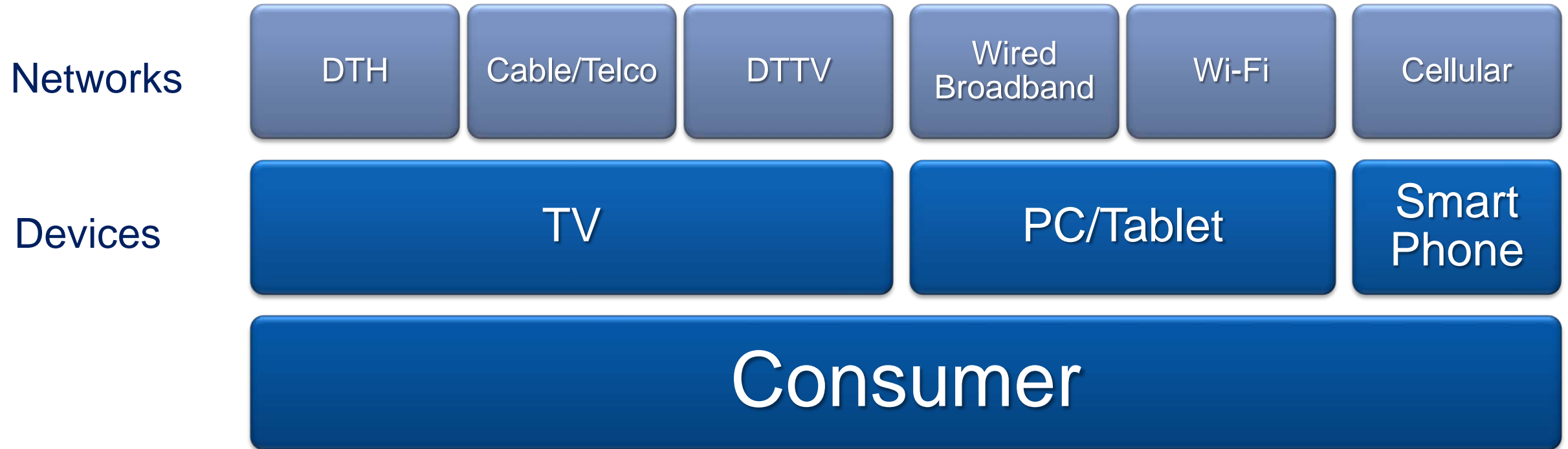


# Mapping the Future of Media Infrastructure

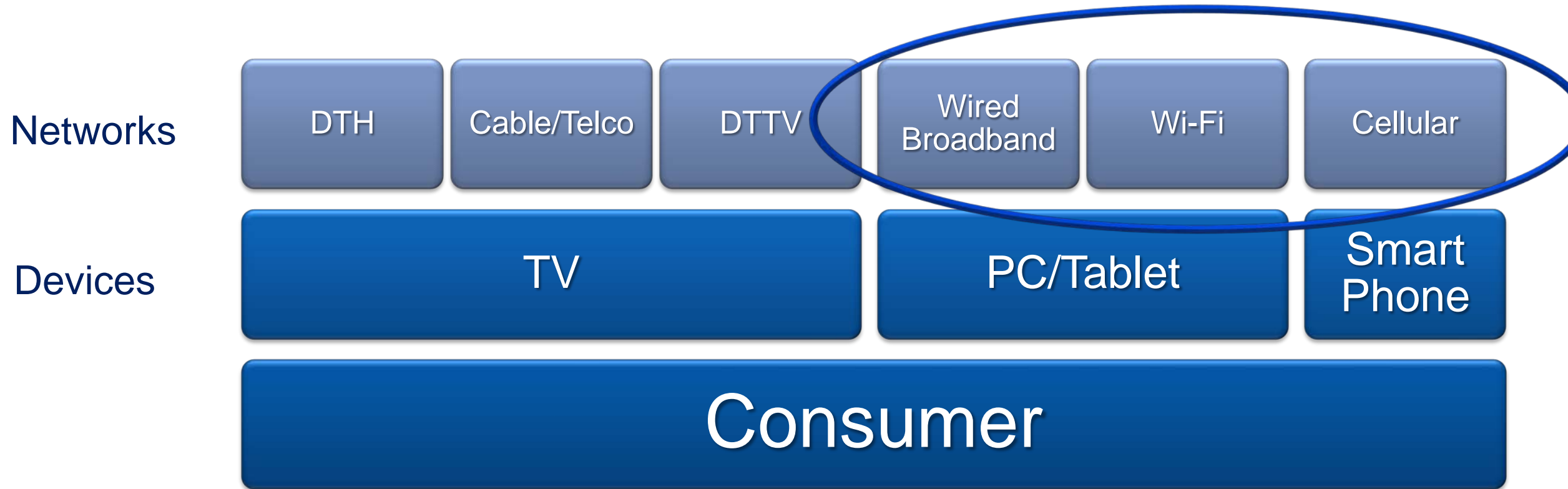
Ken Takagi  
Director, Managed Media Services

WBU/ISOG Forum, Geneva  
November 19, 2014

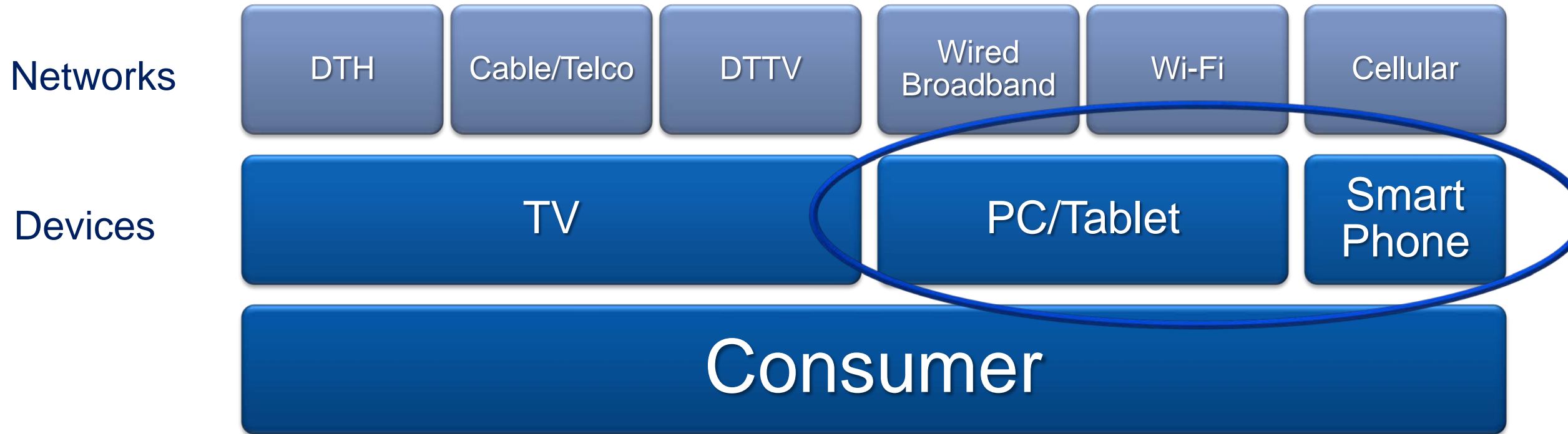
# How Consumers Receive Live/Linear Video is Changing



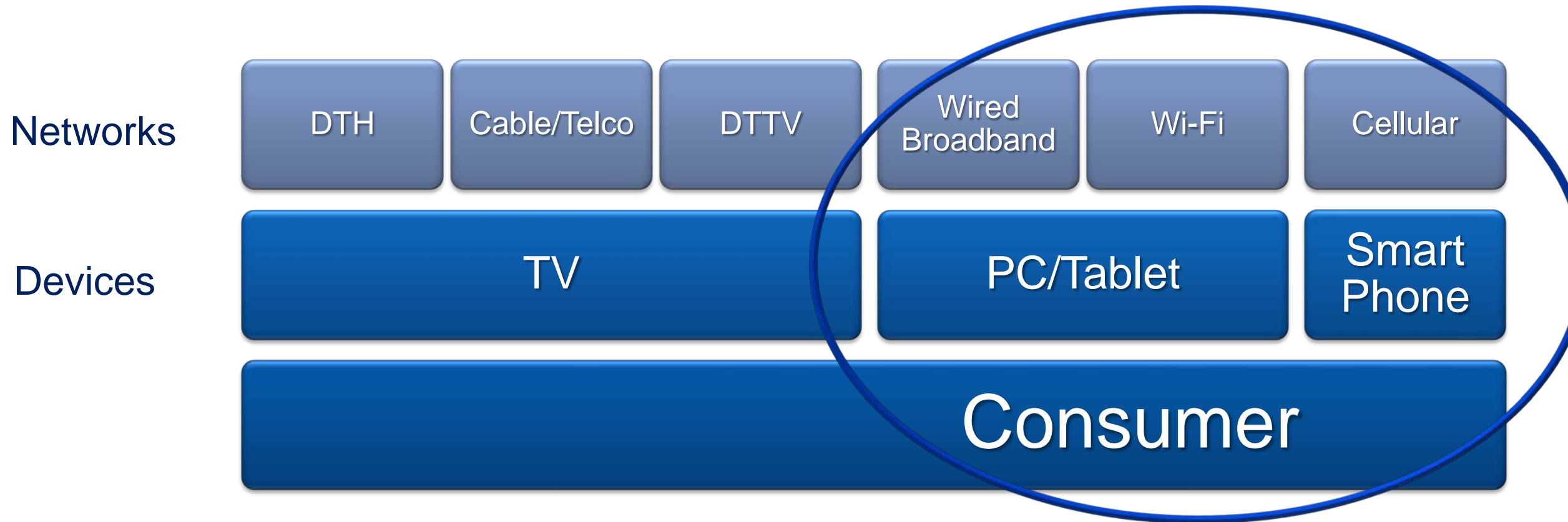
# More Content Over Two-Way Broadband Networks



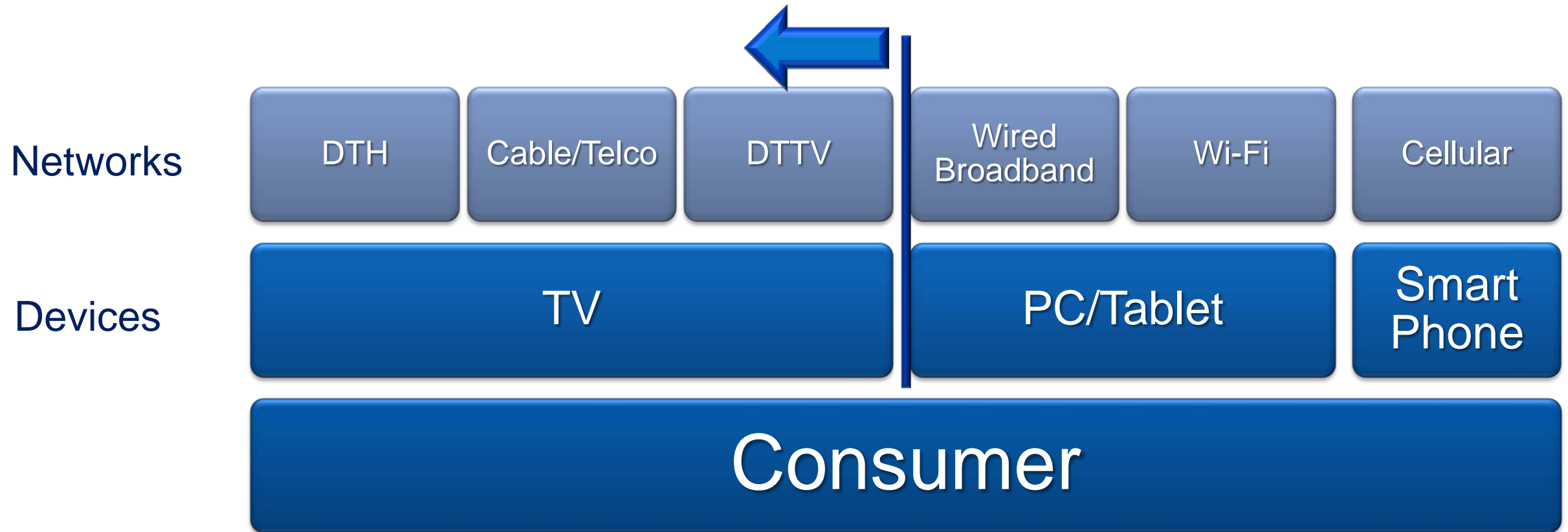
# ...and to More Devices



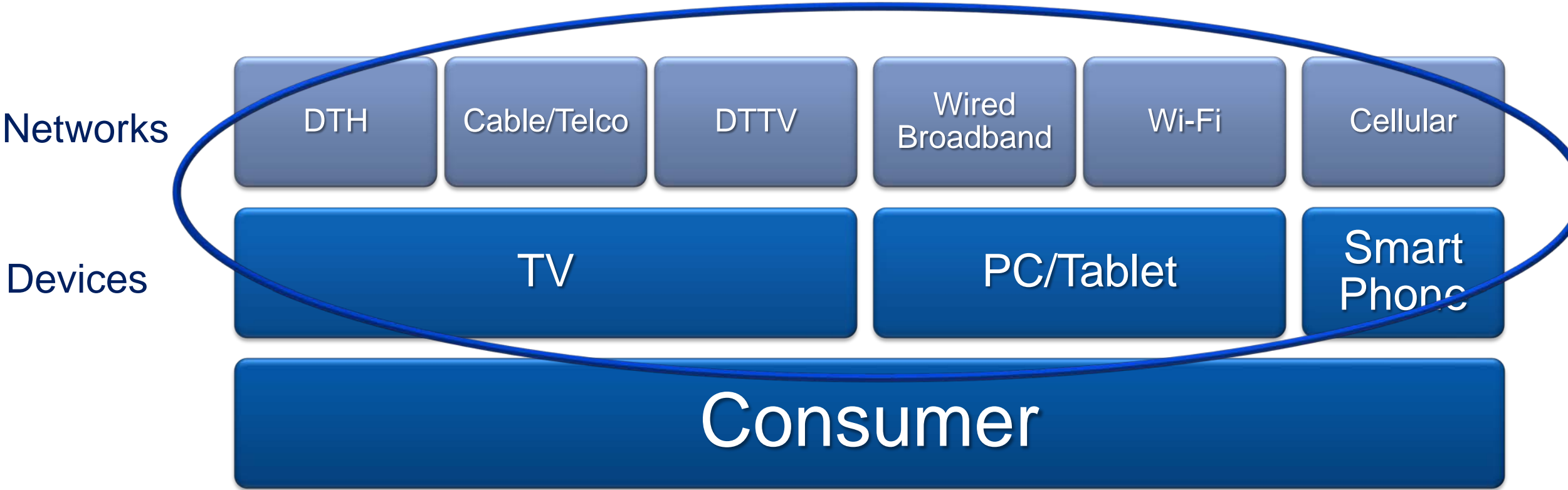
# This Allows for More Personalization of Content and Shifting Content Reception From “Push” to “Pull”



# The Share of Legacy Media is Decreasing – of Viewing Time, Advertising Dollars and Spend Dollars



# Business Models are Stressed Across Value Chain



# Network Capacity is Also an Issue

**Internet Traffic will grow 2.8 fold from 2013 to 2018**

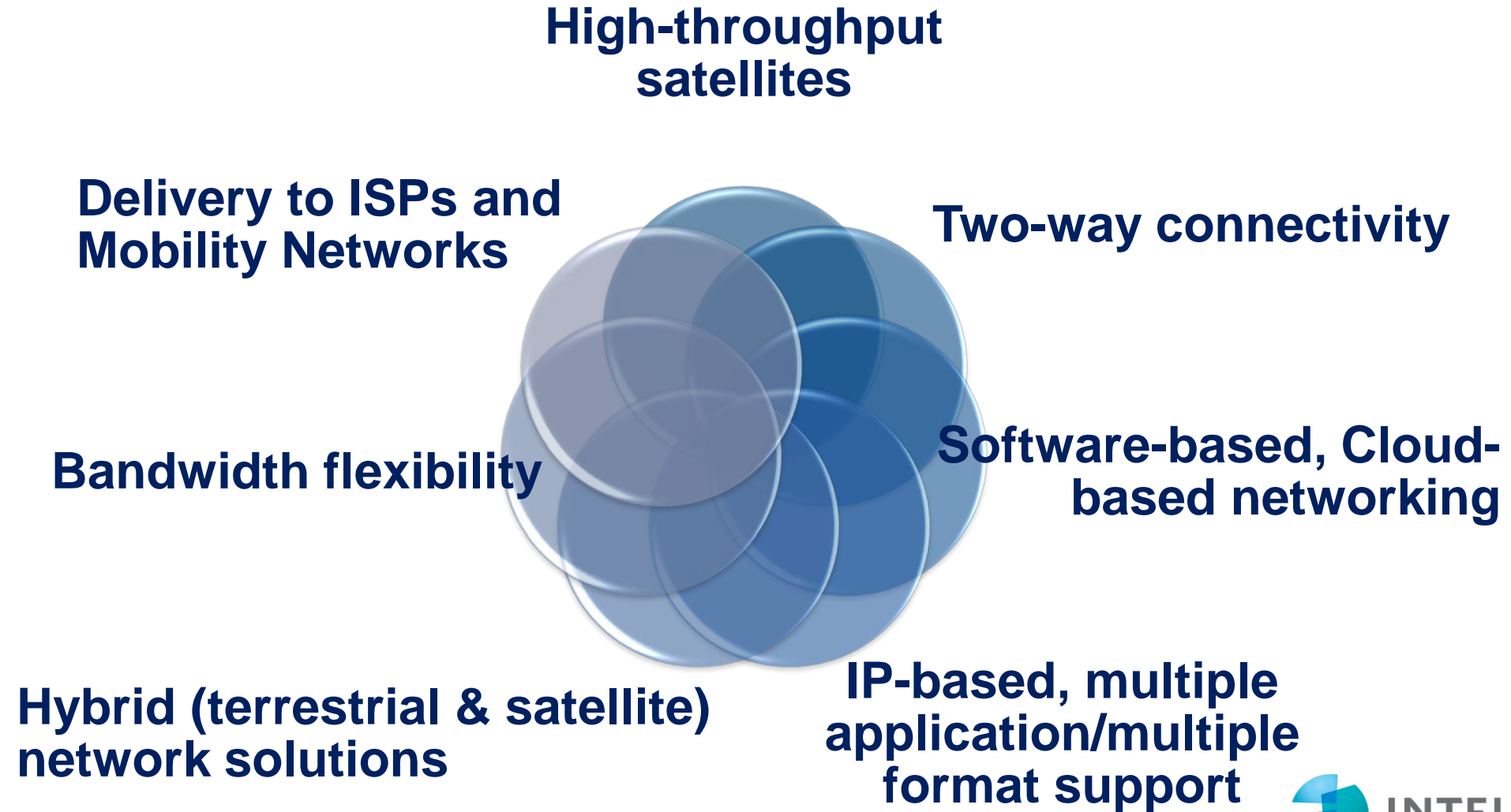
**Busy-hour Internet Traffic will grow 3.4 fold from 2013 to 2018**

**75% of Internet traffic will be video in 2018 - of this 46% will be HD and 7.5% will be UHDTV**

**Average Internet network speeds will grow 2.6 fold from 2013 to 2018**



# Ingredients of the Satellite Network of the Future



# Satellite Economics Shifting with Technology Improvements

- **Encoding Technology**

- MPEG-4 AVC (H.264) to H.265 (HEVC) – up to 50% improvement

- **Transmission Technology**

- DVB-S2 to DVB-S2X Modulation – 50+% improvement
- VSAT return channel technology, TDMA to MxDMA – 50% reduction in bandwidth

- **High Throughput Satellites**

- Intelsat's Epic<sup>NG</sup> Satellites will have up to 5 times more bandwidth and support up to 10 times more throughput than conventional satellites

**Per Channel cost of satellite will decrease - as many as 15,000 HD channels/satellite**

**Per Mbps cost of satellite delivery will decrease - Epic<sup>NG</sup> Satellites will transmit up to 60 Gbps**

# Shifting of Satellite vs. Fiber Economics

- **Encoding Technology**

- MPEG-4 AVC (H.264) to H.265 (HEVC) – up to 50% improvement

- **Transmission Technology**

- DVB-S2 to DVB-S2X Modulation – 50+% improvement
- VSAT return channel technology, MF-TDMA to MxDMA – 50% reduction in bandwidth

- **High Throughput Satellites**

- Intelsat's Epic<sup>NG</sup> Satellites will have up to 5 times more bandwidth and support up to 10 times more throughput than conventional satellites

**Magnitude of change in satellites and transmission technology coupled with inherent reliability of satellite will favorably shift cost efficiency of Satellite vs. Fiber**

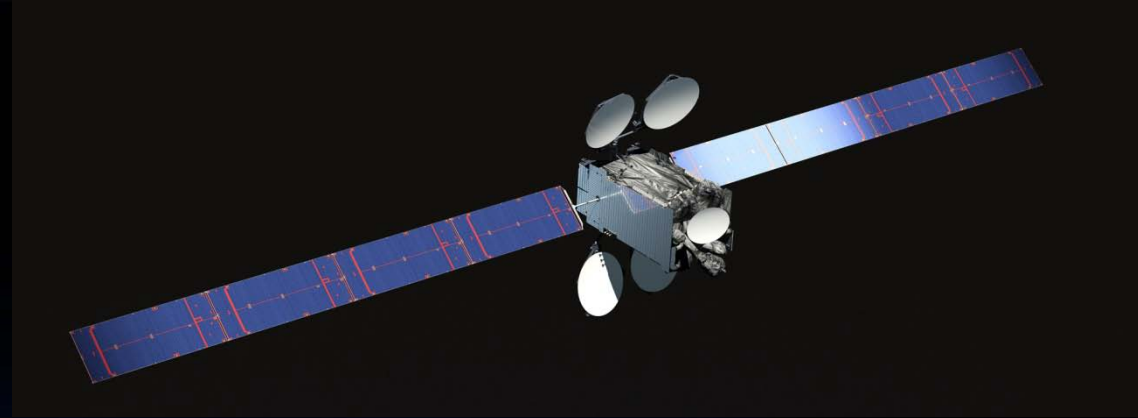
# The Satellite's Role in Digital Media

- **Continued role in media distribution**
  - Legacy Networks
  - OTT Distribution to ISPs
  - DTT
  - Mobility
- **Renewed role in contribution and DR**
  - IP-based/automated satellite access
  - Backhaul of live feeds
  - Cost effective DR



# In Conclusion

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- **Satellites are here to stay!**
- **Continued crucial role in digital media distribution**
- **Re-emergence in contribution and DR applications**
- **To be effective satellite operators need to proactively embrace and adapt to digital media norms**