



THE CLOUD SKILLS SHORTAGE

How to Bridge the Gap in Your Organization

OVERVIEW

The cloud promises huge potential benefits to organizations of virtually any size. But making a move to the cloud is a complex logistical undertaking, requiring new skills and knowledge to address the technical challenges of migration. However, cloud expertise isn't easy to come by.

According to a Salesforce report for IT market intelligence company IDC, annual spending on the cloud is growing more than six times faster than IT expenditure overall.

At the same time, the supply of cloud computing skills cannot keep up with demand.

In November 2016, a study conducted by open-source cloud computing platform **Cloud Foundry** revealed the extent of the skills gap. Fifty-seven percent of IT professionals and executives questioned in the survey encountered difficulties recruiting skilled developers, with the problem felt most acutely by companies in the early stages of their cloud journey.

Against this backdrop of rapid cloud growth and serious skills shortages, IT leaders face significant challenges in meeting the capability requirements for their cloud transformation projects.

In this paper, we start by looking at the challenges of cloud migration and the skills and capabilities you're likely to need. We then run through the different ways you can overcome the skills gap in your organization—so you have the know-how in place to make the transition.

Salesforce Estimates of Annual Worldwide Cloud Spending 2015–2020



SOURCE: IDC

“There’s incredible opportunity for businesses if they move to the cloud, but with a lack of skilled resources they are not able to realize those benefits as quickly. At best, this impacts revenue and profit potential in isolation. At worst, competitiveness and market relevance suffer.”

— **CRAIG MCQUEEN**, Director of Microsoft Practice at IT solutions provider Softchoice

THE CHALLENGES

To establish what tools and skills your organization will need to make a successful cloud transformation, it’s important to understand the various challenges involved in the migration process.

You’ll need to build a robust application environment that balances both cost and availability expectations, adapt your applications to run on cloud infrastructure and integrate cloud-based applications with on-premise systems. You’ll need to consider **networking, security** and **compliance**. And you’ll also need to manage your infrastructure, ensuring you have complete visibility over a complex and dynamic array of cloud resources.

But, above all, the main objective of cloud adoption is to increase profitability. So you’ll want to make savings on your cloud bills, through **cost** and **performance optimization**. You’ll want to provide better value for customers. And you’ll also want greater **agility** and **faster times to market** through accelerated application development.

This will call for a wide range of new capabilities. However, in view of the current cloud skills shortage, you may need to consider alternatives to staff recruitment. But, before we weigh up the options available, let’s consider the skills you’ll need to meet your cloud challenges.

The Key to Cloud Success

A move to the cloud is a major logistical undertaking for practically any large-scale business operation. It requires leadership, planning, collaboration and clearly defined objectives that align to your business goals.

A **cloud center of excellence (CCoE)** lays the foundation for success in the cloud by taking ownership of your migration project. It coordinates the change process by developing your cloud capabilities, mobilizing forces, setting up lines of communication, delegating responsibilities and promoting best practices.



You can learn more about the essential role of a CCoE in enterprise cloud adoption by downloading our white paper [The Cloud Center of Excellence: A Blueprint to Successful Enterprise Cloud Adoption](#).

What Are the Skills We Need?

The starting point for your skills assessment is to talk to any staff with existing cloud experience, as they'll have knowledge of both the cloud and your current IT operation.

It also makes sense to survey the jobs market. This will tell you what other companies are looking for and give you an idea of the skills your own organization might need. What's more, it can provide useful information for benchmarking the cost of hiring new staff against other solutions.

Although most cloud jobs are multi-disciplinary, they're generally demarcated into roles, such as:

- > Cloud architect
- > Cloud developer
- > Cloud security consultant
- > DevOps engineer
- > Data scientist
- > Database administrator
- > Cloud ITFM

You may also need knowledge in specific technologies, such as:

- > Hadoop
- > Docker containers
- > The ELK stack
- > Machine learning

Each organization will have their own individual skills requirements, depending on their existing capabilities and migration objectives.

They'll also have their own approach to procuring them. Some will still favor external recruitment. Some may prefer internal training. Others will turn to partnering or outsourcing. But, again, it will depend on the organization—where the final choice will likely be a combination of solutions.

So let's move on to each of the alternatives in detail.



TOP 5 SKILLS

According to online cloud computing news site CloudTech, the five cloud skills that are currently in most demand are:

1. **Database and Big Data**
2. **Application Security**
3. **Enterprise Cloud Migration**
4. **Containers**
5. **Cloud Enterprise Application Development**

THE SOLUTIONS

External Recruitment

As with any new technology, the supply of skills always lags behind supply. Not only that, but the problem is that you need people with a wide variety of skills and experience. So your mission isn't as simple as recruiting IT graduates straight out of a university.

This makes it all the more important to get creative with your recruitment campaign and put measures in place to attract the right applicants.

Attracting the Right Candidates

To make your positions stand out in the strong competition for talent, you should think beyond generous pay packages. For example, smaller-scale employers can attract prospects by offering them a bigger say in the company's direction.

You can also increase your chances of securing the right candidate by providing clear role descriptions in your job ads and offering incentives, such as flexible working conditions and clearly defined career paths.

The Cost of Recruitment

Staffing is by far the biggest cost to most businesses. But if that weren't enough, the task of recruiting the right person is also an expensive and time-consuming affair. The full cost of taking on a new employee should take into account:

- › Advertising
- › Time spent screening and interviewing candidates
- › Company induction and on-the-job training
- › Provision of a computer and desk space
- › Remuneration and benefits, such as dental care and pension contributions

However, these additional overheads generally decrease with economies of scale. This tends to make talent recruitment a more favorable option to larger businesses.

Another downside to external recruitment is that you don't really know a person's full capabilities until you've taken them on. So it can be a step into the unknown.

Finally, if you've worked hard to find the right person, you should work equally hard to keep them. So talent retention should go hand in hand with talent recruitment.

Training

Cloud expertise is not only hard to come by, but it's also expensive. As a result, it can make more economic sense to train existing IT personnel.

What's more, your existing staff already know your legacy applications inside out and can bring important insights to the redevelopment process. They also know your business and understand its organizational structure. This knowledge can prove particularly useful to company-wide cloud projects.

Accreditation

The three leading cloud providers, **AWS**, **Microsoft Azure** and **Google Cloud Platform**, offer accredited training courses, which are designed to develop both your general cloud skills and knowledge of their IaaS offerings.

Accredited training not only helps build and validate the cloud expertise of your IT workforce, but also offers career development opportunities that make your organization more attractive to potential job candidates.

Moreover, it increases job satisfaction and makes a statement about the confidence you have in the abilities of your IT staff and the investment you're prepared to make in them.

On the other hand, the cloud isn't something you can learn in just one or two days. In other words, it can take a while to bring people up to the standard you need. So don't forget the hidden costs of training in terms of the number of lost working hours.

By and large, training builds up your team's theoretical knowledge, but provides relatively little hands-on experience. So you should assign trainees to pilot and test projects so they can put their knowledge into practice.

Partnering and Outsourcing

Partnering with an MSP or CSP

Cloud managed service partners (MSPs) and cloud solution providers (CSPs) often have considerable expertise at their disposal and can guide you through many of the specialist tasks involved in moving to the cloud.

They offer a lower-risk approach to cloud adoption, as they already have first-hand experience of cloud transformation projects, helping you to avoid costly mistakes and ensure your project is a success. And, because cloud resellers already know the ropes, they may be a more efficient option—both in terms of time and cost.

A good cloud MSP or CSP will provide informed, impartial advice on a broad range of cloud adoption issues—from automation and workload migration to security and cost control.

Along with cloud computing knowledge, they'll have experience in traditional IT systems. This is essential to a successful migration process. However, they may also offer specialist knowledge in areas such as compliance or hybrid clouds. Alternatively, they may have expertise in specific industry verticals, such as finance or eCommerce.

And remember: You'll be making a switch from a CAPEX to OPEX model of financing your IT. So the right cloud partner will look to keep your costs down by identifying inefficiencies in your cloud infrastructure and opportunities to leverage discounted alternatives to standard virtual machines, such as **AWS Reserved Instances**.

BUYER BEWARE

Many resellers are still only just beginning to move into the cloud computing market. So make sure you choose an MSP or CSP with a proven track record of working in the cloud. Personalities and shared values are equally important, as you'll also be entering into a long-term working relationship.

For peace of mind, you should look for resellers with approved partner status, such as **Amazon APN Partners** and **Azure CSPs**, which offer proven expertise in the cloud provider's platform. MSPs with the highest level of accreditation, such as **AWS Managed Service Partners**, have been independently audited for their cloud capabilities, organizational processes, financial stability and high levels of customer satisfaction.

Outsourcing

Outsourcing is similar to partnering. But whereas MSPs and CSPs work hand-in-hand with your own IT, providing cloud expertise where required, an outsourced contractor takes full control of all or part of your project.

MSPs offer services in more of a management, consultative and mentoring capacity. They play an integral role in your business and help your company to develop its own skills and expertise as you progress through your cloud journey. By contrast, outsourcing is broader in scope, dealing with any IT tasks that a business doesn't handle in-house.

Owing to the nature of partnering, you can expect far more transparency into the work they do. Competent resellers will also furnish you with an array of tools that give you visibility into your cloud inventory, ensuring you have good cost, performance and security management.

However, outsourcing may be better suited to smaller companies, which prefer to focus on their core business operations or ultimately don't have sufficient staffing resources to perform the work in-house.

Third-Party Solutions

Third-party tools can help bridge the knowledge gap in your organization, as they've been developed by cloud experts and automatically perform many of the manual tasks required to run your cloud, such as resource optimization, cost allocation, backups and continuous compliance monitoring.

They can massively reduce your cloud management overhead, freeing up more time for application development. You can deploy many of them on the spot with just a couple of clicks, making them a quick and efficient solution. And they're ideal for any virtually any size of organization, as pricing is often based on your cloud consumption.

Third-party tools expand the capabilities of the vendor's own set of cloud management solutions and often have the ability to monitor different cloud environments through a single pane of glass. This can help reduce the amount of time, effort and expertise needed to manage multi-cloud deployments.

Cloud Marketplaces

The easiest way to find and deploy the tools you need is by searching or browsing your cloud provider's marketplace of third-party solutions. These are available as either SaaS applications or machine image templates and can be launched directly from the vendor's marketplace portal.

Cloud marketplaces offer an extensive selection of commercial and open-source tools, performing functions such as **application performance monitoring**, **cost optimization**, **workload migration**, **identity management** and **infrastructure security**.

The wide variety of preconfigured development environments and application stacks will be of particular benefit to development and operations teams that are new to the cloud. Not only do they save considerable time in configuring new infrastructure, but also require little or no technical expertise to deploy them.

All tools listed on each of the main cloud provider marketplaces have been approved by the vendor, so you have the assurance that the solution you choose meets rigorous standards. What's more, many offer free trials, so you can put them through their paces before you buy. You pay for your product subscription via your cloud provider's monthly billing cycle.

Automation

Automation will also play an essential role in reducing your IT workload and staffing requirements. For example, orchestration software, such as **continuous integration (CI)** and **continuous delivery (CD)** tools, significantly reduce the time and effort involved in deploying applications.

On similar lines, **infrastructure-as-code (IAC)** tools, such as **Chef** and **Puppet**, automate the infrastructure provisioning process. These not only save time and work, but lessen the risk of human error, helping to ensure consistent, stable and secure application environments.

However, you should bear in mind you'll still need DevOps skills to configure and maintain your software. This may call for recruitment of a DevOps specialist or cloud MSP or CSP with strong automation credentials.

Open Source

The cloud is the natural choice of infrastructure for many open-source technologies, such as **Docker** containers and big data framework **Hadoop**.

Open-source applications bring a number of compelling benefits to enterprise cloud adoption. Thanks to the collaborative efforts of developers and non-profit organizations, they're generally robust, secure and either free or relatively inexpensive.

What's more, open-source code also gives you the freedom to adapt the software to work exactly how you want it.

On the other hand, you generally need a high level of technical expertise to deploy, configure and customize your application. So it's important to put the low entry price into perspective and consider the hidden costs of ownership. And with the additional work involved in setup and maintenance, you could potentially compound your cloud skills problem rather than solve it.

TAKE ACTION TODAY

Without the right skills in place, your organization could face lengthy delays in application deployment and fall behind the competition. You could also waste money on badly implemented projects and potentially expose your cloud infrastructure to security risks and unwelcome cost inefficiencies.

A CCoE can help you avoid the pitfalls of cloud migration by setting clear adoption goals, coordinating the change process and identifying the capabilities your company needs.

But, whatever other measures you take to reduce the skills gap in your organization, cloud management tools will form an essential part of your adoption strategy, helping you to maintain visibility and reduce the management overhead of running your cloud.

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342 N GOODMAN ST,
ROCHESTER, NY 14607

1-833-CLDCHCK

www.cloudcheckr.com