

AVC from a Client-side Perspective

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Outline

- Managing expectations
- Perceptions of AVC
- The maturity of AVC and its implications
- The New World of IP Networks.

Managing expectations

- AVC was designed to offer same quality as MPEG-2 at half the bit rate
- Expectations have often been unreasonably raised
- Some expect to be able to stream DVD-quality video at 1Mbps
- It is often assumed that the technology is ready for prime time
- ... while this is not necessarily the case.

Naming confusion

- H.264, AVC, H.26L, MPEG-4 Part 10...
- Baseline Profile, Main Profile, High Profile
- ...“over UDP”, “over IP”.

Decoder quality

- Decoders are (or should be!) bit-exact
- There should be no such thing as “decoder quality”
- Still, some insist on comparing it.

Customer requirements

- Comparing decoder performance is difficult, especially in the case of software decoders
- Streams can have very different computational requirements, even at similar bitrates and resolutions
- Unreasonable requirements are frequently seen (5Mbps Main Profile, D1 resolution), these can lock out software-based decoders.

Encoder maturity

- It took a number of years for MPEG-2 encoders to reach their current quality and performance
- One should expect this period to be comparable for AVC:
 - it is much more complex than MPEG-2
 - but we have more experience with digital video.
- In the meantime, results can be surprising.

Decoder maturity

- Software decoders are easier than silicon implementations, therefore they are the first to appear
- Silicon is becoming better day by day
- Interoperability is important: a fact accepted by most players
- We are still in the “shakedown” phase.

The New World of IP Networks

- Encapsulation methods:
 - MPEG-TS over UDP
 - RTP
- RTSP for control
- RTP encapsulation isn't standardized
- Limited interoperability
- Digital video over IP networks is a very complex problem!

Problems in the New World

- IP networks are inherently unreliable
- Error correction: a largely forgotten issue
- Two things are happening at once:
 - new, significantly more complex video coding methods are introduced
 - IP streaming is gaining acceptance as a delivery method.
- Digital video over IP networks is a very complex problem!

Questions/discussion?