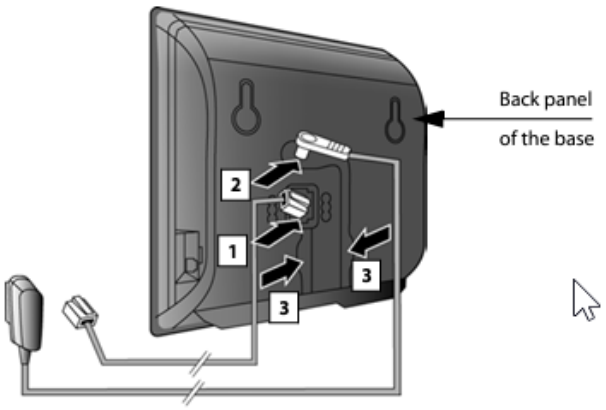
One man business or home office {only one or two external telephone numbers, multiple simultaneous calls, multiple telephones/extensions, call routing based upon inbound callerID, call blocking/routing, remote access, smart phone use from any location, voicemail etc…}

Existing BT or other telco provided routers can be used, but they are severely restrictive and limit routing and functionality. In the simplest configuration – a router can be installed in place of the provider router {or you can configure to use ports to get around the existing router}, connection then made to a DECT telephone system which allows upto 6 SIP trunks {each with a different telephone number} with 6 handsets within the home/office all with their own extension number. Calls can be configured to route to the required handset based upon inbound callerID and/or inbound called number. Calls can be routed to voicemail or out to smartphone or cellphone as required. Dialplans can be configured to decide which telephone number is used to make outbound calls through any of the connected trunks.

VoIP DECT systems available in different styles and colours, as basic, complex, ruggedised and large button versions to suit all requirements. Up to six handsets per base and up to 6 VoIP SIP trunks to VoIP providers to support up to six external telephone numbers per DECT base. Internal calls are direct and free.



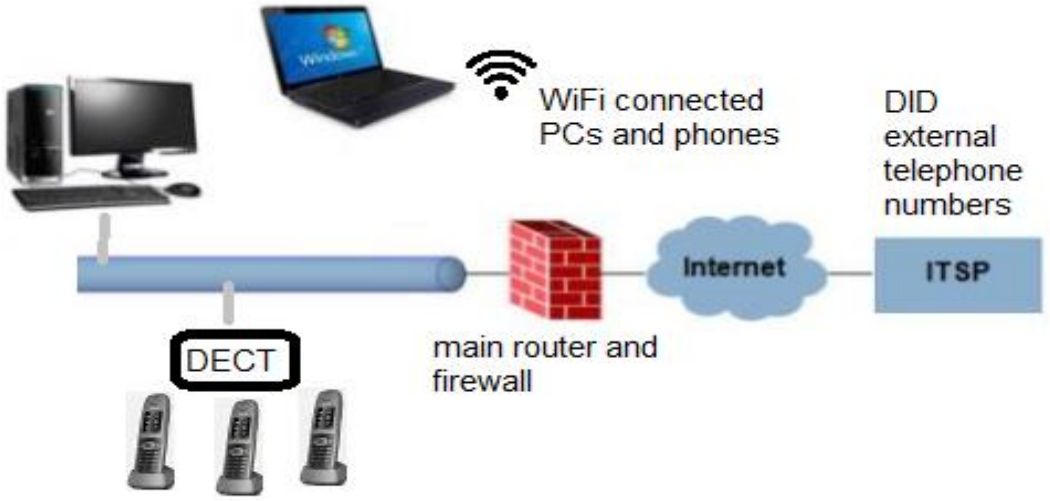
Allows connections to old analogue lines 1, power supply 2,
Network connection to the router 3

front view of DECT base

Average cost of DECT handsets approx £ 90 each including the DECT base. Package deals are available with a DECT base plus 6 handsets for less than £400.

DECT has a very good range from the base units of about 50m indoors and >300m outdoors. DECT {Digital Enhanced Cordless Telecommunications} is designed for voice and is very energy efficient and uses 24 encrypted time slots over 1900MHz supporting HD Voice, low battery drain and plenty of features.

Basic configuration example



Using an existing BT/Plusnet/EE HUB router can be difficult because they have been designed to route all SIP voice traffic via the in built ATA and single analogue telephone socket. It is possible to configure around this limitation by using non-standard port numbers for voice, however, the hub routers are of low quality and are usually 10% to 20% slower than a replacement router, so it is often better to replace any of the BT/PlusNet/EE badged Sagem router/hubs if at all possible.

Budget Implementation If using existing telephones

Cisco refurbished router	< £ 80
ATA {analogue telephone adapter}	< £ 40
Port existing telephone number to VoIP	should be free
VoIP provider account startup	< £ 20

Assuming you do your own wiring and configuration

Total < £ 140

Monthly costs then < £3 per telephone number

Plus call charges @ approx £ 0.005 per min {billed to 6 seconds}

{bundle prices are also available depending upon requirements}

Saving more than £19 per month vs BT

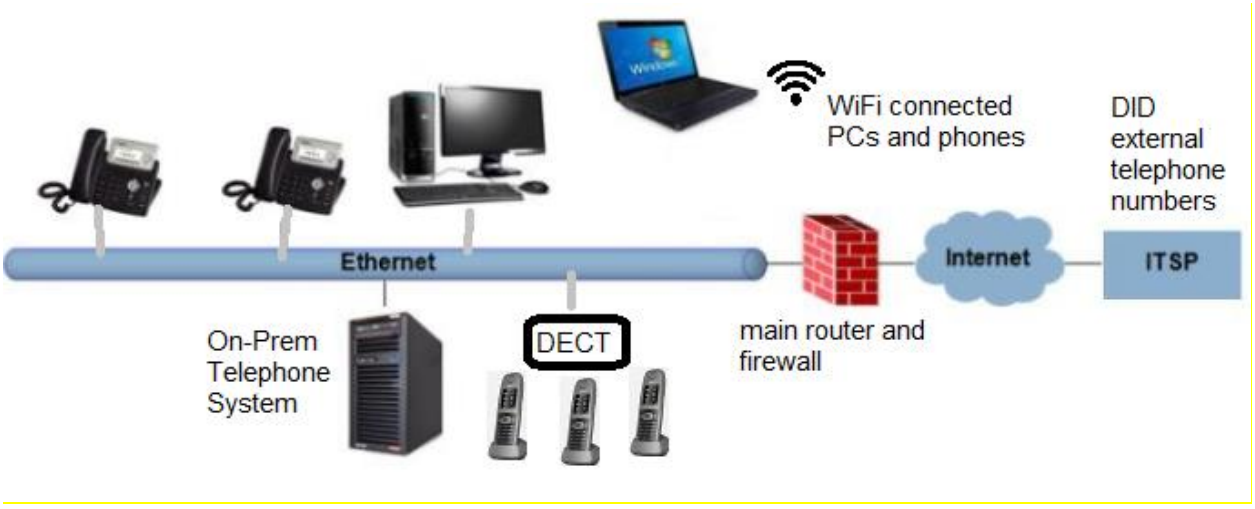
Budget Implementation If replacing telephones

Cisco refurbished router	< £ 80

DECT base with 3 handsets < £ 200
Port existing telephone number to VoIP should be free
VoIP provider account startup < £ 20
Assuming you do your own wiring and configuration
Total < £ 300

Monthly costs then < £3 per telephone number
Plus call charges @ approx £ 0.005 per min {billed to 6 seconds}
{bundle prices are also available depending upon requirements}
Saving more than £19 per month vs BT

Small Business Home Business {several simultaneous calls, multiple telephone numbers {from all over the world}, multiple telephones with configurable routing, remote access, unified voicemail, music on hold, add extensions at no cost, call blocking and routing, virtual call centres, voice and video conferencing, remote access etc…}



Budget Implementation new DECT telephones with on-prem system

Cisco refurbished router < £ 80
DECT base with 3 handsets < £ 200

Port existing telephone number to VoIP	should be free
VoIP provider account startup	< £ 20
On-premises voice server	< £ 300

Assuming you do your own wiring and configuration

Total < £ 600

Monthly costs then < £3 per telephone number

Plus call charges @ approx £ 0.005 per min {billed to 6 seconds}
{bundle prices are also available depending upon requirements}

Wiring and consultancy services also available < £ 100 depending upon requirements

Budget Implementation new DECT telephones with hosted/cloud system

Cisco refurbished router	< £ 80
DECT base with 3 handsets	< £ 200
Port existing telephone number to VoIP	should be free
VoIP provider account startup	< £ 40

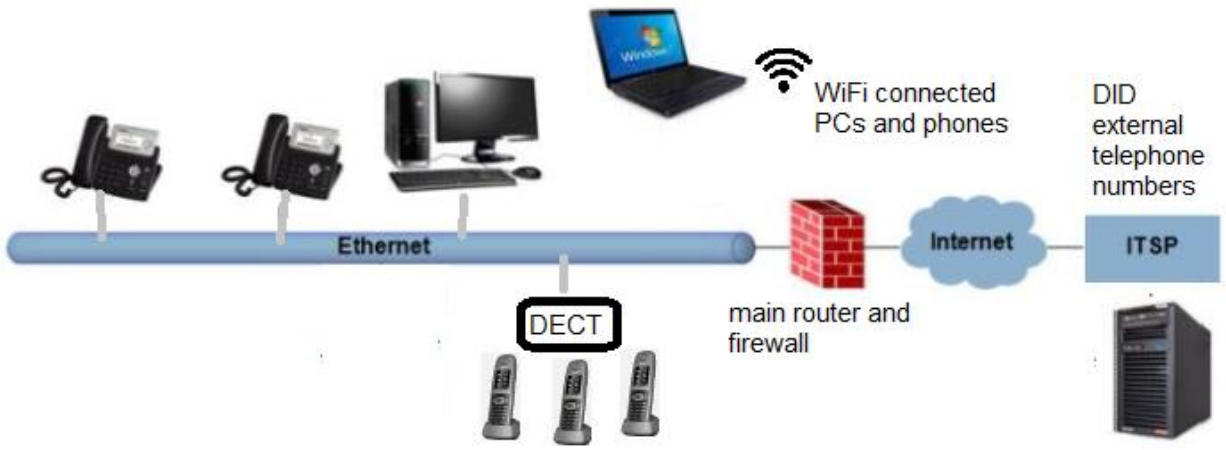
Assuming you do your own wiring and configuration

Total < £ 320

Monthly costs then < £20 per telephone number

Plus call charges @ approx £ 0.01 per min {billed to 30 seconds}
{bundle prices are also available depending upon requirements}

Wiring and consultancy services also available < £ 100 depending upon requirements



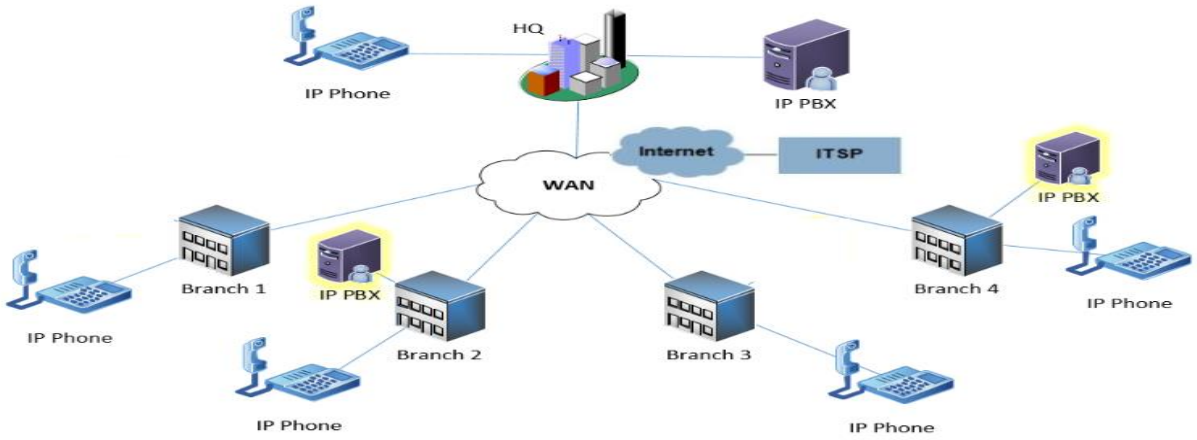
3 Larger Business Scenarios

There are so many different scenarios for businesses - thousands can be lost if the wrong decisions are made. It is vital that the business IT and/or telephony departments fully understand the requirements of the business and the existing configuration.

- connecting your existing telephone system to a VoIP gateway/adapter
- install ip capable hardware to your telephone PBX systems {which can be very expensive}
- install a new VoIP telephony system which will be compatible with your existing telephony system to allow you to migrate gradually from the old PBX telephone system to VoIP as and when it suits your business - keep the original expensive PBX system working until it has reached the end

of life and/or end of support contract {no need to buy new telephone handsets}

- Migrate to a cloud based VoIP provider. There are a vast array of providers that will port numbers to their cloud system and provide a vritual PBX service for your business, but make sure they are providing ALL of the features your business needs AND that their services are cost effective as compared to keeping you own on-site telephony system
    - remember if you use a cloud service and your Internet is down, ALL your telephones will be offline also



Above – example for a medium sized company with several sites all using different manufacturers equipment – some sites may find it economic to continue to use legacy PBX systems either via gateway or adding IP interfaces

Note – some sites may require a dedicated IP PBX to ensure local connectivity for all the telephones – some sites are OK to connect via HQ or another site IP PBX, all sites may require integration with company CRM and database systems, some sites require call center functionality….. so many options

If you are not sure what systems you have still using analogue services give us a call for a no-obligation chat.

We often have refurbished equipment available to make your transition to VoIP more cost effective.

VoIP Component Price Guide {Jan 2024}

Refurbished router with vDSL, VPN, DNS, DHCP, Integrated 4 port switch etc		£ 55
Refurbished router with vDSL, VPN, DNS, DHCP, Integrated 8 port switch etc		£ 75
Refurbished router with vDSL, VPN, DNS, DHCP, Integrated 4 port switch and 2 port ATA		£ 90
Refurbished Cisco ATA two port		£ 45
New ATA two port		£ 52
Refurbished PoE 24 port switches	from	£ 50
Refurbished PoE 49 port switches	from	£ 65
Refurbished Cisco 7975 desk phones	from	£ 45
Refurbished 4G internet backup routers	from	£ 60
New Cisco 6841 deskphone	from	£ 80
New Cisco 8841 deskphone	from	£ 180
New Gigaset DECT with 3 handsets	from	£ 190
New Yealink DECT with 2 handsets	from	£ 180
Refurbished voip servers	from	£ 200

VoIP Component Price Guide {Jan 2024}

New Sangoma PBXact 25 user voip server		£ 450
New Sangoma PBXact 40 user voip server		£ 560
New Sangoma PBXact 400 user voip server		£ 2130
New KCC Asterisk cluster voip server 1000 user		£ 1100
New KCC CMS Cluster Manager/CMS/VoIP/server		£ 900
New KCC micro voip server 50 user		£ 420
New KCC High Availability for voip cluster		£ 220
New KCC Cisco CUCM support pack for Asterisk cluster		£ 400
New HiHo Android tablet/deskphone remote access etc		£ 430
Refurbished SOHO servers	from	£ 200
SmartPhone app/softphone		free
Telnyx UK number porting	free with any consulancy	

Low Cost Telephony Solutions - VoIP OPTIONS

Telnyx DID numbers		< £3 per month
SipGate cloud business package (2 user)		£17.95 per month
SipGate cloud business XL package		£ 22.95 per month
CallCentric DID numbers		< £3 per month
Network re-design services	from	£ 90 per hour
VoIP design and optimization services	from	£ 90 per hour
Initial chat to discuss requirements		free

Glossary

TERMS	MEANING
VoIP	"Voice over IP" – making phone calls via the Internet and/or private networks
IP	"Internet Protocol" – the protocol used by most business networks and the public Internet
Jitter	variability in latency in the ip packet transmission process
SIP	"Session Initiation Protocol" voip call setup and control protocol
SIP-Trunking	SIP trunking allows one or more simultaneous calls between systems
PBX	“Private Branch eXchange” = the legacy business telephone system
PSTN	“Public Switched Telephone Network” legacy telecom provider network {land lines}

TERMS	MEANING
ISDN	Legacy {Integrated Services Digital Network} circuit switched network was used to provide voice and data over a dedicated line to the telephone exchange. BRI = basic rate ISDN provided 2 x 64kbps channels + 16kbps signalling channel used to provide 2 channels, PRI = primary rate ISDN provided multiple 64kbps channels usually with a minimum of 8 channels used to provide data and voice {with 8 simultaneous calls} up to 30 channels per PRI circuit {for 30 simultaneous calls etc…} Expensive rental contracts from the providers and expensive interfaces/equipment on-premises usually required.
aDSL	Asymmetric Digital Subscriber Line {Internet connection over analogue land line – usually to the local telephone exchange DSLAM with speeds up to 18Mbps down and 1.5Mbps up} very limited by distance from user to telephone exchange with speeds falling as distance increases – average speeds of 18Mbps over 1km and only 4Mbps at a distance of 4km
vDSL	Very high speed Digital Subscriber Line {Internet connection over analogue land line – usually to the street cabinet with speeds up to 50Mbps down and 3Mbps up} very limited by distance from street cabinet.
vDSL2	Very high speed Digital Subscriber Line {Internet connection over analogue land line – usually to the street cabinet with speeds up to 200Mbps down and 100Mbps up} very limited by distance from street cabinet
vDSL2+	Very high speed Digital Subscriber Line {Internet connection over analogue land line – usually to the local telephone exchange DSLAM with speeds up to 300Mbps down and 100Mbps up} very limited by distance from street cabinet – average speed 30Mbps at a distance of 1km and only 18Mbps at a distance of 2km
DSLAM	Digital Subscriber Line Access Multiplexer – equipment used to connect the provider to the 'last-mile' copper cabling to the subscriber. The DSLAM connects the provider fibre network trunks to allow multiple subscriber connections into the provider networks.
FTTC	Fibre To The Cabinet – installed in the street to minimise the distance of the 'last-mile' copper cabling to the subscriber. Providers often refer to this as a 'fibre internet provision' even though it is NOT connecting the subscriber directly to their fibre network.
FTTP	Fibre To The Premises – fibre brings the Internet feed into the property and eliminates the 'last-mile' copper cabling although in many domestic locations the fibre is terminated using the same technology as used in FTTC {vDSL} which limits the speed to vDSL2+ levels. In business connections the fibre is usually terminated directly on the routers within the company network to achieve much higher speeds and remove the delays and single points of failure found in home installations {sometimes called 'Full Fibre' by some providers}
DOCSIS	Data Over Cable Service Interface Specification = used by cable TV providers which permits high speed Internet to be provided over the cable TV network to the subscriber. DOCSIS 4.0 supports speeds up to 10Gbps and downstream speeds of 6Gbps. A viable alternative to the FTTC/FTTP options for those connected to the cable TV network, but can be very expensive.
DID	Your external telephone numbers {Direct Inward Dial or in the UK DDI Direct Dialing Inwards}
ITSP	Internet Telephony Service Provider – the telco that is providing your DID usually via SIP trunk over the Internet – sometimes the ITSP also provides hosted/cloud telephony services

TERMS	MEANING
On-premises systems	Equipment located in the office or home to provide the services rather than using a cloud based solution {no rental costs, but installation and maintenance possible} – for example a VoIP telephone system
Cloud System	Using the services of a provider rather than having equipment on-premises system. {rely on the service provider for dialtone etc. – monthly fees usually apply and flexibility limited to provider contract etc.}

If you are not sure what systems you have still using analogue services give us a call for a no-obligation chat.

For more information and/or unbiased advice https://www.kccvoip.com

support@kccvoip.com