Igniting Growth with New Experiences

25% Churn Reduction
$14 ARPU Increase
65% Increase in VOD Buys
Accelerating Growth

Monetizing Experiences FASTER

Leveraging New CLOUD TECHNOLOGIES

Time
Accelerating Growth

Monetizing Experiences FASTER

Leveraging New CLOUD TECHNOLOGIES

Time
Infrastructure resources are now more programmable

SDN and NFV provide network control and function flexibility

CPU power is now gradable to the task

Resources can be tuned within seconds, and flexibly re-used.
Moving from a horizontal only architecture to service based

Underlying client kept as simple as possible

Services can now be cloud + multi-client capable

HTML-5 and open standards still essential for all end-points
The Cloud is not just for IPTV or OTT systems

Modest broadband connectivity needed

Code less: especially in the client

Multi-device / fragmented universe is going to get more challenging
Partnership success
First IPTV for IPv6 and RDK
Mature Videoscape component integration
Accelerated development and deployment with hosted platform
Rapidly mobilized a great team!
One way hybrid is still key to digital broadcast

2-way allows for large-scale simplification in cable and IPTV

All systems need a great ADK, and app engine

Better separation of services and processes for upgrades
The 1.5 Way Network Challenge

Typical STB distribution:
~50% Unconnected
~30% Connected SD
~20% Connected HD
Cloud adoption challenges

- Cost Model and Control
- Virtualization / Orchestration vs Native Cloud
- Cloud-mix Approach and Migration
- Lift and Shift vs Born in the Cloud
- Anti Fragile deployments
- Data Security & Privacy
- DevOps Culture and Process
The Netflix Simian Army

- Chaos Monkey
- Chaos Gorilla
- Latency Monkey
- Janitor Monkey
- Conformity Monkey
- Circus Monkey
- Doctor Monkey
- Howler Monkey
- Security Monkey
- Chaos Kong
- Efficiency Monkey
Videoscape Migration to Openstack
From Modular and Open to Cloud-based
Videoscape Cloud Infrastructure

- API Gateway
- REST Open Interface
- Data Persistence
- Distributed and Scalable
- Cloud Infrastructure
  - Private, Cisco, Public
- Back office and third party services
- Application Server
  - API
  - Content Management
  - Identity Management
  - Offer Management
  - Catalogue Management
  - Policy and Resource Management
  - Content Protection
- Aggregation
- Logging
- Monitoring
- Analytics
- Security
- Console
- Orchestration Service
- Applications and Clients
- Compute
- Storage
- Network

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No longer an exercise in ‘Publish and Forget’

External and Extendable

ALL communication service based

Backward compatible, but improved frequently by versioning
New analytics processing for real-time and batch processing

Pre-processes all the common tasks e.g. key presses

Analysis tools designed for TV

Brings advanced predictive analysis and behavioral tools
What are the economics of cloud DVR, and what are the constraints?

Cloud infrastructure makes storage viable

Media Origination tools automate and simplify the preparation
NA Cloud DVR Estimated Monthly Revenue Gain

Incremental Revenue Breakout

Churn Reduction: $15.26
Cloud DVR Services Bundle: $6.77

Based on Cisco Business and Technology Architecture Model
Video Services and Applications

Orchestration Engine

Virtual Network Storage and Compute Functions
Contribution / Production

- 4K
- 1080p
- JPEG2k
- IP
- ASI
- 8VSB
- JP2K
- SDI
- 10-bit
- 4:2:0
- 4:2:2
- 8-bit

Distribution

- 4K
- 1080p
- HEVC
- 10-bit
- AVC
- MPEG-2
- SD
- HD
- ABR
Opex

Time to Money

Customer Experience

50%+ reduction: Fewer devices, less power and cabling, simpler ops

Reduce QAMs / Transponders 35-50% with HEVC + Statmux

Improved picture quality and reliability

HEVC to cut bandwidth in half!
Mobile ABR Video Optimization for on-net and off-net services

HEVC Ready

WiFi Hand-off for in-home and out-of-home transitions

Secure HTTPS integration

All cloud virtualised
Cisco AnyRes Live Video

HEVC

Sports content at low bit rates

40–50% range > 1 mbps

ABR integrated with small cell, and RAN real time optimisation

Sports scene: ~30% coding efficiency gain

HEVC Average

AVC Averages

PSNR vs Kbps
Content Trends
Digital Rights Management for linear services

Going beyond just reach

Service Access to platforms

New business models developing, but frictionless purchase is key

Seamless Authentication
Variety of Concurrency Limits
Policy, Location and CDN Access Control
Device/App Authentication and Proximity Control
DTCP-IP Import/Export
CA Termination and Transcoding Support
Emergency Alerts on Live Channels
Rights Revocation (for subscription and downloaded assets)

• Request Queuing
• Background Download
• Secure completion report
• Electronic Sell Through

Linear Channels and Live Events
Video On Demand
Sync&Go and PDL
Home Network Sharing
Event-Based Entitlements
Device Registration and Management
Rich Set of Business Rules

Content Protection

• Different rules per operation
• Template based license creation in Gateways
• Device type and network type restrictions
• Blackouts and proximity
• Rentals, download counters
• Output controls

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Cloud rendered user interfaces
Thank you.