



hp

Voice over Internet Protocol (VoIP)
solutions portfolio

Building the bridge to IP everywhere



HP is the only company that maintains expertise in telecom core network and edge technologies, enterprise computing and consumer access.

HP VoIP market overview

Historically, telecom services have been developed over many years, deployed and launched at a cost of millions of dollars, and used for decades before replacement. Today, the service paradigm has changed, with service providers looking to quickly and cost-effectively deliver services that capitalize on an immediate subscriber need. Service providers are attempting to address this market by transitioning their service philosophy to be more closely aligned with the IT industry's philosophy, which relies on open architectures and industry standards to deliver services offering tremendous price/performance advantages, rapid time to market with new services, and open access to third party developers. Successful service providers will combine this IT philosophy, based on IP, with telecom quality of service (QoS) standards and service availability, scalability and performance.

Industry experts project that by 2005, one out of five phone calls will start or end on a packet-based device. In recent years, Voice over Internet Protocol (VoIP) standards have become more standardized. Service quality has progressed and become comparable to traditional public-switched telephone networks (PSTNs), while quality features have been developed to bring VoIP features into alignment with traditional voice features. The improvement in VoIP quality and features has accelerated its adoption by service providers and enterprise customers who wish to transition their network to an Internet protocol (IP) core that will allow them to better develop, deploy and manage voice, data and multimedia services.

Despite its clear advantages, the transition to IP-based infrastructure and services is complex. The key for service providers is building an effective bridge between legacy switching and signaling networks and IP. To successfully link traditional switching networks and IP, carriers must connect existing complex and proprietary infrastructures

and services to new ones based on open industry standards; all at a reasonable price. HP provides this bridge, leveraging years of experience and expertise in both telecom and IT, to deliver turnkey VoIP solutions.

Introduction

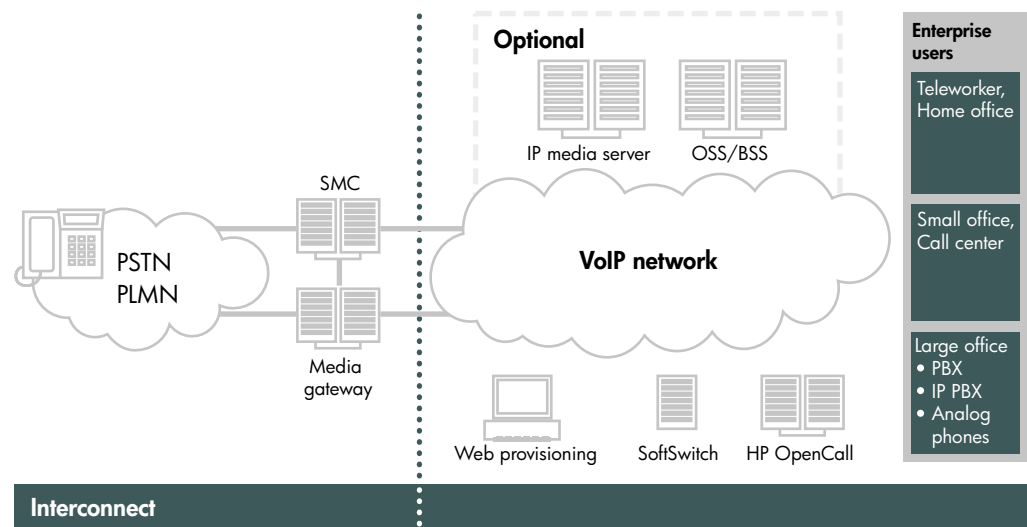
Combining simple and innovative services for which customers are willing to pay is the key to revenue generation. HP helps service providers identify these meaningful services and provides the software needed to implement them. Today, HP is building the bridge to IP with 200 of the world's top service providers in diverse communications industries such as the cable industry and content distribution and delivery. In addition, HP partners with the world's most recognized network equipment providers and independent software vendors (ISVs) such as Cisco, NetCentrex, and Atos Origin to deliver powerful industry-standard services with the best return on technology investment.

HP is the only company that maintains expertise in telecom core network and edge technologies, enterprise computing and consumer access. This gives HP the unique ability to help network and service providers grow profitability and find sources of new revenue. HP's bridge to IP is built on a commitment to combine our proven communications experience with our equally strong IT experience and understanding of communications industry standards.

VoIP Solution Overview

Based on proven HP OpenCall signaling and service control platforms and best-in-class partners, HP delivers end-to-end prepackaged VoIP solutions that can be customized by HP professional services and are supported by HP telecom support. The HP VoIP portfolio allows service providers to quickly and efficiently build a VoIP network with a portfolio that addresses the convergence of voice, data and multimedia networks. Service providers realize cost savings through consolidation, improve infrastructure interoperability and open up the network, enabling the creation of innovative bundled services.

The robust HP portfolio includes solutions for international long-distance carriers that want an interconnect solution to carry calls between VoIP and PSTN networks; ISPs and cable operators that want to deliver VoIP virtual private network (VPN) and IP Centrex to connect corporate and residential customers; and service providers looking to deliver end-user services such as freephone and prepaid calling cards.



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HP VPN and IP Centrex VoIP solutions

HP VPN and IP Centrex—HP delivers a proven VPN and IP Centrex solution, which allows service providers to consolidate voice, data and multimedia communications on a packet-switched IP infrastructure, and extend these packet-based services to lucrative corporate customers. In effect, the solution allows service providers to be a service bureau for a corporate customer's voice, data and multimedia transmission needs.

Successfully deployed worldwide, HP's solution is based on the NetCentrex Call Control Server Softswitch, Atos Origin Virtual Private Network (VPN), Atos Origin IP Centrex and Web-based provisioning, HP OpenCall Service Platform (Service Execution Platform and Service Management Platform), HP hardware, and HP services.

Key features:

- Private numbering plan
- Full translation that allows a phone not belonging to the IP network to be a VPN end-user
- On-net to on-net calling
- On-net to off-net calling
- Forced on-net calling
- Virtual terminal calling

- Gateway routing that allows interconnection with PSTN gateways and other VoIP gatekeepers
- Outgoing call screening based on calendars
- Direct inward dialing (DID), direct outward dialing (DOD), caller ID (identifier), calling line identification restriction (CLIR), call screening
- Call forwarding, call pickup, call rejection, boss-secretary features, last number redial
- Voice announcements played by integrated voice responders
- Remote access to and from a location outside of the VPN-IP Centrex
- Number presentation
- Call limiter restricting the number of simultaneous calls per VPN-IP Centrex based on type of call and calendar



Provisioning

- Centralized Oracle® database
- Database synchronization, data propagation
- Centralized dial plan and consistency check
- Service activation (off-line configuration)
- Simultaneous access
- Multiple user profiles
- Apache Web application
- Call detail record (CDR) collection, formatting, files repository

Service

- Digit manipulations on called and calling number
- Command line interface (CLI) screening with white/black list
- Least-cost routing—source and test, time of day (TOD), day of week (DOW), internal IP cost
- Exit gateway determination
- Alternate destination on busy/no answer
- Real time in-memory centralized database
- CDR generation
- Flexible procedural programming

Multiple layer architecture

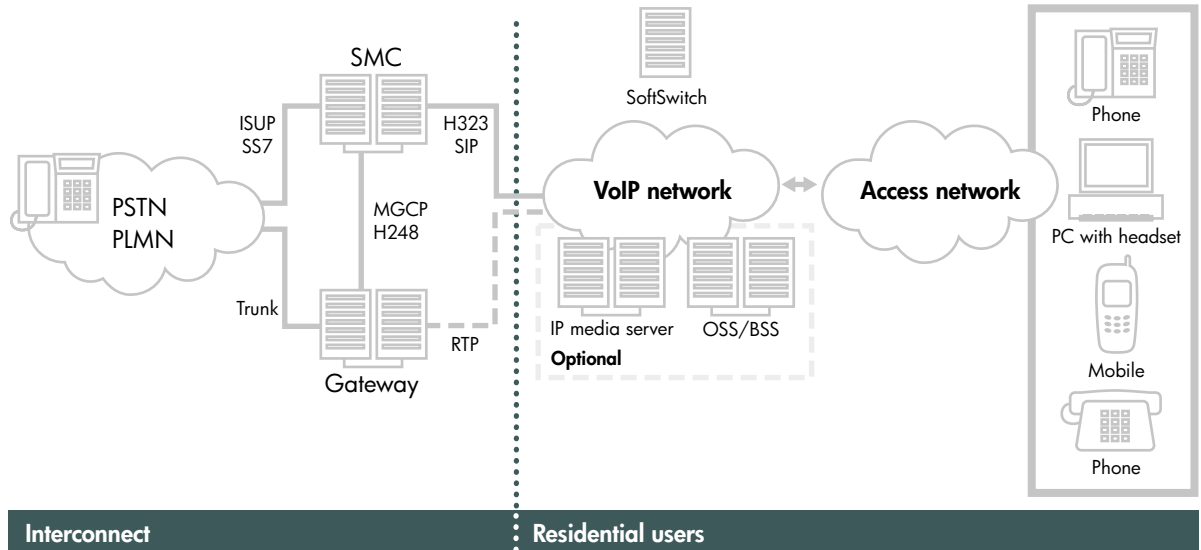
- Network layer with Cisco-powered VoIP network
- Call control layer with NetCentrex CCS softswitch
- Service control layer with HP OpenCall and ATOS voice value-added service
- Service provisioning layer with HP OpenCall service management platform (SMP) and ATOS provisioning application

HP Residential VoIP

The HP Residential Voice over Internet Protocol (VoIP) solution allows service providers to deliver converged voice, data and on-demand video services to residential customers over asymmetric digital subscriber line (ADSL), cable or wireless local loop. Services can be delivered over primary or secondary lines.

The solution delivers a number of features historically only available on PSTN networks including local number portability, carrier reselection, alternate call routing, legal interception, least-cost routing, calling line presentation/restriction, call barring, white list/black list and emergency calls.

The proven solution is based on the NetCentrex Call Control Server (CCS), with optional HP OpenCall Service Platform (SEP and SMP), Atos Origin Freephone and Atos Origin Virtual Private Network.



HP focuses more than 25 years of telecommunications expertise into a powerful integrated team, the Network Service Provider Business Unit (NSPBU)

Key features

- On-net to off-net calls
- Off-net to on-net calls
- On-net to on-net calls

Single-line features

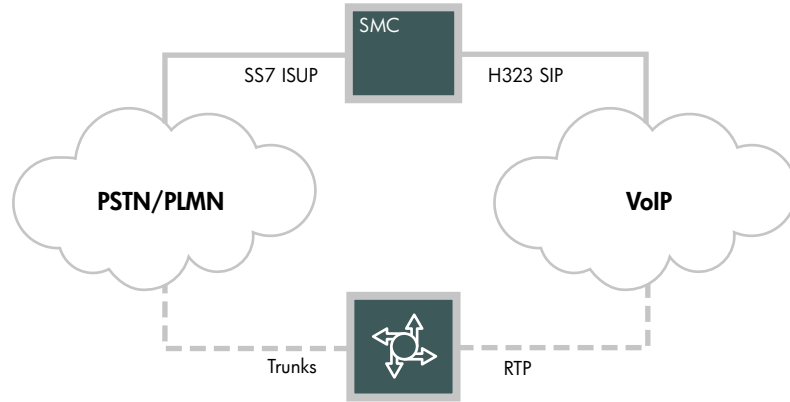
- Call forward unconditional/follow-me
- Forward on busy
- Forward on no reply
- Conditional call forward (Caller ID)
- Time-dependent call forward
- Voice-mail
- Per call CLIP/CLIR
- Call blocking
- White list/black list

Multiline features

- Three-way calling
- Call hold/call waiting
- Call transfer
- Call pickupAd-hoc
- Three-way conferencing—depending on CPE DSP resources
- Last call return

Other functions

- Supports multi-vendor IP phones and IP gateways
- Self-provisioning
- Management capabilities
- Computer Telephone Integration (CTI) functions
- Simple protocol support
- Outlook integration
- Interactive voice response (IVR) and voice-mail support



HP Interconnect

The HP VoIP Interconnect solution enables calls between the PSTN and VoIP networks, providing the necessary Integrated Services Digital Network User Part (ISUP)/IP protocol translation. This solution is especially useful for long-distance carriers that need to replace costly legacy long-haul voice lines with low cost fiber while still using their existing circuit-switched network to deliver calls over the last mile. This requires a solution that allows interoperability with existing PSTN infrastructure. HP delivers a proven interconnect solution based on the NetCentrex Signaling and Media Controller, HP OpenCall SS7 and Cisco's Media Gateway.

Key features

- Based on a distributed and scalable architecture
- Built on top of HP standard SS7 ISUP stack
- Supports Cisco, Audiocodes, and Dilithium Media Gateways today
- Supports multivendor softswitches and PSTN switches
- Complies with the following standards:
 - Multimedia gateway control protocol (MGCP) for the control of the media gateways
 - H.323 for the dialogue with gatekeepers, SIP (Q2 2003) for the dialogue with SIP proxy server
 - SS7 ISUP (ITU, ANSI and China)

Partners

NetCentrex

NetCentrex delivers next-generation networking products and network-based applications for Voice over IP (VoIP), Video over IP, PSTN and mobile networks. The solutions enable service providers to build converged networks and to offer network-based multimedia services for consumer and enterprise markets. Products include multiprotocol softswitch and media server platforms, an application development and execution platform and applications for network-based contact centers. Additional products include VoIP and video over IP VPN, managed telephony services and residential telephony, including combined services. With NetCentrex, service providers can build next-generation networks and drive network demand through innovative new services.

With more than 3,600 installations in 100 countries worldwide, HP OpenCall is a world leader in Signaling System 7 (SS7) software stacks and the number one software for Service Control Points (SCP) and Short Message Service (SMS) Centers.

Our service capabilities provide the expertise to develop, integrate, test, install and support the most complex service launches.



Atos Origin

Atos Origin is a leading international information technology services provider. Its business is turning client vision into results through the application of consulting, systems integration and managed operations, including outsourcing and online services.

Cisco

Cisco Systems is the worldwide leader in networking for the Internet.

Solution components

HP VoIP solutions reside on HP OpenCall industry-leading platforms, including HP OpenCall SS7 and HP OpenCall Service Controller, and are powered by HP servers, the number one choice for customers who demand quality, reliability, manageability and reasonable total cost of ownership (TCO) of their servers.

HP OpenCall platforms are proven for the development and deployment of next-generation voice, data and converged services. With more than 3,600 installations in 100 countries worldwide, HP OpenCall is a world leader in Signaling System 7 (SS7) software stacks and the number one software for Service Control Points (SCP) and Short Message Service (SMS) Centers.

HP OpenView, number one in Internet Protocol (IP) network and service management, provides network management for HP VoIP solutions.

HP advantage

Communications solutions are highly complex, and service providers must deliver even more innovative services to the market while keeping customers loyal and insulated from the complexities behind the services. In order to achieve this, service providers need strategic partners who can do more. HP offers a range of targeted, seamless solutions, integrated with partners, delivered quickly and efficiently. HP systems and solutions are open and flexible, empowering customers to customize or create value-added services. Our service capabilities provide the expertise to develop, integrate, test, install and support the most complex service launches. This one-stop shopping approach lets service providers focus on their customers—not their suppliers.

HP focuses more than 25 years of telecommunications expertise into a powerful integrated team, the Network Service Provider Business Unit (NSPBU). The NSPBU, along with 500 valued solutions partners, assists the world's top 200 service and equipment providers, and meets the voice and data needs of hundreds of millions of wireless and wireline subscribers.

With solutions, technologies and services arrayed across servers, storage, network infrastructure, network services, operations and business support, mobile and rich-media solutions, and end-user access, HP is a major player that is leading change in the entertainment industry.

For more information, go to www.hp.com/communications

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