PARTNER BRIEF

Acme Packet and Cicero Networks

A Solution for Over-The-Top (OTT) Service Delivery

Background

The explosion in use of the Internet for real-time communications services, also known as over-the-top (OTT) services, has captured the attention of service providers whose traditional revenue streams are increasingly threatened by upstart OTT providers such as Skype, Google and others.

OTT services encompass real-time audio, video and data (IP telephony, video calling, conferencing, collaboration, etc.) as well as access to streaming content, hosted, or cloud-based services, as well as others. Among other benefits, the OTT approach delivers important flexibility to service providers as well as individual subscribers and enterprises. It requires no additional infrastructure investment on the part of the service provider and opens up the possibility of the service provider licensing and delivering content and services from a variety of sources. Subscribers can access these services and this content from any location equipped with broadband access. OTT flexibility appeals to enterprises as well and in fact led to the popularity of the bring-your-own-device, or BYOD, movement.

OTT services are delivered directly from the service provider to the subscriber via mobile and fixed broadband connections. Increasingly ubiquitous Wi-Fi networks are also a natural vehicle for delivering OTT service backhaul. With more Wi-Fi-enabled endpoints and locations, reachability for OTT services has never been higher and will only grow over time.

Even with these benefits, the OTT opportunity for service providers is accompanied by a number of challenges, all of which can be addressed with a solution that is based on products and technology from Acme Packet and developed in conjunction with leading mobile VoIP application developer Cicero Networks.

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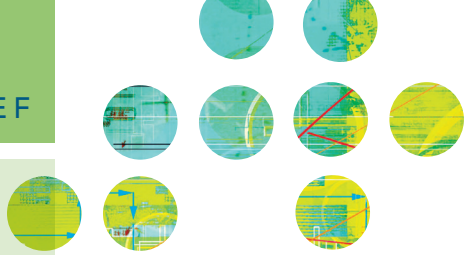

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Challenges

While ubiquitous broadband and Wi-Fi Internet access has made it much easier for service providers to offer new types of service or extend the reach of existing services, the OTT component does come with certain challenges:

First, the unmanaged content delivery methods leveraged by some OTT services are better-suited for providers who are "broadcasters" rather than providers of real-time communications services. Implementation of a viable business model that will attract and retain subscribers while generating profits for the service provider is critical to long-term viability of the service.

Second, the Internet remains a "best-effort" delivery mechanism, not always conducive to high-quality real-time communications.

Third, while high audio/video quality is of paramount importance, it is not the only element of quality that requires consideration. The reliability and consistency of the service, as well as other aspects of user experience, such as user interface (UI) to the service are also important elements that contribute to overall "quality of experience."

Fourth, end-to-end security, particularly with respect to how the service guarantees privacy and confidentiality, is vitally important with OTT transport. Security also requires a decoupling of the server and client in that the server side must also feature protections from signaling overloads and denial of service attacks that could cripple the operation and availability of application or content servers.

Finally, reachability in the presence of firewalls is a challenge when those firewalls are configured to block real-time communications or impose strict time limits on them.

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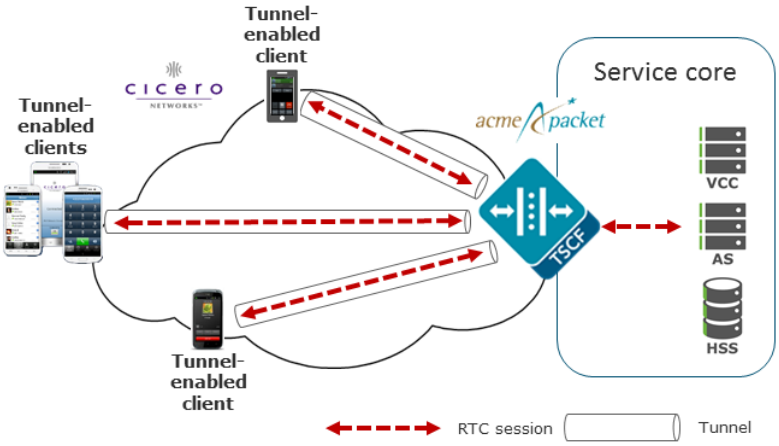
Solution Overview

Acme Packet and Cicero Networks have partnered to deliver a solution for OTT services that addresses all of these inherent challenges. Based on tunneling technology from Acme Packet, this joint solution combines Acme Packet's session border controllers (SBC) with a tunnel-enabled VoIP client from Cicero.

As shown in the diagram, the solution is invoked when the Cicero VoIP client places a call, at which point a "tunnel," actually an encrypted (TLS or DTLS) connection, is initiated towards the SBC. SIP, RTP and other real-time communications protocol messages and media are then securely and reliably transmitted through this connection to and from the SBC. The SBC terminates the encrypted connection then applies its usual set of controls to the now unencrypted real-time communications traffic, re-initiating it in the direction of the service-enabling core elements ultimately responsible for connecting the caller with the called party (or parties as the case may be). Once the call is established with active bidirectional media, the SBC asserts controls over the active signaling and media traffic while continuing to maintain the tunnel with the Cicero VoIP client. Once the call is disconnected, the tunnel is torn down as well. The solution is capable of simultaneously maintaining tens of thousands of these connections and communications sessions.



Acme Packet / Cicero OTT Solution

The solution leverages Acme Packet session border controllers (SBC) and client software libraries to deliver end-to-end security, reliability and quality for OTT real-time communications. Tunnels are able to traverse strict firewalls to deliver unrestricted subscriber access to OTT services and feature 256–bit encryption for strong privacy, confidentiality and integrity. And unlike Skype or other proprietary solutions, Acme Packet's technology features tunnel redundancy to ensure predictable, reliable media delivery for high-quality audio – even in "lossy" network environments – without requiring proprietary codecs.

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Solution Components

The server end of the solution is the Net-Net Session Director-4500 (SD-4500) configured with an Enhanced Traffic Control (ETC) network interface unit (NIU). The ETC NIU features 4 X 1 Gbps Ethernet connectivity and high-capacity hardware-accelerated encryption capable of supporting up to 200,000 tunnels simultaneously. The NEBS certified SD-4500 offers carrier-class high availability and delivers optimal signaling performance and session capacity in an efficient 1RU form factor.

Acme Packet Net-Net SD-4500

The SBC configuration also includes a Net-Net OS feature called Tunnel Service Control Function, or TSCF. TSCF operates as the server side of the solution, responsible for tunnel creation and control and is under consideration for standardization by the 3rd Generation Partnership Project (3GPP) as a method for traversing firewalls to access IMS services via the Internet.

On the client side, Cicero Networks, a leading mobile VoIP application developer, has integrated Acme Packet client libraries with their leading VoIP client software running on Android and iOS-enabled mobile devices. Cicero's tunnel-enabled VoIP client offers telco-grade security with no configuration or setup required beyond simply installing the client.

Cicero Networks VoIP Smartphone Clients

Cicero's VoIP clients are designed to leverage multiple wireless networks—Wi-Fi, 3G and LTE—to intelligently route voice, SMS and video over the best available network. Uniquely, Cicero's clients also support advanced feature such as Voice Call Continuity (VCC), which enables users to move between Wi-Fi and GSM/CDMA networks without dropping calls.

CiceroSupra is the company's flagship OTT VoIP client. It is a highly intuitive, easy-to-use OTT client that supports all standard VoIP features to enable reliable, high quality mobile VoIP (mVoIP) services.

Cicero has also incorporated Acme Packet client libraries into its CiceroInfra integrated VoIP client suite. CiceroInfra leverages the native call and messaging applications on the device to provide the subscriber with a seamless user experience. Cicero's clients are open, standards-based solutions which are interoperable with all of the leading IMS and SIP infrastructure platforms.

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