Guide: Telecommunications in small business

Telecommunications are one of the essential pieces of infrastructure a business must have in place.

Everything from landlines and mobile phones, to internet and jack points must be done right to future-proof and ensure the smooth day-to-day running of a business' telecommunications.

Phone lines

Your phone line is your life line. But nowadays there is more than just one choice available.

Your existing infrastructure may dictate for you what your choices are, or you may have every option open to you.

ISDN

ISDN lines are your standard phone landlines. These handle phone, fax and internet and are what most businesses begin with at entry-level.

These are bought at a basic or primary level.

Basic includes two lines, you can think of these as phone and fax.

Primary includes up to 30, which most businesses join to their PABX (phone system).

A sole trader or small retail business will often have just a basic ISDN, with one line reserved for phone and the other shared by fax and EFTPOS and possibly even internet.

An office with multiple team members will usually have a primary system with DDIs (direct dial numbers) and a large PABX handling multiple extensions, fax, EFTPOS and internet.

ISDN lines need to be bought in blocks of six, so businesses may notice a steep rise in costs for every multiple of six lines they need to purchase.

For ISDN lines you will generally have one set up as the primary phone number, one dedicated to fax (and maybe EFTPOS) and two to four extras for team members. It is unlikely that you will need as many phone lines as you have team members.

VoIP

VoIP stands for Voice over IP and means that your phone call is travelling over the internet rather than a standard phone line.

This is sometimes also called SIP (although they are actually different things, we will spare you the technical details and just say that they're relatively similar systems that work together).

The beauty of VoIP is that a business can set up as many extensions as they wish for little or no extra cost. Because phone lines are 'virtual' the capacity of the network is not limited by the existing infrastructure … except in one respect.

To set up a VoIP network you MUST have reliable, high-speed broadband internet. If your internet is unreliable, your phone system will end up just as unreliable if you switch to VoIP.

Because VoIP works over the internet, it is relatively easy to set up and because of this there are many competitors in the market and rates are very competitive.

If you have reliable broadband on a fast fibre network, then VoIP services are a very real option for you.

PABX

Your PABX (or PBX) is your phone system or your exchange. It is the box with wires coming in and going out which controls where your calls go.

Your PABX handles your incoming and outgoing calls and also connects your phone extensions to your exchange.

Your PABX also may control:

- Answering machine functions
- Remote supervision of the entire system
- Speed dialling
- Caller ID
- Hunt groups
- Extension dialling
- Forwarding
- Call parking (hold)
- Call transferring

Along with the extensions for your PABX, you may also have patch cables for your network (see Networks below), so you may want to invest in some sort of patch cable management system to avoid your server room becoming a rat's nest of cables.

Virtual assistants

A virtual assistant is a type of computer software designed to help you get the most out of your PABX.

Instead of having to memorise key commands on your phone handset, a virtual assistant enables you to transfer calls, change extension statuses (e.g. out of office, on break etc) and access voicemail through your computer.

This type of software is often compatible with Microsoft Outlook to the extent that a meeting in your calendar will automatically change your status or put you on Do Not Disturb.

This type of software can be invaluable if your office's receptionist cannot see the whole team.

Engaging a telecommunications specialist

If you have a larger team or you have complex requirements for your phone and extensions, it may be worth engaging the services of a telecommunications specialist.

An independent contractor will help you set up the right hardware to help you future-proof when your business grows, they will be able to recommend service providers and provide impartial advice.

An independent telecommunications specialist will also be able to spare you the headache of dealing directly with phone companies when there is a technical issue.

Internet

If your business is a high user of internet services, your connection is one of the most important factors to have set up.

If you are using VoIP conferencing, cloud-based software or e-commerce, you must have a robust and reliable broadband internet connection to conduct business successfully.

Fibre

Fibre is the crème de la crème of internet connections. It enables fast and reliable upload and download speeds, which means other than using the internet it's also excellent for VoIP and remote access.

Fibre is the best solution for a business which has very high internet usage with remote workers, VoIP or cloud solutions.

Both Telecom and Telstra Clear offer fibre solutions, and you may even wish to consider installing your own fibre if the situation warrants. Once you have fibre installed to your business, you will be able to pick and choose which internet service provider (ISP) to use.

ADSL

ADSL broadband is the kind of standard broadband over the phone line that most businesses use.

Whether or not you can use ADSL broadband will depend on the distance of your business from your local Telecom exchange.

Although many companies other than Telecom offer ADSL broadband, they are all using the Telecom wiring, exchange and hardware which means you are still at the mercy of one provider if there is an outage.

Wireless internet

Some urban ISPs offer 'wireless broadband' which is an internet signal broadcast via satellite from a central location, and picked up by a dish at your premises.

The benefits of wireless internet are that it is relatively stable and unaffected by any Telecom outages as it does not use cables laid in the ground.

However you must be aware that a satellite based service can be affected by weather, and high atmospheric pressure can lead to 'rain fade'.

To get wireless internet you must generally be within 'line of sight' of the originating location, i.e. it will not work around mountains or hilly terrain.

Mobile broadband

Mobile broadband is high speed internet accessed through a mobile phone network.

Users plug a wireless dongle into their computer's USB port and this contains a SIM card much like a mobile phone. The data usage for the dongle is charged to the user's mobile phone account.

This can be a great option when traditional internet is not available, however you will need a strong mobile signal for high speed and reliability.

Due to limited range and high-cost, this is an option best for very short-term use or emergency e.g. when your internet is down.

Satellite broadband

In some rural areas, where a business is too far from an exchange to get ADSL broadband, a business may like to consider satellite broadband.

There are a number of satellite broadband providers in New Zealand catering specifically to the rural market.

Although satellite broadband is faster than dial-up internet, it is nowhere near as fast as ADSL broadband.

If you are rural and you have only the option of satellite or dial-up, you are best to go for the former option even though it is more expensive.

NB: Most satellite broadband ISPs cannot guarantee you will have access, even if you are paying to have a dish installed. Most operate on a 'suck it and see' basis and you will have to pay the set up costs whether successful or not.

Dial-up internet

Dial-up internet is not an option for the modern business. Not only is it too slow to conduct business, but it also ties up valuable phone lines.

With the variety of internet connection types available, and the plethora of ISPs, there should be a broadband option with a price to suit almost anyone.

Mobile Phones

A mobile phone may be a very important part of your business and it is crucial that you get the right option for you.

Instead of just going for the cheapest option, or the phone with the best deal, think about what you need, or what your business needs from a mobile phone.

Basic handset

If you only intend to use your business mobile for the occasional call when you are out of the office, you may find that a basic handset is the best option.

As well as being cheap and robust, these phones are generally easy to use for those who are not tech savvy.

Terminology: 3G

3G is the standard type of mobile phone network in New Zealand. This allows not only phone calls but also transmission of data and video across the mobile network.

Watch out for 'free' data deals if you don't use your phone to access the internet. This is a common sweetener that the telcos use to make it seem like you are getting a good deal. You may be better to push for a better calling deal which will actually save you money.

3G Handset

A 3G handset will allow you to access the internet and also your email via your phone, in a very basic way.

This is a good option for a business person who may be out of the office occasionally and need to look something up.

Most 3G handsets are relatively easy to use and relatively robust.

Smartphones

A smartphone is a phone designed to let you work on the 3G network like you would in the office.

Smartphones are essentially mini computers and they work on the Apple iPhone operating system (iPhones) or on the Google Android operating system.

If you are away from the office regularly with limited access to a laptop, or you don't want the hassle of carting your laptop everywhere, this is a great solution for you.

Smartphones let you browse the internet, check and reply to emails and even draft basic documents, which means you are never really away from the office.

You can also download extra applications for smartphones which will open up a world of possibilities. Whether you need a foreign exchange calculator, maps, instant translations or even a pedometer, there is an app for you.

Before you go crazy for the wonder of smartphones remember these three things:

> • The more you use the internet, the more data you pay for
>
> • Touch-sensitive smartphones use glass, which is breakable
>
> • There may be a downside to never really leaving the office i.e. you never switch off mentally

Be aware that because of all the features of smartphones, the batteries do not tend to last for a long time and need to be charged on a daily basis.

Terminology: Wireless connectivity

Wireless connectivity or Wi-Fi is when an internet router or modem has an aerial which broadcasts a signal.

Devices with wireless capability can be connected to the internet without any cables, and smartphones often fall into this category.

If you have a smartphone and are within range of a wireless network, you are best to use it as you will not need to pay for data charges.

Terminology: Bluetooth

Bluetooth is a sort of short range wireless connection, much like infra-red or WiFi, which uses a radio signal.

Most modern cars use Bluetooth connections instead of a car kit for hands-free mobile. If your car stereo and your phone are compatible, you will be able to use your car stereo for hands-free calls.

NB: Do keep in mind that it's not just physically handling a phone which is distracting to a driver. Conducting important phone calls while driving can be just as dangerous as text messaging, so keep your hands-free calls to the quick and light variety.

Bluetooth also makes it easy for you to sync a computer with your phone, e.g. your calendar and contacts if you do not have a smartphone.

Networks

A network is a collection of computers and devices connected by an internal series of cables or wireless connections.

Setting up a network will enable multiple users to use storage space on a central drive, share an email exchange and even share a printer.

Local Area Network (LAN)

A LAN is the main type of a network used by an office.

A LAN enables data to be transferred at high speed and is not dependent on internet access

LANs are usually made up of a combination of Ethernet and WiFi

Ethernet

Ethernet is the technology most commonly used in LANs, and this is the part of your network dependent upon cables.

Most office spaces will have jackpoints for both phone and Ethernet available. What is plugged in at the PABX/exchange end will determine whether a port is for internet/network or phone.

If you are looking to build premises or renovate, you will want to ensure that you have enough Ethernet ports in each room. Consider not only computers, but printers, fax machines, EFTPOS etc.

WiFi

Most offices will also use WiFi and set up a wireless network.

You can do this with a wireless router or modem. This will generally allow the LAN cables to be attached and run to the exchange, as well as having an aerial which broadcasts the wireless signal. If your modem or router does not have an aerial you can invest in a wireless access point which will eliminate the need.

If you have an office bigger than 100m^2, you may need to set up a wireless hub. This is a sort of wide-range aerial which boosts your wireless signal and can often be the same as an access point.

Wireless is generally not as fast or robust as Ethernet, so it is best used for portable devices which are on the move i.e. smartphones and laptops.

Wireless can also be an excellent option for an office space which does not have the infrastructure e.g. not enough jackpoints or no jackpoints in certain places.

If your existing computer does not have wireless capability, you can purchase an adapter which will enable you to connect to WiFi. These look a lot like mobile broadband dongles and plug into a USB point. This is an inexpensive option.

Typical devices on a network

- PCs
- Laptops
- Thin clients
- Servers
- PABX
- Printers/faxes

> • Tablets and smartphones

The server is generally the central point of a network. This is a dedicated computer used for storing files and also hosts centralised applications e.g. Email exchange, virus protection etc.

Terminal Server/thin client

A terminal server setup is where all applications and user data are stored on the server as opposed to a local PC ('fat client').

Each user has a 'thin client' which connects to the server via LAN, meaning that their personal profile is not limited to the computer on their desk, but any computer they log on to within the LAN. In fact, they do not really have a computer on their desk, just a little box which connects their monitor to the server.

This also means that programmes etc are updated on only one computer (the server) as opposed to multiple computers.

Terminal server is great for small business with 5+ team members and no dedicated network administrator. The hardware is cheaper than traditional 'fat' PCs and the IT side of things is better managed.

However because everyone is using the same computer to work, if this crashes everyone loses access.

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