

SIP

The Session Initiation Protocol For Enterprise SIP Solutions

A white paper by Siemens Communications

Enterprise Systems Division

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About this document

Introduction

The purpose of this document is to provide an overview of SIP – Session Initiation Protocol within the enterprise.

This paper summarizes where SIP has come from, how it works, and what makes it such a useful enabling protocol. It then describes how SIP is used in applications including telephony, conferencing and messaging, back office integration and how it is being extended to provide innovative services and accommodate the requirements of a real time IP communication.

From an application point of view SIP is continuing to develop rapidly and is innovative as we continue to envision all of its uses for home and business. This white paper is aimed at people who want to understand the concepts and drives behind SIP adoption and how it is evolving to support new enterprise business applications.

SIP is the Internet Engineering Task Force (IETF) approach to voice and video over IP. SIP is extremely flexible and can be adapted to a number of innovative solutions. SIP follows the Internet model and is the only protocol which supports multimedia applications for new business process applications. SIP comes from the application area (IT world) and not from communication area (telephony, video,...).

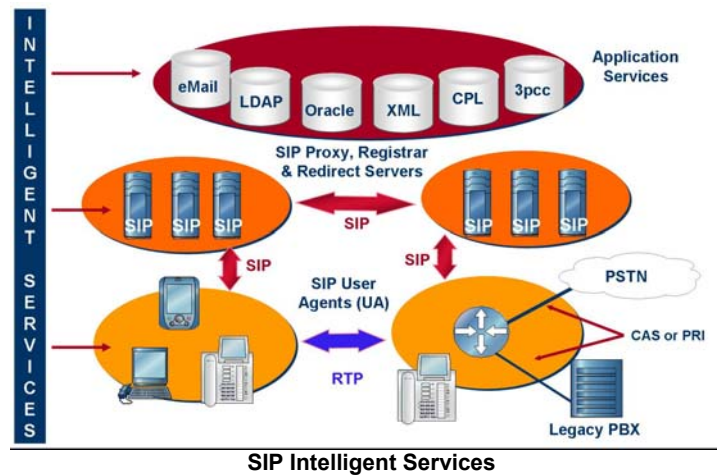
SIP allows the use of established protocols from other applications, such as HTTP and HTML. The easy integration of SIP is the most important reason why the above mentioned applications are possible. You can use SIP as an enabler because these tools are already defined, it's easier to add applications like instant messaging or web conferencing to SIP. The SIP capability integrates well within the data center and IT environments. Interfaces such as SOAP, XML and other standards, languages and interfaces allows the SIP based real time IP communication platforms to gather data and information from the data center's back office or IT applications, then imbed that information into a SIP call and send voice and data to an end user.

SIP is an open standard protocol that makes it easier to acquire correct SIP based clients within the market.

SIP is extremely flexible enabler and can be adapted to a number of innovative solutions

SIP allows the use of established protocols from other applications, such as HTTP and HTML

SIP is scalable, extensible, and fits comfortably into different architectures and deployment scenarios.



SIP was developed to serve as a mechanism to establish a wide variety of sessions. This simplicity means that SIP is scalable, extensible, and fits comfortably into different architectures and deployment scenarios.

SIP users may locate and contact one another—regardless of media content or number of participants—using disparate computers, phones, televisions, and hand-held devices.

SIP enables converged voice and multimedia services such as voice-enriched eCommerce, web page click-to-dial, instant messaging with buddy lists, and much more. SIP session management is the key to enabling IP-based natural communications between people, not devices. By using SIP, users may locate and contact one another—regardless of media content or number of participants—using disparate computers, phones, televisions, and hand-held devices.

SIP based applications accelerate business performance by automating and orchestrating processes across total enterprises.

SIP enables enterprises to quickly adapt to change and create new business models reducing time to market for new applications. New business opportunities and added customer value are created easily by exposing services to SIP multimedia services and business workflow. SIP based applications accelerate business performance by automating and orchestrating processes across total enterprises.

Enterprise users can collaborate more flexibly and cost-effectively with business and trading partners.

Enterprise users can collaborate more flexibly and cost-effectively with business and trading partners. SIP access can revitalize existing applications for use within new, powerful, and integrated business solutions maximizing ROI and TCO for legacy applications by integrating SIP information with legacy. Enterprises can bridge the gap between client-facing and infrastructure development teams using SIP multimedia services and business workflow. SIP provides a standard-based solution to software development or integration efforts, "future proofing" IT investments. SIP also reduces cost, effort and risk associated with merger and acquisition activity.

Siemens Communications' business strategy (Siemens Com)

Our strategy has a clear objective: sustainable for our customers. We strive to offer our customers the best products, best service at the best price and with quickest implementation. That means continuing to strengthen our customer orientation, drive innovation at all levels and bolster our position through partnerships. By doing so, we will ensure our sustainable profitability and global competitiveness.

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1. What is SIP (Session Initiation Protocol)?

1.1 Basic introduction

SIP session management is the key to enabling IP-based natural communications between people, not devices.

SIP enables converged voice and multimedia services such as voice-enriched eCommerce, Web page click-to-dial, instant messaging with buddy lists, and much more. SIP session management is the key to enabling IP-based natural communications between people, not devices. By using SIP, users may locate and contact one another—regardless of media content or number of participants—using disparate computers, phones, televisions, and hand-held devices.

SIP is scalable, extensible, and fits comfortably into different architectures and deployment scenarios

SIP was developed to serve as a mechanism to establish a wide variety of sessions. This simplicity means that SIP is scalable, extensible, and fits comfortably into different architectures and deployment scenarios.

SIP is a Web protocol standardized by the Internet Engineering Task Force (IETF). It's similar to the two major Internet protocols—HTTP (World Wide Web) and SMTP (e-mail)—in that it uses symbolic addresses to represent people who wish to communicate.

LifeWorks© creates a unified domain across both carrier and enterprise market segments and lifts the artificial boundaries imposed by today's technologies.

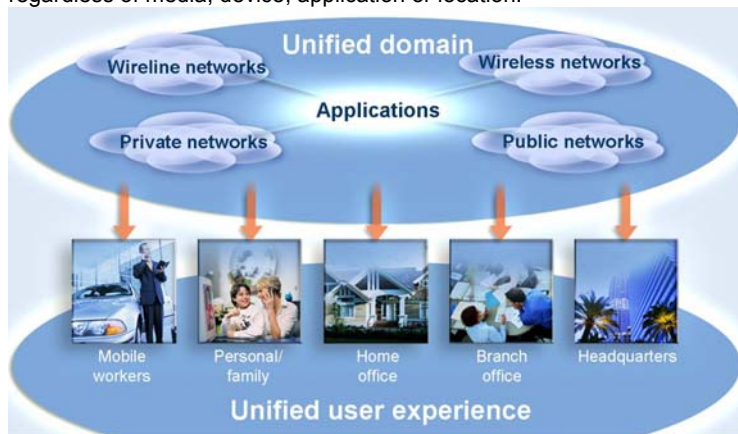
1.2 Siemens LifeWorks© concept

The core of the LifeWorks concept is the integration of home, business and carrier networks as well as wired and wireless networks. By integrating communications among home offices, small offices, branch offices, regional offices, and headquarters, including Centrex-type solutions, the Siemens' solution thus creates a unified domain across both carrier and enterprise market segments and lifts the artificial boundaries imposed by today's technologies. The result is an integrated user experience regardless of location or device.

LifeWorks is Siemens' concept for a new unrestricted way of communicating, with a common user experience across different networks, locations and communications media.

LifeWorks is unique because it breaks away from the communications dilemma by synchronizing, integrating and managing communications regardless of media, device, application or location.

LifeWorks synchronizes, integrates and manages communications regardless of media, device, application or location



LifeWorks is a concept for the future of communication

- To make communications simpler and more productive
- In both our business and personal lives, in any location

LifeWorks is a guideline for our strategy

- Governs Siemens product and go-to-market decisions

LifeWorks is a blueprint for our offerings

- To create a unified user experience
- Over a unified network and applications domain
- To meet the needs of individuals, enterprises and service providers

LifeWorks provides a smooth migration to multi-media capabilities. SIP enables the LifeWorks concept to become a reality.

1.3 Why is SIP important?

SIP is to converged communication what HTTP is to information exchange for the World Wide Web (WWW).

SIP is an important enabler of converged communications with the emphasis on the end user capabilities and end user control. SIP is to converged communication what HTTP is to information exchange for the World Wide Web (WWW). The communication infrastructure is transparent to the end users and enables ready access to many modes of communication.

Industry analysts estimate that approximately half of business workers are mobile at any given time.

People are working in different ways today. We are no longer isolated teams within the walls of a corporate facility; we are communities of individuals – employees, contractors, partners and others – working together toward a common goal.

The enterprise is a boundariless collection of individuals

And, we're increasingly mobile; sometimes we work from an office, sometimes from home and sometimes from the road. Industry analysts estimate that approximately half of business workers are mobile at any given time, and that figure is growing daily.

In response to this increasingly mobile society, an entire industry has sprung up to produce products and services designed to keep us all connected.

By looking at the enterprise as a boundariless collection of individuals who sometimes work in the office, sometimes work at home and sometimes work on the road, we begin to recognize the fundamental challenges that have limited the potential of real, productivity-boosting breakthroughs.

SIP is the protocol that facilitates convergence at the application level.

In response to this increasingly mobile society, an entire industry has sprung up to produce products and services designed to keep us all connected. Just think how many different devices you use daily to stay connected – PC, cell phone, office phone, home phone, PDA, internet connection ... and the list goes on.

These devices serve a great need, especially as the line between home and work has become blurred. But while our business and personal lives have grown increasingly integrated, our communications methods remain overwhelmingly fragmented and isolated.

Think how many different ways you might try to track down a coworker for an urgent meeting or call and consider how much effort is expended in the process. Multiply that extra effort across an enterprise, couple it with the glut of information each person must move through daily and you begin to see the productivity challenge.

SIP is an Internet-based model

Enterprise productivity imperatives are driving a significant demand for fundamentally improved, productivity-boosting applications and services. The capabilities used in SIP communications in conjunction with other applications become powerful and can be used to implement a variety of features. SIP is the protocol that facilitates convergence at the application level. It treats all media types in the same way and is supported on wireline and wireless networks. This makes it possible to develop multi-media applications having a consistent user experience on a wide range of devices and networks.

SIP versus H.323

H.323 uses a telephony-based model

There is a fundamental difference between SIP and H.323. H.323 uses a telephony-based model, while SIP is an Internet-based model in its core design and re-uses many Internet components used by other popular Internet applications such as Email and the World Wide Web.

Various standards organizations have considered signaling for voice and video over IP from different approaches. Two of the primary standards in use today are H.323 and SIP. The International Telecommunications Union (ITU) established H.323 as the first communications protocol for real time multimedia communication over IP. SIP is the Internet Engineering

Task Force (IETF) approach to voice and video over IP.

SIP takes a more Internet-oriented approach toward IT Integration

Both SIP and H.323 are here to stay. Both protocols offer strengths and weaknesses. SIP is extremely flexible and can be adapted to a number of implementations. SIP allows for the use of established protocols from other applications, such as HTTP and HTML to become extremely flexible and more flexible than H.323. Because these tools are already defined, it's easier to add applications like instant messaging or web conferencing to SIP. For developers, SIP allows use of a variety of existing building blocks for applications that interoperate with other Internet and back office applications.

H.323 takes a more telecommunications-oriented approach to voice/video over IP

Furthermore, H.323 is an umbrella standard that provides a well defined system architecture and implementation guidelines that cover the entire call set-up, call control, and the media used in the call. Whereas H.323 takes a more telecommunications-oriented approach to voice/video over IP, SIP takes an Internet-oriented approach. SIP is not as strictly defined as a complete system as H.323. Many aspects of the SIP architecture are left open to interpretation. SIP is a text-based protocol that was designed to work hand in hand with other core Internet protocols such as HTTP. Many functions in a SIP-based network rely upon complementary protocols, including IP.

The different entities that make up an H.323 network include gateways, terminals, and conferencing bridges, along with a gatekeeper. The H.323 architecture is peer-to-peer, supporting user-to-user communications without a centralized controlling entity.

SIP entities include user agents that may operate as a workpoint client or server, depending on the role in any particular call. A SIP architecture requires a proxy server to route calls to other entities and a registrar. All other servers and parts of the network are undefined and not mandatory for every call.

H.323 and SIP accommodation must be made to allow interworking between the two protocols

Interworking Scenarios

Both protocols have been widely deployed, so interworking between SIP and H.323 is essential to ensure full end-to-end connectivity. Because of the inherent differences between H.323 and SIP, accommodation must be made to allow interworking between the two protocols.

In the simplest scenario where both protocols are used within the same administrative domain, call set-up messages must be translated, then RTP can be used for communication directly between a SIP phone and an H.323 phone. In this scenario, the H.323 gatekeeper and the SIP registrar perform analogous functions and share the same database, so it's easy to find addresses.

2. What is possible with SIP?

H.323 is coming from the communication world.

End-to-End solutions

From its inception, SIP was modeled closely after HTTP. Like HTTP, it was designed to work over IP networks. Also like HTTP, it significantly lowered the barriers to developing and deploying rich, innovative services by moving control of applications to the endpoints such as telephone handsets, mobile devices, and personal computers.

SIP is coming from the Internet world and is very connected to the Internet Session protocol

One of the most powerful concepts of the Internet is the fact that applications can operate between a web server and a browser with no dependence on the underlying IP network. The same is true for SIP-based sessions (a session begins when you connect with other parties and ends when connections are terminated).

This is in direct contrast to the model for service control in the traditional circuit-switched telecom world, where endpoints like phones lack call control capabilities and all services are controlled by a central switching element.

Over time, SIP enables a host of new services and capabilities that provide easy, personalized communications and excellent cost efficiency. Complete control is in the hands of each user. You can create your own individual profiles to instruct communications networks on your preferences for how and where you can be reached, by whom, and when. For example, dialing your phone number reaches you wherever you are in the world on whichever means of communication is available to you at the time (cell phone, PDA, PC, tablet, or even a wearable communicator). Different rules can be set for the system to find you inside, or outside office hours, and you can set different options for each person on your buddy list, such as your spouse.

Setting up a conference call is as simple as programming your SIP device to recognize when all of your selected buddies are available to talk to you, and the call is dialed automatically. Voice recognition means that you don't have to use a keyboard or numeric pad for any of these steps. If you're on a video conference at your desk and have to leave early, you can transfer the video conference to your wireless PDA to continue participating while you are in transit.

Go anywhere in the world and access all of the services you get at home. You will be in complete control.

Location-based services, such as making dinner reservations while on holidays, are available, and you can program your profile to alert you in your office when your plane lands. Your personal profile tells the hotel what newspaper you normally have – you can change this on the fly and from country to country. You may be renting a car, in which case the PDA slots into the dash and becomes your navigation tool – it knows where you are going and uses local map and travel info to guide you there. When you get into your hotel room you will have a broadband connection via either your 3G handset/PDA or the high-speed connection at the desk. You can choose which form of connectivity to use based on cost and/or convenience. "Presence" is an inherent feature of SIP-based systems, allowing the system to recognize your location and availability, routing communications to the right locations and devices as your schedule changes. And all this is globally interoperable – you can go anywhere in the world and access all of the services you get at home. You are in complete control.

Download new capabilities as software becomes available.

Once you have put SIP at the core of your communications network, all of these capabilities become possible for you without changing your base equipment, you simply download new capabilities as software becomes available.

SIP offers a gradual migration

SIP offers a gradual migration that is essential for an enterprise's solutions to become evolutionary enough to accommodate existing infrastructures and investments, while at the same time provide a new foundation for deployment of new applications and services.

Campus: Mobile communications within the enterprise and on a global basis can be fully supported with SIP. Wireless 802.11b/g LANs, or other wireless IP networking, can support rich communications from the laptop PC, portable phones, hand-held computers, and other mobile appliances. Full conferencing as well as private session Instant Messaging and video communications can potentially be supported during meetings on the campus and between campuses.

A combination of mobile IP and SIP mobility can provide mobility at the network level as well as personal mobility when changing devices - moving from PC/laptop to palmtop or SIP phone while maintaining services, such as the dialing plan and directory, and also personal user preferences on how to place calls and how/where to receive calls from what parties at what times and locations.

Telecommuting: Employees working from home, on the road or a telecommuting site can enjoy the full communication features available in the office, depending on access bandwidth to the Internet. Secure access to the enterprise network makes use of VPN and/or SIP-enabled firewall thus the SIP phones at home can have the same dialing plan and other services as in the office.

Dial-up: Traveling employees can use the global Internet access facilities of Multi-national service providers along with laptop-based VPN clients to access the SIP facilities of their home enterprise network while on the road. Narrow band codecs such as G.723.1 support phone calls over dial-up lines from hotel rooms, thus avoiding high international hotel telephone charges. Narrowband Presence and Instant Messaging can also be used over dial-up connections.

Wireless LAN: Wireless 802.11b/g and emerging 802.11a "hot points" in locations such as airline lounges, hotels and convention centers equipped with wireless LANs can support the full range of IP communications for roaming employees equipped with VPN and SIP devices. Support of SIP in mobile appliances enables user access to IP communications for secured end-to-end solutions using personal devices as well.

3G Mobile Networks: The adoption of SIP by 3GPP mobile operators allows seamless IP communications in countries where 3G wireless is deployed. 3GPP engineers are participating in the SIP, SIPPING, SIMPLE and other IETF working groups work to maximize the interoperability of IP communications with these emerging 3GPP services. Various mobile devices for 3G networks have feature SIP User Agents for real-time communications and interworking with non-3GPP devices and services.

“One number dialing”

A proxy or redirect server can be used to allow a user to publish a single SIP address that the server then routes or redirects to where-ever the user happens to be.

A SIP proxy server can be stateful (services dictate statefulness of the proxy) or stateless (stateless proxies geared for capacity), it is flexible and is used for network service implementations. The reliability is achieved through replication. Scalability is achieved through partitioning but has overload potential if not properly scaled. A hybrid (semi-stateful) model provides maximum benefits for the network.

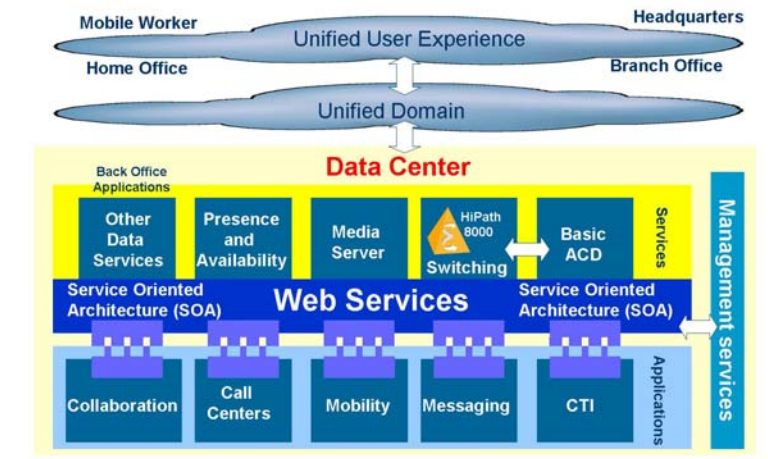
A SIP redirect server accepts SIP requests, map the address into new addresses, and return these addresses to the workpoint client. It does not initiate requests, accept calls and provides a lower state overhead required than proxy servers. The SIP redirect server has a high processing capacity due to fewer messages to process and the services are workpoint client device dependent.

Control over services is moved out to the endpoints

In the traditional telecom environment, centralized switching elements control voice and other services, which significantly increase the time and cost required to build new services. By moving service control out to the endpoints (such as SIP-based mobile phones or PC workpoint clients), SIP eliminates the need for a central switching element. Because of this, it promises to bring the low development costs and fast development cycles of Web-based services to real-time communications.

HiPath 8000 real time IP system is a Web Services Communications Architecture.

The Siemens HiPath 8000 real time IP system is a Web Services Communications Architecture. It integrates well within the data center and IT environments. It provides a new model for creating SIP communication workflow from a data center. You do not need to totally develop new applications. Web Services Communications Architecture allows integrators to pull specific information from existing applications to create new business communications SIP workflow applications.



Quickly adapt to change, create new business models and reduce time to market for new applications

The Siemens real time IP system HiPath 8000 web services communications architecture allows enterprises to quickly adapt to change, create new business models and reduce time to market for new applications. Enterprises can create new business opportunities and added customer value, by exposing services to SIP multimedia services and business workflow, This approach accelerates business performance by automating and orchestrating processes across enterprises. This opens up collaboration with more flexibly and cost-effectively with business and trading partners.

3. What is Siemens Communication Enterprise doing with SIP Tomorrow?

Applications

Enhanced functionality via applications

The SIP model focuses on the intelligent edge device. The SIP client becomes the desktop portal. Furthermore, future applications and services can easily be delivered across the enterprise, enhancing the user experience. Facilities like Presence and Instant Messaging is the basis for a new breed of different business workflows.

Application examples:

- IP Unity: providing SIP based, highly scalable auto attendant, voice mail, unified messaging service, audio/web conferencing
- HiPath Xpressions: SIP based IP-unified messaging application that unites voice, fax and e-mail into a single mailbox that can be accessed easily from any PC or touch-tone phone.
- Call Center/Contact Center: HiPath ProCenter Advanced Suite was created specifically to help you integrate new media into your contact center operation so you can speak to customers with one voice, and deliver a uniform quality of service whether they contact you by phone, fax, email, web or WAP.
- HiPath ComAssistant: is a new innovative product which offers both presence routing and CTI functionality
- HiPath SimplyPhone: is a personal productivity application that integrates harmoniously with groupware and web clients allowing the end user to click and dial from the Global Address Book, personal address list or any LDAP compatible directory.
- HiPath ComResponse: is a web-based voice application engine that translates web pages to voice, making available web page content to users (i.e. employees or customers) via the telephone.
- HiPath CorporateConnect: is a robust enterprise mobility solution designed specifically for large global enterprises with mobile work-

forces—from highly mobile, global sales teams to on-campus, nomadic IT employees. HiPath CorporateConnect enables workers to have only one telephone or voice-enabled PDA, one telephone number, and one voicemail box for all their calls—regardless of location.

- o HiPath DeskSharing: package includes licensing for both desk-sharing and advanced teleworkers.
- o HiPath Teleworking: is the ideal solution for fast-track companies who recognize the importance and value in supporting a remote or home workforce.

Extracts information from communication devices and other applications to establish whether a person is present on the network and available on a particular communication device.

Presence

HiPath OpenScape and the HiPath 8000 will provide presence capabilities. The presence component is a communication service that extracts information from communication devices and other applications to establish whether a person is present on the network and available on a particular communication device. This information can then be used by other applications to intelligently route communication requests to users.

SIP provides the user presence benefits

- Their current status (online or offline),
- Their availability (on the phone, away at lunch, in a meeting, etc.),
- And how they wish to be contacted (Instant Messaging, cell phone, office phone, etc.).

For the caller, Enterprise-grade presence means fewer wasted calls, reduced frustration and greater productivity. And for the party called, it means shorter queues of email and voice mail messages, greater accessibility—and greater productivity.

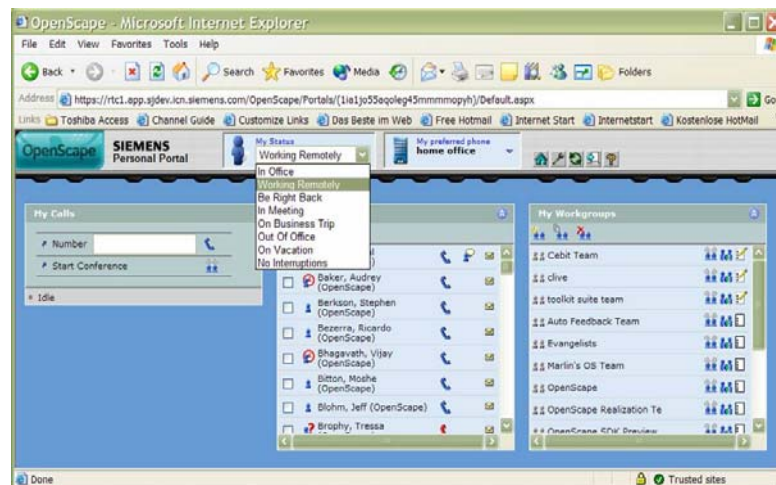
Provides users with consolidated access to all enterprise communication resources

HiPath OpenScape (application for collaboration)

HiPath OpenScape is a SIP-based, open application that provides users with consolidated access to all enterprise communication resources integrated in Microsoft applications, including voice features and services, e-mail instant messaging (IM), and multi-resource collaboration. The HiPath OpenScape solution takes unified communications to the next level, offering intelligent, real-time, presence-based access to people, calendars, and files.

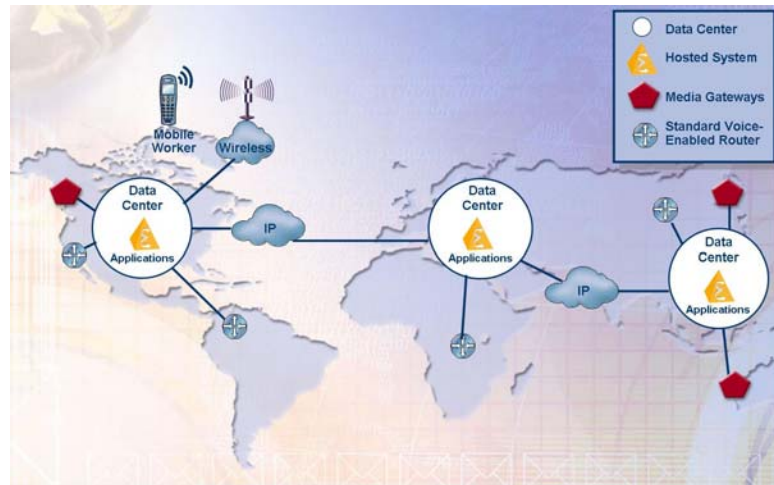
Addresses the daily information overload

HiPath OpenScape addresses the daily information overload by providing consolidated access to multiple communication sources. It provides a single point of access via different user interfaces for many sources such as PCs, cell phones, and PDA type palmtops and for applications such as e-mail, instant messaging, electronic documents, and conferencing through personal portals.



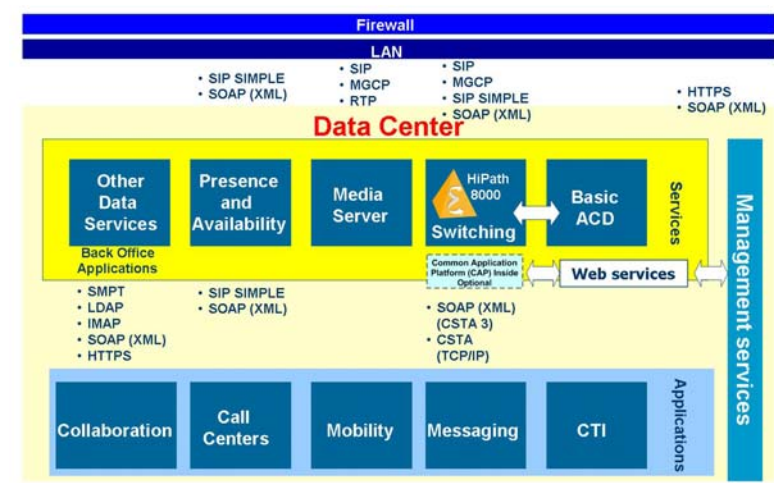
Siemens real time IP system HiPath 8000

HiPath 8000 is our offering to integrate communication Services into the IT World.



Highly scalable, SIP based, data center hosted model

HiPath 8000 provides real-time IP Communications for the very large organizations operating in a data center model. HiPath 8000 provides a highly scalable, SIP based, data center hosted model that reliably and seamlessly integrates with IT applications that is more flexible and scalable than current IP-PBX systems. At the same time, we embrace the reality that most businesses will evolve to this model over time, and the HiPath 8000 enables them to evolve into this environment at their own pace with solid investment protection.



HiPath 8000 web services communications architecture provides open interfaces to access the web based world of SIP.

- According to a study from InfoTech Hosted IP Telephony Service reduces the costs of:
 - Moves, adds and changes by 37%
 - Toll charges by 23%
 - Maintenance costs by 10%
 - Voice communication staff by 30%

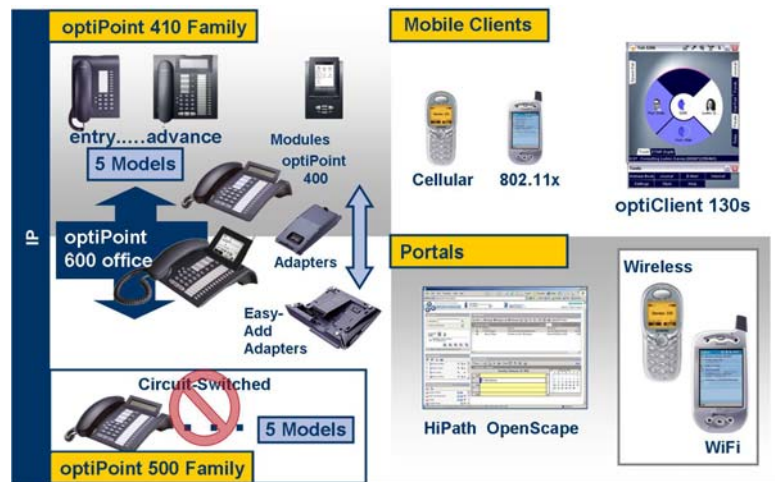
HiPath 8000 architecture benefits:

- Centralization and IT integration drive operational costs down (OPEX) 20-30%
- Open architecture leads to more competition and more choices for the customer (CAPEX)

- Nonstop operation
- Smooth evolution path with investment protection and low risk
- Advanced 2gIP services improve productivity and reduce expenses
 - Multi-modal, Presence, Instant Messaging, Collaboration Applications
- Consistent end user experience everywhere
- Multi-vendor environments
 - Interoperability with other PBXs
 - Third Party PBXs as Gateways

Clients & Devices

The phone provides a rich set of features supporting business communication in a fast and convenient way, e.g. Call Transfer, Call Waiting, Call Hold, Call Forwarding and Conferencing.



IP phone *optiPoint 400 standard SIP*

A SIP of Voice in your IP network
 optiPoint 400 standard SIP uses the Session Initiation Protocol (SIP) for connections to VoIP communication systems. You can use the IP workstation client in the same way as you would use a normal telephone - the only difference being that you're making it via a data network. The optiPoint 400 standard SIP is equipped with a 10/100 Mbit/s mini switch. The PC workstation can be directly connected to the LAN via the mini switch - and you have only one wire to the desktop.

Benefits:

- The interactive user interface optiGuide offers the maximum in user friendliness.
- No additional cabling needed for optiPoint 400 standard SIP. The PC can be directly connected to the LAN over the integrated 10/100 Mbit/s mini switch.
- Easy and convenient administration using standard DHCP, SNMP, and HTTP protocols.
- Software updates and expansion of the features using FTP.
- Easy workstation relocation.

IP/TDM client *optiPoint 600 office SIP*

This high end IP phone with the large display supporting SIP.

Special digital signal processors (DSP) and acoustic algorithms (echo cancellation) maintain excellent voice quality at all times, even during hands free operation and open listening. QoS protocols are used on both the Ethernet and IP levels, guaranteeing voice quality in the LAN environment. In addition, voice packets of the optiPoint 600 office SIP can be assigned priority which

High end IP phone with the large display supporting SIP

ensures that they receive preference over data packets as they are transported across the LAN.

An integrated two-port Ethernet switch allows for the connection of a workstation PC to the LAN via the optiPoint 600 office SIP. This provides significant cost savings in the area of in house cabling and IP network infrastructure.

Benefits at a Glance

- o Compatible and flexible SIP phone supporting both standard SIP implementation as well as Siemens and 3.rd party SIP server feature enhancements
- o Extra-large back-lit display with touch screen functionality, graphics capability
- o Local electronic notebook allows for fast, convenient access to personal contact details
- o Access to corporate directories via standard LDAP protocol
- o Access to business-related information in WML format
- o Quality of Service (QoS) provides excellent LAN voice quality
- o Integrated 10/100 Mbps mini-switch enables the direct connection of a PC workstation to the LAN
- o Central power supply over the LAN based on the 802.3 af pre-standard
- o Software updates and feature extensions via FTP
- o Easy relocation as the telephone automatically registers with the system following connection to the LAN

optiPoint 410 SIP

The high performance phones that make up the optiPoint 410 family of SIP workpoint clients are the ideal solution for dynamic companies with mobile users that demand one thing from their phones above all others – flexibility. Thanks to new, innovative technology for the automatic transfer of key presets, they are ideally suited to desk-sharing environments. It means that, as soon as they log on, a user always has their own presets at their fingertips.

Highly modern and flexible SIP-IP phones

With the new optiPoint 410 family, Siemens is offering a series of highly modern and flexible SIP-IP phones that can be modified to suit all requirements including high voice quality G.722 broadband codec technology . Special features of the optiPoint 420 family include the high voice quality G.722 broadband codec technology as well and self labeling keys.

optiClient 130 s (SIP)

PC telephony offers many benefits - optiClient offers them all. The absence of a phone means that you lose no valuable desk top space, and you are free to work everywhere – whether you're in the office or on the road - using the same familiar interface. It's completely straightforward to enter or retrieve data on the PC while making a call.

PC Client

4. Unique Selling Points

- o Easy and quickly adoption to change and create new business models because SIP is web based and provides a faster development cycle.
- o Reduce time to market for new applications by leveraging legacy applications that are accessible via SIP standards and protocols.
- o Enables new business opportunities and added customer value, by exposing services to SIP multimedia services and business workflow by extracting information from communication devices and other applications to establish whether a person is present on the network and available on a particular communication device.
- o Accelerate business performance by automating and orchestrating processes across enterprises by leveraging new SIP based applications as HiPath OpenScape, HiPath ComAssistant and other appli-

- o cations
- o Collaborate more flexibly and cost-effectively with business and trading partners using presence
- o SIP access can revitalize existing applications for use within new, powerful, and integrated business solutions maximizing ROI and TCO for legacy applications by integrating SIP information with legacy applications via web services leveraging applications enterprise-wide. Future integration with current service orient architectures and web services initiatives.
- o Bridge the gap between client-facing and infrastructure development teams using SIP multimedia services and business workflow. Providing users with consolidated access to all enterprise communication resources to address the daily information overload.
- o Provide a standards-based solution to software development or integration efforts, "future proofing" your IT investment. Data Services as back office applications using via industry standard protocols and languages as SMPT, LDAP, IMAP, SOAP (XML), HTTPS, XML, POP and Voice XML interface well with real time IP systems and applications using Presence and Availability, SIP SIMPLE, SOAP (XML), Directory – LDAP, Buddy List – LDAP.
- o Reduce cost, effort and risk associated with merger and acquisition activity. SIP provides open industry standard interfaces to integrate and leverage existing communication platforms and applications.

5. SIP Value Proposition

SIP enables a host of new services and capabilities that provide easy, personalized communications with complete control in the hands of each user exercising excellent cost efficiency.

6. Customer benefits

Checking buddy lists

Mobility and personalized communications

As instant messaging has become more and more popular, the concept of "presence" has entered into our personal communications. People are accustomed to checking their buddy lists to see if someone is available to chat. SIP pushes the concept into other media such as voice and video, allowing users to view and act upon real-time information about other users' status in the network before attempting to contact them. People can even be available for one media such as instant messaging while engaged in a session involving another media such as voice, a common occurrence when someone is on a conference call.

Set personal configurations to control how, when, and by whom they are contacted

Personalized communications model

It's a truly personalized communications model. Using SIP, it is possible to create a network-based agent to act on the behalf of a person 24 hours a day, 365 days a year. Users simply set personal configurations to control how, when, and by whom they are contacted, using a combination of automatic "find-me, follow-me" and call screening to control their time while assuring availability to important callers. Internet workpoint clients, wireless, and landline phones can all be easily included in a custom communications mix.

Users can set their own status for times when they are away, busy, inactive, or temporarily unavailable.

Personal status settings

If a person places a cellular phone in "meeting mode" to prevent disturbing an ongoing meeting, this information could be conveyed to the network and used to adjust parameters in the SIP domain. Users can set their own status for times when they are away, busy, inactive, or temporarily unavailable. Presence status can even be updated automatically, such as when a user's

PC is inactive for a period of time or when the user is on the phone.

Location ceases to matter, as telecommunications follow a mobile workforce everywhere and are filtered to minimize interruptions while keeping people in touch with those who matter most. In a personal communications context, similar benefits exist for the soccer mom or the active teenager.

Productivity and information interactions

- **Address books and contact lists:** A personal address book can provide a network-based directory of addresses that a user can edit and access from any workpoint client. A change, addition, or deletion of an address book entry or buddy list made with one workpoint client automatically updates information in all other workpoint clients. So if a user updates a contact's information on a PDA, that change would be reflected on the user's PC as well as all other workpoint clients.
- **Software integration:** Most SIP-centric services can be integrated with existing office productivity applications, allowing contacts and other common information to be shared. XML extensions to back office applications create SIP workflow applications simply.
- **Data stream delivery:** Data such as stock quotes can be sent at regular intervals, directly to the display of various workpoint clients. Web services are easily integrated with SIP to deliver real-time information updates on virtually any subject business or personal.

7. Summary

SIP is one of the most powerful concepts of the Internet

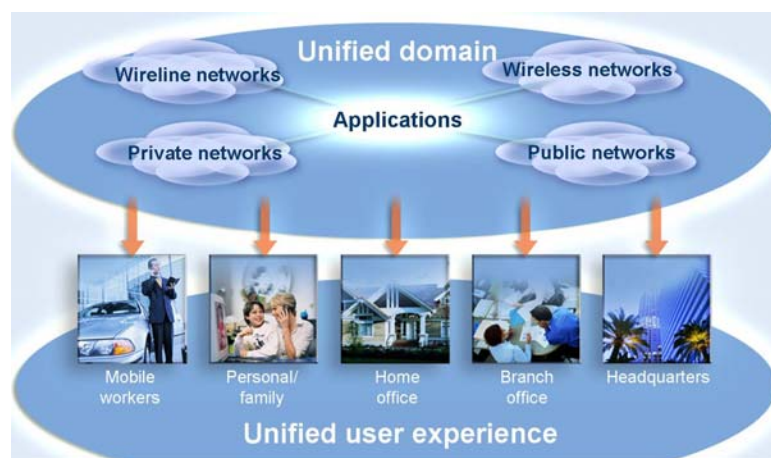
LifeWorks creates a unified domain across both carrier and enterprise market segments and lifts the artificial boundaries imposed by today's technologies.

SIP is in direct contrast to the model for service control in the traditional circuit-switched telecom world, where endpoints like clients lack call control capabilities and all services are controlled by a central switching element.

SIP is one of the most powerful concepts of the Internet is the fact that applications can operate between a web server and a browser with no dependence on the underlying IP network. The same is true for SIP-based sessions (a session begins when you connect with other parties and ends when connections are terminated). SIP enables a host of new services and capabilities that provides easy, personalized communications and excellent cost efficiency. Real time communication applications are dependence on QoS.

LifeWorks concept

The core of the LifeWorks concept is the integration of home, business and carrier networks as well as wired and wireless networks. By integrating communications among home offices, small offices, branch offices, regional offices, and headquarters, including Centrex-type solutions, the Siemens' solution thus creates a unified domain across both carrier and enterprise market segments and lifts the artificial boundaries imposed by today's technologies. The result is an integrated user experience regardless of location or device.



LifeWorks provides a smooth migration to multi-media capabilities.

SIP enables the LifeWorks concept to become a reality.

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