IP Telephony Implementation:
Best Practices

Lessons learned from our IP Telephony contest

Sage
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1.0   Executive Summary

Sage Research, the Technology practice of Chadwick Martin Bailey, conducted an IP Telephony Best Practices contest to discover the real-world benefits and challenges experienced by companies that have already gone through successful IP telephony implementations. The contest was conducted in December 2005, and winners were selected from a pool of submissions from automotive, education, engineering, financial, government, hospitality, insurance, manufacturing, professional services and real estate industries. Not only did contest applicants represent various industries; they also deployed a wide variety of successful hosted IP solutions and IP PBX brands, including: 3Com, Avaya, Cisco Systems, EchoPass, Nortel, and ShoreTel.

Contest applicants were required to prepare answers to the following four questions:

1. **What made your IP Telephony deployment successful? Be sure to include a brief description of the "before" and "after" scenario, including how the technology has changed/improved the way your company conducts business.**

2. **If you could offer a single piece of advice to other companies considering an IP Telephony deployment, what would you tell them?**

3. **What was the greatest challenge when planning or deploying your current IP Telephony solution and why?**

4. **Is there anything else you want us to know about your implementation?**

Their submissions point to recurring themes about the benefits and challenges of deploying IP telephony. Not surprisingly, most organizations report that cost savings are the most important benefit. Specifically, IP telephony reduces the ongoing operational costs of managing telephony systems, the costs of moves, adds or changes (MACs), and maintenance costs.

Some productivity improvements that our contestants cited include those due to faster MACs and Unified Messaging (UM). UM allows employees to access email, voice mail, and faxes through a single platform, increasing staff productivity. Contestants also report that IP phones allow for business resiliency—the ability to keep businesses operational regardless of unplanned events or staff changes (e.g., inclement weather). Finally, IP telephony is increasing employee satisfaction by allowing them to telecommute and to easily use advanced calling features. Customers, in turn, are taking advantage of IP telephony by being able to reach staff members more quickly and/or having more options to reach them.

Surprisingly, the most common challenge for a successful IP implementation is not related to the technology itself—it is internal resistance in the organization. For a few organizations, end-user training was another challenging task that they learned should be carefully planned in advance. Some other challenges mentioned by our contestants include the cost and difficulty of upgrading their current network infrastructure, selecting the right vendor, the high upfront costs of equipment, and managing the transition between a traditional telephony system and the IP solution.

In order to have a successful implementation, our contestants advise:

1. **Do preliminary exploratory research**

2. **Build organization buy-in before the transition, and set clear expectations**

3. **Be very detailed on planning and project management**

    a. **Create documentation and assess current networking infrastructure**

    b. **Determine end-user needs**

4. **Prepare the current network infrastructure**

5. **Choose a customized IP solution**

6. **Plan staff and end-user training in advance**

The last section of this whitepaper includes case studies from the most successful IP telephony deployments in our contest. These are Outrigger Hotels, winner of the large enterprise group (more than 1,000 employees), and Prudential Northwest Properties, winner of the Small/Medium Business (SMB) group (less than 1,000 employees). In this section we also included a summary of benefits from the honorable mentions in our contest: First Merchants Corporation, the City of Charlotte, North Carolina; and First Guarantee Mortgage.

2.0   IP Telephony Benefits

Our review of experiences reported by contest participants shows recurring themes about realized IP Telephony benefits. As detailed in the following sub-sections, these themes are as follows:

- **Cost benefits**
- **End-user and IT Staff productivity improvements**
- **Business resiliency**
- **Higher employee and customer satisfaction**

2.1   Cost benefits

According to our contestants, cost savings are the most important benefit of IP telephony implementation. Reduced ongoing operational costs of managing telephony systems was the most commonly mentioned, followed by reduced costs of moves, adds or changes (MACs) and maintenance costs. Long distance toll bypass savings were rarely mentioned, with the exception of contest participants from very large companies with high volumes of intra-company international calls.

The most important direct, out-of-pocket cost savings benefit for most organizations that implement IP telephony is reducing the ongoing operational costs of managing their telephony systems. This finding is consistent with other IP telephony studies conducted by Sage, where operational costs savings surpass any other benefits from IP telephony. In particular, contestants emphasize that reducing the ongoing costs of system extensions to add capacity or parts replacement (sparing) compared to their previous TDM-based PBX systems has been significant. Others highlighted their cost savings from eliminating the monthly recurring cost/line of their previous Centrex services.

"While our long distance charges have enjoyed about a 10% savings by moving to an internal IP Telephony system with local/long distance call routing, a much larger savings has been realized by dropping our Centrex lines and bringing the PBX in-house. Based on the transition, the district has saved about 25% on our phone charges by eliminating carrier Centrex charges" - Technology Director, Education

For contestants in organizations with high staff turnover and/or extreme growth, the costs of moves, adds and/or changes (MACs) are critical. A college in Florida saved $16,000 per month after implementing an IP telephony solution. Their previous PBX provider charged $70 for each MAC, and with major campus renovations under way, monthly relocation costs were extremely high. With a hosted IP telephony system in place, MACs are virtually free, as users just need to plug-in their phones to an Ethernet jack whenever they change campus locations. Organizations in industries with high staff mobility, such as government, professional services, and real estate report experiencing similar MAC-based savings.

Many organizations also reported savings due to reduced maintenance costs. This savings category is more relevant to larger companies that had replaced their broadly-deployed legacy PBX systems. For example, a

Table 2.1 Summary of IP Telephony Benefits

Cost Benefits

Reduced ongoing operational costs

Reduced costs of moves, adds or changes (MACs)

Maintenance Costs

Long distance toll bypass

End-User and IT staff Productivity Benefits

Business Resiliency

Higher Employee and Customer Satisfaction

major hotel chain was able to reduce maintenance costs by over $40,000 a year by implementing a hosted IP telephony service that is virtually maintenance-free.

Although long distance toll bypass was not regarded as a major benefit for most organizations since domestic long distance rates are so low already, there were exceptions. One contestant, an importing company, found this benefit extremely valuable for its high volume of international calls among various international sites. After installing an IP PBX system in four of their international sites, the company's telecommunications costs fell by 55%, or more than USD $11,500 per month in savings. Largely because of these toll bypass savings, the company recovered its upfront IP telephony equipment investment in less than one year.

2.2   End-User and IT Staff Productivity Improvements

Productivity improvements were mentioned as the second-most important benefit from IP telephony implementation. Most contestants cited productivity improvements that benefit both end-users and IT staff, such as faster MACs. Unified Messaging (UM) is also a critical factor in the success of their IP telephony implementation for many organizations. UM allows employees to save time on information management. The only productivity benefit reported that is exclusive for IT/Telecom Staff is easier maintenance and setup of IP phones, which was common but not as important for most contest participants.

Apart from hard cost savings, most contest participants reported productivity improvements derived from implementing IP telephony solutions. The most reported benefit was the flexibility allowed by easier and faster MACs. With traditional telephony systems, some companies needed a technician to come on-site to support employee moves. Reliance on a third-party meant this process could take days to be completed. With IP telephony systems, contestants report their employees can take their phones with them wherever they need to work.

"The time once a MAC (move, adds, and change) was submitted could take up to three days to be completed, where now it takes literally one to two hours, if that. The ability for individuals or campus technology support personnel to move phones due to construction, job reclassification, or just moving to another office has limited the amount of unproductive time incurred by waiting for the phone to be moved with the traditional PBX system." - Network Security Specialist, Community College

Unified Messaging (UM) is also an IP telephony feature that greatly contributes to employee productivity. The ability to access email, voice mail and fax communications through the same platform makes it faster for employees to manage information, and therefore saves staff time.

Upper management finds UM extremely appealing, according to many of our participants. This finding is consistent with other research conducted by Sage, where we have found that upper management is one of the employee groups that own more diverse types of devices and spends more time managing information on a daily basis. Finally, organizations that benefit from UM usually belong to industries where immediate access to customer information is critical, such as finance, hospitality and real estate.

"Our associates are alerted to new faxes, voice mails, emails and even internet leads within seconds, allowing them to respond with a level of professionalism that is rare in the real estate industry. The time savings coupled with the improved business processes afforded by our integrated IP platforms have been a tremendous success for our brokerage." - CIO, Real Estate Firm

Many also stated that basic telephony features are easier to use with IP phones than their previous PBX desk sets. Some of these features include access to the company directory, 4-digit dialing and call forward. Although these features are not exclusive to IP systems, participants report that employees more broadly use them now that they are easier to access.

2.3   Business Resiliency

For some organizations, business resiliency is a very important benefit of IP implementation. IP phones allow them to keep their business operational regardless of unplanned events or staff changes.

Contestants report that IP telephony allows their businesses to stay operational regardless of unplanned events or disasters, and to quickly adapt to acquisitions or downsizing. Most IP phones are location-independent, allowing employees to conduct their business operations virtually anywhere.

"One side benefit we realized occurred when we had an elevator fire that forced us to evacuate 85 employees from their four-story building for at least two weeks. All computers, phones and faxes were relocated to four other buildings over the weekend in 42 person-hours of work and all were operational on Monday and the public never knew they had moved. The only real dollars spent were for some cables and connectors." - Director of IS, County Government

For some of our contestants, this benefit opens new business opportunities and offers a competitive advantage over other players in their industry. A real estate firm was able to enable their agents to work remotely while they couldn't access their office in the middle of a storm. While other firms remained closed to prospective clients, they were able to remain operational, which they believe led directly to higher customer satisfaction.

"In 2004, [our region] experienced a record-breaking winter storm. The entire region was covered in ice making it difficult to travel. Most local business had to shut down for the better part of a week, but [our company] was able to stay connected with customers, despite the weather. Even though our agents couldn't come to the office, we were able to continue business by using the IP Telephony system and features to work from home." - CIO, Real Estate Firm

2.4   Higher Employee and Customer Satisfaction

The ability to telecommute and easy-to-use calling features increase employee satisfaction in organizations that implement IP telephony solutions. Customers, in turn, are taking advantage of reaching staff members more quickly and/or having more options to reach them.

As a direct result of features such as easier-to-implement and use unified messaging, 4-digit dialing, or call forward, employees are very satisfied with IP telephony. Since the costs of adding lines are not as high as traditional telephony systems, organizations are also providing more employees with phones and extensions. According to our participants, higher staff morale and satisfaction improves productivity.

"Unified messaging was provided to all faculty and staff. The consolidation of all email, voice mail and fax communication over the IP network resulted in significant improvements in user satisfaction. This is enhancing staff productivity and has received rave reviews from users." -CIO, Education

Companies also find it easier to allow employees to telecommute with IP Telephony systems in place. In some cases, this enables organizations to reduce office space (and thus real estate costs) while employees enjoy the flexibility of working from home.

"After we deployed our IP PBX, we (were able to) hire more home based workers. We have 7% home office workers up (until) this month. We expect to increase the percentage of home workers to 20-25%." - Administrative Manager, Import & Export Corporation

"[Our IP solution has given us the] ability to 'virtualize' the call center, making agents location-independent." - IP Telephony Lead, Insurance

Some contestants are also experiencing higher customer satisfaction since implementing an IP telephony solution. A real estate firm states that customer satisfaction has increased because agents are able to work faster and handle calls more efficiently.

"We're measuring ROI not just in telecom costs saved, but in customer satisfaction as a result of our improved ability to work faster and handle calls more efficiently. Our sales grew roughly 15 percent in 2003, and while it's hard to say exactly how much of that is attributable to the IP Telephony system, our high-sales employees all insist their productivity has skyrocketed since the system was installed." - CIO, Real Estate Firm

IP telephony also allowed a hotel chain to implement a state-of-the-art, multi-channel automatic call distribution (ACD) solution. With this new system in place, customers can now contact travel agents via email, chat, fax, or phone almost seamlessly.

"We really got a big bang for our buck with the enhanced capabilities that come along with state-of-the-art automatic call distribution. Echopass lets us electronically distribute to our sales agents not just incoming phone calls, but all the other electronic customer "touch points" – fax, e-mail and chat (or "live help") – that are now necessary to achieve true customer satisfaction." - CIO, Hospitality

3.0   IP Telephony Challenges

Surprisingly, our contest participants encountered many more organizational challenges than technical, financial or planning challenges when implementing IP telephony solutions. Many faced internal resistance in their organizations, usually from upper management. For other organizations, end-user training was a very time consuming task that, in hindsight, could have been handled more effectively. While less common, some of the technical and financial challenges mentioned included the difficulty and cost of upgrading their current network infrastructure to support IP telephony, managing a transitional system and the high upfront costs of equipment. Additionally, a few contestants reported challenges in the planning stages, such as gathering system requirements and selecting the right vendor.

3.1   Organizational Challenges

Inside resistance was by far the most common challenge that our contest participants cited regarding the decision to implement an IP telephony solution. Resistance usually came from two different sources inside the organization:

- **Upper management and C-level executives:** While the most common group to oppose an IP telephony implementation, contestants report that upper management was swayed once they delivered a detailed cost/benefit analysis. Not surprisingly, ROI is the most common metric to evaluate whether or not to implement an IP telephony solution, although many executives become attracted by advanced IP telephony features. Of course, this interest in both ROI and new features can lead to a challenge as one contestant explained:
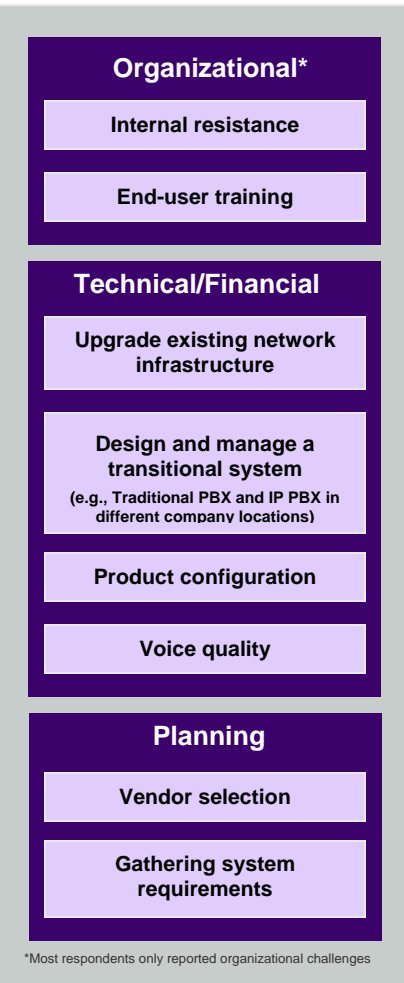
"Our biggest challenge was with upper management, they desired state of the art systems with all the bells and whistles, while budgeting for a bare bones install." - IT Manager, Building Materials Distribution

- **Telecom Staff:** For one of our contestants, the telecom staff of the organization opposed IP telephony, while the IT staff was advocating for it. This finding is consistent with other studies conducted by Sage, where we have found that the telecom staff members more often resist IP technology as they are more familiar with traditional telecom solutions (e.g., Centrex, Traditional PBX). In instances where an IP solution is ultimately selected, the telecom department is often required to share responsibilities with the Data Networking/IT department, or they are ultimately merged into a single department.

"The greatest challenge was breaking the barriers between the legacy telecommunications staff and the data network staff and removing the telecommunications staff phobia from the new technology." - CIO, State University

Several contest participants mentioned end-user training as the biggest challenge they faced when implementing an IP telephony solution. For some organizations, end-user training was an unexpectedly time-consuming task.

Table 3.1 Summary of IP Telephony Challenges

Organizational*

Internal resistance

End-user training

Technical/Financial

Upgrade existing network infrastructure

Design and manage a transitional system
(e.g., Traditional PBX and IP PBX in different company locations)

Product configuration

Voice quality

Planning

Vendor selection

Gathering system requirements

*Most respondents only reported organizational challenges

"Our primary challenge was user training. Setting up 500 (IP) phones and 300 additional phantom line extensions with voicemail was surprisingly simple, but because each of our 19 offices used a different legacy system, our IT staff had to train employees at each branch individually. It took about three or four days at each branch to train all the employees." - CIO, Real Estate

3.2   Technical and Financial Challenges

For some organizations it was challenging – both technically and financially– to upgrade their existing networking infrastructure to support IP telephony. Contestants report their IP telephony systems required additional bandwidth capacity that sometimes meant heavy investments in networking equipment and service fees.

For a higher education institution, installing a transitional system (i.e., having an IP PBX together with a traditional PBX in place) was the toughest challenge. For many organizations it is not possible –because of financial or technical reasons– to do a company-wide deployment of IP telephony. In other research we have found that many companies prefer to take a gradual approach: they install IP PBXs in some branch locations but leave TDM-based PBXs at other locations as an interim step. Some contestants report that they want to make sure they know how both systems will interoperate before deciding on a particular vendor or solution.

"We had an 18-year-old Nortel traditional PBX that we needed to mesh with the IP PBX. [Our biggest challenge was] getting the two PBX's to mesh with talking to each other and the outside world." - Video & Voice Systems Administrator, Higher Education

For a local government, the biggest challenge was to coordinate the transition with their previous telecom service providers.

"The biggest challenge was coordinating the cutover with the telcos. We had 585 Centrex lines that had to be re-pointed to the correct PRI. Some of these occurred as part of a block of numbers where we retained the same numbers, but those outside of the block had to be individually re-pointed and much confusion resulted. Their various departments apparently do not talk to each other and that process was very problematic. We did it in three phases and each provided new challenges – cutovers that occurred prior to the planned date, lines not cutover, lines not pointed to the PRIs and other issues." - Director of IT, Local Government

Few true technical challenges were reported by our contest participants. We only had a couple of mentions of problems with system reliability, product configuration and voice quality, and no mentions of new solutions failing to deliver specific features. The IP Telephony solutions are widely working as promised—in terms of performance, reliability and feature delivery. We were somewhat surprised that our contestants had no specific complaints about the technology itself. However, this lack of technical problems is consistent with other Sage studies where we have seen customers report high satisfaction with IPT in general, and with voice quality specifically.

3.3 Planning Challenges

Planning challenges were very rare among our contest participants. A mortgage firm that initially failed to select the right vendor for their IP solution struggled through the transition phase. They encountered voice quality and reliability problems that the vendor could not resolve, increasing the time that IT staff had to spend managing the phone system. Eventually, the organization replaced the defective system with a more scalable and reliable IP telephony solution from a different company.

"We quickly found out [that the] vendor's system didn't come remotely close to meeting our expectations. We suffered through a seemingly endless series of performance and reliability issues. It was a fiasco. Instead of reduced administration, we were spending more time managing our phone system. Voice quality was a serious issue, and so was the erratic behavior of the network, which would frequently drop the voice calls that are so critical to business." - VP of IT, Mortgage Broker

Although many contest participants report that gathering system requirements was a difficult task, it was not regarded as challenging as the organizational issues faced when implementing IP Telephony.

4.0   Success Factors

So what made our participants' IP telephony deployments successful? The one recurring theme is that success came from careful planning. That is, it was the process leading to deployment that was the most common contributor to success—not anything about the products or solutions deployed themselves.

In fact, contestants widely point out that no one product solution fits all needs. Diverse approaches, brands and providers were used by our participants: no single IP PBX manufacturer or hosted solution provider was commonly cited as the reason for their successful implementation.

"The best piece of advice I can offer to a company that is considering an IP Telephony deployment is to find a solution that can be molded to fit your company's unique needs." - CIO, Real Estate

In the project management process, companies were very consistent in their approach for implementing a successful solution. Most recommend preliminary exploratory research and extensive planning, documenting and investing in the current network infrastructure, and taking into consideration end-user and IT staff training before deployment.

1. Do preliminary exploratory research

According to our contestants, preliminary exploratory research should be conducted before contacting potential VARs or providers. This step may help decision makers be aware of most types of solutions available in the market and learn from the experiences of other organizations that have already deployed IP telephony.

Based on previous studies conducted by Sage Research, word-of-mouth and advice from colleagues who have deployed IP telephony are usually the most valuable sources of information that technical decision makers rely on when deciding whether or not to implement IP telephony solutions. Additionally, Value Added Resellers (VARs) and external consultants are very helpful resources for those organizations that have limited time or IP telephony expertise to do research on their own. Finally, manufacturers' websites, case studies, white papers, and magazine articles can also help IT managers learn more about available IP telephony solutions.

2. Build organization buy-in before the transition, and set clear expectations

It is very difficult to implement a new technology inside an organization without the support of all stakeholders. First and foremost, upper management must be convinced that IP telephony is the way to go, and expectations must be set from the start on what the new system will (and won't) be able to handle. In one contestant's experience, failure to discuss expectations from the start put in jeopardy future financing for the project.

"Nothing causes a problem like planning a simple install and at the last minute discovering that the upper management was expecting all the bells and whistles." - IT Manager, Building Materials

Upper management support is critical to gain support from the telecom staff and other groups that may be opposing a transition to IP. The telecom staff is an important player in the planning and transition stages of the IP solution deployment since they are experts on the current PBX system capabilities and functioning.

Table 4.1 Success Factors

1 Do preliminary exploratory research

2 Build organization buy-in before the transition, and set clear expectations

3 Be detailed on Planning and Project Management

→ Evaluate current network infrastructure

→ Determine end-user needs

4 Prepare your current infrastructure

5 Choose a solution that best fits your organization

6 Plan staff and end-user training in advance

"Having someone involved internally that truly understands traditional PBX-type work is key." - Network Engineer, Financial Services

Finally, end-users must be educated on IP telephony before the implementation takes place. A project could be destined to failure if end-users are reluctant to learn how to use a new system. Champions of the process should educate end-users on all the features that may help them be more productive (e.g., simpler dialing, directories, unified messaging, etc.) in order to reduce their apprehension about changing the status quo.

3. Be very detailed on planning and project management

Almost all contest submissions included detailed planning as a key to the success of their IP telephony solution. According to our contestants, a common first step in the planning process should be gathering –or if necessary, creating– all documentation that describes the current networking infrastructure.

"I would recommend several months of careful study, design, and planning before attempting to implement a system like this. It is far easier to take the time to design and implement a system like this properly from the beginning than it is to try and deal with all of the problems that will arise later if the planning phase is rushed." - VP of IT, Insurance

"One of the first things I would tell them is to do their homework. They need to know their requirements and any limitations they may have. Also, it is very important to check references vigorously, especially for larger companies that will be deploying an IP Telephony system. A telephone system is the lifeline of a company, and they must make sure it can do everything that is required." - VP of IT, Mortgage Broker

It is very important to provide whoever is going to design the new system with all the technical specifications of the current IP network. Specifically, network stress tests and bandwidth tests were cited as important planning tools. The current IP network capabilities may help determine the equipment manufacturer or the specific IP telephony solution that is most appropriate for the organization. Additionally, it is important to have documentation on the organization's business processes and how end-users are taking advantage of the current telephony system. This is to make sure that the functionality end-users are expecting is going to be available with the new solution.

"Be thorough in data gathering from end users and track changes carefully. We did our initial data collection using a combination of employee data from HR, departmental management, and user surveys. This process was started more than two months before implementation… we asked the users to verify demographic information, so we could be starting from as accurate a point as possible." - IP Telephony Lead, Insurance

Having a detailed project plan and a multi-disciplinary team are also helpful to success, according to many contestants. Set goals for different implementation stages and hold people accountable for different milestones on the implementation.

"[I would recommend] having a detailed project plan that can hold people accountable if things are not done in a timely manner. Start out slowly with a location per week, and as things go better start doing multiple locations per week." - Network Engineer, Financial Services

"[A key to our success was] good project management. Our partner, along with our internal project team, put together a series of thorough implementation and test plans that had clearly defined milestones and good management of dependencies, outlining the critical path activities. Hard work was done on both sides to limit the dreaded 'scope creep.'" - IP Telephony Lead, Insurance

4. Prepare your current infrastructure

Many IT decision makers report they initially underestimated the investment in time and budget necessary to enhance the existing network infrastructure for IP telephony. They now, in hindsight, advise that all system and equipment upgrades should be made far in advance before introducing IP telephony into the organization.

"Do not cut any corners on the planning and development of your Ethernet infrastructure, and invest in "hardened, fully functional (feature sets, etc.)" telecommunications equipment… you have to engineer continual power, even when the power grid is off, and build in redundancy, redundancy, redundancy that not only fails over, but also fails over extremely fast when carrying IP voice traffic. You have to engineer for uninterrupted service to customers when components fail and when doing component upgrades, both hardware and software." - Project Manager, Local Government

"Make sure that your network is reliable, scalable, fault tolerant, deployed with QoS, easy to maintain, secure, flexible, futuristic, and cost effective.

- Start with a proof of concept pilot implementation

- Network stress test simulating several phone calls and data usage simultaneously

- Plan for a redundant and fault tolerant network." - CIO, Higher Education

5. Choose the right solution for your organization

Almost all contest submissions differed on which IPT vendor and type of solution they successfully implemented. While not surprising, this underscores the idea that no single solution is a one-size-fits-all guarantee of success.

Anecdotally, we found that:

- Companies that hire consultants or VARs to design and implement an IPT solution usually lack the time or internal expertise in IP telephony to do it on their own. For many, a benefit of this approach is faster implementation time. Additionally, they recommend selecting a partner who has experience with similar deployments and is willing to customize the solution.

"We hired a consultant to purchase the hardware, software, and installation that got us up and going a lot quicker than we would have trying to do it on our own." - Video and Voice Systems Administrator, Education

"We went through a fairly exhaustive process to identify a partner who understood our strategic objectives, and who had a proven track record with similar deployments." - IP Telephony Lead, Insurance

- Organizations that design and implement IPT in-house, on the other hand, claim that is easier to support and maintain a system if it has been designed internally. They feel that technical staff knows the current infrastructure better and therefore can adapt the solution to fit their specific needs.

"I would never recommend using an outside telecom company or consulting group for a project like this. Internal corporate staff [should] attend whatever classes are needed to learn how to install, configure, and operate the necessary equipment themselves prior to going ahead with [implementation] – as opposed to contracting the work out to companies or groups that are not intimately familiar with your corporate network, and which have very little interest in working out completely unique solutions that will best fit each of their client corporation's differing needs." - VP, Finance

- A contestant that migrated to a hosted IP telephony call center solution claims significant cost and time savings in network management, maintenance and upgrades.

"My one piece of advice to any company considering a VoIP deployment is to choose a hosted provider for your solution. Not only will you drastically reduce your time-to-implementation, but opting for a proven solution that a trusted partner maintains, upgrades and manages truly streamlines the role of your IT team and call center staff. With a hosted solution, you have the flexibility to hook into your call center infrastructure from any Web connection –getting started is certainly not that easy if you're investing in your own hardware." - VP, Hospitality

- Other contestants that manage IP telephony solutions in-house, meanwhile, report reduced operational expenses and faster MACs by no longer having to rely on a VAR for traditional PBX maintenance and support or no longer using a traditional Centrex service.

"Because of the unified and integrated IP Telephony system between branches, our company is saving more than $100,000 annually, previously spent on outsourcing our voice messaging and call handling needs." – CIO, Real Estate

Some contestants also recommended well-known and established equipment brands over smaller firms, making sure that support and training are provided by the firm or group in charge of the implementation, and testing the solution before a company-wide implementation.

6. Plan staff and end-user training in advance

Decision makers sometimes underestimate the amount of training necessary to leverage an IP telephony solution. Although most IP telephony solutions are easier to maintain and use than traditional telecom systems, proper training for both staff and end-users are cited as critical elements of a successful implementation.

Some recommend undertaking end-user training long before the implementation takes place. This may help users become familiar with the phone's functionality before they actually need to rely on them for everyday work. It may also ease the workload for IT staff, which needs to be trained to address technical problems of the new system.

"Everybody plans for the actual migration but not many plan for the fall out after the phones are installed. Have a solid training program in place prior to implementation, with instructors who have first-hand knowledge of the phones being installed. You need to have that go-to person at each facility that knows how to deal with problems (personal and equipment) that WILL show up and need immediate attention." - Network Security Specialist, Education

"Staff Training is the most critical element. Like so many complex information technology projects no amount of innovation, technology or clever planning can doom a project like inadequate staff development. While one may think that something as simple as a phone doesn't require training, in the case of an IP phone with numerous options, screens and other features, the leaning curve is much steeper. Importantly, value-added and extremely useful features such as conference calling and email integration of voice messages require staff development time to fully realize their potential. I would encourage all organizations to properly plan and budget for meaningful staff development so that their stakeholders may enjoy the benefits and value of an IP Telephony system." - Technology Director, Education

5.0   Case Studies

5.1   Outrigger Hotels & Resorts - Winner in Large Enterprise Category

EXECUTIVE SUMMARY

Direct cost savings

• Due to IP Telephony solution, saved more than $100,000 in contact center expenses alone

Productivity Improvements

• Consolidated to a single voice/fax/e-mail/chat platform using VoIP without large infrastructure expense

• Reached 50-60% for conversion of calls to bookings

• Met internally-determined standards for transactions per hour, calls answered per hour, and average call answer times

• Created a virtually maintenance-free work environment

• Enhanced staff utilization with agents cross-trained to respond to any inbound inquiry (phone, e-mail, fax, chat)

• Despite 15-20% business growth over the previous year, there was no need to hire additional call center staff

Company Overview

Starting with the Outrigger Waikiki Hotel on Honolulu's famed Waikiki Beach, Outrigger Hotels & Resorts has grown to become the largest, locally-owned hospitality chains in Hawaii, and one of the fastest-growing companies of its kind in the Pacific. Today, Outrigger manages 51 hotels and resort condominium properties in Hawaii, Australia, Micronesia, Fiji, Tahiti and New Zealand under the Outrigger and OHANA brands.

Business Challenge

Currently, Outrigger fields more than 3,000 inbound phone calls, 1,000 faxes, plus several hundred internet chats with customers each day through a customer contact center in Denver, Colorado.

Outrigger's call center has always been equipped with the latest technology for both communications and data processing. In the past, they found it most economical to buy the necessary equipment and software; however, with the purchase of these systems came the expense of the maintenance contracts and technical specialists required to keep everything running smoothly. System upgrades were critical to keeping programs up to date and meeting maintenance requirements but unfortunately were also costly and time consuming. The maintenance contract on the premise-based Automatic Call Distribution (ACD) was over $40,000 a year.

Before switching to VoIP, Outrigger had to pay two phone charges for each call received - one for the customer's toll-free call to Echopass, the off-site automatic call distribution service, and another to link the call distribution service to the call center in Denver.

The Solution

Outrigger discovered the virtual world of hosted automatic call distribution, with the service delivered from an off-site location via the internet by an application service provider (ASP). What has made it possible for Outrigger to use this new off-site service is VoIP (Voice over IP) technology, which links Echopass to the Outrigger/OHANA Contact Center, virtually free.

Benefits

The process of finding an off-site automatic call distribution system to which they could link with VoIP technology on the wide area network took over one and a half years, but the outcome was well worth it. The new hosted IP telephony-based solution provided hard dollar savings on call center expenses and created efficiencies in contact center operations by integrating all chats, e-mails, faxes and voice reservation requests on a single terminal, allowing Outrigger to grow its business by 15-20% without increasing call center staff.

Unified Messaging

Bill Peters, vice president of Reservation Services, feels they "really got a big bang for the buck with the enhanced capabilities that come along with state-of-the-art automatic call distribution." Echopass lets Outrigger electronically distribute to their sales agents not just incoming phone calls, but all the other electronic customer "touch points" –fax, e-mail and chat (or "live help")– that are now necessary to achieve true customer satisfaction.

Previously their old in-house system could only distribute phone calls. To have all the other customer touch points electronically distributed would have taken a very expensive upgrade to the in-house system. It would also have greatly increased the annual maintenance costs of that system.

Increased Efficiency

Due to the skill-based electronic routing of all customer touch points, the Outrigger call center was able to retrain and reassign teams that just handled one or two touch points, such as chat or email. All work is now electronically delivered to qualified agents. Prior to the Echopass installation, only voice calls were electronically distributed. "It is amazing how much productivity is wasted when one is going to the fax machine to pick up work or fax finished products, or to check your email and then deciding what to work on next," said Peters. "Skill-based routing eliminates all those gray areas and makes each agent more efficient."

Planning for the Future

In the future, Peters hopes to take further advantage of the VoIP system through a work-from-home program, enabling Outrigger to substantially reduce their brick-and-mortar space while improving customer service with agents located in a range of time zones. He also intends to take advantage of other services, such as customer relationship management (CRM) and regional sales office programs.

Another nice thing Peters appreciates about using an ASP service like Echopass is that they don't have to worry about system enhancements and upgrades. Echopass does it all. Since Echopass licenses their programs to Outrigger on a per-seat basis, as business grows they can easily increase the number of licenses. If business falls off, all Peters needs to do is reduce the number of seats.

One Piece of Advice

Outrigger's one piece of advice to any company considering a VoIP deployment is to choose a hosted solution. Not only will you drastically reduce time-to-implementation, but opting for a proven solution that a trusted partner maintains, upgrades and manages truly streamlines the role of your IT team and call center staff. With a hosted solution, you have the flexibility to hook into your call center infrastructure from any Web connection– getting started is certainly not that easy if you're investing in your own hardware.

Peters reports that they didn't have any major challenges in implementing or deploying their hosted solution, but he attributes that to taking the time to sit down with the vendor to address how best to match their solution to Outrigger's business processes and work environment. They discussed upfront how the agents worked, how inquiries come in, and how they're accustomed to processing them. In turn, Echopass showed Outrigger how best to use its technology to support their way of doing things, and more importantly, how they would prefer to do things.

Conclusion

The direct operational cost savings make for an attractive return on investment for Outrigger's Call Center while the staff productivity benefits are paying additional dividends. Outrigger attributes much of this success to choosing a hosted solution from a trusted partner and taking the time to match internal processes with the technology.

5.2   Prudential Northwest Properties - Winner in Small-Medium Size Business Category

EXECUTIVE SUMMARY

Direct cost savings

- Save more than $100,000 annually on previously outsourced voice messaging and call handling

- Save thousands of dollars monthly on long distance branch-to-branch calls

- Grew sales by 15 percent in the first year

Productivity Improvements

- Faster response times with customers and prospects

- Improved customer satisfaction as a result of increased ability to work faster and handle calls more efficiently

- Agents have faster, more accurate access to all sorts of information regardless of their location

Company Overview

Prudential Northwest Properties is the largest independently owned real estate agency in the Pacific Northwest, with more than $3.5 billion in sales, 21 branch offices and 800 employees. As an industry leader, they fully understand what it means to balance prompt phone and in-person responsiveness with customers' demands. To maintain leadership, management realized they needed to do everything possible to ensure their brokers never missed an opportunity to make a sale.

Business Challenge

The success of any real estate firm is based on their ability to respond quickly to the needs of existing and potential customers. If homebuyers or sellers don't get an immediate response, they simply move on to another agent. In fact, a broker who takes just 20 minutes to follow up on a call is apt to lose that customer to the competition. Busy agents need to remain in constant contact with their office to ensure potential customers receive prompt service.

Unfortunately, Prudential Northwest Properties' existing phone system was hindering their response time. Each of their 21 branch offices had its own legacy phone system, making it impossible to transfer calls between locations or to use voicemail or call forwarding capabilities between offices. In addition, the company was spending thousands of dollars monthly on long distance branch-to-branch calls.

The Solution

Prudential Northwest wanted to implement an IP telephony solution that was cost-effective and could keep up with their demands without replacing their existing Ethernet local area network/wide area network. After careful analysis they decided to implement a SIP-based solution from 3Com. They initially began with the 3Com NBX product line and then quickly became beta users for the 3Com VCX v7000 IP (primary system) and the VCX v6000 (for remote and smaller branch offices) which enabled them to develop a more robust Unified Communications platform for the business.

"We wanted to make sure implementation of the new system was as efficient as possible," said Sean McCrae, vice president and CIO for Prudential Northwest Properties. "In the real estate business, we can't be out of touch for even a moment. 3Com helped us to make sure everything was pre-programmed, so it was virtually plug-and-play with minimal onsite configuration."

Benefits

Prudential Northwest Properties realized the benefits of implementing an IP telephony system almost instantaneously. Most importantly, the company is saving more than $100,000 annually on previously outsourced voice messaging and call handling, and saving thousands of dollars

monthly on long distance branch-to-branch calls. These factors alone have justified the initial investment of time and money required to convert from their multiple, disparate legacy systems to an IP PBX. Add the advantage of being able to connect with prospects first, fastest, and most accurately and it moves the implementation into the "slam dunk" category.

Unified Messaging

Prudential Northwest Properties now has increased ability to respond to the needs of clients and prospects quickly as well as provide all branches with a unified network. 3Com's Unified Communications platform allows Prudential Northwest to consolidate faxing, voice mail and email with Microsoft Exchange clients. Whether using a WiFi-enabled laptop with Outlook, a web-enabled cell phone or PDA, agents have access to essential messaging and documentation related to their transactions from virtually anywhere. Electronic faxes or scanned transactional paperwork, business voice mails, customer internet inquires, urgent call routing and secure remote access to the company's WAN allow agents greater efficiencies from the outside the office.

Better Access to Information

The IP Telephony system allows each of their offices and agents to connect and stay in touch with the network through a number of different venues (landlines, cellular calls, wireless handhelds, etc.). It also allows each branch office to access the central CRM database, cutting down on customer service response time and allowing agents to have unprecedented access to customer information.

More Responsive

Each office is able to respond at a quicker rate to customer needs and agents are able to manage their time more effectively. Because agents are able to spend less time trying to connect to other offices and more time in the field, they are winning more and more new business.

Prudential Northwest Properties also makes great use of call forwarding and notification features such as Find Me/Follow Me, which provides customers the option to locate an agent in the field versus leaving the traditional voice mail. Associates are alerted to new faxes, voice mails, emails and even internet leads within seconds, enabling them to respond with a level of professionalism that is rare in the real estate industry. The time savings, coupled with the improved business processes enable by their integrated IP platforms, have been a tremendous success for the brokerage.

Business as Usual

In 2004, the Pacific Northwest experienced a record-breaking winter storm. The entire region was covered in ice making it difficult to travel. Most local business had to shut down for the better part of a week, but Prudential Northwest was able to stay connected with customers, despite the weather. Even though agents couldn't come to the office, they were able to continue business from home by using the IP Telephony system.

A Word of Advice

The best piece of advice Prudential Northwest's VP and CIO Sean McRae can offer to companies that are considering an IP Telephony deployment is to do their research –find a solution that can be molded to fit their company's unique needs.

Prudential Northwest knew they wanted all the features that an IP Telephony system has to offer: voicemail, call forwarding, delivering faxes electronically to PDAs and computers, text-to-speech function, "find me/follow me" notification, etc. They also wanted a solution that would integrate well with their existing data infrastructure and it had to be simple to install and manage. Most importantly, the system needed to be easily scalable to keep pace with their rapid growth.

According to McRae, their biggest issue was training users on how to use and make the most of the system. He claims setting up 500 VCX phones and 300 additional phantom line extensions with voicemail was surprisingly simple, but because each of their 21 offices used a different legacy phone system, the IT staff had to train each branch separately. It took about three or four days at each site to train all the employees.

Conclusion

In summary, Prudential Northwest Properties has developed a system of tools that allows its agents to take the office on the road. They are always connected. They have rapid access to all primary forms of communications with a cell phone, PDA or laptop tied. Agents can conduct business efficiently from their car, customers' home, construction site, home office, or when traveling. 3 Com's VCX Unified Communications and its feature set have provided this unique level of mobility.

"Voice-over-IP technology was the key to dramatically improving our productivity and profitability," stated McRae. "By integrating every possible method of contact with all available customer data, we can guarantee our agency connects with customers first, fastest, and most accurately."

He adds, "We're measuring ROI not just in telecom costs saved, but in customer satisfaction as a result of our improved ability to work faster and handle calls more efficiently. Our sales grew roughly 15 percent in 2003, and while it's hard to say exactly how much of that is attributable to the IP Telephony system, our top producing sales agents all insist their productivity has skyrocketed since it was installed." "3Com took customer service and operations to the next level for an extraordinarily low total cost of ownership. We're now exceeding our customers' expectations at every touch point, winning new business more easily, and we expect to earn back our investment in this voice solution many times over."

5.3   Honorable mentions

Other organizations also experienced great benefits from deploying IP telephony solutions. The following table summarizes the three honorable mentions from our contest:

Table 5.1. Honorable mentions

Organization name	Industry	Size (# of employees)	System Deployed	Most Important Benefits Realized
City of Charlotte, NC	Government	6000	Avaya IP PBX solution with Media Servers Series S8700/S8300. Call Center Solution (with Avaya IC, IVR, etc.)	• Ability to deploy a "311" system that provides citizens with a one-stop number for non-emergency service needs or information
First Guarantee Mortgage	Mortgage Broker	400+	ShoreTel IP PBX Solution with MS Outlook Integration.	• Increased end-user productivity by using Unified Messaging integrated with Microsoft Outlook • Cost savings due to easier management of an integrated voice and data network
First Merchants Corporation	Finance	1500	Avaya IP PBX Solution with Media Server Series S8700/S8500. Media Gateways G700/G350. Call Center Solution.	• Easier management and maintenance of telephony system • Improved communication among end-users with 5-digit calling feature • Long-distance toll bypass savings

For more information on this white paper, please contact:

Diego Jimenez

djimenez@cmbinfo.com

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179 South Street, Boston, MA 02111

Phone: 617-986-7400 / Fax: 617-451-5272

About Sage Research – The Technology Practice of Chadwick Martin Bailey

Acquired in December 2005, Sage Research is now the technology practice of Chadwick Martin Bailey. With in-depth experience in the networking and telecommunications markets, Sage delivers actionable data and recommendations based on the most current qualitative and quantitative methods. Founded in 1993, Sage serves a broad client base that includes industry leaders and innovative start-ups.

Chadwick Martin Bailey conducts market research for some of the world's largest companies in more than 30 countries. With corporate offices in Boston, Massachusetts, Chadwick Martin Bailey's team-based approach ensures that it applies the right combination of people and expertise to each business challenge or opportunity it faces. Whether it be marketing ROI, product development, or enhanced customer satisfaction, all of Chadwick Martin Bailey's custom research approaches have a singular focus: to bring clarity to what clients can do to get, keep, and grow customers. For more information please visit www.ChadwickMartinBailey.com.