



Medianet for Cable Operators

Transitioning Service Providers to
Experience Providers



Driving the Technology Revolution

Delivery Technology Revolution

1



Fiber Deep

2



All Digital Video

3



IP Convergence / IPTV

The Future Video Experience



Personalized Video:
DVR, VOD, Time-Shift



"Infinite" Content (HD,
Internet Video, 3-Screen)



Advanced Advertising
& Targeting

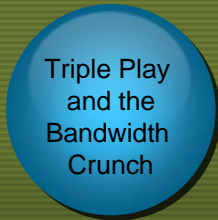
Cable Market Transitions:

Cisco Leading the Way

**Next 5
Years**



**2005 –
Present**



Market leaders in DOCSIS, voice, HD DVR, & BW optimization

**2000 –
2005**



First video-optimized networks & routing platforms

**1995 –
2000**



First HD video system & HFC market share leader

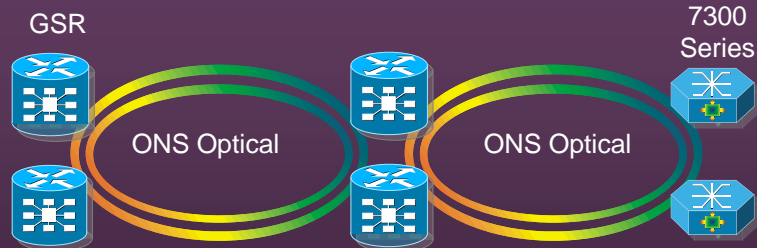
Cisco: 5 Years Ago

Digital Voice &
High Speed Data



CMTS

IP & Optical
Transport



Business
Services



ISR
Router



Connected
Home



Cable Modems



Cisco Today

E2E Transformation Built on IP and Video Expertise

Video Services

IP Video



CDS Internet Streamers

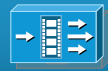


CDS Content Acquirer



CMTS

VoD



CDS TV Streamers



CDS Vault

SDV



Encoders / Groomers



SDV Server



QAM/RFGW

HFC



Optical Nodes



Amplifiers



Optics

Business Services



ISR Router



Network Based Services

Digital Voice & High Speed Data



BTS (Voice)



CMTS



QAM/RFGW

IP & Optical Transport

CRS1



ONS Optical



7600 & ASR9k



ONS Optical

Connected Home



Cable Modems & EMATs



QAM / IP STBs



Gateways

Video 3.0: What's Next?

Today

“Table Stakes”

- IP NGN Network
- Triple Play
- Bundling
- Application Velocity

1-2 Years

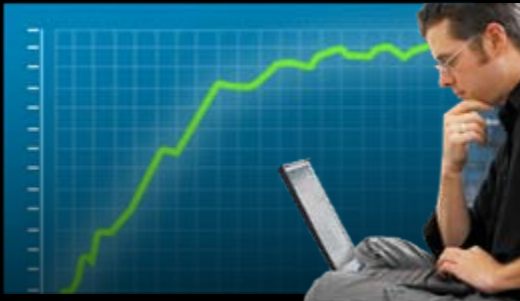
Growth Opportunities

- Advanced Advertising
- Small Businesses
- Wireless Convergence
- Connected Life

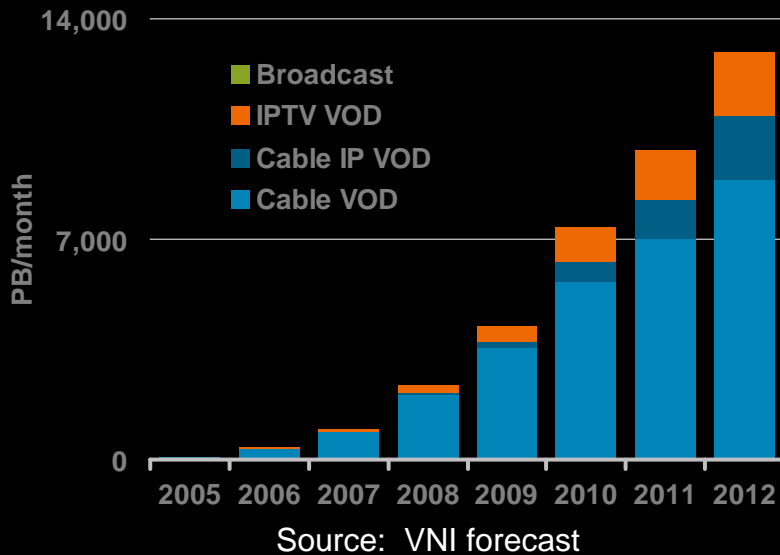
3-5 Years

“Video 3.0”

- My Video”
High - Definition
Symmetrical
Anywhere
- Consumer ~
Enterprise

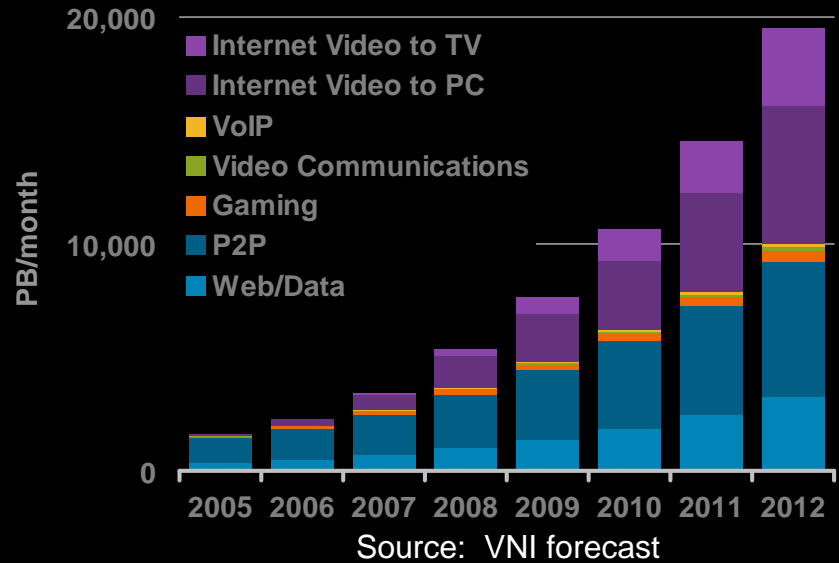


Traditional MPEG Video and Internet Video Growing Rapidly



VOD traffic will be over **13 exabytes** in 2012, over **12X** 2007.

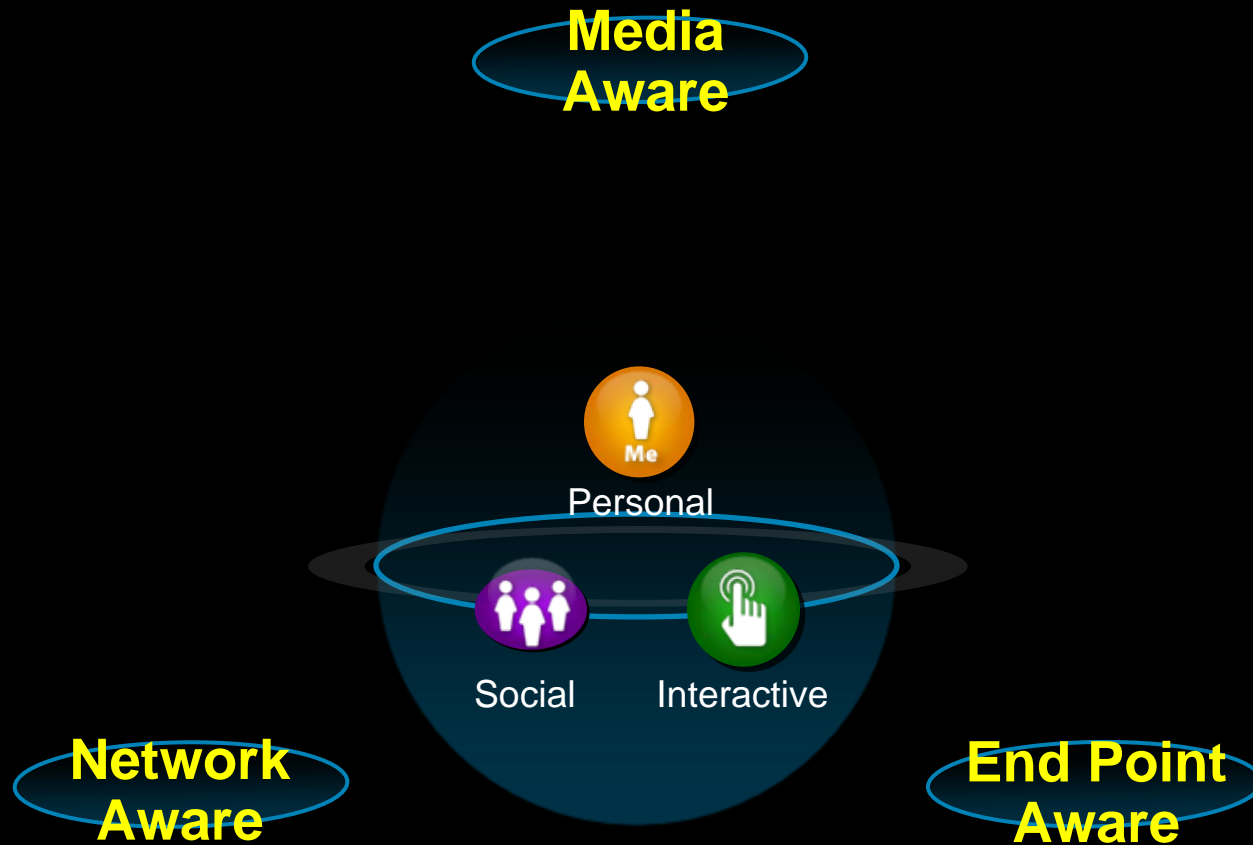
55% of digital TV households will be **HD** in 2012, up from 34% in 2007



Internet Video is driving bandwidth at **41% CAGR**.

By 2012, 90% of internet traffic to be video

Introducing Medianets - Media Optimized Networks...



Cable Medianet Enhances Cisco IP NGN on all Three Layers

Applications



Telepresence
Digital Voice
Multi-screen
Broadcast & VoD

“Ultra” High
Speed Data
Business Video

Internet Video
Connected Home
Mobile & More...

Media Delivery & Control



Tru2way / EBIF
Middleware/SDP
Headend

Adv Ad Engine
CDS
Data Center

DOCSIS Mgmt
Bandwidth Mgmt
SCE / PCMM

Network Layer



Core
Aggregation

Edge
CPE

Hybrid Fiber Coax
DOCSIS 3.0 / DPON

Medianet Technology

Accelerating Cable Transition to Experience Provider

Transforming
Consumer
Experience

Differentiate End
User Experience

Media Aware
IP NGN

Ensure End
User Experience

Virtualization

Manage Complexity
and Scale

Monetization

New Revenue
Streams

The Medianet logo is centered over a stylized, dark blue and black image of the Earth's horizon, showing the curvature of the planet and some landmasses.

medianet

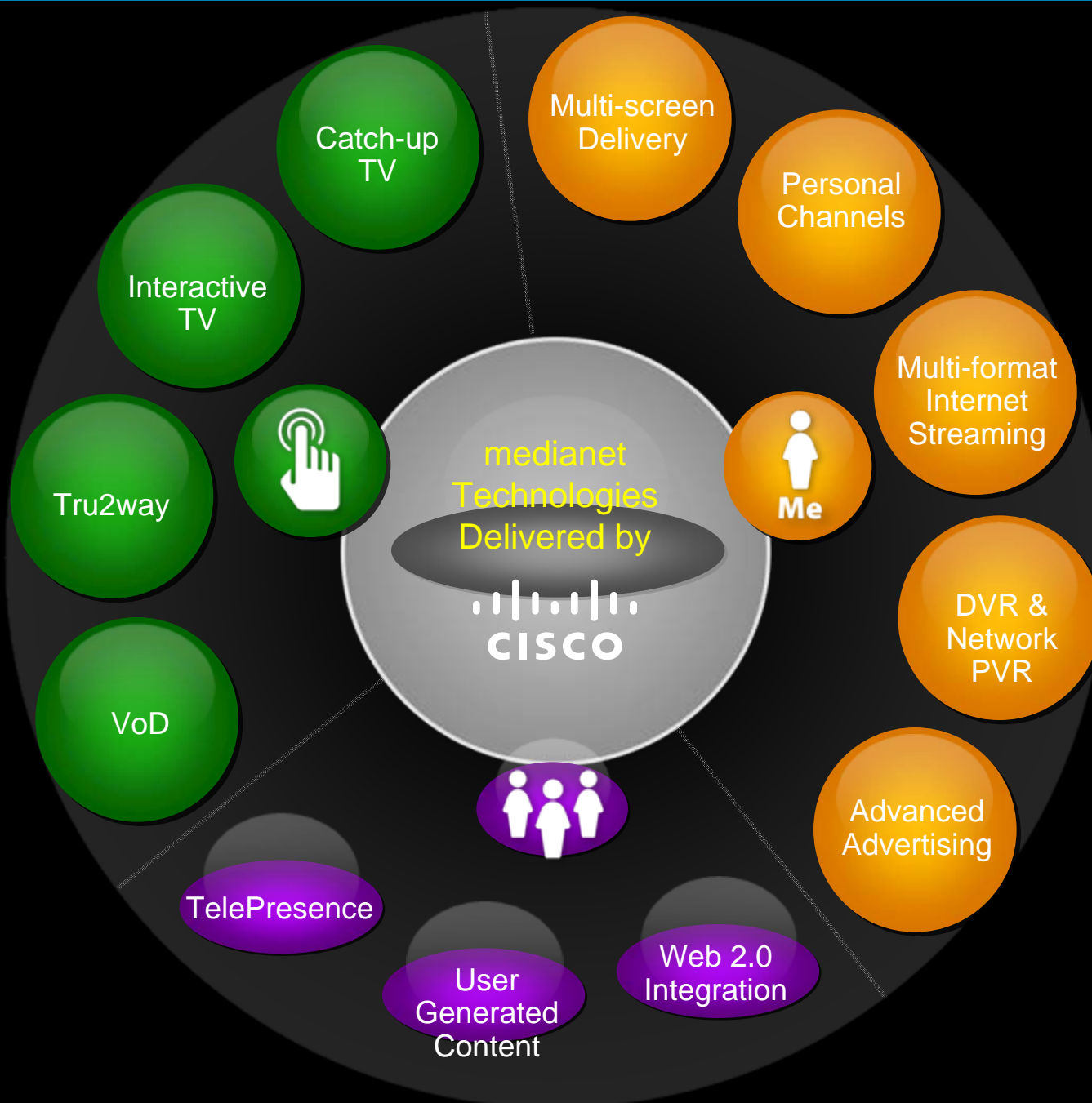
Transforming the End User Experience: Unrestricted by Time, Space, or Device



Consumer Experiences
More Visual, More Social, More Personal

Transforming End User Experience

Differentiate End
User Experience



Personal



Social



Interactive

Video
Assurance &
Monitoring

Guaranteed
QoS with
PCMM

Lossless
IP Core

Cable IPTV
Visual Quality
Experience
(VQE)

Fast Headend
Failure
Recovery

Internet Video
Streaming

▶ **Ensure Quality of Experience** ◀

◀ **Scale the Experience** ▶

Bandwidth
Optimization

DOCSIS 3.0

Compact
grooming
and splicing

Wire-rate Unicast
& Multicast in IP
Network

Content Distribution
@ the edge

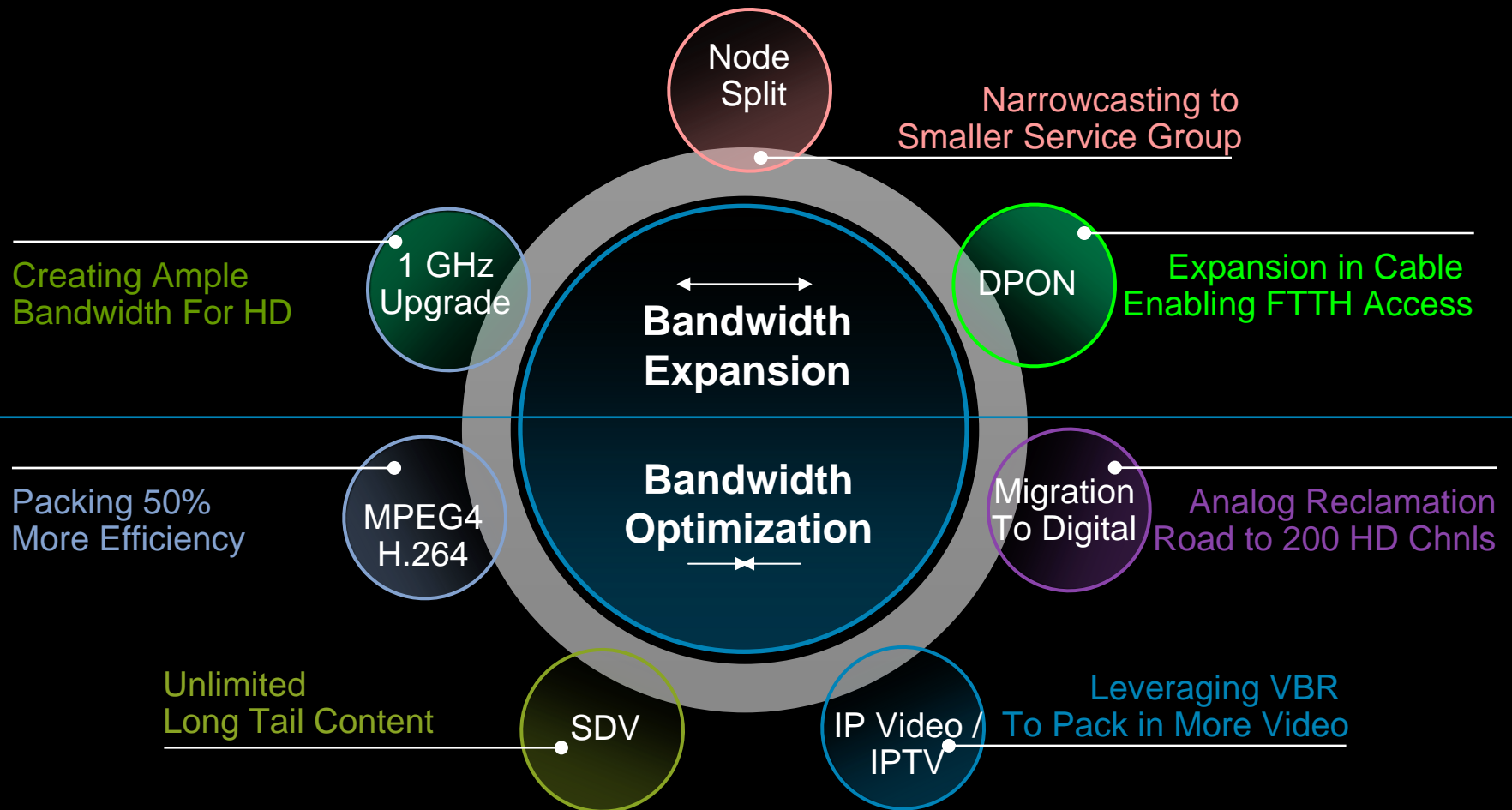
**Media Aware
IP NGN**

**Ensure End
User Experience**

Cable Bandwidth Strategy

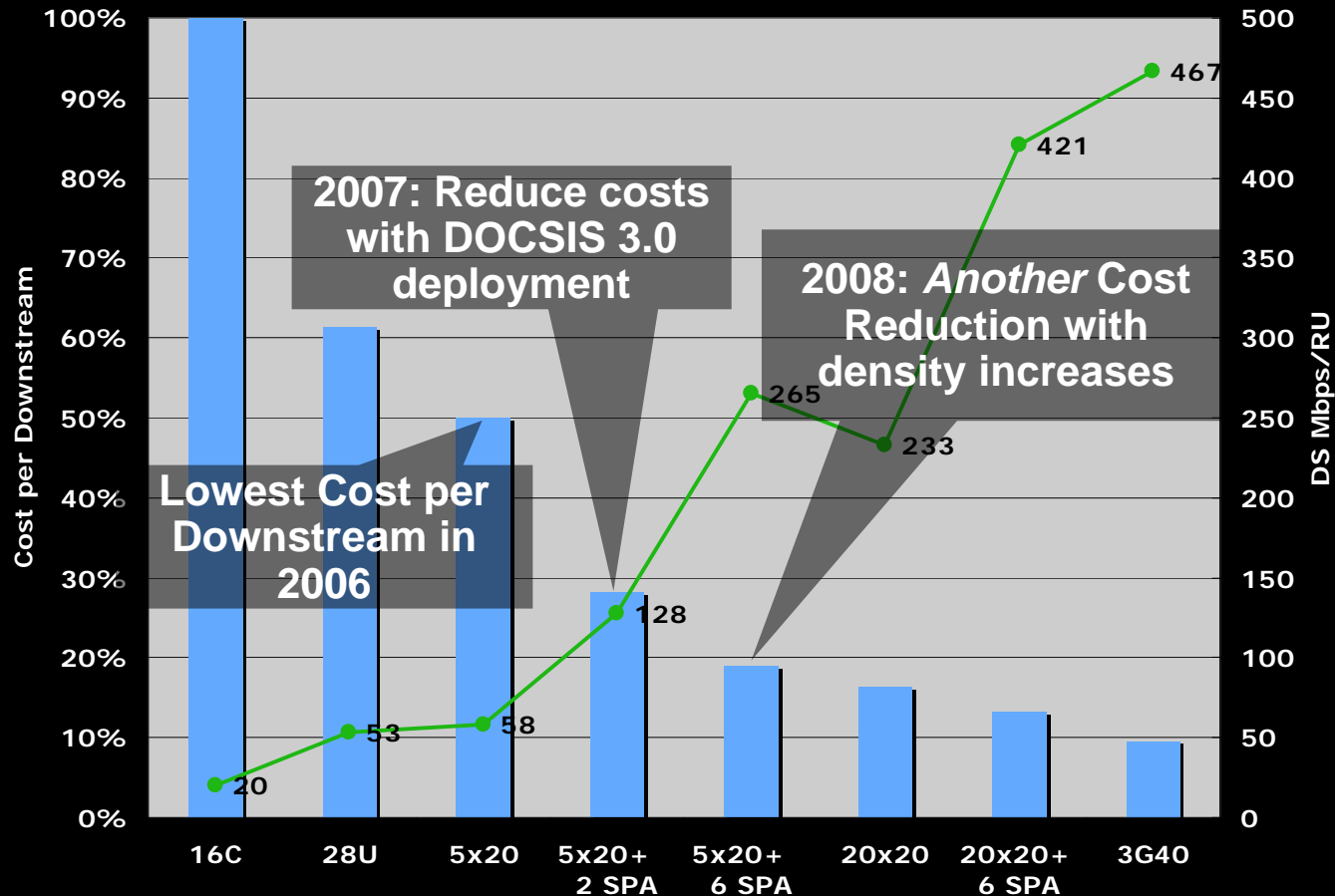
Optimizing Bandwidth to Enable New Services

Cisco's Bandwidth Solutions :
Many Alternatives for Meeting the Needs of Diverse Cable Systems



OpEx and CapEx Reduction:

Cisco DOCSIS 3.0 Delivers 13x Bandwidth at 1/5 Cost



- Cisco drove a **45% reduction in bandwidth cost** in 2007, with an additional **41% reduction** in 2008

Service and Infrastructure Virtualization

Enabling any content, anywhere, on any device

The diagram features a background image of Earth with a network of white lines representing global connectivity. Two large, overlapping circles are centered on the map. The left circle is green and labeled 'Infrastructure Virtualization'. The right circle is orange and labeled 'Service Virtualization'. Below each circle is a descriptive phrase in yellow text. The circles overlap in the center of the image.

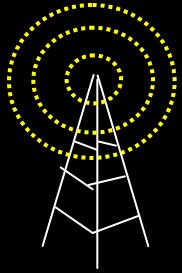
**Infrastructure
Virtualization**

**Flexible
Infrastructure
agnostic to network
design**

**Service
Virtualization**

**Flexible Services
agnostic to end
user location and
device**

Infrastructure Virtualization: Virtual Video Infrastructure



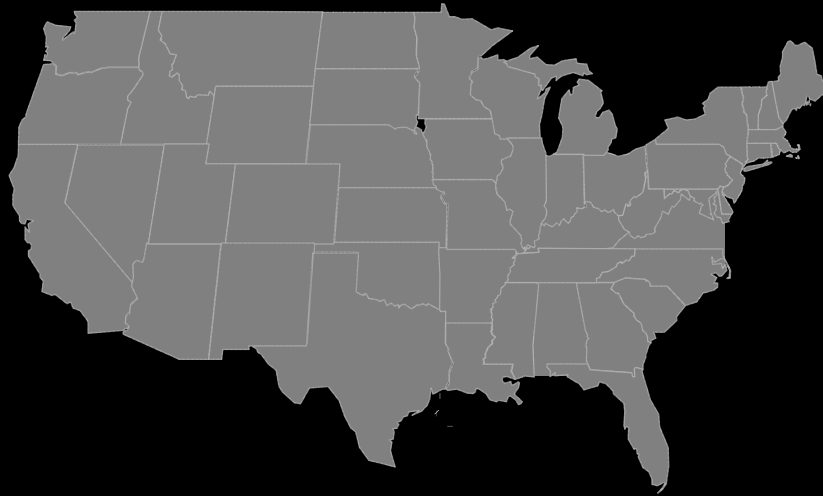
Ingest Once
Deploy Caching Nodes
Distribute at Edge



Grow VoD, HD,
Long Tail Content
Exponentially



Integrated
Online, UGC
and TV Content



Streamline
Operations

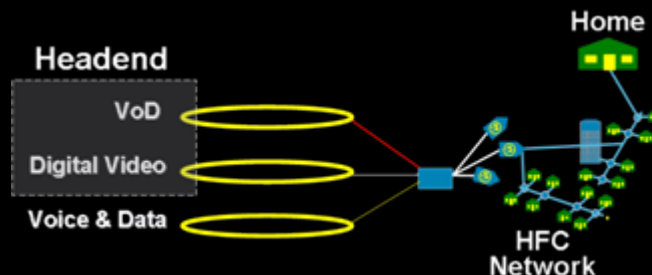
Scale
Nationwide

Accelerate
Service Velocity

Evolution of Service Virtualization in Cable

Service Flexibility Enabled by Technology

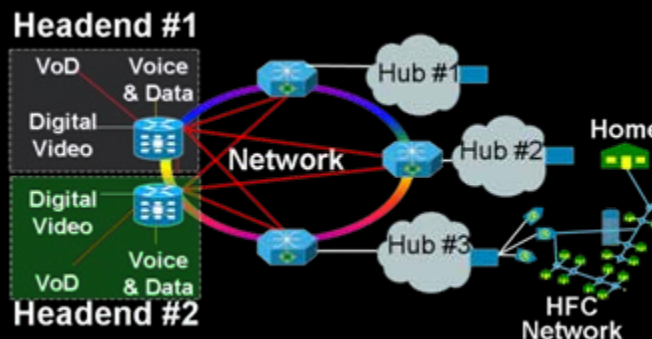
Stage 1: Service Siloes



Siloed Network

Stage 2: Network Convergence

Enabler:
IP Transport



Converged Network

Stage 3: Service Virtualization

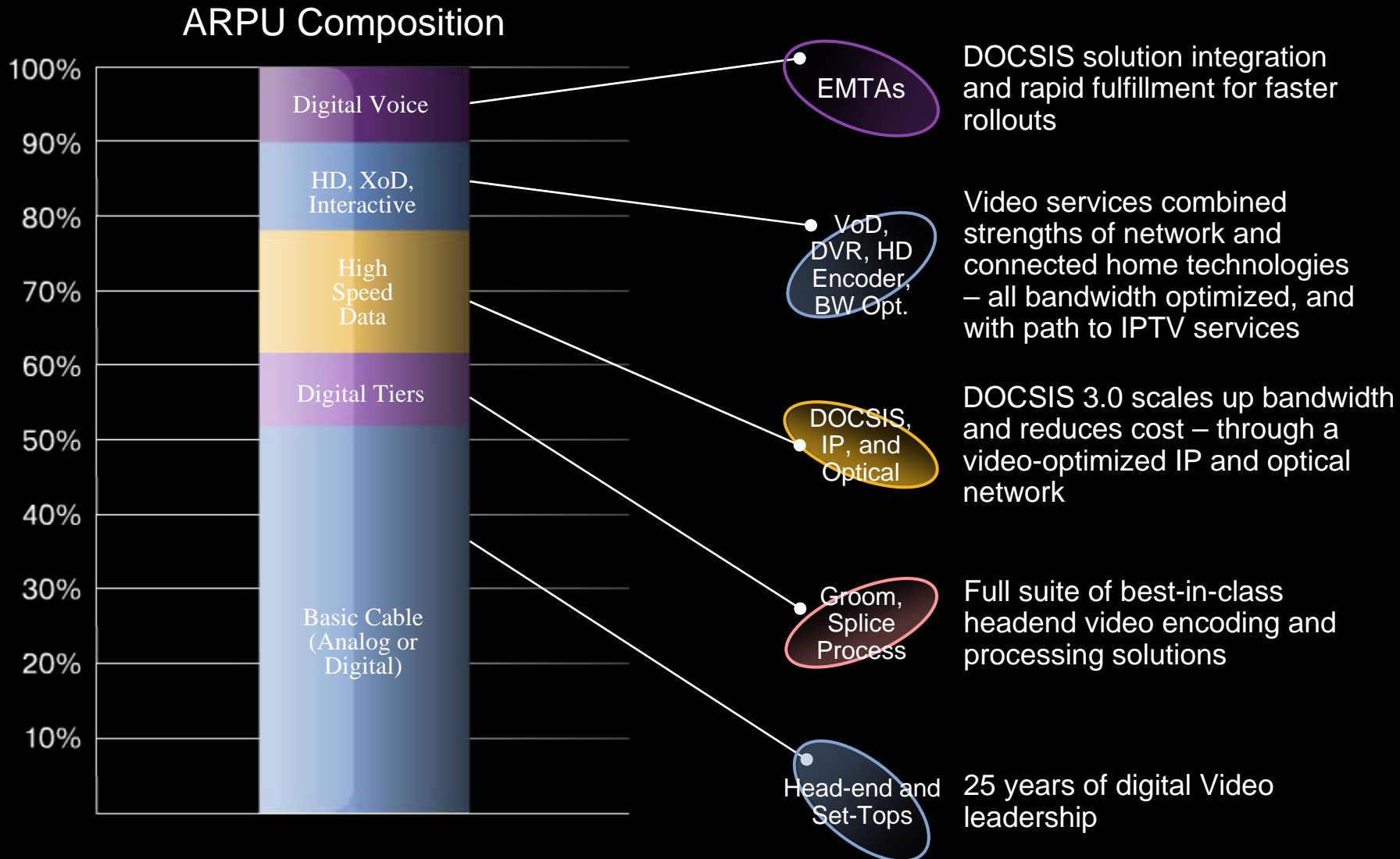
Enablers:
Tru2way, IP, VVI, SDV



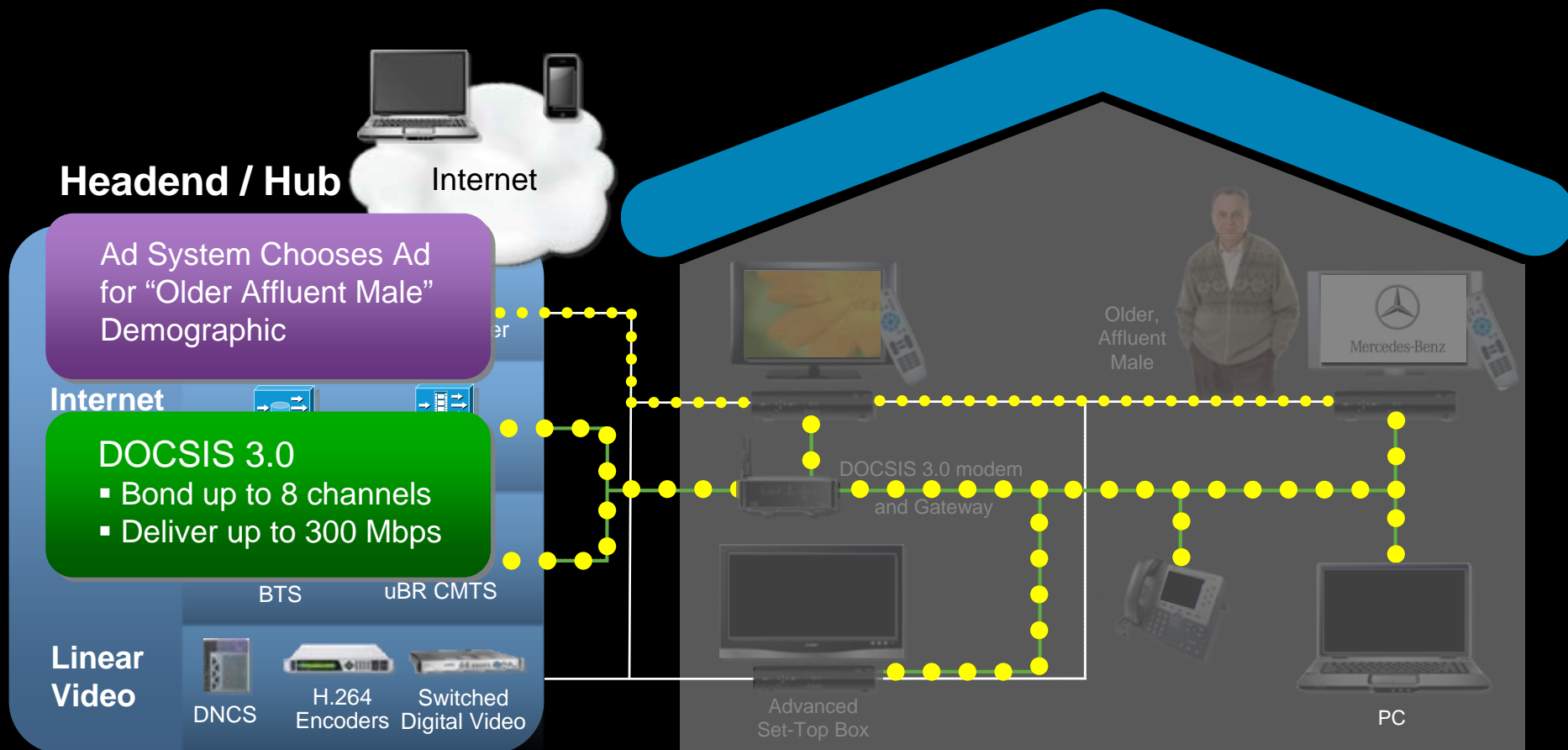
**Location &
Device Independence**

Medianet Monetization

ARPU Growth Through Entire Spectrum of Digital Services



Delivering the Connected Life at Home



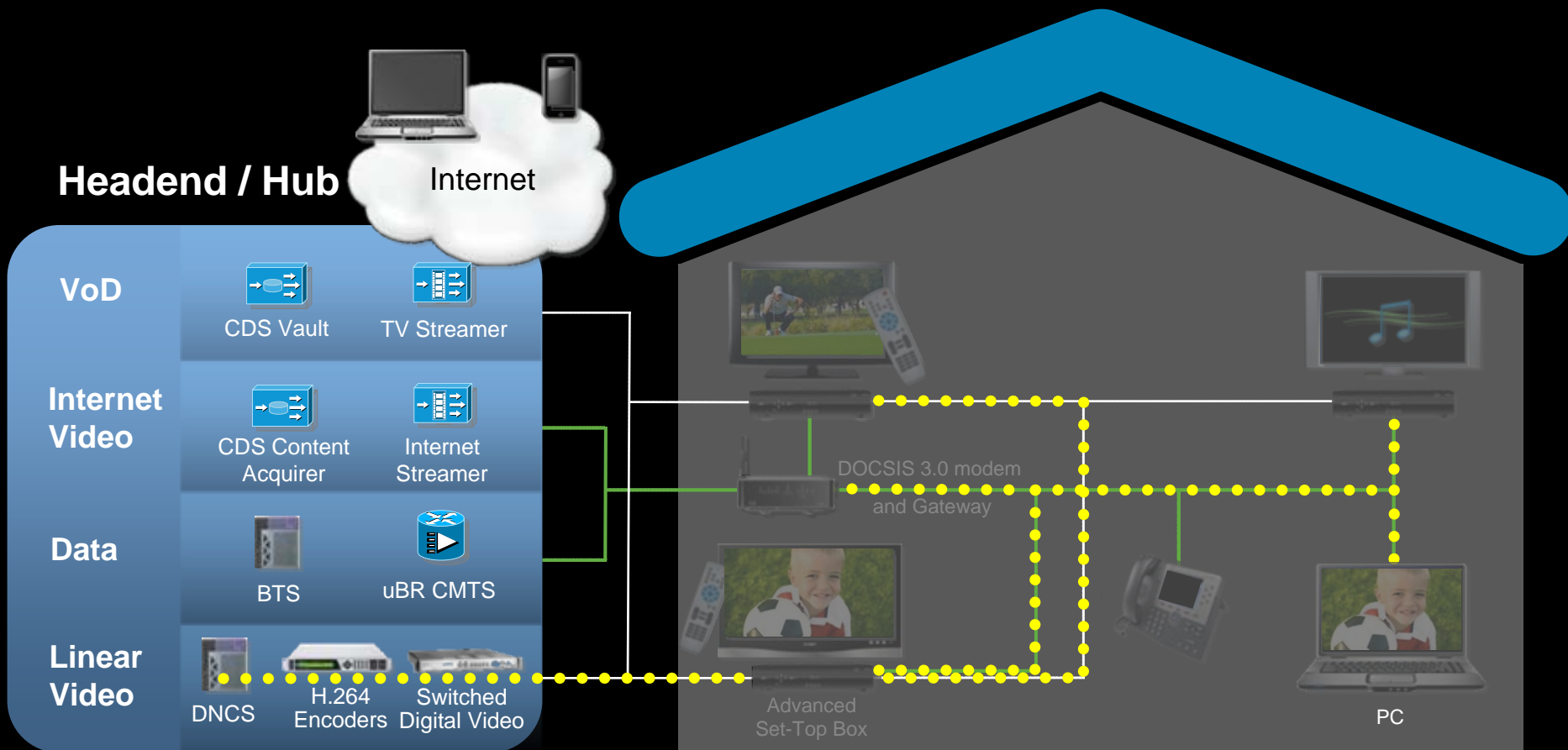
Enhanced Triple-Play Services

- VoD & Start Over
- DOCSIS 3.0
- Advanced Advertising (VoD)

Benefits

- Enables viewing high-bandwidth video for each line (Telco, Cable, DSL, etc.)
- Reduces the need for multiple lines (e.g., 1 line for VoD, 1 line for VoIP, 1 line for DSL, etc.)
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Delivering the Connected Life at Home



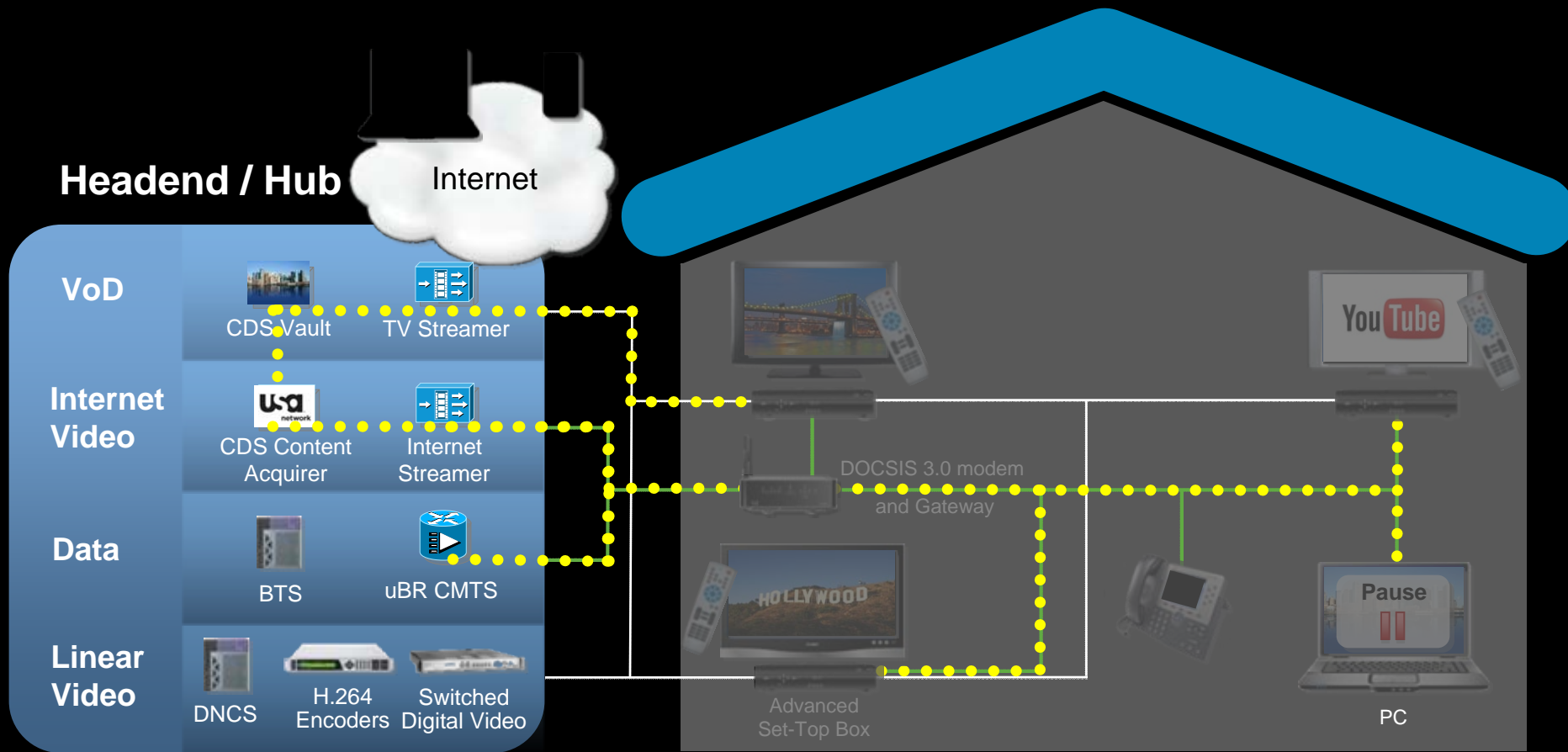
Media Enabled Home

- HD Whole Home DVR
- Music Sharing
- Personal Content Sharing

Benefits

- Centralized content sharing capabilities and high bandwidth for HD services and other PS-DVB services
- Share music between music players, phones, PCs, and living room
- Leverage Set-Top standards (e.g., DSLAM) to simplify interoperability and ease-of-use

Delivering the Connected Life at Home



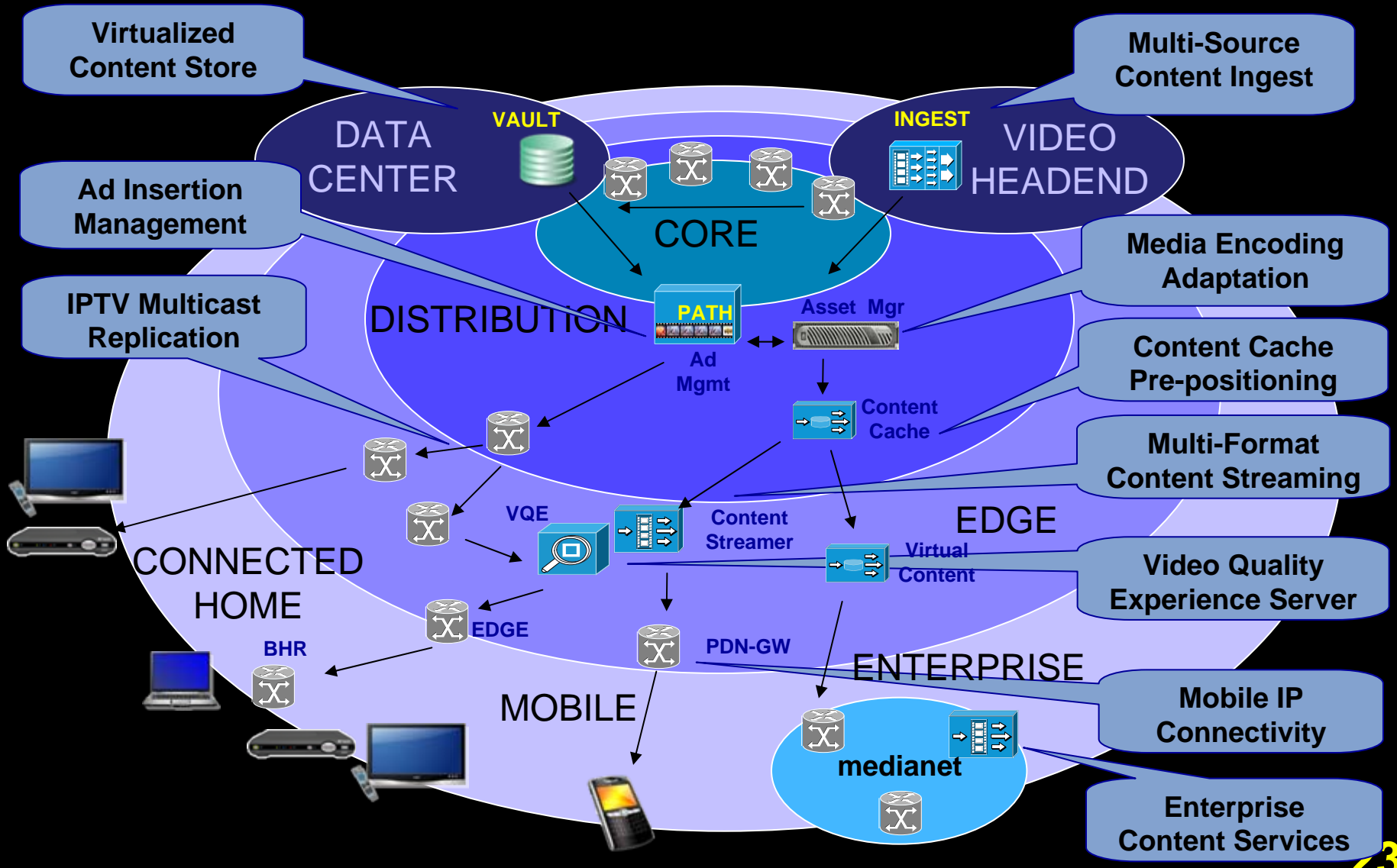
Virtualization & Mobility

- DVR to PC/Mobile
- Online Video
- N-screen Session Shifting

Benefits

- Enable a single device to experience the video and other services on the cloud and different devices and locations
- Enable access to content & services wherever, in any location,
- Substantially adapt to appropriate tools and tricks for the needs of the end user device

SP medianet Infrastructure



Cable Market Transitions:

Cisco Leading the Way

**Next 5
Years**



Full suite of HD & DVR set-tops, IP gateways, & intelligent network devices to deliver the **Connected Life at Home**

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Present**



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