

## Load Balancing System

# Envivio 4Balancer

### Load Balancer for On-Demand Applications

The increasing end-user demand requires operators to provide more. Consumers want more content choices, accessed via more networks and viewed on a steadily increasing variety of screens. Envivio 4Balancer™, an essential component of Envivio on-demand, helps automate and control this complexity by optimizing the allocation of transcoding and processing resources in Envivio Muse™ On-Demand file-to-file transcoders. 4Balancer is key to transforming the maximum amount of content in the least amount of time and achieving the highest Quality of Experience (QoE) for subscribers.

### Optimize Speed, Workflow and Operations

A single 4Balancer can distribute processing jobs across a pool of up to 50 Muse On-Demand encoders dedicated to offline file transcoding. As video is being ingested, jobs are created using either a watch folder function or through the use of an external content management system (CMS). 4Balancer assigns priorities to schedule the jobs based on predetermined workflows and awareness of current system conditions.

4Balancer and Muse On-Demand deployed on the multi-node Envivio 4Caster G4 2RU platform simplifies operations and increases efficiency by creating a single, integrated solution that can process up to 216 hours of HD content per day.

### Product Highlights

- Load Balancer for Envivio Muse On-Demand solutions
- Designed to integrate Muse On-Demand and third-party content management systems (CMS)
- Automatically distribute file-to-file encoding jobs to a pool of up to 50 encoders
- Watch folder capabilities for automated job generation
- High-availability equipment with 1+1 redundancy and fail-over management
- Telco-grade equipment with built-in 1+1 redundancy
- Continuous and comprehensive reporting of jobs status by SNMP, Syslog and email
- Integration with quality control (QC) software
- Single-box solution using multi-node 4Caster G4
- Read file from CIFS and FTP/SFTP
- Automated upload to FTP/SFTP server after processing

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## Content Quality Control

4Balancer increases reliability by checking every asset using quality control software. Fully integrated with Envivio VidChecker, 4Balancer adds automatic asset verification within its workflow. Assets that do not meet user-determined quality levels are automatically corrected or rejected.

## Designed for Multi-screen Applications

Envivio 4Balancer works with Muse On-Demand encoders to manage concurrent encoding for all screens: TVs, PCs, tablets and mobile phones. Content can be encoded for multiple screens with different encoding settings per device type. 4Balancer stores presets which are used to dynamically configure the encoder for each encoding task.

## High Availability

Quality of Experience is the key to subscriber satisfaction, and 4Balancer features a number of mechanisms to ensure high availability. 4Balancer automatically re-assigns jobs in the event of interruption on the encoder. Built-in 1+1 redundancy maintains the current job list even in the event of significant disruption to the 4Balancer server. 4Balancer itself features redundant network interfaces and power supplies, while an integrated and comprehensive reporting interface supports job management and simplifies troubleshooting. The integration of Envivio Guru with 4Balancer enables management control across the entire video headend.

The top screenshot displays the 'Presets' management interface. It includes a sidebar with navigation options: System, Resources, Presets, Jobs, Watch Folders, Notifications, and Reports. The main content area shows a table of presets with columns for Name and Description. The table contains the following data:

Name	Description
<input type="checkbox"/> HLS 16/9	HLS 16/9 - 3 outputs devices: Connected TV: 1920x1080@6500kbps / 1280x960@3500kbps Tablets: 1280x960@3500kbps / 960x720@2000kbps / 640x480@1000kbps Smartphones: 640x480@1000kbps / 480x360@700kbps / 400x300@400kbps Audio MPEG-2 AAC
<input type="checkbox"/> HLS 4/3	HLS 16/9 - 3 outputs devices: Connected TV: 1920x1080@6500kbps Tablets: 1280x960@3500kbps / 960x720@2000kbps / 640x480@1000kbps Smartphones: 640x480@1000kbps / 480x360@700kbps / 400x300@400kbps Audio MPEG-2 AAC
<input type="checkbox"/> HSS	Smooth streaming for connected TV Outputs: 1280x720@3500kbps / 960x540@2000kbps Audio MPEG-4 AAC
<input type="checkbox"/> IPTV HD	IPTV HD: Output: 1920x1080@6500kbps Audio MPEG-2 AAC
<input type="checkbox"/> IPTV SD	IPTV SD: Output: 720x576@1500kbps Audio MPEG-2 AAC

The bottom screenshot displays the 'Jobs' monitoring interface. It includes a sidebar with navigation options: System, Resources, Jobs, Watch Folders, Notifications, and Reports. The main content area shows a table of jobs with columns for Name, Priority, Status, Progress, Encoder, and Quality. The table contains the following data:

Name	Priority	Status	Progress	Encoder	Quality
<input type="checkbox"/> Watch folder MXF - 10_000_BC_Trailer.mxf	7	Done		Encoder#1	✓
<input type="checkbox"/> Watch folder MXF - IMX_PrnsaTV.mxf	7	Queued		Encoder#1	✓
<input type="checkbox"/> Watch folder MXF - LOST_SUBBED_SPA.mxf	7	Running	0%	Encoder#1	✓
<input type="checkbox"/> Watch folder MXF - mxf_test.mxf	7	Queued		Encoder#1	✓
<input type="checkbox"/> Watch folder MXF - Prom.mxf	7	Queued		Encoder#1	✓
<input type="checkbox"/> Watch folder MXF - WWE_No_Way_Out_Promo.mxf	7	Failed			✗

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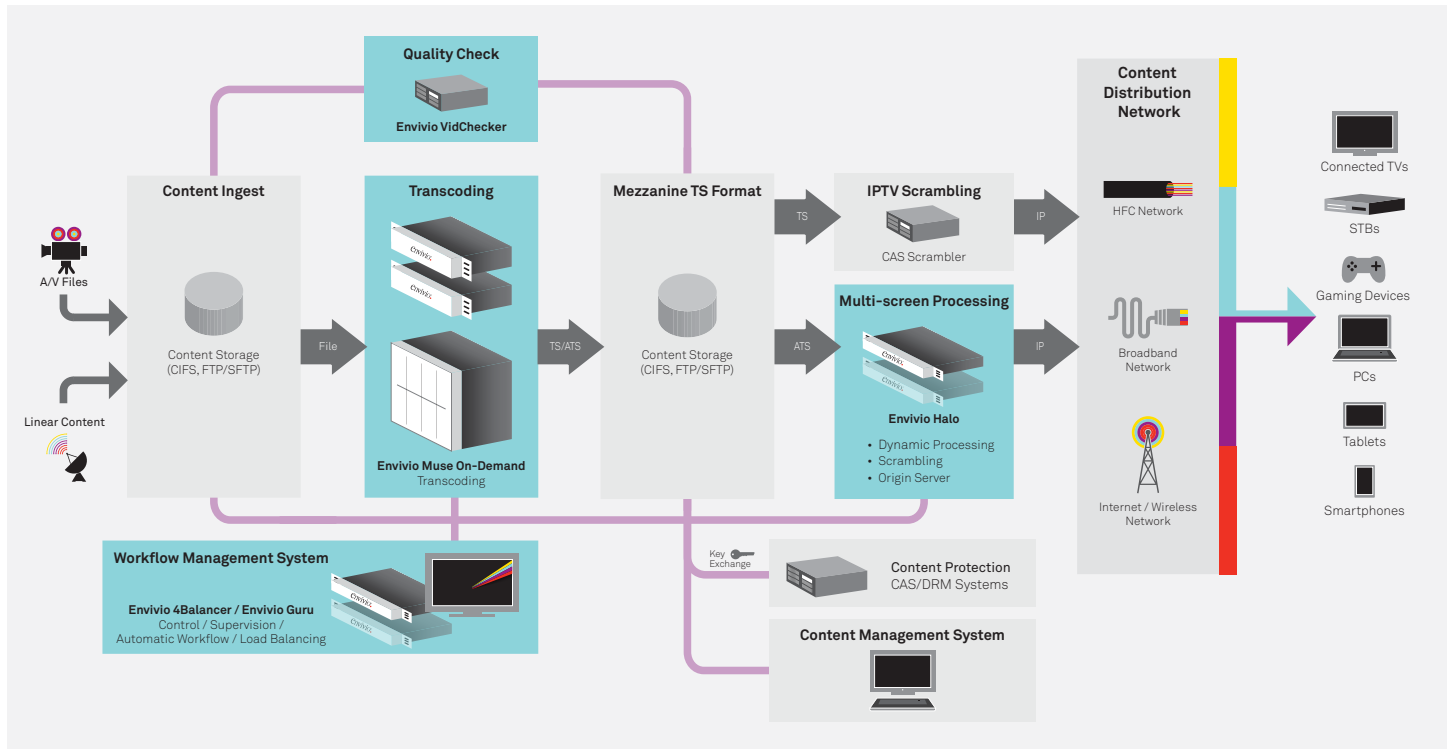
External Interfaces	
Application Ports	4 x 10/100/1000 Base-T application ports configurable ports
Interface to Muse On-Demand	Interface with Muse On-Demand: SOAP/XML and HTTP Up to 50 managed devices
Interface to Content Management System (CMS)	SOAP/XML API to job provisioning system
Encoding Preset Management	
Format Type	XML
	Create, download, remove preset Default preset
Encoding Job Management	
Encoding Job Distribution	First-in/first-out and prioritized encoding jobs distribution to encoder pool Job history Partial encoding Interface with CMS
Watch Folder	Encoding job associated per watch folder Watch folder access: Common Internet File System (CIFS), FTP / SFTP
Security	User profiles and rights management
Integrated QC software	Quality Control (QC) software integration with Envivio VidChecker and Interra Baton
Reporting	
	Encoding job status display on web-based interface Encoding job status notifications by SNMP, Syslog or email (SMTP) to multiple destinations Encoding job history report with configurable history period in XML format Job video quality available in the user interface
Monitor and Control	
Local	Front-panel LCD control interface
Remote	10/100/1000 Base-T Monitor and Control ports: 2 (primary and spare) Control and System protocols: SOAP, HTTP, NTP Web-based interface for monitoring and control Soap interface to network management system Alarm protocols: SNMP v2 Firmware remotely upgradeable
Application Data Protection	External encoding job list and status storage: CIFS Save/Restore configuration
Supported Platforms	
Envivio Platforms	Envivio 4Caster G4 (For additional feature information, refer to the 4Caster G4 datasheet)
Software Edition	Guaranteed performance on HP BladeSystem and Cisco UCS blades <sup>(1)</sup>

(1) For more details, please contact Envivio

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## On-Demand Solution

Envivio 4Balancer and Muse On-Demand are key elements of the Envivio's on-demand solution. This solution is fully integrated and unified, supporting all screens simultaneously. The underlying Envivio 4Caster encoding/transcoding platform extends easily to distribute any combination of mobile, Internet TV and IPTV services, ingesting a large number of content assets and encoding/transcoding for on-demand delivery. The Envivio 4Balancer provides an efficient load-balancing system (up to 50 encoders) and full integration with major CMS and QC software.



# envivio®

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