

Quality of Service for VoIP Applications

The Problem: Using Voice over IP (VoIP) in an enterprise can significantly reduce long-distance telephone charges. With VoIP service, one pays only Internet access. Employing VoIP in IP networks requires a solution for delivery of a more predictable, reliable and guaranteed audio-transmission service. Users expect the same voice quality whether their voice runs on a long distance line or over an Internet connection. Enterprise network managers therefore demand a Quality of Service (QoS) system that allows them to utilize VoIP.

The Solution: Allot's NetEnforcer™ is a QoS solution enabling the prioritization of data applications and the guaranteeing of bandwidth to timing-critical, real-time applications like VoIP. The NetEnforcer allows control of your data and voice traffic. Through the NetEnforcer, specific voice, video and multimedia traffic flows can be identified and the following actions can be assigned: minimum and maximum bandwidth, priorities, guaranteed rate, fairness and admission control. Allot offers a comprehensive solution for delivering QoS to voice applications over the Internet or a VPN.

The Environment

VoIP is the preferred solution for branch office connectivity, integrated messaging and IP faxing. An enterprise can add voice service to its IP network and pay for Internet access only.

When adding VoIP to IP networks, one must allow a more predictable and guaranteed IP service. VoIP is delay sensitive and requires advanced bandwidth management for prioritizing other traffic and guaranteeing bit rate for voice connections.

A typical network environment carries a broad mix of data traffic. This includes bursty data applications, such as e-mail and the web, with streaming real-time applications such as voice. VoIP demands consistent bandwidth allocation and minimal delays while data applications have variable and unpredictable bandwidth requirements.

Thus, a QoS system that enables VoIP optimization is needed.

Allot Communications Solution

The Allot NetEnforcer is a full QoS solution for enabling VoIP. It prioritizes data applications and guarantees bandwidth to real-time applications like VoIP. The Allot NetEnforcer provides per flow bandwidth allocation and creates a predictable network environment.

The NetEnforcer assures VoIP performance by providing constant bit rate and partitioning large data packets. It provides prioritized bandwidth, based on a connection's importance and assures that a single data packet does not delay voice or video packets by limiting the maximum packet size of traffic passing through.

In addition, the NetEnforcer enables the limiting of the number of connections, thereby increasing call completion ratio.

Allot's NetEnforcer enables VoIP and additional applications, such as video streaming, by adding predictability to IP networks.

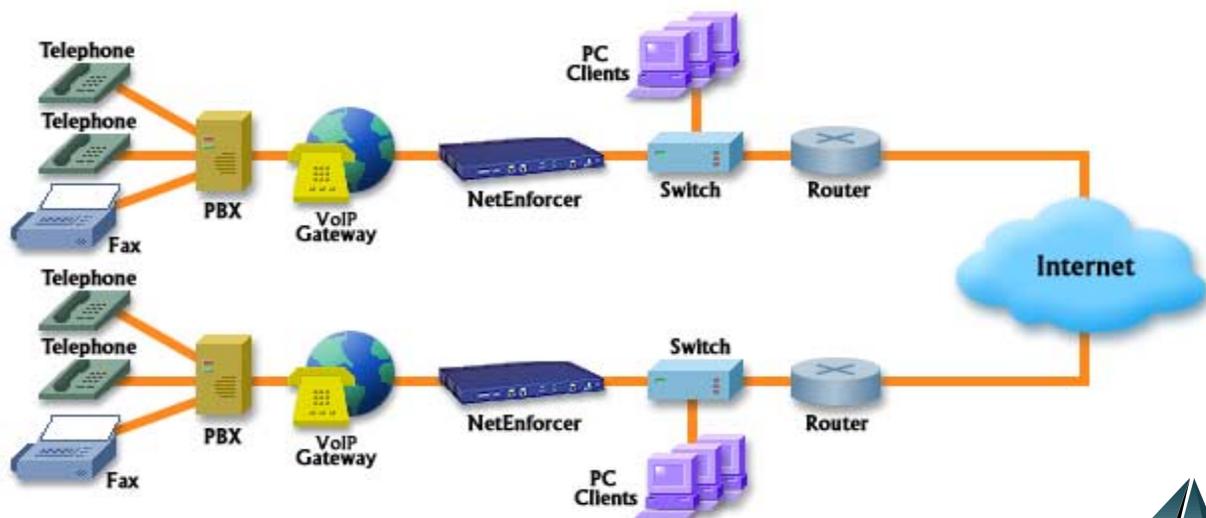


Figure 1. Allot NetEnforcer enables guaranteed bandwidth for VoIP.

The Allot Communications NetEnforcer Features:

- Assign guaranteed minimum bandwidth to real-time applications, such as voice
- Assure that a single data packet does not delay voice or video packets by limiting the maximum packet size of traffic passing through
- Guarantee constant-bit rate to voice, video
- Assure fairness and consistent levels of service between users
- Prioritize bandwidth and deliver levels of service based on a connection's importance and demand for traffic relative to other connections
- Monitor applications and users in real time
- Monitor top servers and top clients in your network
- Generate usage based reports
- Use fault tolerance capabilities, which include bypass switch and full redundancy

The Allot Communications NetEnforcer Advantages:

- Allot Communications Per Flow Queuing (PFQ) algorithm enables exact bandwidth allocation for each voice and video connection
- Built in fairness provides consistent service level for all voice connections
- Limiting packet length for all incoming connections and providing constant bit rate assures VoIP performance
- Real-time monitoring per clients, servers, protocols and bandwidth provides on-going network troubleshooting
- Policies can be based on time of day, therefore enabling time-based classes of service; for example, to encourage off-peak access to the Internet
- Accounting provides browser-based traffic statistics and reports
- Web based configuration and monitoring

With the NetEnforcer, you can assign a constant bit rate to Voice over IP network traffic:

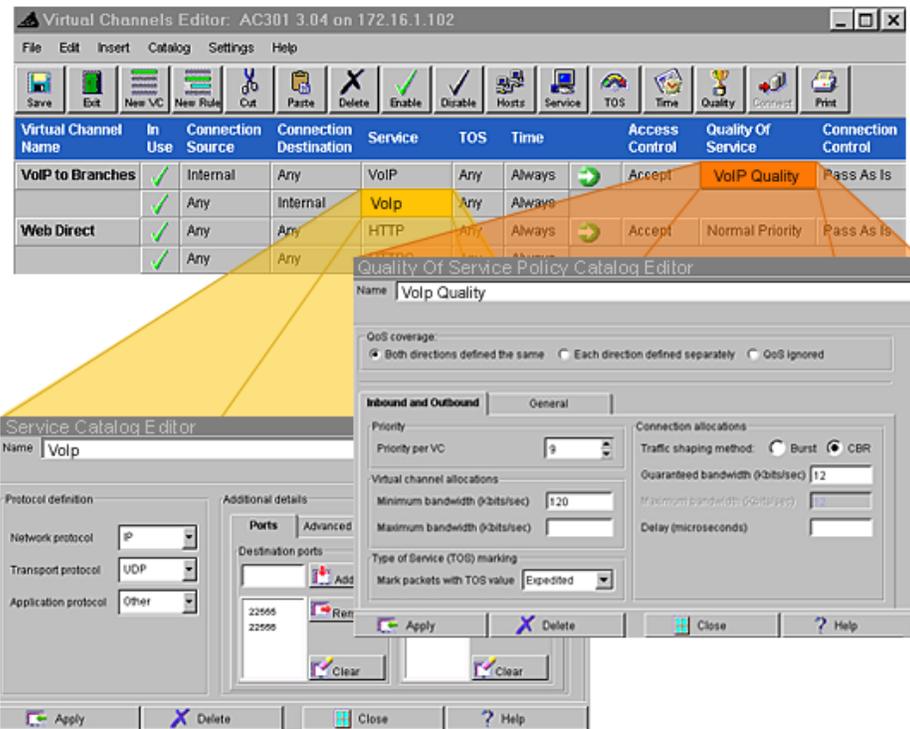


Figure 2: Setting up QoS

NetEnforcer Benefits:

- Use VoIP technology and enjoy switched-network voice quality
- Improve VoIP call completion ratio
- Increase return on investment on existing IP infrastructure, by adding voice and video applications without impairing the current quality

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