



赛灵思技术日
XILINX TECHNOLOGY DAY

NGCodec视频转码在Twitch上的应用 — 用Alveo大幅降低成本并提升视频质量

杜凯文

NGCodec 亚太区业务发展总监



World-class Leadership Team



Oliver Gunasekara
CEO
FOUNDER



Delivered 95% market share in mobile for ARM (1995 to 2007)

VP corporate
BusDev / M&A
and global director
of mobile at ARM



Adam Malamy
VP TECHNOLOGY
FOUNDER



Architecture, design and
verification of low latency
H.264/AVC Codec.

Director of engineering, W&W
Comms and Cavium, FPGA &
ASIC



Pavel Novotny
CTO, VP ALGORITHMS



MPEG2, H.264, HEVC
implemented in software and
ASIC

Video algorithms
at PixStream, VideoLocus, LSI
Logic, Magnum



Ian Jefferson
VP BUSDEV



Lead sales of the Magnum video
encoding products for IDT.

Senior/VP Sales and BusDev
roles at IDT, Harmonic, etc.

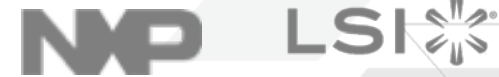


Brian Angell
VP ENGINEERING



Co-founded Nvidia mobile
business unit and delivered
Tegra products.

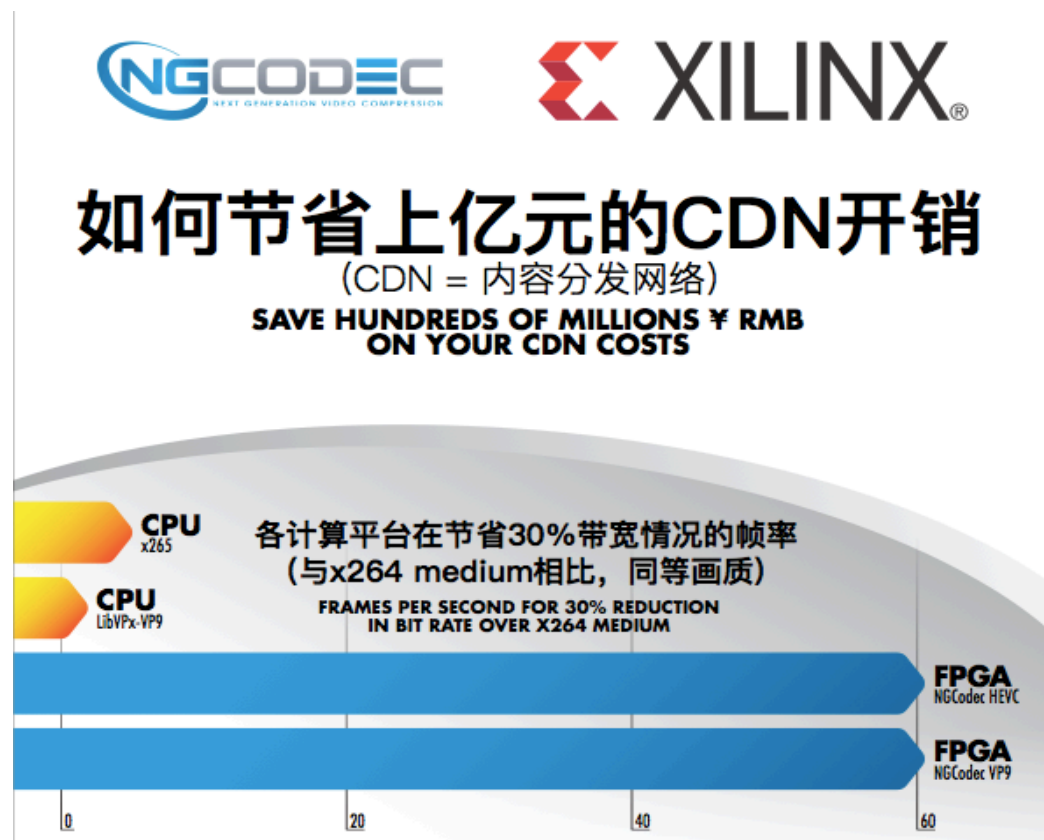
VP Eng at Nvidia for
~12 years (2002 to 2013),
Managed ~600 people



Logos are some of team members previous company experience

NGCodec-基于FPGA加速的云视频编码技术

更好的视频质量, 更高的通道密度、更低成本



NGCodec-基于ALVEO的视频转码应用

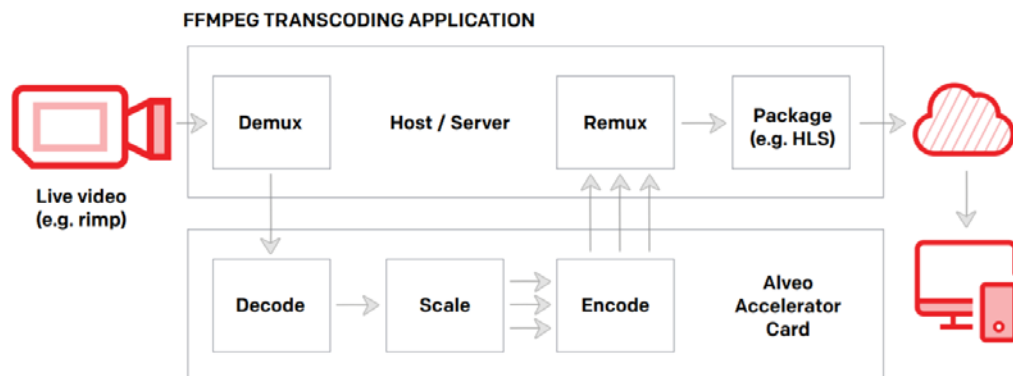


VYU SYNC



Xilinx Alveo™ U200 Data Center Accelerator Card

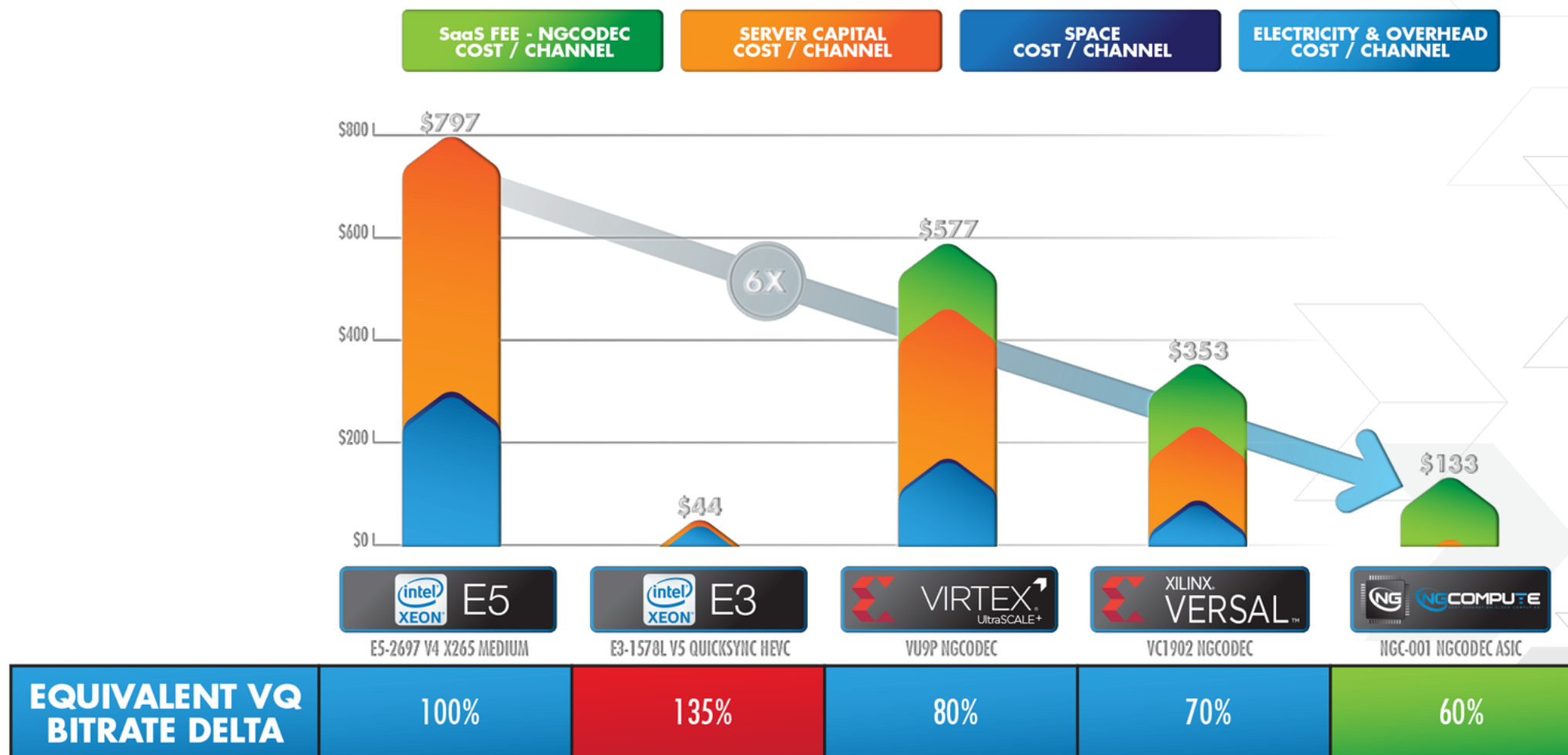
Adaptive Bit Rate 视频转码方案



高性能HEVC & VP9 编码器
方便的与FFmpeg 集成
Fully configured transcoding pipeline
高质量直播编码
Xilinx FPGA 加速编码无需占用CPU
单设备同时32 独立编码
API 基于FFmpeg 标准

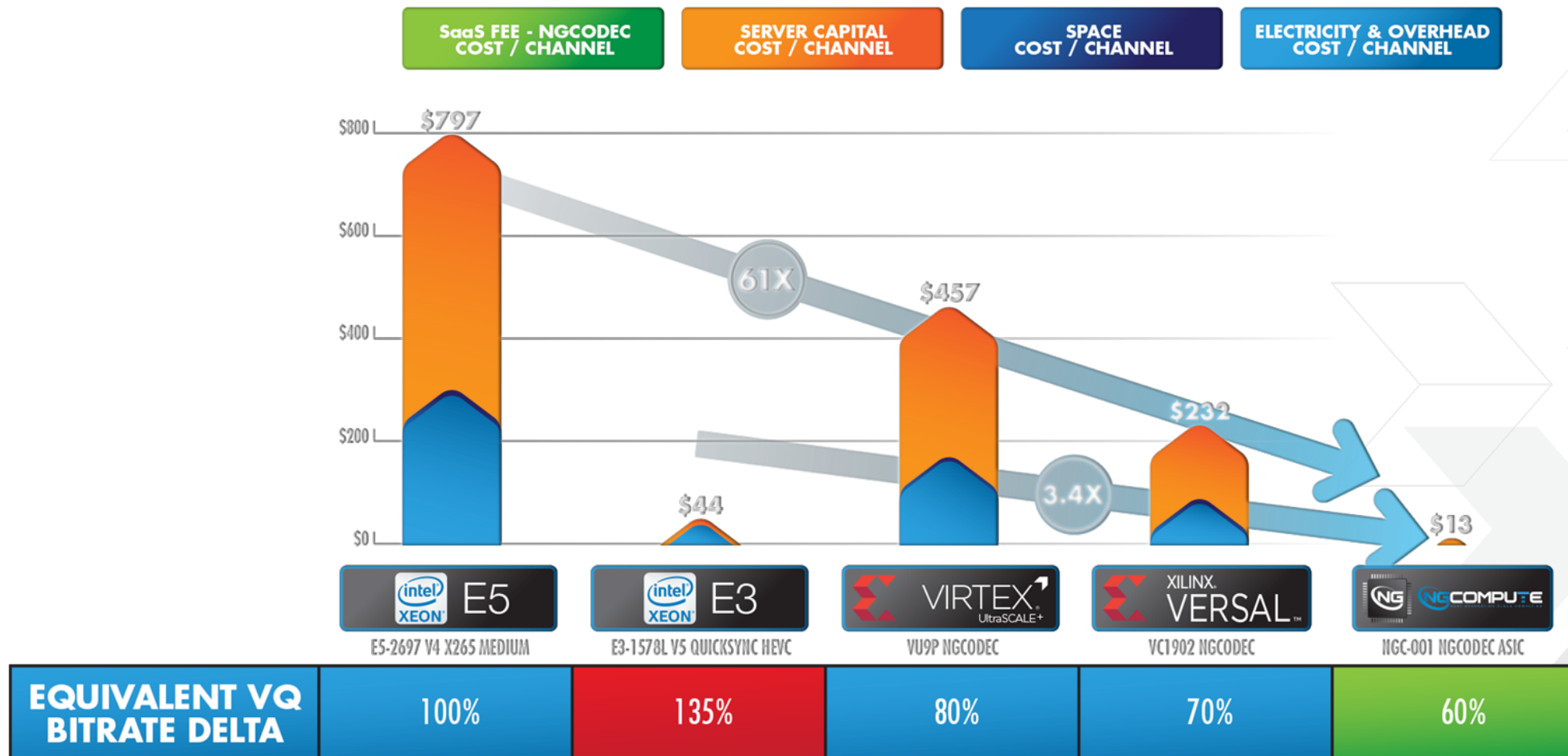
总体拥有成本 & 视频质量 比较

总体拥有成本：3 年分摊 10 存储分摊, 电费0.5元 KWh



TCO & VQ Comparison

Total Cost of Ownership (TCO), 3 Year Amortization Servers,
10 Years Amortization Space, 8c per KWh



视频编解码方案比较



	 XEON E5 (x86 SW)	 XEON E3 (ASIC)	 MB86M30 (ASIC)	 NGC (FPGA)	 NGC-001 (ASIC)
VQ BITRATE	Average	Very Poor	Poor	Best	Best
COST PER CHANNEL	High	Low	Low	High	Low

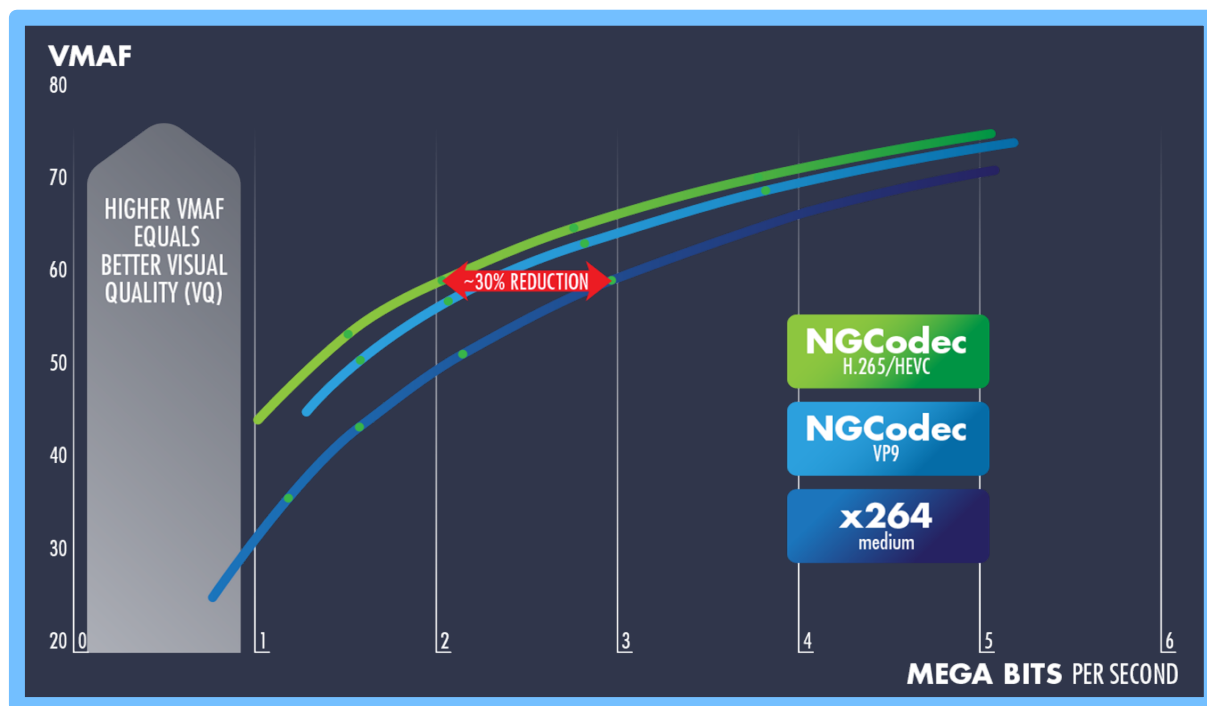
NGCodec-FPGA加快云视频编码产品发布



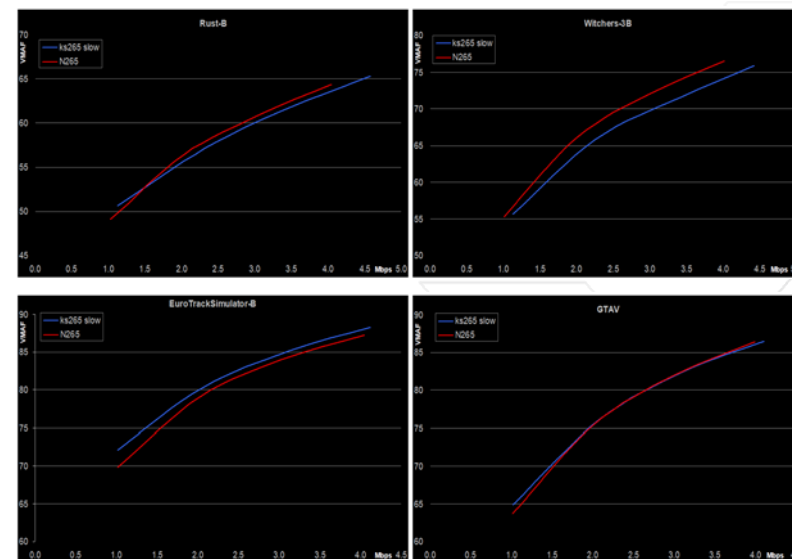
- **HEVC/H.265 (Chestnut)**
 - Available A (ABR 1080p60 8-bit)
 - Jan 2019 B (ABR 2160p30, 2x1080p60)
 - 1Q 2019 C (ABR 2160p60 10-bit HDR, VQ+, {2xVU9P})
- **VP9 (Pistachio)**
 - Available A (ABR 1080p60 8-bit)
 - 1/19/19 B (2x1080p60, 2160p30)
 - 1H19 C (4x1080p60, 2160p60 VQ+, 10-bit, HDR, {2xVU9P})
- **AV1 (Walnut)**
 - 4/1/19 A- (NAB Demo, VU9P)
 - 4Q19 A0 (ABR 1080p60 10-bit {100% VU9P})
- **AVC/H.264 (Hazelnut)**
 - A0 (ABR 2x1080p60 8-bit), LEGO Architecture VU9P})



NGCodec-云视频编码 VMAF 比较



NGcodec VS Ks265 (slow)



VMAF平均 高出2%

Rust-B, Witchers-3B的片段中 表现出明显的视频效果增强

ks265 (slow) VQ issues



ks265 (slow) VQ issues



ks265 (slow) VQ issues



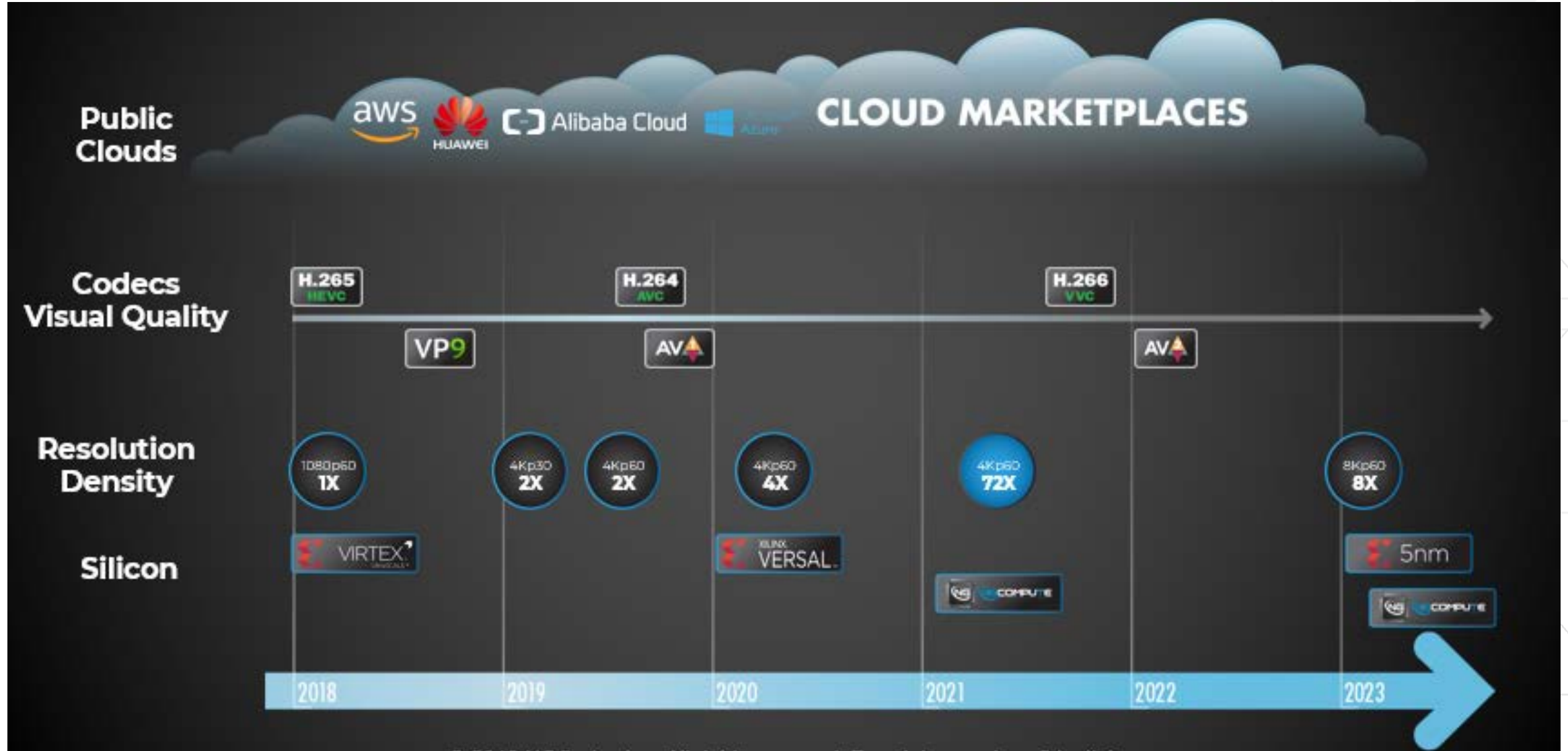
ks265 (slow) VQ issues



ks265 (slow) VQ issues



NGcompute Roadmap



Adaptable. Intelligent.