Impact of VOIP in the Call Centre: A Case Study

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Abstract

VoIP (Voice over Internet Protocol) has been a fundamental development that has enabled convergence of data and voice communication technologies. VoIP has gained recognition in many industrial sectors today due to its strategic importance (providing financial benefits) to an organization when implemented.

This study aimed to use a case study methodology to identify in what ways (if at all) the implementation of VoIP has benefited the company and whether their business has grown in the three years since they have implemented this technology.

The data collected shows that over the last three years, the company is reaping higher revenues along with considerable cost savings and higher operational and functional efficiency after deploying VoIP.

Keywords: VOIP, convergence, data communication, voice communication, quality of service.

1 Introduction

Voice over Internet Protocol (VoIP) is rapidly growing and becoming a mainstream telecommunication service by providing a convergence technology of transferring voice and data over a common Internet infrastructure. The technology is fast growing in New Zealand. A major implementation of VoIP is in call centres of various companies. Industry sectors such as Government, Banking and Finance, Telecommunications, Insurance etc. have been the early adopters of VoIP in their call centres.

In the current environment (where there is increased competition, demanding customers, differentiated products and services and relentless pressure to cut costs) VoIP is a technology which may provide a customized solution meeting both business and customer needs in most companies.

A packet based (IP) network is the basic transport technology used to transmit voice and data as an alternative to traditional circuit switching voice networks.

Many leading vendors of IP technology offer unique and customized IP Telephony applications for a call centre. This technology offers significant business value where it is implemented and provides tremendous benefits, namely reduction in costs, network convergence, call centre globalization etc.

The technology also offers opportunities to enable solutions for organizations to cut costs, grow revenue and provide improved quality of service at the same time.

2 Significance and scope of study:

This paper draws on the background information about the call centre industry in New Zealand and the company researched is one of the most successful examples of deploying this technology and experiencing its benefits. This paper involved a case study and aims to answer the research question – What is the impact of VoIP in the call centre of the company?

3 Background of the study:

The company is one of Australasia's most important business support companies. It is a merger of two companies, one a company, which was the leading information solutions provider in New Zealand and the second company, which was the leading supplier of credit and marketing-related decision support services, data and software in Asia-Pacific. For the purpose of this paper the new merger will be referred to as "the company".

The purpose of the study was to gain an understanding of the impact of VoIP in the company's Receivables Management department. "*Receivables Management*" is a term used by marketing professionals to smarten up the image of debt collection. This is an important department as it generates nearly a third of the company's revenue. Receivables Management(RM) operates a call centre, and hence this research investigates the call centre operations and technology which is a large contributor to the company's profits.

The company uses VoIP and introduced the technology into its operations in mid 1990s and its effort to embrace new technology was rewarded when the company received the 1994 TUANZ award for innovative use of telephony (Data Advantage, 2003).

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This study has looked at how the company has successfully used VoIP in its RM call centre and what impact this technology has had on the company.

Call centres are a popular choice to maintain contact with customers in many sectors such as Finance and Banking, Information Technology, Telecommunications, Insurance, Utilities and Government.

VoIP has proven to be a very popular technology choice in call centres. Voice services combined with other IP applications e.g. Computer Telephony Integration (CTI) have resulted in reduction in capital costs and administration costs along with increased flexibility and scalability. The benefits of VoIP are reaped by organizations that have their businesses at multiple sites (i.e. have branch offices all over the world) or require communication with customers at multiple sites. VoIP is suitable for call centres wherein the costs of calls are very high across a public telephone network (Hunter, 2004).

"Linking various office locations across an existing wide area data network (WAN) using Voice over IP enabled phone systems, allows companies to enjoy free calls between sites, transfer customers easily from site to site which improves service, and centralize the switchboard and administration of all phone systems which improves efficiency" (Hunter, 2004).

There are a lot of VoIP product vendors in the market such as 3Com, Avaya, Cisco and Nortel. These vendors provide for capabilities of converging voice and data through IP enabled networks (Esch, n.d).

"*The blending of Internet technologies and traditional business concerns is impacting all industries and is really the latest phase in the ongoing evolution of business. All companies need to update their business infrastructure and change the way they work to respond more immediately to customer need."* (Grant, Hurley, Hartley, Dunleavy & Balls, 2000).

VoIP has proven to have strategic advantages for businesses using call centres to carry out their business (Senf & Edall, 2003). The major reason for this is that the integration of VoIP into the business processes has made it "*easier to identify calls and tie them into existing customer information databases*". VoIP in a corporate environment requires integrating voice capabilities into IP-enabled applications that already exist on the company network (Senf & Edall, 2003).

4 Methodology

A qualitative research approach based on the case study method was adopted for this research.

"*A Qualitative approach is one in which the inquirer often makes knowledge claims based primarily on constructivist perspectives"* (Creswell, 2003, p.18).

This means that the researcher collected open-ended emerging data with the primary intent of developing themes from the data, i.e. finding multiple meanings of individual experiences (e.g. in the case study method). This methodology seeks to establish the meaning of a situation or phenomenon from the viewpoints of the participants. One of the key elements of the qualitative case study method is to observe participants' behavior and seek involvement of the participants in the data collection. The method also includes open-ended interviews and documentation review. This approach is often taken if the topic of research is new or has never been addressed with a certain group of people (Creswell, 2003). Silverman (2000) also states that the methods used by qualitative researchers can often provide a deeper understanding of a topic than any other methodology.

Based on the research question, the case study method was appropriate for this research as the focus related to only one company. It allowed for an in-depth study and provided the opportunity to draw conclusions based on a wide range of available data.

4.1 Data collection

Multiple sources of data were considered for this study, it included documentation review, interviews, on site observation of networks, questionnaires and emails.

4.2 Documentation review

Optimum selection of documentation was required, which included organizational documents such as agendas, minutes from presentations, administrative and financial reports and company network diagrams. All these documents were obtained with company approval.

4.3 Interviews

Apart from organizational documentation, interviews were the primary source of data collection. The interview process was consistent and focused on answering the research question. The forms of interviews varied, there were one on one interviews and data gathering was carried out via emails as well. However, the questions asked were mainly open-ended as a distinct characteristic of qualitative research. The interview process was fairly informal and the participants included: Call Centre Manager, Systems and Infrastructure Development Manager and IP Telephony Expert from the management team. The participants were given an overview of the research being conducted by way of emailing the Information Sheet to each of them two weeks in advance. Informed consent was obtained before the interviews commenced and it was stated to them that they could have full access to the research results if required.

The length of interviews was between 45 minutes to one hour. Prior approval from the HR department was obtained. The approval conditions being that the interviews were to be conducted at a time suitable to the participants and that the process didn't affect the researcher's work as an employee of the company.

4.4 Questionnaire

In order to compare the data gathered from the management team with the experiences of actual users of technology, a questionnaire was handed out to 20 call centre agents. This questionnaire was aimed at

understanding what impact the implementation of technology has had on the users. It also helped when analyzing how user friendly the technology was and whether or not it has helped improve the quality of work and service provided.

4.5 Observation

On-site observation of the technology as a call centre agent was conducted. The researcher's personal experience as a user has helped her understand the issues better.

5 Data Analysis

The data gathered from interviews plus the data gathered from questionnaires helped provide an understanding of the current state of VoIP in the call centre of the company. The data gathered from documentation review has given an in depth view of how the use different technologies has evolved over time in the company. Areas for further debate including issues in the call centre that require greater attention were also identified.

5.1 Implementation of VoIP in the company and its impact.

The company's core positioning in the market today has been as an integrated provider of Receivables Management services throughout Australasia. Use and implementation of technology in the company is the backbone of all its operations. It is however important to understand how the company has successfully acquired technology and eventually became the largest and the most successful collection agency in New Zealand.

The data presented in this section was obtained through a series of interviews conducted within the company, user questionnaires and through data extracted from available company documentation.

5.2 Background of technologies used in the company in previous years.

The advent of many technological innovations in the past 20-25 years has helped the business survive and grow. Back in the 1980s, the entire business was paper based and records at the time were kept on manual index cards in row upon row of filing drawers. The actual collection process was mainly correspondence based, with some allied personal visits for repossession purposes. At the time, letters were dictated into a dictaphone before being manually typed out by clerical staff (McCombe, 2005).

In 1985, computerization appeared in the collection industry. Initially an IBM System32 was used solely for production of legal documents and automated letters to debtors. Later on it was upgraded to IBM System34 which was used to generate letters and maintain records. This automation revolutionized the existing collection process, especially its speed and effectiveness. But the basic collection system still remained the same i.e. correspondence and personal visits. Every staff member did have a phone at their desk, but it was never used for business purposes (McCombe, 2005).

In the 1990's huge growth in processing capability and technological advancement was experienced in the company. It was understood at this stage that the collection methodology needed to change. This was because, the business was growing and the cost of sending mail was significant at 40c per letter and was getting seemingly less effective as a collection technique. Technology upgrade to IBM System36 was undertaken during this period as well. Due to acquisitions and mergers during that period, the branches had grown to 20 nationwide and the cost of doing business had multiplied many-fold. The larger branches started employing part time staff to manually ring people and collect revenue. This novel approach was entirely manual and incredibly cumbersome although it proved to be highly effective. This led to the consideration towards automation to establish contact with a large number of debtors (McCombe, 2005).

In 1994, what was finally delivered was an IBM AS/400 iSeries platform that used "Client Access" green screen 5250 emulation to present data to the user. Major technological change was evident at this stage. The technology included G3 Definity switch from AT&T, which is now known as Avaya. This provided "skills based routing" for inbound calls and two 30 channel ISDN PRI's were installed to enable network signaling for use with the automated dialer. Today the company uses 5 PRI's which gives 140 telephone lines for outbound calling and 10 lines reserved for other purposes (McCombe, 2005).

One of the major keys to communication and establishing contact with debtors was the implementation of "Castel" soft dialer, which enabled the use of CTI technology wherein staff (agents) are presented with screen pop ups enabling real time data updating. This is when a call centre was set up mainly aimed at collecting revenue through outbound calling. The company still uses the original Castel dialer with a number of upgrades since then and today has the "predictive dialing capability" (McCombe, 2005).

The major innovation embraced by the company is that of VoIP in its call centre operations in the year 2002. This was mainly implemented to achieve toll bypass and hence save costs. Telecom's Frame Relay service was the technology that supported national calling and enabled use of VoIP via access devices installed in Auckland, Wellington and Christchurch offices. Last year in September 2004, these access devices were replaced by Avaya IP Telephony switches in Auckland. Introduction of IP telephony earlier in 2002 has enabled movement of business offshore by the company's Australian counterpart and there exists an ATM network between Auckland and North Sydney and Wireless IP network between the Australian branches. VoIP is implemented over a Frame Relay network for its call centre operations within NZ (McCombe, 2005).

This shows how the company has greatly increased the use of technology in the Receivables Management

department in the past 25 years until today when VoIP and IP telephony were introduced as technological backbones to generate more business and revenue as well as save costs.

5.3 Drivers for change to IP Telephony and VoIP

The company undertook a market scan to establish the availability and necessity of innovation in technology. It was for reasons such as:

- Establishing Centralization: to base the company's core business operations in a single major population centre to realize significant economies of scale and eliminate duplication of scare resources, enabling major savings to the business (McCombe, 2005).
- Emphasis on establishing direct communication: the company's realization that it requires to move away from paper based collection model and developing a technology based communication/direct contact model. The collections department works on the phrase "establish contact and you will achieve the desired result".
- Gaining efficiency: According to Paul Green, "*The driver of adoption of technology was to gain efficiency. The over all efficiency of call centre operations has gone up by 60% after implementation on the technology. The cost of implementation of the technology is much less than the call centre agent using it. Hence, the main reason to implement was to gain maximum efficiency from the resources, i.e. technology presented to the agent."*
- Toll By pass and call cost savings throughout Australia and New Zealand.

5.4 Steps undertaken for successfully introducing IP Telephony and VoIP.

The company was one of the first nationwide company to realize the benefits of running real-time telephony and VoIP services on its network. It has used everything from PSTN, Frame relay, ATM, IP, WIP(Wireless Internet Protocol) etc on its data and voice communications networks (McCombe, 2005).

For implementing VoIP on the network, the steps the company took were:

- Establishing a legitimate business requirement.

  After understanding the background and technology drivers in the RM department of The company, it is evident that the company had a very clear vision to achieve that of, growth, gaining cost savings and increasing efficiency of staff and hence reaping high profits (McCombe, 2005).
- Ensuring that the network is capable of supporting the technology function and there is sufficient bandwidth available at all times (McCombe, 2005).
- Ensuring that the specifications of the desktop equipment must be sufficient. To ensure this, the company carried out a major project called "Desktop SOE" in 2004 before the upgrade of switches was undertaken in September 2004. This was a project undertaken to upgrade all the PCs in the company to the latest specifications with necessary software to run VoIP effectively. In many cases, the replacement PCs had latest and more powerful specifications (McCombe, 2005).
- Ensuring that there is a right combination of equipment, i.e. sound card, soft or hard IP phone, proper headsets etc. If even one of the components is missing or not functioning properly, then the quality of the call centre agent will be significantly compromised (McCombe, 2005).

5.5 Impact of VoIP in the company.

A number of impacts on call centre operations were experienced. They are as follows:

5.5.1 Impact on Calls: (McCombe, 2005)

In 2005, the company had:

- In the NZ marketplace, after the introduction of IP telephony, the call centre processes 18,000 outbound and 3,000 inbound calls per day in RM department and 3,000 calls in the Credit Bureau and Customer service operations.
- The call centre initiates 500,000 outbound calls per month (varies considerably depending upon dialed number quality, agent availability and call answer rate) from which, 150,000 customer contacts are made.
- The call centre handles 70,000 inbound calls per month.
- The overall 0800 number usage is approximately 75,000-80,000 inbound calls per month.

The above figures relating to call handling are far higher than the growth figures prior to VoIP implementation in the company.

5.5.2 Impact on costs:

The company has seen a significant impact on costs savings after the deployment of VoIP in the call centre operations.

In regards to cost savings, according to Paul Green,*" When The company introduced IP telephony in its New Zealand call centre, the company achieved a cost savings of $9537.00 per month. Since September 2004, when the network was upgraded, the company has increased call cost savings to nearly $15,000 per month. On the trans-Tasman link i.e. the link between the NZ and Australian call centre, the company is achieving call cost savings of $1756.00 per month."*

In relation to cost savings, the Call Centre Manager, Bernard Ali says,

"*It has enabled some parts of the debt to be run out of New Zealand. This allows us to take advantage of a new employment marketplace as well as use the significant management expertise based in NZ. The most significant saving is employment cost. The fixed costs are the software and hardware upgrades to be abreast with the latest updates in call centre technology. The rental "pipe space" between Australia and NZ is also considered as a fixed cost*."

At the present time the RM division of the company has an annual IT expenditure of approx. $8 million, which covers support, maintenance and R&D. These costs are channeled towards constant development of enhancements to existing application software and regular upgrades to hardware, network components and vendor software (McCombe, 2005).

It can be observed, that even though the company invests heavily in maintaining and upgrading the technology, the management does see significant cost savings after the implementation of VoIP.

5.5.3 Impact on Revenue:

The impact on revenue is evident by looking at previous years financial statements. The revenue generated by the RM division's call centre has only grown over the years. The company realizes it is through improved productivity of agents due to call centre technology implementation..

- There has been a significant growth in NZ RM market, with revenues increasing 25% to $47.4 million and earnings before interest, tax and depreciation(EBITDA) increasing by 58% to $17.4 million for the financial year 2002 as compared to financial year 2001. The RM strategy during the year was to improve collection processes and performance and achieve operational efficiencies. The ability to divert workflow from Australia to New Zealand because of implementation of VoIP, to utilize NZ infrastructure has ensured better utilization of resources and skills (Baycorp Advantage, 2004b).
- In the financial year 2003, RM revenue increased by 35% to $65.5 million. This year saw a growth of business due to NZ's venture in the Australian markets. The total cash collected by the RM collections services was $164.5 million, positioning the company to be the largest collection agency in NZ and one of Australia's top 5 agencies (Baycorp Advantage, 2004c).
- In the financial year 2004, there wasn't much change in the profits of the company, they grew only marginally to $65.6 million but EBITDA fell to $1.7 million from $4.2 million in 2003. Even so, the company still maintains its top position in the industry and qualitative improvements are deemed to be carried out in call centre to achieve further cost control and improve business (Baycorp Advantage, 2004d).

5.5.4 Impact on call centre staff/ users

The call centre agents are the users of the technology, and the impact which technology has on them, is directly proportional to the revenue/cash the agent is going to collect for the company. It is very important to understand what impact introduction of automated systems for collection services had on staff in 1994. When a stringent centralized system was introduced, all the branch networks were being progressively centralized in Auckland. This at the time led to regional staff to be either relocated or taking redundancy.

But with the introduction of IP telephony in 2002 in the NZ RM division, more employment opportunities were generated to gain economies of scale and to gain maximum benefits of the newly introduced systems. The shift in technologies also had to be well managed among staff.

The Call Centre Manager states that:

"*The change enabled us to work the Australian debt in New Zealand. This meant growth of business and handling of more client debts.*

The shift meant some adjustment, as in training existing and new staff to use soft phones, different equipment and learning new software applications. This was incorporated in the initial training that the staff have to go through, which normally takes 2-3 weeks."

6 Conclusion

This report has detailed the development of VoIP in the company and the impact that the technology has on the call centre of the company. The report has discussed what advantages deployment of VoIP has on a company's call centre. For any organization implementing a convergence strategy, converging voice and data on a single network, will lead to increased revenues and reduced costs.

This company in particular has been an early adopter of VoIP in NZ and has successfully deployed the technology on its network. The report has studied the major impacts VoIP has on its call centre operations. The company has experienced a large increase in the volume of calls generated in the call centre, both by outbound and inbound telephony. It has also significantly brought down the call costs and toll charges. Due to the advantage of toll bypass, the company successfully carries out business in the Australian marketplace from its call centre in Auckland. The impact of implementation of VoIP has been tremendous on the revenue generated by the RM department over the years after the implementation of VoIP. The revenues have grown by 58% in the financial year 2002 and by a further 35% in financial year 2003. Hence it can be seen that the impact on calls, costs and revenues has been positive with VoIP in the company's call centre.

The implementation on VoIP has led to deployment of a virtual call centre between the company's Auckland and Parramatta (Australia) branches. Outsourcing of work load from Australia to NZ has enabled the company to gain higher efficiencies from the NZ workforce but also cut down on labour costs. Keeping this strategy in mind and with VoIP as a technological background, the company can outsource its businesses to other Asian countries where call centre industry is booming e.g. India, Malaysia, Philippines etc.

However, there are issues that need to be carefully resolved in order to gain full advantage offered by VoIP. The technology suffers with the quality of voice service it offers in the call centre. According to the results of the user questionnaire, it has been noted that VoIP provides poor voice quality which makes it very difficult for the call centre agents to deliver good customer service to its clients and customers.

It has been evident that the company is reaping high profits and gaining both operational and functional efficiencies with VoIP in its call centre, but it has ignored the user response to the technology. QoS is one of the key deliverables of VoIP which is not met in the case of its implementation in the company. The report also comments on various other voice technologies available in the market today, which the company might consider deploying on its network in future. In comparison to other leading call centres in NZ, the company has made a competitive technology choice and its network is very stable and ready for any future growth and expansion.

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