ANALYST BRIEF
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Cloud computing and new technologies are expanding the work of IT professionals. Consequently, the skills employers should prioritize when hiring and reskilling employees are changing rapidly. Companies must explore new ways of acquiring the needed technical skills to maintain a competitive edge in the marketplace.

Modern Cloud and IT Skills Are Essential to Business Success

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Introduction

Cloud computing has changed drastically since its inception in 2002 when Amazon launched AWS and has continued to evolve. As a result, the jobs and responsibilities of cloud IT professionals are becoming increasingly complex and multifaceted as they become responsible for a broader range of tasks. Consequently, the skills employers should prioritize when hiring cloud IT staff are changing. However, cloud IT professionals are struggling to keep up with the reskilling and upskilling requirements to meet the demands of cloud-native development, resulting in an IT skills gap.

The growing skills gap is having a palpable impact on the top-line growth of many organizations. IDC's 2024 *Cloud Survey* revealed that 74% of companies believe that the scarcity of in-house cloud skills has negatively impacted their ability to compete in the marketplace to the extent that 61% indicated that it was threatening the survival of the company.

Given the criticality of addressing these skills gaps, businesses must take a multipronged approach to bridge them effectively. That multipronged approach should include investing in training and upskilling existing talent and tapping into new talent pools around the globe as access to IT training and learning becomes more widespread. Businesses should consider outside services — such as talent marketplaces — that leverage local, offshore, and nearshore options to connect with the high-quality talent they require in the locations they need.

AT A GLANCE

KEY STATS

The IT skills gap directly impacts top-line growth and must be a priority for businesses. Further:

- 74% of companies believe that the scarcity of in-house cloud skills has negatively impacted their ability to compete in the marketplace.
- 61% indicated that the absence of adequate cloud skills was threatening the survival of the company.
- 32% of organizations plan on investing in professional certifications for their IT staff as a priority over the next 18 months.
- 39% are looking for ways to accelerate experiential learning.
- 29% are trying to spin up internal upskilling and cross-training.

New skills don't replace the old. Instead, they're added to the skills IT professionals need to fulfill their responsibilities. For example:

- Early cloud computing more closely mimicked how workloads were managed in traditional on-premises datacenters. At that time, IT professionals required strong knowledge of networking and virtualization.
- The rise of hypervisors led to a shift toward a more specialized and software-centric approach to IT.
- With the growth of the internet and web applications, new skilling requirements emerged, such as TCP/IP, HTML, CSS, and PHP.
- With the evolution of the public cloud, IT pros had to understand cloud storage, networking in cloud environments, and more complex identity and access management structures.
- The emergence of modern software programming languages such as Python and JavaScript, especially for web and data science applications, is now a mainstay for cloud application development.
- The rise of DevOps required IT professionals to become proficient with CI/CD pipelines, configuration management, infrastructure as code, automation, and new monitoring tools.

Today, IT professionals require knowledge that extends across the various spectrums of cloud computing, from programming to operations to security and day 2 operations. In the modern cloud world, IT professionals are responsible for the following:

- Driving deployments that span public, private, and hybrid clouds, as well as to the edge
- Managing modern cloud deployment platforms, including Kubernetes, containers, and WebAssembly, while maintaining expertise in virtual machines
- Understanding how the various deployment platforms best work together to optimize development and software delivery and release
- Ensuring the security of cloud workloads and infrastructure
- Building intelligent applications that leverage AI, machine learning (ML), and advanced data analytics to meet the rising demand for intelligent applications

Several key disruptors reshaping the cloud computing landscape are driving this broadening scope of responsibilities, including:

- The rise of platform engineering and SRE practices
- Multicloud and hybrid cloud strategies
- Edge and 5G
- AI/ML/GenAI

- Serverless computing
- Cybersecurity threats
- Increasing cloud dependencies and costs

Modern Business Skills Yield Benefits

Given the business impact, addressing the IT skills gap must be a top priority. Businesses that take proactive steps to upskill and reskill their IT organization are poised to gain competitive advantages. With modern cloud skills, businesses can benefit from better agility to adapt to market demands, faster deployment of solutions, and enhanced security. In addition, organizations that commit to bridging IT skills gaps will realize increased employee engagement and retention. Some of the key modern skills that businesses should prioritize are:

- Platform engineering
- AI/ML
- Cloud engineering
- Financial operations for the cloud (FinOps)

Hiring IT professionals is challenging, and organizations benefit from acquiring talent validated via technical certifications. Certified individuals often require less initial training, leading to faster onboarding and increased productivity. Further, adding workers with specialized knowledge and skills elevates the quality of deliverables, reduces project risk, and improves problem-solving abilities.

Platform Engineering

IDC defines platform engineering as the discipline of designing, building, and maintaining a platform of curated tools, services, and knowledge — called an internal developer platform (IDP) — that enables self-service access to the resources that development teams need to build, test, and operate digital solutions. In IDC's 2024 *DevOps Practices, Perceptions, and Tooling Survey,* 81% of respondents indicated that they were expanding, using, or piloting an IDP. Compared with 2023, those that indicated they were "not using" an IDP decreased by 70%.

Today, simply building and maintaining a static platform isn't enough. Businesses need platform engineers to continuously build new features into the platform, identify pain points, and create solutions to ease the burdens of developing and deploying cloud applications. This enhanced approach enables the creation of "golden paths" that guide IT professionals through the process. They abstract tasks such as infrastructure management and security configuration that shift software engineers' focus away from innovation.

Therefore, platform engineers need to deeply understand the entire application workflow, from ideation to day 2 operations, and how business requirements fit into these workflows. As platform engineering becomes central to business IT strategy, companies should target platform engineers with security, coding, FinOps, ITOps, and project management expertise.

AI/ML Impact on Software Developers

AI and ML are not new in software development, but since the advent of GenAI, the demand for intelligent applications has never been higher. Businesses are racing to build intelligent applications and take advantage of GenAI-infused tools to make IT teams more productive and effective in their day-to-day responsibilities.

To build intelligent applications, developers need expertise in data analytics to help inform model training. Intelligent applications have also popularized programming languages such as Python and Anaconda and new development frameworks, including CUDA, Gradient, PyTorch, and LangChain. As a result, proficiency with these languages and frameworks is becoming a necessity.

As with any new technology, users and businesses are still working to understand how to use intelligent coding assistants to improve productivity. Software engineers can't simply rely on GenAI to do their jobs for them — they still need foundational software coding skills using modern coding languages. Furthermore, organizations are not looking for candidates who rely on GenAI coding assistants to be effective coders. GenAI still makes mistakes and misses things. Its hallucinations can have catastrophic consequences for businesses solely dependent on it to build and deploy applications.

Businesses also need software engineers who understand how to build intelligent applications and get the most out of them. Companies should prioritize skills such as prompt engineering, reviewing and testing AI outputs for accuracy, and code remediation while upskilling or hiring software engineers.

Cloud Engineering

With the increasing popularity of multicloud and hybrid cloud strategies, it is no longer sufficient to be an expert in one cloud platform. Modern engineers must be proficient with multiple clouds to provision software-defined infrastructure (SDI) and ensure the reliability and security of workloads across multiple clouds — and hybrid cloud topologies that may include on-premises private cloud environments.

In addition, engineers need a rich understanding of various coding languages as they increasingly use code to facilitate automation. Today, code is used to automate infrastructure management, deploy applications, and perform various tasks on cloud platforms. This software-defined approach allows engineers to manage complex cloud systems efficiently by writing scripts (e.g., Bash, PowerShell, and Terraform HCL) and programs (e.g., Python and JavaScript) to automate manual, unscalable processes.

FinOps

Cloud costs are rising, and companies that have moved to or are moving to the cloud have clear mandates to rein them in. These costs are not simply a problem for the finance department. They impact every team that leverages cloud resources. Businesses should prioritize IT professionals with FinOps expertise to build applications with a "FinOps by design" strategy — such as the strategy of security by design — where FinOps is considered from the beginning of the application development process and built in throughout.

To do this effectively, cloud engineers must understand the complexities involved in infrastructure optimization, including identifying resource bottlenecks, developing techniques for reducing cloud costs, and developing code enabling better scalability. The cloud engineer needs to wear two hats: that of the cost optimization specialist and that of the cloud

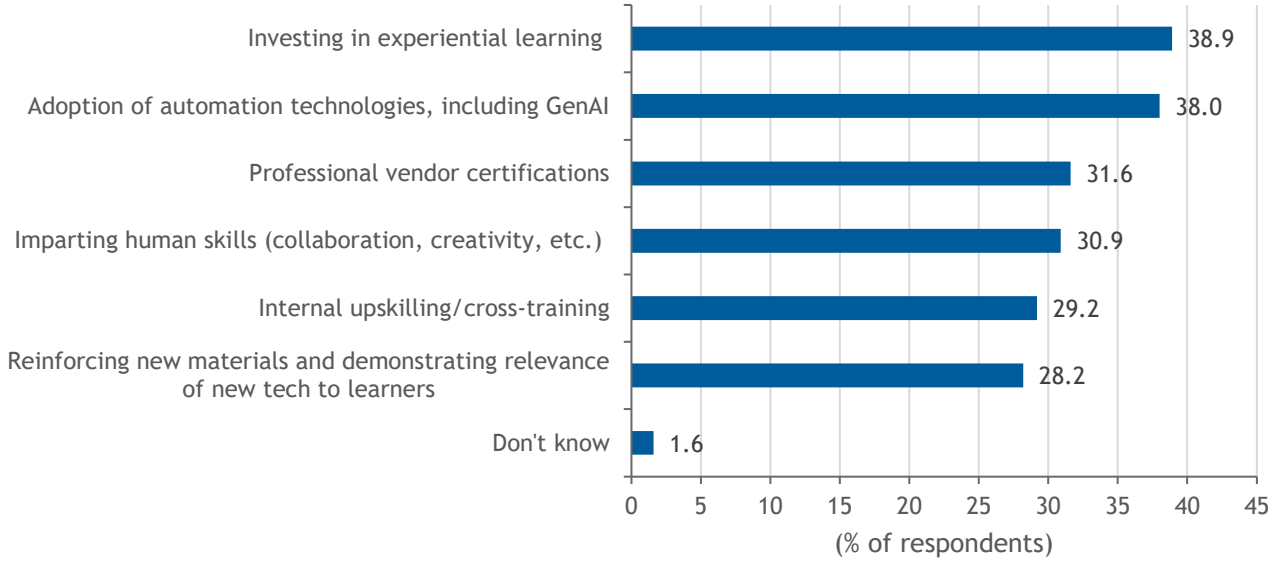
engineer. They need to be well versed in cloud computing concepts such as microservices, containers, and serverless architectures while understanding financial concepts such as budgeting, forecasting, and cost-benefit analysis. Employers should seek IT professionals with technical expertise and financial insight to maximize the ROI from their cloud investments.

Certifications

Certifications have grown in importance because they are a trusted way to validate candidates' skills in prioritized areas. Major technology providers offer them, often at minimal or no cost, making certifications an affordable and accessible alternative to going back to school. In IDC's 2024 *Enterprise Intelligence Services Survey,* respondents indicated that one of the top talent/skill shortages their organization faces is certifications in specific tools/platforms. Figure 1 shows that 31.6% of organizations plan on investing in professional certifications for their IT staff as a priority over the next 18 months.

FIGURE 1: ***Top Ways Organizations Plan to Address the Skills Gap***

Q What are the top 2 ways that your organization will address talent shortages and skills gaps to drive greater employee productivity and efficiency in the next 18 months?



n = 887

Source: IDC's Future Enterprise Resiliency and Spending Survey, Wave 3, April 2024

Considerations

The cloud computing landscape is changing rapidly, as are the roles and responsibilities of cloud IT professionals. Businesses need to find new, accessible ways to address the IT skills gap, even if they don't have the resources to natively upskill talent in critical areas that need prioritization. Typical university training is often time-consuming, expensive, and inconvenient for modern workers with families and demanding schedules.

Modern talent marketplaces can help address these skills gaps with accessible, convenient options. They often offer on-demand training to users and can evaluate and validate talent to confirm they have the skills organizations need to succeed with modern cloud computing. With on-demand training, they expand the talent pool by locating talent locally, nearshore, or offshore.

Talent marketplaces can also enable faster project delivery by matching skilled employees with the right business-critical projects. By providing insights into modern skills requirements, talent marketplaces can help organizations make informed decisions about talent management and identify key areas of skill deficits and the critical regions of skills to focus on when hiring or upskilling staff.

Trends

As organizations seek to upskill and reskill their IT teams, several key trends are shaping their approach, including:

- **The proliferation of training resources in nontraditional geographies enables businesses to take advantage of local, nearshore, and offshore resources as needed.** While computer science degrees from higher education institutions are preferred, software engineers can now take short, intense, and on-demand courses to build their modern cloud skills. It's time for businesses to expand their talent searches to nontraditional geographies like LATAM and Africa.

- **The demand for intelligent applications will only continue to grow.** The world is just getting started with GenAI and intelligent applications. Modern software engineers must be proficient in the skills needed for building and using GenAI application developments. Organizations should prioritize expertise in data science, languages, and frameworks popular for building GenAI applications, such as Python and CUDA, and prompt engineering.

- **The popularity of multicloud and hybrid cloud strategies has increased demand for cloud engineers who can manage complex cloud environments.** For modern software engineers, a specialization in one cloud is no longer enough. As organizations continue to use multiple clouds or a hybrid solution of on premises and public cloud, businesses must seek engineers proficient in building applications and deploying them to multiple disparate environments. Certifications offer a great, accessible way to validate these skills in a potential hire.

- **Rising cloud costs impact FinOps hiring.** As cloud costs continue to rise, expertise in FinOps has become a significant differentiator for software engineers. Developers are often at the forefront of decisions that impact cloud spending. Writing efficient code, selecting the right compute and storage services, and deploying resources effectively can significantly impact costs. Businesses prioritizing FinOps hiring and upskilling expertise can bake these practices into existing workflows to reduce costs.

Conclusion

The rapid evolution of cloud computing has fundamentally transformed the role of modern cloud IT professionals, driving demand for increasingly robust skill sets. The shifts have exacerbated a global IT skills gap that stalls GTM processes and directly inhibits top-line growth. To bridge the gaps, businesses must be aggressive and adopt a multifaceted strategy that includes upskilling their current workforce as well as tapping into global talent pools, including nontraditional geographies.

Modern talent marketplaces are proving invaluable in this upskilling and reskilling effort. They enable candidates to reskill themselves for the modern cloud world and connect them with organizations that can trust that the candidates' skills have been validated. These platforms broaden the talent pool and offer targeted training, ensuring candidates are equipped for the modern cloud world and matching them with the right projects to suit their skill sets.

A modern talent marketplace can provide access to a wider pool of skilled professionals, including cloud engineers, data scientists, and cybersecurity experts, enabling organizations to scale their teams and address specific project needs quickly. Therefore, it behooves digital organizations to consider how a new approach, such as working with a modern talent marketplace, can help ensure they have the right skills on staff to meet the evolving technical landscape.

About the Analysts

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Jim Mercer is a program vice president, managing multiple programs spanning application life-cycle management (ALM), modern application development and trends, emerging generative AI software development, DevOps, DevSecOps, open source, PaaS for developers, and cloud application platforms. His focus areas are DevOps and DevSecOps Solutions research practices.

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Matt's research focuses on software vendors, cloud providers, and end customers' software development/deployment plans and experiences. He is responsible for insights and analysis on emerging platform-as-a service (PaaS) solutions that support developers deploying highly performant, modern, and cloud-native applications.

MESSAGE FROM THE SPONSOR

Companies are running into timeline delays, rising costs, operational disruptions, challenges with maintaining compliance and security standards, and skills gaps causing delays and mistakes in the migration. The Andela talent marketplace has technologists with deep expertise in cloud engineering, DevOps, site reliability, cloud native environments and cloud security working with leading companies like PlutoTV, GoPuff, and Nebula to achieve faster, more secure, and cost-effective cloud migrations and modernization. For example, a client had a complex monolithic application, and they wanted to modernize their infrastructure and adopt microservices architecture using Kubernetes but lacked internal expertise in cloud native development and cloud infrastructure, as well as related CI/CD pipeline and microservices architecture skills. To begin helping the client, Andela defined which skills were required within each open talent role and used its network of 150,000 technologies to find the right talent for the job.

Explore how Andela can help navigate your cloud journey.

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