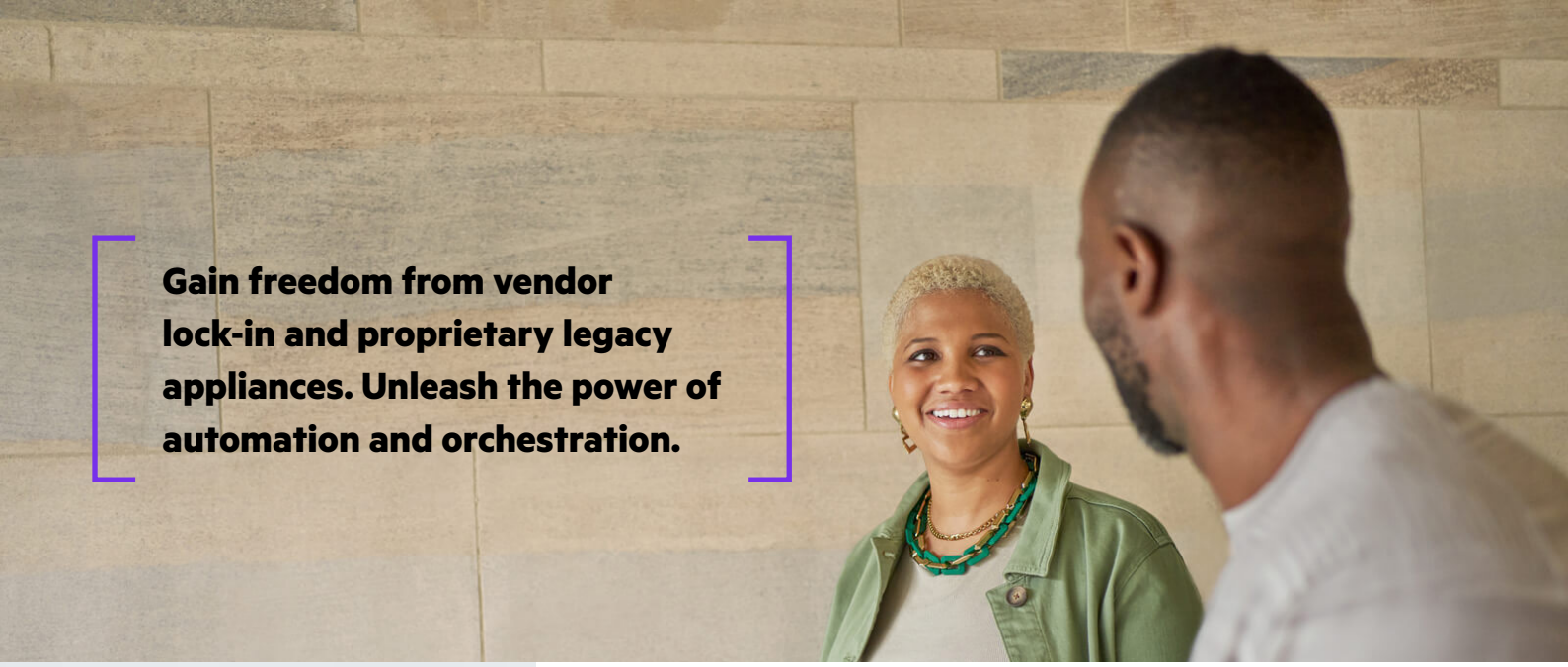
Hewlett Packard Enterprise

HPE Telco Video Headend Manager

Simplify headend operations — save cost and time to market



Gain freedom from vendor lock-in and proprietary legacy appliances. Unleash the power of automation and orchestration.

HPE Telco Video Headend Manager — orchestrating media functions as a plug-in

Virtualize the video headend and launch channels in minutes
HPE Telco Video Headend Manager offers resource management, configuration, and monitoring capabilities for virtualized media functions that are part of a video headend. This enables video operators and broadcasters to instantiate **live linear and OTT channels**, reducing the required time to configure and launch a new channel within minutes, compared to weeks or months with manual headend operations.

Power of choice through an open, vendor-agnostic framework
As a holistic manager of pre-integrated media functions, HPE Telco Video Headend Manager removes the hurdle of dedicated resource pools or appliances for specific vendors.

HPE Telco Video Headend Manager also helps eliminate the need for proprietary controllers, by offering one single interface for the management of a TV channel that consists of multiple media functions from different vendors.

The solution has been designed to run on an OpenStack Cloud, based on standards-based COTS hardware, helping ensure complete openness of the whole solution stack.

- Transcoders, probes, and multiplexers from different vendors as pre-integrated plug-ins
- Dynamic allocation of resources for deployment of virtual video/media functions

Headends are evolving toward fully orchestrated cloud solutions

Increasing competitiveness through the orchestration of video delivery platforms

Barriers that have made it difficult to enter the media and entertainment market in the past now have been removed. Aggressive over-the-top (OTT) video streaming providers have changed the way consumers watch content. They are offering innovative, cost-competitive multiscreen on-demand video services with exclusive content, whereas service providers in developed markets are facing increased churns, slowing growth in IPTV revenue, and decreasing profitability. Transforming existing video delivery systems and operations with virtualization and orchestration results in increased agility, which can enable content service providers (CSPs) to offer flexible service bundles, reduce cost, and accelerate innovation.

Service providers are using Network Functions Virtualization (NFV) and software-defined networking (SDN) in their networks — these technologies can be extended to video processing to bring the same benefits experienced by the IT and communications industries. HPE Telco Video Headend Manager enables the virtualization and orchestration of the media functions enabling one-click channel deployment and channel failover in the cloud. Content providers reduce time to market (TTM) for new services, increase operational efficiency, and reduce cost.

Increase business agility and reduce cost

Lower time to market, incremental investments, and increased purchasing power

In a virtualized headend, the addition of new services or channels can be accomplished quicker as it becomes a matter of automated software configuration. It also enables the shift from a traditional model where appliances had to be purchased at project outset and amortized over multiple years to a model where resources are consumed on demand.

- Integrated fulfillment and assurance (self-healing)
- Complete openness through OpenAPIs

94%[1]

Reduction of channel deployment time due to automation and orchestration.

50%[2]

CAPEX savings in the disaster headend compared to appliance-based environments.

30%[3]

CAPEX savings per HD channel in the main headend compared to appliance-based environments.

HPE Telco Video Headend Manager implementation in a European content service provider's TV network proved the following channel deployment and CAPEX savings metrics.

[1] Channel deployment time: We managed to roll out a new lineup in two days, which typically took four to six weeks earlier. That's one of the points that is mentioned by the customer in the introduction of the testimonial video.

[2] CAPEX savings in disaster headend: This is based on the business case calculation for the customer.

[3] CAPEX savings per HD channel: Also based on the business case calculation for the customer.

Open architecture

Avoiding vendor lock-in

HPE Telco Video Headend Manager is designed with an end-to-end open architecture.

- Commercial off-the-shelf (COTS) hardware
- CPU-based processing (no need for specialized acceleration cards)
- OpenStack private cloud supporting Train release
- Integration of functions through REST APIs

This gives the content providers freedom of choice to produce their channels with the vendors/products that make the most sense for their TV network and help eliminate an ecosystem of legacy, proprietary, or appliance-based technology.

Unified management console

Removing the necessity to configure applications through proprietary interfaces

HPE Telco Video Headend Manager provides a unified console to configure, control, and monitor the media functions (transcoders, probes, multiplexers) from integrated vendors, available as a GUI or application programming interface (API) (REST). This gives the content provider the flexibility to launch a live TV channel from a series of functions provided by a variety of applications chosen by the CSP. Even with a variety of providers' applications to manage, the single unified management console integrates and simplifies the management of the multiple functions with this single tool.

Shared infrastructure platform for components and versions

In addition, the standardized COTS private cloud architecture removes the necessity to maintain dedicated resource pools. The creation of channels using different formats (SD, HD, UHD) or codecs (MPEG-4 AVC or HEVC) can be done using a single pool of shared resources, which increases the sustainability of investments in the infrastructure. The shared pool of compute resources can be reused as technology evolves and new standards are defined.

Manage the full lifecycle of a channel

Definition, deployment, configuration, monitoring, and decommissioning

HPE Telco Video Headend Manager is the single tool to manage the complete lifecycle of live linear channels and OTT content. From a single console the operator can:

- Define channel input, output, and transcoding parameters using a simple modular profile or track template configuration
- Instantiate virtualized resources
- Apply the configuration of respective virtual media functions
- Configure changes throughout the channel lifecycle
- Monitor the end-to-end service, including the application, the service configuration, and the virtual infrastructure
- Upgrade running transcoding instances reducing downtime using smart upgrade functionality and taking advantage of spare instances
- Decommission virtual functions and release resources for reuse

Figure 1 shows how headend functions can be hosted on an open, virtualized infrastructure managed by HPE Telco Video Headend Manager

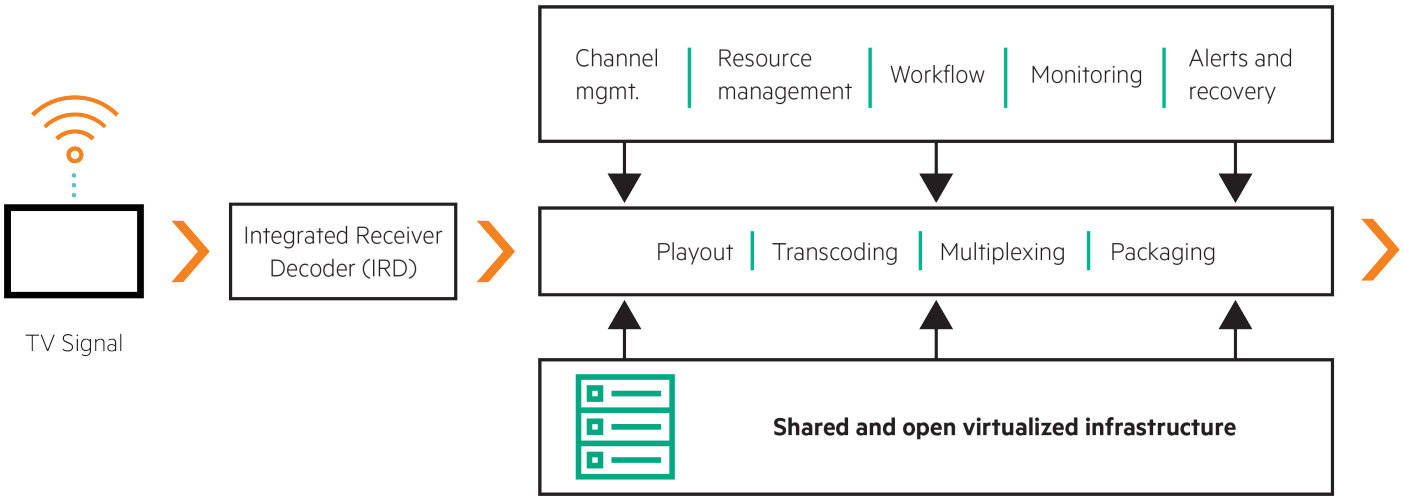


Figure 1. HPE Telco Video Headend Manager boosts service agility and performance

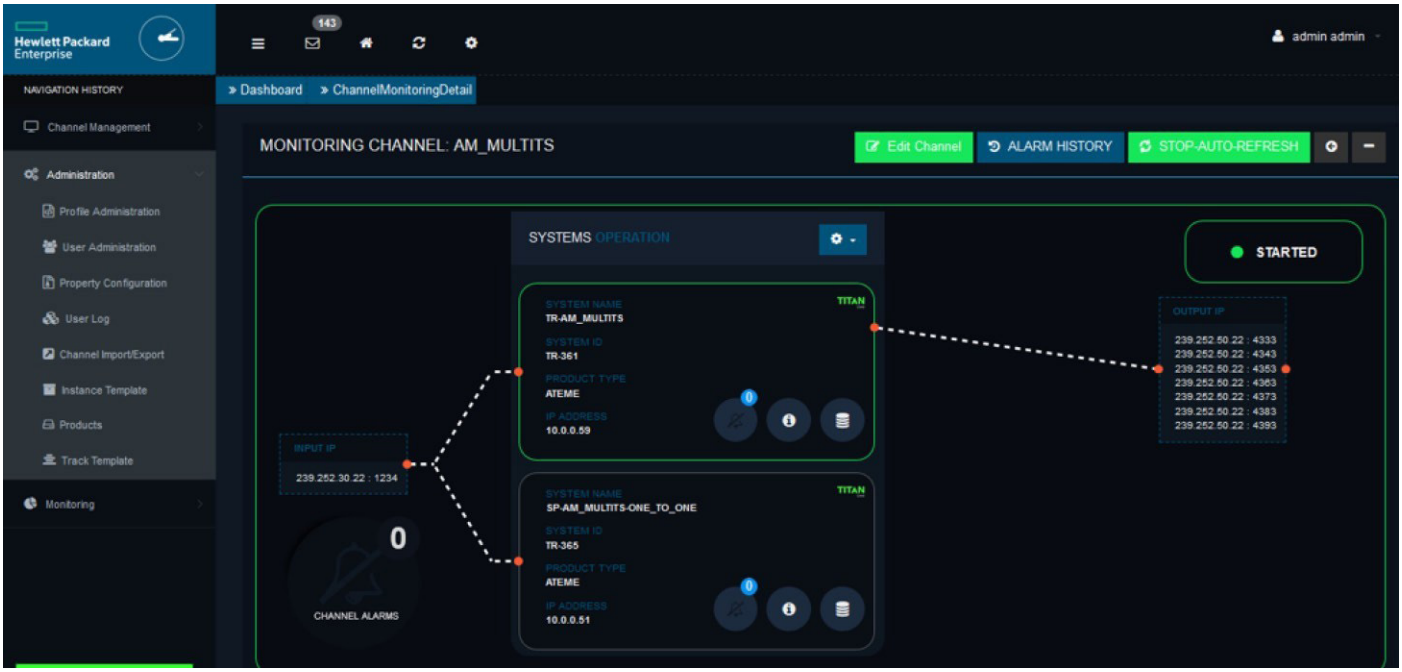


Figure 2. HPE Telco Video Headend Manager Monitoring GUI

Zero packet loss

Live media processing in flawless virtual networks

Live media processing is one of the most challenging workloads to run in a cloud environment, due to carrier-grade network and service availability requirements combined with multicast traffic and complex, existing appliance-based environments. Within the **HPE Telco Video Headend Manager** solution, Hewlett Packard Enterprise provides a reference architecture to configure and utilize OpenStack as the underlying private cloud that helps ensure a flawless virtualized network. With OVS-DPDK, NUMA awareness, and CPU pinning features, a high-level control is provided guarantying low packet loss even for multicast environments and dedicated resources and performances to processing nodes. This is the basic requirement to help ensure the same quality and performance is achieved from a virtualized headend as experienced with legacy appliances. By utilizing the standard OpenStack components, you can help eliminate the requirement for proprietary virtual switches.

Automated failover and self-healing

Integration of fulfillment and assurance to help ensure service availability

After a live channel has been deployed as a chain of media functions, HPE Telco Video Headend Manager monitors the health of the virtualized infrastructure as well as the health of the overall service by utilizing video quality probes. If one of the components in the processing chain reaches threshold or fails, HPE Telco Video Headend Manager recognizes the failure and invokes auto-corrective actions.

For channels that have been deployed in high-available mode either 1+1 or N+M, HPE Telco Video Headend Manager automatically fails over the processing session to the backup instance, and if necessary, restages failed virtual machines to automatically restore the desired state.

Learn more at

HPE.com/us/en/solutions/media-entertainment-digital-tv.html

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