



EXTENDA'S GUIDE TO BUYING A TELEPHONE SYSTEM

Buying a telephone system is intimidating – most customers only do it once a decade, and the technology is changing rapidly. This guide is designed to take some of the mystery out of telephone system purchasing, and give you the basics so you can cut through the jargon, acronyms and buzzwords.

The Basics: IP vs. digital

There are currently two types of telephone systems available for businesses: **IP** and **digital**.

IP telephone systems (a.k.a. VoIP, IP-PBX, softswitch) use data cabling, sharing the network with your computers. They draw power from either a powered switch (called a PoE Switch) or an electric plug. IP telephones can also connect to your office using the internet, so you can put extensions in your home, at remote locations, or even as software loaded on a laptop. Within the office, IP telephones are typically less expensive in the long run, since you can move the phones yourself without reprogramming the phone system.

Digital telephone systems (a.k.a. PBX, key system) use traditional phone cabling and can be less expensive to purchase, although this varies by manufacturer. The phones are powered by the phone system, and are also pretty stupid – the telephone gets all of its information from the phone system. This means that if you move a digital telephone, you need to reprogram the telephone system. However, if a digital telephone breaks, all you have to do is replace it without needing any programming.

Typically the user features for an IP and digital telephone are similar. In fact, most systems these days are called **hybrids**, in that they let you mix and match the two types of telephones to suit your needs.

Sizing your system up to get quotes

Most telephone systems at the most basic level are priced by size, which in the phone world is based on number and type of phone lines, number of system telephones (and type, i.e. IP or digital), and number of analog devices you want connected. You may hear people in telecom say things like “It is a 4 by 8 system with 2 FXS ports”, which means the system is equipped for 4 telephone lines and 8 system telephones and 2 analog ports. At this stage, if you are planning on expanding your business in the near future, you will want to ask how big the system can grow, both in terms of telephone calls and actual telephones – many systems are capped at a certain size, due to physical space limitations, processing power or license limitations. It is also good to know up front how much it would cost to expand the system.



Phone Lines

One ingredient to making a phone call is having telephone service, also called dialtone. This can mean traditional telephone lines from your local phone company, T1s, or IP trunks.

Traditional telephone lines (a.k.a. copper, PSTN or POTS lines) can typically be installed in a couple of weeks, but are the most expensive on a per line basis. Each line has a unique telephone number and can handle one call at a time. Lines can be put in what is called hunt or rotary by the phone company, so that if the first line is busy, the call automatically goes to the second line, or the third and so on. This lets you give out a single phone number instead of a dozen different numbers.

T1 circuits come in several flavors, the two most common being **PRI** and **integrated access**. A standard PRI lets you make or receive 23 calls at the same time on a single wire, so think of it as a 23-pack of telephone lines. The cost per line makes it so that organizations with as few as 10-12 telephone lines will find a PRI less expensive than traditional telephone lines. PRIs also let you have many more choices of providers, unlike regular phone lines. Like cell phones, PRIs typically include bundled minutes, and charge less per minute than telephone lines. PRIs also offer direct dial numbers, called DIDs. Unlike a traditional telephone line, with PRIs you can have one telephone number or 1,000 telephone numbers. Depending on your carrier, you may be able to get phone numbers from other area codes. DIDs give you much more flexibility, letting you give phone numbers to individual phones, departments, ad campaigns, and more.

Integrated Access circuits let you get both voice and data on a single circuit. Your internet bandwidth goes up and down based on how many calls are taking place at the same time. Otherwise, these circuits have the same features as a PRI.

T1 circuits are also available for just internet access, long distance only, or local call only. T1s can take anywhere from 2 to 8 weeks to be installed, with 4-6 weeks the most typical for PRIs.

IP Trunks, also called SIP Trunks, send calls over an existing data circuit, such as DSL, cable or T1. These calls borrow some of your internet bandwidth to send phone calls to and from your office. They are priced per call, and not per line or circuit, but have the ability to use DIDs like a PRI. This is often the least expensive way to get dialtone and can be installed quickly – since the carrier is just assigning you an IP address, sometimes you can get new numbers the same day, or even get to try out the service for free for a limited amount of time. Quality can be great or terrible, depending on your network, provider and internet access. Since the calls are being sent over the internet, if you lose connection to the internet in your office, you will also lose your calls, so many customers keep a couple of traditional lines for backup with IP Trunks. Some telephone systems are not compatible with SIP trunks without a gateway, so be sure to ask.



Telephones

Every telephone manufacturer is different, and will offer a different selection of telephones. Most manufacturers only let you use their specific telephone models.

Overall, most users want programmable buttons for speed dial, frequently used features, and voicemail access. Most telephones today include a screen showing caller ID and menu information, a speakerphone, a jack to plug in a headset, and have volume controls.

Certain places and positions in an organization will need special phones. Receptionists will need either a big console or software so they can easily transfer a call and see who is available. Doors and secured areas will need door phones with a relay so that you can open a door by pressing a number on your telephone. Conference rooms require special phones designed with great speakerphones and speakers so that everyone in the room can join the conversation. Some areas, such as break rooms and hallways, can get by with a cheap, simple phone, while some users are on the telephone all day and would benefit from having a phone with a big screen and a lot of features.

Administration

Telephone systems will need to be changed, reprogrammed, and adjusted as you make personnel changes, alter how you want calls answered, and as your business changes. If you do not anticipate making a lot of changes, this may not be important to you. However, most companies will want to be able to make your own changes, so be sure to find out how you administer the system. If the administration is too complicated, you will find yourself paying your vendor time and again to make simple changes.

Voicemail and Automated Attendant

Unlike answering machines or phone company voicemail, a system voicemail lets each phone access a private mailbox. Voicemail is often priced per port, which is the number of people that are simultaneously using the voicemail. Other considerations are the amount of storage time and whether the voicemail integrates to your email, a feature called Unified Messaging. Unified Messaging sends new voicemail messages as audio files to your email account.

Automated attendants answer calls without needing a physical attendant, and are typically built in to the voicemail. Systems vary wildly on how complex or simple the attendant can be, and how many modes you can set. Most businesses need at least two modes, one for business hours and one for after hours; others take advantage of seasonal or daily greetings.

Some voicemail features that are helpful are the ability to check your voicemail from a cell phone, notification of new messages to a cell phone or email, the ability to forward calls to voicemail, transfer voicemails between users, and record calls and save them in your voicemail.



Add-on Software and Hardware

There is a huge variety of specialty equipment available to enhance your telephone system. Below are some basic categories you may want to consider:

Paging – While most phone systems let you page people through the phones, some areas are too large or noisy for a typical speakerphone. In this case, organizations connect speakers and amplifiers to broadcast messages

Entry Control / Door Phones – Door phones allow visitors to talk to a receptionist or security, who can then remotely open a door

Desktop Faxing – Many companies are moving away from traditional fax machines and are sending faxes directly to and from their computer, saving time, money and paper

Call Accounting – Professional Services typically use some form of call accounting to bill back clients for time spent on the phone, and some companies want to track call activity.

Call Tracking – This software differs from Call Accounting in that it can show real time information and typically greater detail on call activity and how well calls are handled

Automatic Call Distribution (ACD) – ACD lets telephone systems efficiently and dynamically route calls, as opposed to always sending calls the same way. This is useful for organizations with a lot of incoming calls or multiple connected locations

Desktop Integration / Unified Communications – Software exists to let users control their telephone from their PC (or Mac), as well as let their colleagues know where they are and how they can be reached. Some software integrates the telephone with applications such as Outlook and CRM software so that contact records are opened automatically when the call comes in.

Call Recording – Special devices are needed to record every call on the telephone system. Some add-ons include the ability to review and grade call performance, or record the user's screen so you can see what they were doing all day.

Automated Dialing – Predictive and Auto Dialers help you make a lot of outbound calls. They automatically dial numbers from a database, screening out voicemail and busy signals. Predictive dialers pass live calls to an agent, while Auto dialers play prerecorded messages.

Conferencing – Most phone systems support a limited number of people on a single call. For getting 5, 10 or 100 people on a single phone call or even looking at a single computer presentation, conferencing software and hardware is required.



Other Things to Consider

Vendor Selection

The same rules apply for telephone vendors as with other service professionals: you will want to get references, see how long they have been in business, and know how many technicians they have on staff. In addition, checking the Better Business Bureau is recommended.

Most importantly, in California a valid C-7 contractor's license is required to install communication equipment. Licensed contractors are fingerprinted, are subject to FBI background checks, and carry general liability insurance and worker's compensation insurance. If your installer is unlicensed and therefore probably uninsured, you are liable if they hurt themselves on the job site. Smart building owners do not allow unlicensed installers to knowingly work on their property for this reason, and will require proof of insurance. You can check contractor licenses at the Contractors State Licensing Board website:

<https://www2.cslb.ca.gov/OnlineServices/CheckLicense/LicenseRequest.asp>.

Warranty, Upgrades and Managed Services

Telephone systems are among the most reliable products you can buy, and are designed to exacting standards of 99.999% (five-nines) reliability. You can expect your phone system to run for anywhere from 8 to 20 years, and we have seen telephone systems last as long as 30 years with proper care and maintenance. That said, it is important to find out what the warranty covers, and how long it is for.

From time to time, manufacturers improve their system with new software and hardware, so that you can get new features and benefits. Most manufacturers let you pick and choose which upgrades you want to go with. Others require you to enroll in an annual agreement, which automatically covers upgrades and fixes and is required for technical support. Both are valid approaches, but just be sure you know what you are signing up for.

For companies that do not want any surprises with their phone system, a managed service typically provides a full warranty in addition to insurance, free changes to your system, and periodic maintenance for a fixed monthly fee. Managed Services are designed so that you can outsource the management, maintenance and repair of your telephone system to your vendor for a fixed monthly fee. Extenda's Managed Services program includes annual training, telecom spending analysis and disaster recovery, in addition to standard coverage of wear and tear, preventative maintenance, remote support and a Service Level Agreement for guaranteed response times.