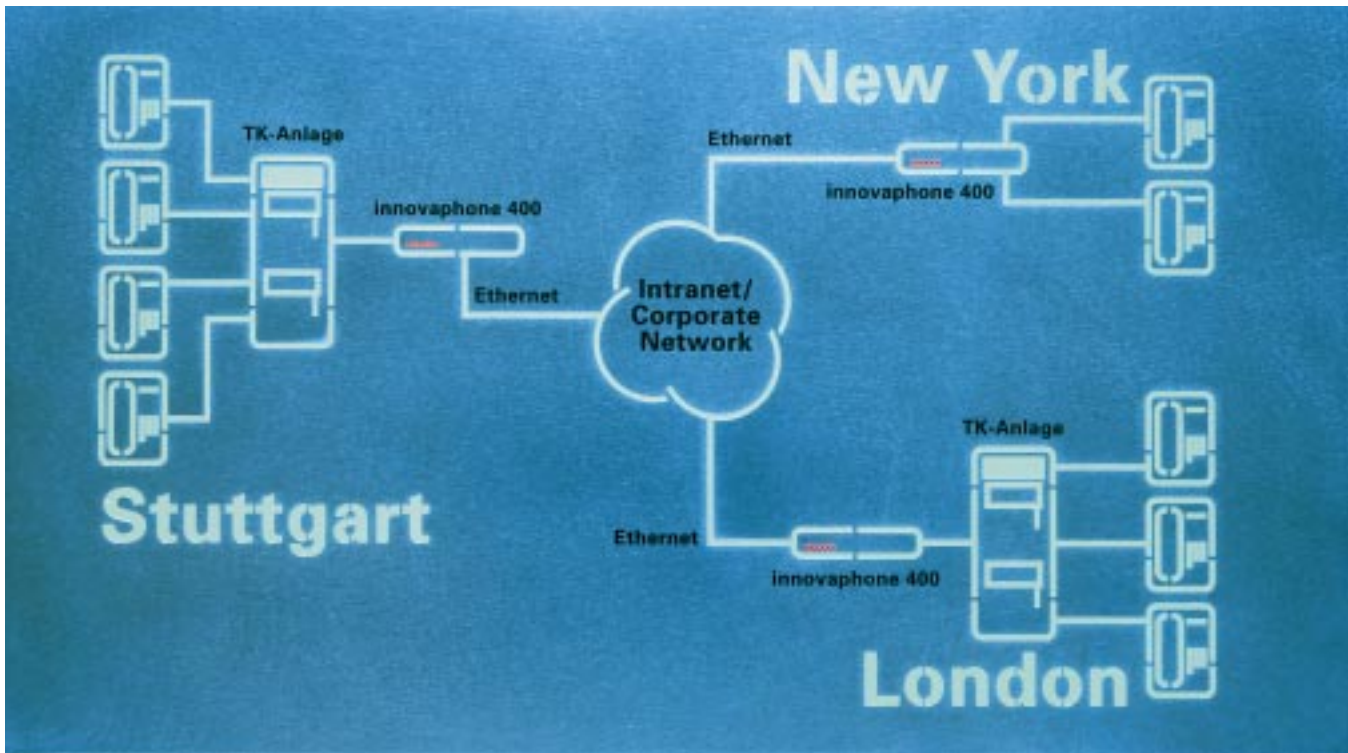


## IP 400

### Scenario



### Technical Specification IP 400

#### Interfaces:

- 2 x Basic rate S/T-interfaces, software configurable TE-/NT-mode as well as power feed ( $\leq 4W$ ) and bus termination
- 1 x Basic rate S/T-interface hard wired as TE-mode
- 1 x Ethernet 10-BASE-T

#### Hardware:

- Housing: 210 x 134 x 32 mm
- Power supply: In: 230V AC  $\pm 10\%$  -15%, 47-62Hz, 90mA  
Out: 12V DC 900 mA
- Memory: 1 or 4 MB DRAM, 512 KB or 2 MB Flash, Remotely upgradeable
- CPU's: RISC CPU for protocol data processing, Digital Signalling Processor (DSP) for voice data processing, Compression and Coding of up to 4 calls concurrently
- Temperature Range: Operating Temperature: 0°C to +45°C, 10 % to 90 % relative humidity, non-condensing  
Storage temperature: -10°C to +70°C
- Weight: 680 g

#### Protocols:

- Internet: IP, TCP, UDP, RTP, DHCP, TFTP, ICMP
- Configuration: Telnet, HTTP
- ISDN: ETSI DSS1, Q.SIG (in preparation)
- Voice over IP: H.323, H.225, H.245
- Speech Coding: G.711 A-law, G.711  $\mu$ -law, G.723.1 5.3 and 6.3 kbps with Voice Activity Detection (VAD) and Comfort Noise Generation (CNG), G.729A
- Echo compensation: G.165
- Specific features: Overlapped or non-overlapped sending  
Supports multiple MSN's  
Supports presentation of the calling subscriber number (Calling Line Identification; ANI),  
Supports call progress tones  
Supports two BRI hunt group for outbound calls  
Static IP ISDN Routing  
Gatekeeper support (in preparation)

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**IP 400**

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## IP 400 Voice over IP Gateway

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### The Benefits of IP-Telephony

To maintain two separate infrastructures for voice and data communication doubles the cost of your network. The Voice over IP Gateway IP 400 allows customers to send voice and data traffic over the same IP-network. Companies with an intranet for communication between remote offices and the main office may benefit substantially by using Voice over IP. The IP 400 can be integrated in any IP-network, regardless of the network hardware (i.e. router, bridges, radio-LANs, Frame Relay, ATM).

### The Scenario

The IP 400 is ideally suited for small and middle-size offices with 10 to 50 people, which have voice traffic daily to the same remote, perhaps even international partners. These are typically smaller locations, which are connected with their company headquarters via an IP 400, or smaller foreign offices connected with the mother company via an IP 400.

### Product Features

The voice compression on the IP 400 supports up to four concurrent voice calls. Two BRI S/T- interfaces connect the gateway to almost all common PBX-systems (i.e. those of Bosch Telekom, Siemens etc.) as well as to the trunk line. A 10BASE-T Ethernet interface connects the gateway to the IP network. The IP 400 can be configured via Telnet or a web browser.

### Voice Quality

The IP 400 uses several different standardised voice compression algorithms, such as G.723.1, G.729A and G.711. Thus, interoperability with other VoIP products such as Cisco's or ITK's is possible. There is very little or no difference to "normal" analogue or digital voice calls regarding voice quality. Due to the fact that the IP 400 is a standalone box (no PC-based solution), and due to additional features such as voice compression and echo compensation, voice quality is excellent, provided that enough bandwidth is given.

Owing to special features such as call progress tone generation (tone signals like normal telephones: dialling tone, operator and busy tone etc.) and overlap sending (phone-like dialling) the user can keep his/her phoning habits and does not even realize that the call is taking place via Voice over IP.

### Scalability

In order to extend the VoIP infrastructure and support additional ports, two or more IP 400 may be used in a row. Even if a company chooses to enlarge their network later on, further IP 400 can easily be added to the existing environment. Furthermore, the IP 400 is part of a product family with different numbers of ports and ISDN-interfaces supported (i.e. the IP 3000 as a 30 Channel Primary Rate Gateway).

### Usability

The IP 400 can be pre-configured, using the built-in flash memories, so that the gateway can be installed without problems at the customer's premises.

Since the IP 400 can be integrated into a company's existing telecommunication infrastructure the user does not need any additional know-how in order to use Voice over IP, he/she does not even notice that the call is routed over IP instead of a "normal" carrier.

#### Key features and benefits IP 400

- reduces telecommunication costs
- requires 9 kbps bandwidth per phone call (including protocol overhead)
- remote configuration and management
- pre-configuration
- interoperability with other VoIP products
- excellent voice quality
- additional features such as overlap sending, call progress tone generation
- can be attached to the PBX or the trunk line