Intelligent Audio

Design Guide

Solution Overview

Netgenium's Intelligent Audio solution uses the network to consolidate IP Telephony and Public Address into a single unified solution.

The system consists of Netgenium end devices (IP-Speakers, IP Audio-Gateways and IP Induction Loops) and a centralised management software application (PolicyServer).

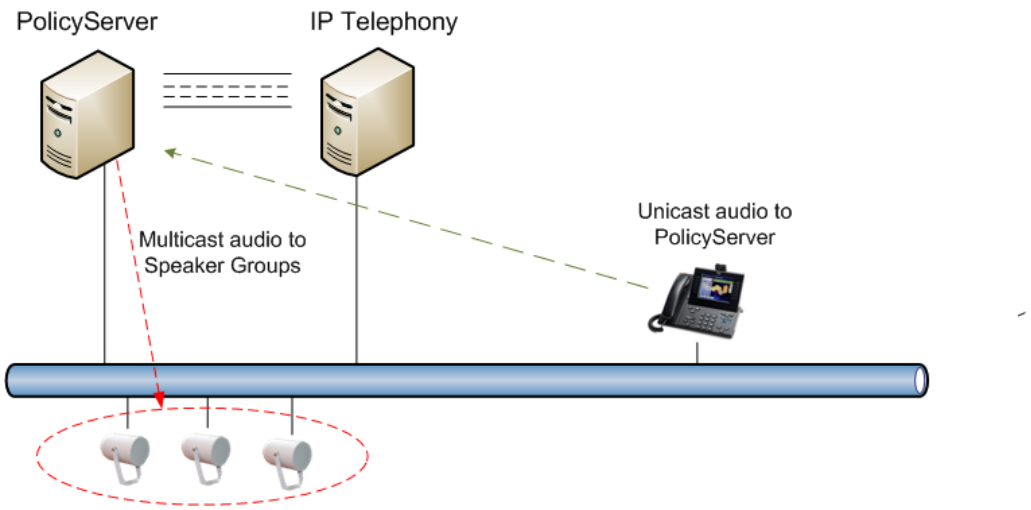
Each end device registers with PolicyServer and logical paging zones can be configured on PolicyServer.

Suitable IP Telephone handsets can also be imported into PolicyServer and used as a paging resource.

There is a server level integration into IP Telephony which allows each paging zone to be allocated a directory number on the telephone system and accessed from permitted handsets. This makes PA announcements as simple as dialling a telephone extension.

PolicyServer also stores pre-recorded announcements. These can be triggered from any incoming event or played according to configurable Time, Day and Date Schedules.

Live announcements can also be made from dedicated Audio Consoles installed on Windows PC's.



Architecture Overview

Just like IP Telephony, Intelligent Audio is a real time audio solution. As such, consideration must be given to system design and network configuration to ensure reliable audio performance.

Power considerations, network design and QoS considerations are covered in the following paragraphs.

Power

Every audio device from Netgenium is powered from PoE and hosts its own embedded audio amplifier. The audio output requirement of the device dictates whether IEEE802.3af or IEEE802.at PoE is necessary. Consult the equipment manuals or datasheets for more detailed information of power requirements.

If resilient power is required, provision should be made for suitable UPS equipment to protect both network switches and power source equipment.

Network Design

As in IP Telephony design, consideration should be given to a separate VLAN for audio devices. This is recommended to protect the devices from broadcast traffic on the data VLAN and as a security precaution. The end devices have a web configuration interface which is protected by a password. However it is desirable to prevent access to these from un-authorised users.

It should be noted that unlike IP telephone handsets, Netgenium audio devices do not provide a second network interface for pc's laptops etc. Therefore they do not support any VLAN trunking protocols. As a result the network switch port the device is connected to must be configured for the appropriate VLAN

Network Multicast

When announcing to groups of speakers, the audio stream is transmitted by PolicyServer using network multicast, controlled by IGMP.
The network must be configured to pass multicast traffic across VLAN boundaries.

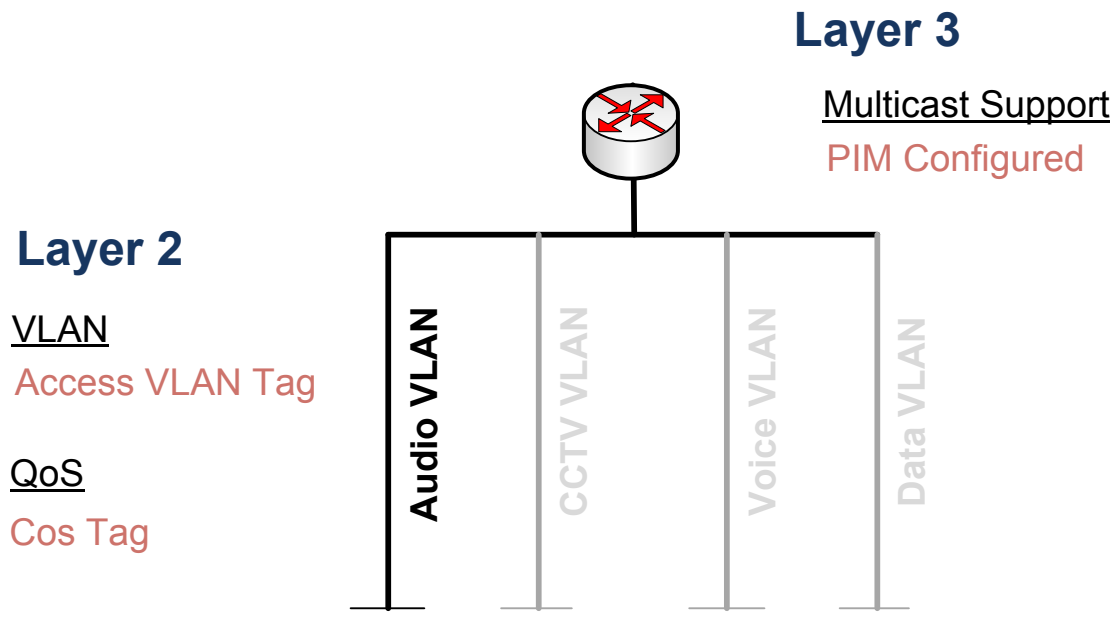
Quality of Service

In a converged environment, all types of traffic travel over a single transport infrastructure (the network). However, not all traffic types are the same. Data is bursty, loss intolerant and not latency sensitive. Voice, on the other hand, is non-bursty and has some tolerance to loss but is still latency sensitive.

Running both voice and data on a common network requires the proper quality of service (QoS) configuration to ensure that the delay and loss parameters of voice traffic are satisfied. Configuration options are available as features in network switches and routers to provide network wide QoS.

It is recommended that QoS is enabled on the network and each network port used in the Audio VLAN is configured to tag ingress traffic as high priority.

Network Requirements For Intelligent Audio Solution:



Netgenium Systems
18A White Rose Way
Follingsby Park
Gateshead
Tyne & Wear
NE10 8YX

W: http://www.netgenium.co.uk
E: sales@netgenium.co.uk
T: +44 (0) 845 9011148