

AN INFRASTRUCTURE IN THE CLOUD

A practical guide for enterprises as they start the journey to Infrastructure as a Service

Executive Summary

IT decision-makers at most enterprises understand the benefits that the cloud has to offer: increased agility and more predictable budgeting, among others. In many organizations, in fact, "cloud first" has become the mantra when seeking out new software solutions. But often, enterprises are less clear on the specific use cases of Infrastructure as a Service (IaaS) and how providers can help deliver IT capabilities that meet their needs and help them to achieve desired business outcomes.

As cloud computing matures, it's increasingly vital that enterprise IT decision-makers understand the potential advantages of utilizing IaaS solutions such as Microsoft Azure. Just as important is an understanding of how to strategically move resources to the cloud. For many enterprises, this understanding is achieved with the help of a trusted partner that can provide expert, in-depth advice and assist with each step of the process — from assessment and planning, to cloud migration and management of hosted services.

Table of Contents

2 The Value of IaaS

2 Before the Move

3 Making the Move

3 After the Move

The Value of IaaS

Flexibility. Scalability. Reliability. These terms come up in almost every discussion of cloud computing. But what do they really mean within the context of Infrastructure as a Service offerings, and how can these general benefits help enterprises meet specific business goals?

Essentially, the cloud allows IT shops to engage in low-risk development. IaaS can be thought of as "rented hardware" that enterprises can access instantly with little upfront cost, providing them with the computing, storage and networking functions for existing services or new projects.

As the cloud matures, more and more enterprises are utilizing solutions such as Microsoft Azure to launch projects in the cloud. Some examples of this include:

- **Diebold:** The automated teller machine manufacturer met its three-month time-to-market goal for a new application called Conductor by developing the app in the cloud with Microsoft Azure. The mobile application allows branch personnel to monitor ATM transactions in real time. Developing the application in the cloud allowed Diebold to create it quickly, without having to pause for physical infrastructure upgrades. The company elected to host the application in Azure once it was finished, a move that minimized the software it was required to download to various endpoints.
- **GE Healthcare:** A division of General Electric, GE Healthcare provides medical imaging, patient monitoring systems and other healthcare technologies to a global customer base. The organization was looking to create a flexible, scalable platform that could deliver a wide range of solutions and services, while also protecting patient information. Running solutions in the cloud allowed GE Healthcare to take advantage of Azure's compliance certifications and lowered operating costs. It also helped the organization to maintain its focus on business goals, rather than on managing its physical IT infrastructure.
- **3M:** A development team from the manufacturing giant used Azure to help create a new custom mobile app in a single weekend. After purchasing assets for parking, tolling and automatic license-plate reading, 3M needed a tracking application that would provide sales staff with real-time information about the type and location of the company's products in parking lots and garages. The integration of Azure with development tools such as Xamarin Studio and Visual Studio helped the team to complete the entire project in two days. 3M continues to run the application in Azure, in part, so it can be used by resellers that lack access to the company's internal network.

Before the Move

Many organizations have a general sense that they should consider locating new or existing services in the cloud, but decision-makers within the enterprise often aren't sure where to start. Many of these organizations find it beneficial to work with a trusted partner to catalog the enterprise's needs and plan for the transition. Cloud

THE COMPLIANT CLOUD



Regulatory compliance once was a barrier that prevented enterprises from moving resources to the cloud – now, it's a driver. As cloud providers have sought and obtained certification for various regulatory standards, a number of enterprises have come to rely on providers for compliance assurance, rather than managing compliance issues in-house.

Microsoft Azure has compliance programs for the following standards and regulations:

- ISO 27001/27002
- SOC 1/SSAE 16/ISAE 3402 and SOC 2
- Cloud Security Alliance CCM
- FedRAMP
- FISMA
- FBI CJIS (Azure Government)
- PCI DSS Level 1
- U.K. Government G-Cloud
- Australian Government IRAP
- Singapore MTCS Standard
- HIPAA
- EU model clauses
- Food and Drug Administration 21CFR Part 11
- FERPA
- FIPS 140-2

professionals at CDW can help organizations with each step in the preparation process, including the following:

- **Cloud readiness assessment:** During a cloud readiness assessment, CDW works with organizations to look for "red flags" that could cause trouble during a cloud migration. For example, some organizations may need greater network capacity to accommodate a solution that would allow them to access cloud resources.
- **Discovery:** This is a thorough exploration of an organization's IT environment, including its network, servers, storage and other appliances, as well as the workloads and applications that run in the environment. The discovery process helps decision-makers understand whether the enterprise has existing resources that aren't being fully utilized, or if it is operating near capacity.
- **Goals:** In order for a cloud migration to be successful, IT managers must first know what they hope the move will accomplish. The goal-setting process ensures that migrating services to a cloud provider such as Microsoft Azure will meet an organization's desired business outcomes. Goals might include increasing operational efficiency, decreasing (or slowing the growth of) the organization's physical IT footprint or facilitating the development of new applications.

- Consultation:** As a third party that works with multiple vendors, CDW is uniquely situated to provide comprehensive and detailed advice about which cloud provider – if any – can help an organization meet its goals. Rather than fielding sales calls from dozens of different vendors, IT decision-makers can partner with CDW professionals to learn which vendor has the ability to meet an enterprise's precise needs.
- Planning:** Once an enterprise has decided on a cloud provider, the next step is to plan a deployment strategy. This means deciding what resources to move to the cloud, as well as setting a timeline for the move.
- Design:** In this final, detail-intensive stage of the preparation process, the organization works with CDW to fully map out its migration.

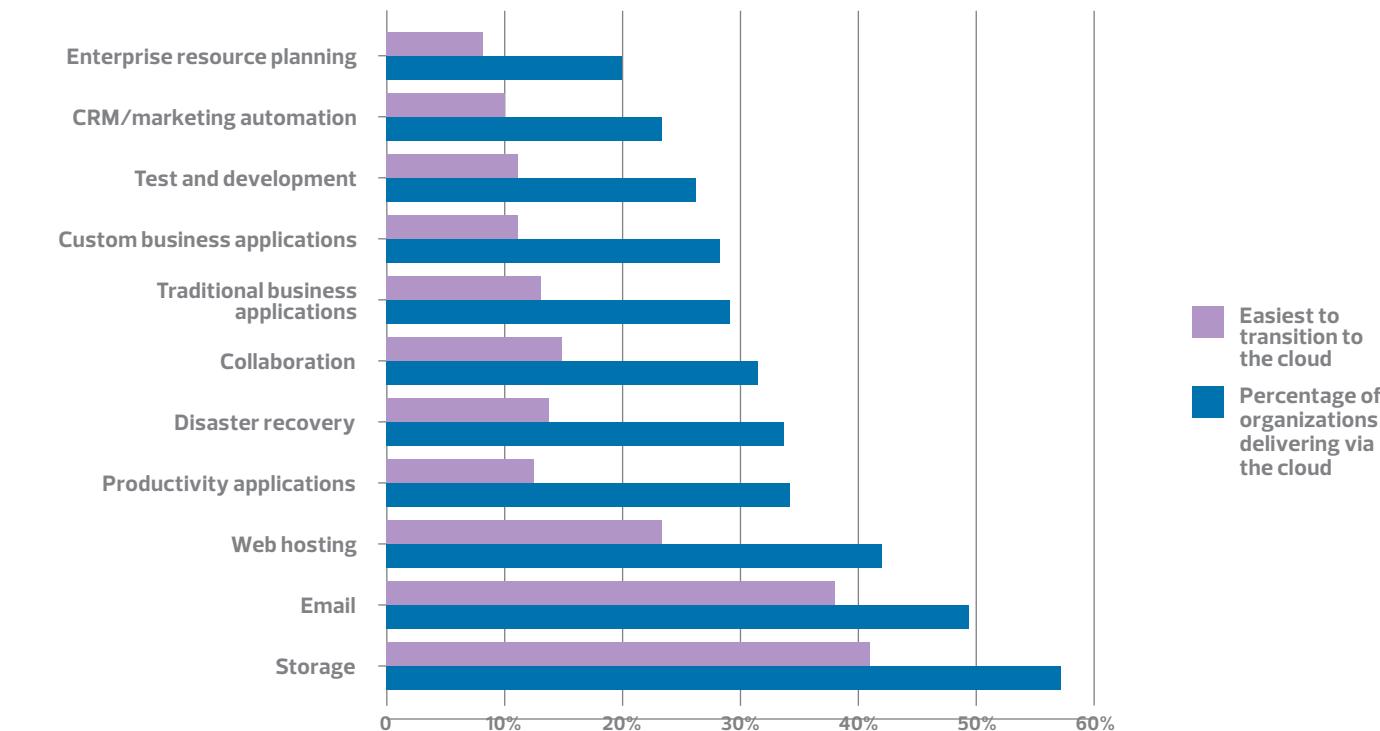
Making the Move

Once an enterprise has assessed its environment, set goals for its migration and created a new infrastructure plan, a partner such as CDW can help facilitate the actual move to the cloud. Among the services that CDW offers:

- Migration:** CDW can assist with converting legacy applications and workloads from local servers over to an IaaS provider. In certain cases, technical limitations may affect the move, or the environments may not quite match up. In these instances, CDW will often help the organization to restructure its applications, or to implement them anew in an IaaS platform such as Azure.

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The most prevalent IT services in the cloud are also the easiest to transition – storage, email and web hosting.



- Integration:** Often, an organization will want to continue to utilize onsite resources and integrate them with resources hosted in the cloud. CDW can help to ensure that this integration is seamless.
- Addressing risks and reducing downtime:** CDW works with enterprises to ensure that their environments are deployed in a way that leverages the high availability of cloud providers. The deployment also limits the exposure of an organization's resources to security threats (for example, by keeping certain hosted resources from accessing the Internet).
- Legal and regulatory concerns:** By working with a cloud provider that has been vetted by CDW, enterprises can feel confident that their chosen provider meets or exceeds the compliance standards that it advertises.
- Knowledge transfer/training:** During the migration process, CDW works with IT managers and others within an enterprise to educate them on the new IT environment. This education is especially vital for organizations that plan to manage their Azure services in-house, although many rely on a partner for this as well.

After the Move

Just as many enterprises find that moving infrastructure away from their physical IT environments can simplify and enhance their operations, some will also want to outsource the management of their IaaS solution in order to ensure optimal efficiency and reduce complexity within their organization.

After an enterprise's migration to cloud infrastructure, CDW can take the lead with the following management services:

- **Utilization monitoring:** One of the main benefits of IaaS providers such as Microsoft Azure is that enterprises pay only for the services they need. But there's a flip side to this: cloud providers make it easy for users to provision new resources that they may or may not end up using. If a user spins up a new server and utilizes it for only seven minutes before shutting it down, the organization pays only for seven minutes of use. That's a win. However, if that same worker utilizes that same hosted server for those same seven minutes – and then leaves it running for three months – the enterprise gets billed for that entire time.
- Especially in large organizations where many users have the authorization to provision cloud resources, it can become difficult to track which of these resources are actually helping an enterprise to meet its goals. CDW can monitor cloud utilization to ensure that paid-for resources aren't going to waste.
- **Metered billing:** CDW can help enterprises to see exactly what services they're paying for.
- **24/7 issue resolution:** Ideally, a move toward hosted services should simplify the life of IT managers, who may equate moving to the cloud with no longer being awakened in the middle of the night with pressing hardware issues. In reality, issues can pop up even with an IaaS model. Except with cloud management services provided by a trusted partner such as CDW, many of these issues can be resolved without disruption to workflows – or to an IT manager's sleep.
- **Case-based ticketing and escalation:** All issues are graded on severity when they are reported to one of CDW's enterprise command centers. Then, our analysts respond by resolving the issue themselves, bringing it to a specialist or notifying the customer if necessary.

To learn how CDW can help your organization migrate to Infrastructure as a Service, contact a CDW account manager, call 800-800-4239, or visit CDW.com/IaaS.



Microsoft® Azure™ is an open and flexible cloud platform that enables you to quickly build, deploy and manage applications across a global network of Microsoft-managed data centers. You can build applications using any language, tool or framework; and you can integrate your public cloud applications with your existing IT environment.

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▪ **Ongoing optimization:** With CDW's cloud management services, cloud architects don't stop analyzing an enterprise's environment after the migration is over. Instead, they continue to search for ways to optimize security, utilization and performance – ensuring that the customer experiences additional benefits of IaaS well into the future.

THE HYBRID CLOUD: A PIT STOP OR A DESTINATION?



As cloud computing has matured and enterprises have become more comfortable with it, more and more organizations are deploying new IT infrastructure with providers such as Microsoft Azure. But many of these enterprises also want to continue leveraging their existing onsite resources, resulting in a hybrid architecture. In fact, [according to IDC](#), more than 65 percent of enterprise IT organizations will commit to hybrid cloud technologies by 2016.

But is hybrid a long-term model, or simply a signpost on the path to full public-cloud utilization?

That depends on the organization and what it hopes to achieve by moving toward hosted services. For some, the cloud is merely a way to inexpensively accommodate peak computing times, or to create redundancy with resources that, for whatever reason, the enterprise prefers to keep in-house. These organizations may continue to utilize a hybrid architecture, even as others move more fully toward public cloud.

For other enterprises, a hybrid architecture is the result of a gradual replacement of infrastructure. These organizations will likely continue to move services to public cloud as their local infrastructure ages out, eventually resulting in a mostly cloud-based environment.

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