



Whitepaper

**In an Age of Unified Communications,
Unified Computing Systems, and Unified Networks
What Does The IT Industry Need Most?**



The Business Reasons For Creating CrossTrained Technologists

In an Age of Unified Communications, Unified Computing Systems, and Unified Networks What Does The IT Industry Need Most?

Unified IT Professionals!

Rapidly converging infrastructures coupled with higher demand for broader data types and more complex workloads has made it almost mandatory that system specialists and network engineers learn to walk in each other's shoes.

- **IT Cost-control requires greater efficiencies and support productivity**
- **Converging technologies demand convergent skill sets**
- **Greater diversity of data types requires broader knowledge**

Rapidly Changing Computing Infrastructures

In their June 2010 "Magic Quadrant for Field Service Management," Gartner identifies "workforce optimization" as the first of four key trends that are driving changes in the field service market. The best way to optimize a workforce is to assure that the breadth of their skills most closely matches the breadth of challenges they will face in the field.

Even within their own disciplines, technologists become more competent when they can analyze what's happening in the context of everything else that occurs on the network.

- When configuring a server, it is highly valuable for the server specialist to understand how that server will communicate with the rest of the devices over the network and how the network will impact server performance.
- When designing and implementing a network to support voice, video, conferencing, application sharing and other high-demand data types, it is critical for the network engineer to understand the end-user applications that will deliver the data to the users.
- Security is a discipline that straddles both worlds, and a deep understanding of the interaction between the various hardware, software, and bandwidth management components is crucial to assuring full data and network security from the core to the perimeter of the network.
- The growing breadth of end-user client devices demands deeper knowledge on both the systems and network sides of the access equation. While management of desktops and laptops has been somewhat standardized new tablet solutions, handheld smartphones and other "smart" devices require far more and far broader intelligence on the part of those who will be supporting their use in a secure and fully-compliant networked environment.

So, how does a technologist prepare themselves for this rapidly evolving landscape?



The Business Reasons For Creating CrossTrained Technologists

The Reality and Economics of Support

Any experienced IT support professional will tell you that users don't distinguish between a hardware problem, a software problem, a server problem, a network problem, a bandwidth problem, or any other kind of problem. So, when any one thing goes wrong, everything is wrong in their perception; and user perception is everything.

There is nothing new to the idea that fewer "broken" calls yields higher service levels. If the first support professional dispatched to resolve a particular service issue can resolve the problem themselves on the first visit, response and resolve times naturally improve. Latency is introduced to the process when they need to redirect the ticket to someone else with the appropriate skills. Fielding more support specialists with broader skill sets, therefore, will almost always result in less latency, higher service levels, and more satisfied end users.

The Motivating Potential of Cross-Training

According to a recent CompTIA study, more than half of IT professionals hold some form of IT certification but, only 17% have 3 or more certifications. This suggests that cross-training on multiple platforms can quickly move a technologist to the elite few who have chosen to broaden their skill sets.

In fact, according to CompTIA, 57% of IT professionals who currently hold a Microsoft certification would like to pursue some form of network-related certification.

IT Managers Agree – CrossTraining Is Necessary

The Incomplete Engineer...

Khalid Parekh, President & CEO of Amsys Innovative Solutions in Houston Texas explains that "We have never hired an engineer who only knows Microsoft. You have to know networking as a whole. You have to know four or five of the seven layers of networking to be capable of handling the complex issues that might arise. And every single thing correlates to the other. Nothing works independently. Everything feeds off the other platforms. I'm not seeing anybody getting calls for jobs when they only know Windows Server and have no idea about how to configure a wireless network or how to configure a basic network device."

Parekh continues, declaring that "A network engineer only knowing one platform or one application is incomplete. You cannot call yourself an engineer if you only know Microsoft's products. In today's world it just does not apply. We have to cultivate engineers in a montage of platforms. We have Microsoft, Cisco, VMware, virtualization, Storage, EMC, so our high level engineers who have been doing this for fifteen to twenty years must know everything from Cisco to Microsoft to virtualization and SANS."

Changing one thing can often affect others....



The Business Reasons For Creating CrossTrained Technologists

Michael Samoska, CTO at Innovative Information Systems in New York City, agrees, adding, “If we take a step back and look at how interconnected everything is today, from iPads and iPhones to laptops and workstations, back to our corporate environment, as we add more devices providing the really true ubiquitous anywhere, anytime access from any type of endpoint, it comes to three main things we care about. These things are making sure applications are available, they perform well, and that they’re protected. Having someone on the network or the system side that’s familiar with the other is so incredibly more important not only from a design, deployment, and day to day operational support issue but, from a remediation standpoint as well.”

Samoska continues, expressing the concern at the core of the need for cross-training. “Take for example, a classic Microsoft systems administrator who’s just sitting there pounding on Active Directory, updating login scripts and group policies, and taking care of what the server environment looks like. When something happens, if she’s not cognizant or aware of what the impact is from a network standpoint, there are a lot of design flaws that can be introduced.”

“From a troubleshooting standpoint,” explains Samoska, “not understanding what the ramifications are of making changes can introduce a lot of challenges if he doesn’t understand, at least at a high level, what the impact of changes on the systems side will be on the network side or vice versa. If he makes changes to a server and doesn’t make the security or networking teams aware of it, now their monitoring system or their firewall may be circumvented because they plugged into the wrong network port. From a performance standpoint we have QoS and balance controls and other mechanisms on the infrastructure that allow traffic to flow.”

“Whether its access lists or port aggregation, there’s a myriad of different network technologies that can be deployed that are geared up and designed specifically for these applications and these servers. They go hand in hand and the whole goal is assuring that the team understands. He or she may not be experts, but at least from a high level they’re cross-trained so they can ask the right questions before they do something that will impact the entire organization.”

Preparing for pre-sales participation...

Manak Ahluwalia, CTO at Alliant Technologies in Boston Massachusetts sees even more reason to hire crosstrained specialists and continue to expand their skills. “Based on the type of diverse services we provide to our customers we have to cross-train our people. “We don’t really see a scenario in which we have somebody on only one technology front. So they don’t need to be an expert deployment engineer for the other practices but they do need to understand the linkages between what they do and how it fits into the other practices.”

Ahluwalia concludes, “At some point in time we’re going to expect them to be able to move up into a pre-sales consulting role where they will be able to speak to all three practices. Again, they’re going to have a concentration in their specific specialty but they’ll need to be able to speak across a variety of things.”



The Business Reasons For Creating CrossTrained Technologists

Angel Pineiro, Senior Vice President of Support Services at ASI Systems Integration in New York agrees with Alhuwalia on the importance of preparing technologists. "I need my engineers to have a diversified knowledge base. I want each individual to have a strong background in a particular area, but I have my storage engineers study virtualization and my infrastructure people learning about networking."

Leading by Example...

Leading by example, it is interesting to note that Samoska, Parekh, Ahluwalia and Pineiro each hold multiple certifications on multiple platforms themselves. Parekh comments that, "I'm a Microsoft, Cisco, and an HP certified engineer myself. Speaking as an entrepreneur, as a business owner and as an engineer, from all these perspectives it is critical to build a broad core."

Virtualization and Cloud Are Also Key Drivers...

Samoska offers the observation that "What's really driving cross-training and making it even more relevant in today's environment is cloud and virtualization being widely adopted. The challenge with virtualization is that, most of the time, that's being driven from the server side of the house. That goes for public, private, hybrid, internal and external clouds."

"As the server teams are building out these virtualized servers, within the virtualized servers are virtual networks. Whether its Cisco's virtual Nexus switch or other third-party virtual machine (VM) appliances that run firewalls or routers, the typical system side of the house just doesn't understand networking so, they try to do the best they can. They try to configure it, get connectivity, and they're happy to be up and running not realizing the impact or the ramifications of misconfiguring the virtual networking inside these clouds or inside their virtual data centers."

"As I'm looking at my engineers who are traditionally strong systems guys, helping them better understand networking is absolutely crucial. How does it change from connecting back to a physical server or switch to where now we have twenty or thirty VMs on one physical server and multiple VLANs? We have separate virtual switches now within our virtual servers. When they're rolling out these virtualized servers they must understand the impact of the connectivity back to the physical network and now even into the cloud."

Follow The Leaders

Just as technology professionals working at Microsoft, Cisco, and other major manufacturers have had to expand their skills to accommodate these new workloads and convergent technologies, any technologist working with these technologies whether as in-house support staff or for partner-providers must carefully examine and craft their own growth and training path to continue to mirror these leaders and prepare themselves to support the next generation of IT infrastructure and applications.

Make Cross-Training Part of Your Competitive Advantage

Planning the education and development of technology support professionals is every bit as important as all other planning in the Information Technology space. Properly prepared, an experienced systems,

The background of the top section is a photograph of a server room with rows of server racks and blue cables.

The Business Reasons For Creating CrossTrained Technologists

server, or storage professional will see their work in a brand new context. This will enable them to deliver a new level of service resulting in far higher customer satisfaction.

The key is to identify training resources that comprise education on multiple platforms who can assist the technology professional in crafting a customized course of study that will properly enhance their existing skills by adding complementary skills that are pertinent to the environments they work in.

Seek a training partner that offers a comprehensive catalog of certification courses for both Microsoft and Cisco, for example. Speak with their people about the IT environment you currently support and have them recommend courses of study that will be consistent with your needs and complementary to your existing skills base. By investing sufficient time into the planning, the result can be a very well-rounded IT support professional who can dramatically increase the number of service requests that get fulfilled on the first visit, eliminating the need for redirected requests and frustrating delay.