



# Video Aware Networking

Cisco Knowledge Network Webinar

Adam Davis, Daren Mallard, Yoav Schreiber

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# The Future of Video is in the Network

## We live in a world defined by

- More video shifting to IP and mobile
- IP traffic becoming more complex to manage
- Service velocity requirements exceeding network abilities
- Increasing cyber threats and attack surfaces

## We need a very different network

- Delivers differentiated end-user experiences
- Scalable and simple to operate
- Dynamically adjusts with real-time information and automation
- Security built into the network fabric

By 2021\*



82% of IP Traffic from video  
9x increase in mobile video



278 Exabytes per month  
3x increase in IP traffic



27+ Billion connections  
51% M2M, 48% video



DDOS Frequency and size  
3m+ DDOS attacks > 1Gbps

\* Source: Cisco VNI Global IP Traffic Forecast, 2016-2021

# Introducing Cisco Video Aware Networking

Automating How Network and Applications Adjust to Real-Time Data

Informed by Context



Network Telemetry  
Video Quality  
Security Threats  
User Behavior

Powered by Intent



Automated Operations  
Quality of Experience  
Dynamic Protection  
Subscriber Monetization

# A New Era of Video Aware Networking for Service Providers

- Deliver video quality at scale
- Cost effectively deliver personalized experiences across devices
- Support existing and new business models to fully monetize premium IP video services
- Confidently capture new opportunities by addressing evolving security vulnerabilities

# Video Aware Networking for Service Provider Transformation



## Operations

Virtualize, automate and simplify from a 5G ready and cloud scale network foundation



## Experience

Premium video, mobile, and IoT services delivered at scale to any device



## Innovation

Innovate faster with agile development, co-creation, and skills transformation



## Security

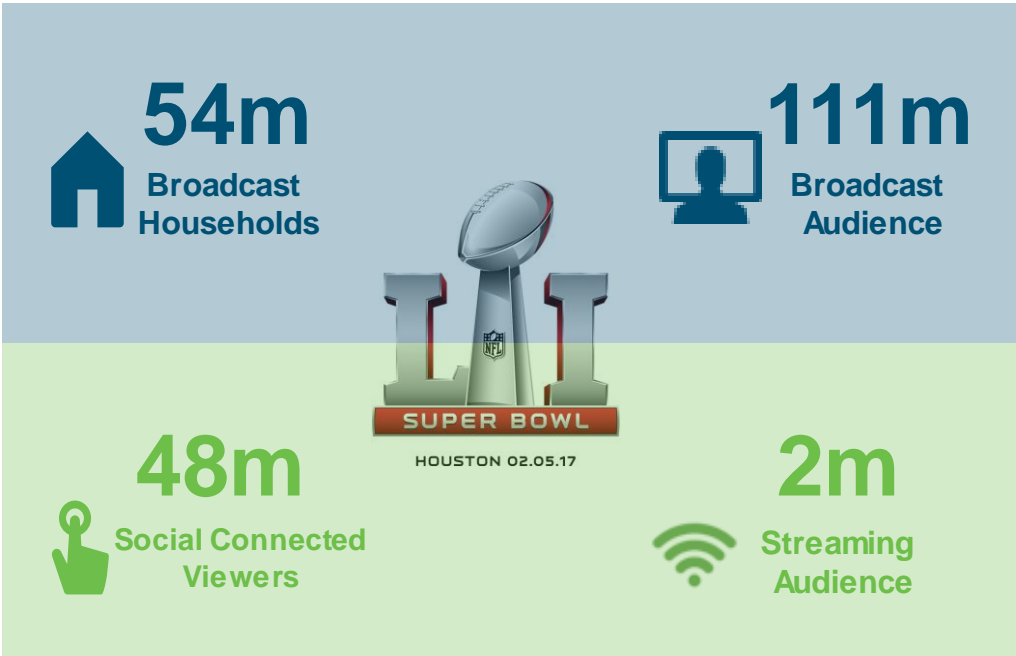
Multi-layer protection from changing and increasing security threats and piracy

Cisco is Your Trusted Partner for IP Transformation

# Poll 1 - What do you consider to be the main challenge to delivering video quality over IP?

1. IP networking more complex than broadcast
2. Fragmented device landscape
3. Increasing cost to add bandwidth
4. Limited visibility across operational silos
5. IP video will break the internet

# Problem Statement



Source: Nielsen

# Video Aware Networking Approach

- Build video capabilities into the network to make the IP network more video aware and make video more network aware
- Create more efficient video transport with end-to-end low latency and bandwidth optimization
- Automate and simplify network routing and video workflows to optimize and differentiate video delivery

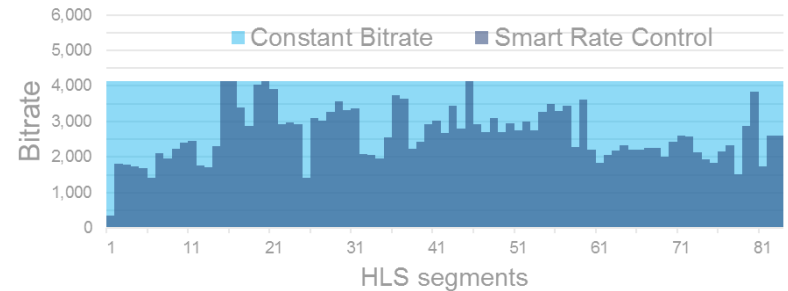
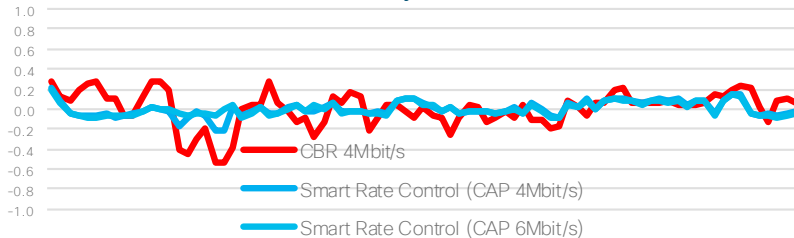
# Video Quality with Virtual DCM Smart Rate Control

Variable bit-rate output per frame based on perceived video quality

Deliver consistent video quality over ABR, improving consumer QoE

Dramatically reduce bandwidth compared to constant bit rate ABR

Video Quality Fluctuation





# Video Quality with Segment Routing Innovation



Expand segment routing techniques for premium traffic

Provide access to network topology, service and telemetry data to build optimal segment routing path for video



Simplify and scale the network

Automate traffic engineering by programmatically configuring routing paths through the network



Deliver differentiated video experiences

Applications signal routing requirements for the network to execute

Intelligent Networking with Segment Routing, Telemetry and Orchestration

# Infinite Video Platform



## One Platform

Deliver best-in-class video experiences for all devices across cable, DTH, telco, and OTT. Identify new opportunities with data and business insights. Protection with video content and service security.



## IP Video Better than Broadcast

Leveraging a converged video core and intelligent edge, with cloud recording and smart streaming technologies.



## Cloud Scale

Cloud native platform, public cloud deployment, provided with ongoing service assurance, DevOps, and collaborative innovations.

# Churn Reduction and Content Monetization

- Voice-based personal assistants (Amazon Alexa, Google Assistant, etc,) significantly improves content discovery
- Recommendations & UI configurability personalizes subscriber experiences, and greatly improves Net Promoter Scores
- Cloud DVR enables subscribers to access recorded content, via multiple devices, across any network, growing ARPU
- Advanced analytics helps predict subscriber take rates & revenue generation on VOD assets
- Push-notifications, based on subscriber preferences and campaign management, enables impulse purchases and package upgrades



# Solving Customer Problems

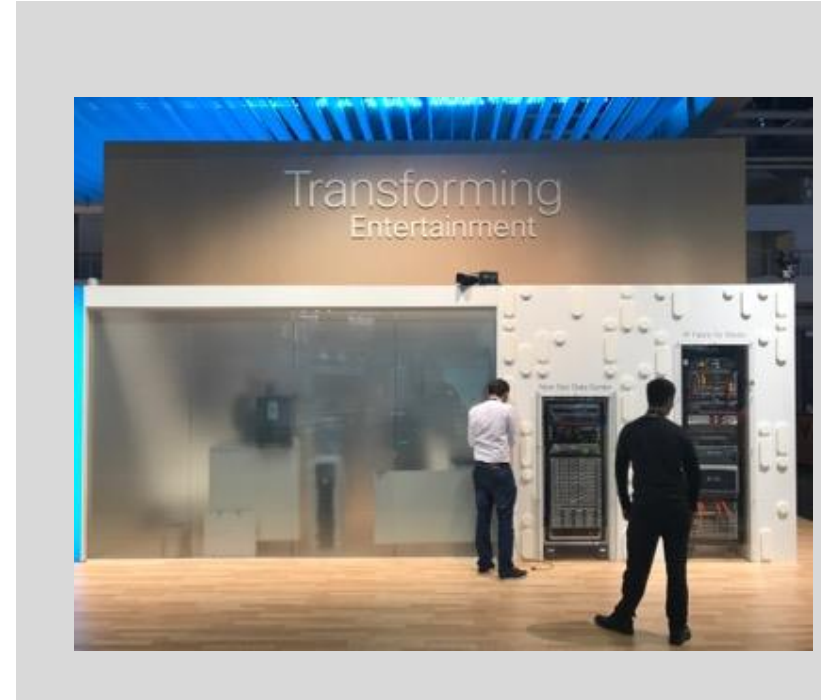
- Yes (Israel) is rapidly creating & deploying an OTT “skinny bundle” to address increased competition
- Vodafone (Germany) launched on STBs, Tablets & Smartphones, and reached 100K+ subscribers in less than five months, improving NPS
- Sky NZ (New Zealand) is partnering with Cisco to deploy cloud video/cloud DVR as part of their multi-phase technology transformation



# Open Multi-Partner Architecture

Leverage best-in-class solutions from ecosystem partners:

- AWS Cloud
- Gracenote Metadata
- Adobe Player, Analytics & Advertising
- Imagine Advertising
- Amazon Alexa & Echo
- Google Assistant & Android TV
- Technicolor, Amino & Zenterio STB
- CE devices (iOS, Android, Roku, AppleTV, PC, Mac, ...)



Cisco is the commercial and technical systems integrator of all components

## Poll 2- What do you see as the main benefit of video quality assurance?

1. Customer retention
2. Customer acquisition
3. Revenue protection
4. Revenue increase
5. Service differentiation

# Mobile Video

Cisco mobile network and video technologies power your transition to IP and 5G

# Shifting Video Consumption

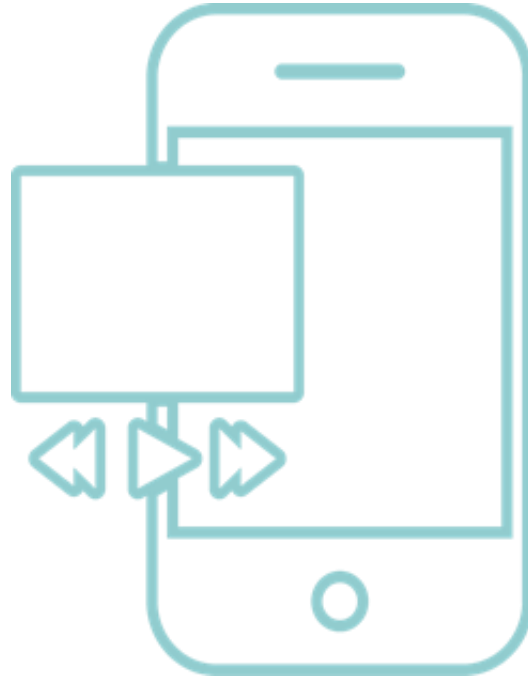
**9x**

**MORE MOBILE  
VIDEO BY 2021**

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**82%**

**OF IP TRAFFIC WILL  
BE VIDEO BY 2020**



**2x**

**MORE MOBILE VIDEO  
CONSUMED BY MILLENIALS  
THAN 25-39 YEAR OLDS**

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**75%**

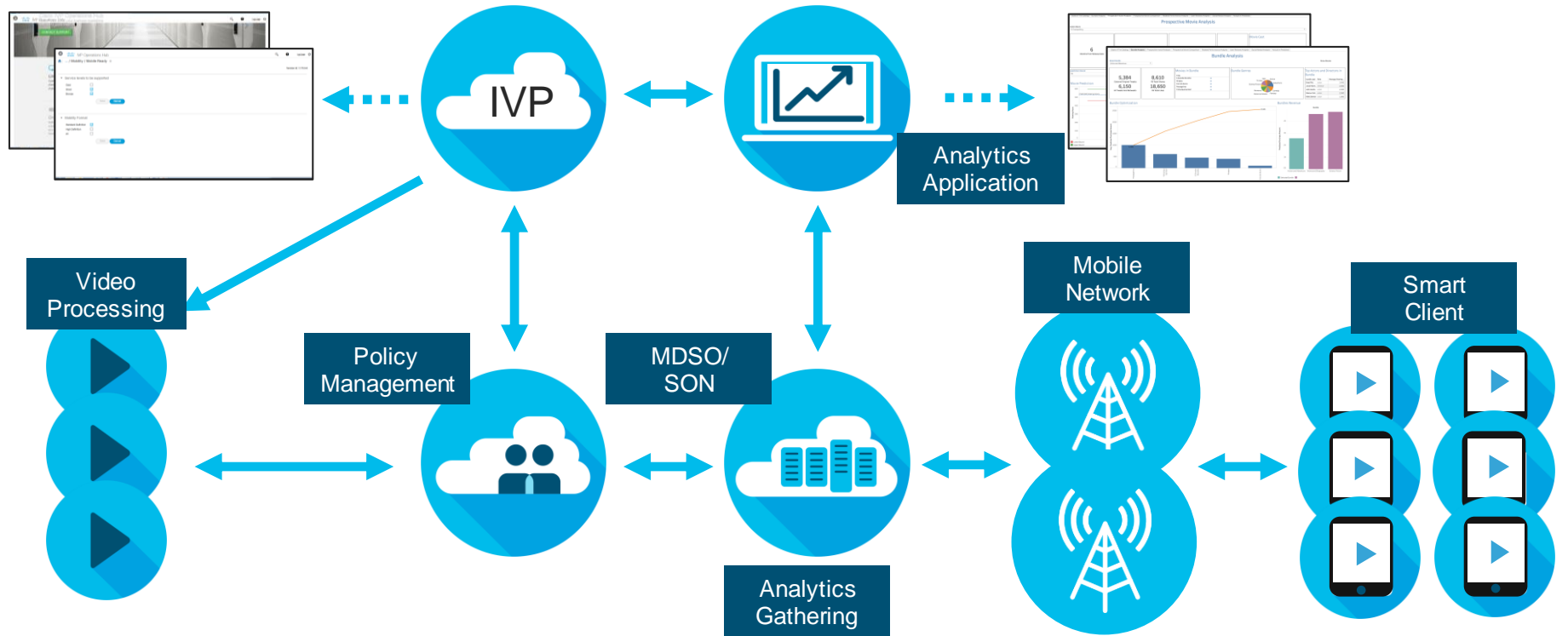
**OF MOBILE DATA TRAFFIC  
WILL BE VIDEO BY 2021**



# Market Movement

- T-Mobile (US), Three (UK) providing Binge services
- Vodafone providing pan-European uncapped data services
- Reliance launch low-cost Jio 4G phone in India
- Content Providers (BBC, Discovery) creating Mobile specific versions of content
- 1<sup>st</sup> Olympic Mobile Broadcaster announced (TIM/Italy)
- iPhone X released – designed for premium video

# Integrated Mobile Video Platform



# All IP Mobile Video Transition



## Mobile Ready

- Create mobile specific products as part of your service
- Mobility is part of the function of IP transformation
- On ramp - Prepare for 5G by using 4G/wifi today



## Quality Assured

- Optimize your mobile network for video delivery
- Processing and Network integration to pro-actively configure the network using content analytics
- Analytics – mobile specific data gathering and analysis



## Simplify

- Efficiency – integrated mobility functions as part of Service creation
- Automation – Service to service communication to automate content flows
- Single interface for Service management



## Uncompromising Security

- World's leader in video security and cyber security
- Protect mobile infrastructure from all threats
- Best of breed and architectural approach

# Online Piracy and Cyber Threats Across the Video Value Chain

**Yahoo** data breach exposes 1B accounts; Verizon reduces purchase value by \$350M



Mirai botnet DDoS attack on Dyn DNS servers brings down sites including **Netflix**



**Canal+ Sport** forced to reduce coverage of English Premier League games due to piracy

Up to 14M **Verizon** customer records exposed due to unsecured cloud storage by vendor



**HBO's** Game of Thrones season 7 episode 1 viewed illegally over 90M times, 6x legal views

Pre-release content from **Netflix** and others stolen and held for ransom, pirated online



**Sony** data breach cleanup cost \$171M; co-chairman resigned



**TV5Monde** displayed malicious content on 11 channels for hours

Sources: The Guardian, TechCrunch, Infosecurity Magazine, BankInfoSecurity, Broadband TV News, Deadline, Dark Reading, SC Media UK, The Register

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# Cisco Provides the Most Effective Security



See more



Protect better



Respond faster

Infrastructure  
Security

- **Detect anomalous behavior** across your data center and network
- See outside threats with global threat intelligence

- **Extend security** across more attack vectors
- Adopt **multiple layers of security** for stronger protection

- **Automate response** to stop attacks faster
- Isolate and contain threats to **reduce risk**

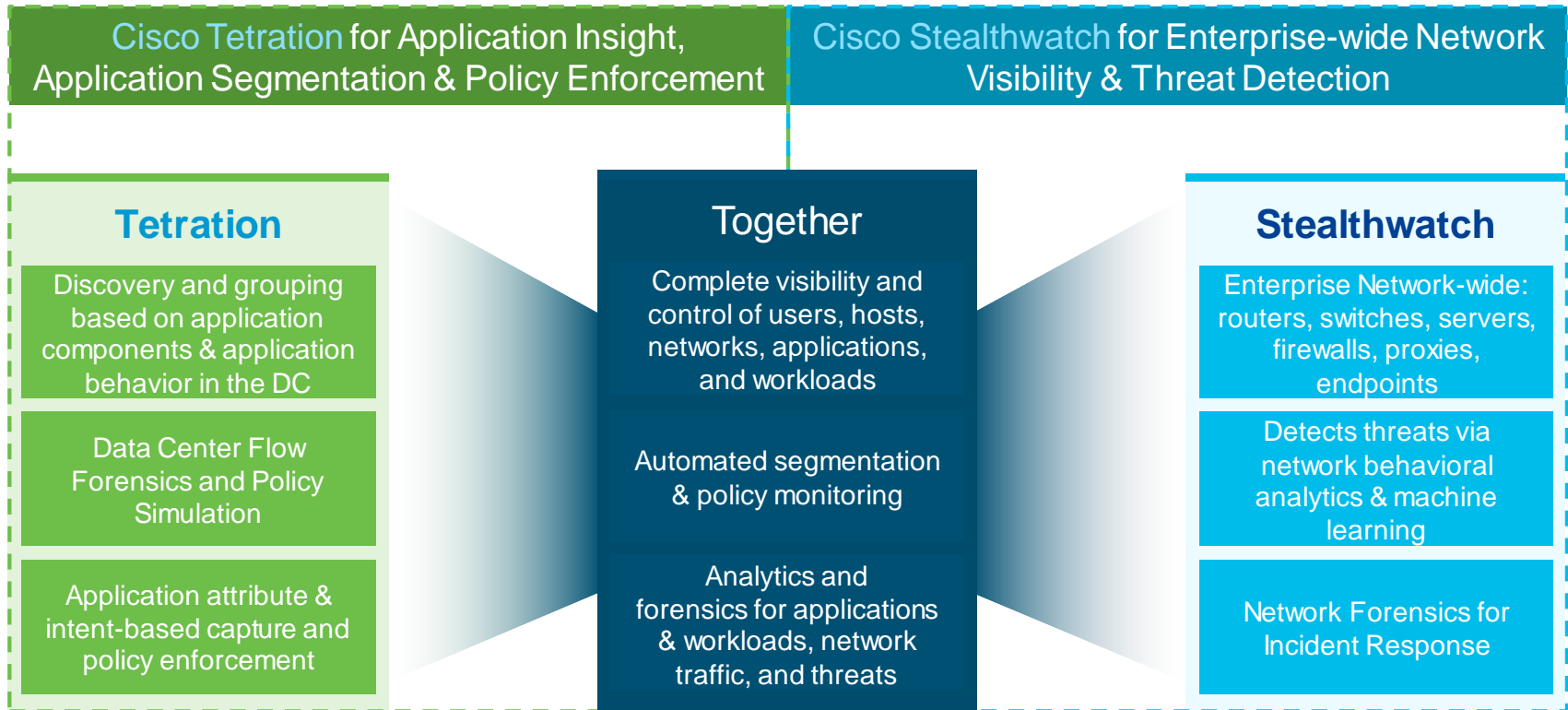
Content &  
Service  
Protection

- **Detect unauthorized access** to your content and services
- **Monitor pirates'** operations with operational security

- Go beyond content: protect apps, service access, device integrity
- Implement **studio-approved security** for UHD content delivery

- **Rapidly identify** piracy sources with forensic watermarking
- **Terminate content leaks** at the source in **real time**

# Cisco Tetration and Cisco Stealthwatch



# Want to Know More?



<http://www.cisco.com/go/infinitevideo>



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<http://blogs.cisco.com/sp>



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