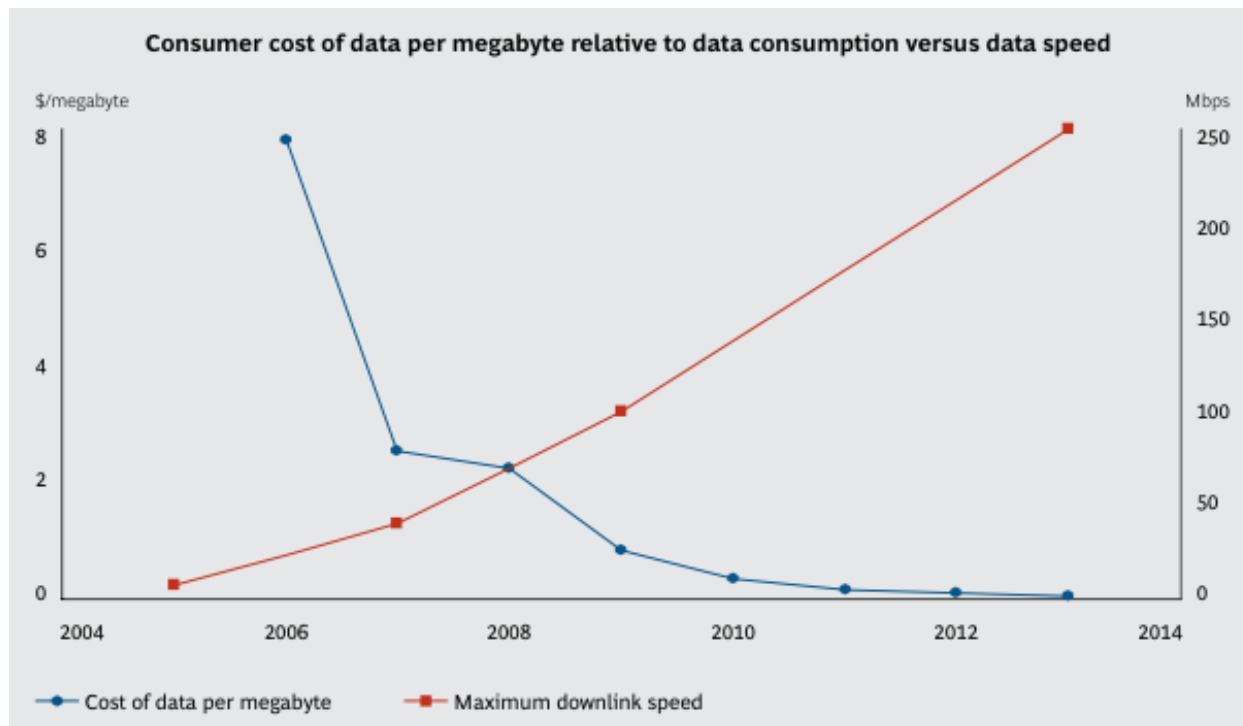




Mobile Video Today and in the Future

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Wireless data is becoming cheaper and faster



Recent trends:

- User costs are down 99%
- Infrastructure costs down:
 - 95% (2G to 3G)
 - 78% (3G to 4G)
- 4G is 12,000x faster than 3G
- 5G will take it much further

Are we on the verge of having too much capacity?

Too much (capacity) is not enough

- Top 1% subs 52% of traffic; to 18% of traffic.
- Smartphones are 88% of new phone purchases
- Tablets and laptop tethering
- Premium content offerings (TV-E)
- 4K and 40MP+ cameras
- > 1000X more capacity within 10 years



Mobile Data is growing @69%;
AND Mobile Video as % of Mobile Data is
growing rapidly.

It will cost a lot!

- Investment as % of revenue is extremely high.
- \$1.8 trillion invested between 2009 and 2013.
Another \$4 trillion invested over next 5 years.
- The investment case has to be based on expectation of high returns.
- What can this tell us about the future?



Investment expectations imply adoption of non-commodity services

Future possibilities

Return of data caps or
sponsored data

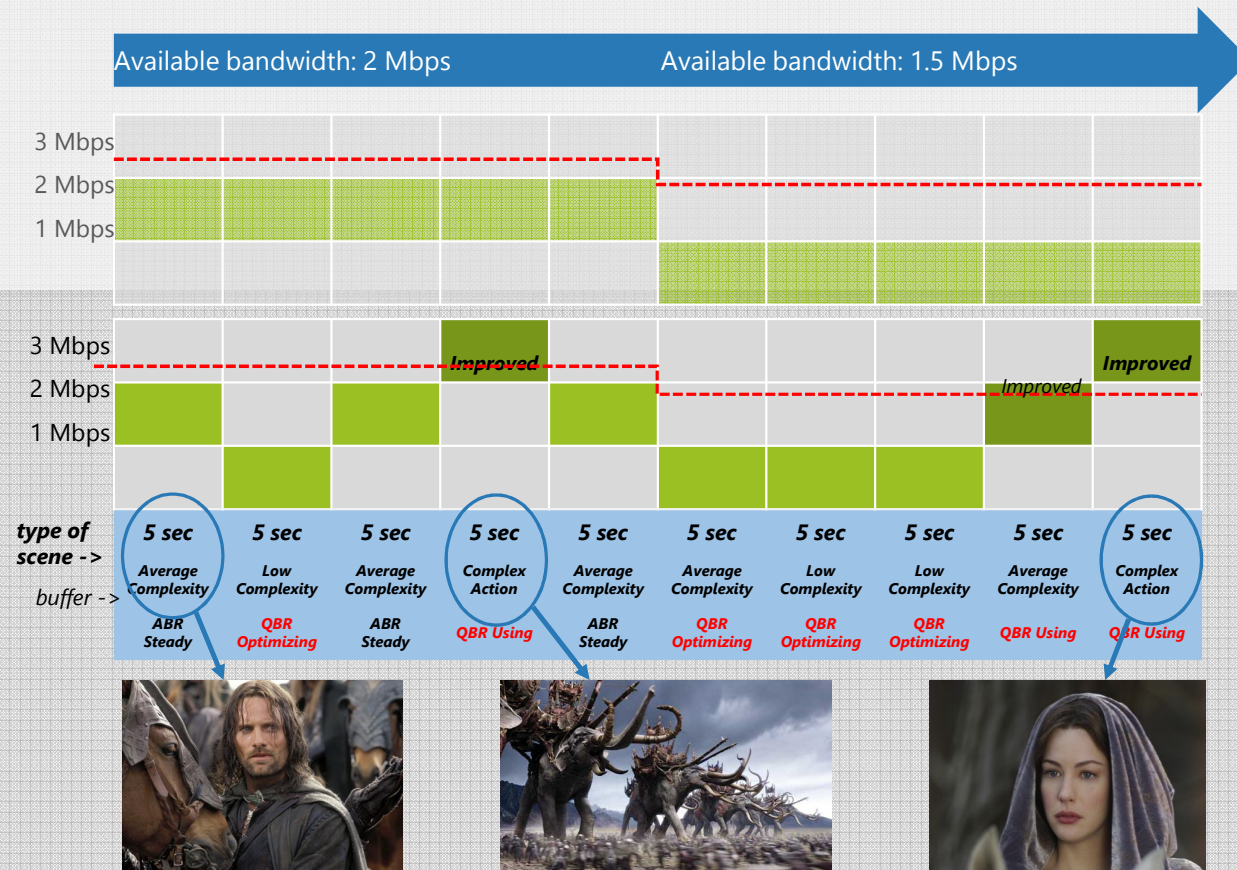
Convergence
2.0

OTT providers +
Operators +
Content Companies:
Friend or Foe or Both

Quality of Experience
(QoE)

What is QBR?

Technology that improves upon existing ABR



Adaptive Bitrate Technology

- Bitrate chosen based upon bandwidth available
- Bitrate & quality not always correlated
- Results in inconsistent quality

MediaMelon QBR Technology

- Segment chosen based on bandwidth and content quality characteristics
- Analysis of scene complexity & perceived video quality enables premium QoE while saving bandwidth
- Results in reduced network strain, improved video quality and better user experience

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Thank you