How DevOps Skills Are Evolving to Deploy
Kubernetes in the Cloud

Introduction

Today's IT environments are more dynamic and vital than ever to a company's overall business. That reality is reflected in an array of macro trends that are becoming increasingly visible in 2024, from the accelerating adoption of emerging technologies like AI to hiring, skills development, and more. You're either investing in and growing your IT capabilities, or you're falling behind the competition.

The vast ecosystem of cloud and cloud native technologies provides an excellent example of this: organizations are increasingly using multiple clouds and/or hybrid cloud environments that mix public cloud and on-premises infrastructure. To maximize those investments, IT leaders must evaluate their entire portfolios and make decisions about combining and consolidating services, migrating and modernizing legacy applications, and building greenfield applications with modern approaches like microservices architecture and containerization — with Kubernetes orchestration as a linchpin platform keeping everything running smoothly.

In this white paper, we leaned on the expertise of Gladys Rama, editorial director of AWSInsider.NET to outline how to bridge the growing skills gap in cloud architecture while accelerating the path to IT modernization and value by moving to the cloud and advancing cloud native initiatives.

IT Modernization Requires Expanding Expertise

2/3
of companies are planning to increase their IT spending in 2024

59%
plan to increase their overall staffing this year

63%
said that they find it difficult to hire the IT talent they need

Spiceworks 2024 State of IT Report

80%
of software organizations will establish platform engineering teams to internally provide the tools, services, and expertise needed to build and deliver new applications

Gartner

These statistics are a direct reflection of the need to rapidly deploy new software products amid increasing technical complexity.

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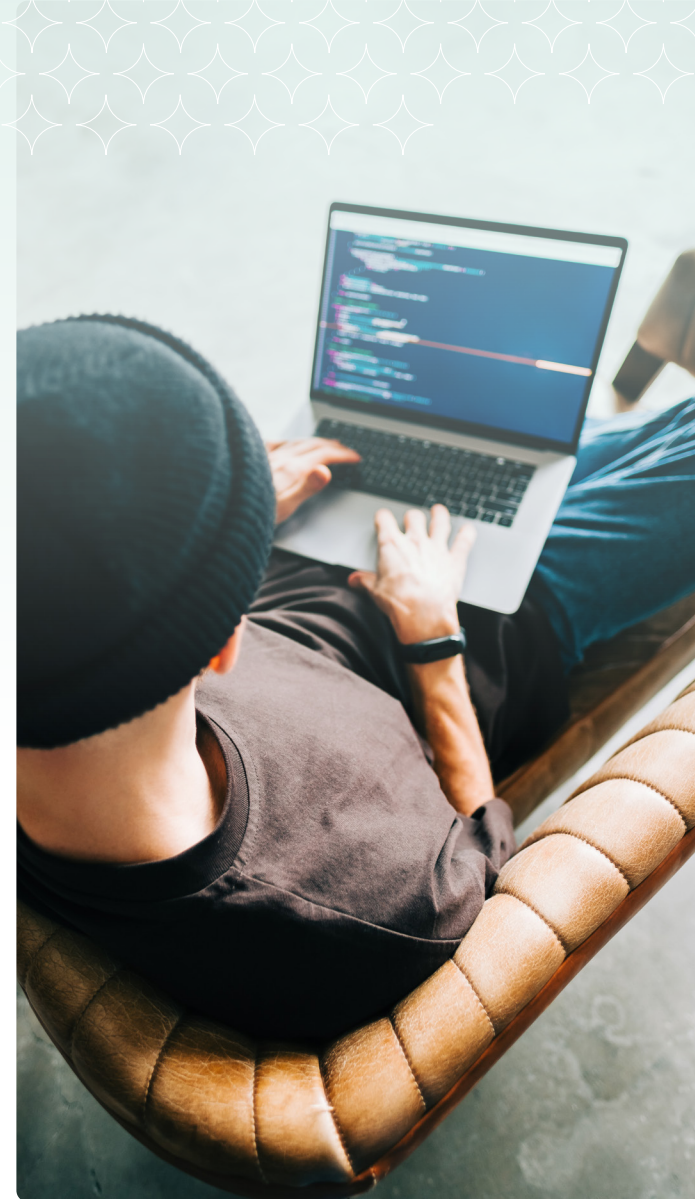
Necessary Skills For IT Modernization In The Cloud

To better understand how and why IT skill sets are evolving, it's important to also understand the changing nature of IT itself. New and emerging technologies that may have once occupied niches in enterprise IT are becoming table stakes for ensuring agility, velocity, and competitiveness.

The mainstream adoption and usage of cloud platforms and services epitomize this shift. Many organizations turned to the cloud to accelerate digital transformation and other initiatives. As cloud use cases proved their business value, cloud footprints grew rapidly, with many companies now running multi-cloud or hybrid cloud environments that include a mix of public and private clouds and on-premises infrastructure.

These organizations discovered that they needed new cloud native tools like Kubernetes to expand their automation and orchestration capabilities and keep everything running smoothly. But this wasn't a mere technology implementation. It also required a change in how traditional IT teams worked together, which gave rise to DevOps culture and workflows, knocking down traditional silos between development, operations, security, and other functions.

The technical and cultural shifts required new and evolving skills to not only implement these technologies but to manage and optimize them over time. And those skill sets are still evolving today, even in relatively newer disciplines such as DevOps.

DevOps roles initially placed a heavy emphasis on scripting languages — such as Bash, Shell languages (like PowerShell), and TypeScript — because of its focus on automation as a means of standardizing processes and simplifying operations complexity.

But over the past year, Andela, a global marketplace for technical talent, has seen a significant shift in companies seeking DevOps professionals who are also proficient in programming languages like Java, Go, and Python.

The reason is clear: Programming skills are increasingly seen as pivotal to the next phase of aligning development and operations more cohesively, eradicating any remaining barriers between legacy Dev and Ops functions. Adding programming skills enhances collaboration by enabling DevOps professionals to offer valuable insights during the development process and provide a deeper understanding of application architecture and dependencies.

Across IT teams, cloud and cloud native environments are driving demand for a diverse set of skills spanning programming, cloud infrastructure, containers, orchestration, automation, database management, and more.

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Over the past 12 months, Andela has seen the following become the most sought-after skills from hiring managers using its on-demand talent platform:

- **AMAZON WEB SERVICES**
- **PYTHON**
- **SQL**
- **JAVASCRIPT**
- **REACT.JS**
- **JAVA**
- **TYPESCRIPT**
- **NODE.JS**
- **KUBERNETES**
- **QUALITY ASSURANCE (QA)**

This is a representative list of the types of skills required for success with DevOps, cloud, and cloud native initiatives. It reflects the need to stay nimble and look for talent that brings both traditional and emerging expertise — and to not get dogmatic about job titles and skill sets.

The growing demand for traditional programming skills among roles that previously didn't require them is a great example. As a result, those in the DevOps community should begin or continue learning and honing their programming skills. This isn't just about keeping up with current trends; it's about preparing for

the future and ensuring team members are equipped to contribute effectively and lead projects. Whether through formal education, online courses, or self-study, gaining programming expertise is becoming essential.

It's also indicative of the need for IT leaders to look for tools and platforms that can help revamp their hiring practices and connect them with the deepest pool of qualified talent possible. Conventional recruiting practices find conventional people. But it's becoming clearer that cutting-edge technologies require cutting-edge talent — and the hiring partner necessary to find it.

How a DevOps Team Evolved to Meet Emerging Needs

More skills are required of a single professional during technical advancements. DevOps professionals already skilled in cloud native technologies are being asked to have a strong understanding of CI/CD pipelines, infrastructure as code (IaC), serverless and microservices architecture, and automation.

Delivering software and services faster and more frequently is now both a technical challenge and a people challenge. It entails modernizing legacy IT systems and implementing new technologies while ensuring your organization has the necessary know-how and skills to achieve smooth operations on Day 2 and beyond.

This again explains the evolution and diversity in the list of in-demand skills among IT leaders and hiring managers — and why those leaders and managers need a platform that can give them a leg up in the hyper-competitive market for talent.

Here's a representative use case for an Andela customer that needed to rapidly add pre-qualified IT staff with specialized skills in cloud, DevOps, and Kubernetes — with fast onboarding.

The Need:

The company had a complex monolithic application that was becoming increasingly difficult to manage and scale. They wanted to modernize their infrastructure and adopt microservices architecture using Kubernetes to orchestrate everything. However, they faced challenges migrating their existing application to Kubernetes without causing downtime and disruptions to their services.

The company had a mix of traditional developers and operations skills, including discrete experience in software engineering, as well as operations functions such as scripting and systems administration. However, they lacked internal expertise in cloud native development and cloud infrastructure, specifically Kubernetes, and related skills such as CI/CD pipelines and microservices architecture.

To resolve the lack of internal expertise, the company tapped Andela to quickly scale up an experienced DevOps team that was able to leverage their skills and expertise in various cloud platforms to optimize their Kubernetes deployment.

That team brought a robust set of relevant skills to the company:

- **Expertise in Kubernetes and containerization technologies**, including a deep understanding of Kubernetes architecture, API resources, and tooling.
- **Proficiency in automation and IaC**, with the skills needed to deploy, scale, and manage containerized applications, and expertise in tools like Terraform or Ansible.
- **CI/CD pipeline mastery**, with experience setting up and optimizing continuous integration and delivery pipelines to streamline development and deployment processes.
- **Cloud platform knowledge**, including familiarity with at least one of the following cloud providers — AWS, Azure, and Google Cloud — and the know-how required to leverage their services to enhance Kubernetes deployments.
- **Collaboration and communication**, to effectively communicate complex technical concepts to non-technical stakeholders.

The Solution:

The team implemented a phased approach to migrate their monolithic application to a microservices architecture on Kubernetes. They started by breaking down the application into smaller, manageable components and identifying which parts could be containerized. Then, they created Docker containers for each component and deployed them on Kubernetes clusters.

To minimize downtime during the migration, they used Kubernetes' rolling updates feature to replace the old components with the new microservices gradually. They also used Kubernetes' horizontal scaling capabilities to handle increased traffic and workload as they migrated more components to microservices.

Additionally, the Andela client implemented CI/CD pipelines for automated testing, building, and deployment of their microservices on Kubernetes. This required programming skills in scripting languages like Python or Shell scripting for defining the pipeline steps, and knowledge of tools like Jenkins, GitLab CI/CD, or GitHub Actions.

The Result:

By adopting Kubernetes and microservices architecture, the Andela client could modernize its infrastructure, improve scalability and reliability, and reduce operational costs. The phased migration approach helped them avoid downtime and disruptions to their services, ensuring a smooth transition to the new architecture. Overall, they achieved greater agility and efficiency in their software development and deployment processes, enabling them to meet the needs of their customers better.

Companies with similar needs regularly turn to Andela to tap into their extensive marketplace of qualified digital talent and assemble a team of the brightest DevOps minds from around the world. This quest for talent is not just about filling positions, but about creating a cohesive unit that can collaborate effectively across time zones and cultures to achieve common goals.

That's especially important because the demand for

DevOps professionals with Kubernetes expertise can't be confined to any single geography.

Companies are increasingly looking beyond their local talent pools to find individuals who bring diverse perspectives, experiences, and skills to the table. This global approach not only enhances the team's problem-solving capabilities but fosters a culture of innovation and continuous learning.

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Solve Skills Shortages and Accelerate Project Delivery

Traditional IT systems often allow for a generalist approach to skill development and hiring. However, the cloud native ecosystem increasingly requires a level of specialization that is simply too difficult for many enterprises to manage on their own. This challenge will only continue to grow as AI and other emergent technologies usher in another demand wave for hard-to-find technical skills.

That's where Andela can help — and accelerate your time-to-value by eliminating talent and skill acquisition headaches when building core competencies in DevOps, Site Reliability Engineering (SRE), cloud engineering, and cloud native development.

By working with Andela, you get:

- The ability to find talent for specific, in-demand skills in cloud engineering, DevOps, Kubernetes, and related areas.
- Access to pre-qualified digital talent that is ready to help you with your most pressing projects.
- Simplified recruiting and onboarding because the groundwork of hiring, compliance, and payroll is covered for you.
- A partner with the depth and breadth of understanding of modern IT needs and skills — and a vision for what the future will bring next.

Don't let skill shortages and hiring challenges hamper your technology strategy and corresponding business goals. You can find the talent you need — and fast.

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Looking to build a global tech team? We can help.

Learn more

Andela exists to ensure technologists have access to equal opportunity regardless of where they live. Our digital talent solve complex and compelling problems, changing their career trajectory and quality of life, while companies can craft a workforce that reflects the world around them with lower costs, faster speed, and greater agility. Our purpose is to change the way the world works: when we connect brilliance with opportunity, everyone wins.

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