



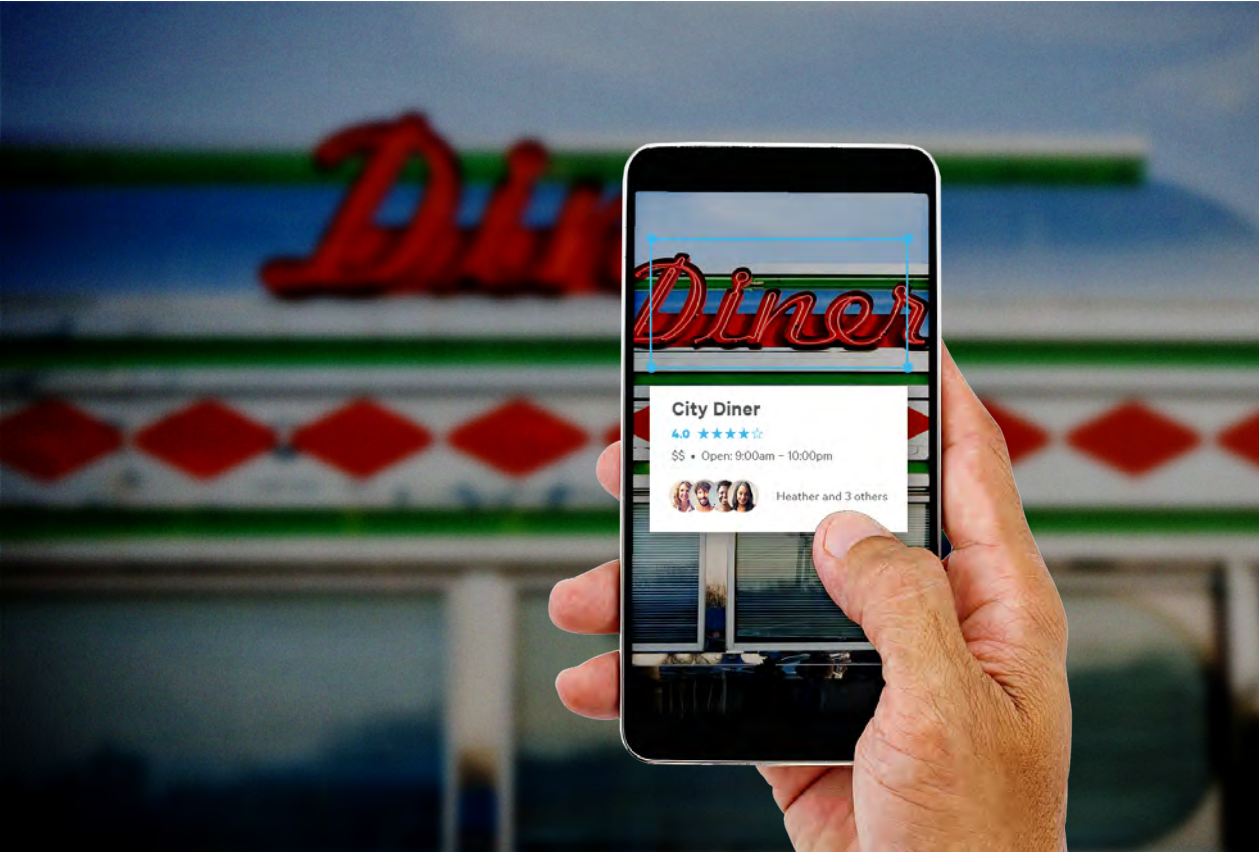
Immersion

Tim Leland

Vice President, Product Management
Qualcomm Technologies, Inc.
@qualcomm



Capturing life experiences and eXtending Realities



Capture

“Color is a power which directly influences the soul”

– *Wassilyevich Kandinsky*

Evolution of immersive storytelling

We've come full circle

48,000
Years Ago



Prehistoric
Cave Paintings



Hieroglyphics



Words



Speech

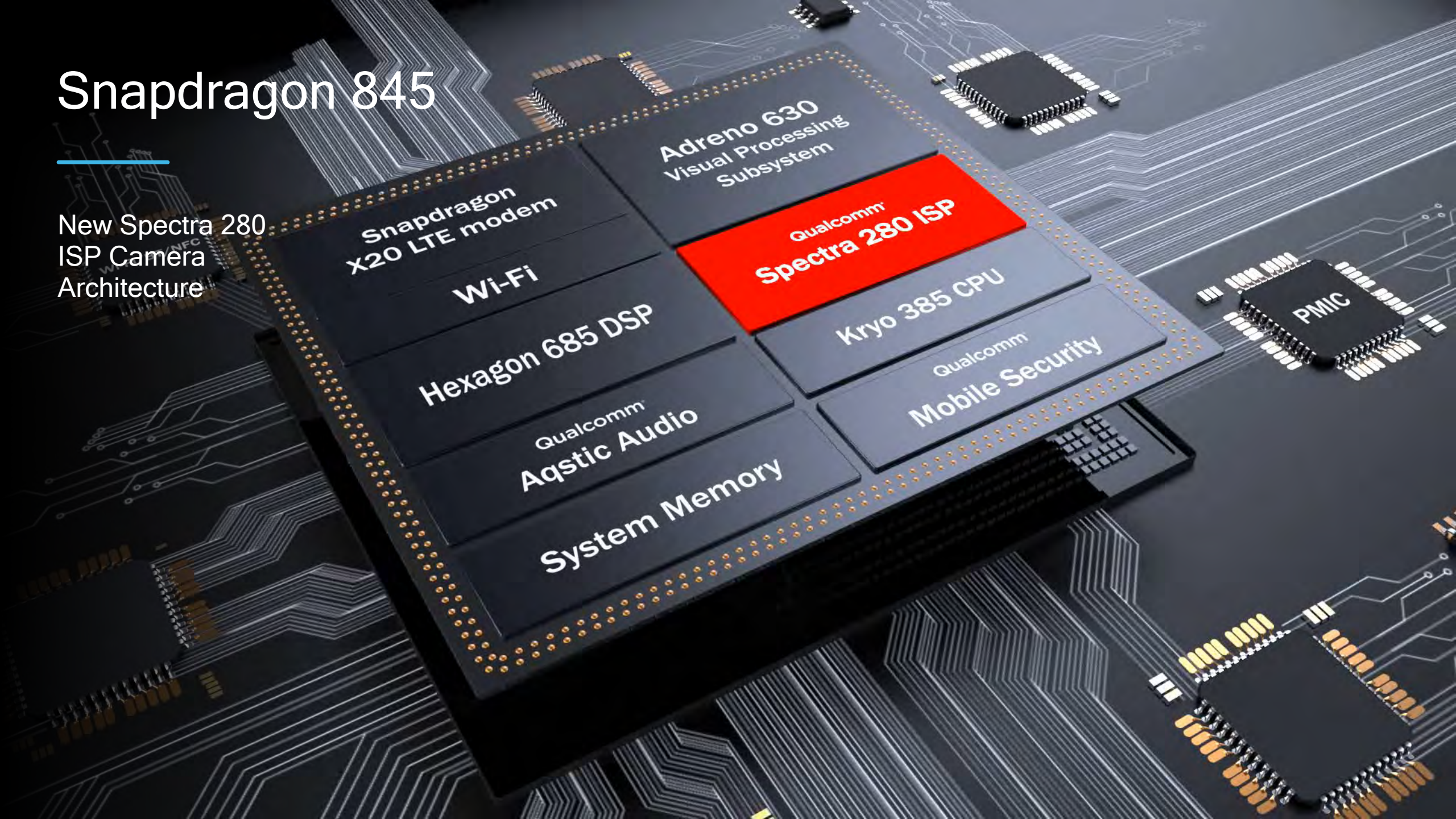


Sharing videos
and photos

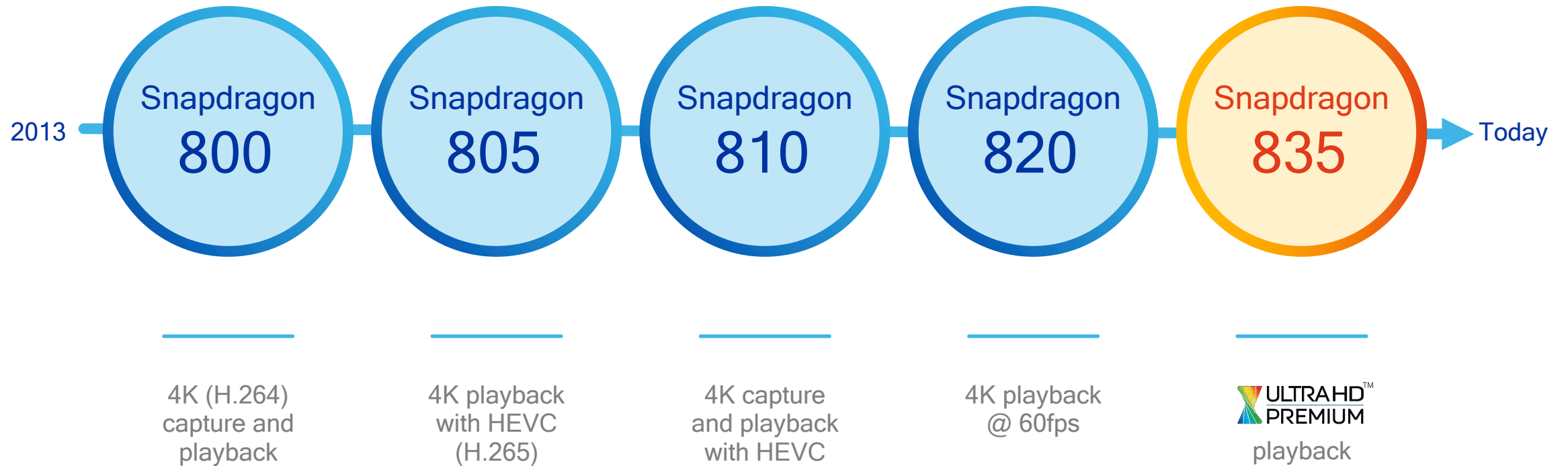
Today

Snapdragon 845

New Spectra 280
ISP Camera
Architecture



Evolution of capture and playback technology



Snapdragon 845

Ultra HD Premium
video capture



Quantifying image quality leadership

DXOMark Mobile
Image Quality Benchmark

100+

Snapdragon 845
Next Generation Devices

98

Previous Generation
Snapdragon (835)
Google Pixel 2

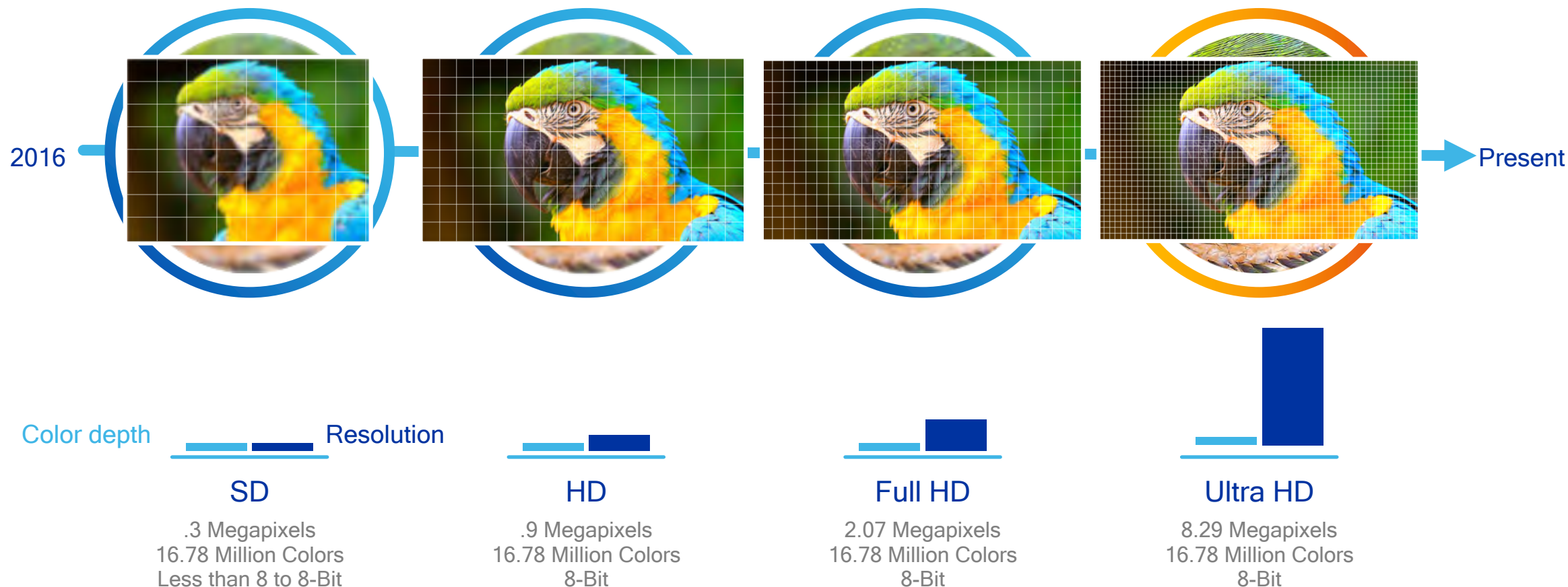
94

Competitor A

Ultra HD Premium Ecosystem



Quantum leap in color capture



Color Volume

Color Depth









Color Volume

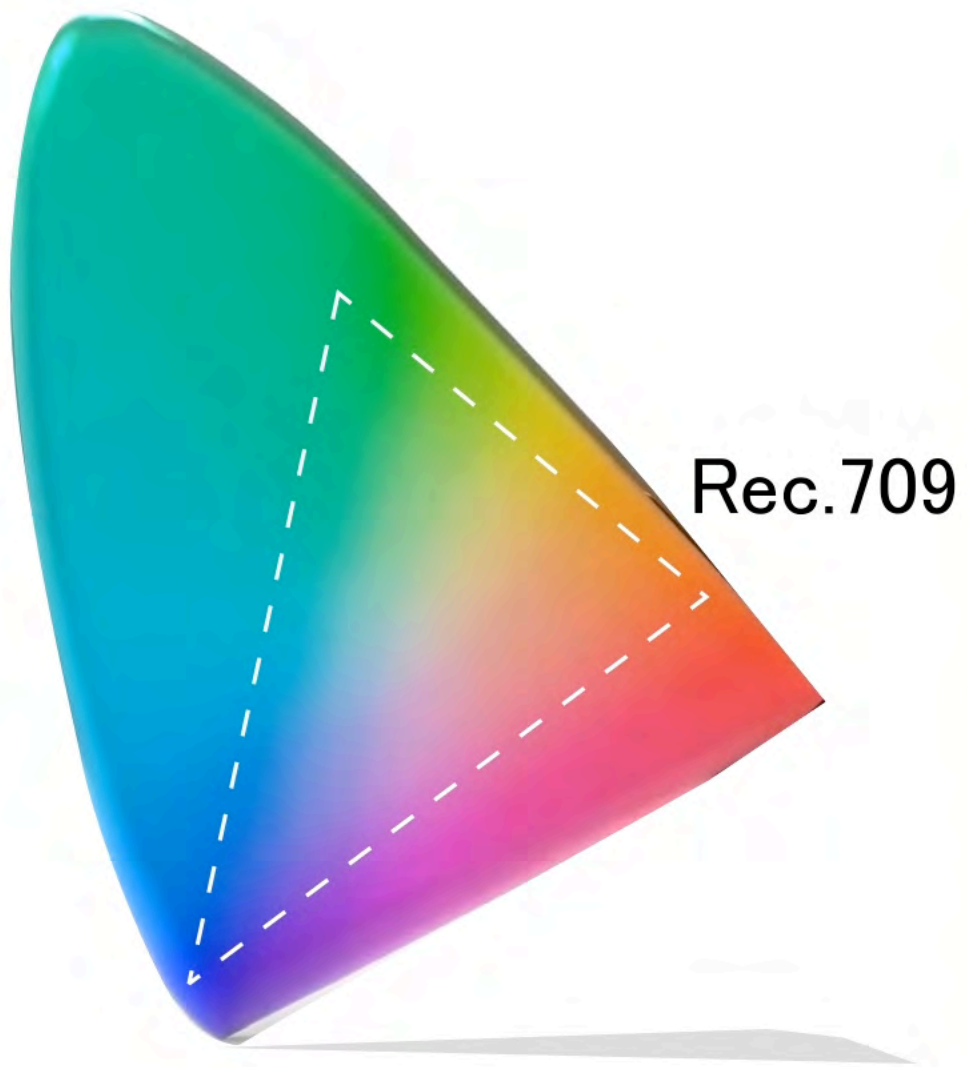
Color Depth

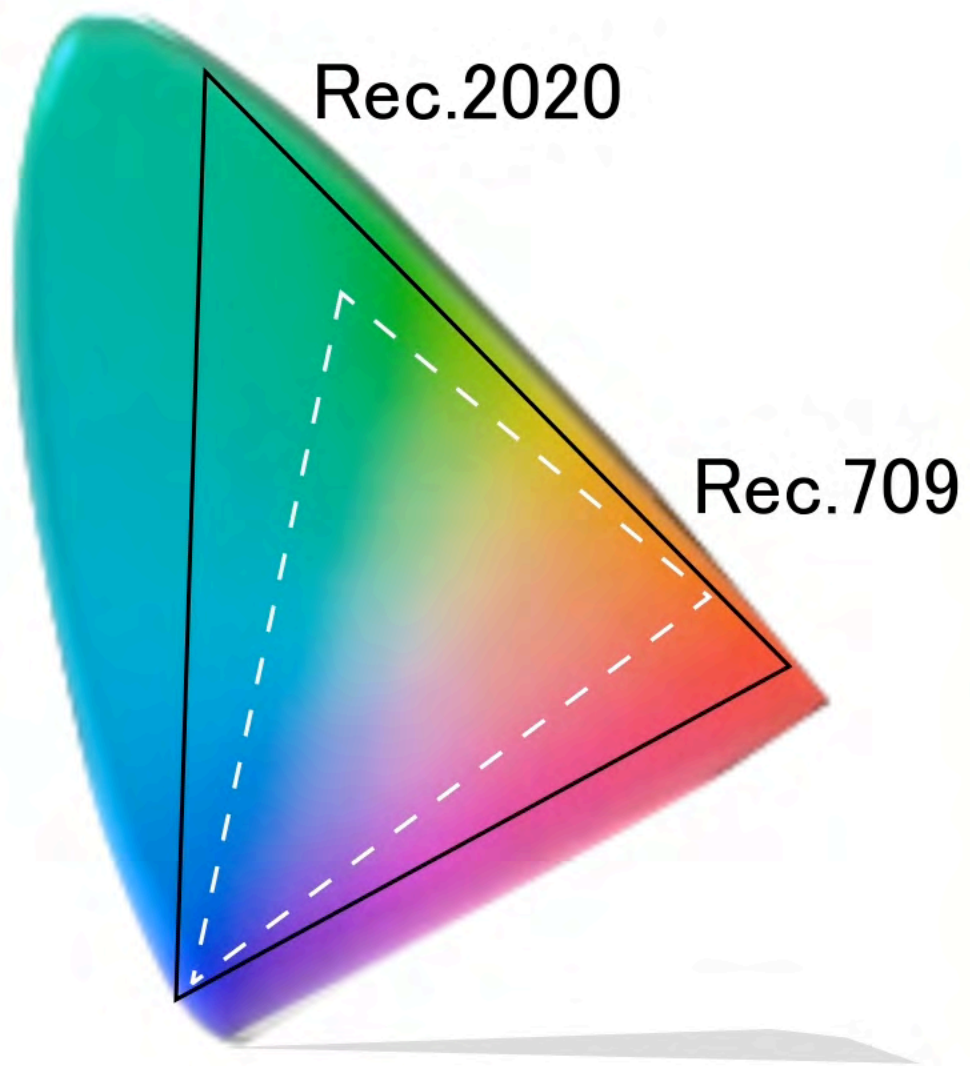
Color Gamut











Color Volume

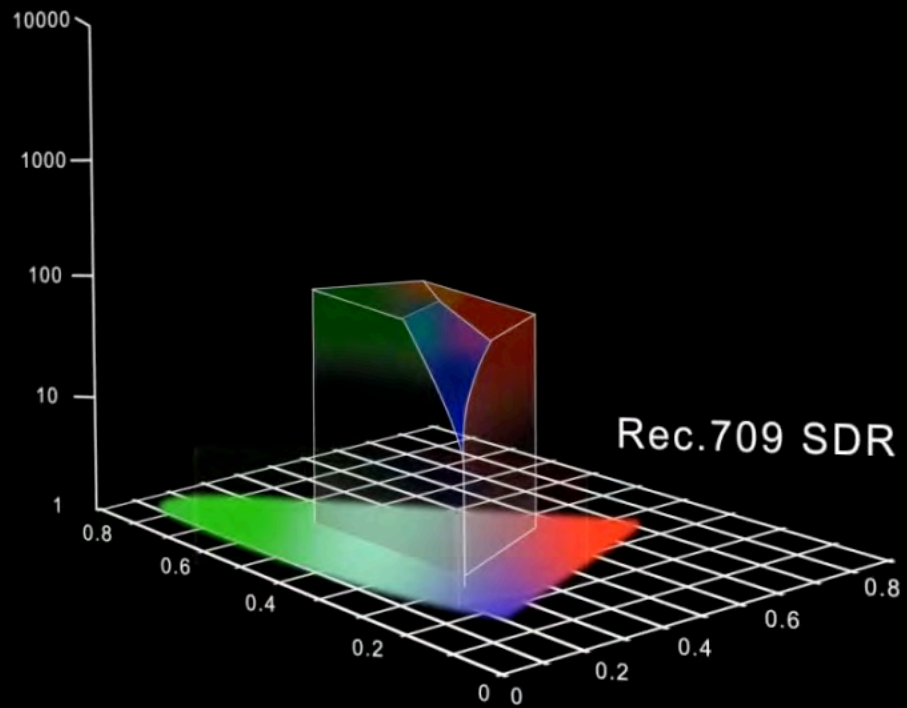
Color Depth

Color Gamut

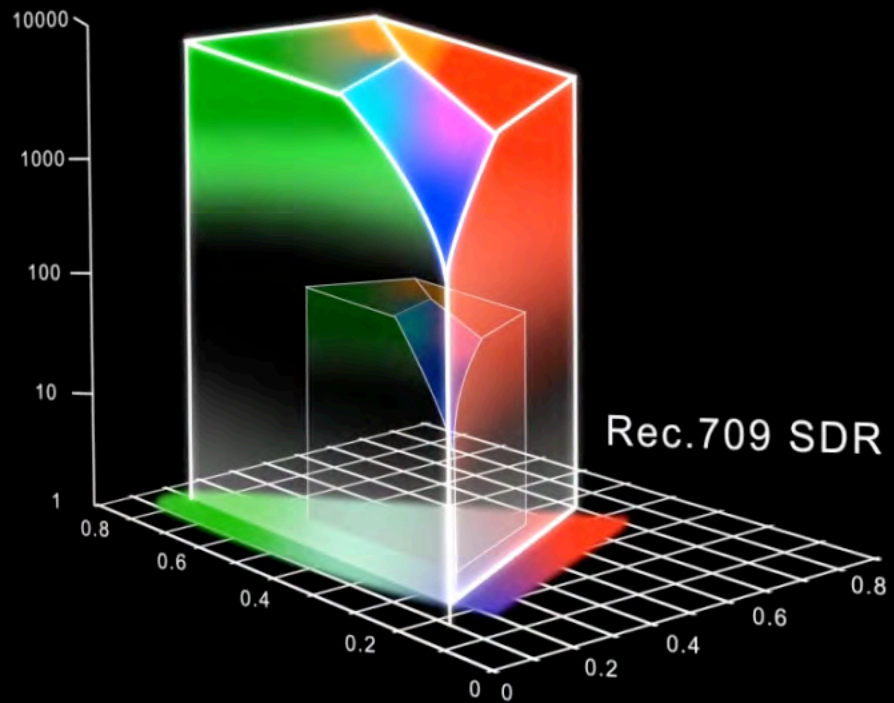
Luminance







Rec.2020 HDR



Rec.709 SDR

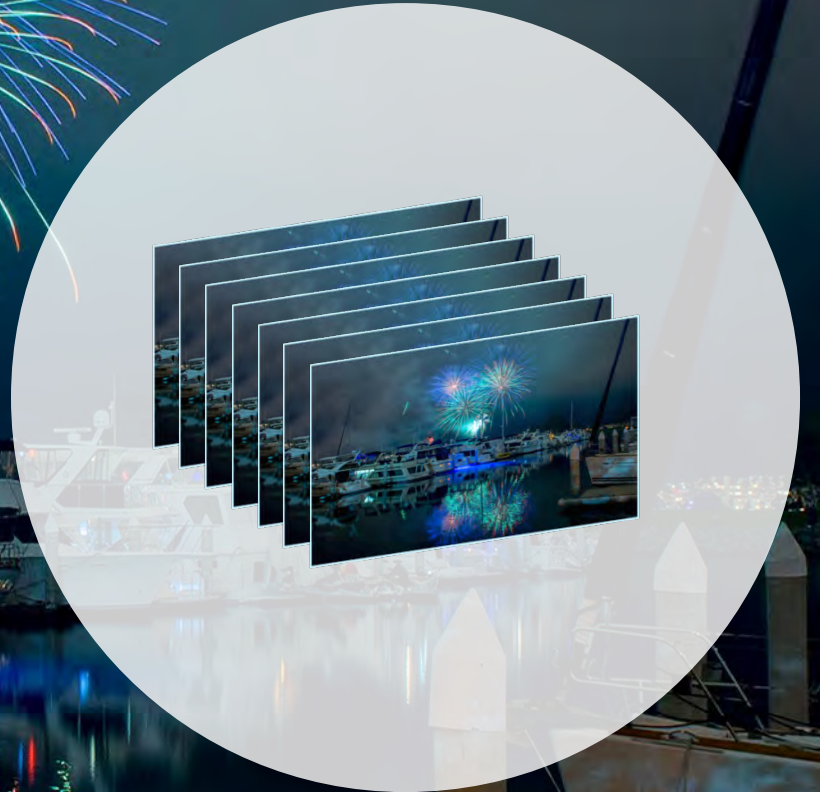


Ultra HD
(4k)



High quality, high performance photography

Multiframe Noise Reduction
16-megapixel, 60 fps



High quality, high performance capture

Slo-Mo Video
720p HDR10, 480 fps



High speed, high performance capture

ImMotion
Computational photography
and video post-processing



High quality, high performance video capture

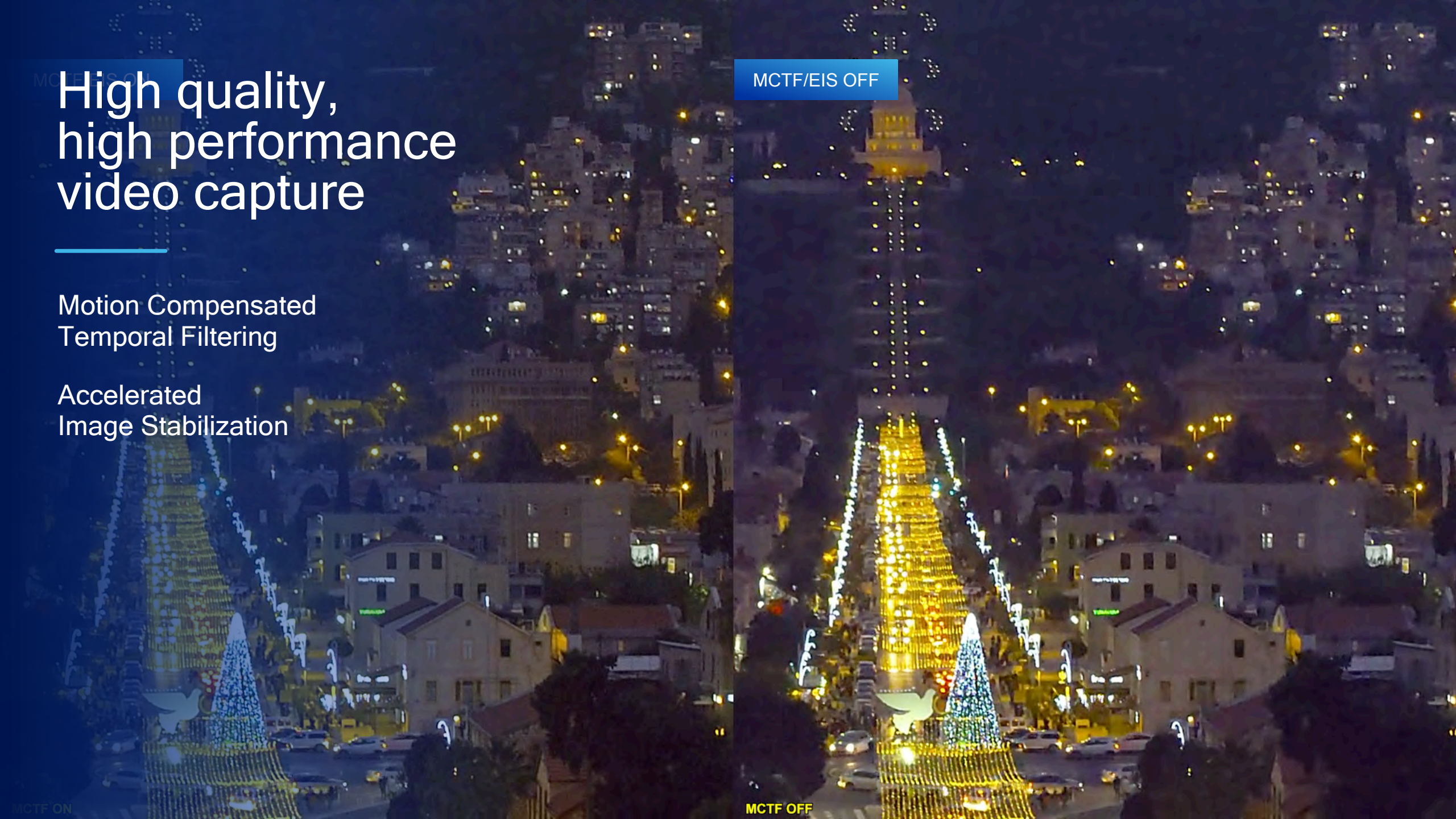
Motion Compensated
Temporal Filtering

Accelerated
Image Stabilization

MCTF/EIS OFF

MCTF OFF

MCTF ON



Snapdragon 845 capture highlights



Ultra HD Premium
Video Capture

Multi-Frame Noise
Reduction

30% Power Reduction
for Video

HFR 16MP@60FPS

MCTF Video Capture

720p@480fps Slo-Mo
Video capture

ImMotion
Computational Video

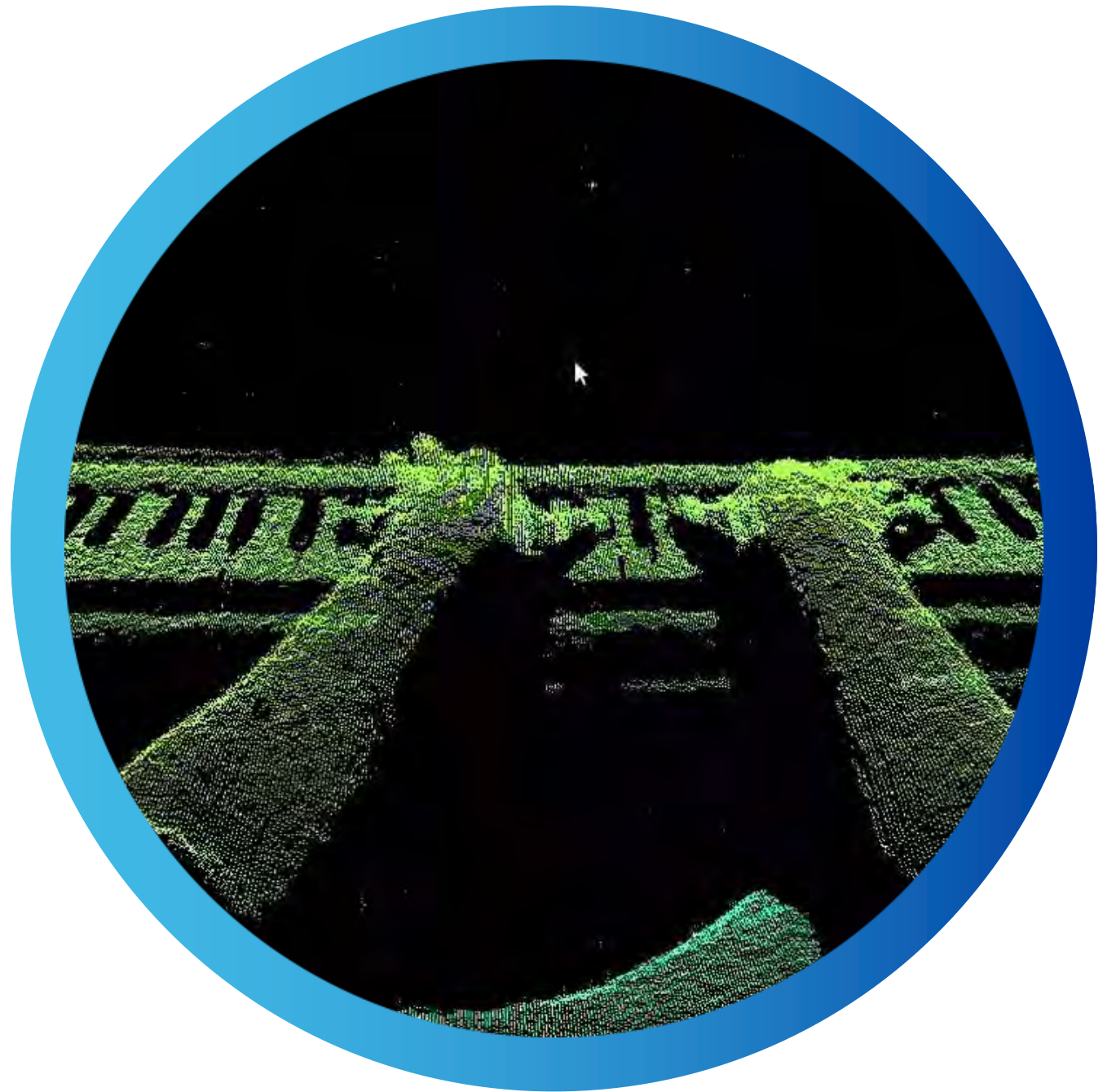
Depth Based Face
Recognition

Accelerated Image
Stabilization

Deep Portrait

Spectra Camera
Modules

Advanced depth sensing



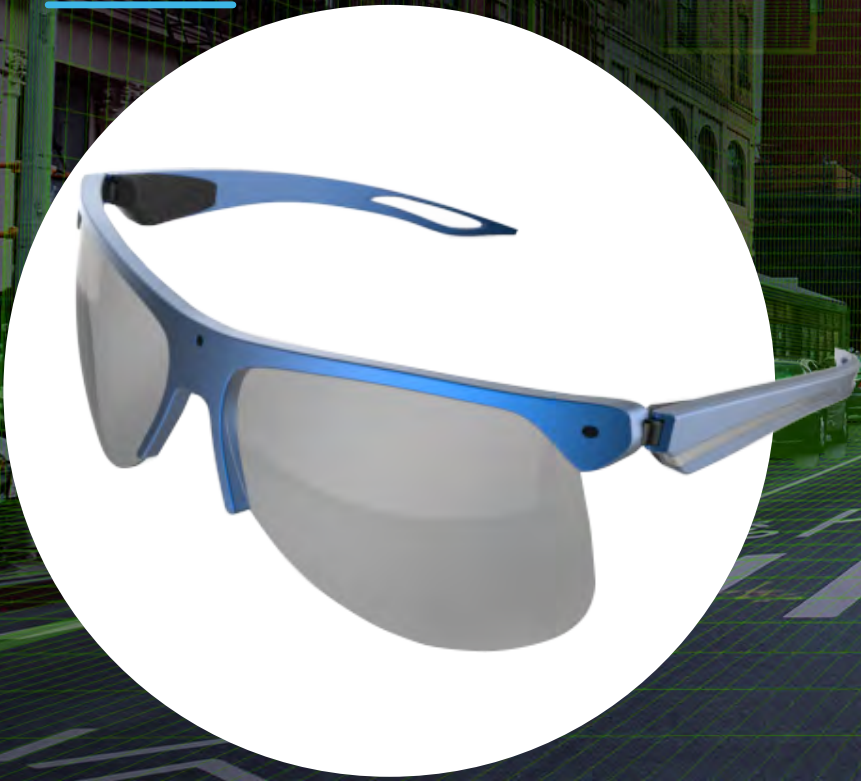
Computer vision

XR / Security the next leap in Image Quality

- Image quality enhancements including bokeh
- Facial scanning/security
- XR experiences

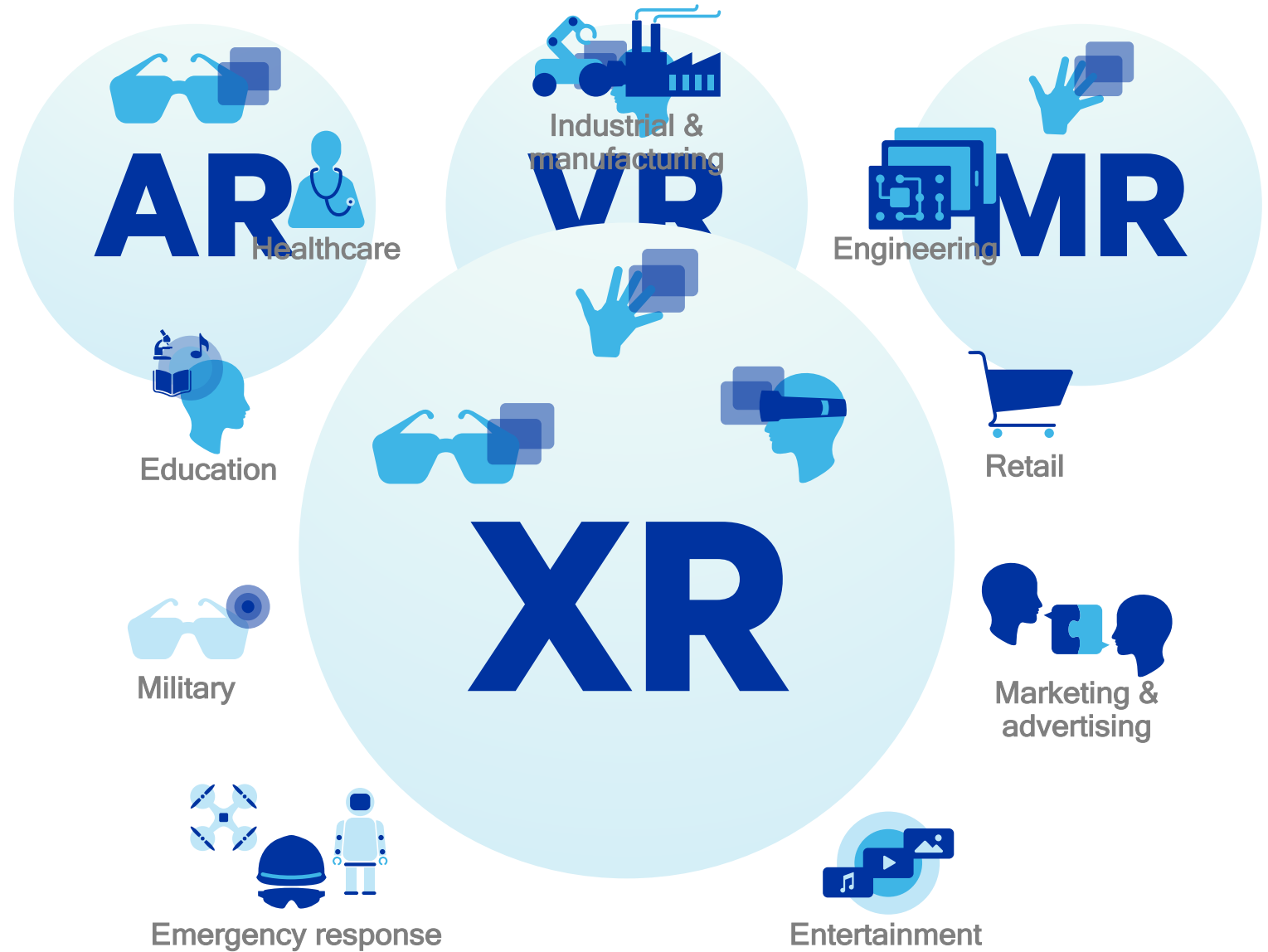


Quality capture
is key for eXtended Reality



XR

A collection of worlds
under one premier
computing platform:
Snapdragon 845



An expanding world of XR devices

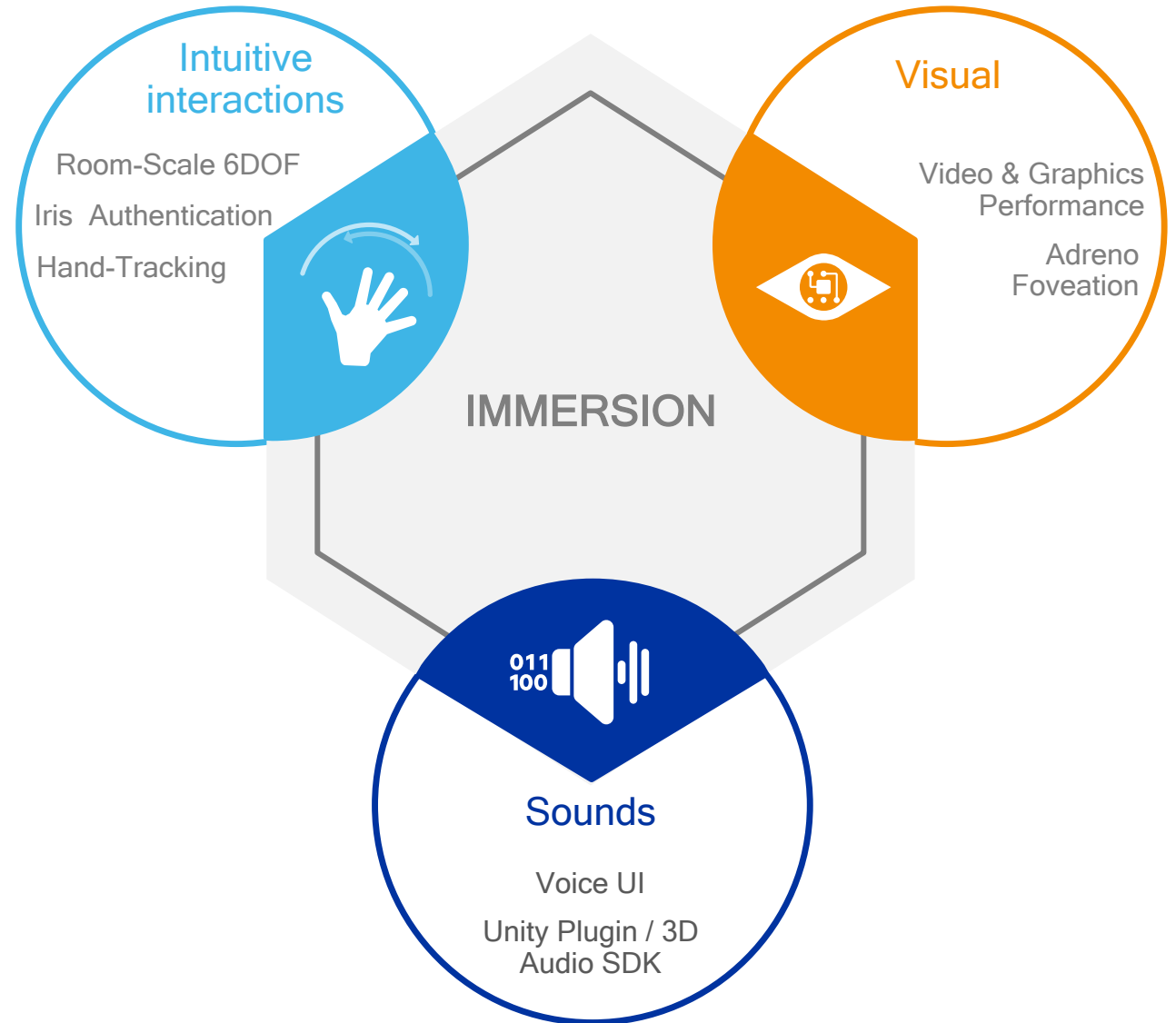
20+ devices launched

20+ devices in development



XR

The ultimate level
of immersive experiences



XR evolving every generation



Snapdragon 820

3DOF

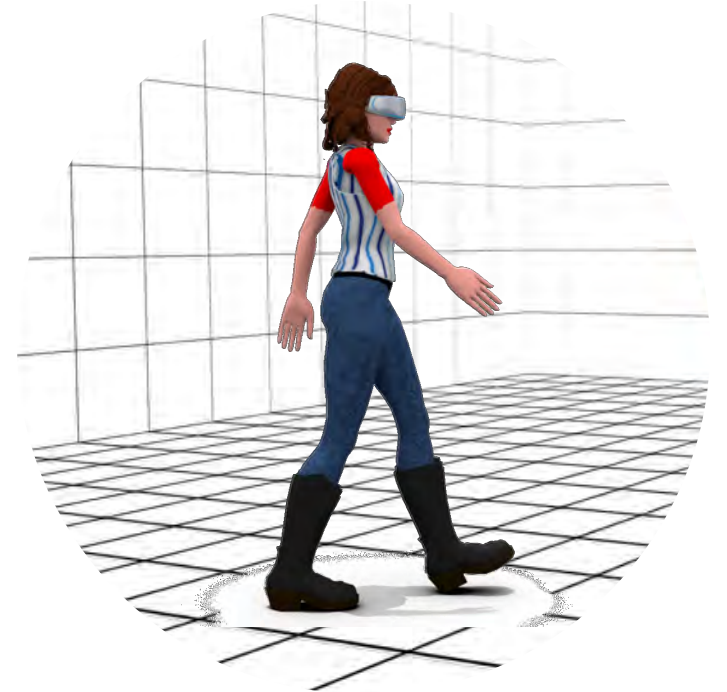
1K x 1K @ 60 fps



Snapdragon 835

6DOF

1.5K x 1.5K @ 60 fps



Snapdragon 845

Room-Scale 6DOF

SLAM

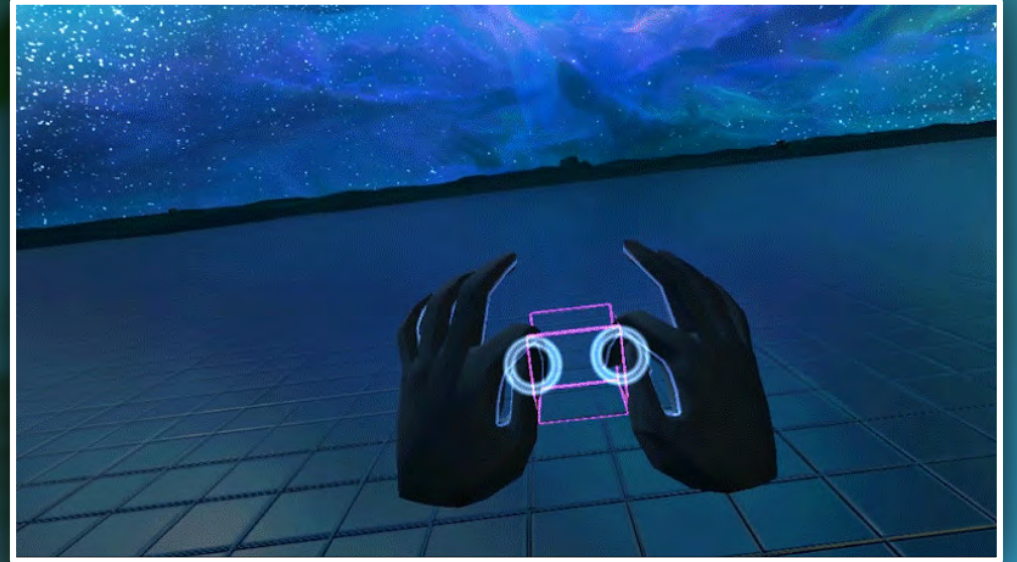
2K x 2K @ 120fps

Make room for smarter computing

Room Scale
6DOF SLAM

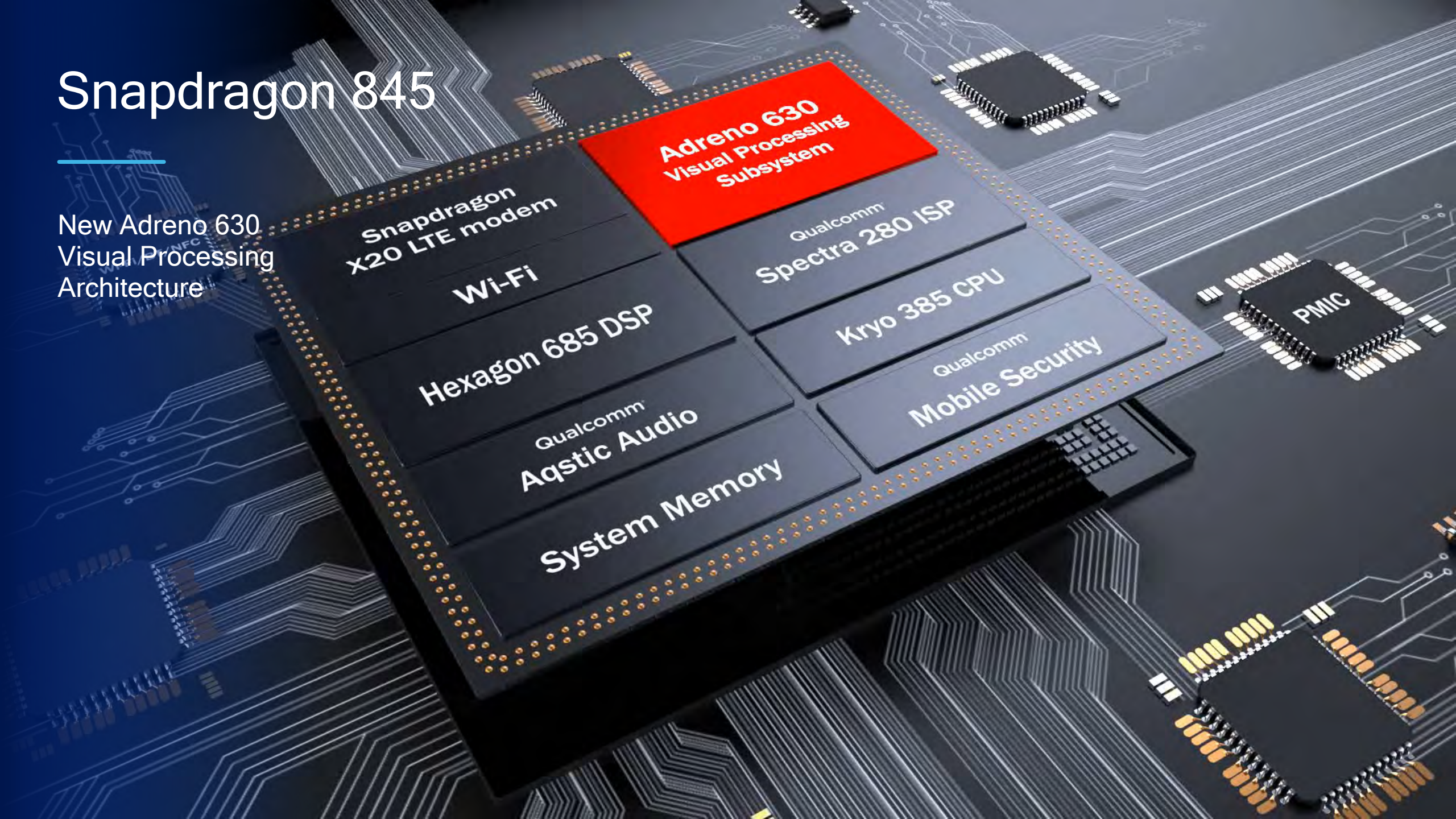


Hand-tracking acceleration with tech ecosystem



Snapdragon 845

New Adreno 630
Visual Processing
Architecture



Faster, more efficient processing

30%

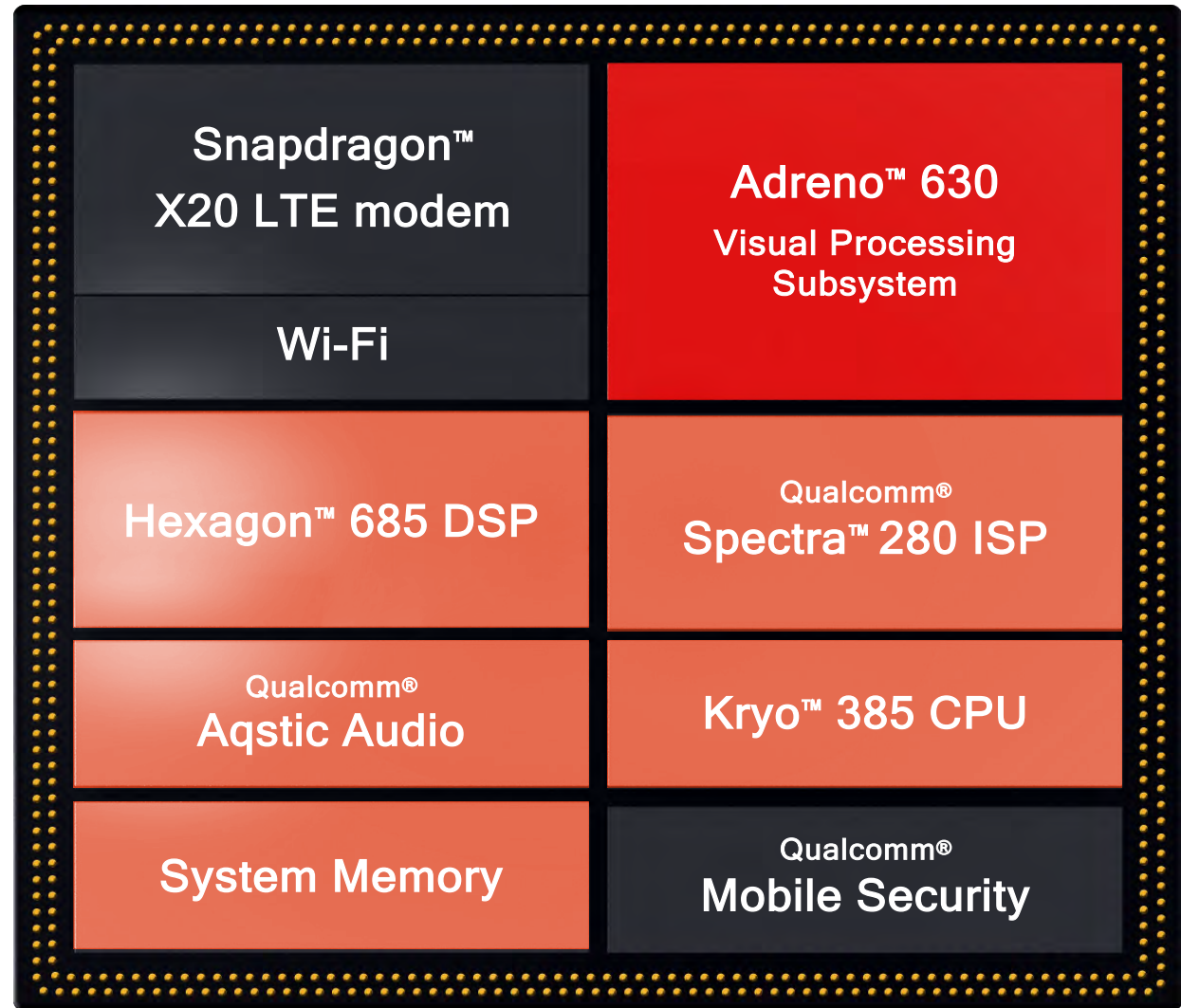
Faster graphics

30%

Better power efficiency

2.5x

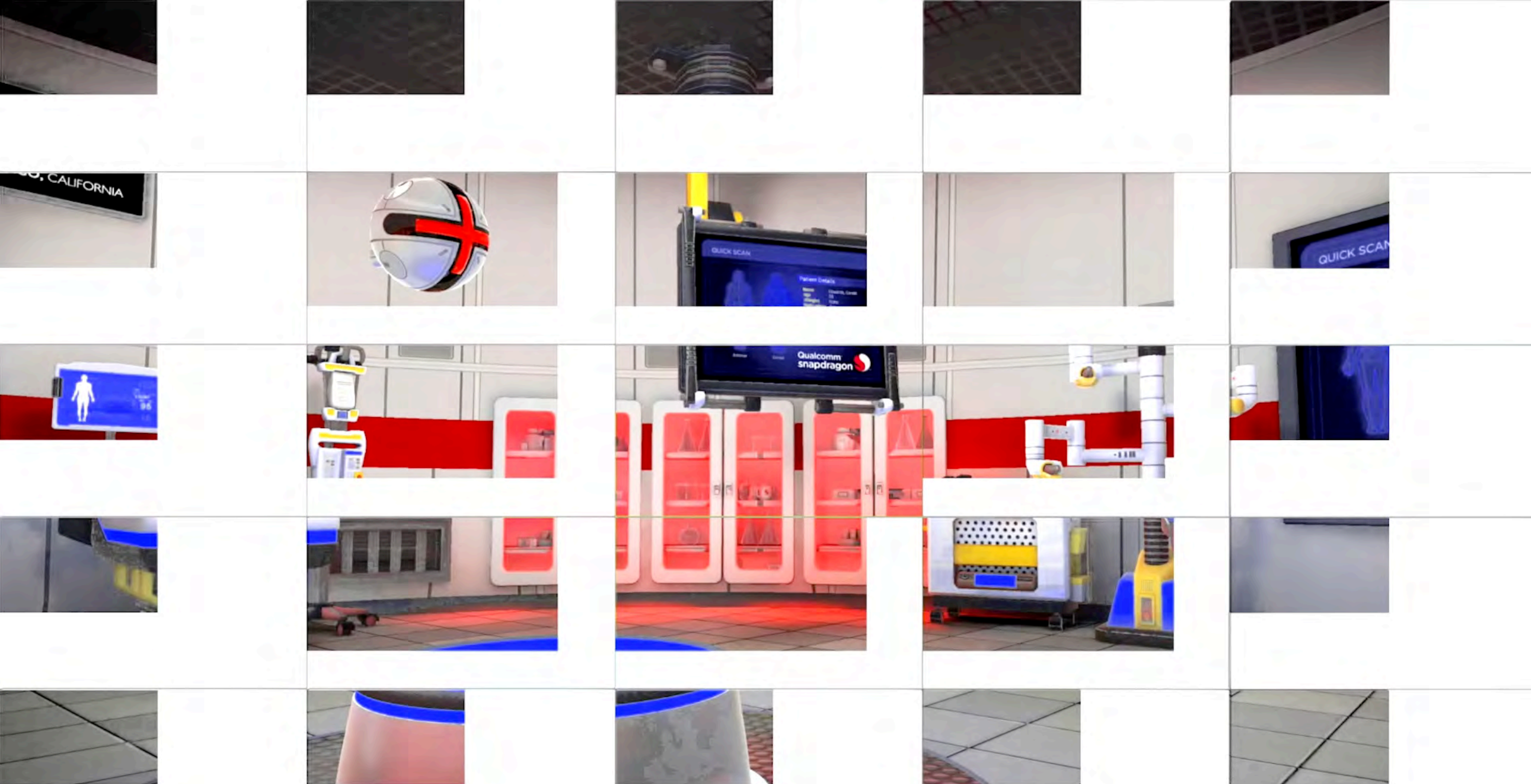
faster display throughput



Adreno Foveation

Tile-based Foveation
with Eye-Tracking







74°
DIEGO, CALIFORNIA

QUICK SCAN

Patient Details	
Name	John Doe
Age	35
Weight	180 lbs
Height	5'10"
Gender	Male

Quick Scan Results

- ✓ No major findings
- ✓ No major findings

Qualcomm snapdragon

QUICK SCAN

Anterior

Dorsal

Adreno Foveation

Tile-based Foveation
with Eye-Tracking

Multiview Rendering



Conventional



Multiview Rendering



Adreno Foveation

Tile-based Foveation
with Eye-Tracking

Multiview Rendering
Fine Grain Preemption





Augmented reality

Voice AI



Adreno 630 highlights



Room-Scale 6DOF
with SLAM

Adreno Foveation

2K x 2K @ 120 fps XR

30% Faster Graphics
and Video

30% Power Reduction

Improved 6DOF
Hand Tracking and
Controller support

Iris Authentication

Voice UI with
custom keyword

Qualcomm 3D Audio
SDK for Unity

Thank you

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