

White Paper

Cloud Revolution

Transitioning to the Cloud-ready IT Organization

By Jeff Hine

August, 2011

This ESG White Paper was commissioned by EMC Corporation and is distributed under license from ESG.

Contents

IT-as-a-Service is Changing the Game	3
Labor Dynamics and Shortages.....	4
Evolving Skill Sets.....	5
Changing Organizations and Skills	6
Partnering for Success in the Transition.....	8
The Bigger Truth	9

All trademark names are property of their respective companies. Information contained in this publication has been obtained by sources The Enterprise Strategy Group (ESG) considers to be reliable but is not warranted by ESG. This publication may contain opinions of ESG, which are subject to change from time to time. This publication is copyrighted by The Enterprise Strategy Group, Inc. Any reproduction or redistribution of this publication, in whole or in part, whether in hard-copy format, electronically, or otherwise to persons not authorized to receive it, without the express consent of the Enterprise Strategy Group, Inc., is in violation of U.S. copyright law and will be subject to an action for civil damages and, if applicable, criminal prosecution. Should you have any questions, please contact ESG Client Relations at (508) 482-0188.

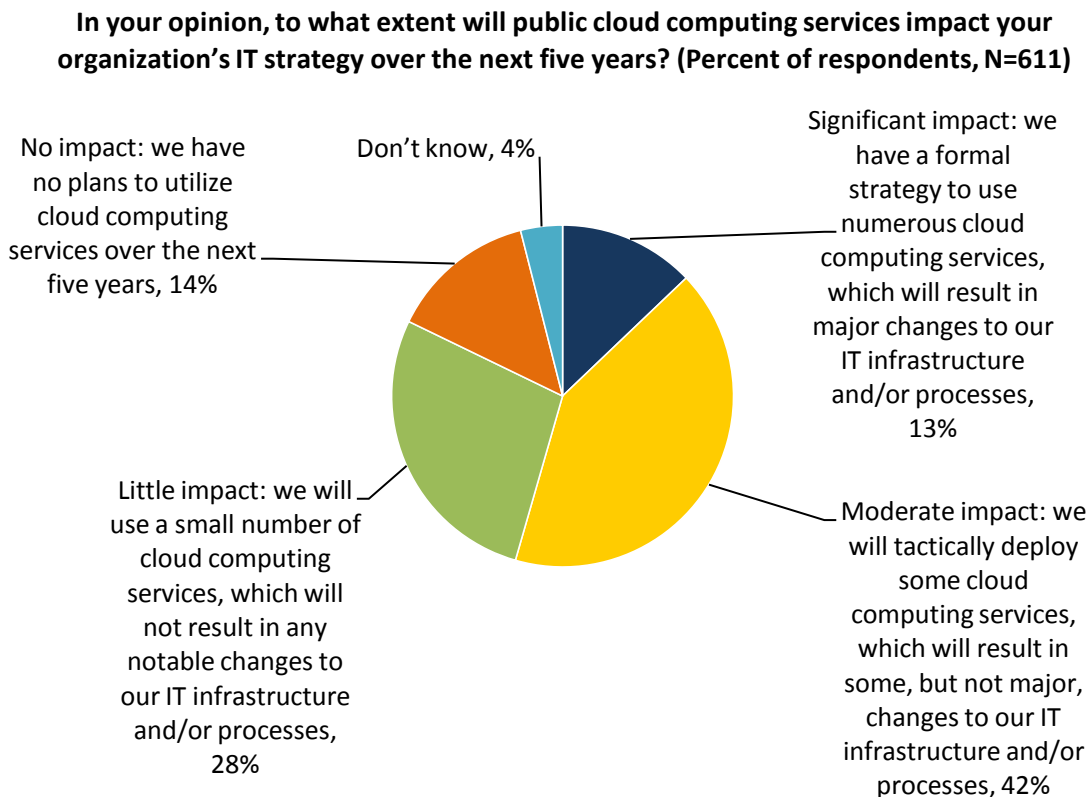
IT-as-a-Service is Changing the Game

Until recently, the adoption of true IT-as-a-Service was hindered by a number of factors. Despite the introduction of operating frameworks such as ITIL, technological and organizational barriers provided challenges. ITIL changed the way IT professionals viewed their roles within the enterprise, as well as the interaction between providers and consumers of IT in new, service-provider-centric relationships. However, the automation needed for a real service provider model was still missing.

The emergence of cloud computing, driven by the advent of virtualization, provides the technology foundation needed for IT-as-a-Service. The full promise of IT that is aligned with user needs and consumption patterns can be delivered through a highly automated virtual infrastructure, using multi-tenancy capabilities to create the needed back-end platform. Like other major IT transformations, such as the transition from mainframe to minicomputers to PCs, or to networked/distributed computing, cloud computing will require an evolution of technology, as well as an evolution of skills and organizational structure. Without organizational change and the acquisition of new skills and knowledge, a successful transition to cloud computing will be impossible.

Cloud computing has solidly taken hold as the lens through which many organizations are looking at their future IT investments. As demonstrated in ESG research data¹, public cloud computing is now having a major impact on organizations' infrastructure planning. Eighty-three percent of users polled believe that public cloud computing will have some impact on their IT strategy over the next 5 years. A solid 42% of these users believe it will have a moderate impact, and 13% state public cloud computing will have a significant impact that will effect major changes to their IT infrastructure and processes.

Figure 1. *Impact of Public Cloud Computing*



Source: *Enterprise Strategy Group, 2011.*

¹ ESG Research Report, [2011 IT Spending Intentions Survey](#), January 2011.

In addition, 24% of users note that building their own private cloud computing environment is one of their top IT initiatives for the next 12-24 months.

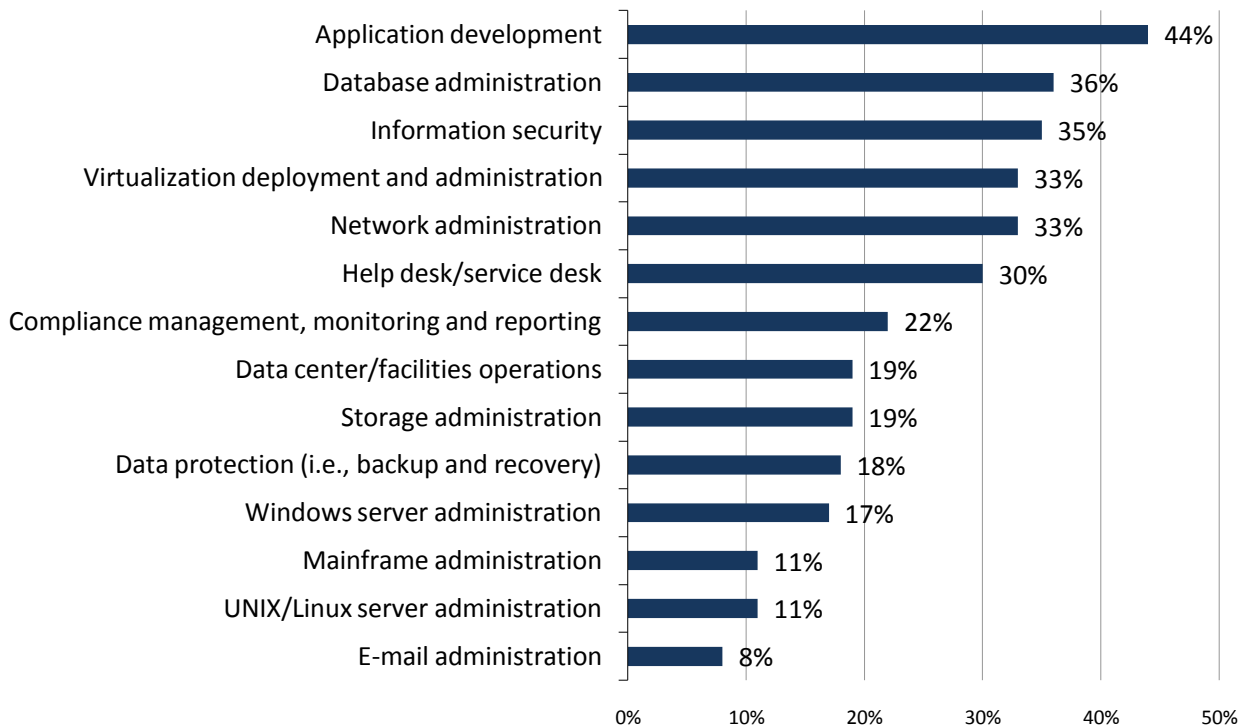
Cloud is moving infrastructure to a more integrated deployment model, often including server, storage, and network in a single compute platform. Similarly, IT professionals will need an integrated skill-set, combining advanced architecture knowledge, baseline domain skills, and a fundamental understanding of the business of delivering IT. This is one of the most overlooked aspects of the transition. IT will play an active, even leading role, in the formulation of business strategy, guiding business units to use technology to drive competitive advantage. Given that the right skills are often in short supply under normal circumstances, the transition to cloud will create an even greater need for top talent.

Labor Dynamics and Shortages

As cloud computing evolves, demanding deep virtualization expertise and new skillsets, the acquisition, development, and retention of talent will become even more important. Since many experts note that virtualization skills will serve as a foundation for cloud computing and IT-as-a-Service, these skills are most in demand. The ability to acquire or develop this talent will be a major factor in the evolution of IT. As illustrated in Figure 2², virtualization skills are high on the priority list for new hires, along with application development, database, security, and networking skills. The data also points to skills consolidation around new application rollouts, with application development and database skills at the top, followed closely by the important infrastructure skills of virtualization, networking, and security.

Figure 2. Key IT Hiring Priorities 2011

You have indicated that your organization will add new IT staff positions in 2011. In which of the following areas will your organization hire those staff? (Percent of respondents, N=218, multiple responses accepted)

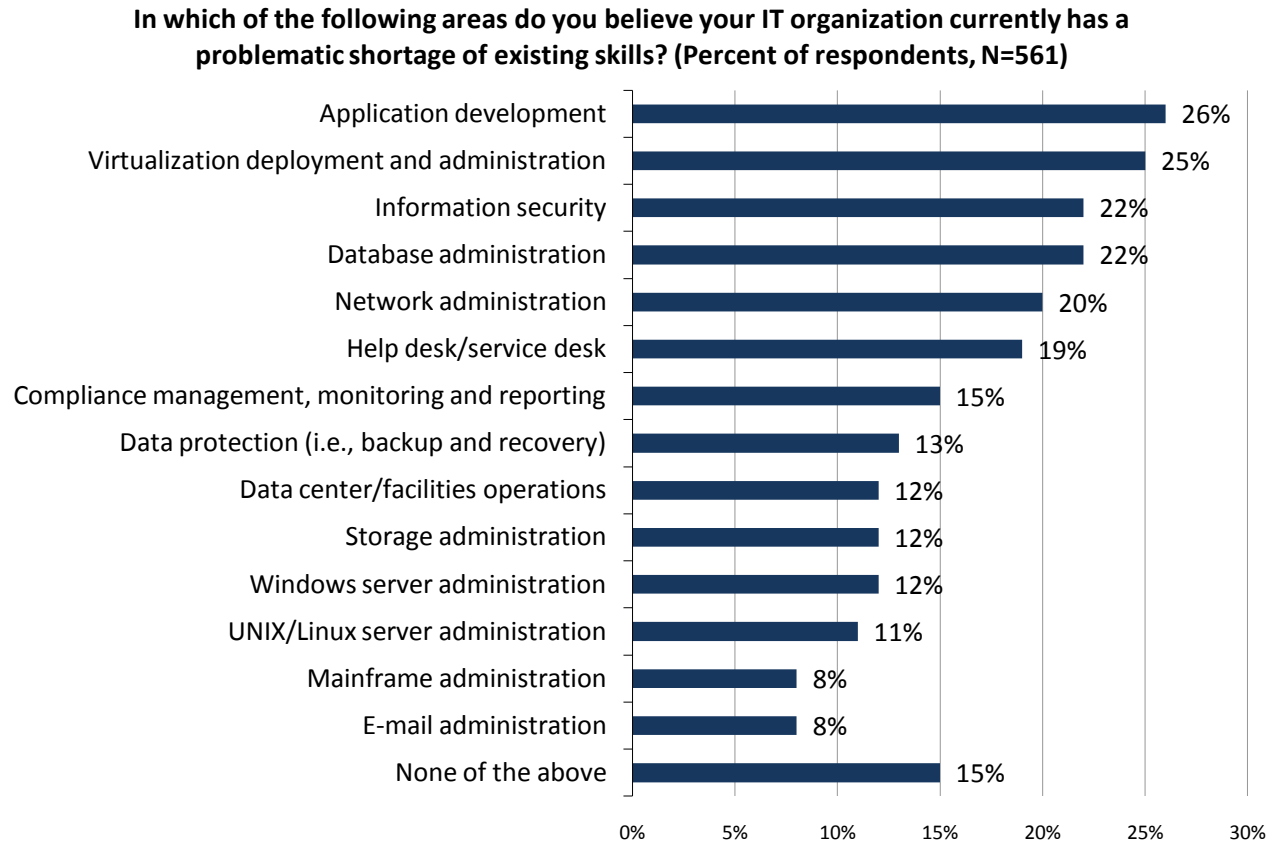


Source: Enterprise Strategy Group, 2011.

² ESG Research Report, [2011 IT Spending Intentions](#), January 2011.

As virtualization, security, and networking are becoming more intertwined, the enterprise architect of the future will need some level of competency in all three areas. The deeper expertise of domain experts will be needed only for deploying and managing the infrastructure and applications. While these skills are at the top of the list of hiring priorities, they are also those that top the list of problematic labor shortages³.

Figure 3. Key IT Labor Shortages 2011



Source: Enterprise Strategy Group, 2011.

Considering the intense need for skilled IT employees and the current shortage of suitable candidates, an alternative to hiring new talent is to invest heavily in internal cross-training. In fact, a recent ESG survey of storage, network, and security administrators asked respondents about the steps companies could take to increase the adoption of server virtualization. Cross-training of teams from other IT functions was universally cited as one of the most important steps for accelerating virtualization adoption.

Evolving Skill Sets

In addition to developing core infrastructure skills, IT professionals must also develop a new attitude focused on business and customer service. This requires communication and marketing expertise similar to that found in the traditional product marketing organizations in large high-tech or consumer product companies. For example, users expect IT offerings to be tailored and packaged for their needs. They also want to be treated like paying customers and “sold” on the idea of leveraging the services of their in-house IT organization. Although end-users have always been the funding mechanism and consumer for IT infrastructure, a true customer service orientation has been elusive in a traditional, technology-led IT model. Internal IT organizations must now compete with both the promise of cloud that is communicated by the media, as well as the highly appealing value proposition offered by public cloud computing providers. In short, the new IT professional, and the new IT organization, must operate under different paradigms.

³ ESG Research Report, [2011 IT Spending Intentions Survey](#), January 2011.

We see anecdotal evidence of this competitive environment today. ESG spoke with CIOs struggling to manage the rogue efforts of business units adopting cloud-based technology without the knowledge or consent of their IT organization. Although today this situation is most common when developing computing resources, it will likely expand to IT organizations who either do not embrace cloud models internally, or do not partner with public providers to develop strategies for deploying cloud models.

Competing as a service provider in this new environment will require a shift in thinking both by the IT professional and the organization as a whole. IT must be responsive, agile, and flexible in their servicing of end-users, who now have a new choice of providers.

Table 1. An IT Paradigm Shift

Old IT	New IT
Technology focus	Business problem focus
Architecting unique solutions for each problem	Providing standard offerings
Managing to a budget cap	Competing on Price and Value
Captive Customer	Competing for Business
Silo-focused Talent	Cross-functional architects

Source: Enterprise Strategy Group, 2011.

What are the skills needed by the new IT professional who helps the organization transition to IT-as-a-Service ? In order to lead their organizations to the cloud, IT professionals must focus on three fundamental areas:

- Core Virtualization Skill Sets.** IT professionals must think and operate in the virtual world. No longer can they be tied to the old paradigm of physical assets dedicated to specific users or applications. They must think in terms of “services” riding on top of a fully virtualized infrastructure, and how applications will take advantage of shared resources with both servers and storage. This requires comprehensive skills in both server and storage virtualization technology, and enough experience as a practitioner to understand the intricacies and critical elements of managing virtual platforms.
- Cross-training Competency.** Leaders of IT innovation cannot be completely siloed and hyper-focused. Although there will still be a need for deep domain expertise, the architects who lead the transition must have broad skills. They must understand enough about security, networking, storage, servers, databases, and applications to develop a vision and look at infrastructure holistically. As infrastructure is deployed and managed, these lead architects will then consult with, and rely on domain experts. To broaden their skills, it will be necessary for IT professionals to invest time in acquiring skills in fields adjacent to their own.
- Business Skills.** IT professionals will take on the role of business advisors and, in some ways, “brokers” of services. They must collaborate with line-of-business and application owners, guiding the discussion to answer the questions “Where should this workload run?” “Cloud or dedicated?” “Public? Private? Hybrid?” The new architect will be part technologist, part product manager, and part salesperson, helping assess needs and guiding end-users to the appropriate technology solution for a set of business requirements. The requirements include not only communication and customer service skills, but also business analytics and finance, in order to align the right solution to end-user budgets.

With these skills serving as the foundation for cloud computing leadership, it is more critical than ever that companies hire this talent or invest the time and money to develop it internally. However, organizational changes will be just as critical as evolving the skills within the IT organization.

Changing Organizations and Skills

It is a challenge for CIOs and IT leadership to determine the new paradigms necessary to focus their organization on service delivery. With the new needs identified, they must execute on the new operational models within the

context of their existing organizational structure and charter, without the luxury of building an entirely new shadow organization.

With this in mind, IT organizations must focus on some key leverage points in order to change behavior and model their new teams.

Measurement and Metrics – Old metrics for top-line spending, performance, and downtime must be augmented with the type of metrics used to run a for-profit business. Customer satisfaction is crucial, and metrics must be implemented that are relevant to the IT consumer, mapping offerings and service levels to user requirements. IT leaders must consider the concept of tracking and building profit margin into their business. Those profits can then be leveraged for the R&D function to develop new service offerings. Just as any business might meet regularly with large customers for formal reviews, teams should begin conducting “service review” meetings at regular intervals, so metrics may be reviewed and adjustments made directly from user feedback.

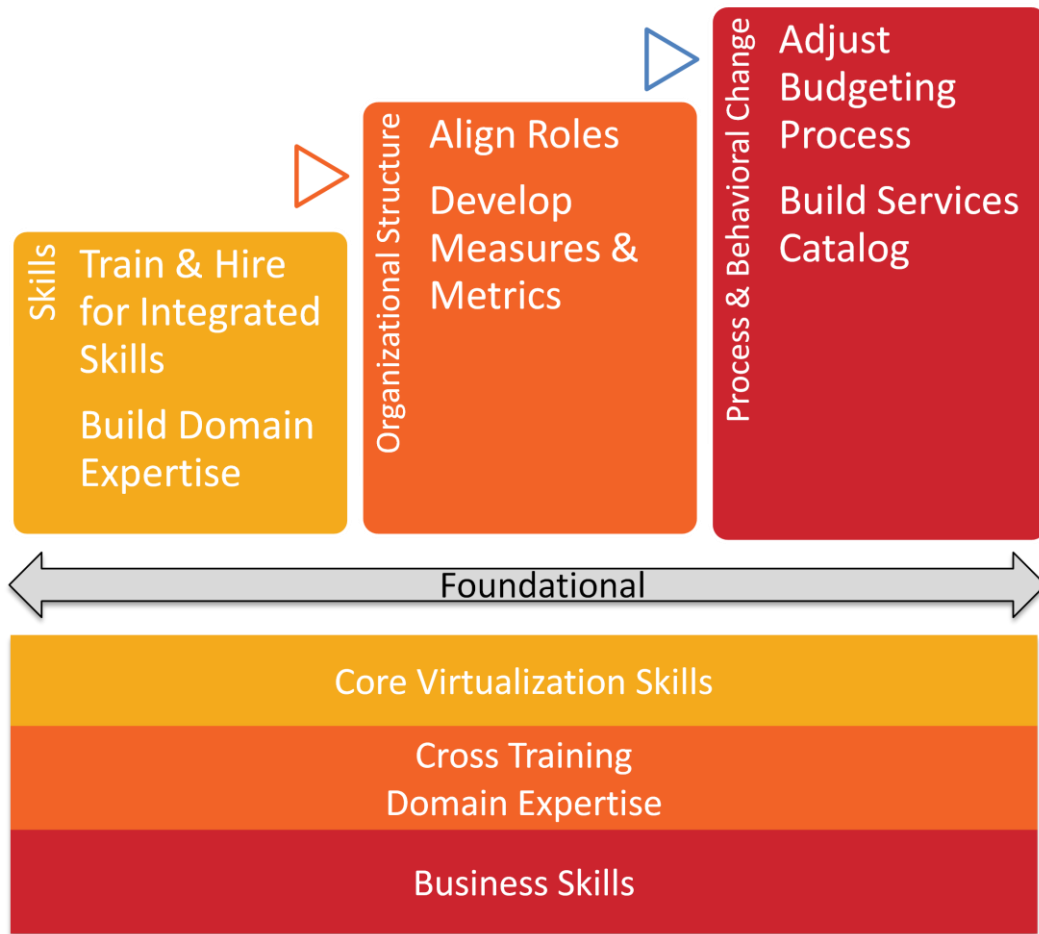
Roles Aligned with the User – A new role, the “service delivery manager,” is developing within the IT organization. This role is a hybrid of a traditional product manager within a sales/marketing organization combined with a service delivery executive, such as one might find in a major global outsourcer running the P&L for an outsourcing contract. This individual will act as much as a business person and entrepreneur as a technologist, managing the entire value chain of an IT service offering including, in many cases, a P&L. He would be responsible for a service or set of services, much as a general manager might control all aspects of a business line. By putting structures like this in place, it will be easier to isolate and measure whether an IT service is delivering value to the user, and to make adjustments if it is not.

Packaged Offerings – For many organizations, creating their first formal service-level catalogue is an “Aha” moment. Until they have conceptualized and documented that they are selling services to end-users, including a value proposition, a price, and a service promise, it’s difficult to align the organization with a new model. The service-level catalogue also serves as a stepping stone to isolating costs on a consumption basis, so pricing may be developed. This full catalogue can be used as an important tool in conversations with end-users, allowing them to choose from a portfolio of services and understand the cost impact of their choices.

Budgeting Process – The budgeting process may serve as the most substantial catalyst for change within an organization. A key inflection point occurs when IT is no longer seen as a pure cost, and considers a business model in which users pay for services. Typically, this is accomplished through chargeback or “tell-back” approaches, and requires an entire organization to think differently about the financial spend for IT resources. An organization must also shift from “project-based” budgeting, where funds are allocated to a particular business unit or project, to a shared budgeting model. The budget must be considered as a business investment to build a set of marketable services, aligned with what the organization believes end-users will pay for those services.

The speed at which IT can make the transition to this new model will be determined by how it handles both the necessary organizational changes and the acquisition and development of new talent. If enough of the right skills do not exist in-house, then IT organizations must acquire the skills through training, or new hires. An iterative view, where important activities build upon one another, is critical to the success of this transition. An overall foundation of the necessary skills will support the key changes needed for the organization.

Figure 4. Evolving the Organization, an Iterative Process



Source: Enterprise Strategy Group, 2011.

Laying this important foundation of virtualization, domain, and business skills can accelerate the transition through the more difficult challenges to come. Enacting organizational and process change will require IT professionals to think and behave differently. These foundational skills will provide the groundwork for the transition, and minimize the likelihood of reverting to old behavioral paradigms.

Partnering for Success in the Transition

Few enterprises have a robust educational services group aligned to their IT organization. Education and learning functions tend to be limited to general business and technical topics and the overall professional development of employees. Historically, IT organizations contracted on their own with external providers for group training, individual employee certifications, and classes focused on improving technical competencies. Because of the dependency on external providers to train their workforce on transformative technologies like cloud, it is critical that IT executives have confidence in the depth and experience of their education vendors. An example of a vendor with such capabilities is EMC. [EMC](#) offers a broad portfolio of education and training under the umbrella of the EMC Proven Professional program to help individuals and organizations acquire the skills they need.

Building on a foundation of technology training in information and storage management fundamentals, IT professionals have the opportunity to extend these skills into the cloud with what EMC calls a DCA (Data Center Architect) certification and, ultimately, a CCA (Certified Cloud Architect). Both roles will be critical in building modern virtualized cloud-ready infrastructures.

- Certified Cloud Architect (CCA) – A certification for professionals aspiring to take leadership roles in their organizational transformation to cloud from a process, business, and technology standpoint.
- Data Center Architect (DCA) – A certification focused on deep domain expertise in a particular technology discipline such as storage networking, availability, management, or security. Appropriate for individuals who back up front-end cloud architects and execute on build-level planning and design.

In addition to technical competence, certifications must also focus on the skills that will be most important in the evolving relationship between IT and end-users. For example, EMC's Storage Services Management architect training incorporates ITIL fundamentals, such as overall service-level management, capacity and availability planning, change management, release management, and storage operations. These skills will equip architects to continue to excel in their technical disciplines, as well as give them the new skills to fully understand technology in the context of services delivered.

Through certifications like those from EMC, professionals aspiring to leadership roles in their organization's transition to cloud may hone their skills and develop complete "services" to deliver better business value. Training such as this will enable them to sharpen their skills in business process analysis, and develop strategies to assess and plan for compliance, governance, and audit requirements relative to virtual infrastructure. Individuals may also move on to programs like EMC's IT-as-a-Service Expert-level certification, which focuses on building and defining cloud services through the development and maintenance of service-level catalogues and process- and service-level management.

In order to successfully implement transformational technologies like cloud, IT executive leadership must undertake the critical step of performing a gap analysis to fully understand where skills need to be augmented. It is crucial to develop a comprehensive strategy to fill the identified gaps, including partnering with experienced external training and education providers.

The Bigger Truth

Transitioning to an optimized organizational model, including a properly skilled IT staff to support cloud is an iterative process. Individuals and teams will need to take incremental steps to achieve the final outcome. Key to this journey is the recognition of different inflection points and insights, which will change how individuals, and the organization as a whole, interact. Business and customer service skills will become more and more important, and behavioral changes driven by organizational re-alignment will become necessary. Training and education will be a critical element of both creating and evolving through these inflection points. Only a true learning organization can accelerate the benefits of the transformational change that cloud computing will bring.

Organizations and individuals must embrace this change, invest in education and skills development, and keep sight of the fact that what we know, and how we behave, often drives the success of the organization.



Enterprise Strategy Group | **Getting to the bigger truth.**