

General IP Configuration

The voice quality of VOIP is dependant on variables such as available bandwidth, network latency, and quality of service initiatives (QOS), all of which are controlled by the network and internet service providers. Because these variables are not in NEC's control, we cannot guarantee the performance of the users IP based voice solution. Therefore, NEC recommends connecting the VOIP equipment through a local area network using private IP addresses.

For a network to be suitable for VOIP it must pass specific requirements. To make sure that the site meets these requirements an IP ready check and a site survey **must** be completed at each and every site before VOIP implementation.

- The network cabling must conform to category 5 or better and must not exceed 100 meters.
- The local area network must utilize Ethernet protocol and links carrying VOIP traffic must run at 100 Mbps or greater
- Data switches must be managed and support 802.1Q VLAN tagging and 802.1P VLAN prioritization. The network can not contain any repeaters (hubs)
 - Note: It is recommended the IPLA be connected into the data network via a Gigabit connection
- Routers must provide QOS
- Voice Control and Voice packets latency must not exceed 100 ms one way
- Round Trip delay must not exceed 200 ms
- Packet loss must not exceed 1%
- In the case of VPN connections links must be configured in a fully meshed topology
- Adequate bandwidth for estimated VOIP traffic (see Bandwidth section of this doc.)

Depending upon how QOS policies are built in the network, there might be assignments needed in the CPU.

Some Network Considerations

Before adding the UNIVERGE SV8100 to a customer network, a detailed network diagram of the existing network **must** be obtained from the customer. This diagram provides information about any network conditions that can prevent or hinder the VOIP equipment from functioning correctly.