



“Media Cloud”

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Market Dynamics Western Europe

Market Trends



Introduction of new tablets & smart connected screens (TV, Phone, ...)



Generational shift in viewing video off the television to multiscreen for live, time-shift TV and on demand consumption



Emergence of Cloud based online video services



hulu
813 Million
Streams/Month

NETFLIX
23 Million
Subs

Market Impact

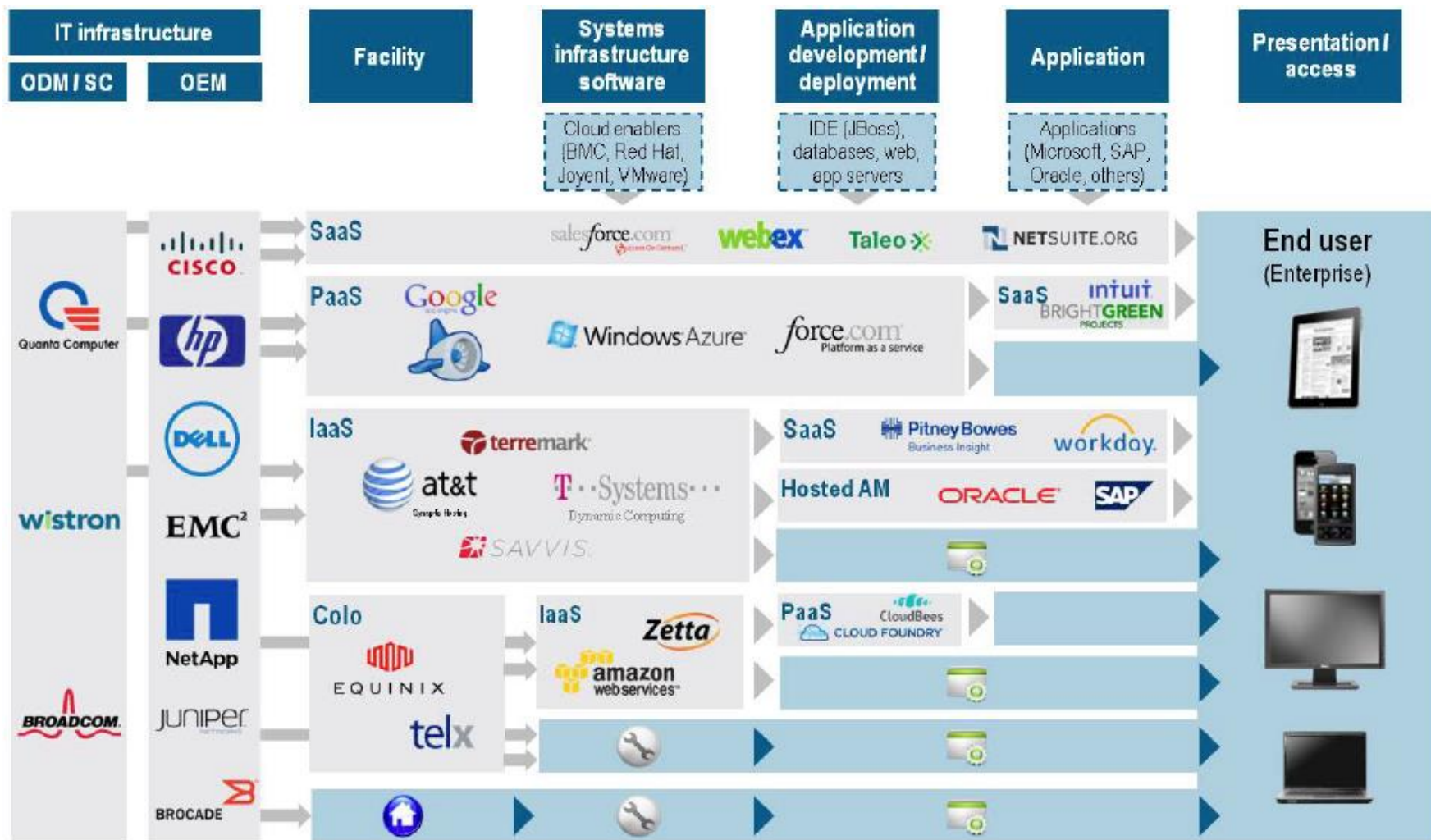
90 million Tablets & Smart phones
in 2012
Tablet sales to outnumber PC
sales in 2013

57% Video Traffic Growth YoY
2011-2012

200 % QoQ usage growth
6 % market penetration

400 % YoY Streams/Month
2 Million Subs in 2012

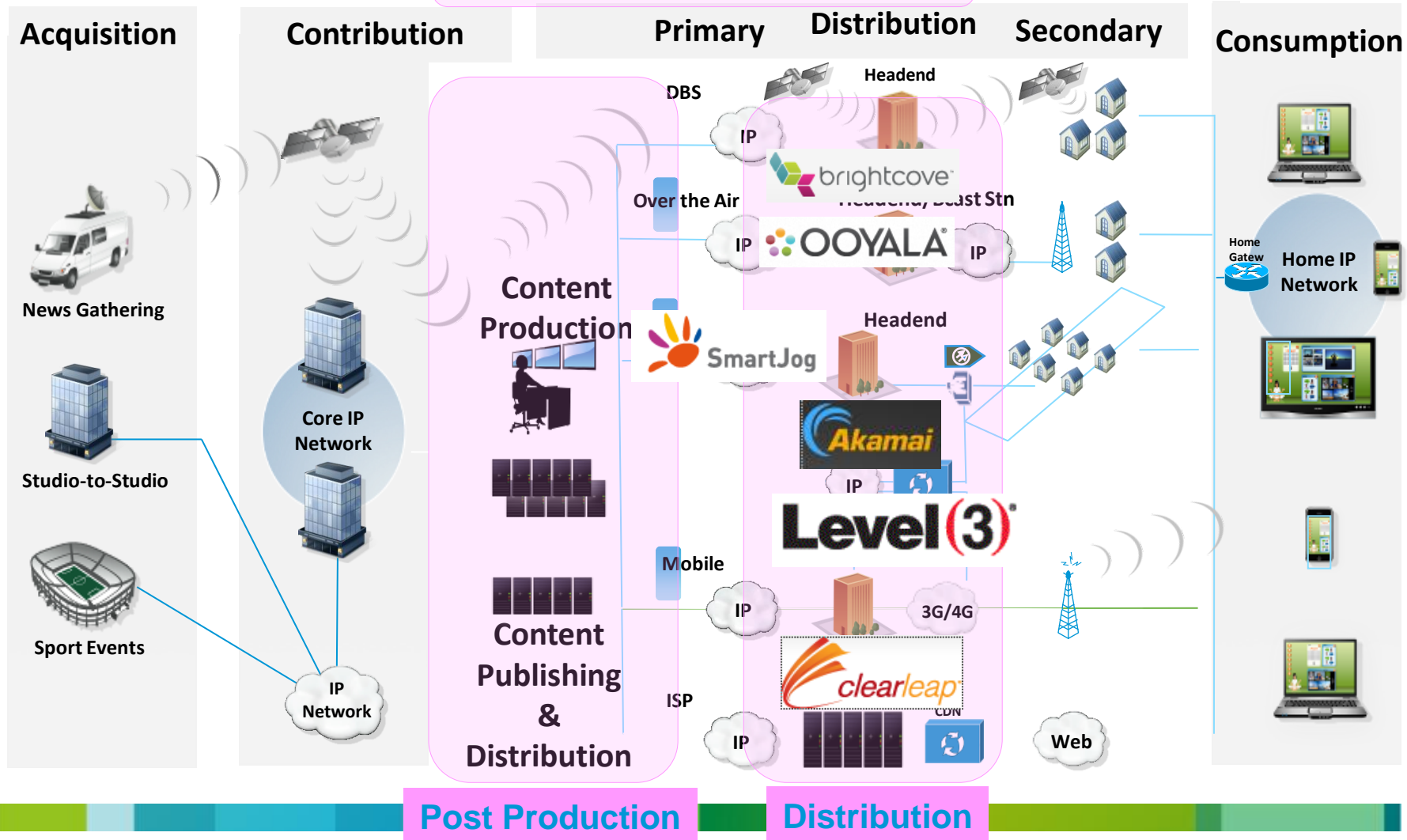
The Cloud Computing Value Chain



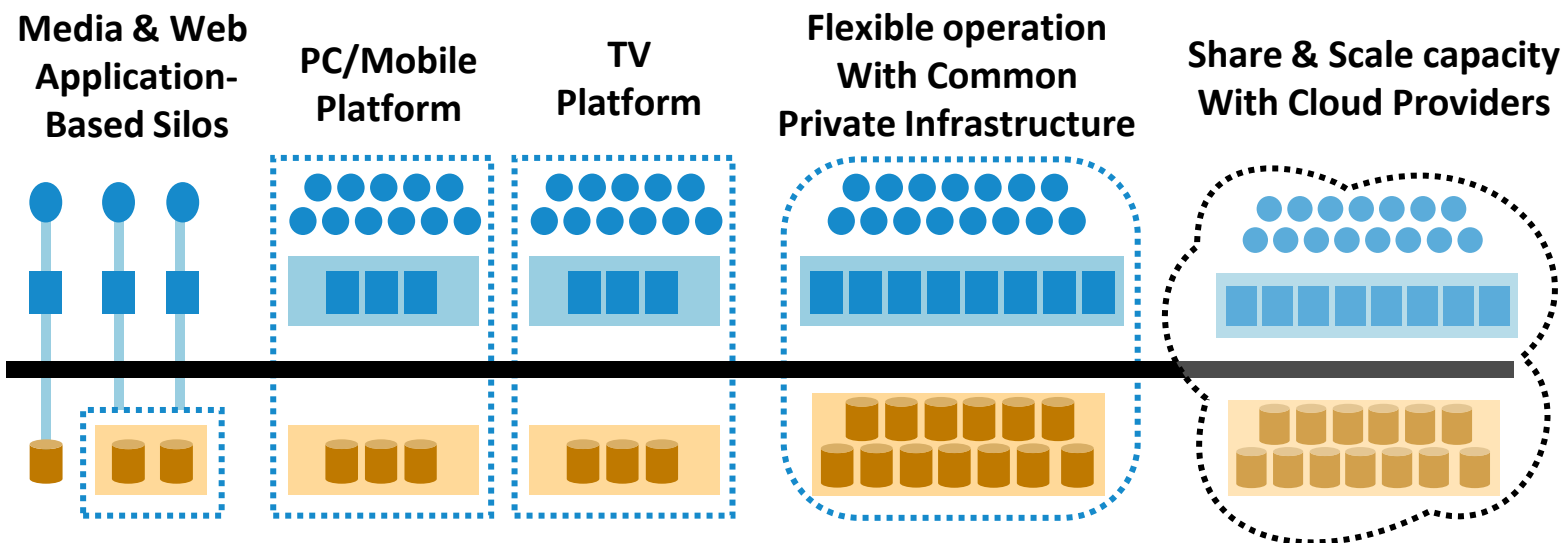
Source : Cisco IBSG 2012

Cloud Media From Capture to Consumption

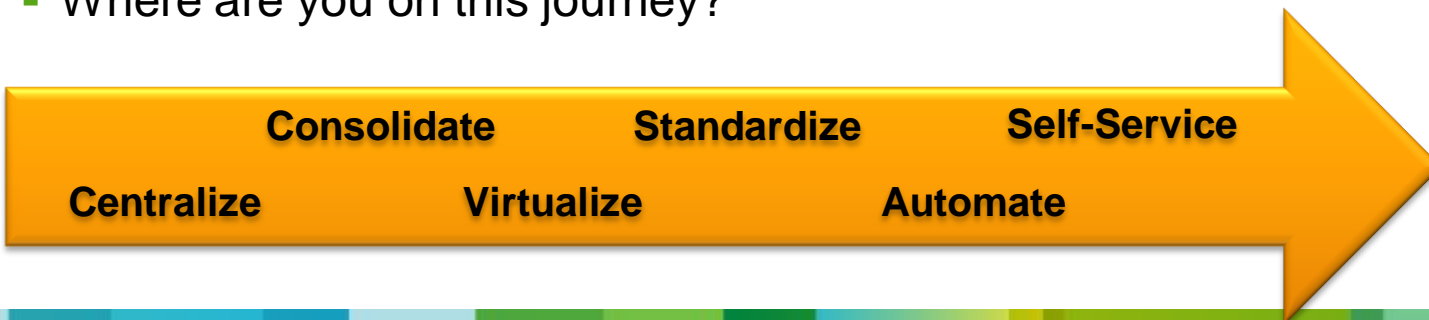
Infrastructure for content
production & distribution



From Locked Up Siloes To Converged and Unified Flexible Pools Of Capacity.



- Evolution towards cloud is a journey
- Where are you on this journey?



Cloud Media, Foundation for a Variety of Use Cases

- Remote Operations for Live Events
- Cloud infrastructure for new service innovation
- Cloud based ABR video applications & services
- Metadata & Big Data
- Remote Video Cloud based Storage
- Content market place
- Social Media & Cloud
- Cloud based contribution storage



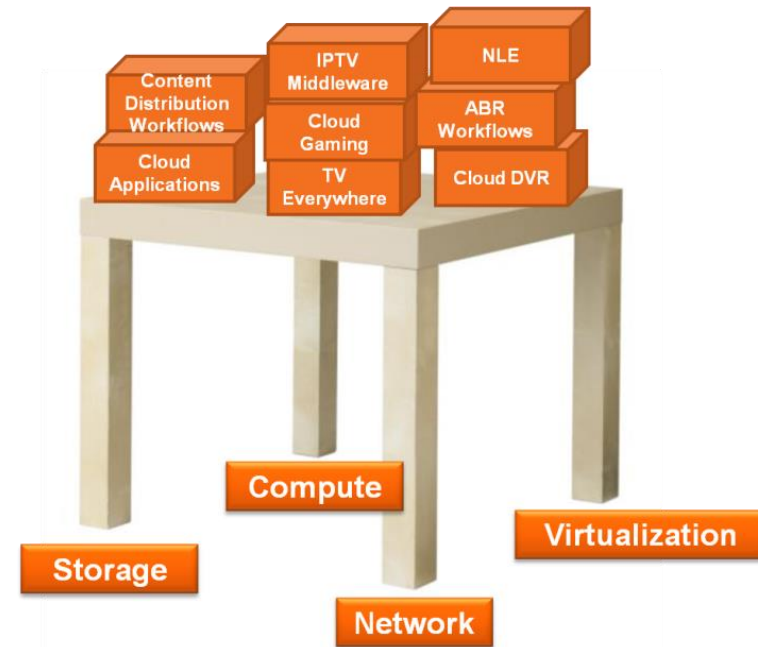
Cloud Media : Key Elements To Take Into Consideration

■ The challenges/requirements

- Mix of appliance and generic x86 today
- Media has very specific storage requirements
- Buffers are important for non-linear editing
- Large throughput & Bandwidth requirements
- Video Application vendors & virtualization support
- Quality of Experience

■ The toolbox

- Network booting to optimize storage operations
- 10GbE and FCoE to consolidate wiring and switching
- Virtualization - hypervisor bypass as a tool to improve performance
- Stateless computing to improve operational flexibility especially for non-virtual workloads
- Distributed Cloud for higher efficiency and Quality of Experience :



Cloud Media : Infrastructure Requirements



SatelliteOff-Air

Unique Interfaces to Media Sources

- IP Multicast from sources pushed deep into data center
- Multi-Path connections to acquisition products
(Satellite, Off-Air, and Terrestrial links)

Strict Media Redundancy Models



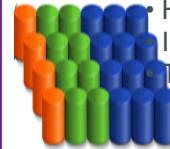
- A **single** blade or link failure can impact millions of customers
- Critical applications may require duplicate Media Workflows on fully redundant components (N+N model)
- Geographically diverse and load balanced Media Workflows



High Bandwidth Network Loading

- Media Workflows generate persistent traffic (24/7)
- QoS models must support high volume, low latency, priority traffic over redundant paths
- Media load drives unified fabric and 10G links

Unique Media Storage Requirements



- Heavily weighted toward NFS/NAS models (10G and FCoE)
- IOPS and BW much higher per blade than many IT apps
- TB Storage requirements rapidly expanding with new content sources, delivery profiles, and device formats



Media Application Diversity

- CPU intensive Media apps consuming complete blades and bare-metal installs are common
- Multiple classes of computing required: high compute, dense memory, high I/O, and virtualized workloads

Media Cloud Service Models



- Media-as-a-Service delivered by Cloud Services Providers
- “TV Everywhere” delivered by Video Service Providers, Content Owners, and Media Companies
- Media applications execute on Integrated Compute Stacks and Media PoDs



Security for Content and Data Center

- Application security between Consumer facing apps, Private Business apps, and Database and Mgt apps
- Content Digital Rights Management, user authentication, content security/watermarking across Live and VoD assets

Media Analytics



- Media analytics are collected to measure the quality and performance of media workflows
- Infrastructure management provides analytics across compute, network, and storage utilization and performance