Agenda

• Market Landscape, Opportunities and Challenges
• Update on Cisco Infinite Solutions
• Related Cloud Solutions
• Summary & Close
## Cisco Industry Leadership

### Infinite Solutions

- Over 70 aaaS Customers

![Logos of various companies](image)

### Virtualized Video Processing

- Open, Validated NFV Infrastructure

![OpenStack, EANTG, OpenDaylight, ETSI logos](image)

### Security

- Trusted Partner

  - #1 Video and Data Center Security
  - $100B+ in customer revenue protected
  - 300M+ active client devices secured
Delivering on Deployments

Changing the Way People Are Entertained and Informed
## Business Priorities For Content and Service Providers

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<tr>
<th>Secure</th>
<th>Enable New Business Models</th>
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<tr>
<td></td>
<td>• Secure content and revenue across all screens, networks and business models</td>
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Today’s Problems

- **Fragmented, Fragile**: Improve infrastructure utilization
  - Lower operational costs and increase efficiency

- **Stale and Outdated**: Reduce Total Cost of Ownership
  - Move from months to days and minutes for supporting new services and workflows
  - Simplify infrastructure and service management

- **Manual and Complex**: Optimize Static, Siloed
  - Rapidly deliver compelling new experiences that increase revenue
  - Increase relevance across targeted demographics and generations

- **Slow and Siloed**: Enable New Business Models
  - Secure content and revenue across all screens, networks and business models
  - Provide comprehensive and adaptive security to dynamic threat landscape

- **Enabling New Business Models**
  - Cloud
  - Video
  - Cloud DVR
  - VOD
  - Broadband Services
  - Routing Services

- **Fast and Flexible**
  - Orchestration
  - Storage
  - Network

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Cisco Open Network Architecture for Service Providers

Unified
Fragmented, Fragile
Comprehensive

On-Demand
Slow, Outdated
Software Based

Automate
Manual, Complex
Orchestrated

Programmable
Static, Siloed
Elastic & Scalable

Applications
Video
Cloud DVR
VOD
Broadband Services
Routing Services

Virtual Network Functions
Capture
Splice
Route

Orchestration
Encrypt
Ad Insert
Package
Playout
Virtual Network Functions

Compute
Storage
Network

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Cisco Solutions for Video
Service Providers and Content Providers
Cisco Infinite Solutions
Grow Your Video Business with Infinite Solutions

Monetize Consumer Experiences
- Provide personalized, rich and consistent experience on any screen
- Grow and adapt your service with relevant and targeted offerings
- Offer flexible pricing models like Subscription, Ads, App store, A la carte

Deliver to Market Faster
- Launch Infinite Solutions aaS for quick service introduction
- Implement frequent service updates
- Deploy new service enhancements in minutes instead of months

Reduce Your Costs
- Cut operational costs with scalable cloud infrastructure and aaS deployment
- Reduce your risk with pay-as-you-grow pricing model
- Benefit from pre-integrated, solution with proactive roadmap
Cisco Infinite Solutions

One Cloud

Any Network

Any Device

Intercloud

Captivating UX  DevOps for Video  E2E delivered aaS

Seamless extension of Pay-TV experiences to multiple screens for Cable, Satellite, Telco

OTT solution to create new content monetization opportunities for content and service providers
Infinite Home

One of the largest Service Providers in Europe
- Deployed Cisco Infinite Home as its private cloud & V2P data plane
- Enable a comprehensive and quick-to-change multi-screen Pay-TV service with immersive viewer experience across all the screen

Infinite Video

US based provider of premium content
- Infinite Video enables AMC to quickly deliver OTT services to unmanaged device

Infinite Broadcast

Leading Satellite Service Provider in Turkey
- Adopt as-a-Service model for Cisco to install and operate application software in the cloud
- Enable subscriber to view multiple source of content in multiple devices
<table>
<thead>
<tr>
<th>Optimized to device type and network condition to provide excellent performance</th>
<th>Personalized, with profiles, recommendations, content sharing, favorites</th>
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</thead>
<tbody>
<tr>
<td>Wide range of all popular devices and platforms for primary and secondary screens</td>
<td>Targeted to your subscribers, based on real-time testing and analysis</td>
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<tr>
<td>Consistent experience provided from the cloud to all types of devices</td>
<td>Proven, deployed globally with over 100 customers</td>
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</table>
Infinite Broadcast
One-way / hybrid video experience for managed devices

Introduce rich hybrid services
Add IP delivery to introduce new revenue generating services that strengthen loyalty
Target and personalize content for individuals and groups in the household
Deliver a unified experience across devices with the unique Snowflake design

Deploy quickly
Use the Cloud to develop new features and functions faster
Leverage the broadcast pipe to deliver innovations without software download
Modular client architecture supports rapid delivery and updates

Cloud transition
Grow your Evolution platform with no-regret investments
Merge broadcast and IP delivery for efficient network usage
Hybrid cloud/on-premises models puts the right technology in the right place
Infinite Home
Two way video experience on any screen

**Unified, differentiated UX**
- Across screens with unique Snowflake design
- Customized experiences using open API’s

**Cloud powered thin-client**
- Architecture that allows you to innovate and rapidly provide new services
- Transition business logic to the cloud while minimizing CPE software
- DevOps for automated and continuous feature deployment

**Reduce your TCO**
- Pre integrated E2E solution
- Pay-as-you grow with aaS model
- Open standards allow you to reduce integration costs
Cloud powered

• Transition business logic to the cloud
• Provision services with control interface
• Deploy updates to users on an ongoing basis
• Cloud infrastructure using OpenStack

Thin client

• Limit CPE software to a minimum: media play, recording, graphics’ rendering and required elements of security and device management
• Modular STB client software based on open standards and RDK/Android core
• Secured with Cisco VideoGuard solution
Infinite Video
Over the top (OTT) video experience for un-managed devices

Any screen, Anywhere
All TV services – Linear, VoD and download on the consumer device
Extensive range of devices covering all major consumer platforms
Global customer deployment

Deploy and Update quickly
Cloud based, pre-integrated services accessed via Productized UX
Agile and DevOps processes mean higher frequency updates and iterations

Cisco managed, hosted & protected
Provided As a Service (aaS), with consumption based, pay as you grow pricing
Intercloud/hybrid deployment model reduces capex and opex
Data and Content protected with Cisco Security solutions
Multi platform
Infinite Solutions
DevOps for Video

**Built for the Cloud – supports global aaS customer base**
- Micro services architecture that enables rapid provisioning
- Multiple cloud instances for gradual service introduction

**Rapid cycle of development, testing and launch of new innovations**
- Continuous integration and deployment (CI/CD) processes and tools
- Business and operational analytics tools
Maintain & Increase audience

- Be the first to deliver new functionality
- Ability to rapidly support new devices, platforms and OS
- Maintain legacy platforms in the field

Monetize quickly

- Integrate with new 3rd part functionality e.g. Billing, advertising
- Upsell new services such as 4K
- Fast support for new business models
Infinite Solutions
End-to-end Solution Delivered as a Service

- Pre-integrated and tested with proactive roadmap
- Open ecosystem – 3rd party innovation
- Automated and virtualized video processing workflows
- Securing the end-to-end video delivery value chain
- Delivering linear, on demand and cloud DVR services
Infinite Solutions Selected aaS Customers

<table>
<thead>
<tr>
<th>sky</th>
<th>DIRECTV</th>
<th>CBS</th>
<th>AMC</th>
<th>Hallmark</th>
<th>ACC</th>
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<tbody>
<tr>
<td>DreamWorks</td>
<td>vodafone</td>
<td>CBN</td>
<td>NBC Sports</td>
<td>FOX Sports</td>
<td>arte</td>
</tr>
<tr>
<td>FOXTEL</td>
<td>astro</td>
<td>Universal Sports</td>
<td>eastlink</td>
<td>ROGERS</td>
<td>Associated Press</td>
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<tr>
<td>Bell Media</td>
<td>D·SMART</td>
<td>ten</td>
<td>Tastemade</td>
<td>LesMills</td>
<td>FOX Soccer</td>
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<tr>
<td>Awesomeness TV</td>
<td>fusion</td>
<td>tmg</td>
<td>ProSiebenSat.1 Media AG</td>
<td>The Weather Channel</td>
<td>YOUNG HOLLYWOOD</td>
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<tr>
<td>NBC Universal</td>
<td>NFL</td>
<td>Disney</td>
<td>CRICKET AUSTRALIA</td>
<td>Stan</td>
<td>CONDÉ NAST</td>
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Related Cloud Solutions
Cisco Virtualized Video Processing
Video Processing Transformation

Legacy

2015: Virtualized Main Screen Functions

Applications

Orchestration

Infrastructure
Video Processing Transformation

2016: Video Headend Innovation

Applications

- 3rd Party
  - Bandwidth Optimization
  - Encoding
  - Packaging

Infrastructure

- Orchestration
  - Openstack
  - Dakari

Cloud Object Storage

Open Media Distribution

Transforming how CDNs are built, operated and deployed with an open, SaaS and NFV model

Open Media Distribution

V2P Platform Controller

Open integration framework, simplifying deployment and orchestration of virtualized functions across hybrid infrastructure

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Increase Feature Velocity to Support Video Delivery
Open extensible platform with plug-in architecture
Continuous Cisco and Open Source development

Cost Effective and Flexible Scaling
Scale across cloud, NFV and hybrid infrastructure
Support & operate fees common with open source

Accelerate Deployment, Simplify Operations
Cisco SaaS provisioning, management, analytics
Dynamic service chaining with V2P orchestration
Transform Storage Economics with Cloud Object Storage

- Lower Total Cost of Ownership
- Support multiple services from common storage
- Simplified Configuration and Management with V2P

- Optimized Performance for Video Services
- Quality of service for every session
- Low latency and high throughput storage service

- Elastic Scale to Meet Video Storage Growth
- Software-defined scale-out architecture
- Petabytes of data and billions of objects
V2P Powers Cisco Infinite Solutions

- Pre-integrated and tested for rapid service deployment
- Support picture quality for main screen video delivery
- ABR, DRM, CDN orchestration for multiscreen delivery
- Flexible deployment across hybrid cloud infrastructure
- Unified storage for all video services
- Feature velocity with DevOps and CI/CD
Cisco Security Solutions for Service Providers
Enabling New Video Experiences
On Any access network, Any screen, Anywhere

Moving to open, IP and cloud based video delivery allows you to monetize new market opportunities…

… It also makes video delivery more complex, and more challenging to secure …
Enabling New Video Experiences
On Any access network, Any screen, Anywhere

Data Center Security
Secure cloud infrastructure

Video Service Protection
Secure distribution to any screen

Anti-Piracy Services
Stop video piracy

To enable your business, you need an end-to-end security solution
VideoGuard Everywhere Business Outcomes

**Protect Your Revenues**
- Comprehensive security built on CA and multi-DRM with added protection
- Proactive services including operational security & streaming piracy prevention
- Longest unhacked track record, over 10 years

**Enable Premium Experiences**
- Security support for advanced features and business policies
- Approved by major studios for UHD content delivery
- Scalable, enabling service enhancements with same infrastructure

**Reduce Your Costs**
- Unified and simplified operations across networks, content formats and screens
- Pre-integrated, open standards solution with proactive roadmap
- Flexible offers with pay as you grow pricing model
Our Differentiating Video Solutions

<table>
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<tr>
<th>Open, Orchestrated, E2E, SaaS Family of Solutions</th>
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<tr>
<td>Powered by the Cloud to Speed Up Service Introduction and Lower Operational Costs</td>
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<tr>
<td>Enables Fast Time-to-Market for Revenue-Generating Services in the Home or on the Go</td>
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<tr>
<td>Industry’s leading content and service security</td>
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Cisco Enables SP and CP Transformation to Cloud
Thank you.