



SOHO SIP TRUNK GUIDE

Extract from the KCCVoIP Training for SOHO PBX configuration - last update June 2024

SUMMARY

Most telco companies {ITSP = Internet Telephony Service Provider} now use SIP {session initiation protocol} as the main VoIP protocol and provide their services over the Internet {or via private business links} using a SIP trunk. A SIP trunk is just a logical connection between a VoIP telephone endpoint {telephone, smartphone, softphone, deskphone, PBX, doorbell, entry-system, ITSP etc.} to signal and control the voice and video call setup and provide status information to the endpoints.

The SOHO endpoint can be as simple as a single VoIP deskphone, smartphone, softphone or a VoIP DECT wireless set of telephones or an old analogue telephone connected to an ATA {analogue telephone adapter} to convert the old analogue telephone into a VoIP telephone.

The SOHO endpoint connection is configured with the ITSP ip address or hostnames and account information to allow VoIP calls to be made and received. For as little as \$2 per month {plus calls at 0.1c per minute}, without contract, an external telephone number can be setup to provide the service over the SIP trunk. The number can be selected from a vast database of countries, area codes and subscriber numbers or any existing telephone number can be ported to the ITSP {porting is often free of charge and within 10 days} on-going costs are then usually less than £3 {\$3 in the US} per month plus calls {alternative packages are available with pre-set free call minutes etc. if that is calculated to be of better value}

In larger or more complex situations, a company telephone system {PBX – private branch exchange} can be connected as the endpoint to the telco SIP trunk and then provide the main telephone trunk to and from the company via the SIP trunk {or multiple trunks} the PBX in turn, provides the features usually required by a company {voicemail, auto-attendant, IVR announcements, music on hold, conferencing, call center queuing, follow-me services etc..} to manage the calls between the telco and the company telephones etc. Each external telephone number is subject to a monthly charge of about \$2 plus calls.

In SOHO applications it is often useful to have a full feature set to allow different external telephone numbers be routed to the required internal extension numbers and to have voicemail for each internal extension, conferencing, transfer of calls, music on hold, follow-me services to allow calls to be routed anywhere in the world to enable full flexibility for the SOHO staff. Often the same system will be used to also route the home phones numbers to the required extensions and provide announcements, voicemail, time of day call routing and follow-me services etc.. A small PBX suitable for SOHO is usually <£400 or as little as £200 for a refurbished appliance – also available as a GNU open source {free of charge} software to install on your own hardware. Sizing of the appliance/voip server depends upon estimated concurrent calls, extensions, features required etc.

The choice of ITSP depends upon the estimated concurrent calls required {and future capacity planning}, monthly budget, number requirements {how many external telephone numbers required}, complexity and feature set.



SOHO SIP TRUNK GUIDE

There are ITSP companies that provide a complete hand-holding service where you do not need to setup your own SIP trunk and you rely on their cloud infrastructure to provide a basic SIP trunk using their pre-configured VoIP softphone. These tend to have very limited features and quite a high price {>\$19 per external number per month plus calls}

ITSP companies that sell to technical businesses, IT resellers and/or VoIP consultants assume a level of technical knowledge. These companies provide the best value and most flexible configuration of SIP trunks as they do not offer any 'hand-holding' service.

If you have any questions, it is better to have them answered BEFORE you spend any time, money, installing and configuring your voip setup. Send any questions to support@kccvoip.com

Here are a couple of examples of how the telco SIP trunk can be used.

SINGLE SOHO USER

In this example a small consultancy business ran from home, has only one active employees. A VoIP single deskphone is configured with the ITSP connection details and the account details to enable a full featured VoIP service. The consultants currently have a dedicated business phone number and an old analogue telephone. The home number is also on a dedicated home number and dedicated analogue phone.

Old configuration



Notice both numbers have dedicated analogue telephones and have dedicated accounts

Original monthly cost

£ 42 plus calls per month

Recommended configuration #1

Port the business number {0131 5556767} to an ITSP. Purchase a voip deskphone {this has the ability to connect several numbers back to the ITSP} and configure to connect to the ITSP. Line#1 would have 0131 5556767 as the business line and line#2 ready to provision the home telephone number 0131 5554545 as the second phase of the move.

SOHO SIP TRUNK GUIDE

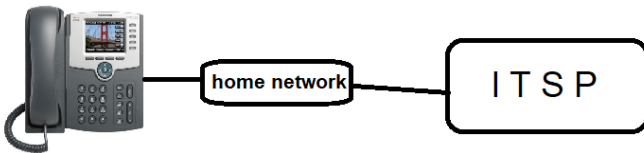
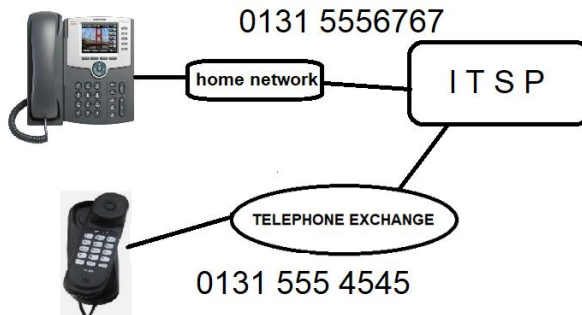
- Phase-one port business number to ITSP and connect deskphone
- Phase-two port the home number to ITSP and connect to deskphone
- Phase-three install additional voip telephones to handle home number calls as required

Phase 1 business line now on VoIP service

Approx monthly costs

£ 24 plus calls per month

Cost of second hand deskphone < £35



line#1 0131 5556767
line#2 0131 5554545

Phase 2 both lines now on VoIP service

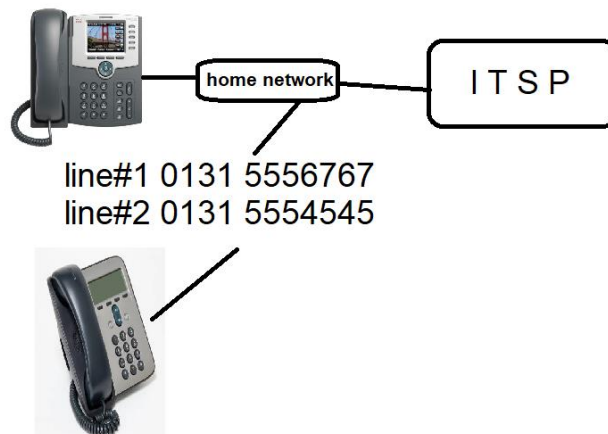
Approx monthly costs

£ 6 plus calls per month

Phase 3 both lines on VoIP service additional telephones as required

Approx monthly costs

£ 6 plus calls per



NOTE – an alternate for phase-1 could be to purchase a new external number first and get all of the hardware and routing configured with the ITSP before then porting the old analogue numbers.

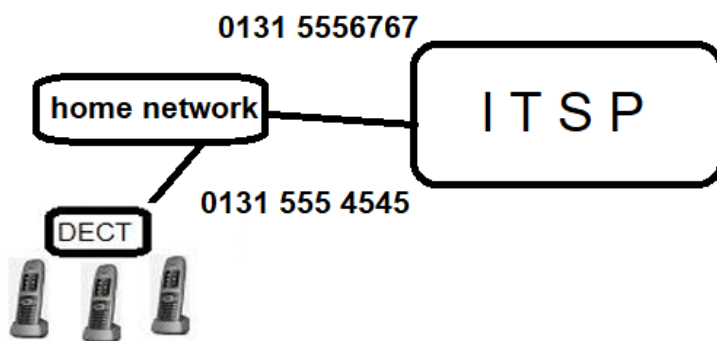
NOTE – this solution does not provide many features – most businesses require IVR announcements, time of day routing, unified voicemail etc. A few more features can be realised if the following recommendation#2 were used.

Recommended configuration #2

Port the business number {0131 5556767} to an ITSP. Purchase a VoIP DECT telephone package {a VoIP DECT base with several handsets included} - this has the ability to connect several numbers back to several ITSP trunks. In this example Line#1 would have 0131 5556767 as the business line and line#2 ready to provision the home telephone number 0131 5554545 as the second phase of the move.

Phase-one port business number to ITSP and connect VoIP DECT telephone

Phase-two port the home number to ITSP and connect to VoIP DECT telephone



DECT telephones have the advantage in providing few more features as compared to a single deskphone – you can configure the ITSP numbers to be routed to preferred DECT handset and allow all DECT handsets to access any of your ITSP external numbers, calls can be transferred between handsets and a basic voicemail per handset is usually available. DECT handsets can be added at anytime in the future and expanded as needed at little cost – usually up to a maximum of six handsets per base unit..

Approx cost for three handsets with VoIP DECT controller > £ 190

Approx cost for two handsets with VoIP DECT controller > £ 98

Handset approx. > £ 80 each

Cost to port numbers to some ITSP companies is free of charge

Cost per month for ITSP services £ 6 plus calls {at < £ 0.01 per min}

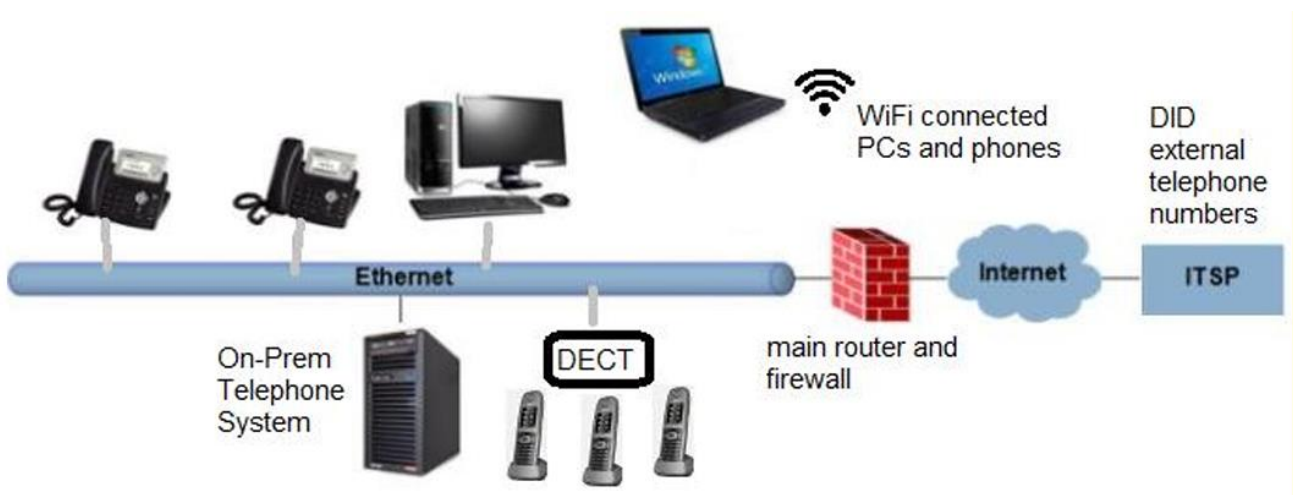
{2 x external numbers @ £3}

NOTE - ALL COSTS ASSUME A SUITABLE INTERNET CONNECTION IS ALREADY AVAILABLE

Recommendation #3

Install a PBX to provide the on-site telephony. The SIP trunks are connected to the PBX which provides the dialplans to route calls to the required extensions, announcements, unified voicemail, music on hold, IVR and call center features etc.. The PBX provides connectivity to all of your extensions {softphones, smartphones, deskphones, doorbell, DECT phones etc..} and can usually handle more than 100 extensions. You can add users, extensions, features and trunks when ever required usually without cost.

For more details on SOHO PBX considerations [take a look at one of our basic guides](#)



Both home and business numbers would have been ported to an ITSP. The On-Prem Telephone System is the SOHO PBX. This allows maximum flexibility and best value for money for a SOHO or small business.

This solution also allow for remote sites and remote telephones to be connected to the SOHO PBX from anywhere in the world {without any additional costs}. Changes to features and connectivity does require some technical knowledge or the use of an external consultant to configure the SOHO PBX to meet your requirements – this will obviously have an associated one-off cost.

ITSP CHOICES

The choice for your SIP trunk – which ITSP to use – this will depend upon your feature requirements, level of technical knowledge and expected concurrent calls AND how many minutes of calling expected to own country and international (to select the best call-plan) etc..



SOHO SIP TRUNK GUIDE

A business with zero technical knowledge would really benefit from talking the options through with a voip consultant. A couple of hours in planning will save time and money.

If you choose to outsource the voip services to a typical 'hand-holding' ITSP it will cost between £7 {\$7} per extension per month for basic features to >£45 {\$45} per extension per month - plus calls. You will have to compare the features offered and the call charges to make a decision.

Watch out for resellers that act as middle-men and resell SIP trunks, add their own profit and add no value. Some resellers actually sub contract out to another reseller/provider which in-turn sub contracts to one of the large telco ITSP companies such as BT, Telnyx, AT&T etc.

Watch out for the large telcos {British Telecom, Vodafone, AT&T etc.} – they charge the highest rates for basic feature SIP trunks and often have the poorest service/support.

Domestic and small business ITSP 'hand-holding' companies;

Vonage £ 9 per user per month

RingCentral £ 7.99 per user per month

SIPGate business 'S' package with great features and options from £ 26

{2 users, 4 extensions, calls, configurable routing, user management, calls groups, SMS, Unified voicemail, API etc...}

SOHO and business ITSP 'hand-holding' companies;

SIPGate {EU/UK only} business 'S', 'L' or 'XL' or 'enterprise'

packages with great features and options from £ 26

or SIP trunks available to connect direct from £ 4.95 per month

Gamma {EU/UK only} complex set of features and packages to fit the requirements from £9.95 per user

Mitel complex set of features and packages to fit the requirements from £14 per user

8x8 complex set of features and packages to fit the requirements from £19 per user

RingCentral complex set of features and packages to fit the requirements from £15 per user

Bandwidth complex set of features and packages to fit the requirements

PLUS Lots of other ITSPs in this market ; Vonage Business {avoid}, Gradwell {good reviews}, Virgin, British Telecom {expensive}, SureVoIP, 4Com, Sangoma {expensive}, AT&T {expensive}, Altice, Verizon {expensive}, TalkTalk {avoid}

Telco direct ITSP companies; {no hand-holding – self-serve SIP trunks – tech knowledge required}

Telnyx {world-wide} {excellent ITSP} from \$ 2 per external number per month

From \$5 per month = 500 mins inbound + 300 mins outbound UK calling included

CallCentric {US} from \$ 1 per external number per month

DIDLogic {world-wide} DID numbers from \$1 with inbound call rates < \$0.01 per min on 24 chans

British Telecom {UK/Eireland} from £13 per month per external number

Zen {UK} from £30 per month

Gradwell {UK} from £4 per month

Spitfire {UK} from £4 per month

SIPGate {EU/UK} from £4.95 per month

OTHERS - Tigo, AirCall, Yay, Virgin, Vodafone, TalkTalk, AT&T, Verizon, Altice.....



SOHO SIP TRUNK GUIDE

Example ITSP configuration for 'no hand-holding' SIP trunk

Setup an account with the ITSP

{usually they will require an address and a method of payment {card, paypal etc.}}

Setup any auto re-new/payments if required or setup email when account balance gets low etc

If required, setup any whitelists/approved ip addresses that you will be using to connect to the ITSP

Purchase a phone number

You can view the ITSP database of available phone numbers or port your own number to the ITSP

Setup your SIP connection

Create a name for the connection and credentials or input your fix ip address

If required, setup a voice profile to select the call-tariff/call-plan to be used

Add configuration to your local VoIP phones or PBX

Add the ITSP account details – decide which extensions can make and/or receive calls, time of day routing, IVR and voicemail etc.

Test

Make and receive a call

Refinements if/as required;

Setup and move to any preferred calling plans

Setup message profiles for SMS

Setup any fallback and failover routes to ITSP voicemail etc

Setup any alternate SIP trunk connections for backup servers etc

Setup any SIP connections for mobile/smart phones etc

Setup any voice recording requirements

Setup any accounts for consultants/support access

Setup your emergency calling details

Setup your PBX for more complex features and required dialplans

If you have any questions, it is better to have them answered BEFORE you spend any time, money, installing and configuring your voip setup. Send any questions to support@kccvoip.com