

## Perihelion Voice Server – Services

The Perihelion Voice Server is an easily administered and feature-rich PBX (Private Branch Exchange) with a fully resilient hot backup system. It also provides the following additional services.

### VLAN support

A common pitfall in Voice over IP (VoIP) installations is that no account is taken on the network of the time-critical nature of VoIP traffic. It doesn't matter if email takes a few milliseconds longer to arrive, but voice and video traffic can be badly affected. That's why one of the significant benefits of the Perihelion Voice Server is full support for multiple VLANs (Virtual Local Area Networks) with priority given to the voice VLAN.

There's little outward difference – existing laptops, desktops and servers are unchanged, being unaware that VLANs are in use. The phones are automatically configured to select a different VLAN, and the majority of the ports in the VLAN-aware switches are set the same. One or more ports can be defined for a DMZ (Demilitarised or Demarcation Zone) and one for the external interface.

### DHCP Server

When a phone boots it first requests an IP address. The Voice Server runs a suitable DHCP server for the phone segment, and the phones are offered extra information along with the IP address including the fact that the Voice Server should be used as the TFTP (Trivial File Transfer Protocol) server.

### TFTP Server

Once the phone has obtained its IP address it normally uses the TFTP information to download a file specific to the phone model. This is provided in the Voice Server and contains suitable standard installations as well as the URL from where phone-specific information such as the SIP registrar, user names and passwords should be downloaded.

### NTP Server

The Voice Server provides the Network Time Protocol service enabling all the phones to display the correct time.

### DNS Server

Both the data and phone segments need access to a Domain Name Server, and a relay is provided in the Voice Server.

## Web Server

All configuration of the system is done through a web interface supported within the Voice Server.

## Traffic shaping router

The Voice Server acts a router, allowing traffic to pass between the four different VLANs supported. It advertises these routes via the RIP V2 protocol. The Voice Server prioritises traffic using the broadband link ensuring that voice and video traffic has priority and it also ensures that the broadband link does not buffer upstream traffic.

## Mail guardian

The Voice Server has the ability to forward voicemails as email attachments, and to do this it must be configured with an SMTP mail server. If this were external to the local networks then mail traffic from any point on the LAN would have to be permitted, although this would allow any worm that may get into the network to send emails infecting others with the possibility of a blacklisted IP address.

As a simple way to avoid this Perihelion recommends running an SMTP relay (often a mail server such as Exchange) inside the LAN; normally this would be placed in the DMZ segment. If an internal mail server is specified then the Voice Server automatically transfers traffic from its external port to the mail server and back, whilst blocking any attempt to send traffic on the SMTP port 25 from any other computer on the LAN. Internal computers should be configured to send mail via the internal SMTP relay. A backup second mail server may be specified and this will be allowed through as well.

## Firewall

Although the ultimate safety net will normally be the ADSL or cable modem and its integral firewall, it is often not possible to make a hole through the firewall to any IP address other than one in the same segment as the modem. The Voice Server allows for ports on the external LAN to be mapped through to internal IP addresses – normally on the DMZ. This is done automatically for SMTP email but must be specified for other external services offered such as a web server or IMAP mail.

## Resilient broadband

Depending on where the system is located geographically, the Voice Server has a number of options for offering a backup broadband service should the main service fail.