

SCTE CABLE-TEC
EXPO'13
OCTOBER 21-24 / ATLANTA, GA

TROUBLESHOOTING AND MONITORING RECOMMENDATIONS FOR TV EVERYWHERE DEPLOYMENTS

Steve Liu

Vice President, Video Network Monitoring

Tektronix

Tweet about today's session on Twitter  [#scteExpo](https://twitter.com/scteExpo)

expo.scte.org

I want to watch TV on my own terms

Anytime, Anywhere, Any Device, Any Program

- ▶ I want to watch the last game and the last “The Voice” that I didn’t record on my 52” TV.
- ▶ I need to stop watching TV and continue watching the rest of the show on my iPad in the kitchen.
- ▶ I want to know what’s hot/popular and watch it now.



Leverage ABR video technology

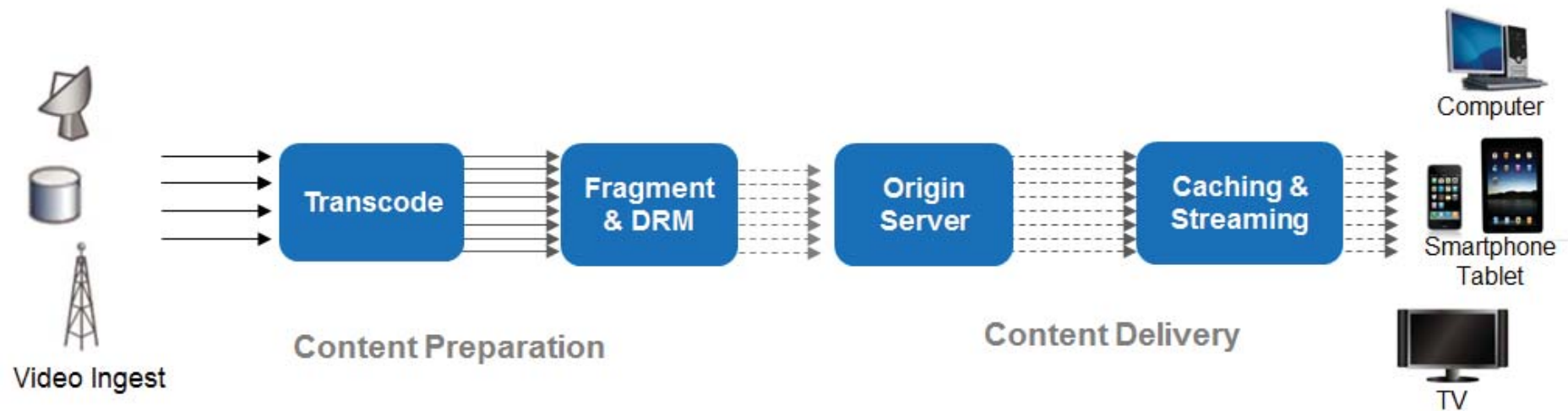
To delivery the best TV experience

- ▶ Enables highest availability, highest quality, and most flexible video delivery
- ▶ Build upon existing “managed” network to deliver higher quality video and audio
- ▶ Provide consumers with a more complete TV viewing experience

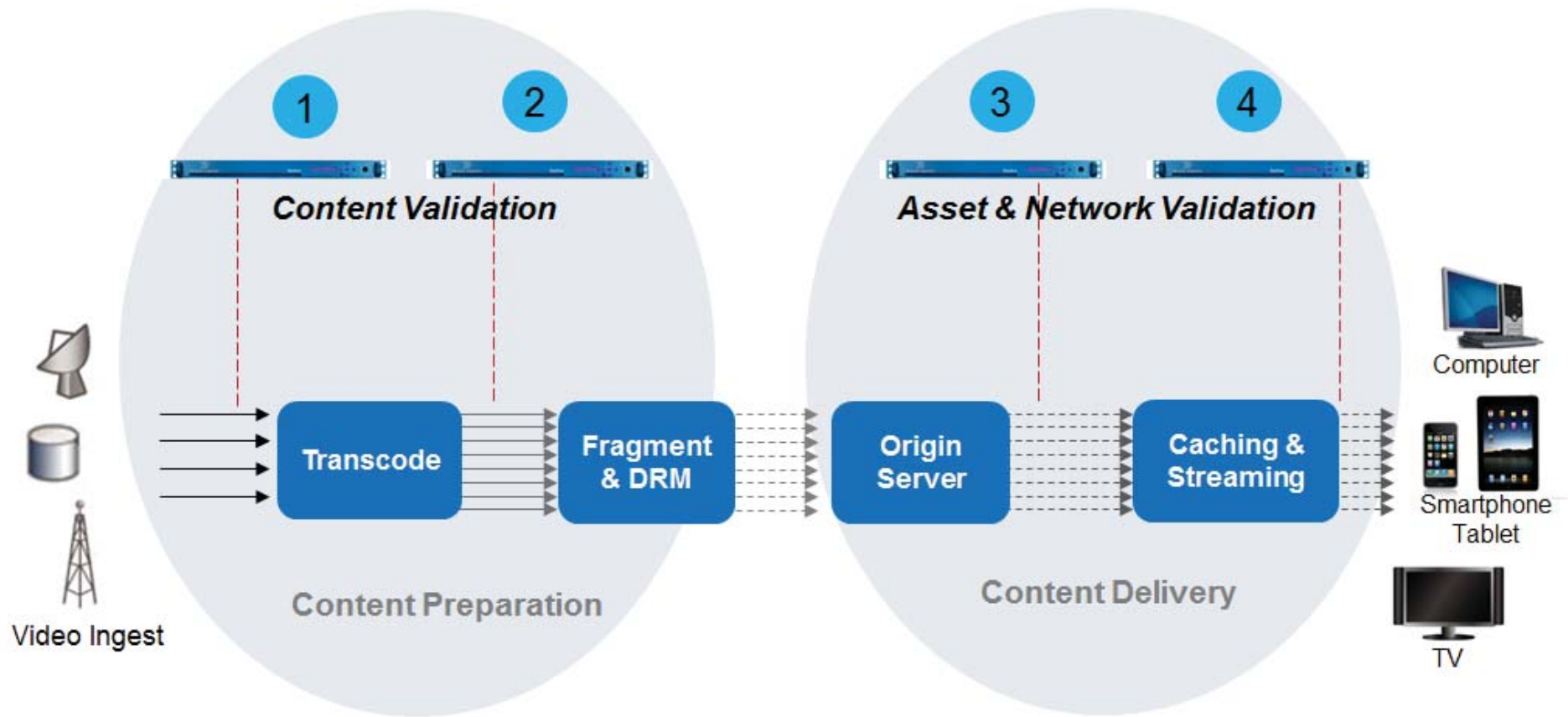


ABR Video Deployment

Example: From video ingest to final delivery



Strategic Multi-Point Monitoring



Optimize Your Monitoring ROI



Video and Audio “Content” Monitor

Issues to monitor (& fix) before encryption

- ▶ Frozen, black, and broken video
- ▶ Over-compressed video (blocky)
- ▶ Too loud or too quiet audio
- ▶ Missing Closed Captioning
- ▶ Ad insertion issue (missing IDR/BP*)

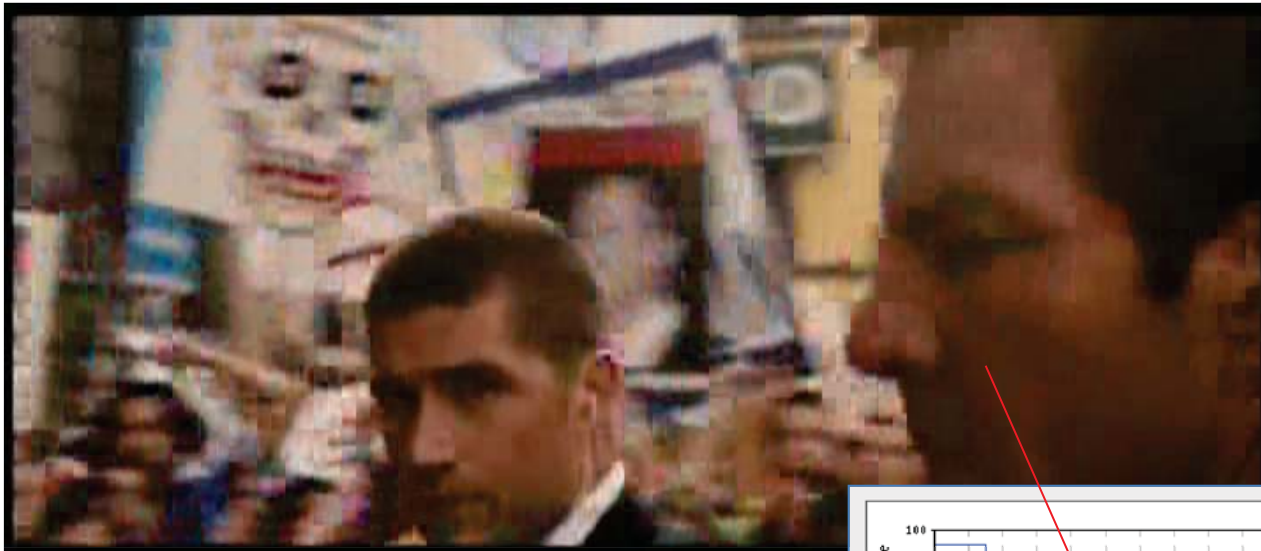
Save time, save money, happier customers

*IDR: Instantaneous Decoder Refresh, a coded picture sent to clear the contents of the reference picture buffer

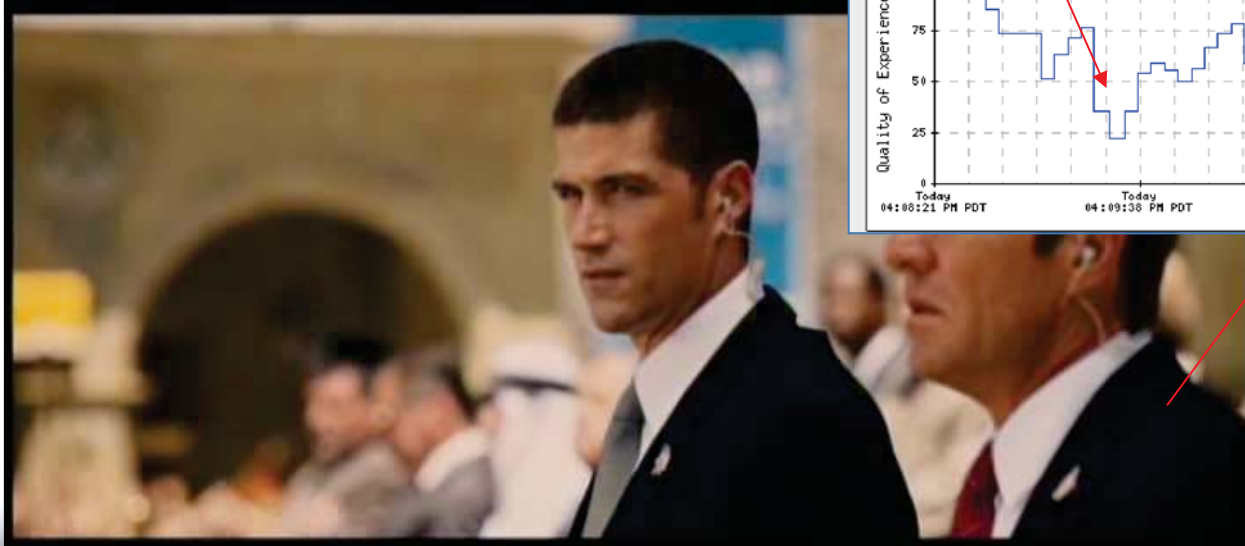
*BP: Baseline Profile



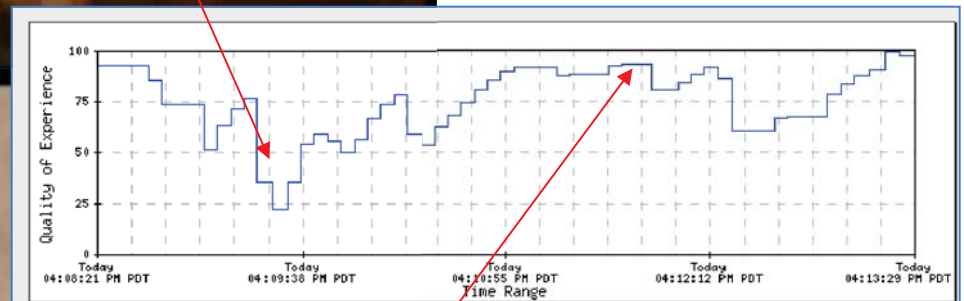
Compression Artifact



Over-compressed picture



High quality picture



Quantify & Compare Video Quality

Name				Avg. Bitrate
COMEDY CENTRAL HD <small>(US TV-14)</small> Availability: 100.000000% 	Pre-Transcode			11.745 Mbps
	Avg. Video QoE	PVQ (eMOS)	Avg. Audio QoE	Avg. Bitrate
100.0 (100.0)	4.93 (4.85)	100.0 (100.0)	11.304 Mbps	399.500 Kbps
			2.523 bps	
COMEDY CENTRAL HD-1 Availability: 99.472222% 	Post-Transcode			3.199 Mbps
	Avg. Video QoE	PVQ (eMOS)	Avg. Audio QoE	Avg. Bitrate
100.0 (100.0)	4.90 (2.65)	100.0 (100.0)	3.087 Mbps	103.398 Kbps
			2.524 bps	
COMEDY CENTRAL HD-2 Availability: 98.888889% 	Post-Transcode			1.431 Mbps
	Avg. Video QoE	PVQ (eMOS)	Avg. Audio QoE	Avg. Bitrate
100.0 (100.0)	4.84 (0.05)	100.0 (100.0)	1.325 Mbps	103.398 Kbps
			2.524 bps	



ABR Asset & Network Validation

Active vs. Passive Monitoring

- ▶ Active: Simulates ABR traffic, fetches manifest and fragments to validate media asset and network availability
- ▶ Passive: Monitors all users/clients requested video and generates reports and alerts on user impacted events



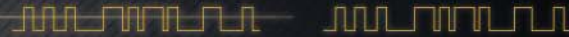
Provide Best Consumer QoE

Higher video/audio quality and availability

► Monitor to:

- Identify content level issues before encryption, as network QoS can be guaranteed but if content is broken, almost every customer suffers
- Ensure assets are available at different parts of your managed network
- Monitor all video delivered over managed network to make sure it is free of errors





SCTE CABLE-TEC
EXPO'13
OCTOBER 21-24 / ATLANTA, GA

Steve Liu

steve.liu@tektronix.com



Tweet about today's session on Twitter  #scteExpo

expo.scte.org