

# S

## HiPath HG 1500

Multimedia communication in medium-size companies

HiPath™ HG 1500 is the economical communication solution for companies with a medium volume of data traffic. HiPath HG 1500 transforms the Hicom 150 H communication system and HiPath 3000 series into a communication server in the LAN. HiPath HG 1500 permits the direct connection of Ethernet LANs (10/100 Mbit/s) to Hicom® 150 H and HiPath 3000 series.

This makes voice and data communication possible via the ISDN carrier network from any PC networked via the LAN. HiPath HG 1500 includes an H.323 gateway which supports standardized voice communication over IP networks (Voice-over-IP). The Hicom 150 H communication server and HiPath 3000 series thus form the interface to the company's Ethernet LAN, allowing communication solutions and applications with multi-station capability to be implemented with Hicom 150 H and HiPath 3000 series:

- optiClient 130 with optiset E functionalities
- LAN-LAN coupling via ISDN
- Remote LAN access/teleworking
- Access to the Internet
- Telematic services such as Eurofile Transfer
- Computer Telephony Integration (CTI) via TAPI and CAPI



# Gateway functions

Depending on the required bandwidth, HiPath HG 1500 makes flexible use of the ISDN lines and LCR intelligence of the Hicom system for voice and data communication. No external routers or additional servers are required for LAN PCs because the router functionality, firewall functions, and security are already integrated in HiPath HG 1500.

It can be incorporated in a standardized network management system with SNMP, i.e. administration, alarm, and performance management in a central management platform.

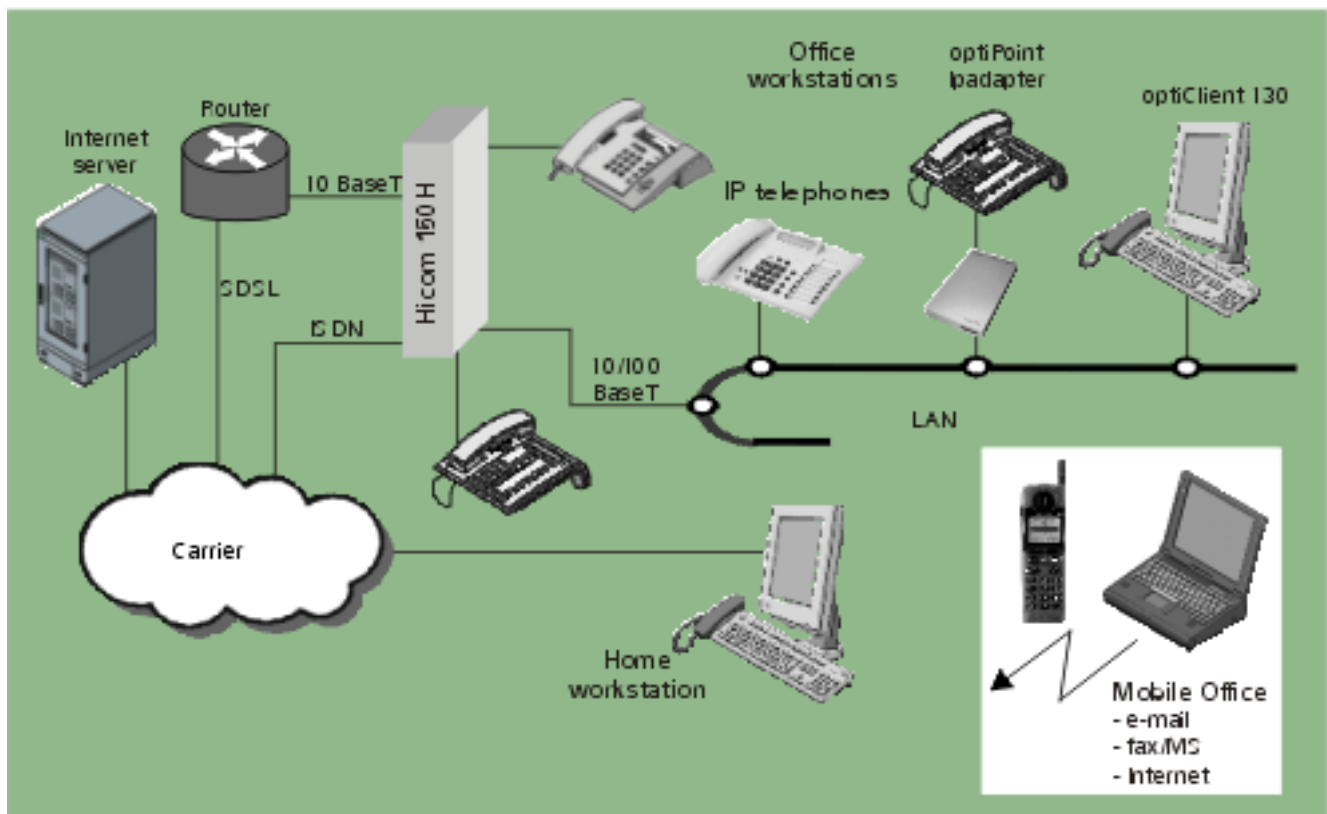
Investments are protected by simple expansion capability in stages of 2 B-channels and by soft migration to individual workstation multifunctionality.

## Voice-over-IP

Alongside data communication, optiClient 130 allows communication with both any type of telephone and standard H.323 clients, and even remote optiClient 130 systems.

- Integration into the Microsoft Windows world with a modern, professional user interface
- Enhanced functions as on a system telephone
- Support for standard H.323 clients with basic functionality
- Parallel support of application sharing

- Retention of the internal station numbers regardless of current location
- Retention of individual access rights and parameters, such as those for key programming
- Access to the corporate LAN from remote workstations with only one B-channel for voice and data (ISDN)
- Connection of optiset E telephones to the Ethernet LAN via the optiPoint IPadapter
- Networking of Hicom systems via IP with CorNet features



# Routing functions

## Second LAN interface

Upward of Version 2.0 HiPath HG 1500 has a second LAN interface. This can be used, for instance, for an ADSL line (T-DSL) in order to provide faster Internet access.

The second LAN interface can also be employed to connect a DSL line behind a 3rd party router and to couple (route) two LAN segments (LAN-LAN).

## LAN-LAN coupling

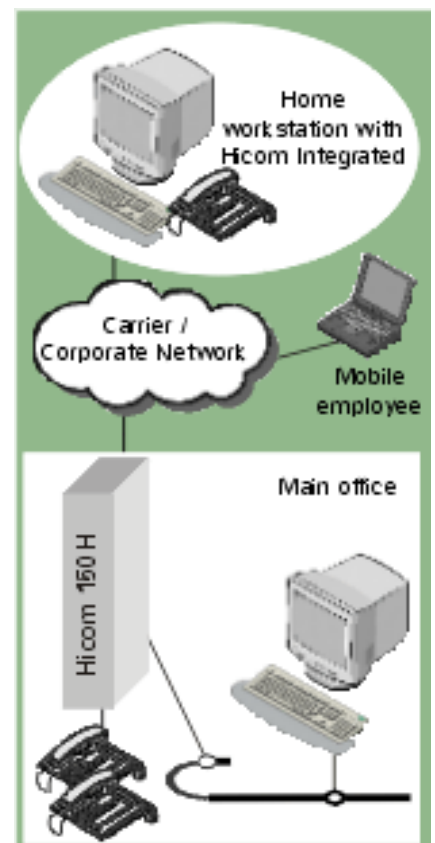
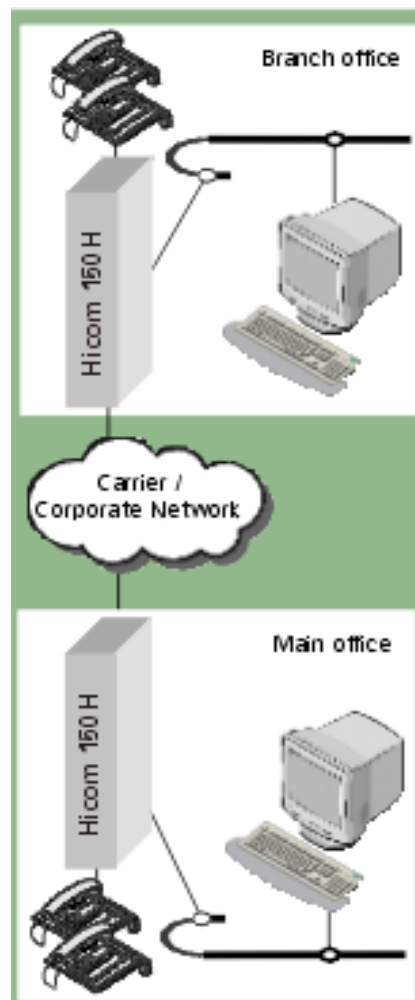
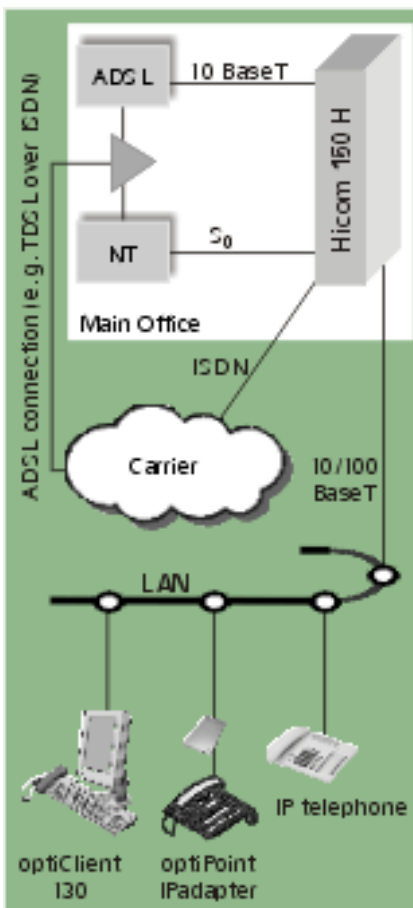
Through LAN-LAN coupling, Ethernet LANs at different locations are linked into a single corporate network using ISDN dialup lines. This makes it possible for outside locations to access central files or files at other locations, thereby meeting the requirement for interactively combining workflows in organizational units at different locations.

## Remote LAN access

By linking PCs that are installed outside the corporate LAN, an authorized group of people can be allowed to access central DP applications and information sources from an external location. This means home workstation users can access the same LAN services as users of PCs connected to the corporate LAN (data, e-mail, PC programs).

## Dynamic channel bundling

In the case of LAN-LAN coupling via ISDN up to 8 or 16 B-channels are bundled automatically depending on the transmission volume and the application packages implemented. The threshold values for dynamic channel bundling can be set. The number of B-channels can be configured for each routing partner.



## Routing functions

## Major functions

### Internet access

In addition to LAN-LAN coupling there is the possibility of Internet routing with the following features:

- Dynamic IP address procurement from the Internet provider
- Internet accessing using just one IP address of the Internet provider, i.e. cost-effective solution for all PCs in the network
- Dynamic or static channel bundling (load-dependent B-channel switching)

The Internet provider must also support these features.

### IP accounting

HiPath HG 1500 V2.0 makes an internal interface available via which, upward of Version 2.0, the TeleData Office charge solution can also collect and evaluate charge records of pure data connections.

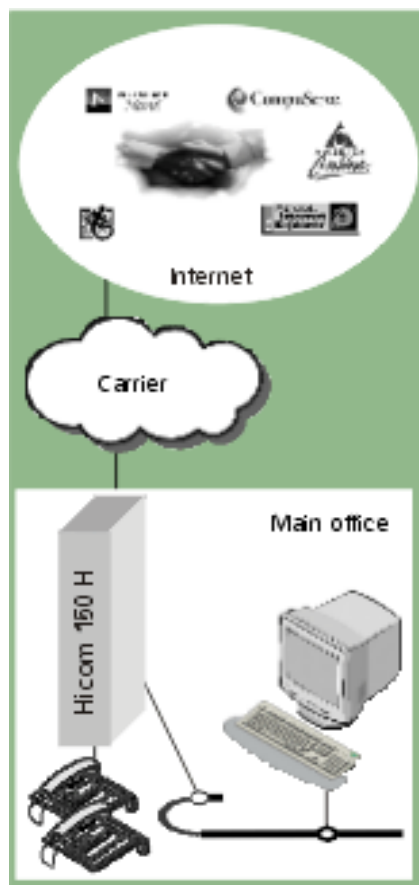
### Authentication

The PAP (Password Authentication Protocol) and CHAP (Challenge Handshake Authentication Protocol) protocols were developed in response to increasing demands placed on the security aspects of data networks. The PAP/CHAP/MS-CHAP (MS=Microsoft) procedures can be employed to authenticate the users if an external connection (WAN) is set up via HiPath HG 1500.

### Access control

Access control (firewall) prevents unauthorized persons from accessing the corporate LAN. The firewall mechanisms are:

- ISDN call number checking
- Automatic callback without setting up an ISDN toll call
- Checking the IP or IPX addressing
- MAC firewall (checking the MAC/IP address combination in the internal LAN)
- Port filtering  
Enabling and disabling services according to IP addresses



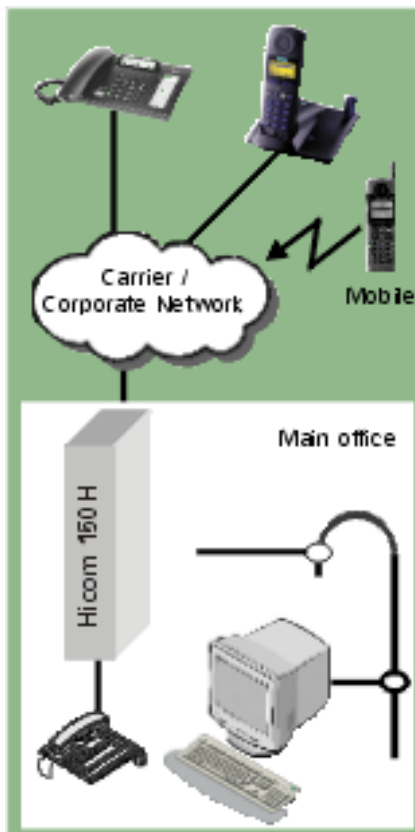
# Special applications

## Computer Telephony Integration (CTI)

The "Smartset for ISDN" CTI software is an application for computer-supported dialing using the LAN. This solution can be employed for analog and digital terminals.

Other features are:

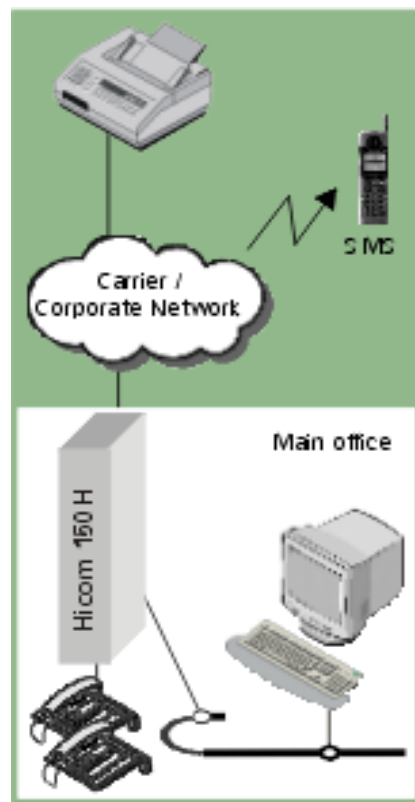
- Dialing from the telephone book
- Caller identification using the telephone book entry
- Evaluating incoming directory numbers (e.g. ISDN, mobile call number, directory number of the terminals)
- Caller list
- "Still to be called" list
- Private and business telephone book
- Connection of databases via TAPI or DDE open interfaces



## Telematic services

Access to telematic services is provided via, for example, the Fritz!32 telematic software. This ensures the transmission of data to/from any PC.

- ISDN file transfer
- T-Online (VTX)



## Administration

The administration program can be used directly via the LAN to customize all important functions, e.g. directory number and IP addresses of external partners, timer settings, and the required security mechanisms.

- Integrated in Hicom administration (Service Tool Assistant)
- Intuitive Windows user interface

- Administration, maintenance, and software upgrading on site or via remote A&M
- Own administration by the customer via LAN
- SNMP (Single Network Management Protocol) for incorporation in a network management system.

## Cost saving and controlling

The integration of router functionality in the Hicom system and the use of CTI application software via HiPath HG 1500 offers significant cost advantages for the company:

- Shared use of the Hicom system's existing external ISDN lines
- Transparency of all communication costs (voice and data) in the company by means of common connection/call cost logging
- Through the "automatic callback" function, data transmission costs are debited to the company and not to the home workstation
- Search for the most cost-effective connection path with the Hicom system's Least Cost Routing, i.e. not only for voice communication but also for data transmission
- Minimizing of Internet connection costs or Internet access licenses by the simultaneous use of a connection by a number of users in the LAN (multiple access)
- Cost saving during data transmission with the 'short hold' function, i.e. the connection is automatically cleared down if no data is transmitted. HiPath HG 1500 automatically re-establishes the connection when there are new data packets to be transmitted.

# Technical data

## System requirements

- Hicom 150 H V1.0 and HiPath 3000 series
- At least one Euro-ISDN basic access (connection to the network or another Hicom system)
- At least one free slot in the basic system

## Maximum number of HiPath HG 1500 gateways that can be used in the system

- Hicom 150 H OfficePoint and HiPath 3300/3350 V1.2: 1 gateway
- HiPath 3300/3350 V3.0: 2 gateway
- Hicom 150 H OfficeCom and HiPath 3500/3550 V1.2: 2 gateways
- HiPath 3500/3550 V3.0: 4 gateways
- Hicom 150 H OfficePro and HiPath 3700/3750 V1.2: 3 gateways
- HiPath 3700/3750 V3.0: 8 gateways

## PC / LAN

- Windows® 95/98/2000/NT 4.0
- TCP/IP or IPX/SPX network protocol

## Voice-over-IP clients supported

- optiClient 130
- Standard H.323 client
- optiPoint IPadapter

## System environment

- Switched LAN 10/100 BaseT
- Client/server and peer-to-peer networks with TCP/IP protocol
- Networks with Novell Netware and IPX/SPX protocol

## IP networking

With the aid of HiPath HG 1500 it is possible to network the Hicom 150 H and HiPath 3000 series with each other via IP. 2,000 call numbers can be administered for this and other purposes in the routing table of the HiPath HG 1500. Hicom 150 H and HiPath 3000 series.

More than 1,000 users and up to 16 nodes can be accessed in the network simultaneously through LCR entries in the Upward of HiPath HG 1500 V2.0 the connection to the corporate IP network can be provided via the second LAN interface, e.g. for a second LAN segment.

No additional routers are required.

## Interfaces and protocols

- Possibility of using up to 16 voice channels in HiPath HG 1500 (depending on the system)
- Ethernet:
  - 10/100 Mbit/s autosense
  - 10 Mbit/s with PPPoE
- SNMP
- CAPI 2.0 interface
- TAPI 3.0 interface
- Support for PAP/CHAP/MS-CHAP security protocols
- H.323 (ITU standard)
- G.711, G.723.1 Voice Coding
- PPP and PPP Multilink protocol
- V.110 bit rate adaptation for remote access via GSM
- QoS as per DIFFSERV, IEEE 802.1p, and TOS

## Basic package

- Second LAN interface
- HiPath HG 1500 with two ISDN B-channels
- Administration program
- Windows driver for CAPI 2.0 interface
- Operating documentation
- SNMP interface for fault signaling
- HiPath TAPI 120 1<sup>st</sup>-party TAPI Service Provider for connecting up to 8 clients

## Network topology

HiPath HG 1500 supports Ethernet LANs and is equipped as standard for twisted-pair port (RJ45).

## Expansion options

- Expansion in steps of 2 additional B-channels (to max. 16 B-channels)
- Smartset for ISDN (CTI application for PC-supported telephony)
- HiPath TAPI 170 (TAPI driver for connecting TAPI-enabled 3<sup>rd</sup>-party applications)  
3<sup>rd</sup>-party TAPI Service Provider Available for delivery in various basic and expansion packages. Applicable for systems with 10 or more clients.
- .Fritz!32" telematic software (application for ISDN file transfer)
- Routing application package
- optiClient 130 (software for Voice-over-IP client)
- optiPoint IPadapter  
Connection of optiset E telephones to the Ethernet LAN.
- DSL Routing application package

## Product software

HiPath HG 1500 Version 2.0

**The information provided in this document contains merely general descriptions or characteristics of performance which in case of actual use do not always apply as described or which may change as a result of further development of the products.**

**An obligation to provide the respective characteristics shall only exist if expressly agreed in the terms of contract.**