

The 4K business through the value chain

René Lambers Principal Consultant





Topics

- The video value chain
- The effect of 4K
- 4K service releases
- Take away's







Video value chain

Content creatio	n Content aggregation	Platform	Distribution	Access	Devices	Aggregation / UI	
5	0%	10%	15	5%	10%	15%	share (estimate)
Content production, actual making of new content	Bundling branding and pricing of content for consumer	Head-end, encoders SI, provisioning, billing AD insert, data mining, CRM SD, HD, 4K, 8K	Outlet channels to push packaged content Network capacity for wholesale or retail CDN	Access network DSL, fiber, LTE, HFC, DVB-C/T, OTT, 4G eMBMS	STB, Android & iOS devices Mobile terminals and tablets Smart TV	User interface through which consumers obtain content App store	description
Film studios TV producers Sport Leagues	Broadcasters TV stations	Infrastructure vendors	Telco's MSO's	Telco's MSO's	Device vendors	Telco's MSO's ISP's	players
Warner Bros, Universal, FOX, Buena Vista, Pixar, Endemol, FIFA, UEFA	BBC, RTL, BSkyB, Springer,	E///, Arris, Huawei, Cisco, VMX, Rovi, Harmonic, ZTE, Nagra, SeaChange, Agama	Astra, Orange, Free, T-Home, Time Warner, O2, Canal+, TeliaSonera, Telenet, Telenor, Vodafone	Swisscom, BT, UPC/Ziggo, KPN, AT&T, Verizon, Telecom Italia, Telefonica, Telenor, TeliaSonera, Deutsche Telekom	Cisco, Intel, Huawei , Broadcom, Arris, Samsung, LG, Sony, Apple, HTC, Pace, ADC, ZTE, Nintendo, Microsoft	AT&T, Belgacom, T- Home, KPN, TeliaSonera, Telenor, Telefonica, UPC, Yahoo, Ebay, Amazon, Vodafone	examples
YouTube (UGC), Al Jazeera, 3D Pixar	Netflix, Hulu+, Zattoo, Amazon TV, Vudu, DailyMotion, Magine		Akamai/Octoshape, Limelight, Amazon	Google (US)	Roku, Tivo/DS, Apple, Amazon Fire, Nexus	Facebook, Whatsapp, iTunes, Spotify, YouTube, GooglePlay, Twitter, AndroidTV	new entrants



4K value chain

	Content creation	n Content aggregation	Platform	Distribution	Access	Devices	Aggregation / UI
	Film studios TV producers Sport Leagues	Broadcasters TV stations	Infrastructure vendors	Telco's MSO's	Telco's MSO's	Device vendors	Telco's MSO's ISP's
						TV manufacturers are drivers of the chain. Needed a new feature to increase the sales of new screens	
formats for increased sales but also faceencoding incrincreased production costsdemand for rstorage andstorage and		Despite stronger encoding increased demand for network storage and streaming capacity					
New players using OTT distribution			Face the network impact. Driver for fiber access sales. Can benefit in an early market.		4K players and STBs become available	New and adapted portals specifically for 4K content 4K user interface	













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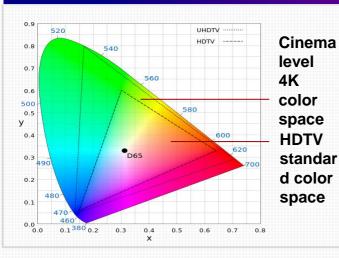
4K is more than a bigger picture



4K provides high performance equals to the **35mm** film strip



More colors



higher dynamic range

10~14 2014~2015, 8~10bits; 2017~, 10~14



smoother experience with higher frame rate 2014~2015, p50/60; 2017~, p100/120

30P



60P

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Key operators world-wide release 4K services in 2015



BT launched Ultra HD sports channel in August 2015



New HBBTV2.0 usecase that was tested at Roland Garros, June 2015

Trialled a live broadcast of the English Premier League in 2013

sky

- Plans to introduce 4K-compatible STBs ('Project Ethan')
- Assesses IP delivery for 4K content



- Carried out 4K trials for sports in 2014
- Partnered with the BBC and Argiva for the trial of the 2014 World Cup final

The Ultraflix app is on Sony, Samsung, Vizio, and Hisense TVs with those from Smart TV Alliance(LG, Panasonic, Sharp, and Toshiba) to follow



- Delivered 20 movies via VoD platform in 4K resolution in 2014
- Plans to transmit live 4K programmes in 2015

Deutschland

Plans to launch 4K

in 2015 or 2016

service in Germany



- Launched its Freebox Mini 4K STB with HEVC video compression
- Launching a 4k STB in 2016, based on home grown system

Μα)(DOME

Samsung to launch

4k content in 2015

Partnered with



- Began offering 4K IPTV services in 2014
- Plan to deliver more than 500 programmes

Partnered with

Samsung to launch

4k content in 2015

kt skylife

- Launched first 4K channel in 2014
- Broadcasts 4 hours of 4K content per day and plans to have 2 full 4K channels in 2015



- Launched first 4K channel in 2014
- NexTV via Sky Perfect JSAT broadcasts 6 hours of 4K content per day
- Plans for 4K commercial channel in 2015

DIQIO NTT Plala

Started 4K IPTV service in 2014



Launched India's

first 4K set-top

boxes in 2015



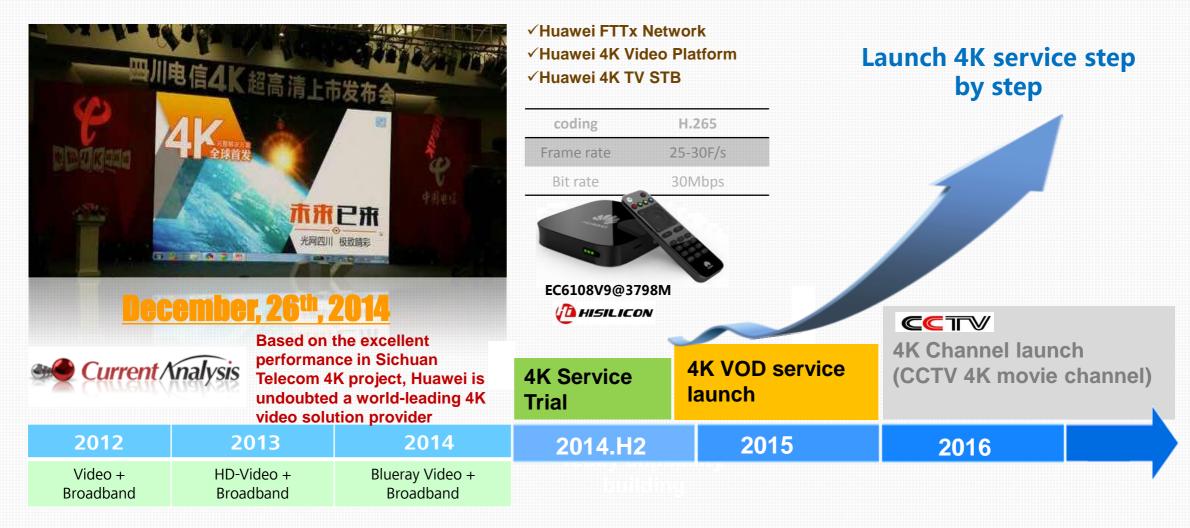
Launch two 4K (one is Pay and the other Premium/PPV) channels



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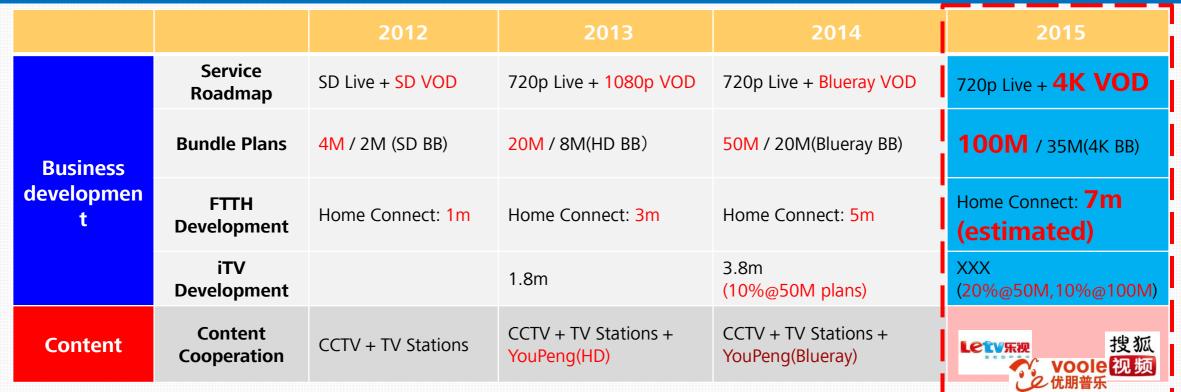
Huawei help Sichuan Telecom commercial launch China Telecom's first 4K service





Sichuan Telecom is a typical case, that promotes FTTH deployment by providing 4K experience

Acquires 1m subs. in 6 months
 Establish partnership with 4K content provider LETV, Sohu





Key Take Away's

- The technology and eco-systems are ready for it
- 4K is mainly pushed by TV manufacturers
- OTT delivery will be earlier than delivery over managed networks
- Content is still key
- HDR is more likely to be an early mass market product than 4K resolution







Thank you

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