



Best Practices for OTT NHC Cloud

Revision History

Revision	Date	Description	Initials
1.0	2/19/25	First published version.	JN

Version 3.1

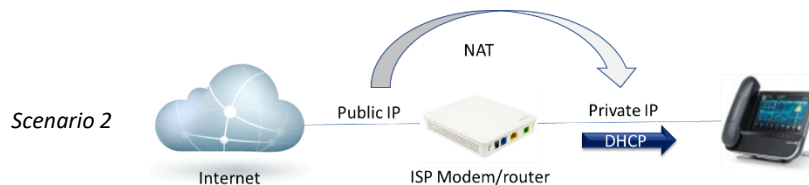
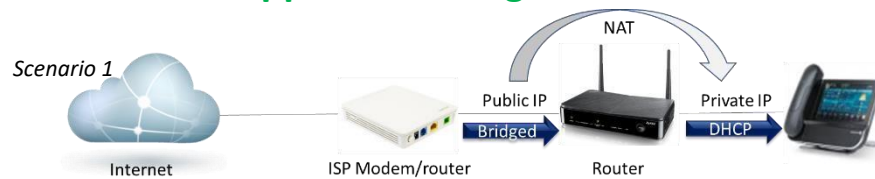
Overview

Network Design Considerations

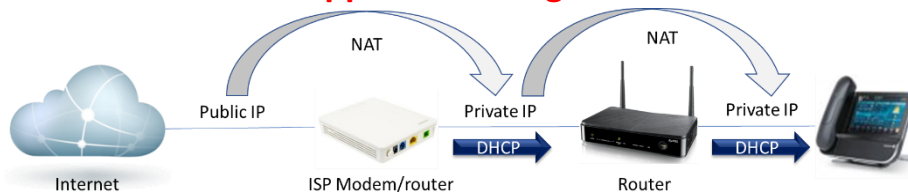
Double – NAT (Network Address Translation)

- Whenever possible the phones should be connected to your ISP's (Internet Service Provider) Modem/Router if that Modem/Router is providing NAT and DHCP service. If the voice traffic is routed through more than one device providing NAT, this can cause several issues. Symptoms of double NAT include but are not limited to: Endpoint registration issues, one-way audio, and no audio. Double NAT is not a supported LAN Topology for VoIP.
- If you are utilizing your own router or firewall, please arrange with your ISP (Internet Service Provider) to set the modem in bridged mode to hand off the Public IP to your router or firewall.

Supported Configurations



Unsupported Configuration



Deploying phones behind a Firewall

Firewalls are designed to protect you from unauthorized traffic and to secure your data. With this principle in mind, rules may need to be configured in your firewall to ensure NHC Cloud traffic is allowed.

Disable SIP (Session Initiation Protocol) aware Functionality.

- Disable SIP ALG (Application Layer Gateway), SIP NAT, Stateful Packet Inspection (SPI), SIP Fix up, and SIP Transformations.
- Configure rules to allow traffic for NHC voice services (see table below)

Ip Address	Protocol	Port	UDP/TCP	Service
198.204.63.0/24	SIP/RTP/Web	Sip 5060-5065,RTP 16384-65535, HTTP 80, HTTPS 443	UDP/TCP	NHC Cloud Network
208.93.8.0/24	SIP/RTP/Web	Sip 5060-5065,RTP 16384-65535, HTTP 80, HTTPS 443	UDP/TCP	NHC Cloud Network
65.75.218.0/24	SIP/RTP/Web	Sip 5060-5065,RTP 16384-65535, HTTP 80, HTTPS 443	UDP/TCP	NHC Cloud Network
173.244.45.0/24	SIP/RTP/Web	Sip 5060-5065,RTP 16384-65535, HTTP 80, HTTPS 443	UDP/TCP	NHC Cloud Network
208.93.9.0/24	SIP/RTP/Web	Sip 5060-5065,RTP 16384-65535, HTTP 80, HTTPS 443	UDP/TCP	NHC Cloud Network
65.75.219.0/24	SIP/RTP/Web	Sip 5060-5065,RTP 16384-65535, HTTP 80, HTTPS 443	UDP/TCP	NHC Cloud Network
18.217.97.178	Web	All	UDP/TCP	NHC Cloud Device Provisioning Standard
18.219.216.7	Web	All	UDP/TCP	NHC Cloud Device Provisioning Advanced
52.15.237.101	Web	All	UDP/TCP	NHC Cloud Device Provisioning Firmware updates
216.239.35.0	NTP	123	UDP	Time Server
216.239.35.4	NTP	123	UDP	Time Server
216.239.35.8	NTP	123	UDP	Time Server
216.239.35.12	NTP	123	UDP	Time Server
54.241.160.4	UDP/TCP	10000 to 20000, TCP: 6800, TLS:443	UDP/TCP	NHC Phone Provisioning Service

54.241.163.234	UDP/TCP	10000 to 20000, TLS: 443	UDP/TCP	Polycom Provisioning
54.67.107.54	UDP/TCP	10000 to 20000, TLS: 443	UDP/TCP	Polycom Provisioning
54.67.113.163	UDP/TCP	10000 to 20000, TLS: 443	UDP/TCP	Polycom Provisioning
54.219.101.213	UDP/TCP	10000 to 20000, TLS: 443	UDP/TCP	Polycom Provisioning
52.52.249.241	UDP/TCP	10000 to 20000, TLS: 443	UDP/TCP	Polycom Provisioning
52.53.96.55	UDP/TCP	10000 to 20000, TLS: 443	UDP/TCP	Polycom Provisioning
13.52.69.0	UDP/TCP	10000 to 20000, TLS: 443	UDP/TCP	Polycom Provisioning
54.241.91.173	UDP/TCP	10000 to 20000, TLS: 443	UDP/TCP	Polycom Provisioning
52.9.223.41	UDP/TCP	10000 to 20000, TLS: 443	UDP/TCP	Polycom Provisioning
52.9.225.203	UDP/TCP	10000 to 20000, TLS: 443	UDP/TCP	Polycom Provisioning
13.56.185.145	UDP/TCP	10000 to 20000, TLS: 443	UDP/TCP	Polycom Provisioning
13.57.121.193	UDP/TCP	10000 to 20000, TLS: 443	UDP/TCP	Polycom Provisioning
54.183.147.237	UDP/TCP	10000 to 20000, TLS: 443	UDP/TCP	Polycom Provisioning
54.174.154.29	UDP/TCP	443,80, 9989,8443, 8445,8446	UDP/TCP	Yealink Provisioning
52.5.133.228	UDP/TCP	443,80, 9989,8443, 8445,8446	UDP/TCP	Yealink Provisioning
52.71.103.102	UDP/TCP	443,80, 9989,8443, 8445,8446	UDP/TCP	Yealink Provisioning
52.201.1.15	UDP/TCP	443,80, 9989,8443, 8445,8446	UDP/TCP	Yealink Provisioning
34.238.237.220	UDP/TCP	443,80, 9989,8443, 8445,8446	UDP/TCP	Yealink Provisioning
34.235.12.107	UDP/TCP	443,80, 9989,8443, 8445,8446	UDP/TCP	Yealink Provisioning
35.153.119.139	UDP/TCP	443,80, 9989,8443, 8445,8446	UDP/TCP	Yealink Provisioning
20.85.145.227	UDP/TCP	443	UDP/TCP	Yealink Provisioning
20.242.144.3	UDP/TCP	443	UDP/TCP	Yealink Provisioning
20.88.189.229	UDP/TCP	443	UDP/TCP	Yealink Provisioning
20.19.104.34	UDP/TCP	443	UDP/TCP	Yealink Provisioning
20.242.144.4	UDP/TCP	8110	UDP/TCP	Yealink Provisioning
20.85.145.227	UDP/TCP	443	UDP/TCP	Yealink Provisioning
20.242.144.6	UDP/TCP	443,8110	UDP/TCP	Yealink Provisioning
20.242.144.0	UDP/TCP	443,5061	UDP/TCP	Yealink Provisioning

20.242.144.1	UDP/TCP	443,5061	UDP/TCP	Yealink Provisioning
52.71.103.102	UDP/TCP	443,5061	UDP/TCP	Yealink Provisioning
20.157.214.64	UDP/TCP	443	UDP/TCP	Yealink Provisioning
35.161.51.90	UDP/TCP	80,443	UDP/TCP	Grandstream Provisioning
144.202.94.88	UDP/TCP	80,443	UDP/TCP	Grandstream Provisioning
34.215.167.138	UDP/TCP	3478,6514	UDP/TCP	Grandstream Provisioning
34.210.35.207	UDP/TCP	80,443	UDP/TCP	Grandstream Provisioning
45.32.83.51	UDP/TCP	3478,32768-65535	UDP/TCP	Grandstream Provisioning

Additional Considerations

Set MTU to 1400 to avoid fragmentation

UDP timeout should be set to 300 seconds for NHC Cloud IP's. This allows registered devices to stay reliably connected.

Public Access. A device should never be accessible via the public internet. Any IP phone, SIP trunk, PBX, or otherwise should always be behind a firewall or router to prevent public access.

VLAN Configuration (Optional)

Under certain conditions, it may be necessary to deploy Virtual Local Area Networks, or VLAN's. Using VLAN's allows the segmentation of IP phone traffic onto its own virtual network. VLAN's will also allow the ability to create rules and configurations that apply only to your IP phones. NHC phones utilize Link Layer Discovery Protocol-Media Endpoint Discovery (**LLDP-MED**) to identify as IP phones. When deployed in conjunction with a switch topology that supports LLDP-MED, phones and data traffic can traverse a single cable run in scenarios where this traffic must remain separate.

QOS Recommendations (Optional)

Network congestion can delay or drop packets. Even a few dropped packets on a voice data stream can introduce echo, breaks in voice conversation, or even dropped calls.

- Each phone call utilizes approximately 100 kbps of bandwidth, including calls between two phones at the same site. Please keep bandwidth per call and the maximum number of simultaneous calls in mind when determining requirements for your deployment.
Example 10 concurrent calls at 100kbps = 1.0Mbps of throughput necessary
- Voice traffic can be prioritized on the local network. NHC will mark its VOIP traffic with DSCP (Differentiated Services Code Point) 46.

- We recommend that any equipment matches and prioritizes traffic using DSCP 46. When spikes in non-voice traffic occur, the equipment will prioritize the voice traffic and decrease the chances of any service interruption.

** Many Internet Service Providers will not honor DSCP tagging. Once traffic egresses to the local gateway, NHC **cannot** guarantee DSP (Digital Signal Processor) tagging will be honored.*

911

Your NHC 911 Service is attached to the 10 digit number originally assigned to the Device at your location on your initial installation. If you move your service or your phone to another location, please contact NHC Customer service at 866.241.9423 to have your address of record updated. Failure to do so may prevent emergency services from reaching you in a timely manner. Loss of power or network connectivity may render 911 emergency service inoperable on NHC Cloud.

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