VISUAL EXPERIENCES:
Transforming Media, Connecting the World

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MEDIA IS TRANSFORMING

ULTRA HD WILL BE 20.7% Of IP video Traffic By 2025

GLOBAL VIDEOAnalytics
$13B Cagr ‘17-’23: 25.7% By 2023

LIVE INTERNET VIDEO TRAFFIC GROWS 15X Cagr ‘16-’22: 72%

IMMERSIVE MEDIA (AR/VR) $95B By 2025

>$102B

2018 VIDEO STREAMING TAM 2023

EXPERIENCES ARE EVOLVING

- Ultra HD Planar
- High Visual Quality
- Panning/Zooming
- Fixed Viewport
- Personalization
- 360 Video (Mono + Stereo)
- Full 3DOF Experience
- Computer Vision
- Object Identification and tracking
- ‘Your Story’
- Digital Director
- Bullet or Slo-Mo
WHICH NEEDS AN END TO END FOCUS
Content processed in the cloud and consumed remotely
What will it take to deliver

VISUAL CLOUD SERVICES?

EXTENSIBLE ARCHITECTURE

SERVICES INNOVATION PLATFORM

ECOSYSTEM COLLABORATIONS
EXTENSIBLE ARCHITECTURE
Build upon Data-Centric Infrastructure

MOVE FASTER
- Barefoot Networks
- Intel Ethernet
- Intel Silicon Photonics

STORE MORE
- Intel Optane Persistent Memory
- Intel Xeon Scalable

PROCESS EVERYTHING
- Intel Atom
- Intel Agilex
- Intel eASIC
- Intel MOVIDUS

SOFTWARE & SYSTEM LEVEL OPTIMIZED

Requires a Data Centric Infrastructure to MOVE faster, STORE more and PROCESS everything
EXTENSIBLE SOFTWARE

Open Visual Cloud: Accelerating Services Innovation

REFERENCE PIPELINES
- CDN
- Transcode
- Intelligent
- Ad-Insertion
- Video
- Conferencing
- Interactive
- raytracing
- Smart city traffic
- management
- Game
- streaming
- 360
- streaming

INDUSTRY FRAMEWORKS
- FFMPEG, GsTREAMER, NGINX

OPTIMIZED INGREDIENTS
- Scalable video technology, x264, x265
- OpenVINO™ toolkit
- Intel® oneapi rendering toolkit
- Scalable video technology

CORE FUNCTIONS
- Decode
- Inference
- Render
- Encode

EXTENSIBLE SOFTWARE

Scale Media Workloads from Cloud to Edge

GitHub.com/OpenVisualCloud

Optimization Notice
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SERVICE PLATFORM INNOVATIONS:
VOLUMETRIC 360 VIDEO

**TELEPRESENCE:**
- Used as an enhancement to 2D video conferencing systems
- Management of remote robotics and vehicles
- Remote expert services

**SPATIAL JOURNALISM:**
- VOD/Live volumetric field experiences and stories
- Small scale storytelling (ex. interviews)

**EDUCATION AND TRAINING:**
- Product training – developed fast and low cost
- Enterprise – medical, industrial
- Clear ROI usage for quality and productivity
- Being deployed today

**COLLABORATION:**
- Usages where small team collaboration require depth/3D

**ENTERTAINMENT AND EVENTS:**
- 3D experiences for small scale events and activities
- Applications in retail, tourism for additional levels of immersion

**SAFETY:**
- 3D monitoring of controlled spaces (ex. military, police) beyond current CCTV
- Mission critical 3D applications

Usage Latency Requirements:
- Ultra-low (<300ms)
- Low (<1s)
SERVICE PLATFORM INNOVATION:
CUSTOMIZED AD INSERTION

**FACIAL RECOGNITION**
- Streaming/Live Video
- Relevant Ad
- Ex: in-theater trailers with same actor/actress

**OBJECT DETECTION**
- Streaming/Live Video
- Relevant Ad
- Ex: pet food commercials for dog movies

**EMOTION DETECTION**
- Streaming/Live Video
- Relevant Ad
- Ex: ads matching mood of comedy/drama
First Ever Broadcasting of a Conference in Live 8K 360 VR Video. Commercially Deployable Today
"Up to 35% TCO saving with flexible software-based encoders with Second Generation Intel® Xeon® Scalable Processors"

"Genova Encoder leverages VNNI on 2nd Gen Intel® Xeon® Scalable Processors for 20% more performance improvement for OTT"

"With next generation Intel® Xeon® Scalable and Intel® Optane™ DC Persistent Memory Qwilt doubles the amount of content per node it can store in our edge caches"

"Intel® Xeon® Scalable Processor and SVT enabled Tiledmedia to distribute the FA Cup Final in Live 8K 360 VR streaming while realizing a bitrate reduction of 75%"

"Intel Scales Across Processor Generations"

IN SUMMARY

A wide range of visual experiences are exploding across the cloud and edge.

Organizations and service providers need more scalable infrastructures and a collection of hardware, software and open source tools.

Intel based solutions are a balanced portfolio to deliver best experience and TCO – no one size fits all.
Unleashing intelligent visual experiences through on demand cloud and transformed edge networks - so people can create, connect and immerse.

www.intel.com/visualcloud
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