



## HiPath 4000

### The IP Convergence Platform for medium-sized and large enterprises

Sweeping changes are taking place in telecommunications of the kind witnessed when digital voice communication was introduced. When it comes to the development of communication, the topic of the moment is the convergence of voice and data. The cause is the emerging technical possibility of transporting voice in high quality and economically over data networks. Furthermore, the convergence of voice and data communication is giving rise to totally new possibilities for optimizing business processes.

**SIEMENS**

Global network of innovation

With HiPath™, the Siemens Enterprise Convergence Architecture, you embark upon a secure evolution path. The value of existing investments is retained and your business network develops into an IP-based infrastructure. On top of that, your business communication costs sink with the IP-based transfer of voice and data.

The HiPath portfolio incorporates a communications architecture that encompasses disparate networks. On a convergence platform with a distributed and networked architecture, such as HiPath 4000, you can use:

- Mobile and multimedia applications
- High performance and flexible work-points such as the optiPoint family
- Innovative networking and management solutions

and thus speed up business processes.

HiPath 4000 combines the benefits of innovative IP-based communication with the reliability and security of pure voice communication systems.

The IP convergence platforms can be installed in any system environment. The distributed architecture is administered centrally and therefore cost effectively. The applications have only to be installed once and are ready for use by any employee through-out the entire company.

## The sky's the limit

With HiPath 4000, businesses of any size - and across several locations - use all system features universally.

HiPath 4000 also incorporates existing systems, such as Hicom 300 E / H, into the entire solution.

## Universal multimedia communication

Alongside all the features of previous voice communication systems, the HiPath 4000 IP convergence platform also offers applications and solutions for multimedia communication from workstation to workstation. The right terminal for every workstation can be found in the optiPoint family.

HiPath 4000 works on the principle of distributed architecture. All applications and solutions are installed only once and are controlled and administered from one central management system. High availability is ensured. The system works on open standards.

## Everything to make your business mobile

Through the HiPath 4000 applications packages, employees have constant access to their workstations wherever they are. Your customers too will always find someone to talk to. From simple Call Centers all the way through to the most demanding multimedia-capable versions, every form of communication is possible with HiPath 4000. And the open IP-based system means that further applications and solutions can also be easily integrated in the future.

## The best for your business

The entire portfolio is optimised for the demands of every type and size of businesses - easy to put into practice, reliable in performance and easy to use. With it, you become even more efficient.

## Value

With HiPath, businesses benefit from the investments already made in their customers, partners, employees and communications infrastructure.

The HiPath 4000 example shows how IP convergence platforms reduce communication costs. The separation of voice and data is no more. Only one infrastructure must be maintained. Processes are more reliable and universally electronic.

## Evolution

With HiPath, you achieve convergence without risk. And with HiPath 4000, existing and new system components are compatible. New applications and solutions can easily be integrated without problem. Thus, businesses stay in touch with technology and will, in the future, continue to profit from the benefits of IP-based systems.

## Choices

You decide when, where, how and to what extent to invest in innovative technology. You can choose from a broad range of IP convergence platforms, optiPoint phones and a optiClient solution.

You set the pace in accordance with your demands and ideas.

## Hardware

### Modular, Stackable Hardware for seamless expansion growth

The entire HiPath 4000 platform range (HiPath 4300 and 4500) supports common software, interfaces and business applications. Both platforms offer common value-added features. With this modularity, the availability of scalable Access Points plus powerful networking support, HiPath 4000 offers an ideal solution for an entire enterprise network - regardless of size and location requirements - and a perfect solution for seamless expansion growth.

#### HiPath 4300

HiPath 4300 supports up to 3 direct connected Access Points and additional 40 Access Points distributed over IP.

The performance of the system is designed to a maximum of 2,000 digital subscribers.

Due to the modular stackable Access Point concept HiPath 4300 is attractive for small to mid-range, as well as high-end simplex configurations.

#### HiPath 4500

HiPath 4500 supports up to 15 direct connected Access Points and additional 83 Access Points distributed over IP. A maximum of 12,000 digital subscribers is possible in these configurations.

In addition, a Duplex Option is available for common control, and redundant power supply options are offered to increase the availability of the system.

Due to the modular stackable Access Point concept HiPath 4500 realises cost-effective duplex configurations also in the mid-sized business.

# Modular Software to grow incrementally

## Operating Software HiPath 4000 V1.0

The operating software package is used to offer a rich set of basic features and also for start-up of the HiPath 4000 system. The feature set includes such features as:

- Call detail recording for outgoing, incoming, internal and cross-network traffic
- Call log for incoming and outgoing journal of calls
- Operation with/without direct inward dialing
- Direct station selection key function
- Release/block call waiting
- Parallel ringing
- Flexible, enhanced call forwarding with e.g. different call forwarding destinations for internal and external calls
- Call pick-up groups
- Data security for optiPoint 500 menus
- HiPath 4000 Assistant for comfortable administration of the HiPath 4000 system
- Inherent interface support for innovative and fast remote access, such as TCP/IP, HTTP, FTP, and PPP (V.24 asynch).

## HiPath User Access

HiPath User Access comprises standard and enhanced telephone features such as

- Redial
- Speed calling system/individual
- Callback
- Three-party/eight-party conference
- Toggling
- Do-not-disturb
- Call waiting and prevention of call waiting

- Override and prevention of override
- Hot line
- Mobility features, such as personal identification number (PIN) and HiPath relocate (relocates subscribers from the terminal)

HiPath User Access also enables attendant consoles (such as AC-Win) to be connected, and executive/secretary workpoints to be implemented. In addition HiPath User Access provides important features for key sets (terminals with multi-line appearance):

- Call bridging
- Automatic/manual privacy
- Multi-line appearance and access to multiple lines
- Simultaneous hold of key lines
- Exclusive and manual hold
- LED and ringing/ringer cut-off
- Use indication of line
- Recalls

## Trunk / Networking

Trunk / Networking allows the HiPath 4000 to be connected to or operated via the public network, and permits the HiPath 4000 to be connected with any communication system via private networks.

Standard protocols and open interfaces are the key to evolving voice-centric switched networks to converged infrastructures. HiPath 4000 makes it possible to set up corporate networks in one location, throughout Europe or worldwide by linking several systems via dial-up and dedicated connections. Networking can be done via ISDN, ATM or IP - always with the full feature range of CorNet NQ. In selected countries, DPNSS1 is also available with the CorNet NQ-DPNSS1-Gateway (CDG) V6.0.

CorNet NQ is Siemens' standards-based signaling protocol for private network solutions. CorNet NQ is aligned with the international QSIG private network protocol for all features that are common between the two protocols. CorNet NQ transmits

HiPath 4000 features and central services throughout the entire infrastructure. These features enhance intra-site communications and improve customer service, thereby enabling flexible working practices.

The most significant advantages of homogeneous networking include the following:

- Central administration with HiPath 4000 Manager
- Use of central services (e.g. HiPath Xpressions, central attendant services)
- Enhanced classic voice features such as call pick-up group, call park, directed call pick-up, call forwarding, callback on busy and callback no answer
- Charge-optimized use of the corporate network through least cost routing (LCR):
  - LCR ensures that the most economical route is selected. Calls are kept within the HiPath 4000 network for as long as economically viable. On transfer to the dial-up network, the most favorable network provider is selected (break-in and break-out)
  - Time-based routing to different carriers
  - Central administration of all LCR data via HiPath 4000 Manager, local and network-wide registration of all outgoing, incoming and internal calls
- Use of integral voice compression for digital dedicated lines.

## Modular Software to grow incrementally

### ATM Networking

HiPath 4000 can be incorporated into ATM networks using an integrated ATM trunk module (STMA). The ATM trunk modules offer a 155.52 Mbit/s monomode or multimode optical fiber interface. The software ATM Networking enables HiPath 4000 networks to be implemented over ATM VPNs on the basis of ATM permanent virtual connections (PVC) or switched virtual connections (SVC).

ATM Networking enables up to 32 trunks to be emulated with each STMA over ATM PVCs. In total these PVC trunks can use up to 120 B-channels. The transport is implemented with the standard Circuit Emulation Service (CES). PVC supports all HiPath 4000 protocols.

ATM Networking offers additionally ATM-switched virtual connections (SVC). SVC dynamically allocate the bandwidth in the ATM network according to need. All CorNet NQ features are supported for both PVC and SVC. Up to 128 directions with up to 30 B-channels each can be configured per STMA, i.e. in total up to 3,840 B-channels. Thereof up to 128 B-channels can be active simultaneously.

Both PVC and SVC can be simultaneously used on the same module. This enables cost savings for networks where the permanent traffic is routed via PVC and the peak traffic over SVC.

### Call Detail Records Enhanced

Call Detail Recording Enhanced records additional detail for all call phases, durations and intervals for outgoing, incoming, internal and call routing for all users including attendant console operators, pick-up groups and hunt groups, also enabling network-wide correlation of records and call paths.

## HiPath HG 3500 Family

The family of integrated IP Gateways offers a seamless migration into an IP infrastructure. Without sacrificing the feature richness of traditional platforms, the customer can use a single backbone for voice and data and realize cost savings.

Due to fact that software licenses are independent of the infrastructure used (analog, digital or IP), a major part of the investment is protected when moving forward in the direction of IP.

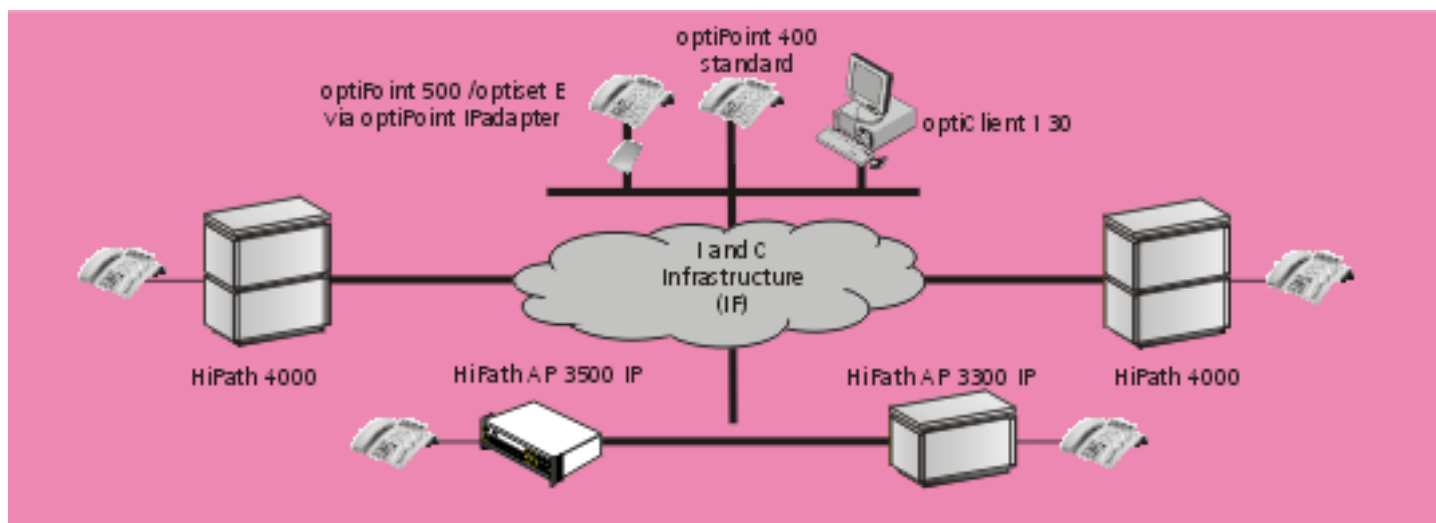
### HiPath HG 3530 HiPath Feature Access

HiPath HG 3530 provides IP workpoints access to the full range of HiPath 4000 features.

The following IP workpoints are supported:

- optiPoint 400 standard
- optiPoint 500 / optiset E via optiPoint IPadapter
- optiClient 130 V2.5

HiPath HG 3530 provides a 10/100BT IP network interface and supports up to 30 IP workpoints. The integrated gateway uses G.711 and operates Gatekeeperless. Administration is executed via HiPath 4000 Management systems, as for traditionally connected subscribers. Providing the same features for IP workpoints as for traditionally connected subscribers offers a seamless migration path to an IP infrastructure.



Use Scenario HG 3500

## HiPath HG 3500 Family

### HiPath HG 3550 IP Trunking for HiPath 4000

HiPath HG 3550 provides IP trunking for HiPath 4000. As an integrated gateway it enables the cost effective networking of two or more HiPath 4000 systems over an IP infrastructure. HiPath HG 3550 provides the full feature set of CorNet NQ as supported for traditional dedicated lines.

HiPath HG 3550 IP Trunking Solution may be configured in a point to multi-point voice and data network to provide high level networking feature transparency to organizations that operate in multiple geographical locations.

HiPath HG 3550 reduces the network operational costs drastically. A dedicated circuit-based private network may be replaced with an IP based network so that voice traffic is converged with data traffic over the IP network. Using voice compression G.729A and B reduces the required bandwidth.

### HiPath HG 3570 IP Distributed Architecture

HiPath HG 3570 realises the IP Distributed Architecture as described in the following section.

## Distributed Architecture

HiPath 4000 Distributed Architecture offers the possibility to cover a large campus or even a multi-site configuration with a single HiPath 4000 system. Distributed Architecture describes the possibility to distribute Access Points ("shelves") via fiber links or IP networks.

### Fiber Distributed Architecture

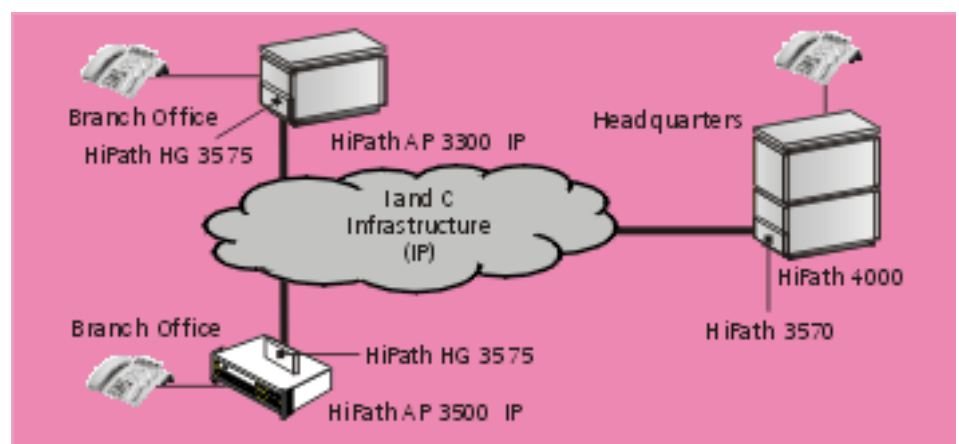
Standard HiPath 4000 expansion shelves HiPath AP 3300 Fiber can be distributed to remote locations on a campus via fiber. HiPath 4000 and HiPath AP 3300 Fiber are each connected to a HiPath HG 3800, and the HiPath HG 3800's are connected via dark fiber cable. Remote users will be treated as if they are connected to a HiPath AP 3300 at the main HiPath 4000 site. This especially means that all ports of the HiPath AP 3300 Fiber can be fully integrated in centralized applications (e.g. as HiPath ProCenter agents). Administration of the remote ports including Moves, Adds and Changes can also be executed centrally via the HiPath 4000 Management systems.

### IP Distributed Architecture

HiPath 4000 provides the possibility of distributing Access Points via an IP network. Remote users will be treated as if they are connected to a HiPath AP 3300 at the main HiPath 4000 site.

There are two main components in the IP Distributed Architecture scenarios:

- HiPath HG 3570  
HiPath HG 3570 modules are needed to establish a payload connection between the main HiPath 4000 site and the distributed Access Points via IP.
- IP Access Points  
There are two types of IP-based Access Points: the HiPath AP 3300 IP offering 16 slots for HiPath 4000 peripheral modules, and the HiPath AP 3500 IP, offering up to 7 slots for HiPath 4000 peripheral modules (3 in the basic unit HiPath AP 3500 and 4 in the expansion unit HiPath AP 3505). HiPath AP 3500 IP is mountable on a 19" rack and provides cost-effective configurations for small sites. It offers the option of power supply redundancy. Both types of Access Points are standardly equipped with an HiPath HG 3575, providing connectivity to the IP infrastructure.  
The IP-based access points accommodate the majority of existing and future modules that would normally reside on a shelf in HiPath 4000. The modules HG 3570 and HG 3575 offer an ethernet port (10/100 BaseBT) to connect to the IP network.



IP Distributed Architecture

# Distributed Architecture

## Scalable Increased Capacity

HiPath 4500 supports up to 83 IP-distributed Access Points, HiPath 4300 up to 40.

The maximum number of digital subscribers is increased to 2,000 for HiPath 4300, and to 12,000 for HiPath 4500.

## Distributed Switching

With HiPath 4000 V1.0, the switching of payload channels (B-channels) is not limited to the central switching matrix.

- Calls within IP-based Access Points are switched with no delay in a local TDM-based switching matrix on HiPath HG 3575, offering a switching capacity of 256 channels.
- Calls between IP-based Access Points are switched in the IP Network.
- Calls not limited to IP-based Access Points are switched both in the IP network and in HiPath 4000.

## Signalling and Payload Survivability

Signalling and Payload Survivability ensure that HiPath 4000 with IP based Access Points still provides highest availability.

The PSTN can be used as a backup network for both the signalling and payload path if the IP network fails or does not provide the quality required for voice.

Payload Survivability uses standard PSTN trunk modules to access the PSTN. The Payload Survivability Path can also be selected automatically when all B-Channels into the IP network are in use.

## Summary of main features

- Single system
  - Full HiPath 4000 feature set available for all subscribers distributed over IP
  - Single point of administration for the entire IP distributed architecture
- Scalable, increased capacity for HiPath 4000
  - up to 15 direct connected Access Points (HiPath AP 3300)
  - up to 83 IP distributed Access Points (HiPath AP 3300 IP or AP 3500 IP)
  - up to 12,000 digital subscribers per HiPath 4000
- Distributed Scalable Architecture with Switching in
  - HiPath 4000 ("traditional switching matrix")
  - IP Network
  - IP access points (TDM-based: max. 256 B-Channels)
- Survivability Options for High Availability via PSTN
  - Signalling Survivability
  - Payload Survivability
- High voice quality (e.g. via 'embedded' echo cancellation)
- Management support (e.g. via SNMP)
- Bandwidth Reduction Option (Voice Compression G.729A with 8 kbit/s and Silence Suppression)
- Quality of Service Support via IP Network by traffic prioritization:
  - IEEE 802.1 p/q and
  - IETF DiffServ
- Maximum number of B-channels per HG 3570 and HG 3575 into the IP network: 30

## Benefits

- Reduction in Network Infrastructure Costs ("IP Convergence") for
  - Investment
  - Administration
  - Carrier fees
- Reduced administration and application costs, due to
  - Single system
  - Centralized administration and applications
- Larger scope for features and applications ("Single System")
- Increased choices offered by IP-based Access Points with regard to
  - number
  - size / scalability
- Leveraging the benefits of an IP infrastructure without sacrificing feature-richness, availability and reliability.

# Desktop Productivity

## optiPoint 500

### optiPoint 500 telephones

The design of the optiPoint 500 telephones allows fast and easy access to the HiPath 4000 features.

The three dialog keys which, in conjunction with the display, facilitate interactive user prompts are characteristic of the operating principle.

In addition, the key lamp principle visualizes the activated functions.

The varied control functions are divided into submenus in a clear manner and can be read on the display. Moreover, the selection of the features can be initiated directly via the service key with a code.

Important functions are individually saved under the function keys.

The following telephones are available:

- optiPoint 500 entry  
cost-effective entry into digital technology
- optiPoint 500 economy  
digital entry telephone with display.
- optiPoint 500 basic  
telephone for voice communication
- optiPoint 500 standard  
full-duplex conference telephone
- optiPoint 500 advance  
modular office solution for the professional user



### optiPoint 500 - options

- optiPoint key module  
The add-on device for optiPoint 500 telephones allows additional features to be programmed and call numbers to be saved.

Sixteen programmable function keys are available (30 with the Shift key).

- optiPoint signature module  
The optiPoint signature module is a chip card reader available as an add-on device for the optiPoint 500 telephone. This add-on device is the simple way to convert an existing telephone to chip card operation



### optiPoint 500 adapter

Specific workstation requirements can be satisfied quickly by supplementing the telephone with an innovative adapter concept. The simple installation and removal of different adapters on the bottom of the telephone allows additional devices (e.g., PC, fax devices, telephones, headsets) to be connected directly to the workstation.

The following adapters are available.

- optiPoint acoustic adapter  
Allows the connection of telephone accessories such as a loudspeaker, microphone, headset, busy indication/door opener or secondary bell.
- optiPoint analog adapter  
Serves to connect an analog device such as a telephone or group 3 fax to the system telephone.
- optiPoint ISDN adapter  
Allows standard ISDN S<sub>0</sub> telephones to be connected.

- optiPoint phone adapter  
Allows a second U<sub>P0/E</sub> telephone to be connected.
- optiPoint recorder adapter  
Used to connect an external recorder or a second headset.



## CTI

A PC can be connected via the USB 1.1 interface with no adapter required. CallBridge TU is a TAPI service provider for CTI solutions. It allows the telephones to communicate with the PC.

The CallBridge for Data software replaces hardware components such as S<sub>0</sub> cards or S<sub>0</sub> adapters and turns the PC into a communication platform for data communication.

## optiPoint 400 standard

The optiPoint 400 standard IP telephone is the easiest way to perform voice communication over IP data networks. The connection to HiPath 4000 is implemented over the integrated HiPath HG 3530 gateway. For the user, the optiPoint 400 standard behaves like an optiPoint 500. All HiPath 4000 features are available on the telephone. This makes the vision of converging networks a reality.

## optiClient 130

optiClient 130 is a computer-based mapping of the HiPath 4000 system phone functionality. The connection to HiPath 4000 is implemented over the integrated HiPath HG 3530 gateway. Operation can be learned intuitively as with the optiPoint 500, and the "The three dialog keys" operating principle is available, of course.

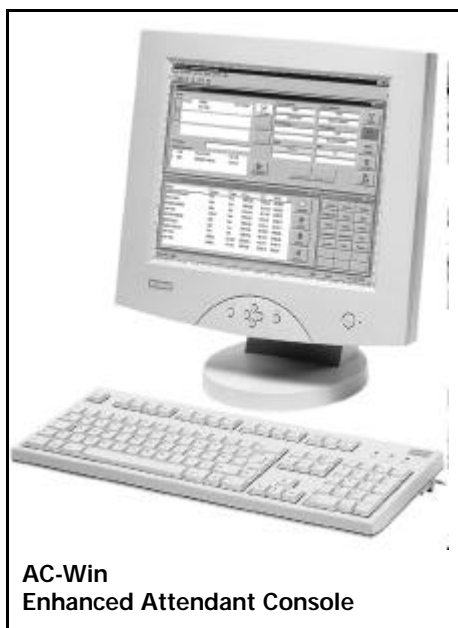
optiClient 130 is a software-based solution.

## Attendant Consoles



**Attendant Console**

The attendant console is used by an attendant to set up internal or external calls. It may consist of either an attendant terminal or the AC-Win enhanced attendant console. AC-Win provides a familiar and easy-to-use Windows interface for the attendant. It significantly enhances operator productivity and customer satisfaction with improved call handling. It can be used to access the electronic telephone directory DS-Win. AC Win MQ call handling features both Multiple Queues and Parallel Presentation of incoming traffic.



**AC-Win  
Enhanced Attendant Console**

## HiPath 4000 Management

HiPath 4000 Management is part of the HiPath Management concept, and represents the Element Manager dedicated to managing and administering the Hicom 300 E / H and the HiPath 4000 family.

HiPath 4000 Management is based on two principle elements:

- **HiPath 4000 Assistant**  
Basic management functions integrated in each HiPath 4000 system
- **HiPath 4000 Manager**  
A suite of comprehensive management applications, optional for single systems and/or networks

### HiPath 4000 Assistant

HiPath 4000 Assistant provides a set of basic management functions for single HiPath 4000 systems:

- Configuration Management
- Inventory Management
- Backup & Restore
- Switch Diagnosis Support
- Error Message Interpreter
- ACL Tracer
- Collecting Agent

The access to these management functions is Web-based, either direct or via the HiPath 4000 Manager's User Interface.

### HiPath 4000 Manager

Extended Management functionality for HiPath 4000 stand-alone systems and networks is offered by the HiPath 4000 Manager on external management server platforms.

HiPath 4000 Manager offers network-wide functions for:

- Configuration Management
- Performance Management
- Collecting Agent
- Application Interface
- Simple Network Management Protocol (SNMP)

HiPath 4000 Manager also provides the interface to HiPath Management Applications. You can not only take advantage of the many new features for HiPath 4000, but also use HiPath FM for other HiPath products (and even third party products supporting SNMP).

HiPath 4000 Manager also offers data synchronization and CDR collection with existing AM-Win releases and new releases of HiPath Accounting Management.

### HiPath Management

The goal of HiPath Management is to provide unified administration of all products that are part of the HiPath product portfolio. This is valid for all combinations of HiPath products and applications.

HiPath Management is the entirety of components serving administration and maintenance of HiPath Products in an Enterprise Communications Landscape.

HiPath Management consists of particular Management Products and components which are part of the HiPath Products themselves. For HiPath 4000 (and Hicom 300) this component is HiPath 4000 Manager.

With existing standard interfaces, the HiPath Management Applications

- HiPath Fault Management and
- HiPath Accounting Management

can be integrated into the HiPath 4000 Manager.



# HiPath Mobile Office Suite

## HiPath Xpressions

### HiPath Xpressions Entry

HiPath Xpressions Entry is a voice memory system that enables storage, retrieval and distribution of voice messages via personal voice mail boxes. With the "automatic attendant console" and the "automatic information and ordering service", HiPath Xpressions Entry provides highly efficient audiotext applications as well.

### HiPath Xpressions Standard/Advanced

HiPath Xpressions is an application from the mobility sector. The basis of this solution is a Unified Messaging system, which can be extended with additional HiPath Solutions (e. g. SimplyPhone for Web or Outlook) into a universal multimedia messaging engine for mobile and local office users. At first, each user gets his or her own multimedia box, which shows his or her personal incoming mail, voice and fax messages.

The Unified Messaging Box provides the user with three essential functions:

- Intermediate storage of incoming messages (until the user requires or recalls them)
- Location and time-independent information of incoming messages
- Access to all messages, independent of location, time and connection to the unified messaging server

Mobile users can be informed about new, incoming messages automatically via SMS. To access their new messages, users can take several communication channels:

Remote Access from PC or laptop, voice mail and e-mail access (text-to-speech) via phone, directing faxes to an available fax via phone, access to all information via WEB or WAP application.

In-house users are informed of incoming messages on their PC and/or per MWI on their optiPoint phone.

Since users (mobile and in-house) have access to their messages via current applications (MS Outlook, Lotus Notes), there is no special training required, and upon going live with the new applications, acceptance will be very high.

## HiPath Teleworking

Enterprise mobility solutions with HiPath Teleworking open up a whole range of new opportunities for optimized communication. With Teleworking, remote users have access to all HiPath features as well as to the data infrastructure. Whether at a home office, on-the-road, at a remote-site or traveling, mobility is made possible (via ISDN, mobile networks, or analog connections) with remote telephony feature access (with any standard telephone, PC, notebook or GSM cell-phone) to important HiPath 4000 voice and data functions. Protection against misuse is guaranteed with the LAN access infrastructure firewall, or other components (as required).

The mobility features offered by Teleworking include:

- Single number service with call take-back
- Ring monitoring
- IVR-controlled call routing
- Follow-me, Find-me
- Broadcast

Teleworking enables desk sharing, efficient internal and external communication and optimizes human resource management.

## HiPath Cordless

HiPath cordless enables campus mobility while providing the same optiPoint 500 features on a cordless telephone and offers mobility solutions for constant availability. Higher levels of enhanced telephony are achieved with features such as selective availability and "Follow-Me". Mobile employees, such as service personnel, can be quickly and reliably informed about crises, failures and emergencies. Messages are displayed immediately on the cordless telephone and can be retrieved at any time.

## HiPath DAKS

### Digital Alarm and Communication Server

HiPath DAKS allows effortless and extensive alerting, conferencing, and informing and makes it possible to reach subscribers quickly. It uses the existing telephone infrastructure of the company and the public fixed and mobile networks. Broadcasts and alerting signals allow urgent or security-related information to be distributed simultaneously to many people quickly and reliably.

Emergency and service calls, as well as fault messages and short e-mails, can be output as text and voice messages to mobile and stationary HiPath telephones. These messages usually originate from systems connected to the HiPath DAKS, such as

- production monitoring systems,
- building technology control room,
- visual paging systems, and
- other emergency systems.

### Internet-controlled telephone conferences

Telephone conferences can now be defined, booked, convened and controlled in the Internet easily and quickly from anywhere and by anybody, and any browser can be used. The telephone conference itself, which can include up to 60 participants, takes place in the existing communication network.

The easy use of the system makes it possible to achieve accelerated communication, better teaming, and thus faster decision making.

## HiPath Mobile Office Suite

### HiPath SimplyPhone for Web

HiPath SimplyPhone for Web is an ideal solution for an intranet-based CTI application. The user operates SimplyPhone for Web via convenient standard browser interface. No special client software has to be installed.

The focal point of the solution is the use of a central telephone book. This telephone book is connected to the CTI server (HiPath CAP) over the LDAP interface and can be used by all HiPath SimplyPhone web clients.

Further features like a configurable entry page, an individual telephone book, an extensive call journal and the initiating of voice communication features via the web user interface encompass the functionality.

### HiPath SimplyPhone for Outlook

HiPath SimplyPhone for Outlook is a CTI application for workstations that use MS Outlook as the universal communication and organization tool. HiPath SimplyPhone extends MS Outlook with convenient CTI features like

- Calls and identification of callers via the personal contact folder and the exchange address book,
- Enhanced telephony (toggling, callback, conference, etc.),
- The logging of the calls in the Outlook journal,
- Call planning and callback list in the Outlook task list,
- Telephone notes by e-mail (for call pickup).

### HiPath Simply Phone for Lotus Notes

HiPath Simply Phone for Lotus Notes offers the same functionality as HiPath SimplyPhone for Outlook integrated in Lotus Notes / Domino.

### HiPath Display Telephone Book

The HiPath Display Telephone Book provides access from digital telephones to a central company telephone directory. In addition every DTB user can set up a personal telephone book with up to 300 entries. The last 30 incoming and outgoing calls are stored in a call journal. A number can be dialed directly from the directory and the call journal.

The DTB uses the optiPoint 500 display to access a dial-by-name directory, providing users with fast and easy access to up-to-date internal and external directory information. This not only improves productivity and efficiency, it also reduces the cost of updating, publishing and distributing directory information.

Together with HiPath 4000 Manager the database of the Common Directory can be automatically updated on a daily basis from the central database of the HiPath 4000 Manager.

### Directory Service (DS)-Win

DS-Win enables fast and efficient call forwarding with the enhanced attendant console AC-Win, or for workstations with optiPoint 500.

Directory data are stored in Access database tables. All tables and screen layouts can be customized on site to suit the given company organization. Data can be administered directly in DS-Win.

In combination with HiPath 4000 Manager, it is integrated in the single entry point concept for directory data. Whenever changes are made to the central database of the HiPath 4000 Manager, DS-Win data is automatically updated.

## eCRM Solutions

The HiPath ProCenter Suite is an essential part of the HiPath 4000 application suite. All call center requirements can be fulfilled in an optimal manner.

Above the maximum number of agents, integration of existing workflow and processes in enterprises play the decisive role.

The measurable advantages of an application are made noticeable by saving costs or with special features. Normally, the combination of these two demands is required in order to seed the impulse to implement the HiPath ProCenter suite.

The integration of e-mail and web contacts open new communication possibilities for the user.

Calls are distributed to the most qualified agents via Skill-Based Routing.

In this way, transactions with the customer will be handled much more accurately and efficiently. Team motivation will grow because every agent is placed within his or her preferred knowledge-base.

Furthermore, enterprises can offer new e-Commerce services that were not possible with common technology. Supplementary services offer a good opportunity to increase users' business volume.

Another step in the right direction is integration of all multimedia call center features into existing company processes.

Linking to the CRM module (e.g. SAP R/3, Siebel, Remedy) permits agents to accelerate online-procedures that need to be handled.

## eCRM Solutions

### HiPath ProCenter Entry

HiPath ProCenter Entry complements the HiPath 4000 by ensuring that all calls are answered promptly and efficiently, and by providing a cost-effective basis for establishing call centers to handle higher volumes of incoming calls. With the supervisor workstation running under MS Windows®, the supervisor is able to obtain all the information required to exercise optimum control at all times.

HiPath ProCenter Entry is also the foundation for seamless growth to CRM and multi-media call center applications enabled with HiPath ProCenterStandard and Advanced.

### HiPath ProCenter Standard

HiPath ProCenter Standard further enhances customer care with skills-based routing and media integration, enabling significant business benefits that today's call centers demand.

HiPath ProCenter Standard offers an extensive suite of client/server products that provide flexible design, prediction, monitoring and management of virtual group call centers. The virtual group routing capability is the heart of the solution, which intelligently determines the best possible match between a caller and an agent on a call-by-call basis. It identifies caller requirements and searches for available agents who best meet the caller profile by nature of the agent's personal skill and preference résumé. Caller requirements can be identified from dialed number ID, database information, an email subject line, customer responses to call prompts from an Interactive Voice Response system, or a voice processing application. A virtual group is hence instantly constructed from agents whose résumé most closely matches the caller's needs, with up to 100 criteria per agent. This offers greater control when determining the most effective allocation of call center resources while servicing callers more efficiently.

### HiPath ProCenter Advanced

HiPath ProCenter Advanced offers in addition to the functionality of HiPath ProCenter Standard the possibility

- to use enhanced skill based routing functions (100 criteria per agent and 100 criteria per call) and
- that outband and callback campaigns are automatically managed to take advantage of agent idle time without impacting incoming caller transactions.

Linking to the CRM module (e.g. SAP R/3, Siebel, Remedy) that is supported with HiPath ProCenter Advanced permits agents to accelerate online-procedures.

This makes the most of managing available resources and personnel.

### HiPath TeamBase

HiPath TeamBase is an open, flexible helpdesk solution for hotline and support. HiPath TeamBase is particularly suitable for use in medium-size organizations or for department-specific helpdesks. Knowledge is accessible to all processors and finished solution paths are provided. HiPath TeamBase is the ideal supplement in the call center environment and offers together with HiPath ProCenter an universal solution concept.

## HiPath Common Application Platform

HiPath 4000 provides, together with the HiPath Common Application Platform, standards-based interfaces for the connection of CTI applications.

Most workplaces in the communication platform environment consist of a phone and a workstation. HiPath 4000 enables the PC to control the phone to dial names by using PC directories, accept incoming calls by mouse and screen, provide data files on screen that are assigned to a caller's ID and many other functions that save time and money.

The support of open interfaces offers development support for software houses that offer a variety of CTI applications starting from simple dialing, up to a customer's specific call center application.

HiPath CAP V1.0 is a powerful CTI-middleware that plays this important role within the HiPath architecture. It is offered in the following variants

- HiPath CAP inside (integrated into Siemens applications like HiPath ProCenter)

For ICN Partner Business solutions

- HiPath CAP Entry for CSTA I/III ASN.1 and TAPI
- HiPath CAP Standard for CSTA I/III ASN.1, TAPI and CSTA III XML

## Vertical Applications

### Trading / Dispatcher / Executive

- **Trading**  
Trading is an ISDN application for dealers and traders in foreign exchange, securities, futures, commodities etc. It represents a solution for the specific requirements of banks, stock exchanges and brokerage companies, and is integrated into the communication platform HiPath 4000. It is the ideal tool for financial institutions operating in the international marketplace.
- **Dispatcher**  
Dispatcher is an ISDN application package designed specifically for the requirements associated with, e.g. control rooms and load dispatchers in the networks of power supply companies and control centers in the networks and systems of emergency services, rescue services and security organizations.
- **Executive**  
Executive is the perfect communication system for the most demanding users (executives, managers) and all major companies with a large number of executive/secretary and team applications.

### HiPath Trading

HiPath Trading is the latest evolution of Trading. It is a new generation of trader systems with an innovative architecture, ergonomic user interface and excellent networking features - all of which ensure optimum communications that give banks, exchanges, traders and brokers a decisive competitive advantage. HiPath Trading is a SW based Trading system integrated into HiPath 4000. HiPath Trading is a system which handles multi-lines with up to 4 handsets and up to 16 monitoring channels for market segments such as Financial and Energy Dealing and Control centers of Utilities and Emergency Centers.

The new optiClient user interface is based on the established Windows standard and is therefore especially user friendly, intuitive and extremely easy to operate. The flexibility and modularity of the software architecture provides a future-proof platform that is open for further development for multimedia and CTI applications.

System administration is performed on Windows 2000-based System Manager computers. Exchanging data with the telephones takes place via LAN connection. Procedures such as loading configurations and upgrading to newer versions therefore take less time.



### HiPath Busy Lamp Field Win

HiPath Busy Lamp Field Win is an application for the PC-based attendant console AC-Win. The permanent availability of the current varying status from the extensions enables a more qualified and faster call handling for incoming calls. Unnecessary waiting periods which may occur because of busy subscribers or messaging systems are avoided.

### HiPath Hotel Advanced

HiPath Hotel Advanced is an intelligent communication solution that brings the HiPath 4000 performance to the hotel front office domain. This relieves the workload on hotel personnel and increases guests' convenience. It is also possible to integrate options, such as a hotel-specific

- Wake up System
- Voice Mail system
- Call Accounting System
- Fax Server module

HiPath Hotel Advanced is aimed at hotels that already have a customary front office system and which require a link to the communication system. These can be either individual hotels or hotels belonging to a chain.

## Conversion to HiPath 4000

HiPath 4000 provides "future-proof" convergence architecture for IP-based business communication and provides with numerous applications an essential basis for optimizing business processes. HiPath is evolutionary and offers an individual, step-by-step path into IP-based enterprise communication. One objective of the HiPath strategy is preserving and protecting the hardware/software investment and workflows. Introducing HiPath 4000, we provide a smooth and affordable conversion path from traditional voice-centric telecommunications to converged communications. Thus HiPath 4000 is the consistent integration of Hicom 300 E / H into the HiPath strategy. For converting existing Hicom 300 and Hicom 300 E / H systems two conversion options are provided.

## Conversion of Hicom 300 E / H Systems

For conversion of Hicom 300 E / H systems hard disk and processor cards have to be replaced. A magneto-optical drive will be delivered with all HiPath 4500 (optional for HiPath 4300) Systems.

Operating Software and Applications have to be upgraded to the latest version, HDMS has to be upgraded to HiPath 4000 Manager. Retired hardware has to be replaced. Software Conversion to HiPath 4000 is supported for all Hicom 300 E / H hardware platforms:

- Hicom 300 E V1.0 to V3.0 / V3.1 (310, 330, 350)
- Hicom 300 H V1.0 (310, 330, 350)

## Conversion of Hicom 300 Systems

For converting a Hicom 300 system to HiPath 4300 / HiPath 4500, the existing system must be exchanged. Supported peripheral boards are preserved. Operating Software and applications have to be upgraded to the latest version, HDMS has to be upgraded to HiPath 4000 Manager. If the configuration of the peripheral boards is not changed, the MDF can continue to be used.

Model Conversion to HiPath 4000 is supported for all Hicom 300 V 3.1 to V 3.6 hardware platforms:

- Hicom 340, 370, 390 and 391, Cabinet HW
- Hicom 332 to 392, Compact HW
- Hicom 323 to 353, Compact HW

## Technical Data

### Configuration Data

Variant	Number of direct connected Access Points	Number of IP distributed Access Points	Number of digital subscribers
HiPath 4300	up to 3	up to 40	up to 2.000
HiPath 4500	up to 15	up to 83	up to 12.000

### Dimensions (W x H x D in mm) & Weight

HiPath 4300/4500 Basic System	773 x 645 x 515	Max. 30 kg
HiPath AP 3300	773 x 645 x 515	Max. 30 kg
HiPath 4000 Stack of 4 Access Points 3300	773 x 1845 x 515	Max. 180 kg
HiPath AP 3500/3505	444 x 133 x 420 (3 HE)	Max. 11 kg
Power Box	773 x 645 x 515	Max. 80 kg
Battery Manager	773 x 645 x 515	Max. 80 kg

### Environmental operating conditions

Air temperature in operation (air cooling)	+5 °C to +40 °C
Relative air humidity	max. 85%

### Power Supply Voltage

Single Phase	230 V, ±10%
Three Phase	380 V, ± 10%

A (buffered) 48-volt direct current power supply can also be used.



**HiPath 4300 - Basic System with 3 direct connected Avccess Points**

# Technical Data

## System Interfaces

### Trunks

- $S_0$  (Basic Rate Interface)
  - Four-wire access to the ISDN network.
    - 2 user channels of 64 kbit/s each
    - 1 signaling channel of 16 kbit/s
    - Transmission speed of 144 kbit/s
    - ETSI-ISDN (DSS1)
- $S_2$  (Primary Rate Interface)
  - Four-wire access to the ISDN network.
    - 30 user channels of 64 kbit/s each
    - 1 signaling channel of 64 kbit/s
    - Transmission speed of 2048 kbit/s
    - ETSI-ISDN (DSS1)
    - DPNSS1 in selected countries via CDG V6.0
- Analog
  - All analog trunks (main station inter-face / pulse signaling system) are supported.
- Integral Serviceability
  - transport and network protocol TCP/IP
  - asynchronous protocol PPP
  - file transfer protocol FTP
  - web protocol HTTP
  - V.24 asynch/synch access
  - access via Ethernet or fast modem

### Networking Interfaces

- $S_0/S_2$ 
  - The following protocols are supported: CorNet N, CorNet NQ, QSIG, PSS1, E&M, CAS, MFC (DPNSS1 with CDG in selected countries)
- Analog multiple protocols
- ATM 155 Mbit/s (STM-1/STS-3)
  - The following protocols are supported: CES (Circuit Emulation Service), CorNet NQ, QSIG
- IP Ethernet with HiPath HG 3550 10/100 Base BT; G.711 and G.729A, B CorNet NQ

### User Interfaces

- $U_{P0/E}$ 
  - Twin-wire interface for connecting optiPoint 500 telephones and attendant consoles
- IP Ethernet with HiPath HG 3530 10/100 Base BT; G.711
- $S_0/S_0$  bus  $S_0$  connection for ISDN terminals, e.g. ISDN PC, ISDN fax (group 4).  $S_0$  bus connection for up to 8 ISDN terminals
- a/b
  - Connection of analog terminals and equipment for voice, fax, videotex, and data services, for example: standard telephones (e.g. euroset, Gigaset), coin or card telephones, devices (e.g. answering machines, entrance telephone, loudspeakers, paging system, dictation and announcement equipment).

The following user interface continues to be supported:

- $U_{2B1Q}$

# Our strengths - Your advantages

Siemens is known worldwide as a trailblazer in the advancement of information and communication technologies. No other company offers such a comprehensive and innovative product portfolio.

With the one-of-a-kind Siemens convergence architecture, HiPath, guide your customers to a secure and flexible migration into the world of innovative IP convergence solutions.

[www.hipath.com](http://www.hipath.com)

## Glossary

ATM	Asynchronous Transfer Mode
CT	Computer Telephony
CTI	Computer Telephony Integration
CTM	Call Traffic Measurement
CSTA	Computer Supported Telecommunications Applications
DAKS	Digital Alarm and Communication Server
DS	Directory Service
DSS1	Digital Signaling System 1
DPNSS1	Digital Private Network Signaling System 1
DTB	Display Telephone Book
eCRM	electronic Customer Relationship Management
HDMS	Hicom Domain Management Service
IP	Internet Protocol
IVR	Interactive Voice Response
JTAPI	Java TAPI
LAN	Local Area Network
LCR	Least Cost Routing
LDAP	Lightweight Directory Access Protocol – based on TCP/IP for accessing directory services
MCP	Multimedia Call Processing
PNE	Private Network Emulator
PVC	Permanent Virtual Connection
SVC	Switched Virtual Connection
SW	Software
TAPI	Telephony Applications Programming Interface
TSP	TAPI Service Provider
VCM	Voice Compression Module
VoIP	Voice over IP
VPN	Virtual Private Network
WAN	Wide Area Network
X.500	International standard for directory systems from all manufacturers for use on all types of platforms

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