



Entering the Hybrid Age



The Advanced Television Experience

Video is everywhere. As the limitations of old technologies cease to matter, consumers expect more content, better quality, wider access, increased choice, and faster delivery. And not just on a single screen, but on multiple screens - from living rooms to large cinemas, from giant outdoor screens to portable devices on the move. Consumer expectation for high-speed, high-quality service anywhere, anytime, has triggered an unprecedented demand for bandwidth and network capacity. Cisco, the leading network equipment provider, predicts an increase in annual global IP traffic to a mind-blowing one Zettabyte – one thousand billion Gigabytes – by 2016; and 80% of this will be video.

Optimising Delivery Networks for Advanced TV

The rapid increase in demand for video content requires us to develop new technologies *and* find innovative and efficient ways to use existing technology. These innovations are already underway:

- ▶ Dozens of broadcast TV packagers worldwide have launched hybrid broadcast/broadband services to provide advanced TV services on a national scale.
- ▶ TV channels use hybrid broadcast/broadband TV solutions to provide the link between linear and on-demand TV.
- ▶ A number of telcos are increasing the reach of their linear TV services through hybrid broadcast/broadband TV solutions. Others use this model to optimise their video distribution.
- ▶ Consumer electronics manufacturers are exploiting the potential of hybrid broadcast/broadband TV solutions with their next generation devices.

Hybrid solutions combine the advantages of broadband for delivering individual choice of on-demand content with the efficiency of broadcasting high quality TV content to a large audience. This new ecosystem benefits, among others, broadcasters, TV platforms, telcos and consumer electronics manufacturers.

Only by harnessing the best of each technology can we provide consumers with the content they demand in the most cost-efficient and energy-efficient manner.

From High Definition to Ultra High Definition

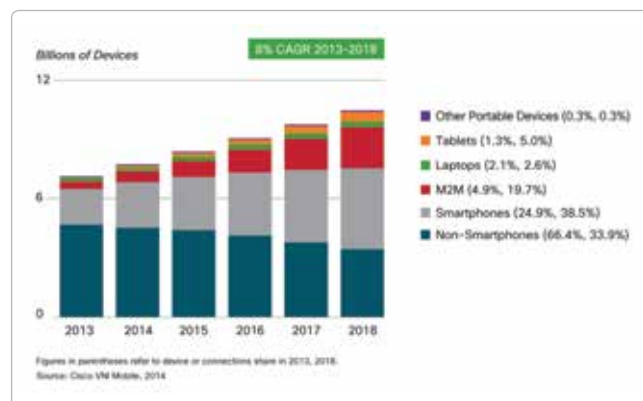
Today, High Definition TV (HD) is a mass-market reality that the broadcasting community and users have fully embraced. Almost every household in Europe is equipped with at least one HDTV set. Even when online, users are used to watching HD quality for live TV and on-demand content.

The next evolution in image quality - Ultra High Definition TV (“Ultra HD” - often referred to as 4K) - delivers four times the picture resolution of 1080p full HD, and produces up to 120 images per second, with substantially more colours and more contrast, improving image clarity with finer detail and greater texture.

In 2013, for the first time, viewing of content was possible in Ultra HD. As was seen with HD, UHD will drive the evolution of the high quality video market within the next decade. Research supports this: two thirds of consumers want to have an Ultra HD screen once they have seen it, and one in four consumers would be ready to pay more to receive HD or Ultra HD¹. The equipment for viewing Ultra HD is already available while content has been and continues to be developed as major studios, sport leagues, Amazon, Netflix and others continue to produce popular content in 4K resolution.

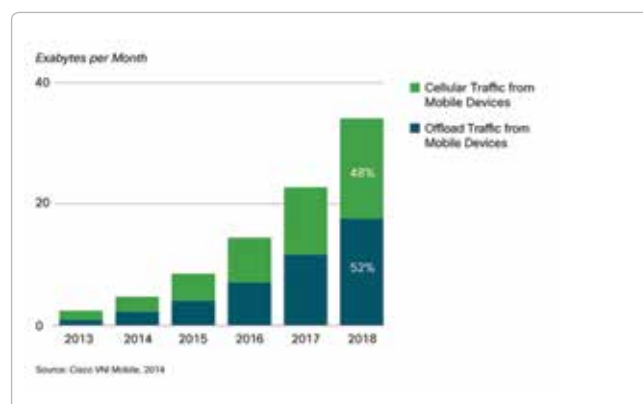
Global Mobile Data Traffic Forecast Update, 2013-2018

Global Mobile Devices and Connections Growth



Source: Cisco

52 Percent of Total Mobile Data Will Be Offloaded by 2018



Source: Cisco

¹ Ericsson Consumer Lab 2013



The Role of Satellite

Satellite has a unique value in this converged-service scenario where the demand for video content dominates. In delivering television directly to nearly half a billion households worldwide, satellite is already in the Zettabyte Era, with those households consuming at least that much satellite data every year.

One satellite 'can see' a third of the earth's surface and is accessible to every user and household that it can see to provide any kind of live, downstream, and push video or non-video content. A satellite network will not slow down or cost more just because it needs to serve more users. By its nature a satellite constantly broadcasts content over the area it can see. The number of households receiving its content is irrelevant - in stark contrast to a telecoms operator, where sudden peaks in users add substantial costs that can totally upset a previously successful business model. By complementing these models and doing what it does best - streaming and pushing content to millions of users - satellite can be key in enabling optimal, smart and future-proof next-generation networks.

Facts that Speak!

- Industry forecasts agree on the market outcome: with forecasts of over 1000 Ultra HD channels, over 500 million Ultra HD screens sold, and more than 400 million Ultra HD set-top boxes installed by 2025.
- It is predicted that at least 55% of European consumers will have bought an Ultra HD TV by 2025.
- Analysts predict that on-demand HD-quality video throughout Europe requires 35 times more gigabytes of video per month than currently consumed in each European household. This means that using today's Internet resources, only around half the population can receive this content, leaving out 45% of potential viewers.
- The picture is even more acute with 4k. On-demand Ultra HD will need 100 times more gigabytes per month per household than is currently consumed. Without hybrid solutions, 80% of the population will miss out.
- Trying to accommodate the faster speeds on terrestrial infrastructure alone would cost no less than an estimated 150 billion euros in Europe to implement significant and complex technology upgrades and provide the necessary terrestrial connections. That excludes an unquantifiable extra and ongoing operating cost, over time - implying many more billions of euros for ground installations.

Responsibilities and Asks

It is incumbent on policymakers and stakeholders to cooperate on hybrid satellite-terrestrial solutions as they operate at a fraction of the cost of traditional terrestrial networks.

The goal must be to transcend networks and delivery infrastructures to create a ubiquitous, flexible, and future-proof digital space through hybrid networks that:

- ▶ help avoid a new digital divide by providing to all an advanced TV experience - a high quality image, on any screen, live and on-demand;
 - ▶ accelerate the delivery of triple-play benefits;
 - ▶ help offload networks and redirect investments.
- **Resources must be spent on technologies that support inclusion.** The cost of fibre will limit it to cities for the foreseeable future. Hybrid services off-load terrestrial networks, reduce the carbon footprint impact and deliver innovative video services and public services to any home device, no matter where it is located.
 - **Future European Commission communications must clearly consider all technology solutions and unlock regional funds necessary for delivery of end-to-end solutions, not just for infrastructure build-out.** This means unlocking funds to ensure that all consumers, wherever they live, can quickly and cost-effectively access the services they demand.
 - **The new European Commission must take a bottom-up approach and look at service requirements from the perspective of user demand, trends and consumption patterns rather than prescribing technology solutions or spectrum requirements.** Services demanded by users drive the need to find new, innovative sustainable business models that are at once affordable and commercially viable.
 - **To assist the emergence of sustainable business models of the future, policymakers and specifically the new European Commission must explore the benefits of developing hybrid solutions that integrate the best of terrestrial and satellite technologies.** Satellite provides a cost and energy-efficient, all-inclusive service that delivers a reliable product to consumers. This means putting the user, rather than the technology or the spectrum, central to any policy.
 - **5G policymaking and specifically ongoing Horizon 2020 calls must favour and incentivise hybrid solutions.** EU support is needed to help develop integrated network management, consumer premises equipment, standards for set top boxes, and digital rights management.
 - **Finally, the European Commission can play a major role in supporting the emergence of the UHD market by, for instance, supporting the production of European UHD content and fostering the completion of a standardised UHD ecosystem.** Today, most UHD content is generated outside the EU, originating in Japan and now mostly in the US.



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