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IT Business Brief

Future Proofing the IT Staff
Part 1 of 2

by Gary Audin
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A note from the founders

Whenever a technological advance appears on the scene, getting the technology to "work" is usually a small step on the road to more widespread acceptance. No matter how good the technology is, it's rendered useless if it can't be appropriately managed by the operations staff.

Converged technologies represent an especially high hurdle with respect to staff training. To a much greater extent than we typically see in most innovations, convergence brings together the historically disparate voice and data networking staffs and requires significant cross-training.

In this first of two IT Business Briefs addressing this issue, Gary Audin looks at the scope of knowledge and skills requisite for a successful convergence implementation.

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Future Proofing the IT Staff

This two-part paper focuses on the IT staff and its ability to perform in a converged network environment. Part 1 discusses the scope of knowledge and skills necessary for the IT staff to successfully perform their jobs. Part 2 investigates the need for assessing the staff's skills and knowledge, as well as the meaning of certificates and certification.

Converged Networks = Converged Staff

IT management is constantly striving to future proof the installed technologies, to extend the life of the capital investment and to provide a stable and reliable environment for their users. Many managers and other enterprise executives assume that their staff can keep up with the advances in both computing and communications, but the staff is an asset that also needs to be future proofed.

Deployment of converged networks is rapidly expanding into enterprises, government agencies and educational institutions. Usually, the skilled and knowledgeable staffing necessary for successful convergence implementation does not exist. The staff is learning through OJT (on-the-job training) and through vendor-specific training. Although existing organizational structures may have a common management point in the CIO, the staff is highly segregated by technology.

This explains why there were nearly three million voice network technologists and over two million data technologists employed in 2001, and why they were counted separately. Aside from the phone on their desks, data network personnel are generally unfamiliar with telecom technology. They also have little knowledge of the PCs, servers and applications running on their data networks. Applications personnel have limited knowledge of data networks and no knowledge of telecom/voice networks. Telecom/voice personnel know little about data networks, servers or applications. Wireless networks add to the complexity and knowledge requirements. Those responsible for security *must* understand all of these technologies, a daunting task.

Global Skills X-change

Global Skills X-change (GSX), www.gskillsxchange.com, designs and evaluates customized implementation strategies of standards-based tools and protocols, which can be used to realize a "national" system of standards and certifications for convergence. GSX, as a successor organization of the National Skills Standards Board (NSSB), is charged with adopting and adapting the work of the NSSB to meet the needs of the knowledge-based economy. This skills standards development project, which started under the auspices of the NSSB, has as its fundamental premise the convergence of two worlds - Information Technology (IT) and Telecommunications.

According to Joe Lualhati, Ph.D., jlualhati@gskillsxchange.com, the Director of Research and Development at GSX, the project is divided into three phases. The first phase included reviewing hundreds of existing "job analyses" and "role delineation" studies, the results of which were verified using focus groups of industry thought leaders and senior subject matter experts. The project identified seven (7) concentrations of front-line work in this converged world:

1. Network Infrastructure, LAN and WAN

2. Network Devices, LAN and WAN

3. Programming and Software

4. Digital Media, Storage and Transmission

5. Database Development and Administration,

6. Web Development and Administration

7. Technical Writing and Documentation

For each of these concentrations of work, the project has identified critical work functions (major roles and responsibilities) and key activities (major tasks associated with the performance of each critical work function). Performance indicators provide evaluative information on how to determine when someone is performing each key activity competently. In total, there are 37

critical work functions and 250 key activities defined for converged environments. Each key activity includes, on average, six to eight performance indicators.

GSX believes that instead of focusing on the different technologies (such as voice vs. data) as the defining characteristics of their work force, enterprises should focus on the work that needs to be done. The Information and Communications Technology (ICT) skills standards defined will provide information about the knowledge and skills required to perform that work in a converged world. Although this will mean cross training of the enterprise's work force, it will prevent them from having two or more distinct work forces performing overlapping functions or competing for jobs and resources.

The second phase of the skills standards development project consisted of further verifying the initial results of this study through four sets of regional focus groups with ICT subject matter experts. Currently, the project has identified 68 categories of technical knowledge and skills relevant to the converged world. These 68 categories consist of knowledge and skills (a total of 557specific skills that are relevant to the converged world) as defined in the seven concentrations of work.

The depth and breath of the defined knowledge and skills required will force enterprises to give staff training and education a higher priority if the enterprises plan to successfully use converged networks to the fullest potential. It is nearly impossible to have as many trained experts as determined by the GSX project. Therefore cross training the staff in more than one category, without vendor-specific content, will become mandatory.

Convergence Training is Not New

GW Solutions (GWS), www.gw-solutions.com, is an enterprise of George Washington University. GWS provides training solutions and certificate programs in a number disciplines. They also offer stackable credentials that can lead to academic credit. Interfacing with the newly created College of Professional

Studies (CPS), these credentials can be applied to graduate degrees in faster moving, technology-driven fields. CPS, along with GWS, was created for this purpose.

P.J. Mondin, pmondin@gw-solutions.com, the CTO for GWS, previously managed communications programs as the Director of Telecommunications Networking and Defense programs, which offered certificates in telecommunications engineering. This included track courses in advanced networks, telephony and multimedia in addition to traditional telecom courses. The program reached more than 300 students and about 100 finished the program between 1999and 2001. The attendees were from government, defense, contractor and carrier organizations. This program, however, did not specifically focus on converged networks. According to Mondin, "The students initially focused on the technologies directly related to their jobs. As the program progressed, the students requested a broader range of subjects that were peripheral to their work." He continued, " The students independently created a course series that seemed to predict that converged network knowledge and skills would be important in the future, even though convergence was not yet, in 1995 when the program started, a major technology direction."

The new GWS vendor-neutral convergence training program, called "Cross Training = Success," is directed toward enterprises and government agencies. It provides three distinct educational tracks:

1. Data Networking and Applications for Telecom Staff

2. Telecom Networks for Data and Applications Staff

3. Management in a Converged Environment

This program operates on the belief that, not only do technologists need cross training, but that management must also be up to date on the technical, business and financial issues they will face. Managing these segregated groups presents quite a challenge. Management is not required to bridge the ignorance gap among these groups, but must make business decisions using converged network technologies. Since most people in management are removed from the everyday nuts and bolts of technology, they will have an even more difficult time adjusting to the major decisions and changes that will occur with a converged environment.

Thinking About the Next Generation IT Staff

In order to operate effectively, the segregated groups must be cross-trained in each others' technologies, and management must step forward and be educated in the deployment of converged networks and applications. Defining the knowledge and skills necessary to fulfill this need requires considerable study and analysis. Personnel must be assessed (tested) with vendor-neutral certification in mind rather than product-focused certification. Certification in the vendors' products and services should follow the vendor-neutral training. You do not want a staff that can only implement with a single vendor's product line.

An education plan must be designed to help both management and technologists obtain the knowledge needed to make convergence function optimally. This plan should include training and certification programs to fulfill the need for convergence knowledge. Cross training in convergence technologies will reduce the risk of moving to converged networks, speed up implementation, and deliver success. It will also reduce real costs through the ability to make proper implementation choices and avoid mistakes in convergence. There will be financial as well as intrinsic value to convergence cross training.

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