



THE SIP TRUNKING ULTIMATE GUIDE

TELNETWW.COM



TABLE OF CONTENTS

- 3 Introduction
- 4 The Basics of SIP
- 5 PRI vs. SIP
- 6 Features and Functionality
- 7 Business Benefits
- 8 The Value of a Management Portal
- 9 The Mechanics of SIP
- 10 Example Network Diagram
- 11 Making the Switch to SIP

IT'S TIME TO MAXIMIZE YOUR PHONE'S FUNCTIONALITY

With the business benefits of IP-based communication technology, it's no surprise that organizations are abandoning traditional voice solutions like the analog Plain Old Telephone Service (POTS) or Primary Rate Interface (PRI) and flocking to VoIP solutions like SIP.

Phone systems that were once restricted to copper wire connections have been unleashed by the capacity of the internet. This advancement has allowed businesses to communicate more effectively, increase their cost savings and implement the latest IP features with ease.

Forbes has estimated that 67 percent of IT infrastructure and software will be cloud-based by the end of 2020. In today's internet-reliant marketplace, you can't afford to overlook the benefits of IP telephony.

Increasingly, organizations are looking to take their operations to the cloud, SIP has become an optimal voice solution. Let's get into the basics, features and benefits to determine if this is the right solution for you.



67% OF IT INFRASTRUCTURE
AND SOFTWARE
WILL BE CLOUD-BASED BY
THE END OF 2020

THE BASICS OF SIP

DEFINING SIP

SIP (n.): acronym for session initiation protocol; a signaling protocol used for initiating, maintaining, modifying and terminating real-time communication sessions

SIP was designed to keep up with the ever-evolving needs of IP communications, and therefore efficiently supports the features and call processing functions of the Public Switched Telephone Network, or PSTN. It enables the real-time sessions that involve voice, video, messaging and other communication services between two or more endpoints, carrying data from one user on an IP network to another. It's one of the most popular protocols that enable VoIP.

HOW IT WORKS

When making a call via SIP, the protocol first determines the endpoints and type of media being used in the session. Once it's established whether or not the called party wants to engage in the session (by picking up the call), it authorizes call parameters at either end of the communication and handles any modifications that might occur, like transfers or terminations.

SIP TRUNKING

SIP Trunk (n.): a virtual phone line that enables users to make and receive calls to any endpoint with a telephone number

When you adopt SIP into your business communications, what you're actually using is a method called SIP Trunking. This is the structure that sends voice and other media over the internet from one endpoint to another, using an IP-enabled PBX.

SIP Trunks are bundles of lines shared among users on the PSTN. It's worth noting that these are digital connections, rather than physical wires. These trunks utilize a Packet Switch Network (PSN) in which voice calls and other media are reduced to digital packets and sent across the network.

One of the greatest advantages to SIP Trunking is that you can purchase bundles in any increment. Considering that you had to purchase PRI lines in pre-packaged bundles of 23 — whether you were utilizing all of them or not — SIP translates to a much more cost effective solution for most businesses. It's no surprise that SIP Trunking has become a favorable replacement for traditional phone lines or PRIs.

PRI vs. SIP

One of the most common reasons businesses are looking into SIP is their current reliance on PRI. Like so many others, they've come to the conclusion that they're wasting valuable resources on legacy services that aren't meeting their needs. But SIP Trunking gives businesses the scalability, flexibility and simplicity to compete in the digital marketplace. Don't take our word for it though. Check out the differences below:

PRI vs. SIP

Cost

With a TDM or PRI-based system, you have to plan for max capacity and pay the price. Because PRI lines come in pre-bundled packages of 23 lines, you'll likely pay for lines you don't even use.

With SIP, you only pay for the number of lines you need based on your usage. And because this service is IP-based, it's easy to add an additional call path when you're maxing out your current lines.

Infrastructure

Traditional services come with traditional equipment that not only takes up space, but eats away at your budget. Maintenance and replacements only drive up your costs.

Because SIP is IP-based, there is no additional equipment needed for installation. As long as you have an IP-enabled PBX, all updates are managed through the cloud.

Value

While PRI has been a staple in business communications for decades, it's beginning to fall to the wayside. Many carriers are no longer supporting or maintaining its infrastructure due to rising costs.

SIP technology is providing additional features and functionality at much lower costs. And with ever-evolving innovations in software-defined networking, SIP is now more resilient than ever.

Capability

In the world of PRI, your voice services are completely disconnected from your internet and data, meaning your multimedia capabilities are non-existent.

With SIP, voice and data is merged, meaning businesses can now enjoy a rich multimedia experience during conference calls. Think screen sharing and messaging.

Scalability

With a traditional phone system, any business growth is often overshadowed by the cost and hassle of scaling. You're looking at new equipment and even new infrastructure.

Meeting the needs of your growing business is as easy as configuring additional call paths. There's no need for new equipment or a lengthy build-out process. You can probably do it on your own with a management portal!

Reliability

Unfortunately, when things go sideways, PRI doesn't have the failover capacity needed to keep your business up and running in the event of an emergency. Plus, users have to be at the physical location to take advantage of the service.

Set up call forwarding and layer on SD-WAN to your services to provide a failover solution with SIP so business never stops. And because it's IP-based, your employees can work effectively whether their office-bound or not, so you have constant contact.

FEATURES AND FUNCTIONALITY

Despite its incredible simplicity, SIP Trunking is rich in functionality, making it a favorite for both end-users and IT professionals alike. The features below distinguish it from more traditional voice solutions:

CALL FORWARDING

- **Call Forwarding Busy:** redirect calls when there's a busy signal
- **Call Forwarding Unreachable:** redirect calls in the event that a particular phone number is unreachable
- **Call Forwarding Always:** redirect all incoming calls to a different phone number
- **Call Forwarding No Answer:** redirect calls when there's no answer

PHONE NUMBERS

- **DIDs:** select local direct inward dial numbers
 - **"Local" Numbers:** SIP uncouples the physical location of your phone from the phone number, allowing businesses to have phone numbers that appear local to a specific region without actually having a physical office in the area (in the same way, remote workers can still have a number local to business headquarters)
 - **National Numbers:** port your current phone numbers or purchase new in local areas of your choice
- **Toll-Free Numbers:** select 800 and other toll-free numbers
- **Caller ID:** view inbound caller ID and customize outbound caller ID by setting the individual or business name
- **Voicemail:** take advantage of advanced features like voicemail to email
- **National Numbers:** port your current phone numbers or purchase new

MANAGEMENT

- **CDRs:** view Call Data Records to better understand communication needs and provide insight into call activities over time via our online portal
- **Interoperability:** SIP is an industry standard, so it's supported by most VoIP equipment

EMERGENCY SERVICES

- **E911:** tag your physical phones with your organization's address so that emergency services are directed to the exact location in the event of an emergency
- **Disaster Recovery:** automatically reroute SIP trunks to other locations in the event of an emergency, outage or other event for uninterrupted business continuity
- **Fraud Prevention:** isolate suspicious calling patterns and temporarily suspend international calling to reduce the impact of any fraudulent behavior

BUSINESS BENEFITS

You have to balance the need for functionality, reliability and self administration with the demand for cost savings and ease of use. Luckily, SIP wins on both counts. Let's dive into the business benefits:

COST SAVINGS

With traditional communication solutions like PRI, you're forced to purchase 23 voice channels, when you may only need 12. So even if you're only using a portion of the lines, you end up paying for all of them. With SIP Trunking, you can customize the number of lines you want and only pay for what you need. There's no need to purchase service in fixed increments.

SCALABILITY

As your company grows, it's easy to configure additional call paths onto your existing connection. Line installation is simple and completely customizable, so you can stop dreading (and actually get excited about) expansions. And thanks to underlying software, you can make moves, additions and changes in real-time.

EQUIPMENT REQUIREMENTS

Because SIP is a cloud-based solution, there's actually no additional equipment requirements to worry about. The days of bulky hardware taking up space in the office's storage closet are over!

BUSINESS CONTINUITY

Thanks to call forwarding options, you can automatically redirect calls in the event of severe weather or a downed power line. You'll never have to worry about unpredictable forces of nature bringing your business to a grinding halt.

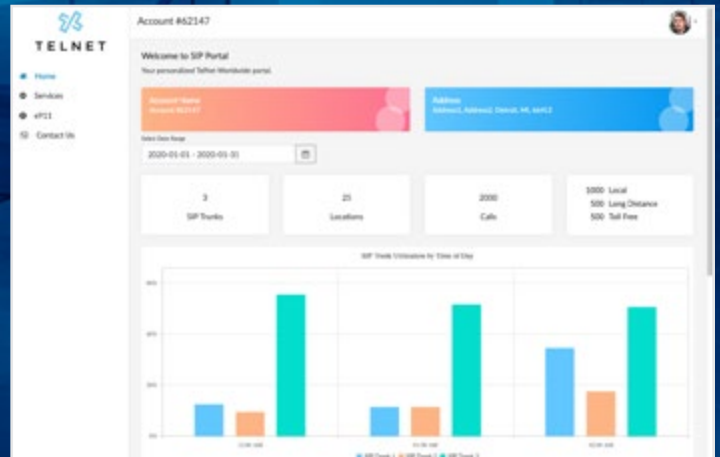
UNIFIED NETWORK

With SIP, you can manage both your data and voice services over a single IP network. Converging your local and long-distance VoIP services optimizes the efficiency of your network resources. Plus, because it's a cloud-based solution, it's easy to implement upgrades and new features across all of your locations, without the travel expense. And don't forget the added ease of management for you — think of the extra efficiency in managing a single voice and data network and receiving one bill from one provider. Engaging with a single point of contact will free up some of your very valuable time.

THE VALUE OF A MANAGEMENT PORTAL

In order to get the most out of your SIP service, make sure your provider offers a supplemental management portal as well.

Our Service Management Portal gives you the power to manage and monitor your SIP service, without the hassle of going through your provider to make minor adjustments. This user-friendly management tool gives you the administrative ability to track usage trends and make changes on-demand and in real-time.



PORTAL CAPABILITIES

Service Management

Telephone Numbers

- Search and reserve regular and toll-free numbers from our database
- Change ring to (DNIS) number on toll-free numbers
- Change caller ID name and number on phone numbers
- Change the 911 location on phone numbers

SIP Trunking

- Forward your SIP trunk to another trunk or external telephone number
- Route telephone numbers from one trunk to another

Reporting and Analytics

Reports

- Reporting is flexible; download standard or customized reports
- Reports are downloadable via a CSV file or PDF graph

Visibility

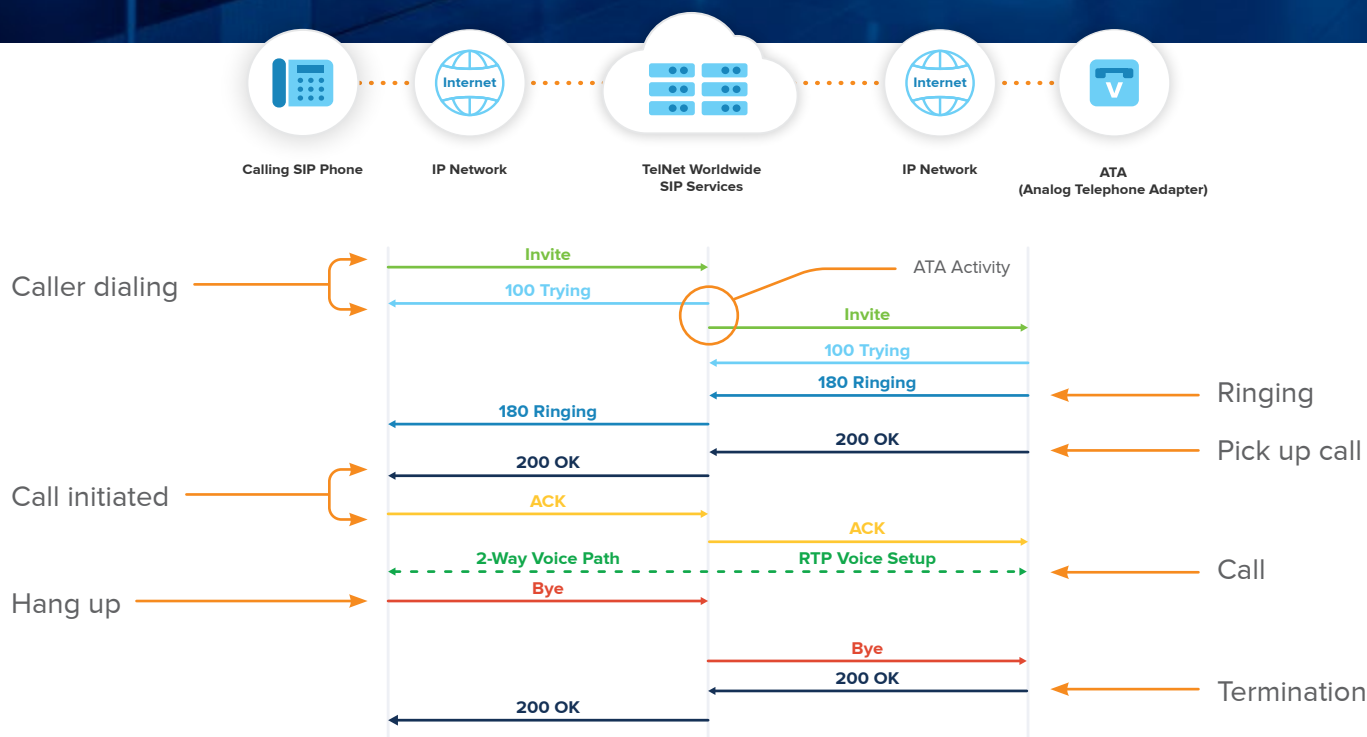
- View how many trunks are being used at a given time
 - Looking to renew your services? Keeping an eye on trunk utilization lets you know whether you need more or less concurrent call paths, and gives you an idea of your busiest hours to advise for additional staffing needs.
- View which regular and toll free numbers are receiving the most traffic and when

THE MECHANICS OF SIP

Much like HTTP, SIP works in the application layer of the Open Systems Interconnection, or OSI. This protocol supports five parts of the initiation and termination of a voice call:

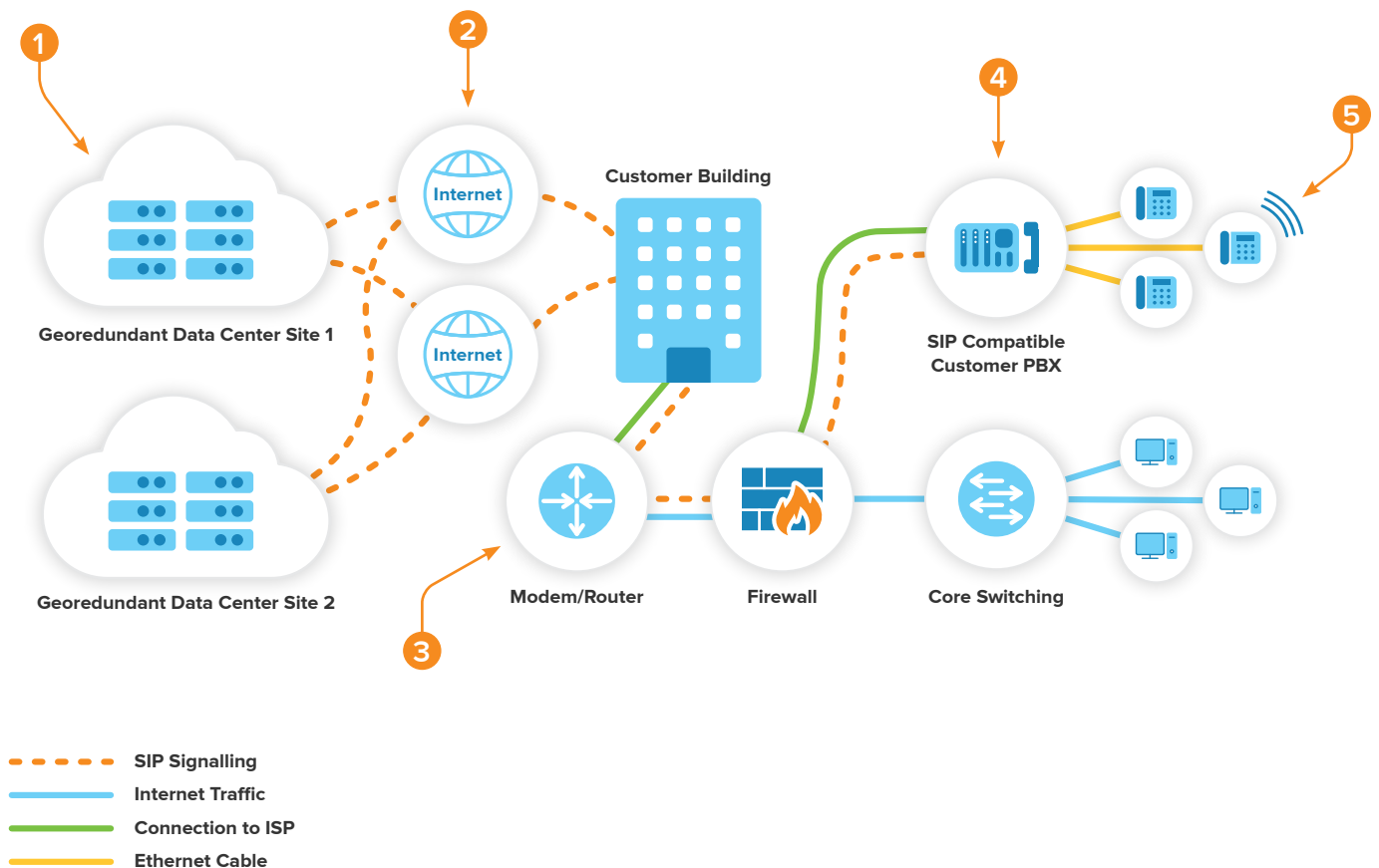
- 1 **User Location** - Determines where the end system is located
- 2 **User Availability** - Determines the willingness of the called party to engage in the communication
- 3 **User Capabilities** - Determines the media and parameters used in the communication (voice, video, messaging, etc.)
- 4 **Session Setup** - Establishes the session parameters from both participants
- 5 **Session Management** - Invokes transfers, terminations and modifications of parameters

SIP is based on a request/response transaction model, meaning that each communication session consists of a request that then invokes a function on the server and at least one response.



EXAMPLE NETWORK DIAGRAM

Depending on your organization's requirements (number of locations, redundancy needs and network configuration), your SIP solution is customized to maximize your system's functionality.



- 1 Call comes into our georedundant Data Centers and we route the call with our session border controller
- 2 Call is routed from our cloud over your internet connection
- 3 SIP signaling is routed through your modem and firewall
- 4 PBX routes the call to the appropriate phone
- 5 Phone rings

MAKING THE SWITCH TO SIP

IT'S TIME TO MAXIMIZE YOUR PHONE'S FUNCTIONALITY

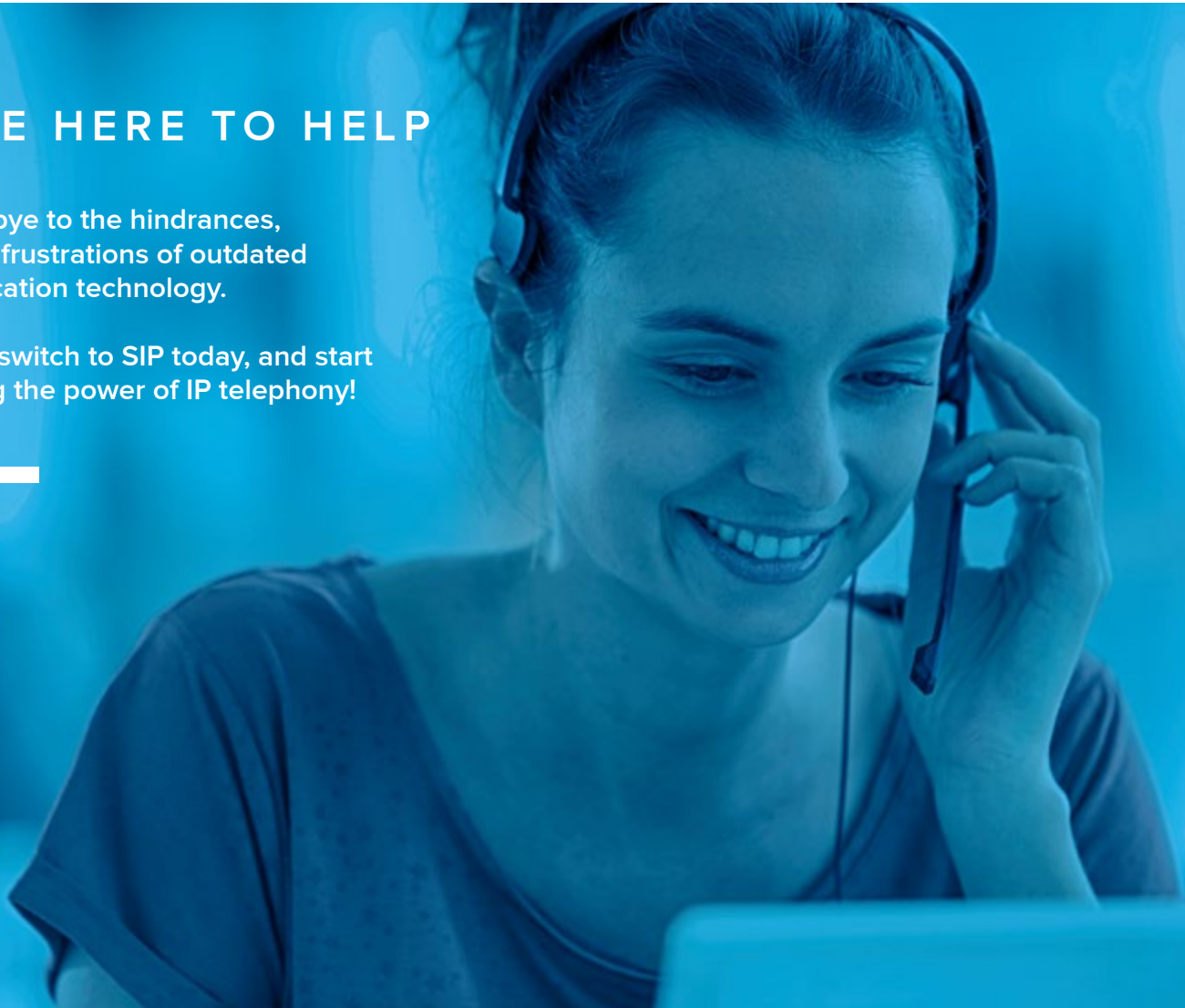
When you consider cost, functionality and capability, yesterday's traditional voice solutions can't contend with SIP Trunking. Allowing for a new wave of features and ease of use, SIP is the stand-alone solution for organizations that want to make the most of their PBX systems.

Get Started 

WE'RE HERE TO HELP

Say goodbye to the hindrances, costs and frustrations of outdated communication technology.

Make the switch to SIP today, and start leveraging the power of IP telephony!





TelNet Worldwide

When your technology isn't working for your business, your productivity, security and sanity suffers.

Too many businesses struggle with communication technology that's ineffective and frustrating.

We're changing that.

Our empowering, cloud-based solutions simplify the way you communicate and collaborate.

TELNETWW.COM
(800) 508-1254

TELNET WORLDWIDE, INC.
1175 W. LONG LAKE ROAD, SUITE 101
TROY, MICHIGAN 48098