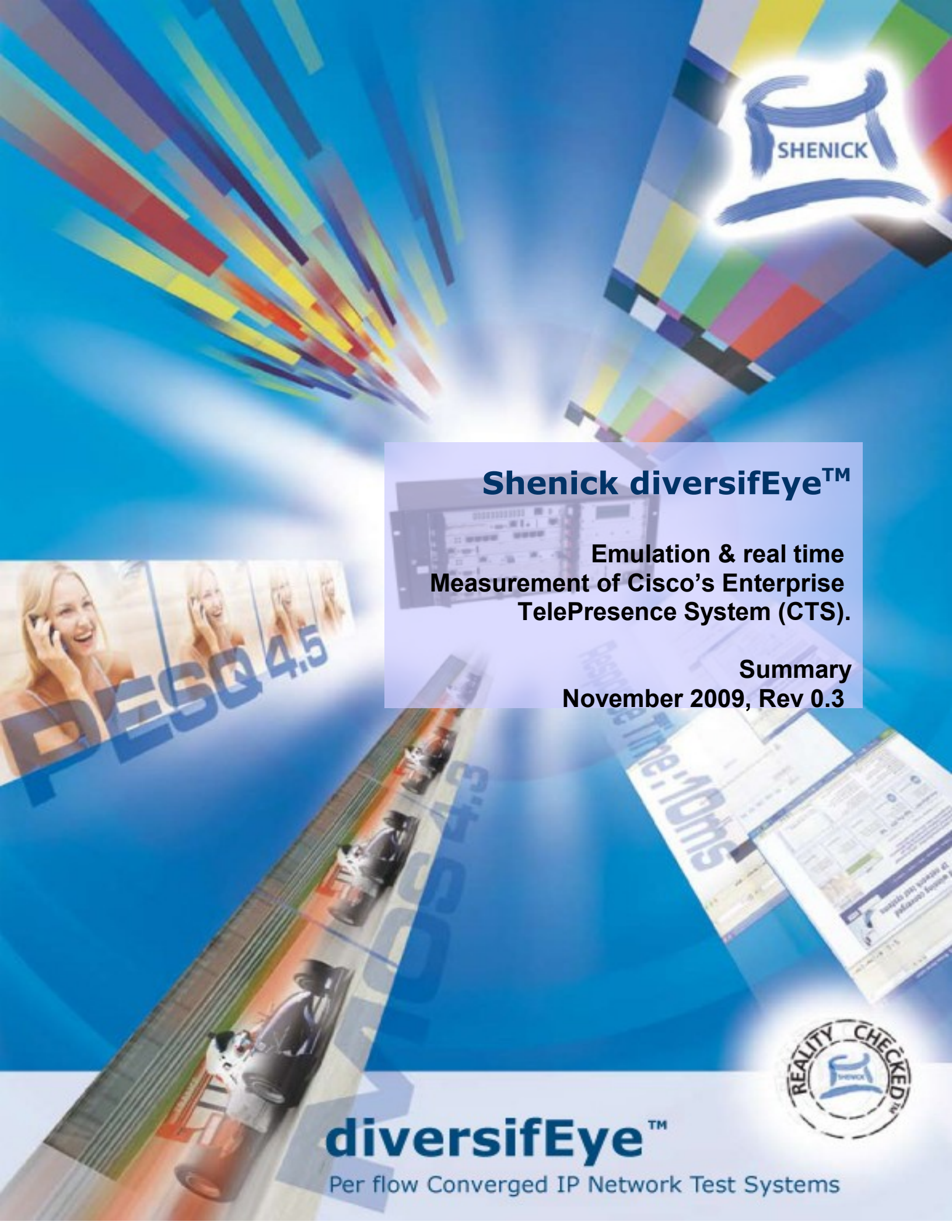

Shenick diversifEye™

Emulation & real time Measurement of Cisco's Enterprise TelePresence System (CTS).

Summary
November 2009, Rev 0.3

Introduction

The Cisco TelePresence System (CTS) is a high-end enterprise focused video conferencing endpoint application utilizing the SIP protocol with audio and video capabilities. Shenick diversifEye emulates the CTS to test & measure:

- the stability of the network.
- the impact multiple CTS have on the network.
- CTMS server and management platform functionality, scalability & performance testing.

Emulation of CTS is also very important to validate that service assurance systems can correctly identify TelePresence sessions and apply correct QoS as appropriate.

This Shenick capability delivers emulation & real time measurement of many individual CTS that communicate with Cisco's CTMS for per-flow Signal and Media Analysis, on a per CTS basis in real time. Shenick diversifEye is uniquely positioned to provide this functionality because:

- It natively supports SIP control for multimedia applications
- Is actively used as a SIP tester for Cisco's Call Manager (CUCM)
- It provides per-flow analysis for both signaling and media in real-time
- It supports RTP and provides per-flow, per-CTS media analysis
- It supports Cisco's signaling implementation

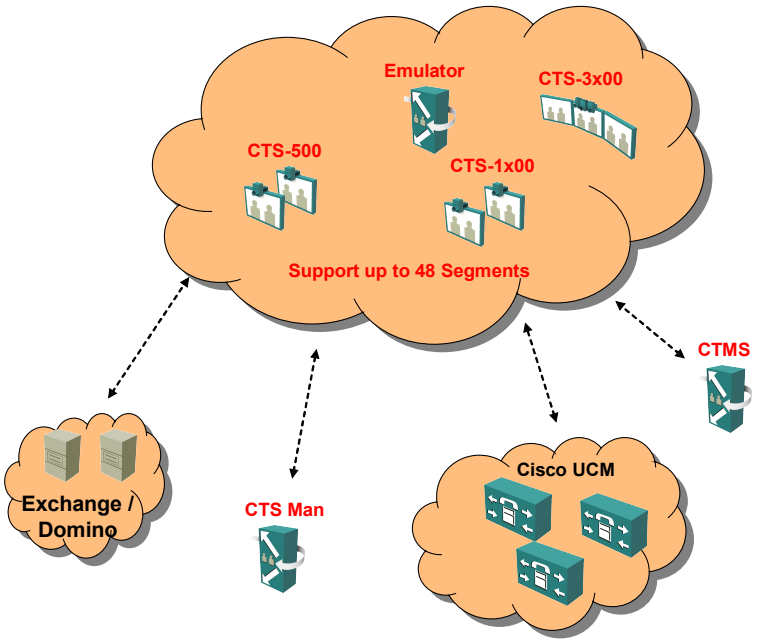

Figure.2 CTMS interfacing with CTSs and Emulator

In the first release, a Shenick emulated CTS will be capable of participating in video conferences and point-to-point video calls and will provide feedback about call progress and video and audio quality. It will be able to communicate with external CTS' and interact with SIP and signaling messages from CTMS and external CTS systems.

First release of Shenick emulated CTS in December 2009:

- Will emulate a Single CTS type (CTS 1000)and transmit and receive video and audio
- Will be able to make and receive SIP calls
- Will generate both Audio and Video
- Receive multiple Video and Audio Streams and perform media analysis, including A/V MoS, Packet Loss, Out of Sequence packets and Latency
- Will support a point to point call with an External CTS
- Will participate in a conference call with emulated CTS and/or External CTS
- The diversifEye test scenario will support 48 segments per call (up to 48 CTS)
- Concurrent support of CTSMan and CTS Endpoint Emulation
- The following Media options are supported:
  - Audio Activity Metric
  - Video In-band Parameter Sets (SPS/PPS)
- SIP Signaling, from the UAC, will add the SIP Headers required to emulate a SIP Trunk, such that the CCM will believe it terminates the SIP Trunk

Shenick diversifEye Capacity

Each diversifEye 10G Module will emulate 500 individual CTS. Each diversifEye 1G Module will emulate 50 individual CTS.

Background:

- Each CTS transmits 4Mbps of Video
- Each CTS receives 4Mbps of Video
- Each CTS transmits 256Kbps of Audio
- Each CTS receives 256Kbps of Audio

This is a total of

- 4 Gbps Video
- 256 Mbps Audio

To emulate more CTS, more Shenick modules are simply added to the solution.

Per CTS Statistics in real time

SIP/RTP metrics are available per Shenick emulated CTS on a one-second basis. These per-CTS metrics can be analyzed for thresholds for each and every CTS to pinpoint problems with individual emulated CTS

diversifEye is used to emulate the following applications and model the appropriate network traffic to measure statistics for each of the following individual applications or combinations of these applications on a network:

- IGMP
- MLD
- VOD (RTSP)
- VoIP
- Dual Hosted VoIP
- RTP
- PPPoE
- HTTP
- P2P
- VLAN
- DHCP
- P2P TCP Playback
- TCP Replay
- UDP Replay
- Latency
- SMTP
- POP3
- DDOS
- FTP
- TWAMP
- SSL/TLS

Shenick is an award winning provider of IP communications test and measurement systems. Shenick's diversifEye and servicEye are used to assess and monitor network, application and security infrastructure performance limitations.

diversifEye™ and servicEye™ are integrated network, application and security attack emulation and performance assurance test systems which are used by major IP-oriented network service providers, communications equipment manufacturers, large enterprises and governments.

Shenick's diversifEye addresses key next-generation converged network and application performance issues covering IPTV, Voice, Data, IMS, Security Attack Mitigation, Traffic Shaping/Peer to Peer (P2P), Application Server, Metro Ethernet and IPv4/IPv6 hybrid network deployments.

Shenick's servicEye is an active multiservice monitoring solution, born out of award winning and industry proven quality assessment technology with a focus on end-end performance measurements, including subscriber/client premises.

Shenick is the proud recipient of Internet Telephony's 2008 Product of the Year and IPTV Excellence awards. Adding further to these achievements are the Frost and Sullivan 2008 Global Technology Innovation Award for DPI. Other awards from Frost and Sullivan include the 2007 Global Product Innovation Award, 2006 Emerging Company of the Year Award in the Communications Test and Measurement industry sector along with the 2005 European Product Line Strategy Award.

Shenick Network Systems

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