FOR INTERNAL USE ONLY

3Com® Solutions: HEALTHCARE INDUSTRY EDUCATION GUIDE

3com®

3Com Solutions: HEALTHCARE INDUSTRY EDUCATION GUIDE

CONTENTS

MARKET OVERVIEW

As the population of the United States ages and the baby-boomer generation inches closer to retirement every year, the demand for healthcare services are greatly increasing across the country. Unfortunately, healthcare providers are less prepared to service this growing demand without some significant investments in highly trained medical personnel and new communication technologies. They are faced with the fact that most healthcare providers have neglected to embrace new technology over the last 20 years and are now playing catch-up with competitive providers in their space who have embraced new network technologies such as VoIP and Security.

Doctors, nurses, and medical staff are driving the demand for new computer and network-based services to enable applications such as Computer Based Patient Records (CPR) and Physician Order Entry (POE). These applications require high-speed, high-availability networks in order to share data, such as patient records, in an orderly and timely manner. In addition to internal and market forces driving the increase in spending, the ability to react to new government mandates and regulations such as the Healthcare Insurance Portability and Accountability Act (HIPAA), a 1996 law that mandates how healthcare data is transmitted and stored electronically, is forcing healthcare providers to change the way they think about technology and its role in their day-to-day operations to ensure that they comply with these new laws.

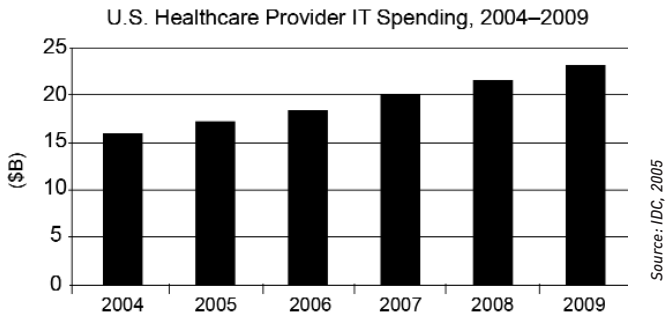

FIGURE 1: Represents total healthcare spending that reached $15.94 billion USD in 2005 and is expected to increase to 2$3.05 billion USD by 2009. This demonstrates a four year compound annual growth rate (CAGR) of 7.7% as shown in Table 1 on the following pages.

IT SPENDING BY IT SEGMENTS AND SUBINDUSTRIES

The healthcare industry has traditionally been known to spend the majority of its technology budget in the services area. However, in recent years the spending between services, and hardware and software is now becoming distributed more evenly. The increased demand is driven by healthcare providers wanting to upgrade their obsolete IT infrastructure and roll out new applications within their organizations (see Table 1).

Research produced by IDC indicates that, as a vertical industry, healthcare is not only increasing its spending in the next five years, but has the most positive outlook on the economic and business climates. Additionally, healthcare providers surveyed had the most positive outlook in regards to these conditions among all the 21 industries that IDC surveys (see Table 2).

TABLE 1

U.S. Healthcare Provider IT Spending by IT Segment, 2004–2009 ($M)

	2004	2005	2006	2007	2008	2009	2004–2009 CAGR (%)
Hardware	3,576	3,733	3,872	4,047	4,276	4,451	4.5
Software	6,062	6,642	7,277	7,971	8,792	9,583	9.6
IT services	6,298	6,752	7,220	7,777	8,431	9,017	7.4
Total	15,937	17,126	18,368	19,795	21,499	23,051	7.7

Source: IDC, 2005

Provides a snapshot of where healthcare providers are spending their IT dollars and which segments are the fastest growing.

TABLE 2

U.S. Healthcare Provider IT Spending by Subindustry, 2004–2009 ($M)

	2004	2005	2006	2007	2008	2009	2004–2009 CAGR (%)
Hospitals	12,110	13,031	14,088	15,178	16,296	17,495	7.6
Offices and clinics	2,755	2,994	3,178	3,429	3,827	4,126	8.4
Other healthcare delivery services	1,071	1,100	1,102	1,188	1,376	1,429	5.9
Total	15,936	17,125	18,368	19,795	21,499	23,051	7.7

Source: IDC, 2005

Highlights the target markets where 3Com can be the most successful with its current portfolio of networking products.

TARGET MARKETS

HOSPITALS

This segment includes general medical, surgical, psychiatric, and specialty hospitals (i.e., cancer hospitals, maternity hospitals, etc.). Hospitals are currently in a technology "catch-up" mode, spending their way out of the precarious position they find themselves in today of being years behind other like-businesses with regards to how they process and store information. Hospitals are very hesitant to outsource their network infrastructure and prefer to have all management of the network done in-house, even Security Management is preferred to be managed in-house. In a 2005 Forrester Research survey, 83% of hospitals surveyed decided to maintain control of their Security Management versus 55% of members surveyed in other sectors and industries. Hospitals remain and will continue to be the largest spender on IT equipment and services in the industry and therefore the largest opportunity for 3Com is in the healthcare market. Hospitals are forecasting an average growth rate of 7.7% year-over-year on IT spending. This segment represents the largest, fastest growing, and the best immediate opportunity for 3Com to engage.

OFFICES AND CLINICS

Although a smaller segment of the market than hospitals, it is one that can not be ignored by any means. This segment is estimated to grow 0.8% **more** than the hospital segment at a total (Compound Annual Growth Rate) CAGR of 8.4% over the next five years. This segment is very fragmented and is primarily made up of private doctors offices and private specialty providers, such as chiropractors, and local and regional clinics such as "community free clinics". It is important to note that most analysts see this segment of the market as underserved. The provider that can scale both up and down in the size and price with good point solutions will be very successful in this market. This is a market segment best served by 3Com partners because of the diversity of the segment, the advantage a local network solutions provider would have over a national provider because of regional purchasing patterns, and the relationship buying pattern that exists. The majority of these prospects will require an educational stage in the sales cycle to help them understand the value of the technology; these are typically high-touch prospects and require a great deal of post-sale support.

OTHER HEALTHCARE DELIVER SERVICES

This segment is the smallest of the healthcare market and the slowest growing at 5.9% CAGR. While this is not an unattractive market to focus on, it is the least desirable to engage in for 3Com. The market consists of very small regional healthcare delivery agents such as phlebotomy labs, specimen laboratories, and blood and sample collection sites (i.e., drug test collection centers). This market is even more fragmented than the office and clinic market, and most do not have an on-site technology decision maker. They are typically owned and operated by healthcare service providers such as BioScreens or other medical lab conglomerates. There are, however, large parent companies within these locations that we will focus on and engage.

MARKET DRIVERS

The following section highlights the driving forces that are fueling growth in healthcare IT spending. This section represents the top business and social drivers in the current market.

HIPAA

Stands for "Health Insurance Portability and Accountability Act." This 1996 U.S. government regulation refers to a complicated set of rules and regulations that are meant to protect patient data and information. The laws govern several areas within a healthcare provider's operation. HIPAA laws provide a broad brush set of regulations related to how healthcare providers should handle the transmission and storage of their data and information. Some, but not the majority, of these data are transmitted over a network, with a desire to extend the network into areas where the network has never traditionally been used, such as wireless. Healthcare prospects will prefer to do business with a solution provider who has a good understanding of this regulation. A copy of the HIPAA law is included with your healthcare solution sales tools.

HL7/HEALTHCARE LEVEL 7

HL7 is the criteria for transmitting healthcare data about patient registration, admission, discharge and transfers, insurance, charges and payers, orders and results for laboratory tests, image studies, nursing and physician observations, diet orders, pharmacy orders, supply orders, and master files. It defines data to be transmitted and specifies how it will be transmitted. Software applications must be able to translate and transmit data in this format so that different applications can use the same data in a secure manner. This has very little to do with how these data are transmitted over the network, however, it is a major driver of upgrading software applications to new bandwidth hungry server-based applications that require a robust IP LAN to handle the traffic.

OUTDATED INFRASTRUCTURE

IT departments are under constant demand by doctors and nurses to deliver new applications and technology which in turn will allow them to increase the quality of patient care and reduce the work load on an understaffed and overburdened workforce. However, many hospitals in the U.S. are more than 80-years old and do not easily lend themselves to infrastructure updates due to cabling constraints and lack of planning for network and technology services when they were built. A majority of IT directors and managers state that "companies that can integrate technology into their current infrastructure will win the business". Healthcare providers look for business partners that can provide an integration and migration strategy to fit into these older facilities.

NATIONWIDE HEALTHCARE INFORMATION NETWORK (NHIN)

A Nationwide Health Information Network would link disparate health care information systems together to allow patients, physicians, hospitals, public health agencies and other authorized users across the nation to share clinical information in real-time under stringent security. While this is not a funded government mandate, Medicare and Medicaid are driving it to the forefront of major efforts in the medical community. Several different types of healthcare providers such as hospitals, clinics, and laboratories need the ability to share patient information in a timely, and more importantly, a secure manner. Hospitals need to have access to their patients' information in the event of an emergency and to ensure that issues, such as the wrong prescriptions being handed out, are minimized or eliminated.

TOP-OF-MIND ISSUES AND BUSINESS DRIVERS

Healthcare organizations have unique business objectives. They are tasked with running a profitable and self-funding operation, while at the same time addressing the "social drivers" that are included as a healthcare professional's top-of-mind issues. This section highlights the issues that their IT staffs are challenged with:

PATIENT SAFETY

The always looming possibility of an expensive lawsuit makes patient safety the **number one** business driver in healthcare today. Normally all IT expenditures are evaluated in relation to the contribution they will make towards patient safety. IT departments are quick to find funding for technology that will decrease patient accidents, increase the speed of locating patients, or decrease the incidents of misplacing patients.

REDUCTION OF MEDICAL ERRORS

This issue ties with patient safety for the number one top-of-mind issue in healthcare today. We have all heard horror stories about a wrong diagnosis or medical errors that could have easily been avoided. Doctors and nurses are adamant about pushing IT to enable new technologies that will help them increase their efficiency and reduce the chance of medical errors. Several networking technologies such as wireless and voice are considered key to enabling applications such as Physician Order Entry (POE). These applications enable better sharing of information and help reduce the chance of error by providing doctors and nurses with correct information when they need it. 3Com solutions lend themselves well to this issue because every segment of our product portfolio can be integrated into a solution.

PATIENT DATA SECURITY

Healthcare providers are under enormous pressure to ensure that personal patient data is protected to the highest degree. However, the medical administration is constantly pushing IT to enable new technologies and applications that will make them more effective and address these issues. This obviously creates new threats and opportunities for security to be breached and patient data to be compromised. At the same time government regulations are mandating that certain processes and techniques be implemented to transmit and store patient information: again placing an increased burden on the IT staff.

REDUCING COSTS

The fact that most healthcare providers, such as hospitals, are non-profit organizations, **does not** suggest that they do not make a profit. As a matter of fact, some of these organizations are very profitable and are striving to be even more efficient. Reducing operating costs due to years of manual processes and paper-based operations is believed to be the key to increasing profitability, and a way for an institution to better reinvest in patient care. New technologies are seen as a key enabler to achieving cost reduction goals.

ELECTRONIC MEDICAL RECORDS/ ELECTRONIC HEALTH RECORDS (EMR/EHR)

Many healthcare organizations have implemented these types of applications; however, they are far from completing the implementation of institutional wide EMR systems. The purpose of these systems is to allow medical staff **secure** access to patient medical records anywhere, anytime, and via any device. The implementation of the software application is the less cumbersome part of such an undertaking. Extending these applications to the rest of the organization and the staff requires a robust and secure converged network that can handle large amounts of data traffic based on policies and IPS procedures.

MOBILITY

The most consistent requests by physicians to the IT department are for mobility solutions. At most hospitals and clinics doctors cannot be tied to a desk to access important information about their patients or to communicate with other medical staff. IT departments are faced with many challenges in order to mobilize applications and data. While data security may seem like an obvious obstacle, aging facilities and a medical community that is a self-professed technology neophyte adds additional challenges to implementing wireless technologies or extending applications via mobile technologies.

DISASTER RECOVERY AND HIGH AVAILABILITY

A Disaster Recovery (DR) plan is an unfunded government mandate required by HIPAA regulations. While disaster recovery is at the forefront of every planning effort, mostly they remain just plans at this point. Most DR plans focus on worst case scenarios and therefore are incredible expensive to implement. The current trend in the market is for healthcare providers to leverage their vendors for planning and implementation of the DR planning process. A majority of DR solutions will rely heavily on backup storage and network equipment to implement new solutions in a phased approach. 3Com and its partners should be ready to discuss disaster recovery solutions to these healthcare prospects.

TOP NETWORK TECHNOLOGIES IMPLEMENTED

Tables 3 and 4 at the end of this section also highlight the areas that IT managers plan to spend a large portion of their IT budgets, and more importantly, the areas that have the smallest deployment of the application or technology, thus far, and present the biggest opportunity for 3Com.

MPLS IP VPN

MPLS IP VPN makes sense for the healthcare provider that has multiple sites or highly complex inter-site connectivity requirements such as a doctor who works in building "A" of a hospital campus, but requires medical records from building "B", and x-ray images from building "C". Global and national firms with multiple locations are also a good fit for this type of technology. Only a small percentage of healthcare providers have implemented MPLS IP VPN, and only about a third are likely to deploy this type of solution because they are typically a campus environment with fewer buildings than an enterprise business.

SSL VPN

Most hospitals surveyed state this technology as the most important to implement in their planning process. Medical staff require secure, remote access to patient and operational data. The industry is moving slowly to implement this technology because of the security and identity management fears surrounding the technology.

MOBILE DATA TECHNOLOGIES

Implementing technologies such as wireless for tablet PCs and PDAs is a driving force behind the growth of these technologies in this industry. Security concerns are the reason behind the hesitation to implement wide-scale wireless roll outs in healthcare.

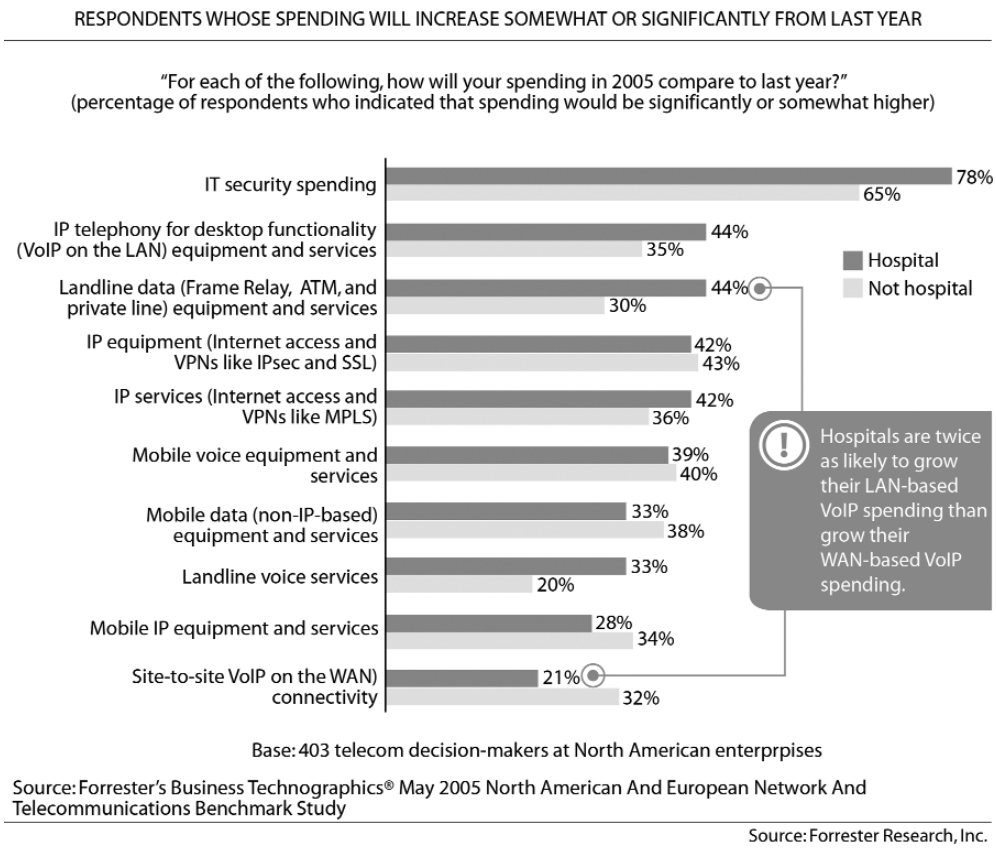

TABLE 3: Increases in Spending Based on Network Technologies Chosen

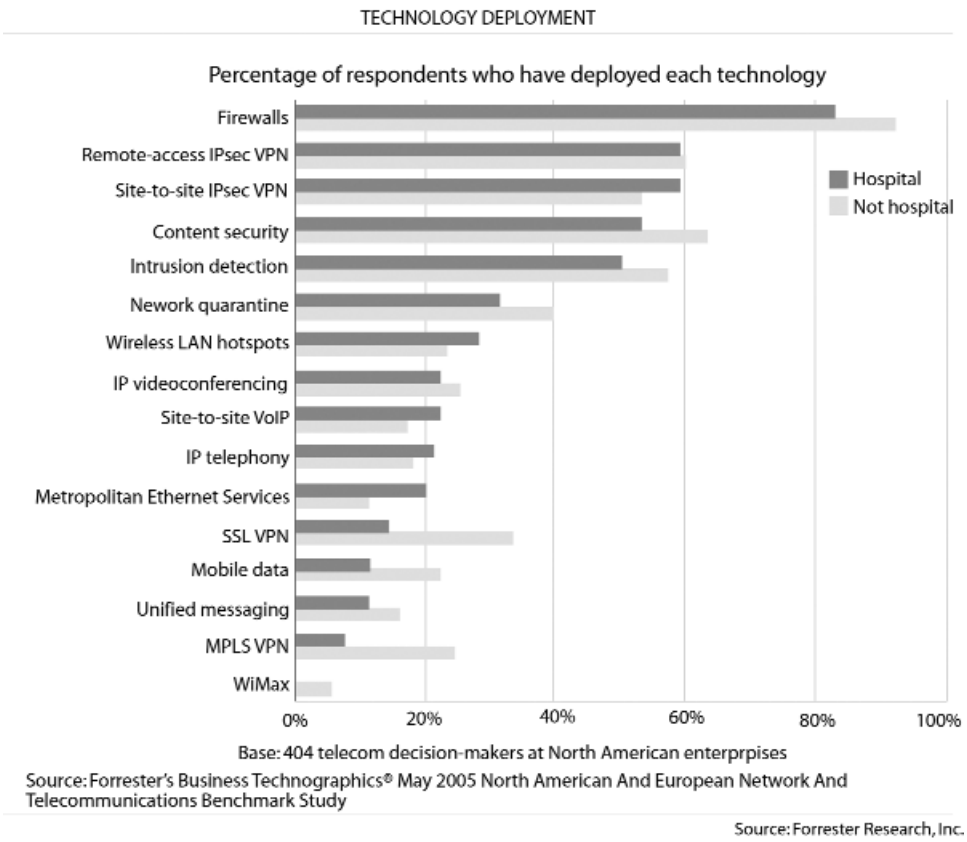

TABLE 4: Percentage of Market that has Deployed the Most Popular Technologies to Date

VOICE OVER IP

VoIP is gaining significant traction within the healthcare segment with nearly half of the institutions surveyed considering a VoIP implementation. The driving factor behind VoIP in healthcare is mobility of the staff. Doctors that spend one day in their office and the next at the clinic want to take their phones and their numbers with them as they move about the institution. The most important point to consider is that VoIP is seen as a LAN based technology by this segment. Healthcare providers are twice as likely to spend funds on LAN-based versus WAN-based VoIP projects.

NETWORK QUARANTINE

Many healthcare providers have already implemented Intrusion Detection Systems (IDS) technologies and are now prepared to upgrade to the next level with Intrusion Prevention Systems (IPS) and quarantine services. Most healthcare prospects will require solutions that bundle a security technology, such as quarantine, with one of the highly desired technologies, such as SSL VPN.

LARGEST HEALTHCARE SYSTEM INTEGRATORS

These integrators deliver solutions which include networking products and services.

Integrator	Services Provided	URL
IBM Corporation	IT outsourcing and BPO	www.ibm.com/healthcare
Accenture	IT outsourcing and BPO, not heavily involved with networking technologies, but influential within the market.	www.accenture.com
Electronic Data Systems (EDS)	IT outsourcing and BPO	http://www.eds.com/industries/healthcare/
Perot Systems	IT outsourcing and BPO, resell Cisco IPT	http://www.perotsystems.com/healthcare/
First Consulting Group	IT Consulting, integration, and outsourcing	http://www.fcg.com/Healthcare/
CSC	IT outsourcing and BPO. They offer a "converged network" offering for all industries.	http://www.csc.com/industries/healthservices/

MARKET OVERVIEW SOURCES

Telecom Spending Trends in Healthcare, Eric G. Brown, Forrester Research, June 2005.

Consider the Challenges of Safety, Availability and Affordability in Disaster Recovery Plans, Barry Runyon, Gartner, June 2005.

US Healthcare Provider IT Spending 2004-2009 Forecast, Scott Tiazkun, IDC, June 2005.

Hype Cycle for Healthcare Provider Technologies, Barry Runyon, Gartner, 2005.

Hospitals and Health Networks, December 2005.

For additional information, please contact: Ray Patalano, Healthcare Marketing Manager, 1-508-323-1237, ray_patalano@3com.com or visit **www.3com.com/healthcare** for more details regarding 3Com® healthcare solutions.

Visit www.3com.com for more information about 3Com secure converged network solutions.

3Com Corporation, Corporate Headquarters, 350 Campus Drive, Marlborough, MA 01752-3064
3Com is publicly traded on NASDAQ under the symbol COMS.

503175-001 02/06