

Hewlett Packard
Enterprise

Accelerating the Next Generation of Media Cloud Services

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Digital Transformation is Accelerating

Video consumption | trends

Video consumption on digital platforms accelerates, and Millennials shift viewing time from traditional television services

>10B 

Connected devices that are
Video enabled
by 2020*

*Source: Strategy Analytics

53% 

Of all viewing among
Consumers 16 - 74 is
Time-shifted*

*Source: Hub Entertainment Research

13.5Hrs 

Per month watching video on
Smartphones*

*Source: Nielsen

>36B 

USD market in 2020 for
enterprise video

*Source: Markets and Markets, 2016

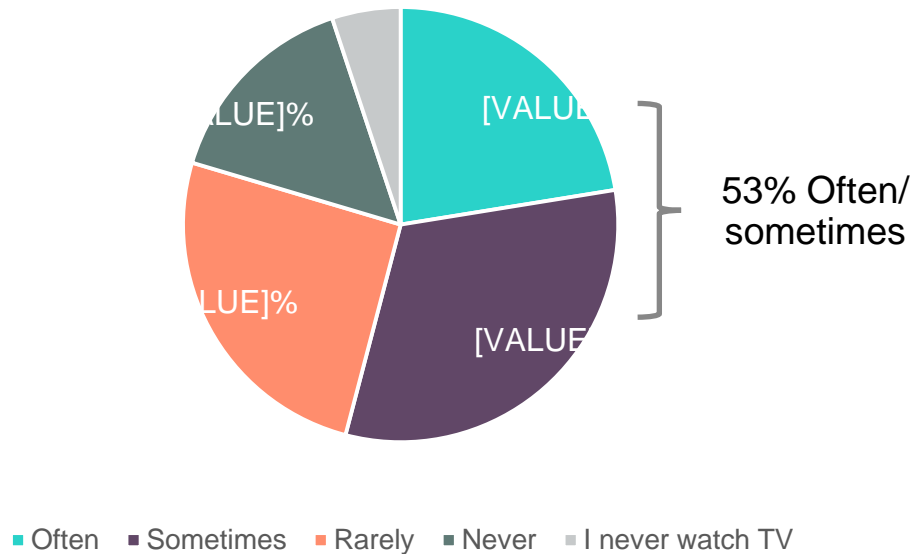
- The TV as we knew it has changed forever, creating new challenges for broadcasters and CSPs distributing videos
- Connected devices enable customers to watch TV anywhere and any time, at home, or on the move
- Video is consumed on any type of device and with increased image resolution (new iPhones have 4K video recording)
- The global enterprise video market is expected to grow to USD 36.8 Billion to 2020, at a CAGR of 16.7% from 2015 to 2020
- The Digital experience will be predictive and personalized with relevant recommendation for VoD as well as replay and non linear TV programs

The rise of screens | Device Trends

Globally there will be more screens than people in 2017. The increased penetration of mobile screens increases the TV audience as more people are capable to receive videos at home and on the go

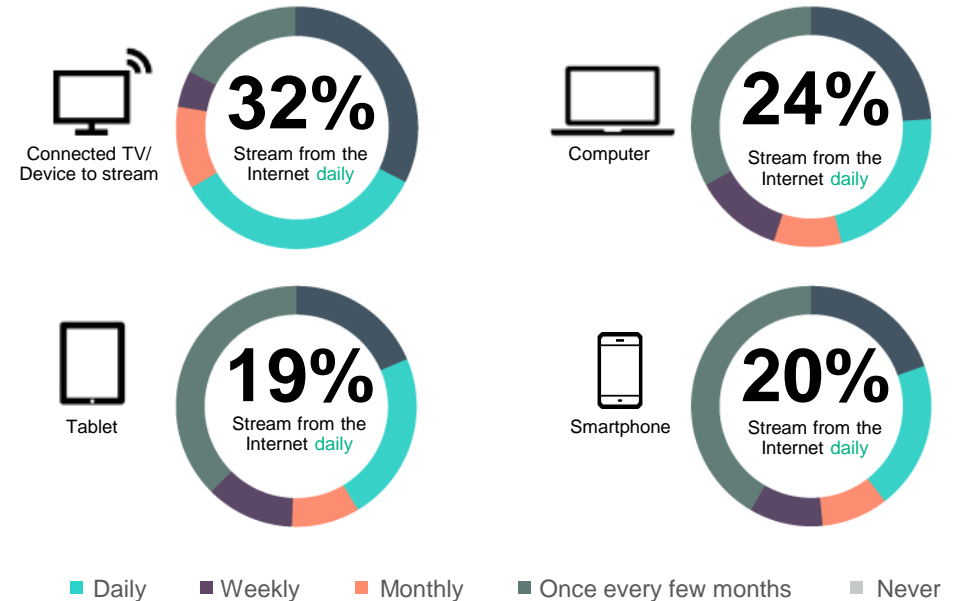
Trends: Simultaneous use of TV and smartphone for videos

How often do you watch video on your smartphone while you are watching TV?



Source: IAB, *Mobile Video 2015: A global perspective*

Frequency of use of devices for video streaming

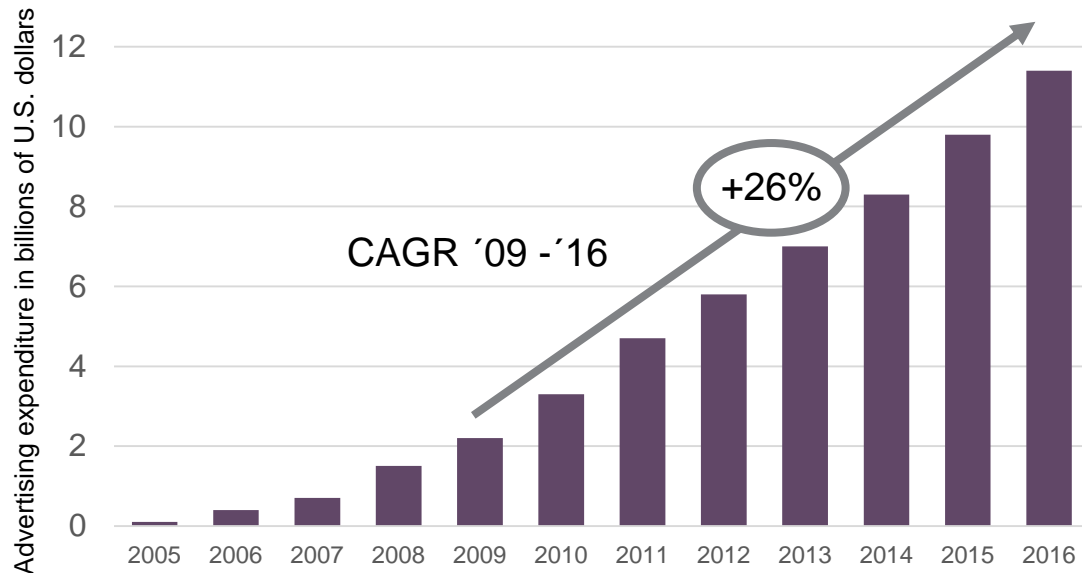


Source: IAB, 2015, *The Changing TV Experience: Attitudes and Usage Across Multiple Screens*

Digital Video Advertising | Market trends

Digital video advertising is one of the fastest growing interactive ad segments over the next years, with 'free' ad-supported streaming getting increasingly popular

**Worldwide online video advertising spending
from 2005 to 2016 (bln US\$)**



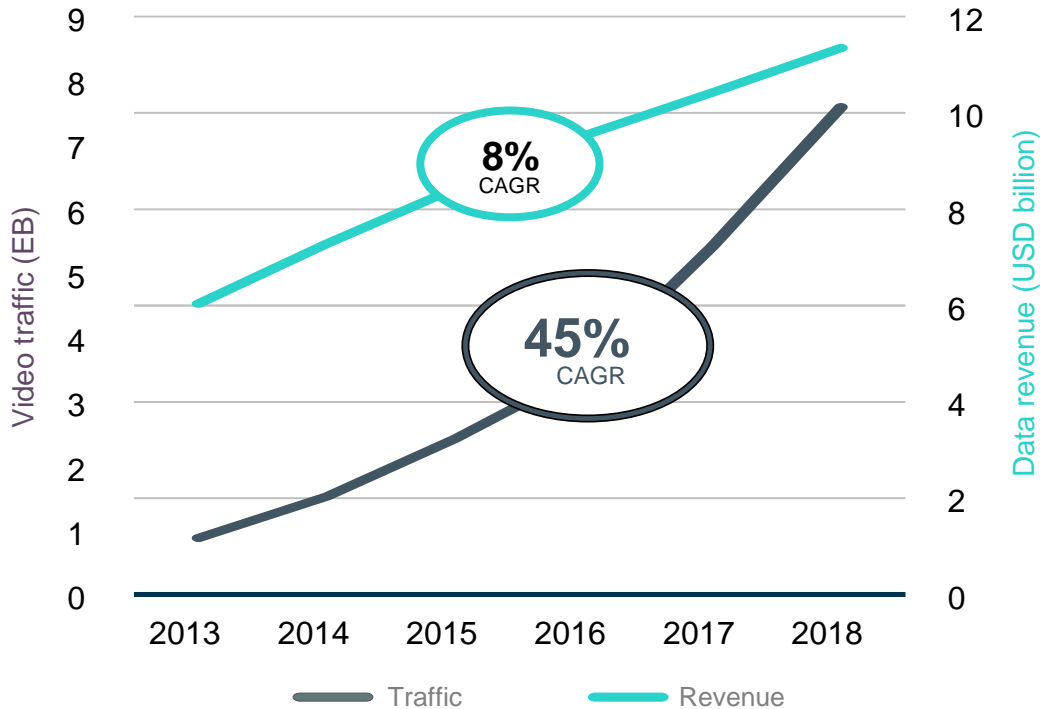
Sources: Global entertainment and media outlook 2014-2018,
PwC, Informa Telecoms & Media, Magnaglobal

- Global video Internet advertising revenue is rising at 26% CAGR
- The boost in video consumption is boosted by Mobile devices with larger screens and connected devices
- The increased penetration of other connected devices (connected TVs, Set top Boxes, OTT sticks) is boosting the consumption of Ad – supported video streaming

The pressure on costs | Infrastructure Trends

When up to 90% of internet traffic is video, the CSPs feel the bottom line impact. The increased penetration of smartphones increases the people's ability to watch videos anytime, anywhere

Mobile video traffic on cellular networks and mobile data revenue from smartphones and USB modems,

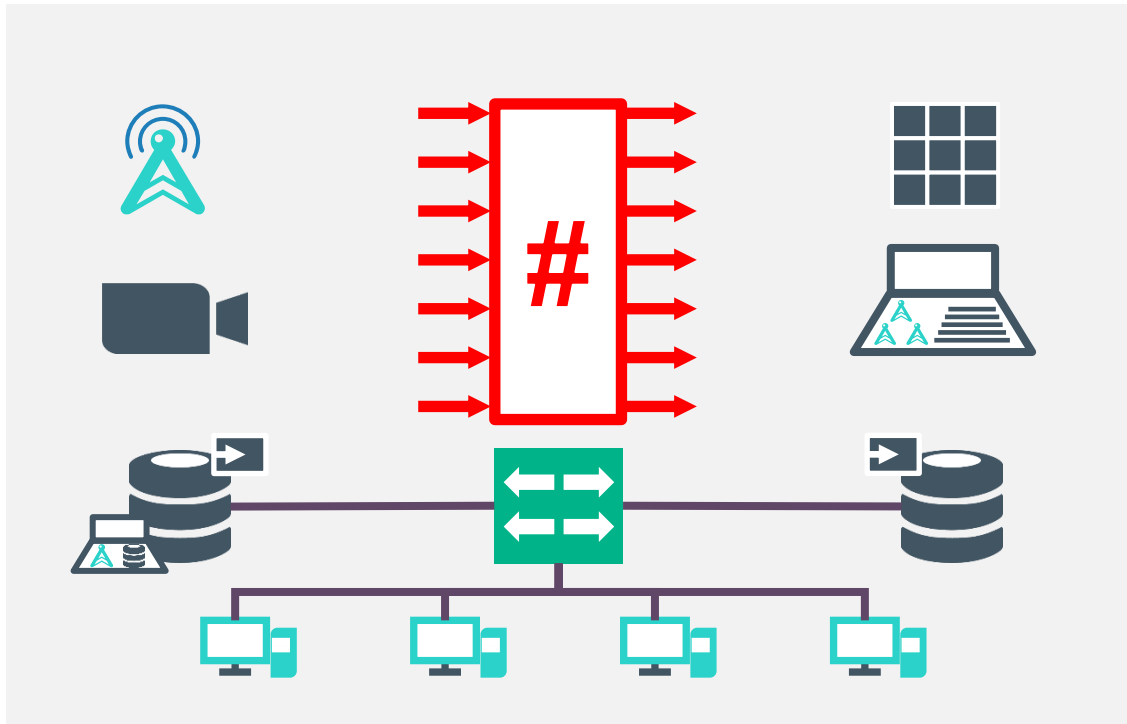


Source: Analysys Mason

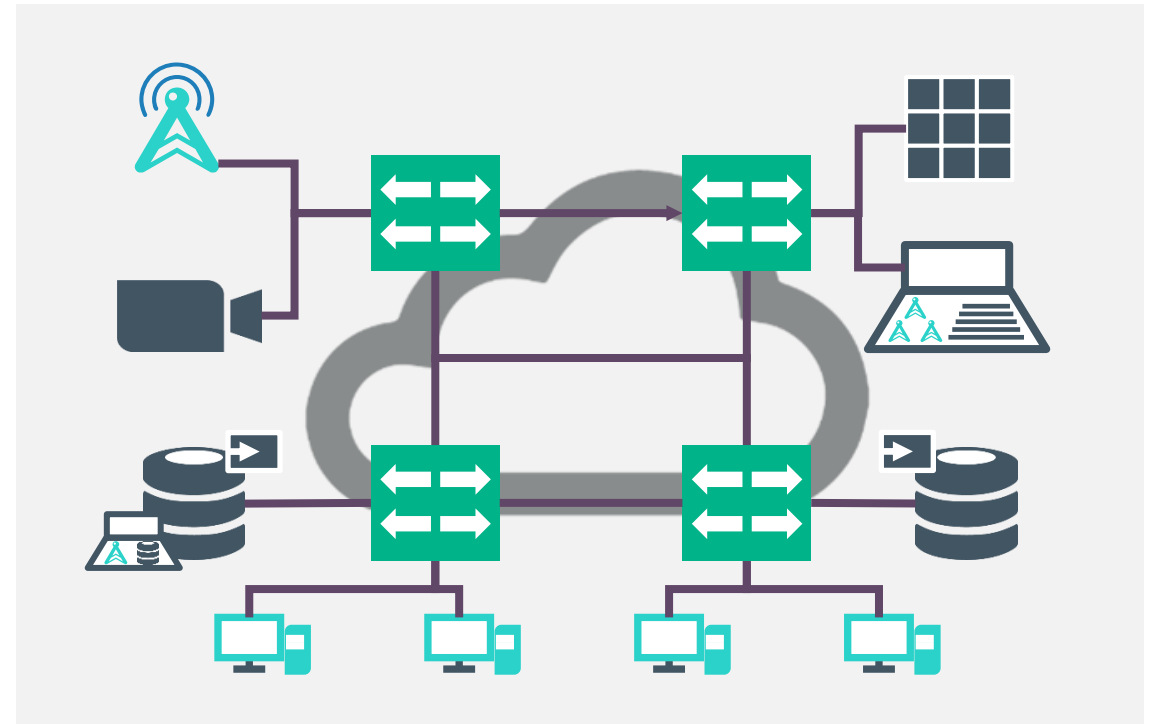
- Mobile video traffic on cellular networks is skyrocketing at 45% CAGR
- However, with 8% CAGR, the revenues from smartphones doesn't grow as fast
- CSPs need to radically change their media supply chain to improve operational efficiency and capture new business opportunity
- CSPs actively pursue the Virtualization of Media services (NFV, Hybrid Cloud, Services Orchestration...) for full agility and faster Time to Market

A fundamental shift | A/V Trends

The shift from linear to non-linear content demands a seamless transition to the IP network of the future where content can be grabbed when needed and infrastructure responsive to its needs



Hybrid SDI / IP	Dedicated I/O	Fixed format
Centralized	Limited Scalability	Expensive



Full IP	Generic Network	Format Agnostic
Distributed	High Scalability	COTS Economy of scale

4K UHD | Video quality trends

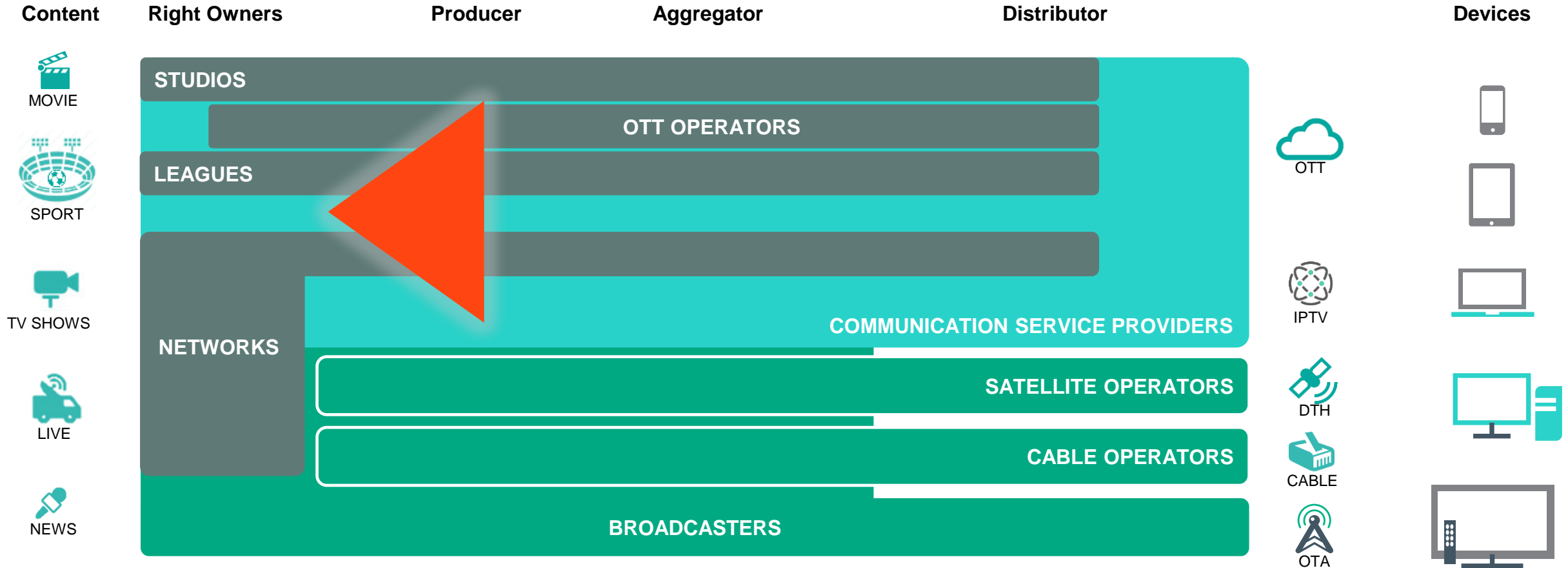
The rise of 4K Ultra High definition is having radical impacts on video infrastructure



- File size > 8 times conventional HD 1080i or 720p TV program
 - High processing power of High efficiency video compression
 - Larger Storage
 - Much larger networking capabilities
- Consequence:
 - Hybrid cloud model
 - IP networking is the only viable option (format, cable)
 - Upgrade of encoding and management technologies

The TV Value Chain | Convergence of CSPs and Broadcasters

The relationship between content and carriage of content becomes even more important as convergence finally happens between internet, telecoms and tv.





Media cloud services

The era of virtualization

The path to Rich Video Services

CMO / Marketing and Product Teams

- Any time services: Replay, record, on-demand
- Any device services: Mobiles, TVs, tablets
- New viewing options: TV Everywhere; OTT
- Viewing enhancements: 4K, HDR, HFR
- Improved experience: Dynamic Ads

CTO / CIO / Network Operations

- Transformation to IP and Cloud
- Expansion to new platforms: OTT, VoD
- Future-proof and agnostic infrastructure
- Scalability to manage peaks periods or events

Services Layer

- Cloud-deployable
- Adaptable to all platforms
- Future-proofed

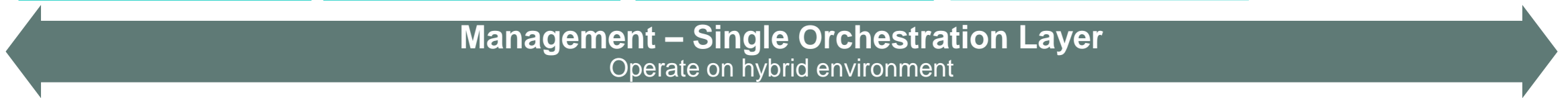
Resource Layer

- Baseband to hybrid IP
- Cloud-based operations ready
- Virtualized network functions
- Elastic scale

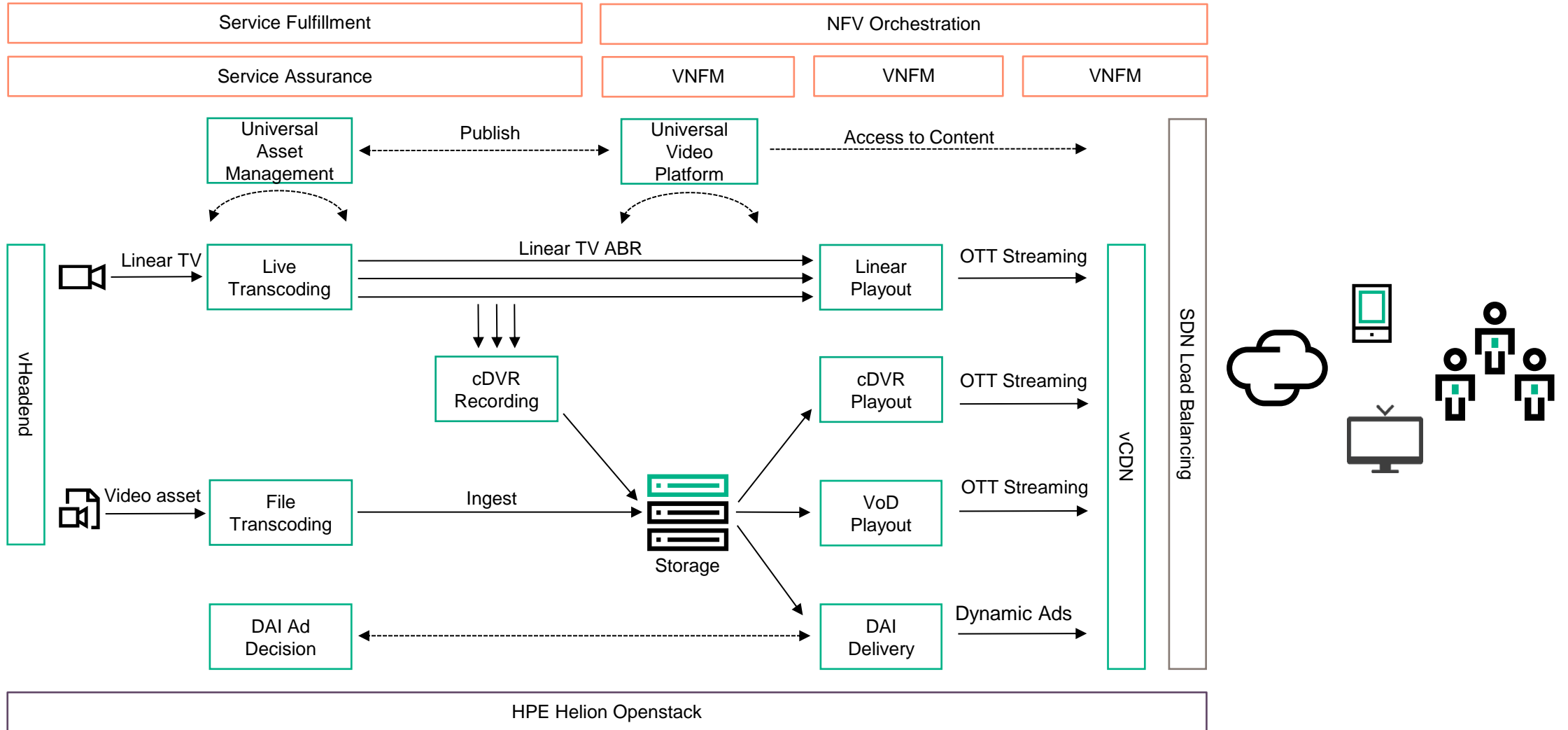
The innovation of Media Services with NFV infrastructure

Boost innovation and reduce operational overhead

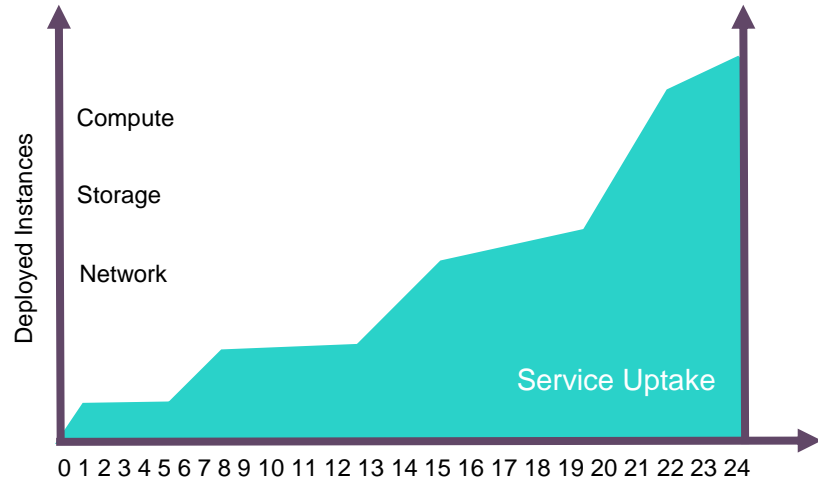
Content Management	DAI	Cloud DVR	vCDN	Virtualized head end
<p>Media management and automation functions</p> <p>Benefits</p> <ul style="list-style-type: none"> • Manage virtual resources • Improve operational efficiency • Automate and monitor processes 	<p>Advertising insertion in ABR streams</p> <p>Benefits</p> <ul style="list-style-type: none"> • Dynamic resources allocation • Flexibility on events and geographies • No proactive allocation 	<p>Virtualize and manage multiscreen on-demand services in hybrid environments</p> <p>Benefits</p> <ul style="list-style-type: none"> • Absorb peaks • Exceed geo capacities • Simplify operations • Optimize operational cost • Faster GTM 	<p>Optimized virtual CDN for video distribution in hybrid deployments</p> <p>Benefits</p> <ul style="list-style-type: none"> • On demand resources allocation • Evening and WE peaks management • Leverage on other enterprise services structures 	<p>End-to-end OTT head end, packaging OTT</p> <p>Benefits</p> <ul style="list-style-type: none"> • Dynamic resources allocation • Cost-efficient recovery model



HPE Content Distribution Virtualization Functional architecture

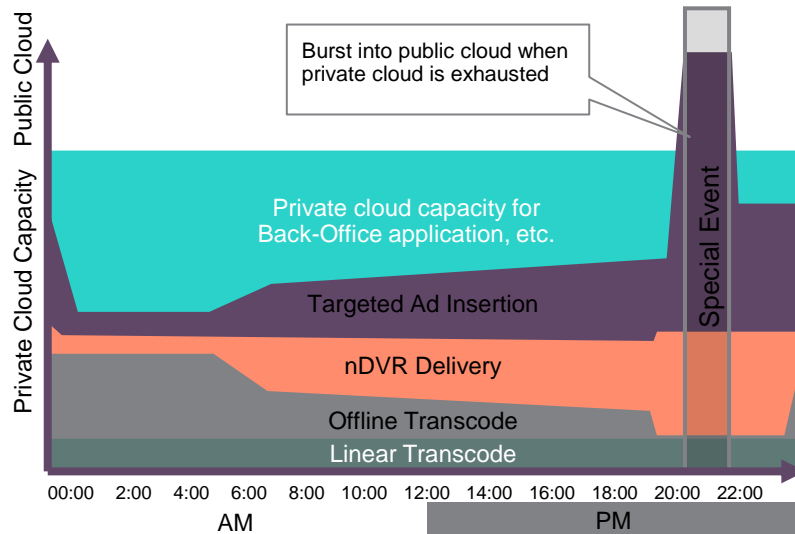
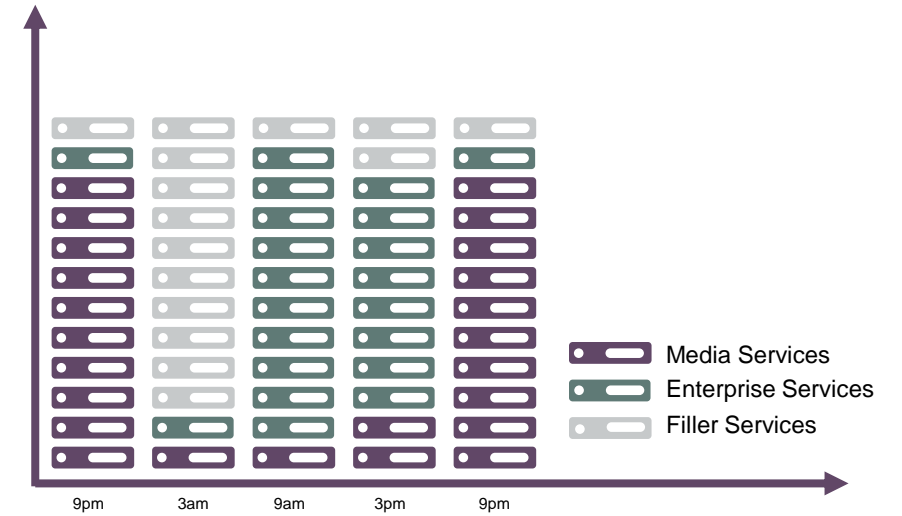


Accelerating Time-to-market



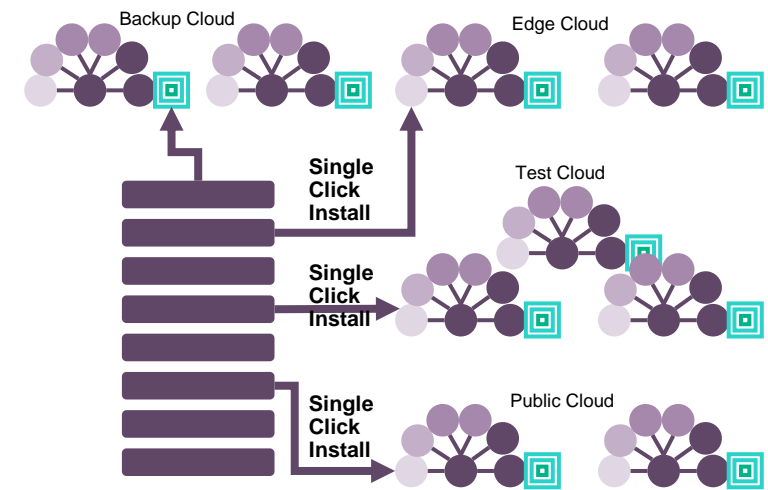
Scalability

Orchestration



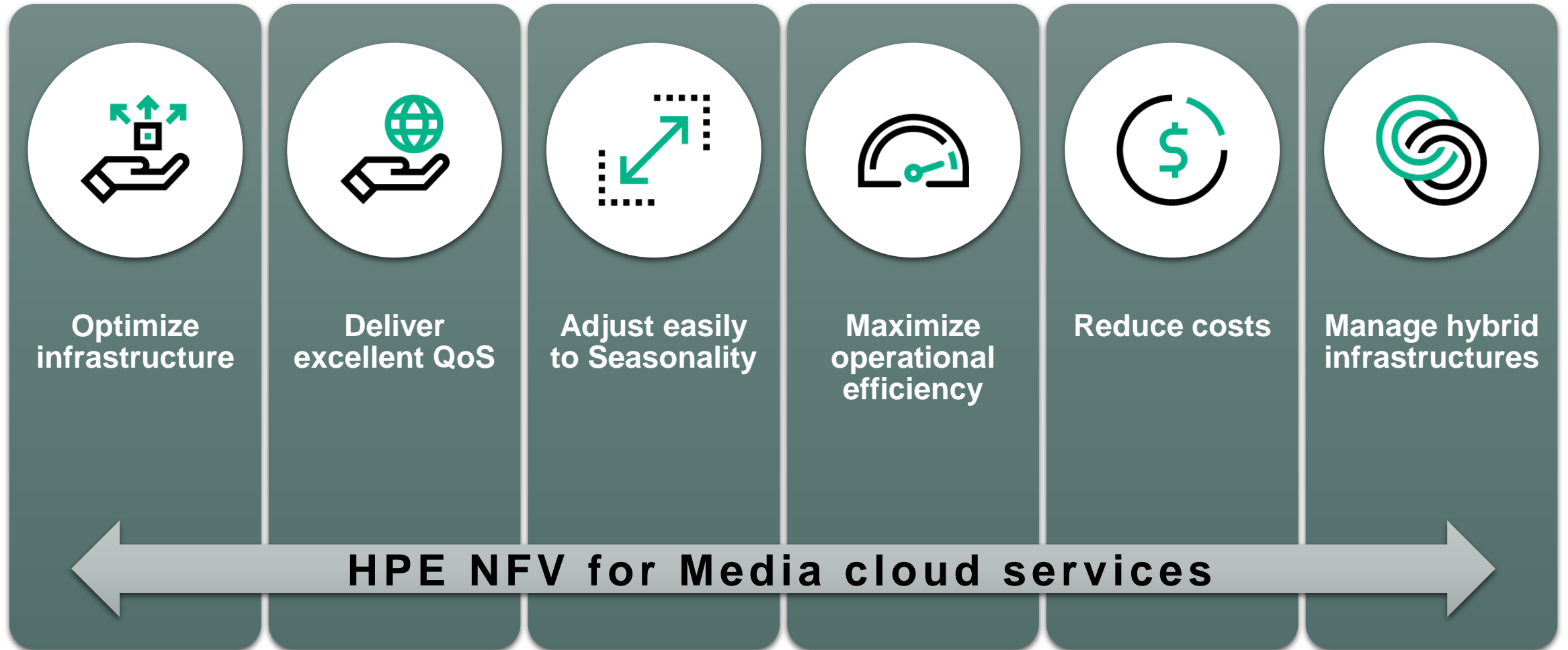
Shared resources

Single click install



What to expect from NFV for your new Media Cloud Services

A complete new set of Video management and delivery services





How to succeed in this evolving industry

Fulfilling the vision | **Would you succeed in your transformation?**

How to efficiently deploy, lower risk and avoid vendor lock-in

HPE brings you:

- Transition from Baseband only to **Hybrid** IP and bare metal environments
- **Complete E2E** set of modular solutions to manage and automate media assets lifecycle
- OpenNFV: Bringing broad **interoperability** through open standards and open source
- **Flexible user interface**, fully configurable to environment and preferences
- Powerful **orchestration** capabilities with **HPE NFV Director**
- Advanced **IT services** to efficiently manage transitions
- HPE brings the business **Expertise** of a market leader for cloud, infrastructure, orchestration, virtual network functions, experienced in defining and delivering large and complex solution for telecom and broadcast companies



Key success factors

Work with a strong partner for your transformation journey

Define a Media Cloud strategy that really meets your business objectives



Which Media service in which cloud
Cost structure
Media services deployment

Define the right Media services virtualization strategy



What to virtualize
Which KPIs

Define an open virtualization architecture



Vendor Lock-in
Supportability requirements
Media virtualized NFV services

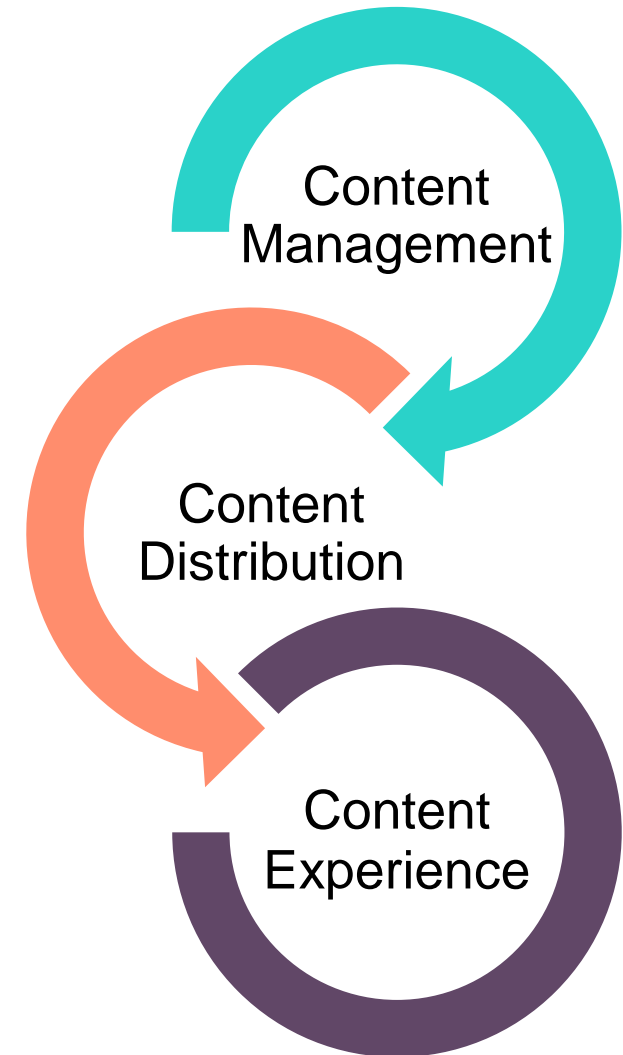
Get the right Management & Orchestration layer for hybrid environments



Operational silos
Hybrid environments
Manage services not

From multiplatform chaos to new IP media consumption models

- Consolidate legacy systems into virtualized media cloud services, and get the flexibility to efficiently manage, with single click deployment, faster time-to-monetize and scaling for special events
- Reduce operational costs and complexity with standardized operations and processes to manage media cloud services
- Enable a rich and immersive customer experience with customized content, advertising, social media and recommendations
- Cater to changing viewer habits demanding unparalleled experience anytime, anywhere, perfectly tailored for choice of device





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Thank you

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