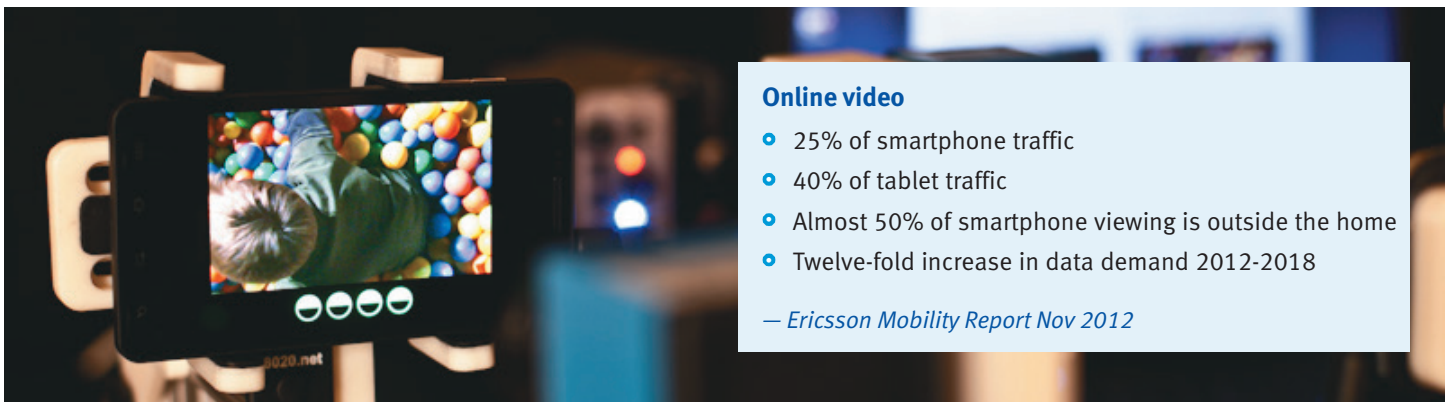# SPIRENT CHROMATIC

MOBILE VIDEO QUALITY OF EXPERIENCE MEASUREMENT SYSTEM

Mobile video streaming and video chat are two applications that are surging in growth, driven by rapid smartphone and tablet adoption, and LTE rollout, worldwide.

Online video

- 25% of smartphone traffic
- 40% of tablet traffic
- Almost 50% of smartphone viewing is outside the home
- Twelve-fold increase in data demand 2012-2018

— Ericsson Mobility Report Nov 2012

OVERVIEW

The complex interactions between devices, networks, and applications result in a wide variation in the consumer's Video Quality of Experience (VQoE), which has become an important differentiator in choosing an operator or a device.

Expectations are rising and consumers will not purchase devices or subscribe to networks that render jerky images, frozen and impaired frames, or out-of-sync audio. Operators in turn need to understand the subscriber experience under varying network conditions, with different devices and applications.

Chromatic is the most advanced, streamlined and cost-effective method to objectively measure VQoE with Key Performance Indices (KPIs) across all devices and access technologies.
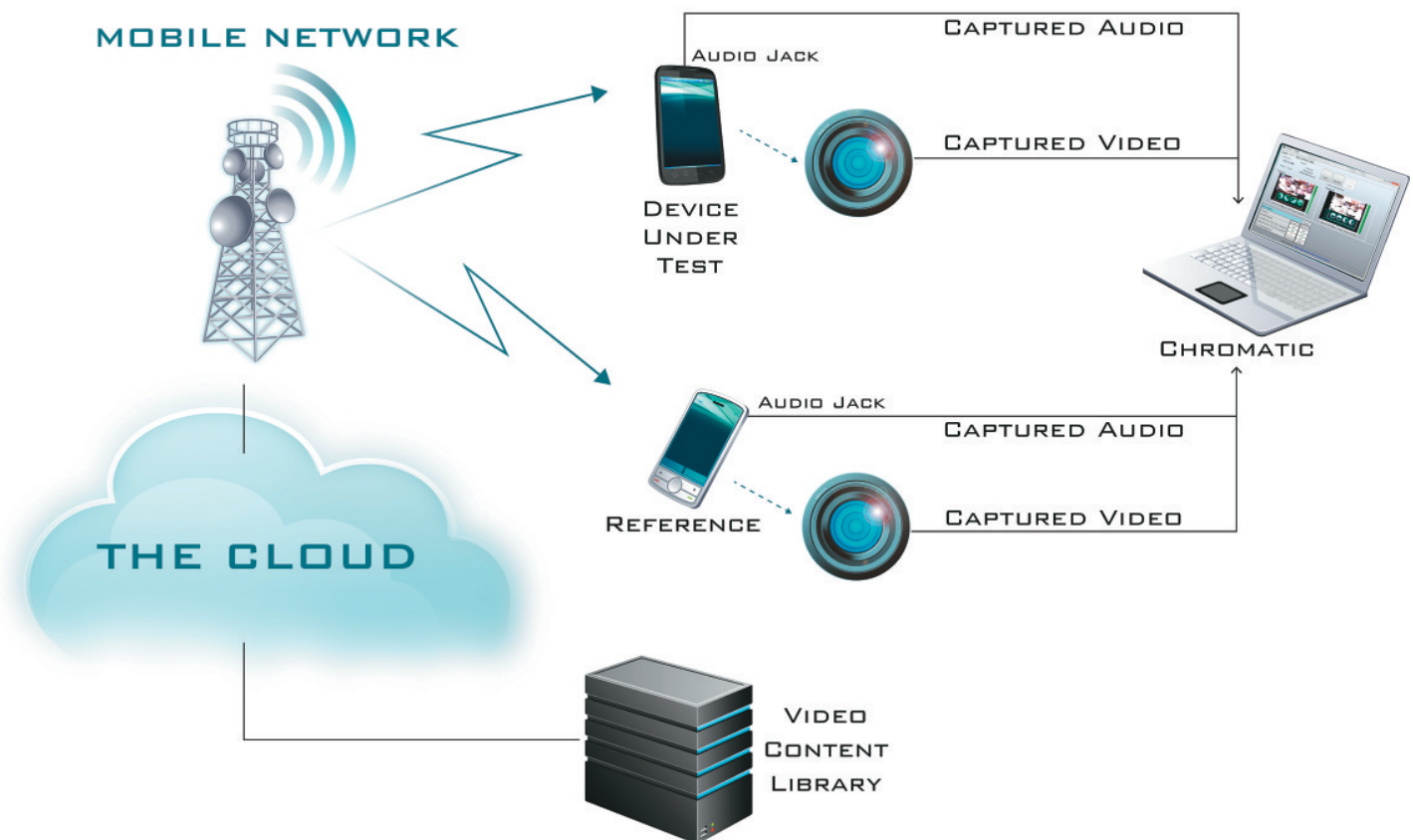
BENEFITS

- Leading methodology for evaluating user's VQoE in the lab and in the field
- Measures performance of the most popular video use cases-video streaming and video chat
- Supports all screen sizes from smartphones to tablets, and a variety of resolutions, codecs and file formats
- Viewed video is captured by high-speed camera, eliminating the need for any software on the device
- Ready-to-use test content library available from the cloud, on YouTube, or on dedicated private servers
- Data collection and processing delivers rapid results cost-effectively
- Key Performance Indices (KPIs) are intuitive and easy to understand by the layperson or expert. The KPIs reflect end-to-end performance, from source to screen
- Test equipment is packaged into a rugged Pelican™ case for stationary and mobility testing
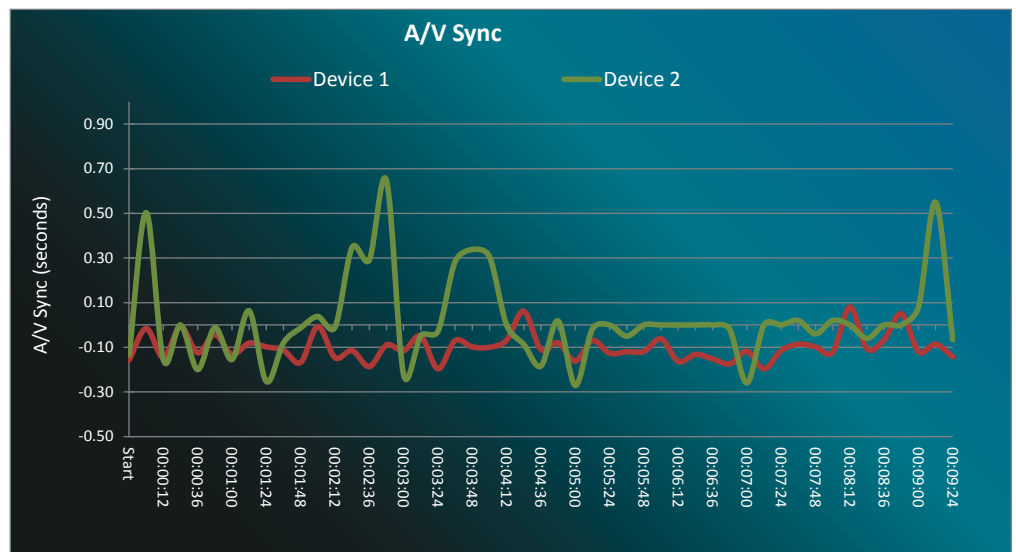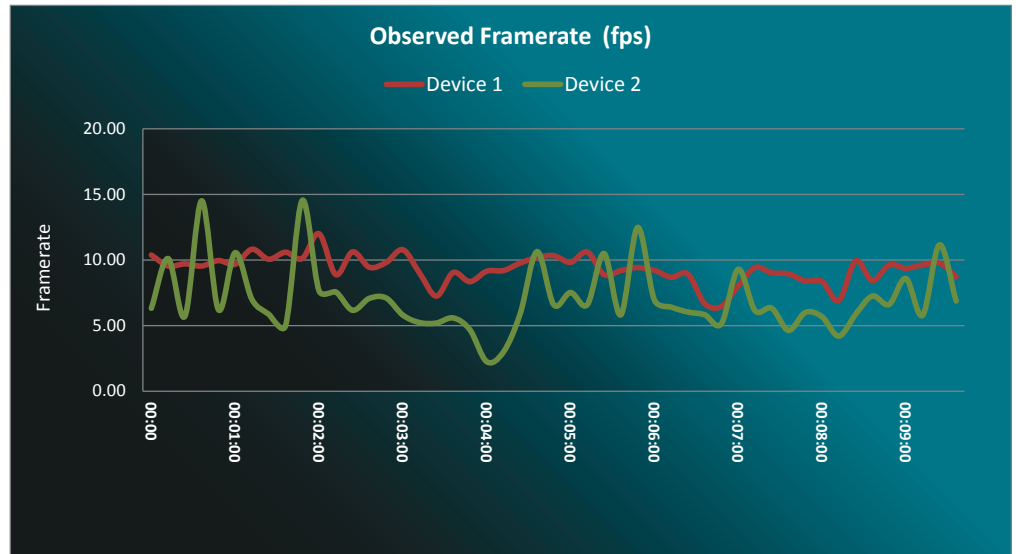
SYSTEM ARCHITECTURE

Chromatic allows the video being played on two devices to be simultaneously captured and analyzed. The two different devices can be on the same network, or the same device on two different networks.

HOW CHROMATIC CAN BE USED

- Comparing popular video sharing services (e.g., YouTube) on different wireless networks

- Comparing popular video chat services e.g., (Tango, Skype, IR.94-based services)

- Comparing lab & field video performance

- Device pre-release and acceptance testing

- Video application testing

- Video optimization gateway testing

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SPIRENT CHROMATIC
MOBILE VIDEO QUALITY OF EXPERIENCE MEASUREMENT SYSTEM

SAMPLE KPI CHARTS & TABLES

Observed Framerate (fps) — Device 1, Device 2

A/V Sync — Device 1, Device 2

	YouTube Test Clip 30 fps	YouTube Test Clip 20 fps	YouTube Test Clip 15 fps
CHROMATIC VIDEO KPIs			
Observed Frame Rate (Average)	29.2	18.7	13.5
Frame Rate Standard Deviation	1.1	0.6	0.2
Session Score (Average)	4.6	3.5	2.9
CHROMATIC AV SYNCH KPIs			
Average of AV Sync Lead, ms	25	55	70
Average of AV Sync Lag, ms	-111	-154	-215
% Segments within +50 to -200 ms	100.0%	65.1%	31.3%

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SPIRENT CHROMATIC

MOBILE VIDEO QUALITY OF EXPERIENCE MEASUREMENT SYSTEM

TECHNICAL SPECIFICATIONS	
Network Technologies	LTE, WiMAX, UMTS, CDMA2000, WiFi
Devices	Smartphones & tablets
Device Operating Systems	OS-Agnostic
Codecs/Containers	All popular A/V codecs & containers
Video Chat	Skype, Gtalk, Joyn, Tango and more
KPIs	• Video frame-rate performance • Audio-video sync performance • Video freeze metrics • Video impairment metrics • Video and audio scores • Video reliability metrics

SPIRENT SERVICES

Spirent Global Services provides a variety of professional services, support services and education services—all focused on helping customers meet their complex testing and service assurance requirements. For more information, visit the Global Services website at www.spirent.com or contact your Spirent sales representative.

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