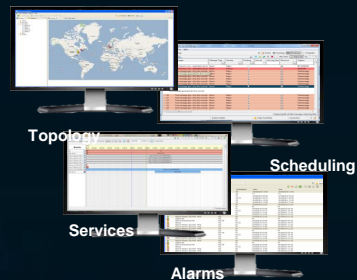
Gen.2: B200M2; Gen.3: B200M3; DCM with AnyRes: D9902, MFP
standard discount non redundant



Operational Simplicity

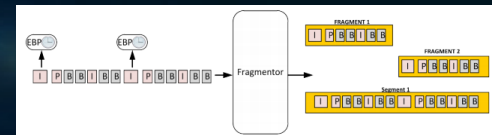
Improved on AnyRes Live:

DCM with AnyRes integrated in VSM:



Innovative solutions:

- Combination of 1st screen and Anyres on MFP
- Adaptive Transport Stream
CableLabs OpenCable™ Specifications
OC-SP-EBP-I01-130118
Interoperability, Performance, Density
- DVB Subtitle Support
- HEVC POC






Competitive Pricing

- Adapted GPL:
- Good Product/TSS ratio
- Low TCO
- High density
- Main/Back-Up pricing
- Multiple platforms to optimize



Acquisition Suite - Live Processing

Flexible
Feature
Rich

Feature			
	Cisco AnyRes Live		Cisco DCM with AnyRes
Model			MFP card
Target customers	Data centric head-ends and content providers	Data centric head-ends and content providers	Video centric head-ends
Solution	SW – SW/HW	SW – SW/HW	HW
Key Processes	ABR Encoding/Transcoding & Built-in Encapsulation	ABR Transcoding & Built-in Encapsulation	MPEG-2 ↔ AVC transcoding & ABR Transcoding
Unique features	VC-1 encoding, Delivery on 3GP	VC-1 encoding, Delivery on 3GP	Consolidated 1st screen & 2nd screen
Ingest	SDI, IP	IP	IP, ASI, DVB-S2

Cisco DCM MFP – With AnyRes

Transcoding for all screens on a single card

Single Layer MFP-S

Dual Layer MFP

Key Features



3 cards in a single chassis

- MPEG-2/AVC SD/HD ↔ MPEG-2/AVC SD/HD transcoding
- MPEG2/AVC SD/HD → AVC Adaptive Bit Rate transcoding
- AAC, AC-3, EAC-3 and MPEG1 LII audio transcoding
- Audio & Metadata pass-through sync'ed to video
- Closed Caption conversion
- Rescaling capabilities for downconversion, PIP and low res picture generation
- Microsoft® Mediaroom® Certified
- AVC and MPEG-2 ad insertion
- HW ready for future applications: digital overlay, real-time audio levelling ...

Flexible
Feature
Rich

Transcoding for QAM/IPTV channels

MPEG2 → AVC (H.264) CBR / SMX

- 144 SD channels per D9902
- 48 HD channels per D9902

In any
combination

Transcoding for ABR channels

MPEG2 → AVC (H.264) ABR

- 1 SD → 4 ABR profiles: 48 SD ABR channels per D9902
- 1 HD → 8 ABR profiles: 16 HD ABR channels per D9902

Density
OPEX

Cisco AnyRes Live Product family overview



AnyRes Live 5300 SD-SDI Encoder

- 1 input
- 4 output
- Full support of adaptive streaming
- Includes HLS, HSS, and HDS
- Supports multiple formats in one box
- Optional HD upgrade license available

AnyRes Live 8300/9300 HD-SDI Encoders

- Inputs
 - 8300: 1 SD/HD
 - 9300: 2 HD or 4 SD
- Outputs:
 - 8300: 16 profiles x HD/SD
 - 9300:
 - 12 profiles x 2 HD
 - 8 profiles x 4 SD
- Supports slate insertion to remove broadcast ads
- New HDMI (8300 only)
 - Non-HDCP
 - Up to 1080p60

AnyRes Live 6300 IP Encoder

- Supports multiple input x output configurations in a 1RU system
- Ingest H.264 or MPEG2 in a MPEG2 transport stream over IP
- MPTS or SPTS

AnyRes Live Software IP UCS Encoder

- Software only
- Supports multiple input x output configurations
- Ingest H.264 or MPEG2 in a MPEG2 transport stream over IP
- Higher density than 6300
- Improved scale & redundancy
- Supported on UCS B200 M3 series



CAL 7.0 with new H.264 codec maintains highest level of detail. Notice the blotchiness of the other encoders under test especially around the angles face.

Cisco AnyRes Live Simplified User Interface

Advanced Settings

Minimum IDR Interval:	5	Fast RD Optimization:	Simplified
Hadamard Transform:	0	Fast Multi Reference ME:	Greedy
Use Deblocking Filter:	<input checked="" type="checkbox"/> Enabled	Fast Sub Block ME:	Greedy
Deblocking Alpha Offset:	1	Fast Intra Decisions:	0
Deblocking Beta Offset:	2	Fast Inter Decisions:	0
Adaptive Deblocking:	Alternative	ME SubPel Mode:	Quarter
B-Slice Pyramid:	<input type="checkbox"/> Enabled	ME Search Range:	+/- 255
B-Slice Reference:	<input type="checkbox"/> Enabled	Entropy Encoding Mode:	CABAC
Cb Offset:	2	Quant Mode:	Plain
Cr Offset:	1	Max Quant:	51
Adaptive B Frames:	<input checked="" type="checkbox"/> Enabled	Min Quant:	1
IDR Frequency:	Every I-frame	Adaptive Q Brightness Strength:	-20
Weighted Prediction:	True	Adaptive Q Contrast Strength:	40
Allow Out of Picture MVs:	<input checked="" type="checkbox"/> Enabled	Adaptive Q Complexity Strength:	60
Number of Slices:	1	Grain Strength:	0
Intra 16x16:	<input checked="" type="checkbox"/> Enabled	Target Linear STB:	<input type="checkbox"/> Enabled
Intra 8x8:	<input type="checkbox"/> Enabled	Max Frame Size Factor (I):	0
Intra 4x4:	<input checked="" type="checkbox"/> Enabled	Max Frame Size Factor (P):	0

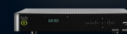
High Density



DCM with AnyRes
48 x 4 SD 16 x 8 HD



AnyRes Packager
≤ 150 x 8 @ 2 encaps



AnyRes Live:

Gen 3 AnyRes Live

SDI: 4 x 8 SD or 2 x 12 HD

IP: 1x16, 2x12, 3x8, 6x6, 8x4, 10x3, 16x1

Cisco AnyRes Packager Overview

Cisco AnyRes Live



Cisco AnyRes Live



Cisco DCM w. AnyRes



3rd Party
Vendor

Channel 1

Encoding

Channel 2-4

Encoding



Channel X

Encoding

Adaptive Transport
Streams

Stream 1
Stream 2
Stream 3
Stream 4
Stream 5
Stream 6
Stream 7
Stream 8

ATS

Stream 1
Stream 2
Stream 3
Stream 4
Stream 5
Stream 6
Stream 7
Stream 8

ATS

Stream 1
Stream 2
Stream 3
Stream 4
Stream 5
Stream 6
Stream 7
Stream 8

ATS

Stream 1	1280x720	3000 Kbps
Stream 2	960x540	2400 Kbps
Stream 3	848x480	1800 Kbps
Stream 4	848x480	1200 Kbps
Stream 5	702x400	800 Kbps
Stream 6	512x288	500 Kbps
Stream 7	400x224	200 Kbps
Stream 8	400x224	110 Kbps

Cisco AnyRes Packager



Microsoft
Silverlight™



Flash Player



DASH

mpeg-DASH

VDS-OS

DASH
Industry Forum

Common Format
(DASH)

Why external encapsulation?

- **Architecture**

- Simplify large deployments by separating encoding from the encapsulation and other business logic
- Encoder configurations remain static; packaging formats and encryption more likely to change
- Benefits encoder's operational simplicity
- Enhanced ABR redundancy

- **Modular**

- Supports various encoders, like the AnyRes Live and DCM w. AnyRes
- Position the AnyRes Packager centrally or distributed

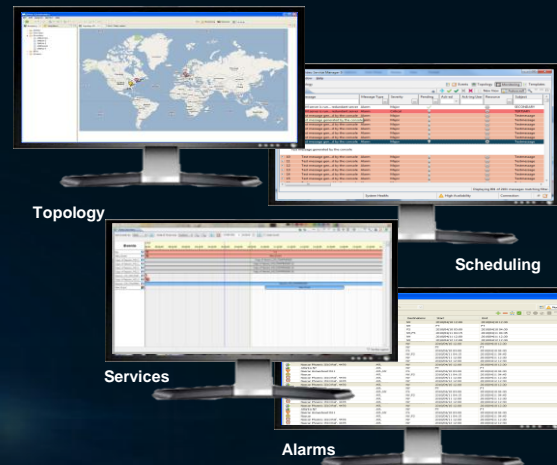
Video Service Manager - VSM

Key features

Cisco ROSA VSM

- Lineup Configuration
- ABR transcoding templates
- Linear transcoding templates
- VSM GUI spread sheet alike concepts in single panes
- Main and Backup mirroring concept of VSM
- Scheduler
- Bandwidth Manager

- Offline configuration, One central platform to configure the service lineup
- Bulk Configuration of Large amount of services and profiles
- Avoid Repetitive Configuration work
- Keep overview
- Multiple DCMs
- Mirror configurations
- Resource awareness
- Reduces GUI interaction by 90%



Cisco Linear Stream Manager



Linear Stream Manager reduces operational expenses by providing best in class management capabilities for AnyRes Live encoders and the AnyRes packager resources.

Consolidated Workflow

Designed to provide best in class management for large and small deployments. Controls the AnyRes Packager as well as the AnyRes Live. Completes stream line-up when combined with VSM controlling DCM w. AnyRes

Encoder/Transcoder and Packager Redundancy

Enables the AnyRes Live and AnyRes packager redundancy to maintain high-availability and QoS.

Streamlined Configurations

AnyRes Live Encoder preset management and stream adjustment options

Scheduled Events

Enables scheduled encoding, maintenance, timed slate, archive , SDI router ctrl

Switched Linear Support

Client driven dynamic resource allocation

Summary

1. Major Picture Quality Improvements
2. Increased Density
3. Operational Simplicity
4. Innovative solutions
5. Competitive pricing



Thank you.



Disclaimer

Many of the products and features described herein remain in varying stages of development and will be offered on a when-and-if-available basis. This roadmap is subject to change at the sole discretion of Cisco, and Cisco will have no liability for delay in the delivery or failure to deliver any of the products or features set forth in this document.

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