Business VoIP 0-60

Mastering Selection,

Implementation,

& Maintenance

Contents

Introduction

VoIP, Voice over Internet Protocol, is a technology that provides affordable, convenient and enhanced telecommunication. It works on the following principle:

When a telephone voice call is placed over a traditional telephone line, the data is carried from the sender to the recipient in the form of analog voice signals. These signals suffer attenuation (degradation) and lose energy as they move from one point to another. Also since tangible telephone wires are needed, long distance calls are quite expensive. With VoIP, the power of the internet and in particular the ability of the network layer to initiate data transfer protocols is put to good use. Analog voice signals are converted into digital pulses and broken down into packets of data. These data packets then proceed to travel via the internet like all virtual data does. They can reach the destination irrespective of the type of data being transferred. This is the reason why with VoIP, voice calls, video calls, file transfers all take place at a much faster speed and at the fraction of the cost incurred if traditional PSTN (Public Switched Telephone Network) is used. The protocol governing the reliable transfer of a diverse range of data types is termed as the **Session Initiation Protocol** (SIP).

> By 2012, the market share of traditional telephone dropped to a low 74% of home telecommunication systems, as compared to 90% in 2007.
>
> – SNL Kagan

VoIP is quite hassle free and robust if initial investment is made in a reliable vendor and the hardware and software is checked for compatibility and interoperability with the existing infrastructure. This is basically the reason why there is an estimated 33% growth every year in the VoIP industry. It is touted as the technology that will successfully eliminate the traditional telephone systems- something the hot contender "mobile phone" couldn't achieve.

Why Should Businesses Use VoIP?

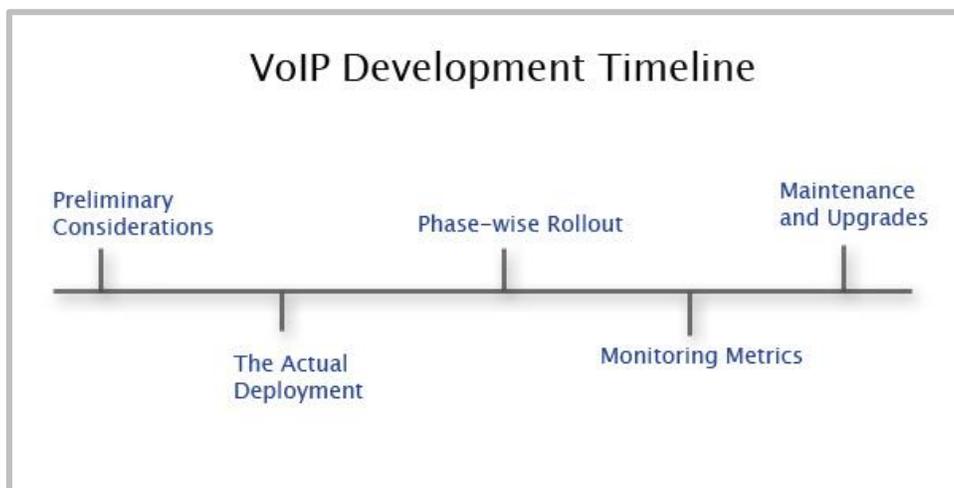The most obvious benefits VoIP extends to the business community include:

- A host of advanced features, like directly sending voice mail to an employee inbox, ready integration with other business intelligence and enterprise software platforms to call up data from all across the organization, the ability to place calls directly from the inbox so that all important messages are sent and received from a single location. This also vastly cuts down on the time taken to hunt information, check and monitor multiple channels of possible communication. Studies show that most businesses agree to an increase in productivity that corresponds to 2 hours of extra work every week with the successful deployment of VoIP.

- A substantial reduction in calling costs especially if the business organization is a global one and needs to communicate with clients and employees the world over. VoIP is capable of not only cutting down voice call charges drastically, it is also facilitates video, images and files transfer from an easy to handle platform.

- An unrivaled flexibility in terms of investment and attendant upgrade, maintenance and troubleshooting. Call features like **group hunt** (searching for a free representative from a group of viable options to transfer the call of a customer with the least waiting period) and **call barge** (the ability of a manager to interrupt a call to mediate and improve a situation) are available only with great investment into a on-premises **PBX (Private Branch Exchange)**. However with VoIP, there is the easy option of choosing either a hosted (in cloud) service provider or a hybrid communication platform and in both cases the investment in terms of time and money are vastly reduced and monthly maintenance hassles are also eliminated.

> Auto attendant, voicemail to email, find me, follow me and call barge are the most popular VoIP features according to a recent survey by Bing.

VoIP Lifetime Stages

The following is the timeline of a VoIP telecommunication set up for a business. All the stages are unique and are generally visited once during the lifetime of the system. Only the fifth stage- Maintenance and Upgrades is a continuing affair requiring constant attention and work. Companies may also choose to shift the metric they monitor as the time goes by. For example a newly implemented VoIP system may be judged in terms of ROI, but with time the importance may shift to intangible returns like increase in employee productivity, boost in professionalism and so on.

VoIP Development Timeline

Preliminary Considerations

Phase-wise Rollout

Maintenance and Upgrades

The Actual Deployment

Monitoring Metrics

Preliminary Considerations

Preliminary considerations while deploying a VoIP system include deciding to opt for on-premises or hosted solution, choosing a vendor and assessing the business needs that are prompting the shift to VoIP in the first place.

Assessing Business Needs

- Competitor survey is the worst way to kick-start a VoIP campaign. Even if other businesses in a particular niche opt for a standard bundle of features, it is in no way a guarantee that what is working for other organizations will work for yours too. Every business is unique and has a unique set of future plans

- A face-to-face meeting with employees from relevant departments that regularly use the existing system is a great way to gauge the real needs of the company. These needs must be cross referenced with the expansion plans and financial predictions of the next five years to identify "genuine" requirements. A VoIP system purchased keeping these genuine needs in mind can best serve the venture.

- Financial considerations are definitely a part of assessing business needs. A company should never approach the vendors without a set budget, lowered by 15% in order to get comfortable custom quotes from the vendors. The best possible course of action is to draw up the final list of genuine business needs and then freeze on the investment or budget for the VoIP system. Outside of this, money has to be set aside for hardware, software replacements and other miscellaneous expenditures. This ensures that the deployment never goes wildly over budget. And the 15% reduction in the amount set aside for the VoIP system can provide excellent leverage while negotiating with vendors.

Choosing a VoIP Solution Type

- Contrary to most beliefs, the most important factor influencing the choice of the type of VoIP system is not the investment needed. It is the number of employees the business has and again the future expansion plans of the organization.

- There are three ways in which VoIP can become a part of the communication system of the business:

    - **Virtual PBX**- A private branch exchange set up ideal for more than 25 employees. Here generally IP phones costing around $250 per piece are used. The initial investment is high but the payoff is substantial especially if long distance and international calls are a frequent part of the business.

- **Hybrid VoIP**- If the business already has a number of analog telephone lines in place and as such can't afford a completely new set up with IP phones, an IP adaptor with the analog telephones connecting to a reliable LAN is a good middle ground solution. This robust system can be used by upwards of 25 employees but doesn't allow for advanced features which are supported by only IP phones.

- **Hosted VoIP**- For businesses with less than 25 employees and no IT team, this is the best option. Here a VoIP PBX maintained by a third party service provider is leased out to the business for a monthly fee obviating the need of maintenance and upgrade hassles.

- If a VoIP is being integrated with a legacy PBX or a simple network of analog phones connected to the PSTN, the vendor must be intimated of this fact from the word go. Not every VoIP service provider is compatible with legacy equipment. This little foresight can actually save a lot of time and hassles along the way.

- The type of VoIP system depends upon the call volume and bandwidth of the internet connection already in place. Businesses must keep in mind that the bandwidth of the internet connection should be sufficient to handle the increased usage by the VoIP as well as the general demands of surfing and social media platform maintenance.

- The sensitivity of the data being transmitted is an important factor that limits many organizations from transitioning completely to VoIP.

- Last but not the least, the level of interoperability required of the VoIP system should also be a consideration while choosing a platform. Sometimes legacy systems have poor interoperability and integration capabilities. If a partnership with CRM or ERP is a pressing need, then under the circumstances a "from scratch" VoIP or a hosted solution may be ideal.

Choosing a Vendor/Service Provider

For on-premises systems the facilitator is called a "vendor" and for hosted system, a facilitator is called a "service provider".

- Not just the stated price of the system: businesses should most definitely enquire about hidden licensing and update charges. VoIP is an affordable option and the prices are tempting. However this preconceived notion of affordability makes most clients accept very low rates without a second thought only to find out that overhead or additional charges are substantial.

- While choosing a vendor, past track record checking is a given. However most businesses do not ask about support during the roll out period or indeed network testing to gauge whether the existing

infrastructure is capable of supporting VoIP. These should be on the list of services rendered to eliminate hassles.

- As we will see later on, **Annual Maintenance Contracts (AMCs)** are also a debating point. There are hundreds of vendors in this rapidly expanding field and a lot of them provide packages with the maintenance cost factored in. And it may be surprisingly high. Do not forget to enquire about the breakup of costs to get the most cost effective deployment.

- Another important factor businesses tend to overlook is disaster recovery, especially in case of hosted VoIP service providers. It may be an added headache and quite a jolt to business if lost data is not backed up. Make sure that the service provider explicitly states that data recovery is part of the roster of services.

- The vendor of choice should be ready to provide at least a few complimentary training sessions for the new system especially if it is cutting edge loaded with advanced features. Traditionally this training is dispensed to the IT team from where it can trickle to the employees at a pace they can adapt to. If a business doesn't have a dedicated IT, the employees need to receive direct training and this always costs extra.

- Lastly, a vendor must have reliable and competent customer support. 24 hour client support is a catch phrase but very few vendors actually live up to the promise.

EXPERT TIP:

Always reserve at least one PSTN line, especially if reserve or back up power options are shaky. VoIP phones and PBXs can't function during power outages and this ensures that the business doesn't suffer adversely due to unavailability of power.

Deployment

The actual deployment or implementation process is long and can be tedious if it is ill planned. Some expert insights and advice are as follows:

- Prior to deployment, a detailed timeline with the estimated duration of the implementation, the estimated expenditures, the process break down with names of managers assigned to oversee each process and a list of the hardware and software inventory must be drawn up. This is an **ABSOLUTE MUST HAVE** for successful implementation.

- An orientation session with the vendor, the IT team and the individual process managers should be facilitated by the VoIP Project Manager. An understanding between the members associated with the deployment is crucial to the success of the deployment.

- Even though it is rarely recommended anywhere, communicating the end results you wish to achieve with the deployment to the vendor (in addition to the required features communicated while choosing the system) can be a marvelous thing to do. Most vendors look to make their clients happy and this knowledge can help them make necessary tweaks to provide a "tailored" solution.

EXPERT TIP:

Before choosing a system, communicate features you are looking for. Benefits at this section can allow vendors to confuse businesses. After choosing a system convey benefits, this will help vendors deliver desired results.

Phase-wise Rollout

From here on, the VoIP territory is less well explored. Putting a VoIP system in place is in no way limited to simply implementing the new system or integrating it with the legacy unit. It also involves testing the workability, the load points, the performance under ordinary, as well as extenuating circumstances and the overall feel of the network by transferring a number of non-critical departments to it. This ensures the fact that even if the network is not working to its full capacity and still has a few "technical wrinkles" to take care of, business is not affected.

Roll-out Tests

A network that is untested is a network that has been set up for failure. A battery of performance monitoring tests and diagnostic insights are needed to ensure smooth functioning in the years to come. These tests include:

- **Point to point load testing** should be performed where new and existing hardware needs to be checked for signs of load. Excessive heating of connection points, sparking or arcing are all indications that the hardware is incommensurate to the demands made by the VoIP system.

- In order to understand voice quality degradation, a **load chart** has to be plotted. A conventional load chart looks something like this:

Load Point

Graph 1

Graph 2

For graph 1: Time
For graph 2: Quality
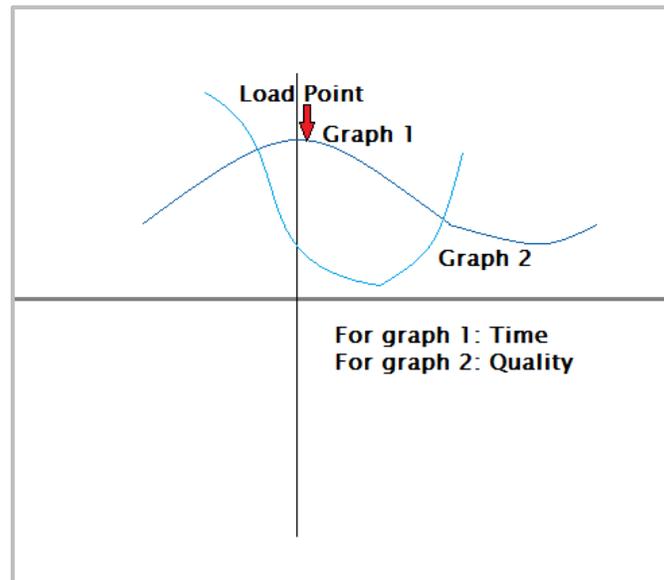
For every business there is a particular time of the working day when the call and data volume increases. This is called the Load Point as indicated by the graph. At this load point, the call quality tends to suffer the most with jitters and dropped calls. All important telecommunications must be scheduled avoiding the Load Point. This graph also helps monitor the quality of the services provided to clients who call for information or assistance.

- The **Maximum Load Test** also has to be performed prior to shifting all the critical departments to the network. This test entails artificially increasing the demands made on the newly installed network till a danger point is reached where the call quality degrades to unintelligible and data transfer reliability becomes zero. The level of stress or traffic that triggers this condition is noted and at all points of time, demands made of the system should be lesser than the Maximum Load value.

- **Interoperability** tests should be conducted depending upon whether the VoIP is being added to the legacy system and the number and types of integrations deployed. If the VoIP system is working in partnership with ERPs or CRMs, data flow from one application to another has to be seamless and important statistics should be available instantaneously to leverage the fact the employees can provide accurate information and solutions while on call to clients needing them.

Monitoring Metrics

An important part of the VoIP timeline is monitoring metrics so that the success of the system can be expressed in a quantifiable verifiable format to the management. This justifies not only the decision to invest in the system but also affects productivity.

VoIP ROI Review

An ROI review of both tangible financial returns as well as intangible returns in the form of productivity boosts and professionalism boosts is critical. However industry reports suggest that a large number of "successful" VoIP implementations are labeled a "failure" because of improperly monitored metrics or worse still, no monitoring at all. An ROI review serves two purposes:

- It shows exactly how much the business has benefited from the new deployment, so that future upgrades or tweaks may be easier to sell to the management.

- It tells employees that they have used and utilized all the features of the new system correctly to bring in profits for the company. This feeling of positivity engenders more effort on part of the employees and it is common to see a hike in productivity after a successful review of the benefits of a new system.

Common VoIP Metrics to Monitor:

Some of the most common VoIP metrics to monitor are:

- **Initial phase after deployment** – Actual savings on call charges, return of investment per employee, increased business as a direct result of the deployment (for example if a business gets effective results from cold calling, VoIP can bequeath it with the ability to cold call overseas and clinch more clients)

- **Later phases** – Some long term metrics to monitor are increase in productivity in terms of number of hours worked per week per employee, improvement in quality of call, improvement in client engagement, reduction in wait time for clients, boost in professionalism as reflected by survey results.

EXPERT TIP:

- Metrics to monitor should be decided by the management because it reflects the results that the implementation has achieved in areas where improvement was needed.

- Base line values of metrics must be noted prior to implementation so a proper comparative report can be drawn up.

The following chart is a look at the relative frequency and popularity of VoIP metrics as decided by mid- and small-sized businesses deploying the platform. These values are averages and do not represent the full 100% which comprises of other minor metrics (niche specific).

Common VoIP Metrics Monitored by Businesses
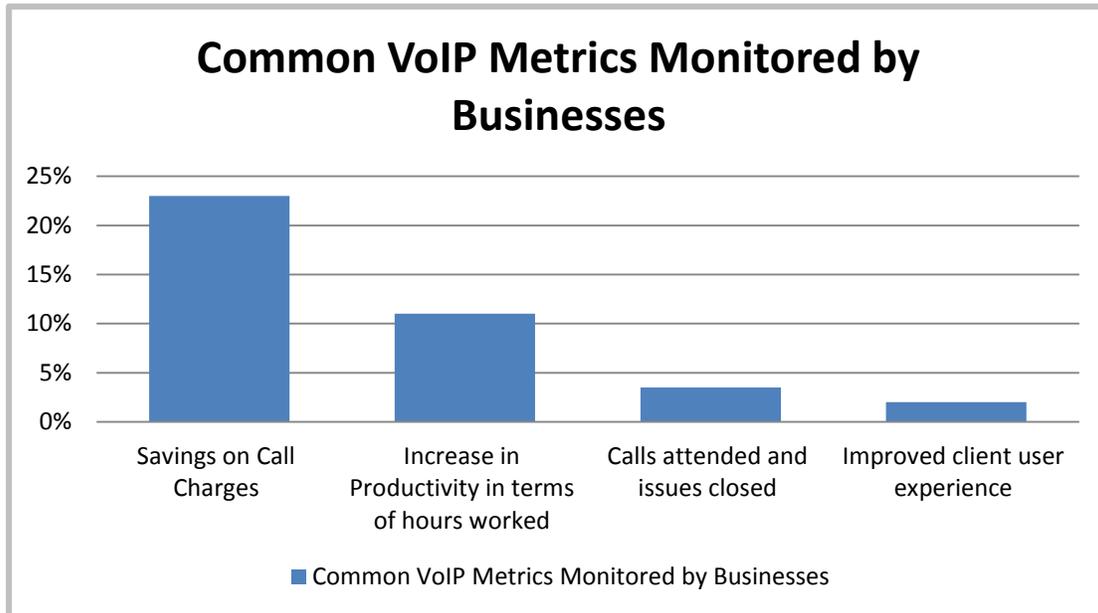
Maintenance and Upgrades

When the decision to deploy a VoIP system is made, upgrades and maintenance are the furthest from the mind of businesses. The process of roll out and implementation seem intimidating. However as time goes by, the maintenance and upgrade considerations start to grow in stature. Careless vendor selection and inadequate maintenance provisions may lead to over expenditure.

Should You Use System Vendors for Maintenance?

This is a contentious question, opinions abound as to whether it is easier to go with system vendors for maintenance or employ a third party contractor. It is best to state the pros and cons of each option and allow businesses to choose the course of action that best fits their needs.

- **Going with system vendor** – This naturally means less hassles. A yearly maintenance contract is drawn up and becomes functioning immediately upon system installation. However the price is not competitive at all. Most systems do not require rigorous maintenance over the first year and an expensive contract just sits draining money from the business. Having said that, a vendor should at least in theory know the system the best, but this isn't generally the case.

- **Going with third party contractor** – Obviously looking for a competent third party contractor for maintenance takes time. But rates are competitive and the contract becomes active only when the business wants it to.

EXPERT INSIGHT:

Updates are different from maintenance. Updates relate to an improved version of the existing software and are taken care of by the vendor or the service provider in case of a hosted system. After updates, tweaks may be needed so maintenance gets called in.

Some Best Practices

Some best practices of VoIP maintenance are as follows:

- Scheduling planned down time for maintenance so that unexpected outages are not experienced.

- Evaluating updates because not all are useful. It is the job of the IT department to consider updates carefully and then allow their acceptance and installation.

- Maintenance of security and recovery measures. This is rarely done by businesses and may cause bigger problems later on.

- Holding "refresher" training sessions is a good practice as part of the maintenance regime. This can be done every quarter to help new employees get a better grip on the system and explain the provisions of any major update.

- Opting for a patch may sometimes be a more user friendly alternative as opposed to a full blown update which may make the system and interface seem unfamiliar. A patch is an update with only select features that blend in unobtrusively with the existing infrastructure.

Conclusion

With this asset we see that a VoIP development timeline is not just restricted to the actual implementation process but is comprised of different phases each with its own set of best practices and dynamics. This asset aims to deliver information that can only be gleaned from the eyes of an expert going over and above the frequently discussed mandates found all over the internet and in system brochures.

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