Information

HiPath Cordless IP
The SIP-based cordless solution

HiPath Cordless IP upgrades IP communications systems by a campus-wide mobility solution.

Siemens Enterprise Communications
www.siemens-enterprise.com

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Mobility

Providing staff with cordless phones allows for direct, location-independent communication and is ideally suited for instant availability and enabling decisions to be taken quickly. This generates organizational and economic advantages.

The flexibility in the number of stations, station frequency, area coverage, upgrading and the provision of comfort functions with the most modern handsets characterize the system architecture of HiPath Cordless IP.

The digital transmission standard DECT (Digital Enhanced Cordless Telecommunication) is used worldwide and works in a secured frequency range.

The HiPath cordless IP solution also makes the established DECT standard available in Voice over IP infrastructures. SIP (Session Initiation Protocol) is used to connect to the communication systems. This enables DECT cells to optimally complete SIP-enabled Voice over IP systems as the basis for mobile communication solutions.

Multi-cell technology

The radio coverage required in the building or on company grounds is achieved by means of multi-cell technology. The synchronized cells of the base stations installed at the company overlap so that calls can be seamlessly set up and continued while the moving within the area of the cordless system (roaming and handover).

Handsets

A high degree of flexibility and mobility makes the Gigaset S4 professional and OpenStage SL4 professional handsets for office environments and the Gigaset M2 professional and Gigaset M2 Ex professional handsets for industrial environments favorites among the cordless telephones.

These handsets offer excellent digital speech quality, a high degree of immunity to eavesdropping and a long range (up to 50 meters indoors and up to 300 meters outdoors).

As well as low investment and operating costs, the phone provides simple user prompting in connection with the mode-dependent menu keys. This enables optimal access to the large range of comfort features.

A further advantage is the access security in the entire HiPath Cordless IP system, where central registration of the handsets in the system restricts access by unauthorized cordless telephones.

The handsets of HiPath Cordless IP allow calls to be conducted throughout the entire radio-covered range.

Handsets enable the most important SIP comfort features of the communications systems to be used on the move within the site.

Detailed information on the individual handsets can be found in the data sheet for "Gigaset professional and OpenStage Mobile Cordless Telephones for HiPath and OpenScape Systems".

DECT IP base stations

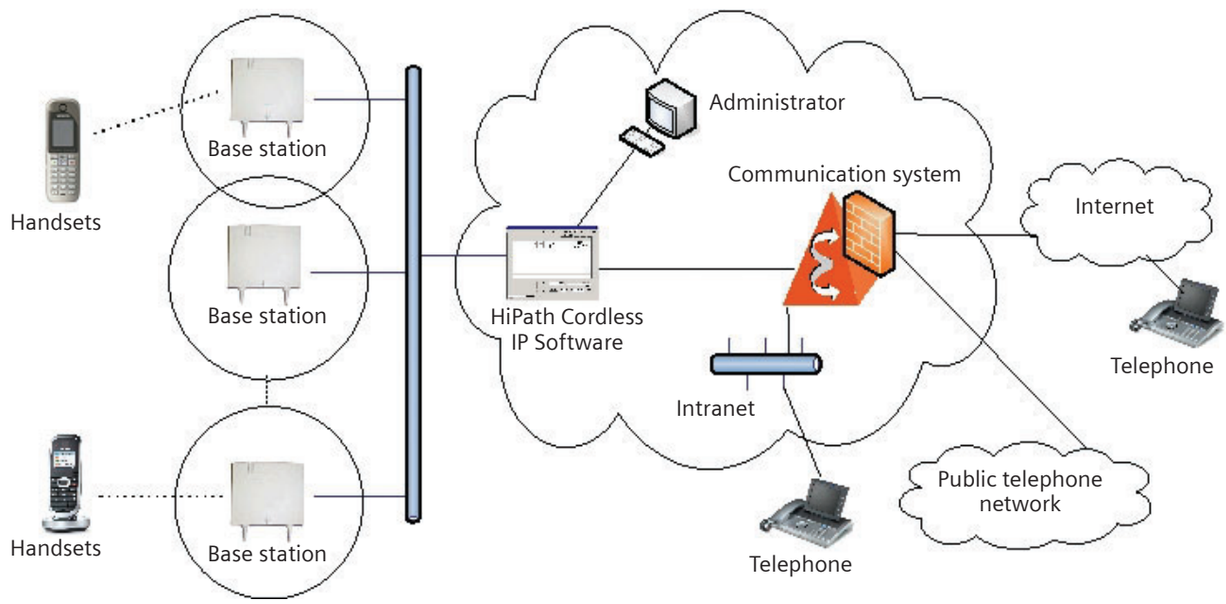
The base stations form a network of wireless cells and manage communications with the handsets. The multi-cell technology enables subscribers to move between the wireless cells with their handsets during a call.

The software of the base station contains complete DECT and IP functionality. The software does not need to be configured and administered locally for each base station but instead can be conveniently operated centrally via the HiPath cordless IP software.

The optimal location of the base stations for coverage of a building or of a site is determined by a radio engineering measurement.

Special antennas can be used to increase the range.

The base stations can be encased to protect them from the weather.



Configuration/system concept

HiPath Cordless IP Software

The HiPath cordless IP software provides the interface between base stations on the one hand and the communications systems on the other.

Router and protocol converter

The software offers the router and protocol converter functions by controlling the voice connections between the communications systems and the respective base station. It also converts these into a data format which the base stations can use.

Configuration and administration

The base stations and the HiPath cordless IP software itself are all administered and configured using the web-based management of HiPath cordless IP software.

Synchronization management

In DECT systems with line-switched connection, e. g. HiPath cordless office, the synchronization information is attained from the connection. This is not possible with the HiPath cordless IP system.

Accurate time synchronization is also necessary between the base stations for an interruption-free call transfer.

Synchronization via DECT (synchronization over the air)

A DECT IP base station must be within the overlapping area of the cell which this DECT IP base station forms in order to synchronize with another DECT IP base station via the DECT interface.

Synchronization via LAN

With this type of synchronization, the DECT IP base stations can be synchronized via LAN. This is based on a method similar to IEEE1588.

Technical Data

System Data

- Standard air interface:
  DECT (ETS 300 175)
  GAP (ETS 300 444)
- Frequency range:
  1880 MHz up to 1900 MHz
- Number of carriers: 10 to 12 full duplex channels
- Voice encoding: 32 kbit/s ADPCM
- CE standard (safety)

System configuration

- The HiPath Cordless IP software runs on one of the base stations.
  - Interruption-free call transfer is possible within up to 10 base stations.
  - Up to 10 parallel calls are possible within this group.
  - Up to 50 Gigaset professional devices can be operated.
- The HiPath Cordless IP software runs on a dedicated server:
  - Interruption-free call transfer is possible within up to 60 base stations.
  - Up to 50 parallel calls are possible within this group.
  - Up to 300 Gigaset professional devices can be operated.

Features of the SIP interface

In addition to the DECT handset's features such as the redial list or integrated phone book, the following features are made available on these handsets by the HiPath Cordless IP solution in connection with the communications systems:

- Outgoing/incoming calls
- Number identification (CLIP)
- Name display (CNIP)
- Hold – incl. music on hold for holding subscribers
- Consult
- Toggle
- Forward when busy
- Forward when no reply or always
- Attended/unattended transfer
- 3-party conference
- Ringer tone mute for incoming calls
- Call reject
- Time and date display on idle screen
- Internal/external call ringer differentiation
- Missed call list on vacant DECT handset incl. MWI signaling
- Received call list
- Voicemail display incl. MWI signaling
- DTMF transmitting
- Integration of DECT handsets in MULAP groups
- Group calls are possible between DECT handsets and OpenStage. This means that both phones ring when an inbound call arrives. If one of the two phones picks up the call, the other phone stops ringing.
- Second line incl. call waiting tone
- Call completion for OpenScape Voice
- Signaling on DECT handsets in call pickup groups for OpenScape Voice
- Phone book options:
  - Company-wide phone books: LDAP access via the DECT handset
  - Group-wide phone book: cordless internal phone book
  - Private phone book: handset internal phone book

SIP Survivability features for OpenScape Voice

- Outbound proxy support
- DNS administration
- DNS SRV support
- Penalty box functionality
- SIP notify messages

Network requirements

In addition, the following specifications between the base stations and the HiPath Cordless IP software in the IP network must be adhered to:

- Both of them must be part of the same Ethernet segment. Layer 3 routing over an IP router and also Network Address Translation (NAT) are not supported.
- At least 2 priority classes in accordance with IEEE 802.1 p/q in the IP network.
- Use of 100 Mbit/s full duplex for all switched LAN ports.

Otherwise this will result in delays in the IP network and cause synchronization and voice quality problems in the DECT handsets.

Released systems and handsets

If the HiPath Cordless IP software runs on a base station, the following communication systems can be used:

- OpenScape Office MX / LX
- HiPath 3000, from V8
- OpenScape Voice, from V6
- HiPath 4000, from V5

If the HiPath Cordless IP software runs on a dedicated server, the following communication systems can be used:

- OpenScape Office MX / LX
- OpenScape Voice, from V6

A Fujitsu Primergy TX150S7 is currently being used as a dedicated server.

The following handsets are support by HiPath Cordless IP:

- Gigaset S4 professional
- OpenStage SL4 professional
- Gigaset M2 professional

DECT IP base stations

- Maximum number of DECT channels: 120
- DECT signaling in accordance with GAP/PN-CAP
- IP interface - Ethernet network connection: 10/100 Base T
- PoE class 2 in accordance with IEE802.3af
- Power consumption: < 6.5 W; PoE class 2
- Integrated Internet/Intranet server to access web-based management
- Antenna diversity support
- Software download/update centrally via the HiPath cordless IP software

For the communications system, the HiPath Cordless IP software also provides:

- Virtual Local Network (VLAN) support
- Quality of Services in the network:
  - Layer 2 prioritization (802.1p/q)
  - Layer 3 prioritization (ToS, DiffServ)
- DHCP options - DCHP active or local entry of IP addresses

Base station indoor:

- Housing dimensions (L x H x W in mm): 202 x 256 x 90
- Weight: approx. 0.5 kg
- Climate in accordance with the IEC721-3-3 class 3K3 standard
- Temperature range: 0 °C to +40 °C (32 °F to 104 °F)
- Storage temperature range: -5 °C to +45 °C (23 °F to 113 °F)

Housing for an outdoor base station:

- Housing dimensions (L x H x W in mm): 296 x 256 x 90
- Weight: approx. 1.0 kg
- Climate in accordance with the IEC721-3-3 class 4K2 standard
- Outer housing: -25 °C to +40 °C (-13 °F to +104 °F)
- Relative humidity when operated with outer housing: up to 95%

Order items

- HiPath Cordless IP V1 - base station (BSIP1) L30280-F600-A183
- Single-Port Power over Ethernet injector L30280-F600-A184
- Power line EU 2.5 m L30251-U600-A389
- Power line UK 2.5 m L30251-U600-A235
- Power line SWZ 2.5 m L30280-Z600-F103
- DECT identification – ARI (Access Rights Identifier) L30251-U600-A395
- Outer housing L30280-B600-B212

Additional positions are required if the HiPath Cordless IP software runs on a dedicated server:

- HiPath Cordless IP V1: license per base station BSIP1 – L30280-F600-A185
- HiPath Cordless IP V1: license per HiPath Cordless IP server – L30280-F600-A186
- HiPath Cordless IP V1: CD with software – L30280-F600-A187
- HiPath Cordless IP V1: Fujitsu Primergy TX150S7 server – CUZ:1265V101-SEN04 (order directly from Fujitsu)

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