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Improve the Performance of Your Softphones for Unified Communications

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Voice is now a core component of most UC applications, and organizations need to ensure that it operates as effectively as possible on both desktops and laptops. The performance of softphones can be optimized by addressing key areas of PC connectivity, application configuration and network access.

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Overview

If organizations addressed some of the major issues affecting performance and connectivity, then softphones for unified communications (UC) could become more-effective tools for voice communications.

Key Findings

- Headsets will become essential communication tools for collaborators and could become mandatory, because of health and safety policies.
- There are several ways to connect the audio for a softphone, but the Universal Serial Bus (USB) port will bring the best results.
- The use of softphones and the Internet for voice by remote workers can be negatively affected by selecting Internet providers that do not have optimum peering arrangements for minimal delay.

Recommendations

- Organizations should create a headset procurement approvals list from the identified needs of traveling workers and collaborators. This will ensure that firms can leverage economies of scale in purchasing and minimize support requirements.
- Procedures for connectivity must be formalized and supported to ensure simplicity in the use of the softphone by employees, especially when traveling, to avoid roaming costs.
- Increased softphone use requires that IT departments consider the effects of speed on performance. This means reconfiguring antivirus scans to minimize processing impact during the working day, optimizing the performance of softphones against other applications, and setting optimal maximum latency thresholds for users connected outside the firewall.

Strategic Planning Assumption(s)

Through 2013, 40% of knowledge workers will have abandoned their desk phones.

Analysis

At the start of 2009, we predicted that, by 2014, 40% of knowledge workers worldwide would abandon or remove their desk phones (see "[Predicts 2009: Organizations Move Toward a UC Approach](#)"). The rationale for this is that knowledge workers will increasingly split the work of the desk phone between the PC softphone and the cell phone. When in the office or nomadic, they will increasingly gravitate toward PCs as their primary communications tools, with e-mail, instant messaging and other collaboration tools, such as social networking and Web conferencing. Voice is now a core component of most UC applications, and organizations need to ensure that it operates effectively on the PC or laptop to be a realistic option for users to consider as a replacement for desk phones in the office and to reduce the cost of roaming with mobile phones when traveling.

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The Need for Headsets

During inquiries, a common objection we hear is that users don't want to wear headsets, which limits the adoption of softphones. However, Gartner believes that this will change. As UC and collaboration solutions become more popular for knowledge workers, they will need to have both hands free to use the mouse and the keyboard. At this point, the action of tucking a handset or mobile phone under the ear for long periods of the day becomes uncomfortable for the employee, if not a health and safety risk for the company. We expect more knowledge workers to use headsets, by choice, if not as a direct mandate by management. In the parallel contact center industry, nearly all employees already use headsets, mandated as a health and safety issue, and one that can result in a disciplinary procedure if an employee is not using a headset.

The headset is an essential consideration in place of the built-in microphone and speakers on the laptop. These are not high-quality, and the softphone applications do not cope well with echo cancellation. The use of a headset is the first and most important step in improving the performance of softphones.

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Headset Connectivity Options

PCs and laptops have several options for audio connectivity, in addition to the built-in microphone and speakers — analog ports for external speaker and microphone, USB and Bluetooth. The best performing and most reliable of these is USB, and organizations can improve voice quality by using a USB-connected headset in place of the analog ports and onboard sound cards. Generally, the headsets are of better quality and the digital-to-analog/analog-to-digital conversion takes place in the headset, which is tuned for voice, not the sound card, which supports a number of other functions and applications. There are also USB connections with quick-release connectors, so you can hook up high-quality headsets that normally connect to the telephone (typically used in the contact center) to the PC.

Bluetooth is available in most new laptops, and is another option for connecting headsets usually associated with cellular phones; however, it is extremely troublesome. PC manufacturers are "behind the curve" in making it easy to connect audio devices, such as headsets, unlike mobile phone manufacturers, which have devised simple processes for connecting devices via Bluetooth. Headset manufacturers such as GN Netcom and **Plantronics** offer options that combine a single Bluetooth headset for the mobile device and the PC by using a plug-in USB dongle for PC connectivity. The disadvantage of this solution is that Bluetooth is a personal-area network, and does not afford the coverage of other wireless options. However, for those concerned about the wire associated with USB, Bluetooth gets rid of that. Bluetooth dongles could be a useful option for traveling workers, minimizing the footprint and maximizing usability across mobile phones and PCs. For office-based or broader coverage, the manufacturers have USB options that use Digital Enhanced Cordless Telecommunications (DECT) technologies.

Organizations should build a headset connectivity plan using USB as the default method and create a list of supported items. Consider how mobile professionals might use Bluetooth headsets and USB dongles in a personal-area network, and DECT-based USB for wider network coverage, office-based knowledge workers or customer service agents.

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The Impact of Other PC Applications

The performance of a PC can be better managed in lock-down mode, which would be more typical for a contact center environment (see "[Organizations That Unlock PCs Unnecessarily Will Face High Costs](#)"). This may be more difficult to achieve with knowledge workers, especially where they have to join external conferencing solutions, and particularly when Web-based applications require local installation to function correctly.

There are also other considerations that the IT group can resolve. Antivirus scanning applications are essential, but they can consume significant PC processing power when they're operational. The virus-scanning procedure is not always set to run at the most optimal times. It is essential that there is some flexibility in the operation of antivirus scans. For knowledge workers and customer service advisors, this needs to be at a time outside normal working hours, which will limit the impact of processing scans at the same time as real-time voice communications.

A number of applications will compete for processing resources at the same time as the softphone application. Even if it is not an issue today with powerful dual-core machines, IT groups should implement a prioritization schedule for softphones to run in real time. When defining PC images, due consideration should be given to prioritizing real-time communication applications, and include more flexibility in the scheduling of processor-intensive activities, such as antivirus scans.

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Optimizing Network Connectivity

Another big consideration for voice connectivity is bandwidth. Inside the corporate LAN with 100Mb to the PC we hear few complaints of poor-quality voice connectivity. We're increasingly seeing contact centers use softphone applications in favor of desk phones, especially with IP-based platforms that incorporate multichannel communications and tight integration with customer service and support or CRM applications. Organizations that deploy softphones for collaborative workers are indicating similar experiences.

Communications outside the corporate network can present some voice quality challenges, especially for those connecting from remote locations, home and hotels. These connections typically rely on the Internet, which has no traffic management for voice. Voice can be described to be "good-enough quality," commensurate with that of the mobile phone network, if there is minimal packet delay. Enterprises can minimize traffic latency by selecting the same Internet service provider (ISP) for Internet connectivity between teleworkers and the corporate website. This is not always a practical solution, for example, in multinational corporations with many regional home workers and traveling workers. However, by selecting Tier 1 ISPs that use private peering to minimize the number of router hops between traveling workers and the corporate Internet connections. The corporate connection can also be upgraded to dual Tier 1 ISP access. This will take into account the additional Internet traffic created by voice and make for greater continuity. The option to offer an alternative device, such as a mobile phone or a desk phone for poor network connectivity, will make the softphone more acceptable when there are no network issues.

Organizations should consider setting best-effort service levels for latency in planning their Internet connectivity, to minimize the impact of delay in voice communications. A latency of better than 125 milliseconds would be optimal for softphones.

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Recommended Reading

["Predicts 2009: Organizations Move Toward a UC Approach"](#)

["Organizations That Unlock PCs Unnecessarily Will Face High Costs"](#)

["Guidelines for IP Telephony Security"](#)

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