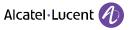


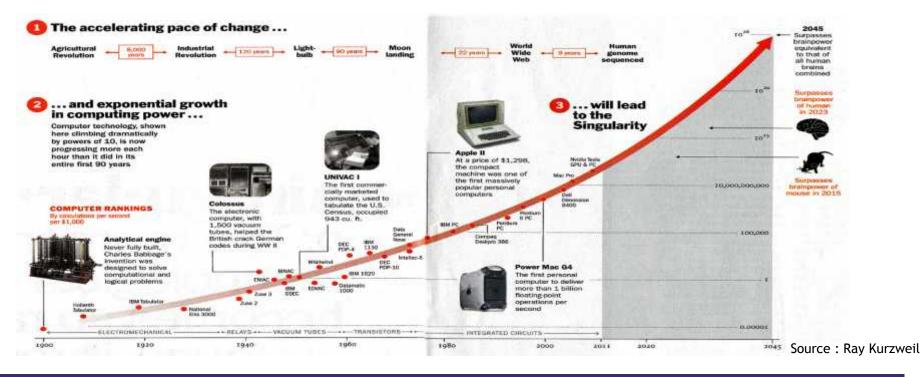
Session 3 - OTT and its multi faceted impacts

Guillaume Mascot December, 2015

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ACCELERATING PACE OF CHANGE



Moore's Law now resulting in big, big jumps in computing power. The "Singularity" end-state is questionable, but the pace of change will only increase.

ACCELERATING PACE OF CONTENT/CONTENT SOURCES/CONTENT BANDWIDTH







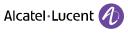




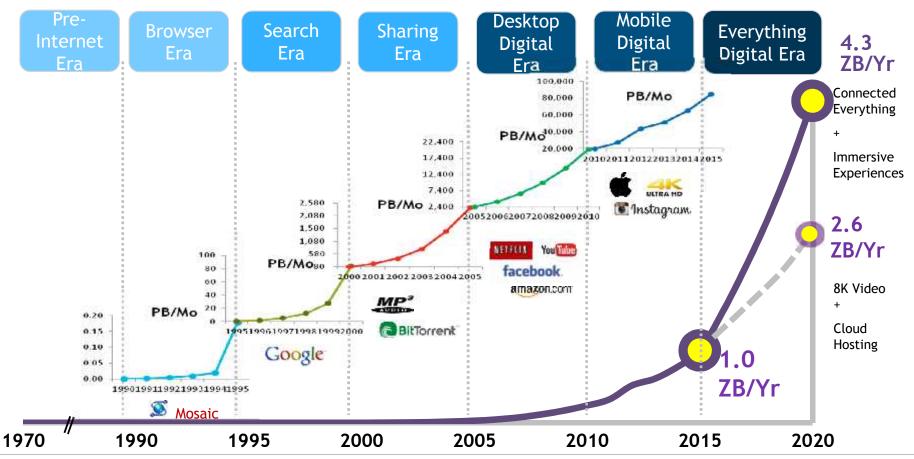




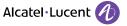
Video content is coming from many more sources and produced content is transitioning toward heavier bandwidth consuming standards.



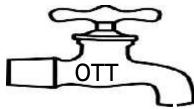
2020: A NEW NETWORKING & INTERNET ERA



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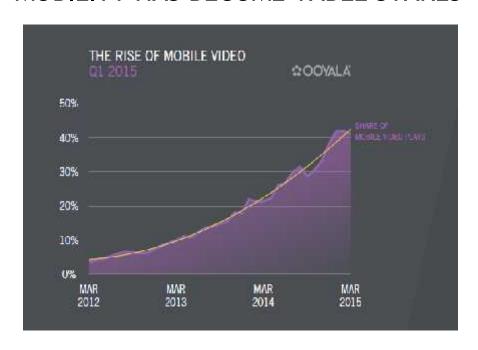
VIDEO ECOSYSTEM ANALOGY - THE POOL OF LIQUID MODEL





Well defined video services are being supplemented by OTT content. By 2020 - The end state is a combination of services for anytime, anywhere any device content delivery.

MOBILITY HAS BECOME TABLE STAKES

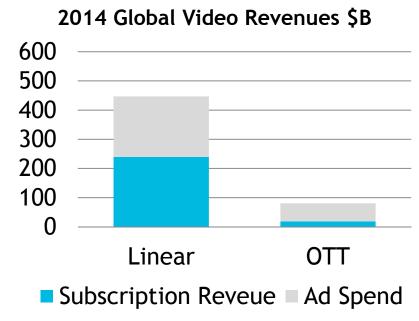


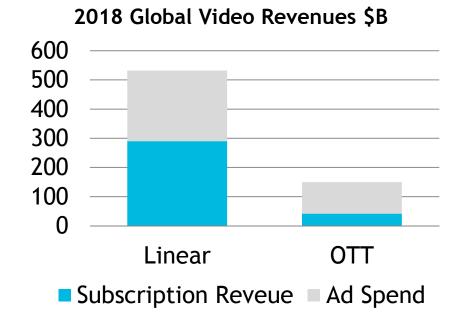


Source: Ooyala Q1 2015 Global Video Index

By 2020 - The vast majority of video downloads will be to mobile devices - largely short form content.

THE OTT THREAT - SOME PERSPECTIVE





Sources: eMarketer, SNL Kagan, Digital TV Research, Carat

By 2020- OTT content revenue will overtake linear services revenue?

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THE NETWORK MATTERS - SIGNIFICANTLY

HOW LONG WILL YOU WATCH A LONG VIDEO WITH POOR RESOLUTION / FREQUENT INTERRUPTIONS?



Sling TV Fails An Early Test Of Web TV, Apologizes For March Madness Streaming Issue – April 06, 2015 International Business Times

Source: Ooyala July 2015 - Survey of binge-watching consumers

The network used to deliver the content to the device makes a big difference in the customer experience.

Every success has its network

DISRUPTION MODEL











The accelerating rate of produced content cost is not offset by decreasing cost of technology for delivery (\$/bit).

Potential disruptors have captured free/low cost content.

DISINTERMEDIATION MODEL





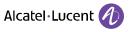








Some content rights owners and alternative content aggregators are offering pure OTT streaming content.



THE U.S. STORY - BUSINESS DRIVER TIMELINE

Then (~2007)

- **Communications Services** Providers faced revenue growth problem
- Solution leverage deployed capital assets by adding video services

Now

- Communications Service Providers face a margin problem
- Margins on video services declined from mid-30% to low-20%
 - Content costs continue to rise
 - Added choices for consumers keep ARPUs low

Next

- Protect against "cord-cutters" via service bundling
- Adopt models to facilitate / partner with OTTs
- Attack content aggregators' channel packaging models
- Attack advertising rating model using set top box data
- Improve advertising revenues with geo / individual targeted ads

Multichannel video business is not compelling on a stand-alone basis - used as retention tool for high-margin broadband services

Every success has its network



THE EMEA MARKET: NETFLIX CONQUERS EUROPE

Bert De Graeve (Telenet): "Our competition is not Proximus, but Google and Netflix"





Netflix' target:

"Penetrating one third of all homes within seven years of launching in every market"

CASE STUDY SKY

• Business model: The operator owns a network of over 4,000 Wi-Fi Hotspots through subsidiary Wi-Fi provider The Cloud. Through the SkyGo app, pay-TV subscribers can access Sky content on their mobile device at no extra cost when in range of a The Cloud hotspot. Wi-Fi access is also offered at no extra charge to Sky broadband customers through the Sky Cloud Wi-Fi app (available iOS and Android devices). The initiative helps the operator boost customer satisfaction and loyalty and reduce churn

• Strengths:

- Multiscreen Services
- Wi-Fi access provides mobile broadband usage
- Greater overall control over the user experience for video content through WiFi





Extending leadership in OTT: NOW TV



The bigger picture

- Content Connect complements BT's Wholesale Broadband Connect or IPstream Connect solutions to help its customers deliver an exciting broadband offering that attracts and retains customers.
- This integrated approach also lays solid foundations for BT's customers to take full advantage of the opportunities as TV and internet become even more closely bonded. For example, BT's TV Connect solution enables its customers to deliver broadcast-

Content Connect Model

Strengths

- BT has full visibility and control of video traffic
- Caches much closer to the end user
- Operators' on-net CDNs improve traffic management and contribute to network optimization
- Operators' off-net CDNs have a built-in cost advantage over traditional CDNs, which must lease bandwidth from operators and build operators' margins into their own cost structures

BTW Network Network Www

BTW Content Delivery Network

Brings content closer to the End User improving their experience

BTW Content Providers can place content directly into the broadband access network

Content

Content

Content

Content

BT's CDN Content Connect provides cost-effective video delivery to OTT providers and operators



TELCO AND CABLE LADSCAPE IS EVOLVING







Bell Media, the parent company of CTV News, announced OTT TV





Content watching is moving from linear TV to over-the-top





First operator to partner with OTT players to offer new services





Telefonica offers Terra services in 18 countries

















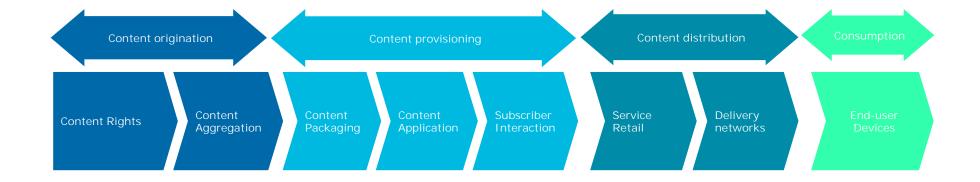
Operators show

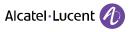
and producing

content

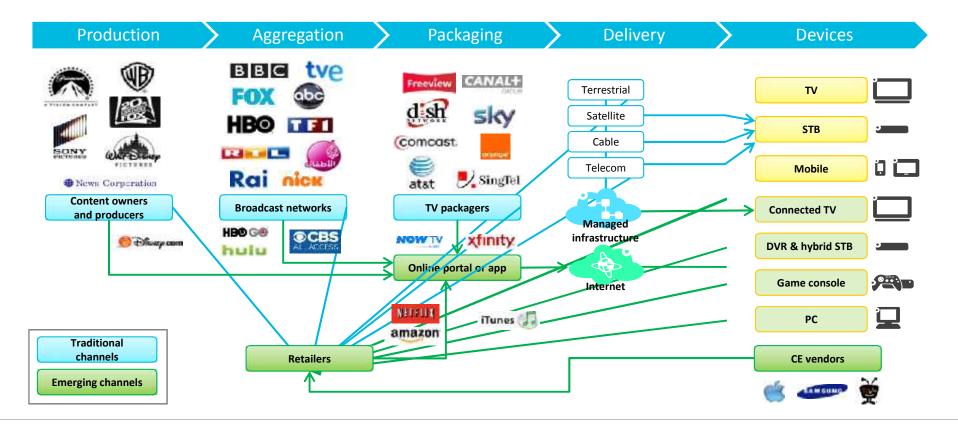
interest in owning

THE TRADITIONAL COMMERCIAL VALUE CHAIN

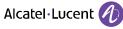




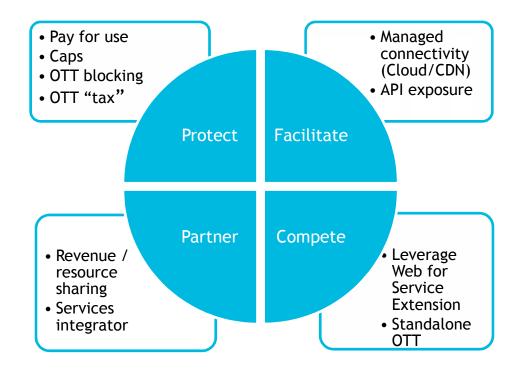
COMPETITION - TRADITIONAL AND EMERGING DISTRIBUTION CHANNELS



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FUNDAMENTAL OTT OPTIONS FOR OPERATORS



Source: Ovum – Meeting the OTT Challenge: A Strategic Response Framework for Operators