

Skills for managing the Cisco ASAP Data Center

Extracting full business potential from cloud-based services



Digital transformation has moved to center stage in business.

Digital transformation has moved to the forefront because it can deliver wide-ranging benefits. It can help enable businesses to create new and improved customer experiences. It can allow organizations to transform their business models and processes to take advantage of new revenue-generating opportunities and realize new efficiencies. And it can support more and faster innovation.

So, what exactly does digital transformation entail? The answer to that varies, based upon the goals of the particular organization.

But one factor is certain. Digital transformation relies on a new breed of data center that can support business models involving big data, the cloud, the Internet of Things (IoT), and the modernization of existing business-critical applications. And for many organizations, it calls for a variety of IT strategies that take into account traditional data centers, along with private cloud and public cloud infrastructures, also known as hybrid data center infrastructures.

The next-generation data centers that power the cloud—and their ability to deliver business intelligence and support innovation—will rely both on new technology and the expertise of individuals with the right skill sets.

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This white paper will provide:

- A look at what's supporting data center investment
- An analysis of the next-generation data center
- A discussion about hybrid data centers and the cloud
- A guide on what new talent is required and how to develop it

Great growth

The enormous increases in network traffic and storage requirements we're experiencing—and the need to affordably scale resources in light of them—are prompting many businesses to make significant new investments on the data center front.

The Cisco Global Cloud Index indicates that by the year 2020, cloud data center traffic will reach 14.1 zettabytes per year, up from 3.9 zettabytes annually in 2015. Meanwhile, traditional data center traffic will reach 1.3 zettabytes per year, up from 827 exabytes per year in 2015.¹

Big data is one of the main forces behind the increase in storage requirements. It is expected to become an even bigger part of the picture going forward.

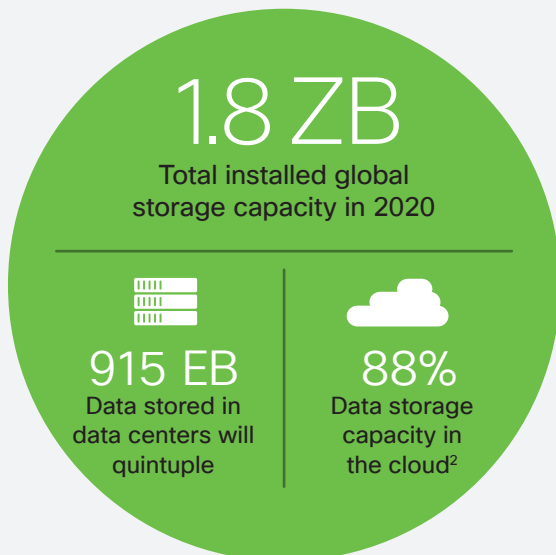
According to the Cisco Global Cloud Index, big data will reach 247 exabytes by 2020, up almost 10-fold from 25 exabytes in 2015. And big data alone will represent 27 percent of data stored in data centers by 2020.³

A new kind of investment

That's a whole lot of growth. So it shouldn't come as a surprise that half of the individuals polled during the AFCOM Data Center Management Report: State of the Data Center Survey 2015 said they had plans to upgrade their data centers. And 45 percent said they planned to build new data centers.⁴

Meanwhile, Forrester in September 2016 said it expects the public cloud market to reach US\$236 billion in 2020.⁵ And Gartner believes the cloud shift will affect more than \$1 trillion in spending by 2020.⁶

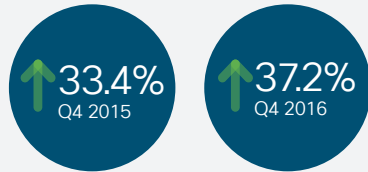
“Considering the tectonic shifts affecting the overall data center landscape, the worldwide market for data center networking will demonstrate commendably steady growth through 2019,” says Brad Casemore, research director of data center networks at IDC. “The greatest growth will be found in public and private clouds, respectively, and vendors will have to address the migration of value from hardware to software, as SDN and network virtualization gain traction.”⁷



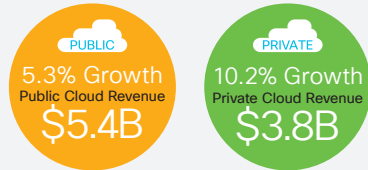
1. Cisco Systems, "Cisco Global Cloud Index: Forecast and Methodology, 2015-2020," November 2016. <http://www.cisco.com/c/dam/en/us/solutions/collateral/service-provider/global-cloud-index-gci/white-paper-c11-738085.pdf>
2. Ibid.
3. Ibid.
4. AFCOM, "AFCOM's 2015 State-of-the-Data Center Survey"
5. Forrester, "The Public Cloud Services Market Will Grow Rapidly To \$236 Billion In 2020," September 2016, <https://www.forrester.com/report/The+Public+Cloud+Services+Market+Will+Grow+Rapidly+To+236+Billion+In+2020/-/E-RES132004>
6. Gartner, "Gartner Says by 2020 'Cloud Shift' Will Affect More Than \$1 Trillion in IT Spending," September 2016, <http://www.gartner.com/newsroom/id/3384720>
7. IDC, "Worldwide Datacenter Network Forecast, 2015-2019," <https://www.idc.com/getdoc.jsp?containerId=US40640815>

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Cloud IT infrastructure sales as share of overall worldwide IT spending⁸



Revenue growth from infrastructure sales in public and private cloud⁸



Meanwhile, revenue in the non-cloud IT infrastructure segment decreased 9 percent year over year in the fourth quarter.⁸ While overall investment in traditional data centers remains large, spending continues to be focused on modernizing existing applications and underlying infrastructure, in support of business needs and improved ROI.

Clearly, we're living in a time where great flexibility is needed. And there's a lot of investment in both private and public clouds, creating the need for hybrid data center infrastructure that can incorporate traditional data center requirements.

Both enterprises and cloud service providers are looking to invest in data center solutions that allow them to take full advantage of data across hybrid infrastructure and to gain business insights along with ease of management.

Companies that run business-critical applications on traditional data centers are modernizing applications and infrastructure to meet the needs of their customers. Common objectives in upgrading include:

- Improved scalability and availability
- Simplified operations
- The ability to incorporate data from cloud-based applications

The Cisco ASAP Data Center

That said, the time is right for a new kind of data center. One that can analyze, simplify, automate, and protect data supporting hybrid IT infrastructure needs.

We base this "ASAP" concept on the Cisco ASAP Data Center architecture. Let's take a closer look at each of the components in play within the ASAP Data Center.

Analyze

In today's digitized organization, the need has evolved from simply connecting devices. Businesses must now secure, aggregate, automate, and draw insights from data created by those devices. And it must be done in a way that supports new market opportunities and business models.

That helps explain why the majority of new data center infrastructure investments are for analytical and client-facing applications, as opposed to back-office systems such as enterprise resource planning. Through 2018, 65 percent of data center infrastructure investment will be for big data analytics, systems of engagement, and IoT applications, according to IDC.⁹

But, at the same time, data and analysis come into play from an internal perspective. The entire application and operational performance must be managed with integrated analytics that support granular visibility in real time, regardless of which data center or cloud the workload resides on.

That requires pervasive visibility into every flow, whether the data involved is running on containers, is using microservices, is part of a software-defined network, or exists in a virtualized environment. Pervasive visibility allows data centers to detect policy deviations in real time to help ensure compliancy, implement multi-cloud strategies, move to a zero-trust security model, and plan for an optimized disaster recovery model.

The Cisco ASAP Data Center can help enable all of that.

8. IDC, "Worldwide Cloud IT Infrastructure Spend Grew 9.2% to \$32.6 Billion in 2016, According to IDC," April 2017, <https://www.idc.com/getdoc.jsp?containerId=prUS42454017>

9. IDC, "IDC FutureScape: Worldwide Datacenter 2016 Predictions," November 2015, <http://www.idc.com/research/viewtoc.jsp?containerId=259808>

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Simplify

Along with cloud migration, a classic data center trend is the consolidation of multiple smaller data centers into larger ones. Consolidating data centers is made a lot easier by simplifying the infrastructure and the building blocks that make up the data center itself. This can be achieved with more efficient components for compute, storage, and networks, or with converged and hyperconverged infrastructure.

The goal is to help businesses become more agile and efficient, and to have access to resources on-demand. These resources must be scalable and simple to manage, and they must have a reasonable total cost of ownership—regardless of the size or applications involved.

Automate

One way the ASAP Data Center keeps costs under control and allows for simplicity is through automation.

In the software-defined data center, the infrastructure is virtualized and delivered as a service. Automation is pervasive. By creating and managing unified policies across all network, compute, storage, and security, you can help enable an on-demand, self-service provisioning environment for your teams' lines of business.

The benefits of data center automation include greater agility, lower human resource costs, and the ability for IT teams to focus on innovation rather than maintenance. Automation in the data center is such an important trend that IDC predicts 60 percent of companies will embrace it by 2018.

Protect

Security can keep both IT leaders and C-level executives up at night.

The ASAP Data Center addresses compliance, data center and network security, physical security, and security of data both in motion and at rest. And it does that consistently across the complete array of data center deployment models an organization employs.

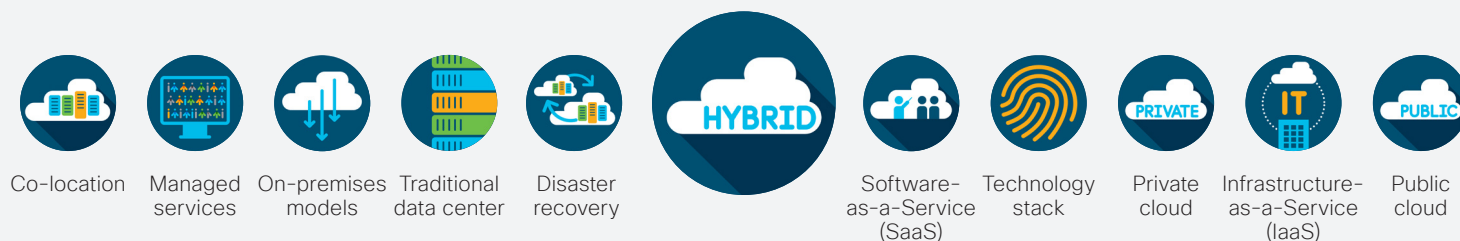
The hybrid model

That's important because, as noted earlier, many organizations are adopting the hybrid data center model to achieve digital transformation faster.

Adopting a hybrid model is beneficial because it allows organizations to deploy the appropriate IT model that supports the unique needs of each business while adopting more powerful, cost effective technologies that help organizations achieve their business goals.

To address these demands, Cisco has built the industry's best hybrid data center solutions to deliver business applications quickly, cost-effectively, and at scale. That helps organizations securely process data and workloads, extend policies on premises and in clouds, and deliver on application service level agreements (SLAs).

The hybrid model may include considerations for:



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By employing the Cisco ASAP Data Center approach, organizations can:

- Deliver infrastructure and operational services at the pace and scale of the cloud and DevOps
- Offer self-service, on-demand, secure infrastructure that can be deployed across the hybrid data center with the agility of the public cloud
- Increase application performance by using best-in-class technologies

The talent gap

Technology can clearly help organizations shift from using the data center to support existing initiatives to employing these resources for innovation. But having the necessary talent in place to make that happen is really the key.

Digital transformation talent is needed across the board.

There is plenty of opportunity for data analysts and scientists, as well as security experts. IoT experts are in short supply. So are people in IT, marketing, operations, and sales who have the skill sets and drive to face the new challenges and opportunities that digital transformation presents.

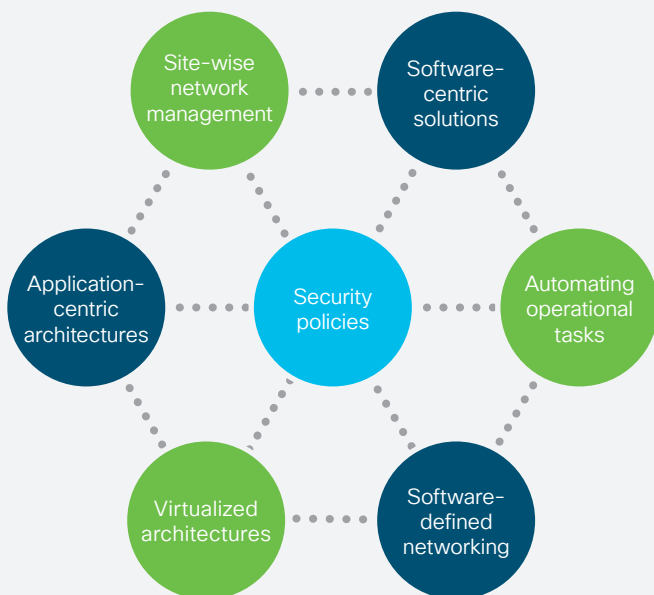
For the data center focused professional, this includes data center access, as well as implementing policies that span from individuals to enterprise-wide. Together, this complements the security specialists on the IT team.

Digital transformation has created a large and growing need for IT professionals who have the skills to harness the power of the ASAP Data Center. As the technologies have undergone tremendous advancements, the roles have also undergone massive shifts.

What's new is that experienced individuals should be well-versed in:

- Unified computing
- Virtualized architectures
- Site-wise network management
- Establishing application-centric architectures
- Helping to ensure a highly secure data center
- Automating to expedite provisioning of resources, make sure that security policies are implemented across the infrastructure, and speed routine operational tasks
- Creating and putting in place policies so that automation is possible
- Generally working with software-centric solutions, including containers, microservices, software-defined data center (SDDC), SDN, and virtualization.

Today's data center professionals should be well-versed in many areas:



The human Swiss Army knife

When it comes to hiring and talent development, traditionally the focus has been on specialized skills in such disciplines as compute, network, and storage. But today's digital environments call for people who understand a wider range of technologies. To fully take advantage of the open, programmable, policy-driven, and highly secure data center, adding new skills is paramount.

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That gets us to the heart of the matter.

Organizations need individuals who have a handle on new technologies and the new business models they help enable—and team members who can:

- Apply that knowledge with an eye on business goals
- Interact where needed with line-of-business or service providers on requirements, policies, and implementation
- Formulate operating processes that need to be put in place as a result
- Be able to explain all of the above to top management

That means any organization that employs these kinds of individuals is in a much better position to have a successful digital transformation than competitors without this type of talent. And it should be considered a call to action for those who wish to put themselves on track for upward mobility in the workplace.

How we can help

Experts will need skill sets to address automation and orchestration, policy-driven infrastructure, SDN, and unified computing at play in the next-generation data center. That's why [we recently revised our CCNA, CCNP, and CCIE Data Center certifications](#) for all levels of professionals working in data center environments.

And we recently introduced cloud, cybersecurity, and IoT certification programs. Enterprises can benefit from all of the above with faster deployments, more efficient data center operations, and higher returns on investment.

What we've learned

The digital transformation imperative has put cloud models and data center infrastructure as critical assets for achieving business transformation. That calls for businesses to rethink and reinvent what is possible within their data centers and throughout their businesses.

They can do that with the Cisco ASAP Data Center, plus talent that has the latest skills and knowledge.

They'll also need a new kind of workforce. One that is technologically savvy, has a broad base of knowledge, and is always ready to learn more.

For organizations, having the right talent in place can mean the difference between success and failure. Certifications can also add credibility with their clients.

As for individuals, acquiring new certifications provides the right skills to help them do their jobs better. It also demonstrates a willingness to evolve and an internal drive, both of which can fuel positive career developments.

At Cisco, we have deep experience in digital business transformation. This means we're the ideal partner to help organizations and individuals adapt and change to address new market realities, and to get in the best position for both near-term and long-term success.

Cisco is here to help you grow, learn, and innovate.

Improve your Data Center expertise

Cisco ASAP Data Center is opening a wide range of exciting career opportunities for professionals with the right digital transformation skills. Start improving your skills or those of your team today—with [Cisco Data Center certifications](#).

