

Call Quality Best Practices

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This article contains best practices and troubleshooting tips to improve call quality.

Prerequisites

- Validate sufficient bandwidth on the circuit. Your LAN/WAN provider can assist with the correct amount of bandwidth to meet call volume and data needs.
- Prioritization: Quality of Service (QoS) Policy/IT department or LAN/WAN
 - Your IT department or LAN/WAN provider should ensure that prioritization is configured for voice-related traffic and that a minimum guaranteed bandwidth is set on the router/firewall.
 - QoS-related features are located in the QoS/Traffic Manager section of the router for the majority of Small Office Home Office (SOHO) routers. Consult your router manufacturer for instructions to establish prioritization.

Call Quality Best Practices

- Check cables often for wear and tear and a secure connection.
- Replace outdated cables and worn headsets.
- Keep devices away from other electronics.
- Reboot PC/MAC to alleviate CPU load.
- Use a headset instead of speakerphone.
- Optimize browser by disabling unneeded add-ons and increase cache size. (Bolt desktop only)
- Use a physical phone with a good headset.
- Control your environment to reduce background noise.
 - Air-shock or noise-cancelling microphones can help remove ambient office noise and breathing sounds.
 - Adjust device volume accordingly.
- Prevent echos by placing your speaker system as far away from your microphone as possible.
- Keep microphone an appropriate distance from your mouth; pointing towards your chin.
- Avoid speaking with speakerphone on, and always mute before turning speakerphone on.

Poor Call Quality Causes

The top issues or call quality affecting symptoms generally encountered include:

- Choppy, stuttering or garbled audio
- Dropped, missing or delayed audio
- Static or echo

Choppy, Stuttering, Garbled, Dropped/Missing or Delayed Audio

Common causes:

- Network congestion or delay leading to dropped packets (Local Area Network (LAN) related issues).
- Lack of available bandwidth to support simultaneous calls (Internet Service Provider (ISP) related issues / Internet connection issues).
- Inconsistent ISP throughput performance (ISP or Internet connection issues).

Resolution Tips

- Is anyone else experiencing the same issue (are other phones affected)?
- Review any recent changes that have been made to the local network. Possible causes may include new file server, new or changed network switch/router/firewall, or change in ISP.
 - Rule out all recent changes as the source.
 - Revert recent changes back to see if call quality improves.

When recent changes have been ruled out, network check internet connection performance:

- If connectivity is limited and you are experiencing poor call quality, contact your IT Administrator or ISP to troubleshoot the internet connection.
- If connectivity is fine, run three to four consecutive speed tests via www.speedtest.net, to measure the performance of the connection. Verify that packet loss or jitter are not the cause.
- Visit quality.kerauno.io for a comprehensive internet service quality assessment.
- For long term analysis over a period of time, contact your Synkato provider.
- Reach out to Synkato for further assistance if needed.

Static or Echo

Common causes:

Static (non VoIP)

- Loose interfacing connections (phone/handset)
- Malfunctioning handset, phone-set, or headset
- Electromagnetic Interference (EMI), such as from a non-LCD TV or monitor, light fixtures, etc.

Echo

- Combination of delay/sound volume setting, and/or use of speakerphone
- Overloaded Desktop Client on computer

Resolution Tips

- Reduce volume
- Check connections
- Move external devices away from physical phone

- Replace cords or devices
- Reboot PC/MAC to alleviate CPU load
- Use a headset instead of speakerphone
- Contact IT if issue persists

Speed Test Parameters

Determine the provisioned bandwidth/speed purchased through your ISP prior to reviewing these results.

Ping

Reflects the overall delay in the network. Ideally, ping results should be under 60ms; with normal range between 5ms to 48ms, depending on your ISP connection.

Download/Upload

Perform three to four consecutive speed tests noting result consistency. Performance should not fluctuate (up or down) more than 20%. Download/Upload results should be no less than 75-80% of the provisioned speed.

Contact your ISP to check the performance versus what you are paying for in the following scenarios:

- Inconsistent results
- Actual speed is 75-80% less than your provisioned speed

When examining bandwidth, the lowest number between Download and Upload is used for calculations. If your network provider offers connection rated at 100Mbps, this usually refers to the download bandwidth. The upload bandwidth is much lower and is referred to as an asymmetric allocation or connection. Sometimes written as 100 Down / 5 Up. In this example, 5Mbps is the value used.

Discuss a business-level service agreement with your ISP if possible to ensure a consistent level of performance.