

Free case study on an illustration of a converged network in an office setting

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Rapid Freight is experiencing major technological challenges following its successful expansion and rapid growth over the past few years. The company needs to rapidly incorporate networking solutions into their system. Some of the challenges ailing the company include keeping customers informed about on-time delivery; the demand on its wide area network (WAN) keeps on exceeding capacity; the company's main data center keeps suffering network outages and spontaneous downtime; the ISDN telephone system in the company keeps on failing. Rapid Freight wants to have the ability to monitor, supervise and manage all the data and voice services. Rapid Freight wants to ensure that consumption of data and provision of service is appropriate to the needs of the business. The company is interested in the reducing the number of travels it makes between its sites by integrating video conferencing. This aim of this paper is to identify five requirements, assess them and provide Rapid Freight with a converged network solution to aid it deal with its technological network challenges. The paper will also explain how the solutions proposed will meet the company's requirements. A cost benefit analysis will also be carried out to show if the implementation of these systems stands to benefit the company or not. Rapid Freight has about 4-8 locations in three metropolitan areas. This location need to be in constant communication to ensure all the services run smoothly. In order to achieve this goal, the company can incorporate the WIMAX 802. 16a technology into its network. The WIMAX 802. 16a technology has several benefits attached to it. It increases Coverage and Spectral Efficiency; it increases data capacity and VoIP; it has low latency and QoS enhancements; it allows interworking with other wireless networks;

it conserves power and it is integrate with other advance features and supported services. The WIMAX 802. 16a technology comes with the IEEE 802. 16m amendment which provides improvement in the link budget of at least 3 dB while utilizing the same antenna configuration. This provides an increment of about 20-30% cell coverage area. This is cost effective as the extended cell coverage fills coverage gaps that are caused by shadowing and obstruction. It improves both open and closed loop control. This will be beneficial in helping the company monitor all its data and communications. The WIMAX 802. 16a technology increases data capacity and peak data rates. This technology supports channel aggregation and provides an effective bandwidth of up to 100MHz. These channels do not have the same bandwidth and do not need to be in the same frequency. This capability allows operators to access multiple channels simultaneously at a significantly higher peak and data rates. This eliminates network outages and spontaneous downtime.

The company wishes to cut down on the number of travels. This it intends to do so by incorporating video conferencing in its communication network. Video conferencing is the conducting of conferences between two or more parties who are in different locations by using computer network to transmit audio-visual data. With the increase in bandwidth capacity, the company will need to invest in video conferencing equipment such as microphones, webcams, cameras, speakers and computers. This method of communication eliminates the need to travel. Crisis meetings can be held on short notices. This saves valuable time and reduces the company's travel expenses.

Rapid Freight has ISDN telephone system which is fast becoming outdated.

However, the company has avoided the costly upgrades necessary to keep it operating at optimal performance. This has made the telephone bills soar through the roof. In order to tackle this problem, the company can embrace VoIP (Voice over Internet Protocol) telephone services. VoIP is a telecommunication method that converts analog audio signals and turn them into digital data that is transmitted over the internet. VoIP has revolutionized communication over the telephone. It can use standard internet connection to place a free call. This significantly reduces telephone charges. The company will not need to undertake the costly upgrade of the ISDN telephone systems in order to operate at optimal performance (Gerea, 2012)

Finally, the company can fully automate its services. All orders and deliveries can be conducted by a secure automated system. This provides data security, increases efficiency and eases communication between the operators and clients. An automated system reduces confusion and eliminates delays. A fully automated system meets the company's goal of ensuring that consumption of data and provision of service is appropriate to the needs of the business (Rungta, 2006).

Implementation of these converge network solution for Rapid Freight will meet the company's requirements and solve most of the technological network challenges. The increased bandwidth capability will increase employee productivity, communication, efficiency and lower acquisition cost. WIMAX 802. 16a technology increases coverage and allow for internetworking with other wireless networks. Implementation of video conferencing facilities will cut down on the number of travels. The VoIP

telephone service will reduce the telephone bills significantly, thus expenses. A fully automated system is easy to manage and monitor. This increases efficiency in service delivery.

The implementation of all these convergent networking technologies is bound to be costly. The initial cost will be expensive. Acquisition of fibre optic cable and the whole installation system is costly. The phasing out of the ISDN telephone network and introduction of VoIP telephone service will incur some costs. In the long run Rapid Freight will benefit from the efficient network, secure connections, reliable internet and a productive network. This technology will reduce travel cost, cut down the telephone bills and increase network coverage. The network works efficiently and, it will save the company from regular upgrades. The effective communication that follows the implementation of this technology and provision of quality service will definitely increase the company's customer base. The company is bound to expand covering all the initial costs of acquisition and installation of the new technology into the company's technological network.

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