

The Workforce of the ASAP Data Center



The data center in recent years has evolved dramatically, going from a relatively static environment to one where the end-to-end infrastructure is fluid, agile, and software-centric.

The people running this new kind of data center are following a similar trajectory. And that's changing talent requirements as businesses undergo digital transformation.

Because today's data center is the foundation for fully digitized applications, the skills needed to design, deploy, manage, and secure it are completely different from what they were even a decade ago. As a result, organizations need to rethink the kinds of skills they look for in potential hires, and create strategies to train their existing workforce to succeed in this new environment.

CEOs are awakening to the dangers of static processes, rigid roles, and outmoded thinking at a time when their most pressing challenges all demand leaders and workforces committed to openness, innovation, and agility.¹

In this white paper we'll talk about:

- the role of the data center in the context of the digitized business environment;
- the evolution of data center skills;
- the key skills required to thrive in the data center;
- the importance of multidisciplinary skills; and
- the impact of certification on organizational and professional value.

1. The Conference Board, "CEO Challenge 2017: Leading through Risk, Disruption and Transformation," January 2017, <https://www.conference-board.org/ceo-challenge2017/>

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The data center in new digitized business models

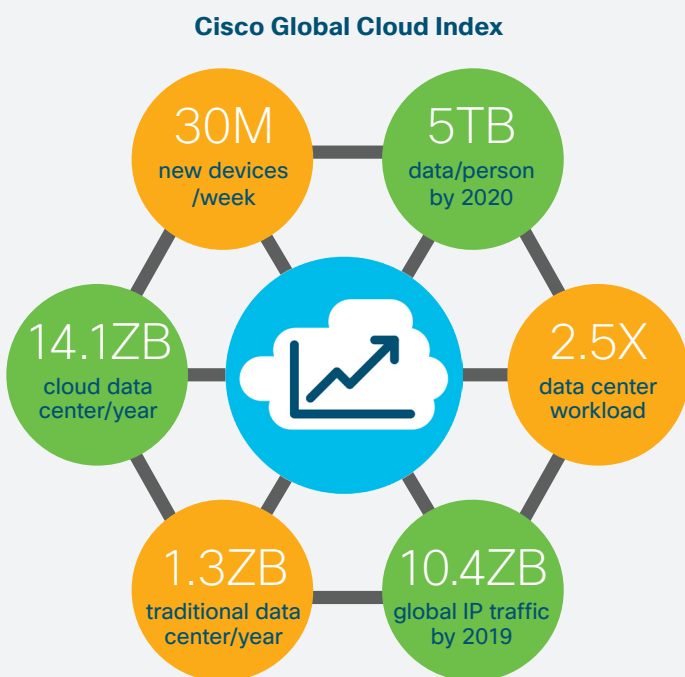
IT and the data center used to be seen as a cost center for business. That's no longer the case.

Today the data center and related staff members are at the center of business. These are the technological and team resources that organizations depend on to survive and thrive in a quickly changing marketplace.

But it's not just the business marketplace that's changing. Data centers are changing too.

The main drivers of change in the data center is business transformation with an end goal of operational or strategic impact, the amount of traffic that data centers need to support, and the need to make data centers more responsive and scalable to support those demands.

To get a sense of that growth, just look at these projections from the most recent Cisco Global Cloud Index.²



That kind of growth calls for a new kind of data center—one built for scale, and one that can respond to new requirements as they arise. This new brand of data center leverages automation; features common policy-based management; and leverages cloud-based architectures, software-defined technology, and virtualization.

Agile and flexible data centers help organizations support the business models and customer experiences they choose to embrace and deliver. They also help organizations, their customers, and partners build, consume, and deliver hybrid clouds.

Software-defined data centers and networks are important because they allow businesses to adopt cloud models in a much smoother fashion, enabling them to create portability between various cloud and on-premises environments. Having an on-premises cloud, and employing the cloud resources of a hyperscale or other public provider, allows organizations to get the proper economies of scale and meet their other application-specific requirements. The next-generation data center also makes more effective use of human and technological resources.

Cisco empowers customers with the choice and flexibility to run any of their traditional and cloud-native applications using converged and hyper-converged infrastructure solutions that can be deployed to meet their unique needs. We are focused on helping organizations to modernize their data centers and older IT infrastructure with a hybrid IT solution that maximizes application performance, mitigates risk, and increases operational agility to support their digital transformation journeys.

Core to this effort is the Cisco ASAP Data Center. ASAP stands for analyze, simplify, automate, and protect. The Cisco ASAP approach addresses the hybrid model businesses are embracing today. It dramatically improves IT alignment with business objectives and policy requirements. And it leverages technology that enables organizations to reduce their application deployment times from weeks to minutes.

2. Cisco Systems, "Cisco Global Cloud Index: Forecast and Methodology, 2015-2020", November 2016. <http://www.cisco.com/c/dam/en/us/solutions/collateral/service-provider/global-cloud-index-gci/white-paper-c11-738085.pdf>

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Speaking of expedited timeframes, the pace at which businesses have been implementing such agile and timesaving solutions has been ramping up rapidly in the past two to three years. As businesses move to refresh and reinvent their data centers, the time is right to do the same with their data center team members' skillsets.

The evolution of data center skills

That's important given the dramatic amount of technology skills data center professionals require today. In fact, data center technologies have changed dramatically over the years.

Traditionally, data center professionals have specialized in a certain area, such as networking or storage, or in a certain vendor's product type. But now data centers need

individuals with a broader range of skills to take advantage of the newest technologies that often span the data center end-to-end. For example, it's now very helpful for networking and storage professionals to understand unified computing, programming, and orchestration.

The essence of the software-defined data center is that the data center infrastructure is virtualized and delivered as a service. And control of the data center in this scenario is automated by intelligent software systems.

Meanwhile, networking has gone from being about basics, such as how many ports you need, to creating and maintaining infrastructure that is constantly adapting to the needs of the applications. So it's more logically driven and requires an understanding of APIs and script development for logical segmentation.

Data centers today require individuals with skills related to:

- Application-centric infrastructure
- Automation
- Cloud integration
- Converged & hyper-converged infrastructure
- Network engineering
- Policy-driven infrastructure
- Security
- Software-defined data centers
- Software-defined networking
- Virtualization



The most in-demand job roles that leverage these skills include:

- IT architects
- IT consultants
- Data center administrators
- Data center engineers
- Network administrators
- Network engineers
- Support engineers
- Systems engineers

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Key skills required to thrive in the ASAP Data Center



Software-defined environments require data center personnel to have some experience in programming. Programming experience is important to augment data center solutions focused on automation to help streamline workflow and to understand how things integrate with one another.

We should note that when it comes to the cloud, the network is critical. But having networking skills is very important even in a cloud-centric world. That's because the network ties an organization's on-premises environment with public and private cloud infrastructure. As a result, the network must be architected to be redundant, highly scalable and robust so all applications and other capabilities are available at all times.

IT and operational technology roles are really coming together through the Internet of Things. That means individuals who work on IoT implementations and

operations need to have a good understanding both of the technical side and of the businesses in which they operate.

All this connectivity also ups the ante for security. Organizations typically have a security compliance officer. The common thinking by IT management is that security is everyone's concern. So for savvy organizations, those involved in data center infrastructure are involved in security as part of their routine responsibilities to ensure the resources and access are secure.

Security continues to be a major focus for data center IT. A security specialist can help inform an organization's technology buying choices, affect its security architecture, offer expertise on compliance requirements, and stay abreast of regulatory changes and what they mean for the industry and the specific business. For example, a security specialist should understand if and when it's necessary to make changes to data retention or data warehousing policies, or what needs to be encrypted.

In the past, the mindset was to lock everything down. But that can handcuff a business. However, people who understand the latest solutions available to secure data centers and networks can put those technologies in place. That can provide the people within their organizations more latitude to access the resources they need based on parameters like their behavior, what they're doing, and their physical locations.

But whether or not a security specialist is in the house, it pays dividends for data center staff members to have at least a basic understanding of compliance as it relates to their industry and implement the data center technologies to their full effect with an eye on security. That can make for a more secure data center and help lighten the load of unplanned audit remediation work.

The skills described above are dramatically different than those that data center professionals needed even a few years ago. But organizations need professionals with these skills, and quickly. According to IDC, data center will account for 29 percent of all digital transformation spending by 2020, reaching over \$571 billion.³

3. IDC, "Worldwide Semiannual Digital Transformation Spending Guide," February 2017, http://www.idc.com/getdoc.jsp?containerId=IDC_P32575

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To ensure they have the right data center talent in-house to staff this growth in transformation, organizations are going on a hiring spree. Seventy-one percent of enterprise IT will boost investment in data center professionals between 2015 and 2018.⁴ Furthermore, the Bureau of Labor Statistics estimates an eight to nine percent compound annual growth rate (CAGR) in data center job growth by 2024.⁵

Open opportunity: How certification enhances professional value

All this demand for data center talent makes it challenging for organizations to find the experts they need. On the upside, however, this situation creates great potential for people who are willing to develop the needed skillsets. A recent Cisco survey revealed that 34 percent of respondents plan on prioritizing digital learning and development spending on data center operations skills to meet their growing demand.⁶

Employers say job candidates with vendor certifications are more work-ready. Computer science and engineering degrees are often requirements, but certifications can really help you differentiate yourself in the talent marketplace. Perusing data center job postings reveals that hiring managers want candidates with certifications, especially Cisco data center certifications.

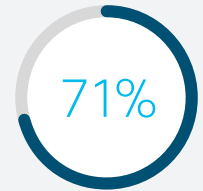


According to the aforementioned Cisco survey, eight out of 10 managers consider Cisco certified staff to be more knowledgeable and valuable to their organization than individuals who hold another certification. Managers also rated Cisco certified individuals as more effective and as producing higher-quality results.



According to IDC, data center will be 29 percent of all digital transformation spending by 2020, reaching over \$571 billion.

71 percent of enterprise IT will boost investment in data center professionals between 2015 and 2018.



As for existing employees, taking the initiative to pursue and acquire certifications highlights personal dynamism, shows a willingness to adapt and learn new things, and increases value in the workplace.

Cisco certifications

To excel in data center infrastructure roles, IT professionals must be able to plan, design, implement, and manage a data center infrastructure that supports an agile, highly elastic IT as a service (ITaaS) model.

While deep product and technical knowledge is still necessary, IT professionals focused on data center are expected to have skills and knowledge depth and breadth with multiple technologies that enable the data center for ITaaS agile infrastructure.

Cisco's industry-leading data center certification track provides skills-based training and certification on in-depth skills and key technologies needed to design, implement and manage complex, modern data center technology infrastructure.

4. AFCOM, "State of the Data Center Survey," 2015, <http://stage.afcom.com/news/dcm-digital-issue-afcoms-2015-state-data-center-survey/>

5. Bureau of Labor Statistics, "Network and Computer System Administrators," December 2015, <https://www.bls.gov/ooh/computer-and-information-technology/network-and-computer-systems-administrators.htm>

6. Cisco Systems, "2016 Value of Certifications Survey," August 2016

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IT practitioners that are Cisco trained and certified are uniquely qualified for key roles in complex data center environments, and gain the capabilities to more fully utilize Cisco data center. Those technologies include policy-driven infrastructure, virtualization, automation and orchestration, unified computing, software-defined networks, Cisco Application Centric Infrastructure (ACI), and integration with cloud initiatives.

[We recently revised our Cisco CCNA, CCNP and CCIE Data Center certifications](#) to include these important new skills, technologies and architectures.

The CCNA, CCNP, and CCIE Data Center certifications are job-role focused training and certification programs that allow you to gain depth and breadth of skills needed in enterprise-class data centers, deliver business outcomes, and deliver optimal value with your organization's data center infrastructure.

The bottom line

Digital transformation will reshape the IT resources and skills requirements dramatically over the next several years. The Cisco ASAP Data Center will be a key part of that transformation.

As part of this evolution, data center professionals will need to upgrade their skills to be able to plan, design, implement, and manage major data center infrastructure that supports ITaaS.

Data center professionals with Cisco certifications contribute to business agility, service assurance, time-to-market, and customer satisfaction goals, making them indispensable members of the business.

It's a brave new world out there. If you embrace change, and develop new skills in areas like automation and programmability, you will be rewarded with future-proofed skills that help your organization transform to meet the future.

Take the next step

Cisco Data Center certifications can give you the technical skills, hands-on experience, and unmatched expertise you need to transform your data center into the ASAP Data Center. Get started [here](#).

