



## Fitting The Pieces Together

Exemplary Solutions  
for Voice-Data Communications

The combination of individual components as a complete solution requires the harmonic interaction of the devices applied, technical transparency, open interfaces, and user-oriented flexibility. The product portfolio of Funkwerk Enterprise Communications GmbH (FEC) fulfils these requirements and offers optimum user benefit in practical applications.

This brochure describes exemplary applications which are implemented with FEC products.

Funkwerk Enterprise Communications GmbH is one of the leading European vendors of professional telecommunications solutions for companies, authorities, institutions, organizations, and carriers of the telecommunications, network, and information technology industries. With the brands artem, bintec, and elmeg we offer you a full product range for voice-data convergence, which by now has become a reality: Wireless LAN, IP-based routing, VPN, Voice over IP, and ISDN/xDSL systems.



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## Mobility

Roaming is an essential function when setting up a professional and cost-effective WLAN infrastructure. Roaming means that the transmission ranges of two or more wireless cells overlap intentionally so that a mobile end device can move from one wireless cell to another without the data flow, connection to the network, being interrupted.

### Your Benefits:

- Efficient roaming protocols reduce the load on the backbone
- The range is increased by means of automatic adaptation of the data rate when the cell boundary is reached (auto fallback) or by limiting the maximum data rate
- Freely configurable filter rules reduce the load on the wireless cells



- ① e.g.: **funkwerk W1002 / W2002**
- QoS support for WMM (wireless multimedia)
  - Up to 16 virtual access points per radio module
  - Power over Ethernet
  - IEEE 802.11a(h)/b/g



- ② e.g.: **bintec R1200**
- 4+1 port switch (10/100 Mbps)
  - 2x ISDN (switchable)
  - DSP slot (VoIP)
  - Incl. 10 IPSec tunnels (max. 110)

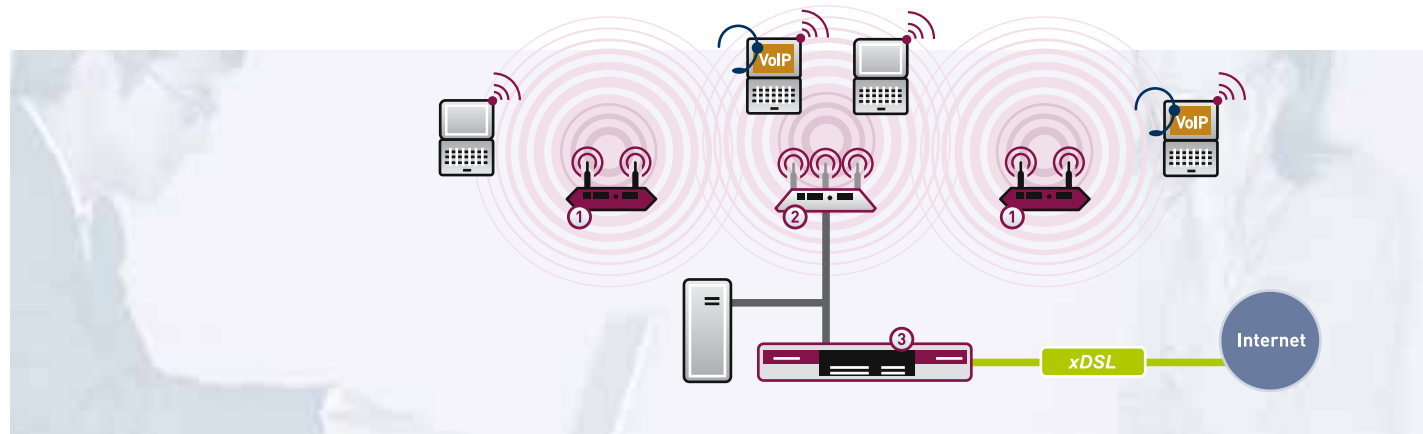
## WLAN Infrastructure with Wireless Backbone

With access points of the funkwerk Wx002 and Wlx002 series, setting up a wireless backbone becomes mere child's play. Since each access point has up to three radio modules, wireless backbones of the most diverse sizes and complexity can be set up very flexibly and quickly. Cabling between the individual access points is no longer required, since all data connections and their administration are managed via the existing wireless connection itself.

Moreover, the access points of the funkwerk Wx002 and Wlx002 series permit separation of the frequency ranges of backbone and client connections, which means that the client is always provided with the maximum data throughput.

### Your Benefits:

- Simple backbone planning
- Flexible access points placement
- Low cost initial installation and extension
- Higher capacities due to cost-effective dual / triple radio variants



#### ① e.g.: funkwerk W2002

- QoS support for WMM (wireless multimedia)
- Up to 16 virtual access points per radio module
- Power over Ethernet
- IEEE 802.11a(h)/b/g



#### ② e.g.: funkwerk WI3002

- SFP slot for fibre and Gigabit extension modules
- IEEE 802.11e and WMM (quality of service, wireless multimedia)
- Wide temperature range (-20 °C to +70 °C)
- Safety class IP 65, protection against theft



#### ③ e.g.: bintec R1200

- 4+1 port switch (10/100 Mbps)
- 2x ISDN (switchable)
- DSP slot (VoIP)
- Incl. 10 IPsec tunnels (max. 110)

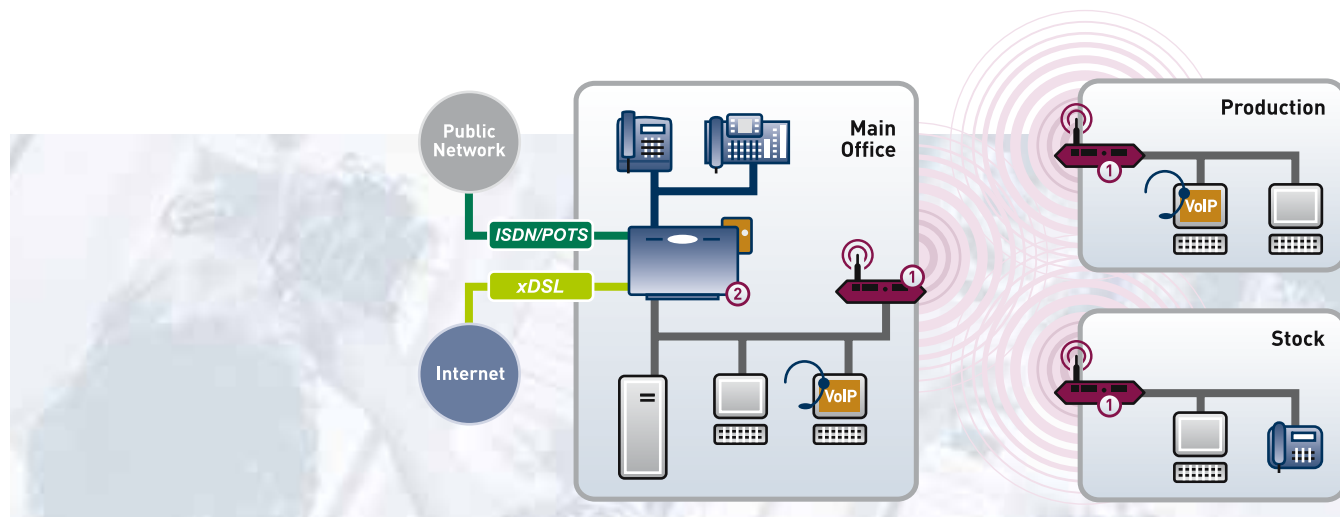
## Wireless Multi-Point Bridge

Networking two or several buildings by means of cables can be difficult and costly. Here, a WLAN bridge is the optimum solution. Setting up a WLAN multi-point bridge allows fast data exchange even between more than two buildings. Also it allows centralized administration of all external communication. The subsidiaries which are connected via WLAN bridges use the communication structure of the central office.

Using 802.11a(h) offers the advantage of a trouble-free operation parallel to other WLAN networks in the environment, as well as higher data rates and longer ranges.

### Your Benefits:

- Cost-effective networking
- Flexible infrastructure setup
- No conflicts with other wireless networks
- High data rate and long range



#### ① e.g.: funkwerk W1002

- QoS support for WMM (wireless multimedia)
- Up to 16 virtual access points per radio module
- Power over Ethernet
- IEEE 802.11a(h)/b/g



#### ② elmeg ICT with VoIP-VPN Gateway

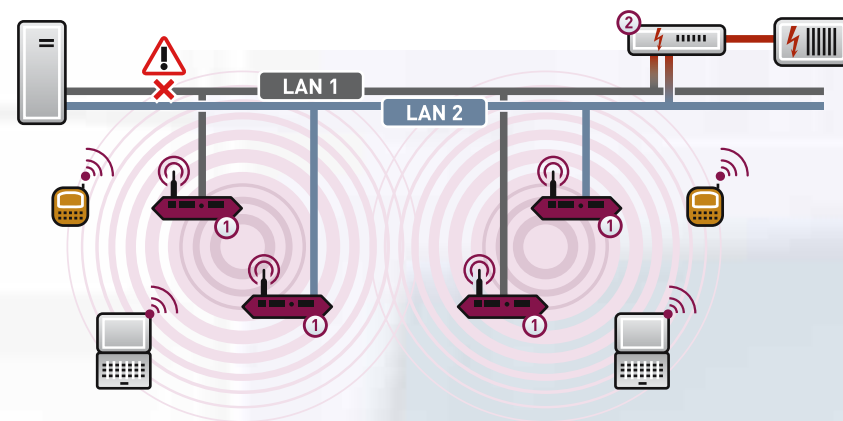
- IP telephony/IP system telephony on the LAN
- Connection of remote PBXs via VPN/IPSec
- Registration with up to 10 SIP providers
- LAN-TAPI, LAN-CAPI, RAS dial-in

## WLAN Failure Safety

Any infrastructure, no matter how carefully it has been configured, can break down completely or in part or can be affected by failures. Even if 100% availability is not required, there will be sections or situations where WLAN access is indispensable, meaning that outages or failures have to be avoided. Here, it is recommended that redundant systems are set up. If an access point or even a line breaks down, the redundant system automatically takes over the tasks of that part of the network structure affected by the outage.

### Your Benefits:

- High availability and interruption-free data communication thanks to broken link detection
- Capacity increase
- Simple installation by Power-over-Ethernet
- Common protection and connection to the UPS



#### ① e.g.: funkwerk W1002

- QoS support for WMM (wireless multimedia)
- Up to 16 virtual access points per radio module
- Power over Ethernet
- IEEE 802.11a(h)/b/g

#### ② PoE-Power Injector and UPS Emergency Power Supply

- PoE feed (Power over Ethernet)

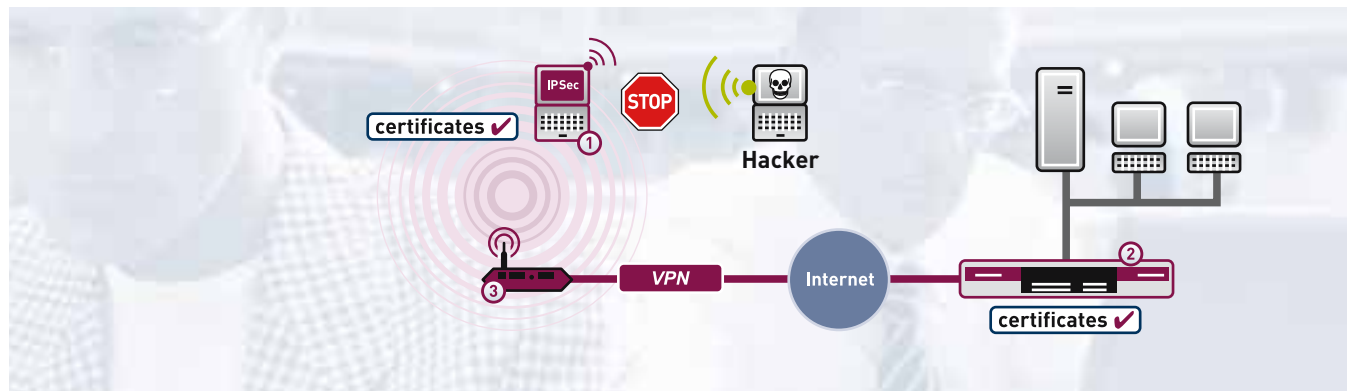
## Secure Log-On at WLAN Hot-Spots for VPN Connections

In hotels and airports publicly accessible WLANs (hot-spots) for wireless Internet access are increasingly offered. If these hot-spots are used by mobile employees to set up a data connection to the company headquarters remotely, this entails increased security risk, in particular during the connection set up phase and during transfer of access data.

Using the bintec IPsec client serves to close security gaps before the connection is actually set up. Registration at the hot spot (outside of protected VPN sectors) via a browser is optimally protected by means of the firewall which is integrated into the IPsec client, since only the required ports are dynamically shared via the firewall. After successful registration, a secure VPN connection can be set up with the company headquarters.

### Your Benefits:

- Secure data connection to company headquarters via hot-spots
- Automatic hot-spot search
- Dynamic sharing of just the required ports
- Data packets which have not been requested are blocked by the client's integrated firewall



#### ① bintec Secure IPsec Client

- Universal IPsec client software for application in any VPN environment
- High security level attained for the end device using the integrated firewall function
- Secure dial-in when used within public hot-spots



#### ② e.g.: bintec R1200

- 4+1 port switch (10/100 Mbps)
- 2x ISDN (switchable)
- DSP slot (VoIP)
- Incl. 10 IPsec tunnels (max. 110)



#### ③ e.g.: funkwerk W1002

- QoS support for WMM (wireless multimedia)
- Up to 16 virtual access points per radio module
- Power over Ethernet
- IEEE 802.11a(h)/b/g

## Virtual LANs via Multi-SSID in the WLAN

The WLAN access points of the funkwerk Wx002 and Wix002 series, as well as the bintec routers permit the simultaneous operation of several virtual WLAN networks. Each virtual WLAN receives its proper identification (SSID) and security levels. The security-relevant separation of data connections on the LAN side is extended over VLANs and can be correspondingly configured at the permanently cabled IP routers.

A closed user group with WPA encryption can for instance be configured via Multi-SSID, while a second user group is allowed to log on to the same access point in unencrypted mode. This permits mixed operation, e.g. in hotels or semi-public hot spots.

### Your Benefits:

- Secure guests log-on of to the corporate network with access restrictions
- Up to 16 VLANs possible via 16 SSIDs
- Only one access point unit required for several networks



① e.g.: funkwerk W1002 / W2002

- QoS support for WMM (wireless multimedia)
- Up to 16 virtual access points per radio module
- Power over Ethernet
- IEEE 802.11a(h)/b/g



② e.g.: bintec R3000

- ADSL2/2+ modem, 4+1 port switch
- 2x ISDN (switchable)
- DSP slot (VoIP)
- Incl. 10 IPSec tunnels (max. 110)

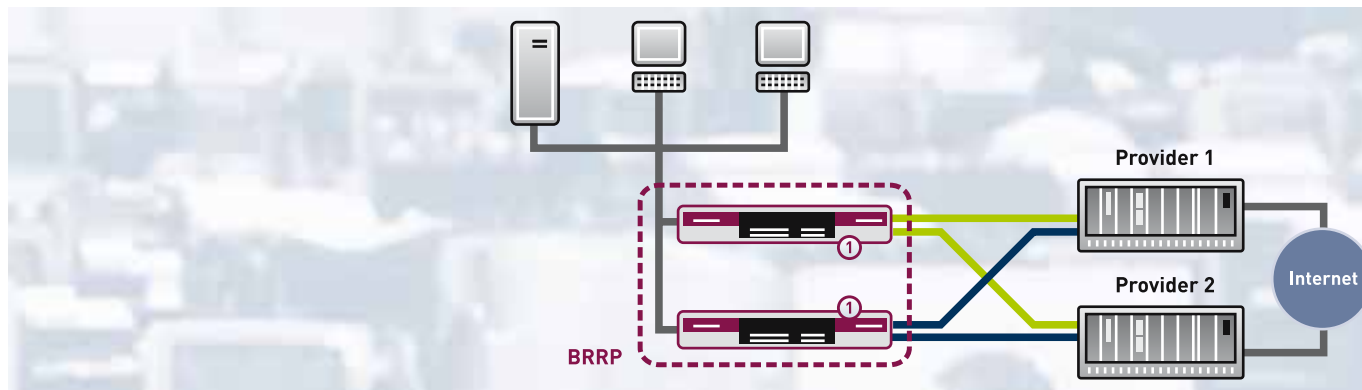
## Optimum Load Sharing and Fail-Safe VPN Networks

If access routers are used with several WAN interfaces (such as the bintec VPN access family or routers of the bintec R series) or if an existing 4-port switch can be isolated, it is possible to implement several WAN connections. The data traffic can then be distributed to the individual lines according to percentage guide values or to protocols and network services.

In addition, two devices can be operated redundantly with the bintec router redundancy protocol (BRRP). They will then act in the local network like a single device. If a device or a connection breaks down, the backup device automatically takes over the tasks of the failed component. This master-backup configuration is completely transparent to the LAN user.

### Your Benefits:

- Individual load sharing for the data streams
- Increase of data rate or bandwidth
- High availability and trouble-free data communication
- Automatic switch-over between master and backup router



- ① e.g: bintec R3000
- ADSL2/2+ modem, 4+1 port switch
  - 2x ISDN (switchable)
  - DSP slot (VoIP)
  - Incl. 10 IPSec tunnels (max. 110)

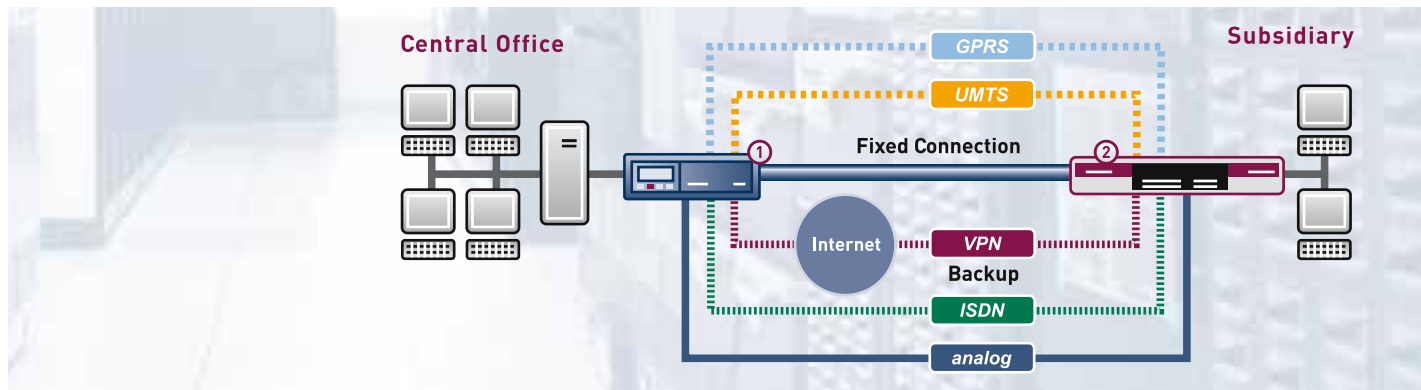
## Failure Safety via Multiple Backup

A stable and highly available network connection is gaining ever-increasing significance for enterprises and applications. To reach the demanded maximum degree of availability, bintec routers are provided with comprehensive backup mechanisms. They monitor the connections permanently and prevent line outages that cause communication failure.

If the router detects an interruption of the permanent or VPN connection, a new connection is set up automatically. This procedure can be configured individually. After the fault clearance, the original connection is automatically restored.

### Your Benefits:

- Automated control and set up of the backup connection in the case of failures
- Protection of a continuous data flow for business-critical applications
- Automatic restoration of the original connection after fault clearance
- Utilization of the most diverse carrier media and multiple backup solutions possible



① e.g.: bintec X8500-P8

- 8 slots for extension modules
- Cards for BRI and E1 leased lines
- Resource cards for symmetrical encryption and key negotiation
- Hot-swap function for all cards



② e.g.: bintec R4300

- 2x ISDN (switchable), up to 2x X.21
- VPN-PPtP integrated
- Incl. 10 IPSec tunnels (max. 110)
- DSP slot (VoIP)

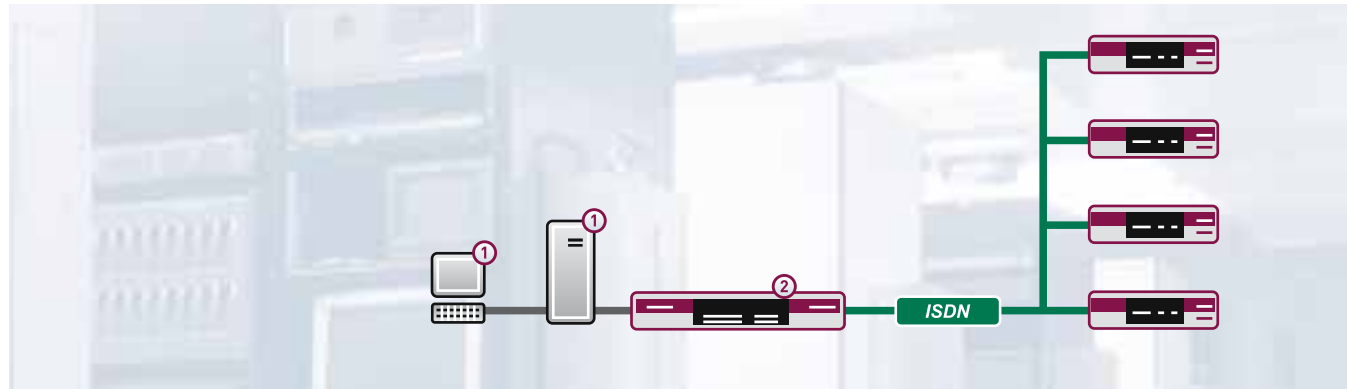
## Remote Maintenance and Automation of Router Configuration with bintec XAdmin

Mass rollouts and the maintenance of large-scale router installations can conveniently be automated with the bintec XAdmin software tool. No matter whether you are performing configuration updates or installing new software images, executing automated mass updates or manual, individual updates, maintaining a group of routers in a computing center or remote routers installed in subsidiaries, all these tasks can automatically be carried out from a central location.

A web-based user interface provides access from each PC within the local network. The connection from the central router to the destination routers can be set up via ISDN or IP connections.

### Your Benefits:

- Automated mass and individual updates
- Minimal installation effort via the definition of time-controlled processes
- Time and cost savings using remote maintenance instead of deploying a technician on-site
- Comprehensive scope of functions for success control, logging and reporting



### ① bintec XAdmin

- Installation on LAN server (Linux)
- Automated / event-controlled initial configuration and updates
- Inventory of existing and new target routers
- Application in ISDN and IP environments



### ② e.g.: bintec R4100 (Configuration Router)

- 4x ISDN (switchable), 2x PRI
- VPN-PPtP integrated
- Incl. 10 IPSec tunnels (max. 110)
- DSP slot (VoIP)

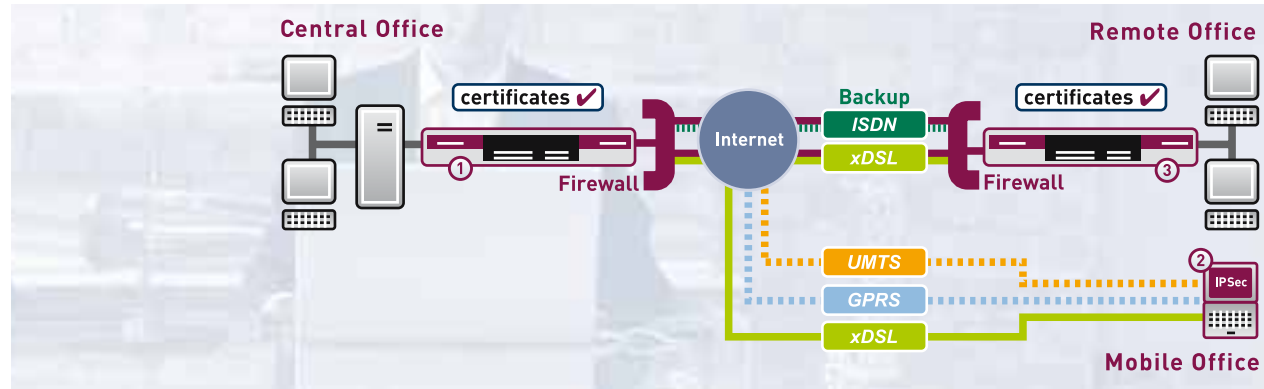
## VPN Access for Mobile Employees and Home Offices via IPSec

The secure data exchange between sites, subsidiaries, and mobile employees is gaining more and more significance, particularly for business-critical information like price lists, sales figures, customer data, money transactions, etc. The protected VPN connections serve to securely connect teleworkers and mobile employees, as well as subsidiaries, via the Internet to the company headquarters. FEC offers high-end IPSec implementation with features which are essential for practical application such as: support of certificates, RADIUS, IPCOMP, NAT, QoS, as well as dynamic IP addresses.

Depending on the unit in question, the bintec VPN Access family permits the simultaneous set up of up to 1000 VPN tunnels due to a high-performance platform. Via ISDN or GSM, mobile employees with IPSec clients can securely access central corporate data sets any time.

### Your Benefits:

- Highest security level during data transfer by means of certificate support
- Secure connection of mobile employees to the corporate network
- Creation of a cross-site, transparent network infrastructure
- VPN as basic technology for advanced services, such as VoIP or VoVPN



#### ① e.g.: bintec R3000

- ADSL2/2+ modem, 4+1 port switch
- 2x ISDN (switchable)
- DSP slot (VoIP)
- Incl. 10 IPSec tunnels (max. 110)



#### ② bintec Secure IPSec Client

- Universal IPSec client software for application in any VPN environment
- High security level attained for the end device using the integrated firewall function
- Secure dial-in when used within public hot-spots



#### ③ e.g.: bintec R1200

- 4+1 port switch (10/100 Mbit)
- 2x ISDN (switchable)
- DSP slot (VoIP)
- Incl. 10 IPSec tunnels (max. 110)

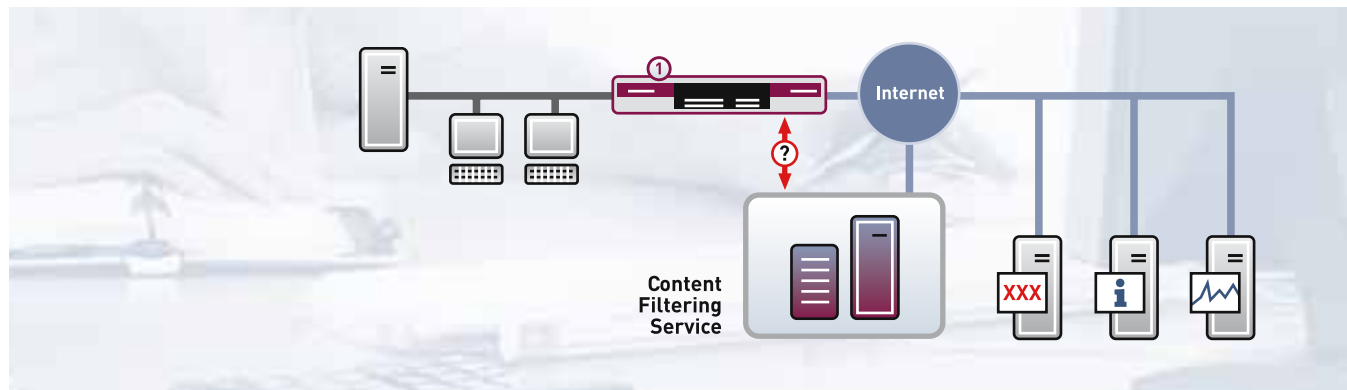
## Web Content Filtering

The filtering of Internet pages, which are accessed from the workplace, is often regulated by corporate policy, in addition to the legally stipulated obligation of the company to protect its employees against content of a sexist or politically incorrect nature. This also includes the blocking of web pages with current job offers from competitors or preventing illegal uploads and downloads of music or video files during work time.

The “content filtering” function implemented in the router allows checking of all Internet access from the LAN using an external service before the connection is shared. Due to text and image detection systems and permanent updates, these services provide a precise and detailed classification. The classification made by the service can subsequently be edited via filter rules.

### Your Benefits:

- Access control for specific web pages
- Fulfilment of the duty of care by the company
- Additional protection against dangers which may be caused by accessing web pages (viruses, spyware, etc.)
- Permanent, up-to-date database classification



① e.g.: **bintec R1200**

- 4+1 port switch (10/100 Mbit)
- 2x ISDN (switchable)
- DSP slot (VoIP)
- Incl. 10 IPsec tunnels (max. 110)

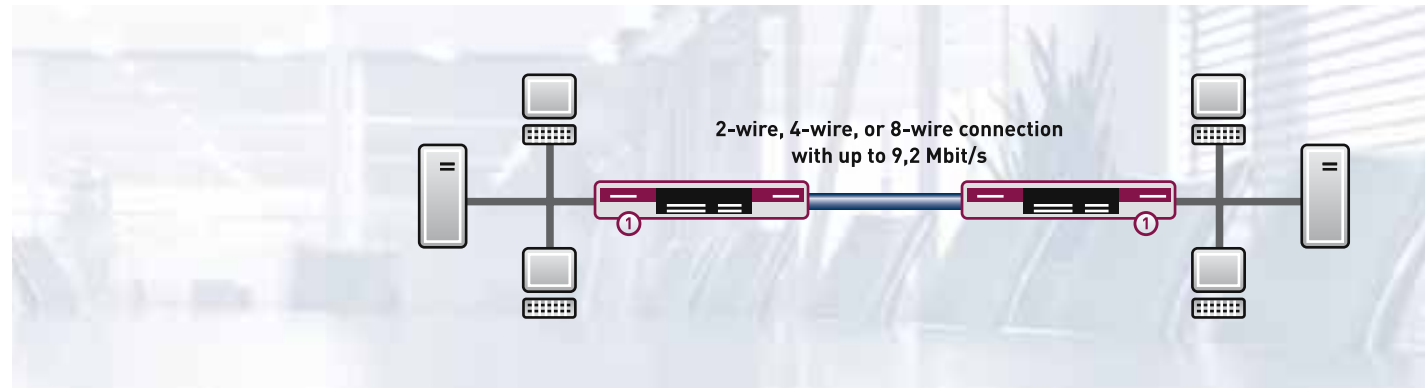
## LAN-to-LAN Coupling with Symmetrical Bandwidth

SHDSL defines a symmetrical DSL variant, which offers advantages particularly for enterprise applications. High data rates with the same transmission rates in both directions permit efficient communication with web servers or virtual workplaces.

In combination with the VPN function of the bintec R3x00 series, spatially separated LANs with symmetrical bandwidths can be networked securely.

### Your Benefits:

- Symmetrical bandwidth for upload and download
- Up to 4.6 Mbps for 4-wire line (R3400)
- Up to 9.2 Mbps for 8-wire line (R3800)
- Broadband LAN-to-LAN coupling with VPN function



### ① e.g.: bintec R3800

- 8-wire SHDSL (up to 9.2 Mbps)
- Incl. 10 IPSec tunnels (max. 60)
- ISDN backup, remote administration
- 4-port switch, DMZ port, QoS, OSPF

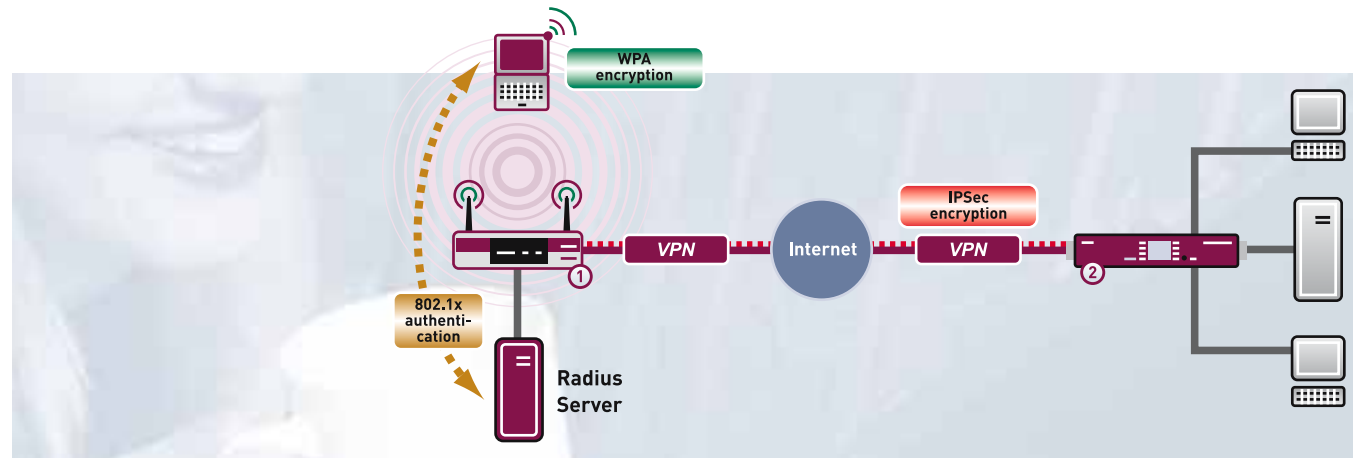
## Top-Level Data Security with 802.11i and IPSec

Universal access to corporate resources, as a key requirement, makes special demands on the security of transmitted information. Here, both the LAN and WAN trunks have to be protected in an appropriate manner.

For the WLAN access in the LAN, authentication can be performed at a local Radius server by means of WPA/WPA2. The WAN connection to the opposite terminal is protected via an IPSec tunnel. It is, therefore, possible to implement a secure point-to-point connection for a wireless client using an authentication server.

### Your Benefits:

- 802.1x authentication at the central Radius server
- Strong encryption in the WLAN by means of WPA/WPA2
- Secure WAN connection via IPSec tunnel
- Point-to-point security for wireless clients



#### ① e.g.: bintec R232bw

- ADSL2+ and 4-port switch
- SIP proxy for Internet telephony
- IPSec for secure VPNs
- WLAN with WPA2 and Multi-SSID (R230aw)



#### ② e.g.: bintec VPN Access 250

- IPSec and PPTP encryption
- Load balancing and diverse backup options
- Application also possible when using dynamic IP addresses

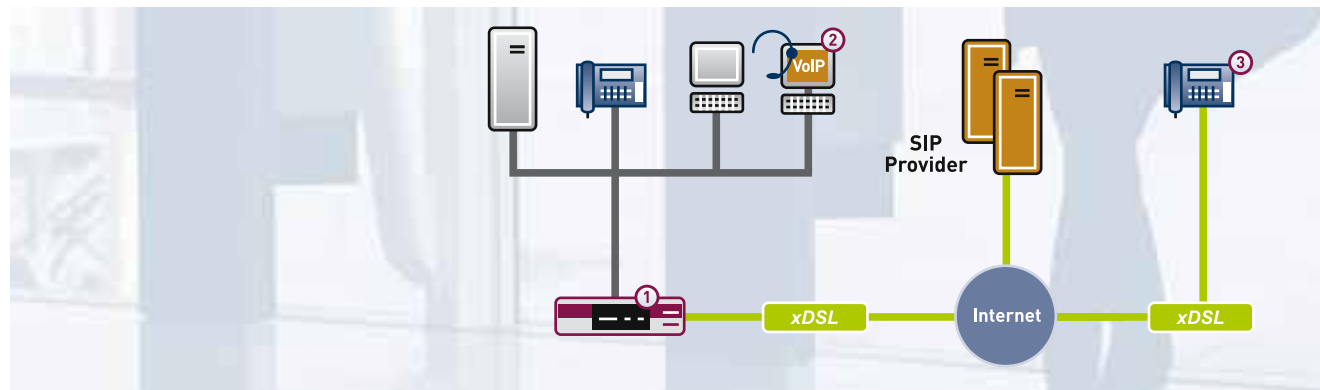
## Internet Telephony via SIP Providers

Many providers use the SIP protocol for their VoIP offering. The router and its scope of performance play an important role in the integration of SIP-VoIP within a LAN.

The Application Level Gateway (ALG) implemented in the access routers of the bintec R series can take over the function of SIP proxy and permits the application of IP telephony with SIP providers. The ALG monitors the SIP communication and dynamically activates the required NAT and firewall settings on the router for the duration of the connection period. In the LAN, either hardware-based IP telephones or so-called soft phones can be used for communication.

### Your Benefits:

- Internet Telephony via SIP providers
- Proxy function transparent to the user
- Dynamic activation of NAT and firewall settings
- IP telephony over IP telephones or soft phones



- ① **e.g.: bintec R232b**
- ADSL2+ and 4-port switch
  - SIP proxy for Internet telephony
  - IPSec for secure VPNs



- ② **FEC SIP-Serv Client**
- Extendable soft PBX for ISDN and SIP
  - Soft clients with Outlook integration and busy lamp field
  - Connection of IP phones with SIP standard, e.g. elmeg IP290



- ③ **e.g.: elmeg IP290**
- 2-line display with graphics field
  - RFC 326-compatible SIP stack
  - Hands-free speech and headset connection
  - Codecs G.711, G.723.1, G.729a, etc.

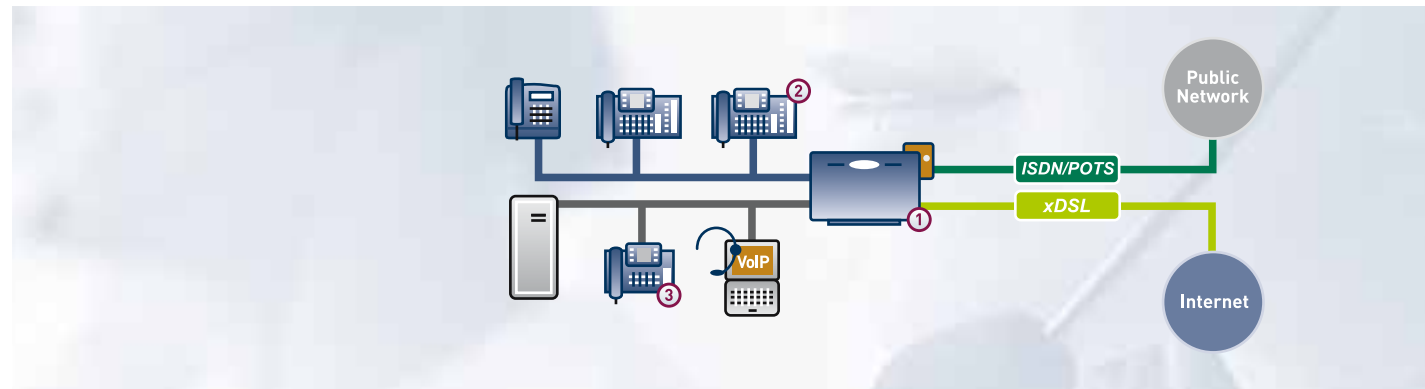
## Migration to Voice over IP

With the VoIP-VPN Gateway module the ICT unit of the elmeg ICT series becomes a flexible central management component for ISDN telecommunication and data connections of all types, including connection of IP telephones within the LAN.

In addition to conventional extensions using analog, ISDN, U<sub>p0</sub> or DECT end devices, you can now also use IP telephones with SIP standard with the ICT systems of the elmeg ICT series. This offers an optimal migration path for your existing ICT systems and once again underlines the investment protection achieved by the application of an elmeg ICT.

### Your Benefits:

- Smooth migration to VoIP
- A common network infrastructure for VoIP and data reduces maintenance costs.
- Less cost and time for office moves or integration of new employees
- Parallel operation of analog, ISDN and IP-based end devices



#### ① elmeg ICT with VoIP-VPN Gateway

- IP telephony/IP systems telephony in the LAN
- Connection of remote PBXs via VPN/IPSec
- Registration with up to 10 SIP providers
- LAN-TAPI, LAN-CAPI, RAS dial-in



#### ② e.g.: elmeg CS400xt

- 7-line, illuminated graphics display
- Headset connection
- 15 function keys with LED
- Emergency operation in the case of power failure



#### ③ e.g.: elmeg IP-S400

- IP systems telephone with 7-line, illuminated graphics display
- elmeg T400 keyboard extension optionally available
- Systems telephony with VoIP-VPN gateway
- Power over Ethernet

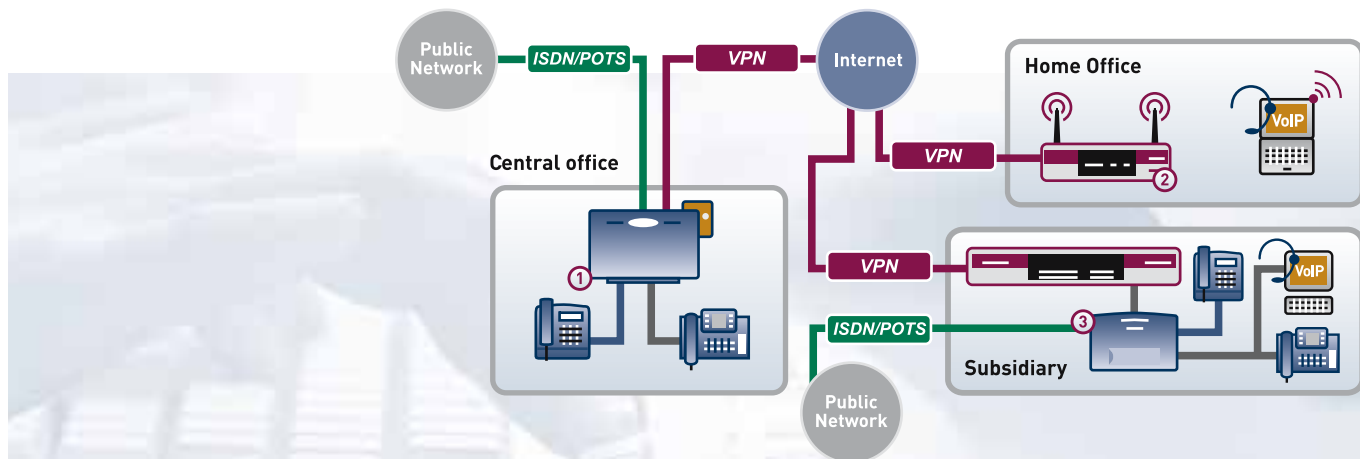
## Connection of Remote Subsidiaries

VPN connection of remote subsidiaries allows external employees, for instance in home offices or subsidiaries, to be integrated into the central telecommunications systems and to be called like internal subscribers. For the transfer of VoIP voice data, the existing VPN connections to the remote subsidiaries are used.

The subscriber portability achieved in this way permits your employees to be available at any of the IP telephones within the system under the same call number, no matter whether they work in an office in the company headquarters or in a home office. After entering the personal log-on data at the IP telephone, flexible routing is performed. Additionally, all subscribers can make use of all the functions of the central telecommunications system.

### Your Benefits:

- Systems telephony can also be used in the home office
- Subscriber can always be reached under the same call number (subscriber portability)
- A common network infrastructure for VoIP and data reduces the maintenance costs
- Secure voice and data transmission over VPN



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- ADSL2+ and 4-port switch
- SIP proxy for Internet telephony
- IPSec for secure VPNs
- WLAN with WPA2 and Multi-SSID (R230aw)



#### ③ e.g.: elmeg T444

- VoIP-capable
- 1 internal ISDN access for system telephony
- Integrated xDSL/ISDN IP router
- Individually extendable using the 2 a/b module or POTS

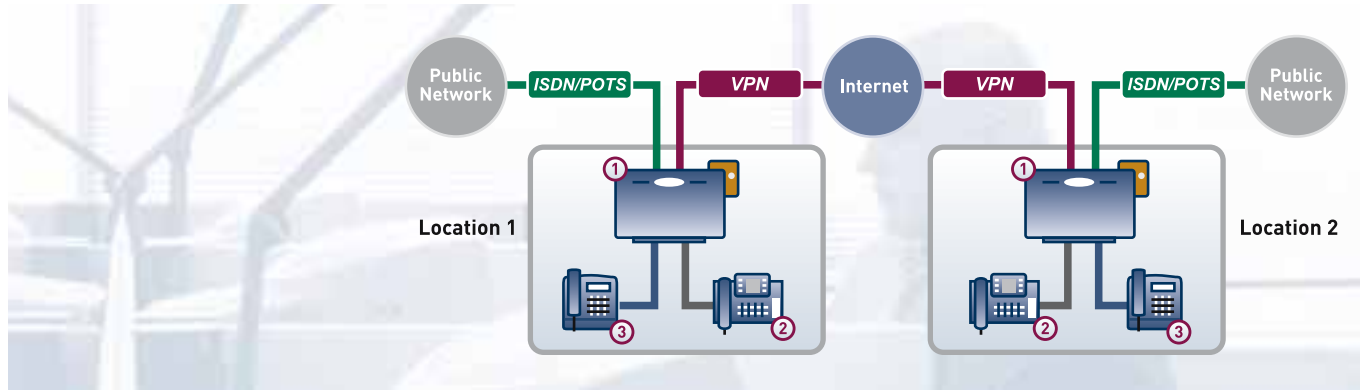
## Interconnection of Sites via SIP

With the VoIP-VPN Gateway module the ICT unit of the elmeg ICT series becomes a flexible central management component for ISDN telecommunication and data connections of all types, including interconnection of sites over the Internet. A VPN connection implemented for the data exchange between sites is also used for transfer of voice data.

After configuring LCR Professional of the ICT system, all connections between the sites, no matter whether for telephony or data transfer, are automatically routed to the existing VPN connection.

### Your Benefits:

- VPN function of the elmeg ICT makes further routers in the central office superfluous.
- Parallel operation of analog, ISDN and IP-based end devices with the same scope of functions
- Secure voice and data transmission over VPN
- A shared network infrastructure for VoIP and data reduces maintenance costs



### ① elmeg ICT with VoIP-VPN Gateway

- IP telephony/IP systems telephony in the LAN
- Connection of remote PBXs via VPN/IPSec
- Registration with up to 10 SIP providers
- LAN-TAPI, LAN-CAPI, RAS dial-in



### ② e.g.: elmeg IP-S400

- IP systems telephone with 7-line, illuminated graphics display
- elmeg T400 keyboard extension optionally available
- Systems telephony with VoIP-VPN gateway
- Power over Ethernet



### ③ e.g.: elmeg CA50

- Analog telephone with alphanumeric LCD display
- Phone book with up to 70 entries
- 3.5 mm headset jack
- Hands-free telephone function

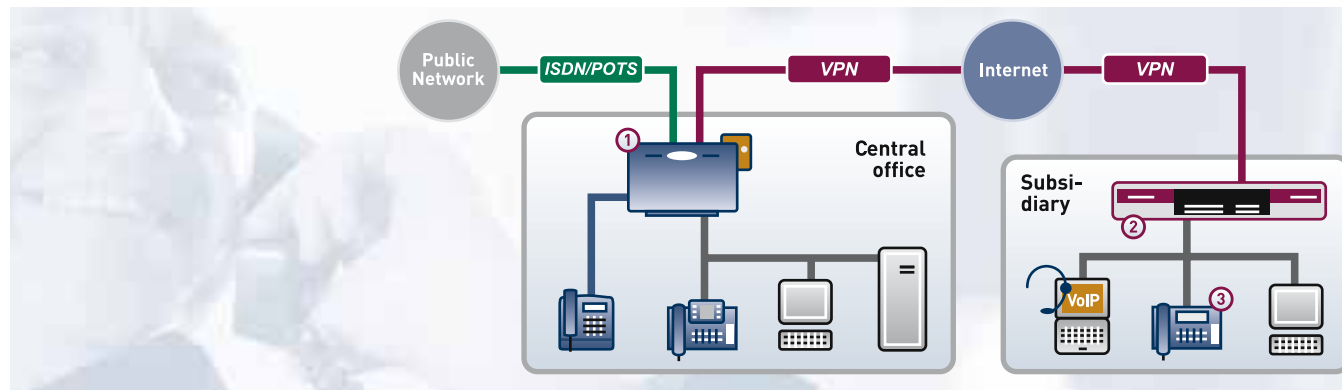
## Quality of Service for VoIP Applications

For the successful operation of Voice over IP, the voice quality and the stability of the connection have to be ensured. To avoid delays caused by data transport, all data connections of the IP line are classified by the router (Quality of Service, QoS) and VoIP connections are prioritized over other data. QoS is, therefore, an essential function for Voice over IP.

Thanks to QoS, remote sites can be connected to the company headquarters via a single data line, which offers telephony and data connections simultaneously. Existing PBX units can be extended by means of IP telephones in this way.

### Your Benefits:

- Prioritisation of voice data over PC data
- Cost savings due to the use of a single connection
- Reduced of installation and maintenance effort
- Provision of integrated software solutions instead of specific hardware



#### ① elmeg ICT with VoIP-VPN Gateway

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- Connection of remote PBXs via VPN/IPSec
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- DSP slot (VoIP)
- Incl. 10 IPSec tunnels (max. 110)



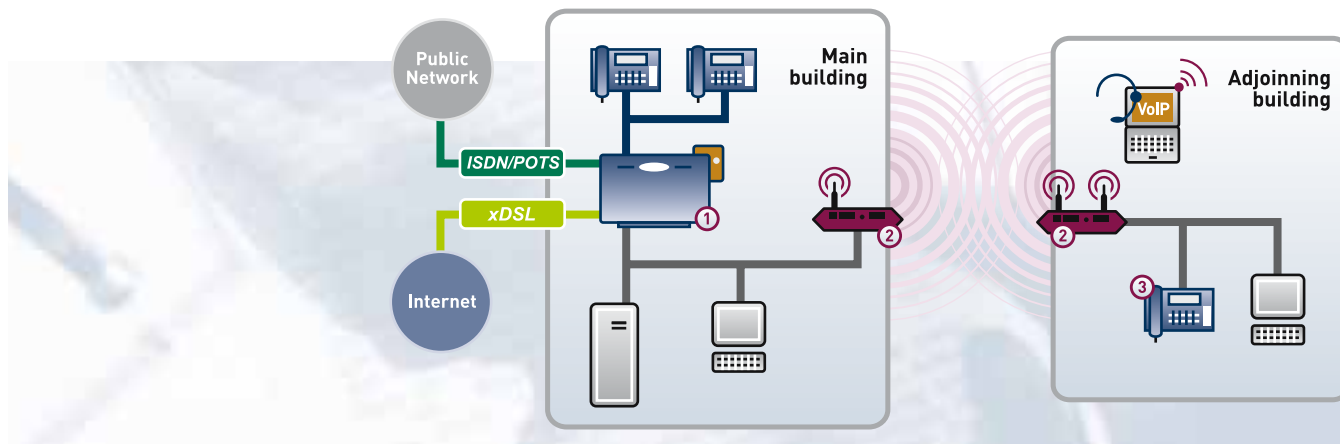
#### ③ e.g.: elmeg IP290

- Stand-alone IP telephone for SIP access
- RFC 326-compatible SIP stack
- Hands-free speech and headset connection
- Codecs G.711, G.723.1, G.729a, et al.

## Quality of Service for VoIP Applications in the WLAN

To make high-quality telephone calls over the WLAN, i.e. VoIP over WLAN, the access points used have to ensure voice quality and connection stability. To do this, data throughput delays have to be avoided in the first place. Voice data has to be prioritized over “normal” data. With WMM (Wireless Multimedia) and QoS (Quality of Service), the access points of the funkwerk Wx002 series support functions which perform this classification and permit trouble-free VoIP over WLAN.

Thanks to WMM, remote sites can be connected to the company headquarters via a WLAN bridge, which offers telephone and data connections simultaneously. WMM also serves to prioritize calls in the WLAN.



### Your Benefits:

- Top voice quality on the WLAN wireless trunk
- Cost savings by means of WLAN access
- Cost reduction due to lower maintenance and installation costs



- ① **elmeg ICT with VoIP-VPN Gateway**
- IP telephony/IP systems telephony in the LAN
  - Connection of remote PBXs via VPN/IPSec
  - Registration with up to 10 SIP providers
  - LAN-TAPI, LAN-CAPI, RAS dial-in



- ② **e.g.: funkwerk W1002/W2002**
- QoS support for WMM (wireless multimedia)
  - Up to 16 virtual access points per radio module
  - Power over Ethernet
  - IEEE 802.11a(h)/b/g



- ③ **e.g.: elmeg IP290**
- Stand-alone IP telephone for SIP access
  - RFC 326-compatible SIP stack
  - Hands-free talking and headset connection
  - Codecs G.711, G.723.1, G.729a, etc.

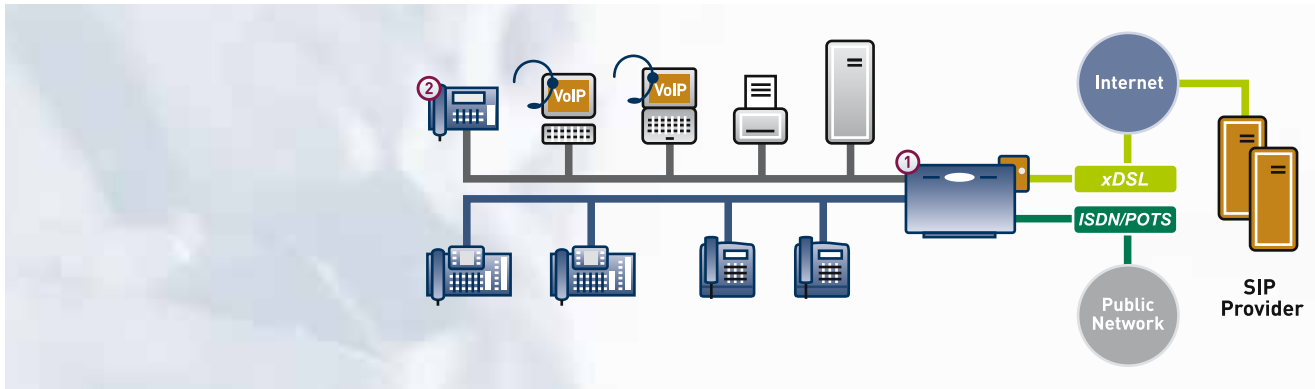
## Central VoIP Access to the SIP Provider

The VoIP-VPN Gateway for the ICT units of the elmeg ICT series offers a central VoIP access to up to 10 SIP providers easily configured using the elmeg WIN tools and the integration into the LCR Professional of the ICT system. As a result, all end devices connected to the ICT system, including analog and ISDN telephones, can make phone calls over the Internet without any problems.

Due to the comprehensive bundling functions, you can individually determine for your subscribers which external accesses—ISDN, PRI, SIP-VoIP, VPN—are to be used. LCR Professional integrated into the elmeg ICT series also offers automated selection of various providers according to the time of the day and the number dialed.

### Your Benefits:

- Considerable reduction of telephone costs, in particular when making many international calls
- Automated selection of the most economically-priced provider
- Internet telephony for all connected telephones
- ISDN connection (increased failure safety), also for IP telephones



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#### ② e.g.: elmeg IP-S290

- Systems telephony with VoIP-VPN gateway
- 2-line display with graphics field
- 5 programmable function keys with LEDs
- Headset connection

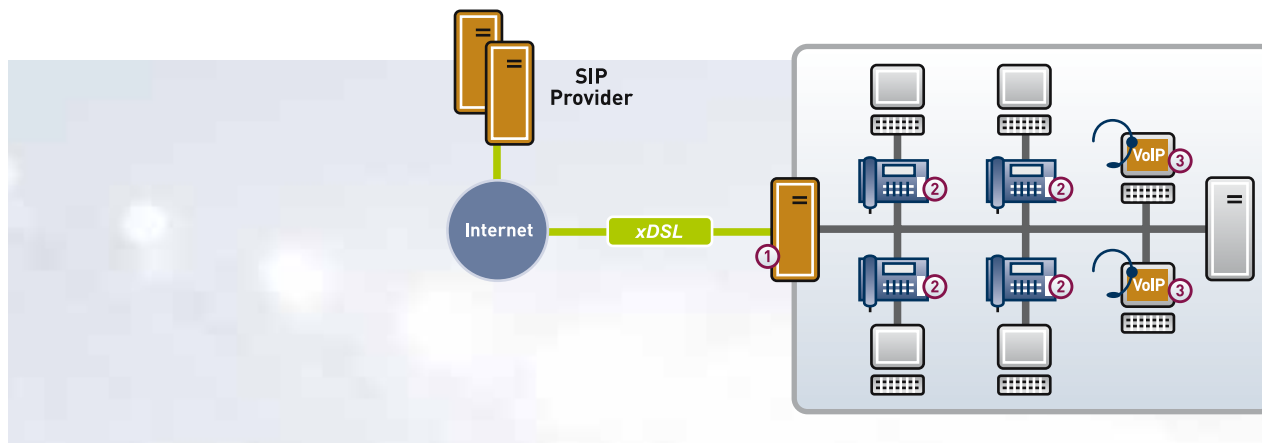
## IP-Based PBX

In particular large-scale systems or environments such as hotlines or call centers are ideally suited for pure IP-based telecommunications systems. The existing LAN infrastructure can optimally be used for telephony, the administrator only has to maintain a single network.

Existing PC workplaces are suited for the application of the FEC SIP-Serv clients which, due to the integration of Outlook, offer convenience to the user. Functions such as the direct dialling of contacts or the display of a contact in the case of an incoming call are standard features. Display of status messages for all clients logged on to the system, a server-based call answering machine, as well as functions executable directly via mouse click, such as call forwarding, 3-party conferences, or alternating between lines, are further convenient functions.

### Your Benefits:

- The system can easily be extended by further clients
- Phone calls via mouse click
- Soft client Outlook integration
- Display of status messages for the registered clients



#### ① FEC SIP-Serv

- Extendable soft PBX for ISDN and SIP
- Soft clients with Outlook integration and busy lamp field
- Connection of IP phones with SIP standard, e.g. elmeg IP290



#### ② e.g.: elmeg IP-S290

- Systems telephony with VoIP-VPN gateway
- 2-line display with graphics field
- 5 programmable function keys with LEDs
- Headset connection



#### ③ FEC SIP-Serv Client

- Extendable soft PBX for ISDN and SIP
- Soft clients with Outlook integration and busy lamp field
- Connection of IP phones with SIP standard, e.g. elmeg IP290

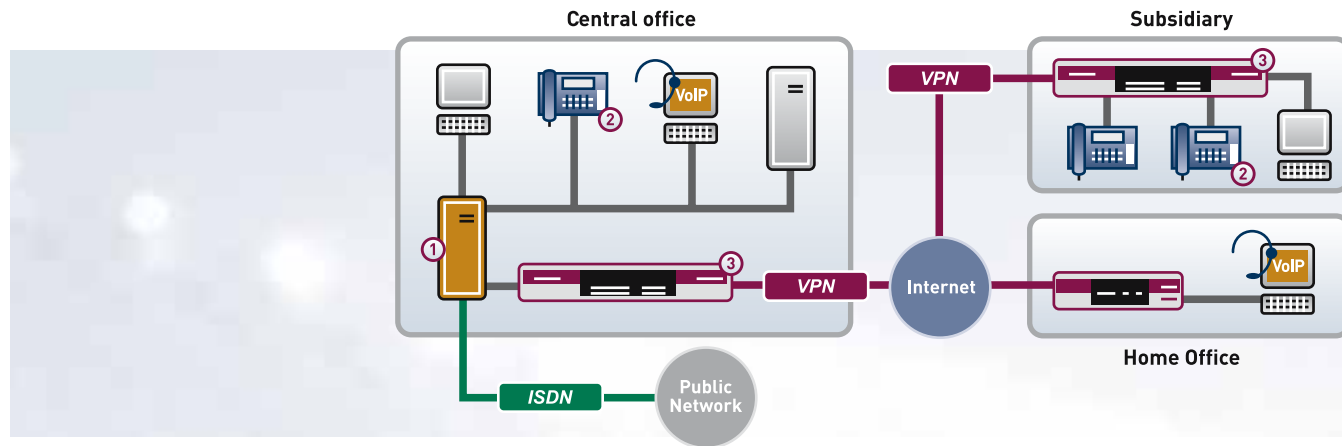
## Connection of Remote Subsidiaries with IP-Based PBX

FEC SIP-Serv is the ideal solution for networking subsidiaries of companies with several sites or international offices or for connection of employees in home offices. Employees are able to log on to the system in the central office from any location even while they are on the move and can be reached by phone at any time using the known call number or extension.

Pre-switched VPN routers serve to secure the data transfer and to protect the telephone calls made over VPN tunnels—VoVPN®—against access by unauthorized persons.

### Your Benefits:

- Easy integration of new clients when extending the system
- Outlook integration of the soft clients
- Making phone calls via mouse click
- Display of status messages for the registered clients



#### ① FEC SIP-Serv

- Extendable soft PBX for ISDN and SIP
- Soft clients with Outlook integration and busy lamp field
- Connection of IP phones with SIP standard, e.g. elmeg IP290



#### ② e.g.: elmeg IP-S290

- Systems telephony with VoIP-VPN gateway
- 2-line display with graphics field
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- Headset connection



#### ③ e.g.: bintec R1200

- 4+1 port switch (10/100 Mbit)
- 2x ISDN (switchable)
- DSP slot (VoIP)
- Incl. 10 IPSec tunnels (max. 110)



# Perfect match.

**If you have any questions or require further information,  
feel free to contact us!**

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