



IP Telephony a Solution Comparison

An Educational White Paper

frecomm services
64 Fairfield Green , Whitley Bay
Tyne & wear NE25 9SD



IP Telephony is rapidly overtaking the traditional TDM-based PBX in the enterprise marketplace, according to a report by the Synergy Research Group. The report forecasts that IP Telephony sales will increase from \$849M in 2002 to \$4.4B by 2006 - a compound annual growth rate of 50%.

The reason for this optimism stems from IP Telephony really delivering on its promises of cost savings, productivity increases and business re-engineering.

The IP Telephony growth we are now seeing is a direct result of early pilot sites rolling out into full deployments, as IP Telephony continues to prove its credentials in an established and stable market.

IP Telephony Benefits

Compared to traditional PBXs, IP Telephony provides much lower deployment and management costs by utilising a single wiring infrastructure for the organisation, simplifying and automating 'Moves, Adds and Changes' and providing intuitive toolsets for both managers and users.

The real bonuses that IP Telephony delivers however are the productivity gains from converged applications and operations flexibility, by enabling efficient hot-desking and remote working.

With such compelling arguments it is no wonder that traditional PBX vendors and networking vendors, such as Cisco and 3Com, are staking their futures on the IP PBX.

A New Way Of Thinking

Despite the IP PBX currently being the most prominent form of IP Telephony, the enthusiasm for IP Telephony is based more generally on what IP Telephony delivers, not specifically the IP PBX. Moreover, one has to ask whether the PBX format is the best way to deliver IP Telephony functionality.

The PBX evolved from the old switchboard as functionality was added over the years. Being based on such old principles necessarily brings along lots of 'baggage'.

Does convergence mean we have to accept compromise, incorporating 'new world' IP Telephony into the traditional PBX world, or is convergence about bringing together the two worlds to create a more efficient, scalable and function-rich environment?

Many organisations believe the latter and are proposing that enterprises of all sizes embrace the benefits of IP

Telephony, but in a form called IP Centrex, where the limitations of the PBX are discarded.

This paper compares an IP Centrex model to that of IP PBXs.

Architecture

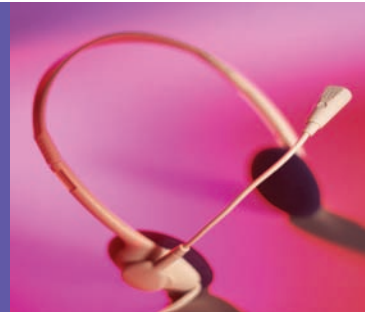
In order to properly compare these two IP Telephony environments, it is important to quickly define the architecture of each.

IP PBX

The IP PBX, from major vendors such as Cisco, Avaya, Siemens, Alcatel, Nortel, Mitel, and 3Com, has evolved into a server/gateway architecture. This means that the core telephony application runs on a networked server.

All connectivity to the PSTN, other PBXs and traditional telephony devices is via networked gateways.

◆ Synergy Research Group Inc, August 2002:
'Worldwide Enterprise VoIP Equipment Market Shares'



The solution is called an IP PBX because many vendors incorporate the server on a circuit board within the gateway for easier deployment; particularly in small to medium sized businesses or branch offices of enterprise customers.

IP Centrex

In an IP Centrex deployment all of the equipment, servers and gateways are deployed at the service provider's site, scaled for thousands of users and built to carrier level reliability. The service is deployed to the enterprise over a broadband connection direct to the IP devices on their network.

The IP Centrex model requires no central equipment at the client site.

TELEPHONE SYSTEM HARDWARE VERSUS IP HOSTED SERVICE

Hardware

The first and most obvious difference between IP Centrex and IP PBXs is that with IP Centrex there is no equipment, other than IP phones or 'soft phones', deployed at the client's site.

With an IP PBX the client has to purchase expensive equipment (or lease equipment, under punitive leasing agreements) in addition to arranging for PSTN telephone lines to be installed. Furthermore, maintenance contracts have to be drawn up and appropriate environmentally controlled space has to be allocated to locate the equipment. In short, upfront investments are substantial.

With IP Centrex, all of the equipment investment is made by the service provider, and the customer pays only a monthly fee for use of the service.

In July 2003, Comms Dealer carried out a survey comparing costs of IP PBX systems leased over 3 years against IP Centrex costs, for 4 user, 20 user and 48 user deployments. The results, based on information supplied by channel organisations, showed that using an IP Centrex service could offer savings of between 43% and 48% over the 3 year period.

Savings in equipment costs are not the only criteria to be used when evaluating these two IP Telephony environments. It is important to ensure that initial savings are not eroded by loss of functionality and flexibility.

Scalability & Flexibility

In today's volatile business environment scalability and flexibility are absolutely essential. Customers need to be

able to quickly and cost-effectively add users, deploy new services, open new offices or incorporate mobile and home workers.

IP Telephony is the key enabler for this flexibility but the IP Centrex model gives the ultimate environment to activate it.

With an IP PBX, adding users, offices, new services and remote workers, invariably means enhancing the existing equipment or purchasing additional systems. Additionally, more lines have to be rented from the PSTN supplier and more application software may be required. Moreover, many hours of installation and configuration may be required to ensure that the service matches the needs of the users.

With IP Centrex, these changes merely require connecting users to the service provider and activating licenses. In terms of costs, additional users are simply added to the monthly charge.

The key reason that IP Centrex systems can be this flexible is that they are designed to scale to many thousands of users and work under the most extreme traffic conditions.

IP PBX systems have limitations to the number of users a single 'box' can support, due to hardware limitations imposed by processing power within the server and gateway units. Adding users therefore inevitably leads to a point where other units need to be added or the original ones exchanged. The hardware upgrade costs alone can be substantial, not to mention the costs of reconfiguration and commissioning.

The issue of scalability should not be underestimated. Many organisations today buy PBX systems much larger than they initially need to ensure that they can cater for future growth. The IP Centrex model does not require this overprovisioning of voice services to cater for limitations of the customer.



Multiple Locations

Even small companies often have more than one office or business location, with serious implications on telephony deployment. The IP PBX model usually requires that such companies purchase a system to cater for each location. This brings great complexity in numbering systems, exchange lines and system usability.

IP Centrex handles multi-locations as though they are just one environment on the clients Virtual Private Network. There is no need to worry about multiple PBXs, numbering systems, system configurations and limitations or multiple exchange lines.

TELEPHONY FEATURES

Numbering Solutions

Many businesses now use non-geographical numbers, such as 0845 local numbers, 0870 national numbers, 0800 freephone numbers, 0870 'follow me' numbers and 0900 premium rate services. Moreover, many businesses purchase memorable or meaningful numbers to enhance their profile.

Businesses using an IP PBX can purchase these services from their communications carrier but then the calls need to be routed intelligently to users and agents. This is done by calling in an engineer to re-configure the IP PBX.

Using the IP Centrex model, the service provider handles all of the numbering systems remotely, on behalf of the client. Routing numbers no longer requires bringing in a third party to configure the PBX.

Conferencing

When organising face to face meetings is not possible, many organisations now turn to audio conferencing. In the past this involved prebooking the conference with a service provider, and all participants ringing into a given number. Some sophisticated PBX systems provided a conferencing service but with major limitations in terms of costs and participant numbers. IP Telephony has had a dramatic effect on the conferencing market bring the costs of this service down to the reach of most organisations.

Almost all IP PBX systems now support audio conferencing, without the need to pre-book the service. Nevertheless, numbers of participants are limited by the power of the

processing facilities. Furthermore, if there are a number of external participants, many of the PSTN connections become tied up, reducing the service of the IP PBX.

In an IP Centrex world you get the benefits of IP Telephony conferencing with none of the drawbacks. There's no need to pre-book the service, there's no limitation to participant numbers, exchange lines are not tied up, and low cost calls can be made, including dial out.

Administration & Management

When it comes to telephony management responsibilities, considerable differences between IP PBXs and IP Centrex emerge.

In an IP PBX environment, the administrator is responsible for ensuring that the system as a whole functions correctly. Issues to do with reliability, security, upgrading, performance and multiple supplier relationships stop with that person, making for a stressful and often unwanted role.

In an IP Centrex world these issues are handled by the service provider. One organization is responsible for delivering a full, working service.

Future Proof

It is important for all types of organisations to get as much from their investments as possible. This is no less the case with voice technology investments.

One of the biggest causes of frustration in businesses is that technology is currently advancing at a pace that is hard to keep up with. What is bought today is invariably superseded soon after it is installed and paid for.

Buying an IP PBX is just like any other technology - it needs to be able to be upgraded to take advantage of the latest technology advances.



The good news is that as most of the IP PBX is software, it is relatively easy to upgrade the core functionally. Nevertheless, often the hardware unit will need upgrading to cope with the processing power requirements of new software. Furthermore, adding extra functionality to the gateway may need new communications modules or even for the whole gateway to be replaced.

In contrast, IP Centrex is a truly future proof solution. As all of the equipment is housed at the service provider's site, the responsibility to support future software and new technologies belongs solely to the service provider. End customers receive enhancements as a natural course of their monthly service charge.

Channel Opportunities

For many organisations, used to owning and managing their own PBX systems, the step to IP Telephony is seen as simply replacing the central box and changing the wiring system. They will buy into the IP PBX solution as the next natural step for their organisation, taking advantage of the added functionality whilst staying within their 'comfort zone' of the telephony box in the corner.

For the enlightened organisations, looking for major cost savings, greater flexibility, productivity gains and competitive advantage, the IP Centrex model of IP Telephony will be the preferred route. Forecasts from the US, where IP Centrex has had greater visibility, suggest that IP Centrex will gain even greater acceptance than the impressive growth figures of IP PBX sales. Indeed, IDC forecasts that this market will mushroom from \$281M in 2003 to \$6.7B by 2007.

One of the suggested barriers to the deployment of IP Centrex services is the reluctance of the traditional voice resellers to adopt this model, fearing loss of income and control of their client base. This hesitance is understandable, given that their businesses currently rely on monthly PBX sales, together with installation and maintenance charges.

Nevertheless, IP Centrex service providers regard voice resellers as vital to their strategy, and plan to provide them with an equivalent profit stream, without the need for moving 'tin' or the cash flow issues inherent to the current model. Furthermore, as data providers move into the market, with IP Centrex models that fit their existing business models, the voice resellers will be forced to make this change or face losing market share.

Moving Forward With Applications

The new world of IP Telephony is moving rapidly to one of applications. Contact Centres, Unified Messaging, CRM and a myriad of vertical market applications will be the driving force of the IP Telephony world.

Astute resellers, preparing to embrace applications, whether they are voice resellers changing to a services revenue model or data providers moving into the telephony space, will be the winners in this IP Telephony world.

Summary

The migration of most businesses to IP Telephony is no longer questionable. Figures from vendors now confirm that IP Telephony has really taken hold of the market place and in many cases is overtaking traditional telephony systems.

In this paper we have looked at two key types of IP Telephony, the IP PBX and IP Centrex, in an attempt to decipher the most efficient and effective way of delivering IP Telephony benefits to the end user.

What this paper illustrates is that IP Centrex offers substantial benefits over the IP PBX; providing more cost savings, flexibility, scalability, ease of deployment and ease of use.

Nevertheless, the current market stems from the traditional PBX market, with both customers and resellers accustomed to the status-quo. To reap the real benefits of IP Telephony both groups will have move away from their 'comfort zones' and embrace a service model of telephony provisioning.

IP Centrex does, however, enable organisations to make this transition at a pace that suits their business needs. It does not require that customers throw away working PBXs, as IP Centrex can flexibly integrate with PBXs.

IP Centrex offers a unique opportunity for organisations of all types to embrace the benefits of IP Telephony.

◆ IDC, February 2003: 'US hosted IP Voice – Market analysis 2002 - 2007'