Multi-Party Conferencing with Vanguard SIP Gateway

Applications Ware Release 7.2 Expands SIP Supplementary Services for Branch Offices

The move from traditional POTS-based infrastructure to packet-based services has shown explosive growth. The inherent changes in infrastructure have impacted service providers, vendors, and end-users who include residential/SOHO and business customers.

In particular, a recent forecast by Infonetics Research, as illustrated in Figure 1, predicts that worldwide "Business VoIP" services will continue to grow substantially over the next 4 – 5 years, accounting for a larger percentage of global share of VoIP services.

One might ask: How does this growth pattern impact Vanguard Networks and what is Vanguard Networks doing to deliver products that meet this growth pattern?

The answer is simple. Vanguard Networks has been at the forefront of innovation for voice communications for over fifteen years and the advent of packet-based voice services

Figure 1: VoIP & UC Service & Subscriber Biannual Worldwide & Regional Market Size, Share, and Forecasts April 2009 Source: *Infonetics Research*

had enabled Vanguard Networks to deliver some of the most robust packet-based voice technologies in the market. SIP-based voice gateways are among Vanguard's premier product offerings that deliver cost-effective packet-based voice services with one of the industry's lowest total cost of ownership.

In this paper, we present one of Vanguard's latest introductions to the feature-rich SIP voice gateway, namely multi-party conferencing. This capability expands on Vanguard's already supported set of supplementary services for SIP which include:

- Caller ID/Block Caller ID
- Call transfer
- Call on-hold
- Cal forwarding/Follow me
- Call waiting
- Multi-party conferencing (3-way calling)

Details on supplementary services supported by Vanguard Network's Voice Gateways can be found in the user manual titled "Vanguard Voice", available on the Vanguard Networks public website.
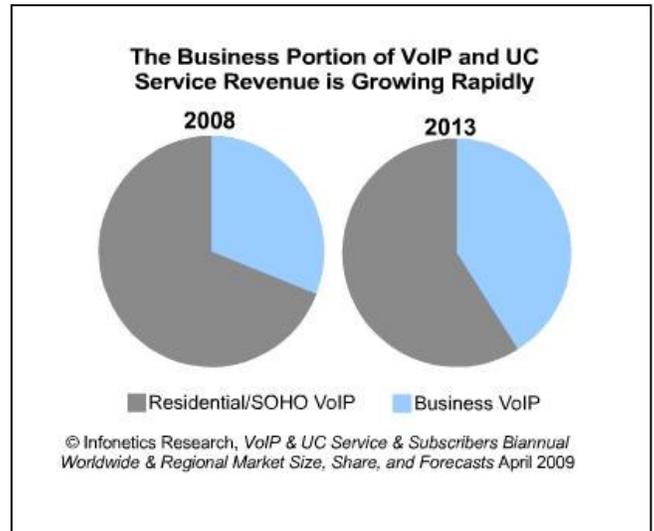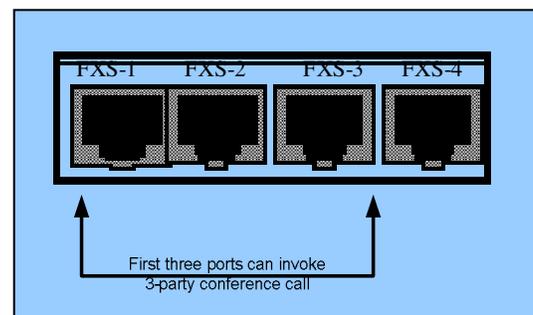

Figure 2: Vanguard Networks Quad FXS Daughter Card Supports 3-Party Calling

SIP-based Multi-Party Conferencing with Applications Ware 7.2

Beginning in release 7.2R00A, the Vanguard Networks gateway products (which include the 3400 Series and the 6800 Series platforms) will support **3-way conference calling** on its Quad FXS daughter card interfaces. To support this new feature it is mandatory that all Vanguard Networks' units, participating in 3-way Calling, be upgraded to Release 7.2R00A or greater.

The 3 party call conferencing feature allows 3 users to participate in a 3-way conference call. The 3 party conferencing feature can only be invoked from the first three Quad FXS voice ports on each card. While a conference call is active, the last FXS port will not be available for making calls. During the conference, if a user picks up the phone connected to the last port a fast busy tone will be played.

This feature is only supported when an FXS call is made over SIP (Session Initiated Protocol). The destination device may be a Vanguard SIP Gateway device or a SIP User Agent from a third party vendor that supports compatible codecs.
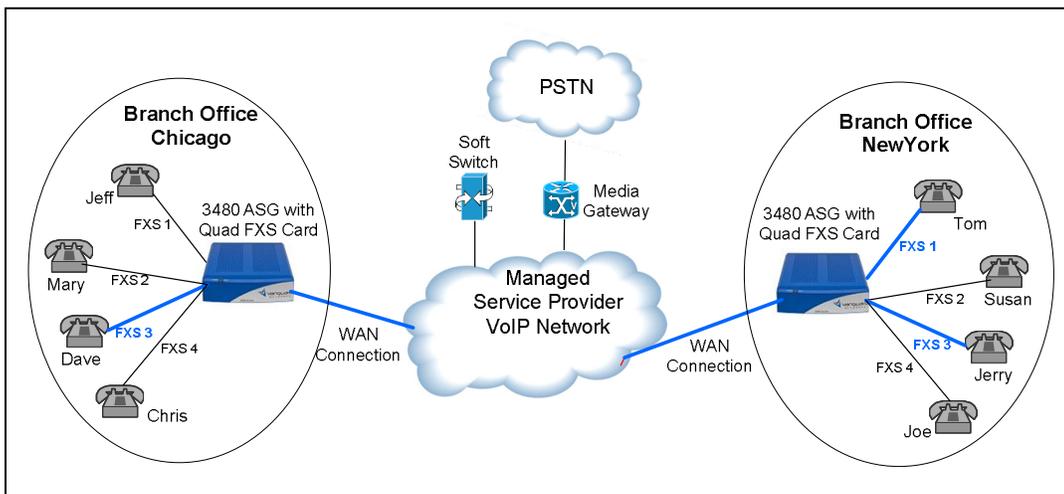
Supported Call Examples

Figure 3 shows the first call example. In this case, the business has multiple branch offices, and its VoIP services are hosted by a VoIP service provider. Two employees, Tom and Jerry, in branch office "New York" are engaged in a 3-way call with user Dave in branch office "Chicago".

Figure 3: 3-Party Call between Two Employees at One Site and Third Employee at Remote Site

Note that both branch offices are configured to use Vanguard Networks' 3480 Access Services Gateway (ASG) with at least one Quad FXS daughter card. It is possible to configure up to two Quad FXS daughter cards in each 3480 ASG, providing a total of eight FXS ports. With a maximum configuration of eight FXS ports, it is possible for multiple 3-way conference calls to be originated from the same branch office.

Figure 4 shows yet another example of a company using hosted VoIP services, with the three way conference call now taking place between employees who are all remotely located, with Tom in branch office "New York", Dave in branch office "Chicago", and Phil in corporate office "Atlanta".

Being a larger office, the Atlanta corporate office is served by Vanguard's 6800 Series Access platform, which can support up to four Quad FXS daughter cards. A maximum configuration of Quad FXS cards in the 6800 Series provides total of 16 FXS ports, thus also increasing the number of 3-way calls that can be originated from the "Atlanta" corporate office.

Note that since the Vanguard SIP implementation is fully standards-based, a SIP-based 3-party conference call initiated by a user connected to a Vanguard Networks access gateway can be successfully conducted with participants at locations connected to third party user agents.
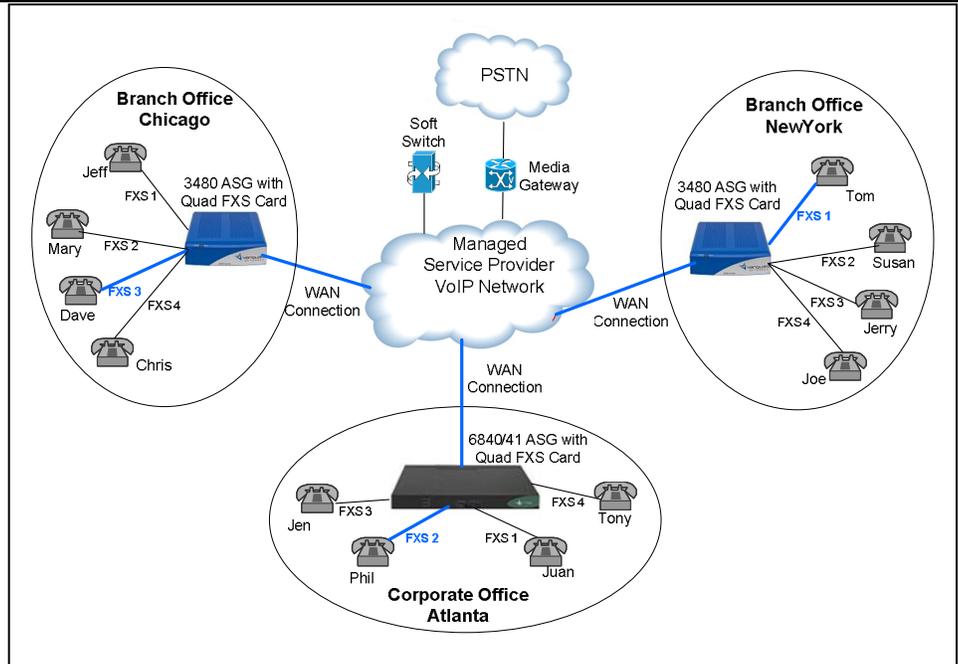

Figure 4: 3-Party Call between Three Employees, all at Remote Sites

More information can be found at the following link in our web site:
http://www.vanguardnetworks.com/solutions-service-providers-iptel.htm

Supported CODECS

The 3 party call conferencing feature will only be supported on the Quad FXS Card while running DSP Options 2, 3, or 4. When running DSP Option 3 or 4, at G.729 and a 3 party conference is invoked, the connection will remain at G.729 rate. When running DSP Option 2 or 4, at G.723 and a 3 party conference is invoked, the connection will negotiate a switch to G.729 first. If there are no matching G.729 coders, the connection will then switch to G.711 rate to maintain audio quality. If a connection is already at G.711 while running any DSP Option, it will remain at G.711 rate.

Call Conferencing over H.323

Initial customer demand for call conferencing was for a SIP-based implementation. Hence, call conferencing over H.323 is not supported in Applications Ware 7.2.