



Emerging Markets, Specialized Standards

Wenfei Jiang

Alibaba Cloud

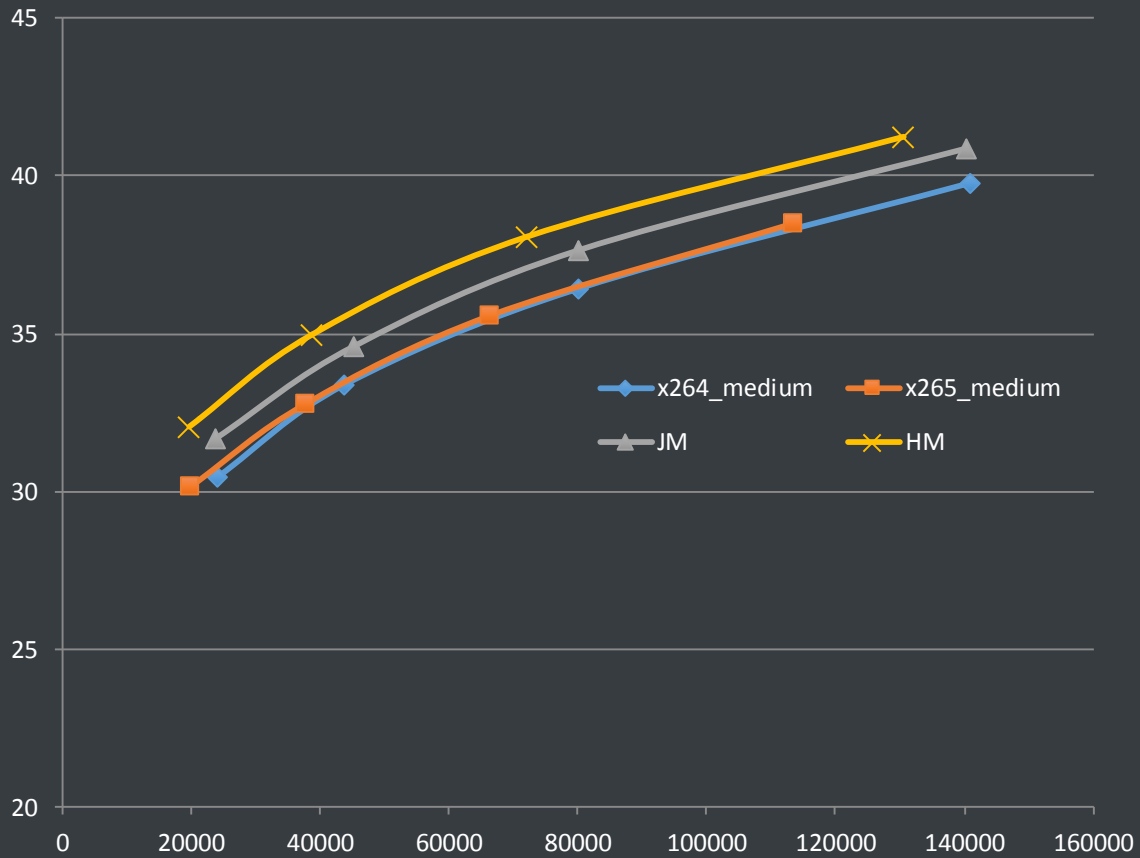
Outline

- Next generation of video coding?
- Emerging markets and specific requirements

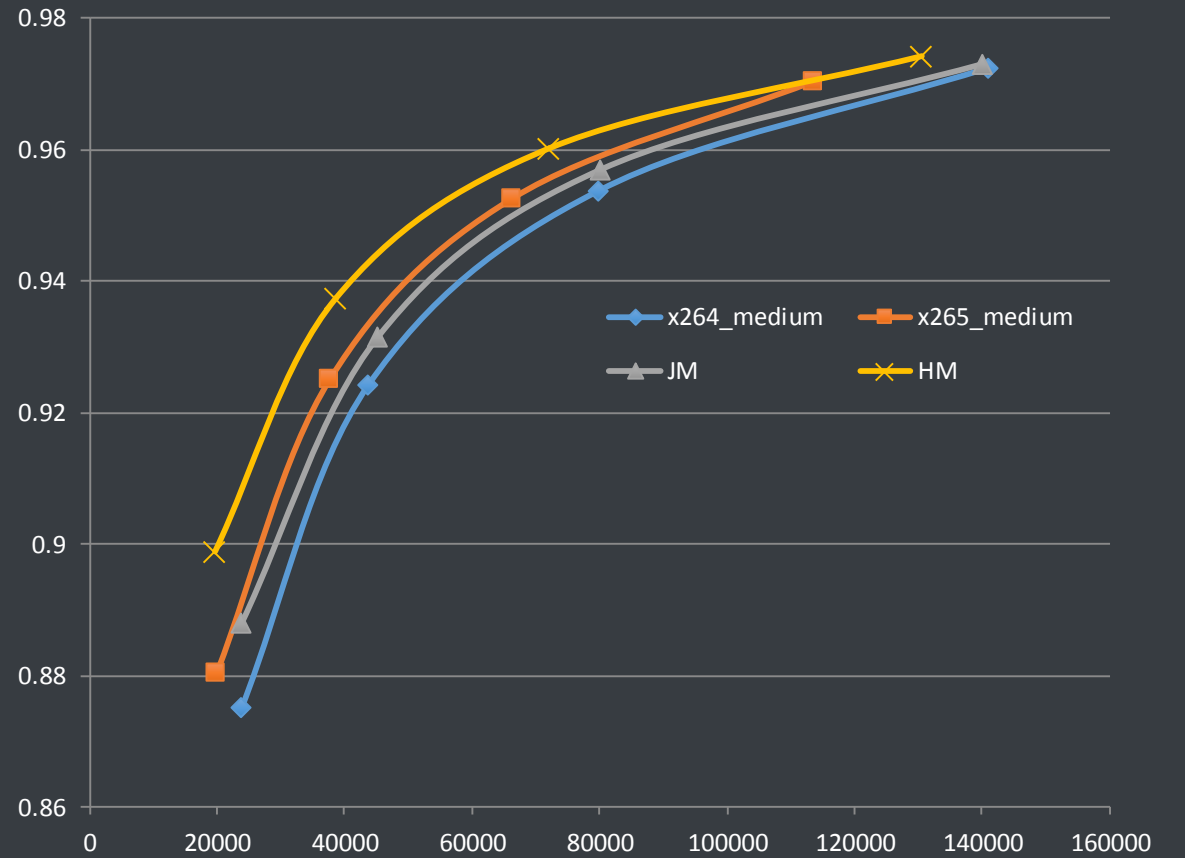
Next generation of video coding?

Bottleneck?

PSNR vs Bitrate



SSIM vs Bitrate



HEVC wins in the perceptual quality

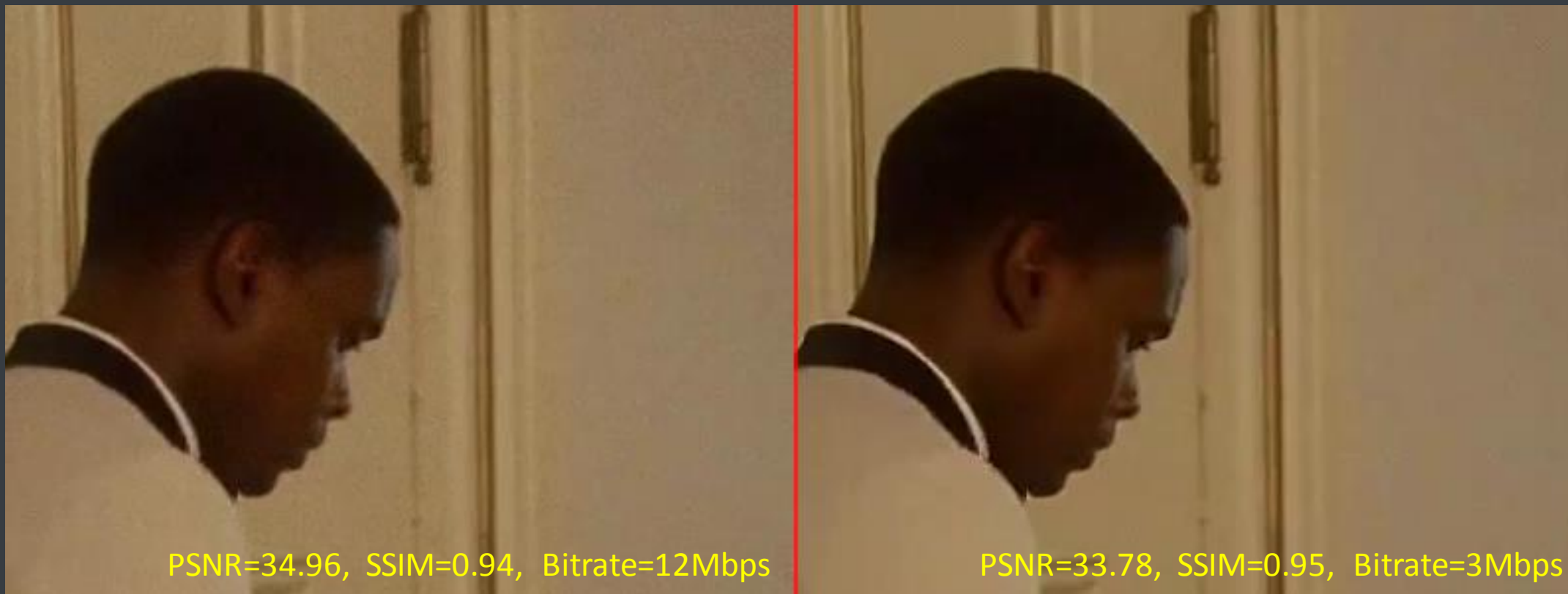
AVC: PSNR=30.47,SSIM=0.8844

HEVC: PSNR=30.47, SSIM=0.9217



More reliable metric, more powerful codec

- Temporal consistency
- Noise suppression
- Structure preservation



Is there a universal metric?



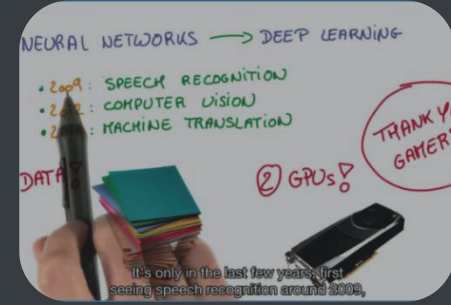
4K & 60fps
Movie



Internet video



Live Game
streaming



E-education



Panorama



Surveillance



Mobile live
streaming



Video
conference

Specialized metric, specialized codec

- Movie copy

- Extremely high bitrate
- Moderate framerate
- Film grain



- Game streaming

- moderate bitrate
- preferably higher framerate
- smooth



Emerging markets and specific requirements

Booming markets in China



Emerging Markets



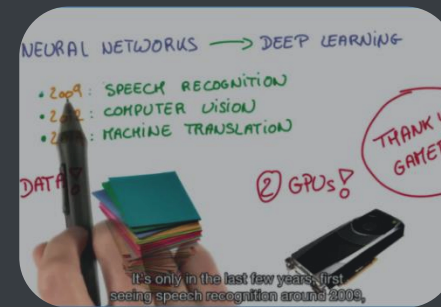
4K & 60fps
Movie



Internet video



Live Game
streaming



E-education



Panorama



Surveillance

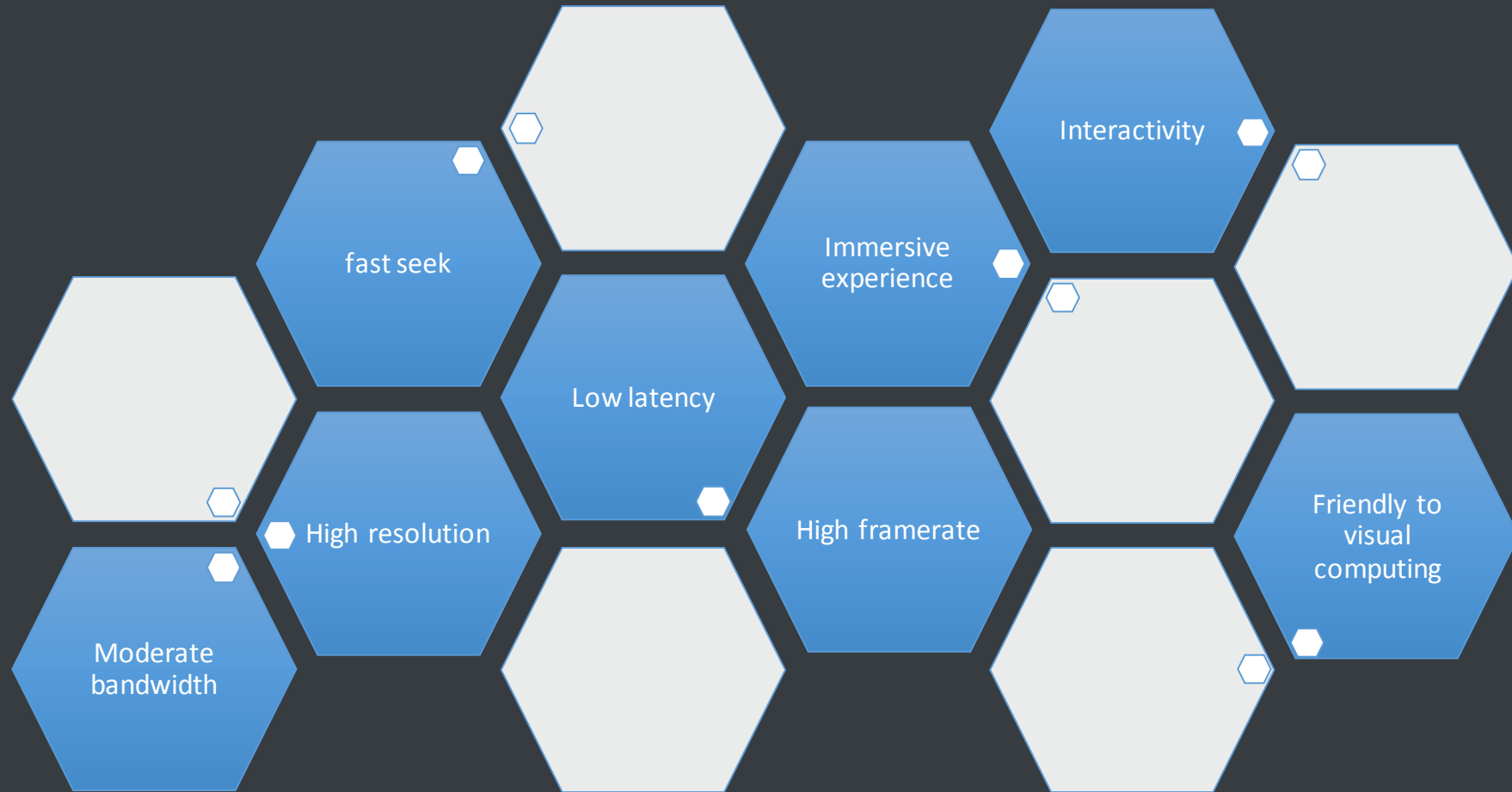


Mobile live
streaming



Video
conference

Specific requirements



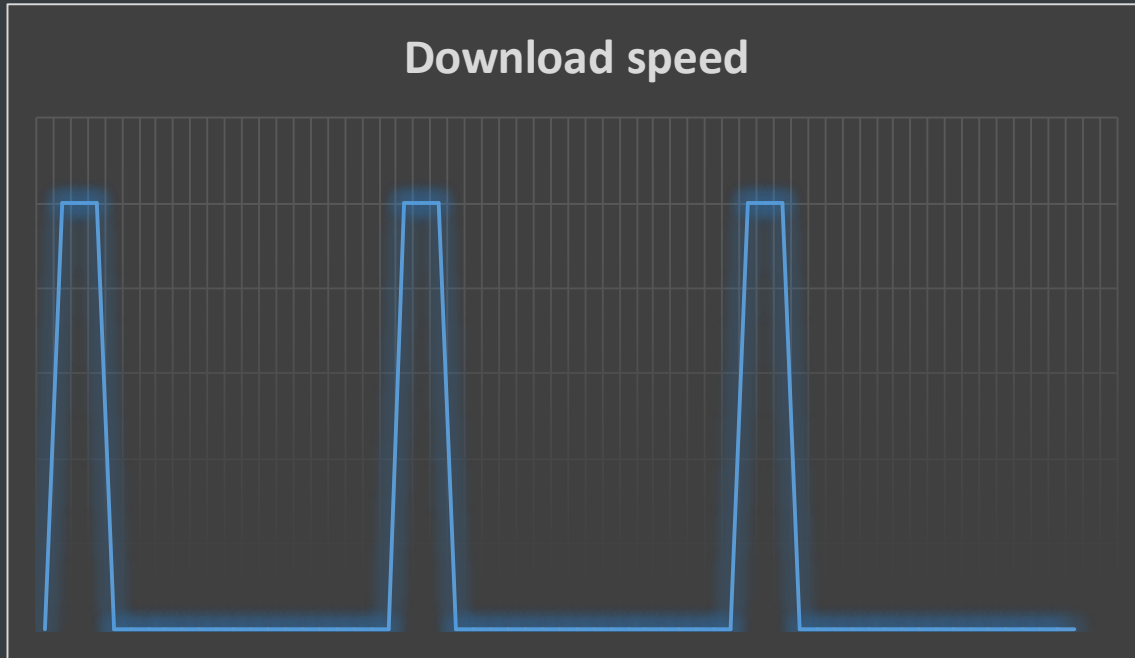
For video game

- High framerate High resolution
- Moderate bitrate
- Clear text



For internet VOD

- The resolution and framerate get higher and higher, the bitrate is expected to remain moderate.
- Can we control the bandwidth cost by just reducing the bitrate of streams?



For mobile live streaming

- Shaky
- Blur
- Power hungry for end-devices
- High bitrate (unworthy)



For panorama / VR content

- Artifact resistance
- Bitrate reduction
- Adaptive streaming



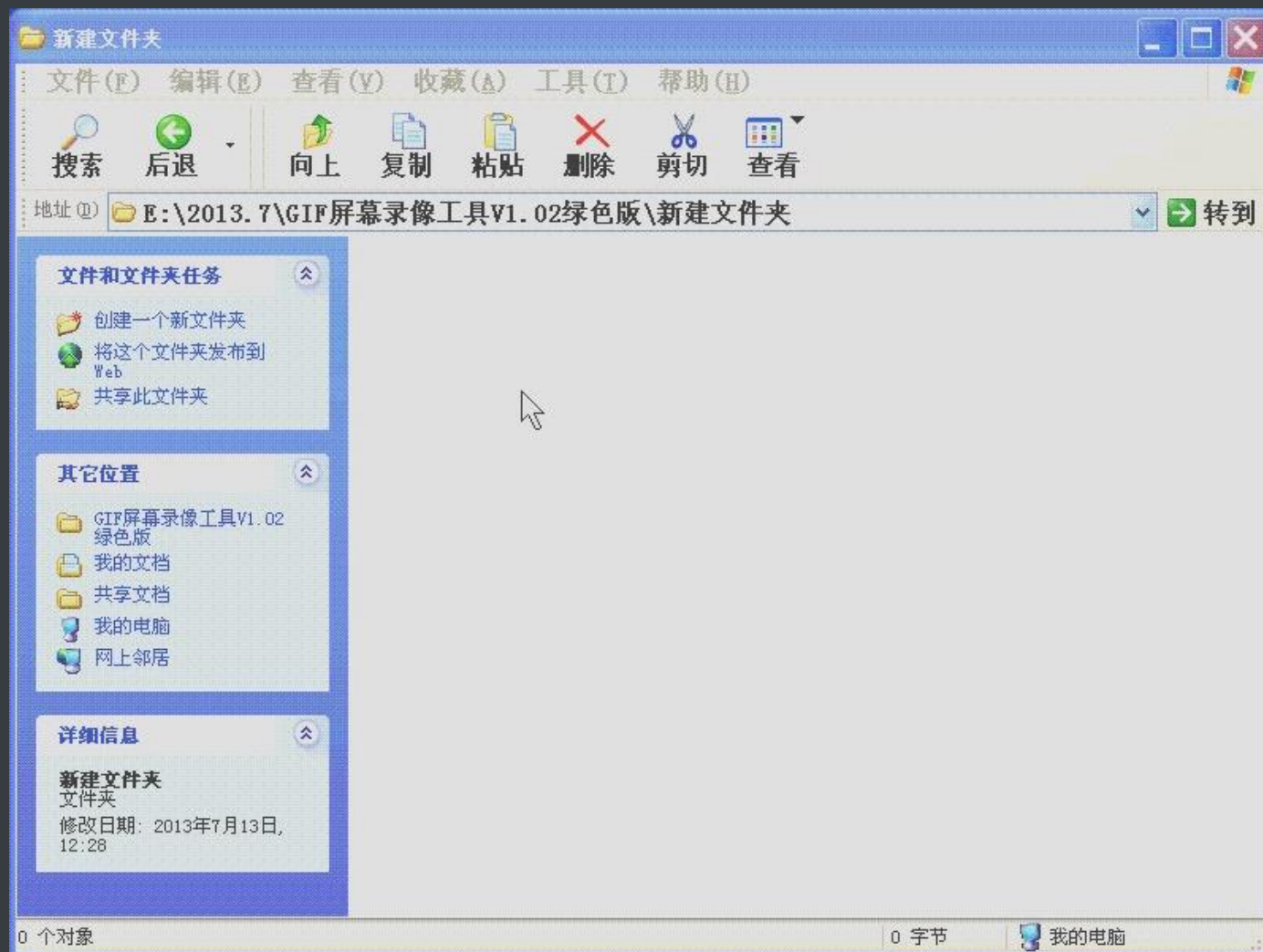
For screen content?

High compression

Low latency

Clear text

...



Alibaba Cloud: Apsara Video



VOD/Live

- Set up video service with zero-coding
- End-to-end video solution



Transcoding


- Elastic transcoding cluster
- Professional video encoder



Video Revive

- High resolution / framerate remake
- Quality improvement for damaged videos

Thanks!

为了无法计算的价值 |  阿里云

