

WHITEPAPER

THREE FUNDAMENTALS

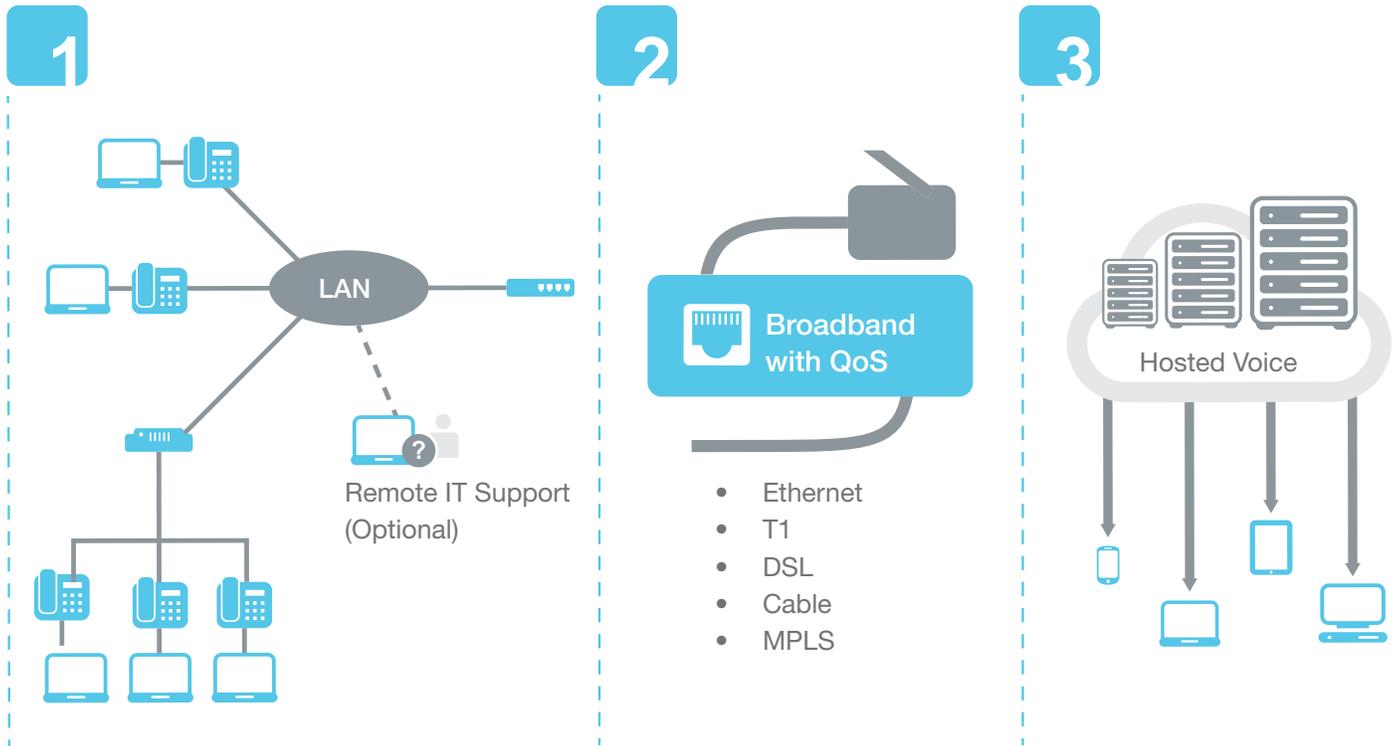
FOR CONSISTENTLY GOOD VOIP CALL QUALITY

Every week, businesses across the country are converting to Voice over IP (VoIP) communication systems by the thousands.

What many may not realize is that it takes more than a good voice system to deliver consistently good calling experiences. Three basic, essential components must be in place for a successful Hosted VoIP system implementation:

- > The Local Area Network (LAN)
- > The broadband connection
- > The voice service and its supporting voice network

All three components must work together, and a problem with any one of these can cause calls to become choppy, sound jittery or—worse—cause the call to drop altogether. To better understand the symbiotic nature of these three components, let's take a deeper look at each. Think of these three elements as the legs of a stool. All three legs must work together seamlessly for users to have clear, reliable calling experiences—the kind of service reliability and quality necessary for business conversations.



#1 FUNDAMENTAL - LOCAL AREA NETWORK (LAN)



A LAN must be ready and compliant to support the real-time nature of VoIP communications.

Voice is being packetized and sent across your LAN, just like in an email or any other data application. But, by the very nature of any live or real-time communication, the slightest delay caused by network congestion within your LAN will cause call quality issues such as call choppiness or dropped audio.

The vast majority of call quality issues are caused by an underlying problem in your LAN. Everything in a LAN, including switches, routers, firewalls, and cabling, must be ready to support VoIP communications to ensure optimal call quality.

#2 FUNDAMENTAL - BROADBAND CONNECTION



The broadband connection must have enough capacity to support the combined utilization needs of your voice and data traffic.

It must consistently deliver packets with low latency and no packet loss. At MegaPath, we have found that VoIP operates best with less than 100-millisecond latency. This is why we always recommend the use of a MegaPath broadband connection, such as an Ethernet connection, a T1, or a DSL technology with Quality of Service (QoS).

When using a MegaPath-provided broadband circuit, voice traffic is prioritized to ensure the highest call QoS possible for crystal clear call quality and reliability. Some broadband connections, like cable, are oftentimes operating over a shared network, and can vary in their ability to consistently deliver voice communications. However, an Ethernet, T1 or other business-class dedicated line connection is the optimal broadband medium for the delivery of high-quality VoIP communications.

#3 FUNDAMENTAL - HOSTED VOICE PHONE SYSTEM



For true business-class performance, Hosted Voice should be delivered over a fully redundant, carrier-class network designed for high availability and reliability.

MegaPath's voice network achieves 99.999% availability, providing customers with the highest level of reliability in the industry.

These are the three fundamentals for consistently good, reliable call quality (or, to borrow the word picture used earlier, the three legs that work together to support the stool).

Based on this understanding of the roles of the LAN, broadband, and voice services in ensuring top-notch call quality, we can delve deeper.



CAPABILITIES OF A TRUE BUSINESS-CLASS PHONE SYSTEM

Providers that embrace the use of all three components, or legs of the stool, are capable of delivering unparalleled quality and value.

We'll look at some of the resulting capabilities that set such providers, like MegaPath, apart from the crowd.

Rich Functionality – When you know your product works, and works reliably, you can focus on taking it from good to great. MegaPath Hosted Voice allows users a practical way to manage telephony, with all of the extras that make doing business just a bit easier. Our users can tailor their call capabilities on a user-specific level, merge high definition video and voice together, and access and manage their system from anywhere at any time – all without the cost of managing and maintaining their PBX.

Advanced Voice features, like Find Me/Follow Me, allow users to define how incoming calls are routed or forwarded to avoid missing important calls. Mobility features empower employees to make and receive calls on their cell phones using their VoIP business phone number and even take advantage of unlimited long-distance calling while working remotely.

Customers can also take advantage of our best-in-class portal for account self-servicing, such as ordering new seats and equipment, viewing and paying bills, and administering users. Furthermore, our online Voice Learning Center provides the resources to help customers get up to speed fast. Here, customers can sign up for live training, or watch it on demand – at no additional charge.

Superior Call Quality – Quality of Service (QoS) is a term you may not be familiar with, but should certainly learn and pay attention to when shopping providers. QoS should be a primary concern for all providers, but those providers who do not manage their own data network can make no guarantees of quality, as they are as susceptible to outages like anyone else subscribing to a network provider and can take no action of their own to resolve issues.

MegaPath's voice network achieves 99.999% availability, providing customers with the highest level of reliability in the industry. When our voice services are delivered over a MegaPath-provided circuit, we can ensure that QoS standards are maintained from end to end. This allows MegaPath to maintain QoS guarantees in a way that is not possible for most providers. When MegaPath provides access with voice, two things happen to manage QoS. First, all voice packets are tagged core-to-edge with priority across the network. Second, at the LAN, the Edgemarc CPE is configured to tag packets in the upstream with separate queues where voice is given priority over other data.

Cost Savings – Working with a VoIP provider is an option that many businesses don't immediately explore because they assume that it will cost more than a traditional phone system. The good news for those looking to cut costs and increase call quality and functionality is that this couldn't be farther from the truth. Hosted Voice means that the company pays only the rate for services rendered, and more often than not, the total cost is less than using a traditional phone system. Remember, having Hosted Voice means there is no equipment to buy and the business is not responsible for the cost of upgrades, maintenance, replacement and repairs.

High Availability and Redundancy – MegaPath's availability reigns supreme over our competitors, with 99.999% availability, or five nines. On the surface, there may not seem to be big differences between three nines, four nines and five nines, because after all, they all round up to 100%, which is perfect, right? Unfortunately, when you do the math, that's not the case. Five nines means the voice network is down less than 5.26 minutes per year, while four nines equates to 52.56 minutes of downtime, and three nines equals 4.38 hours of downtime. If your business can't afford to be down for hours, look into the provider's voice network availability before you buy.

Redundancy is the key to high availability. If a provider doesn't have redundant data centers, hardware and systems, then you probably should pass. MegaPath has multiple, U.S.-based data centers for geo-redundancy, as well as redundant systems and hardware to eliminate



single points of failure. If a natural disaster should strike at one data center, the infrastructure is designed so that all system components automatically and seamlessly failover to another data center without interruption to the user.

Problem Resolution – If the need to troubleshoot call quality problems ever does arise, we can work with our customers quickly and confidently to identify and resolve the problem. It's important to look at the whole picture and isolate what may be generating the issue. Because many providers do not have their own networks to provide LAN and broadband, in addition to voice services, they are often not able to provide comprehensive support, but that's not the case at MegaPath.

At MegaPath we understand the importance of providing quality and value at a cost-effective price. We also understand that getting the greatest business value out of communication services means more than just installing a few access points. It requires enterprise-class equipment, carrier-grade circuits for connecting to the corporate network and Internet, expert planning and support, as well as ongoing management for network performance, security, and compliance.

For more information, or to see how LAN, broadband and voice services can work together to take your business' voice communications to the next level, contact us today for a free assessment.

NEXT STEPS

Visit www.megapath.com/voice/hosted to learn more, or contact a MegaPath Business Consultant today at **877-611-6342**.