



Delivering Azure-consistent services from your data center

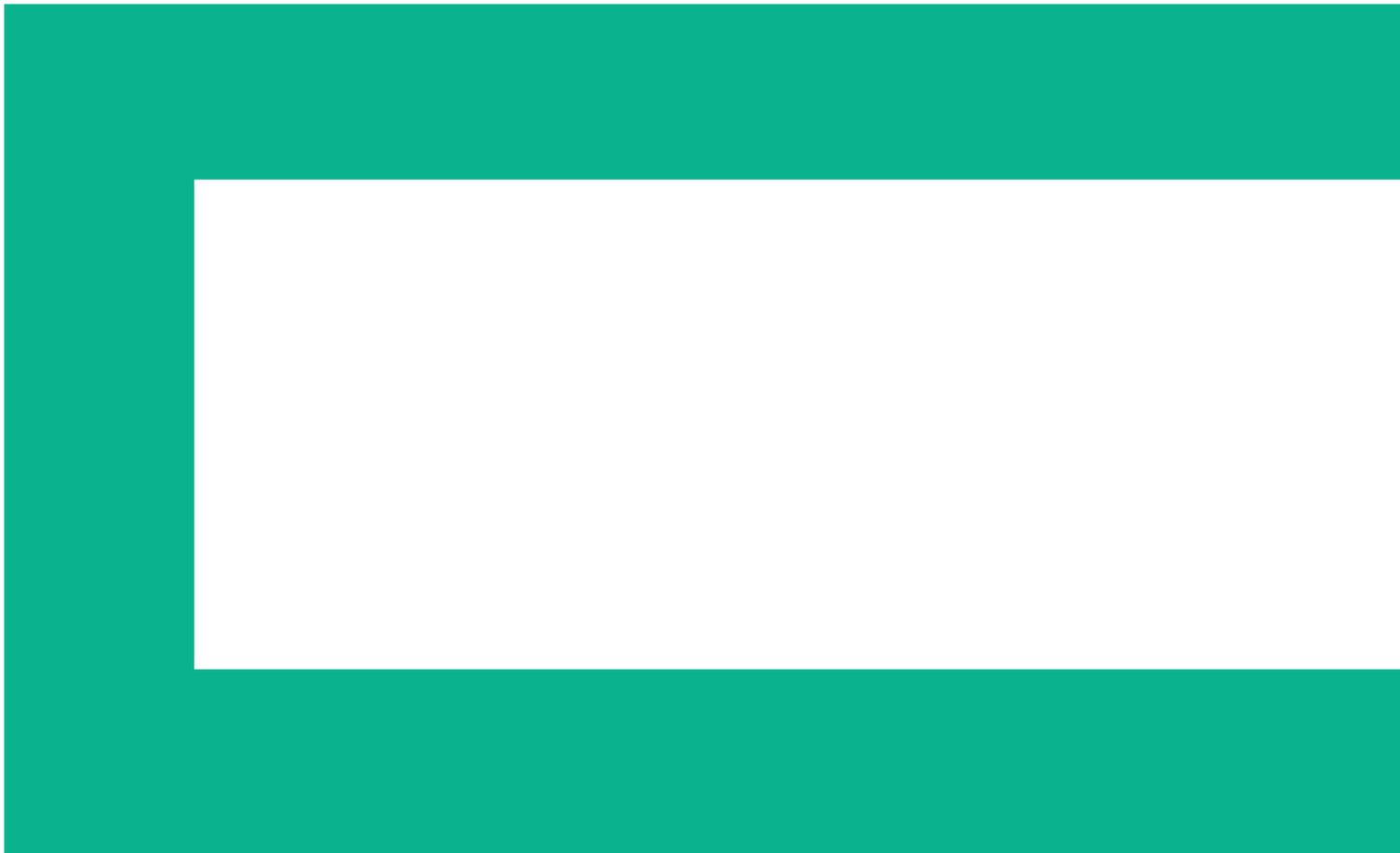




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Accelerate Hybrid IT adoption

IT departments across the globe are faced with the challenge of getting the best out of their legacy applications while investing in cloud-native apps as they build for the future. Are you delivering the Hybrid IT services your enterprise is looking for? Choosing the right mix of Hybrid IT allows you to always say “Yes” to line-of-business demands—at the speed of business—while increasing business agility and cutting costs.

The need for a new deployment model—Hybrid IT

With time to market critical to driving business growth, CIOs and CTOs are under huge pressure from lines of business to utilize new technologies that drive innovation and growth—while simultaneously reducing costs. Previously, public cloud was promoted as offering the right capabilities in terms of ease and agility, speed of access, scalability, and economics. But while it has its place, public cloud also has limitations in terms of compliance, latency, and security—resulting in almost two-thirds of enterprises scaling back or discontinuing use of public cloud services over the last two years as they shift workloads to on-premises, private cloud environments.¹

For example, think about an e-commerce app designed for a global audience. While the workload might be able to run in the public cloud in North America, Europe has data sovereignty regulations that might require all data to be kept either within the European Union or within the borders of a participating member state. Different regulations might apply in other parts of the world, and they need to be accommodated.

The solution? A model that encompasses a blend (or mix) of both traditional workload deployments and hybrid cloud resources—private cloud, managed cloud, and public cloud—that meets the needs of the workload. You need to choose the right deployment model at the right time, based on the lifecycle of the workload. And as you move through the lifecycle of the workload, you need the flexibility to move each workload across your **Hybrid IT** environment based on its specific requirements, such as agility, security, cost, control, and compliance. At HPE, we call that Hybrid IT.

The right mix for your Hybrid IT strategy

Creating the right Hybrid IT strategy allows you to leverage the best of traditional IT, private cloud, and public cloud to accelerate your business as you transform to a digital enterprise. But as enterprises make the move to Hybrid IT, they're faced with a number of choices that need to be addressed for the benefits of Hybrid IT to be realized.

¹ **Hybrid IT: Keeping Your Balance Among The Clouds**, Forbes, November 2016.



Some of the questions that need to be answered are: Is the workload cloud native or based on existing infrastructure? What characteristics—agility, latency, scalability, and cost—are required for the workload to meet its objectives in terms of business value? What compliance and security requirements need to be met? What's the best deployment model for each phase of the lifecycle—development, testing, and production? On- or off-premises? Traditional IT or cloud? Private or public cloud? Infrastructure as a service (IaaS), software as a service (SaaS), or platform as a service (PaaS)? Single-cloud or multi-cloud?

HPE has the expertise, experience, resources, and solutions to help you define, power, and optimize your right mix of Hybrid IT. We'll help you build a road map to Hybrid IT that encompasses traditional IT—for workloads that either can't be moved to cloud or don't belong there—and new, cloud-native apps as well as everything in between.

Delivering business agility and workload portability

To address the needs of various workloads, 85% of enterprises are pursuing a multi-cloud strategy, with each running workloads in an average of 1.8 public clouds and 2.3 private clouds.² According to the 451 Research Voice of the Enterprise: Cloud Transformation survey that tracks disruption in the cloud marketplace, Microsoft® Azure® was the fastest growing cloud platform in 2016 with 116% growth in revenues—compared to just 55% for Amazon Web Services (AWS)—in a \$22 billion market.³

Techaisle's Hybrid Cloud Adoption Trends report cites a number of reasons why Microsoft Azure is rapidly becoming the platform of choice for hybrid cloud adoption. These include Microsoft's vision and focus on innovation, strong customer relationships, Azure integration with existing Microsoft software, integrated IaaS and PaaS capabilities, history of running global internet platforms, deep investments in engineering, and aggressive road map.⁴

As a result, over 85% of Fortune 500 companies use Microsoft Cloud, customer subscriptions are growing at a rate of 120,000 per month, there are over 715 million Azure Active Directory® users, and over 150 billion Azure SQL queries are processed every day across 34 Azure regions around the world—and that's only in Microsoft's public cloud environment.⁵

62% of organizations say they believe deploying workloads to the cloud will increase business revenue.

– “Best Practices For Workload Placement in a Hybrid IT Environment,” 451 Research, December 2016.

Microsoft Azure Stack—Delivering a true hybrid cloud

To address concerns surrounding security, data privacy, and data sovereignty, Microsoft Azure Stack is a new hybrid cloud platform that enables you to deliver Azure-consistent services within your own data center. It provides the power and flexibility of public cloud services, but under your control to ensure the performance and security your business needs.

As an extension of Azure, Azure Stack offers services in an on-premises hybrid cloud environment under your control. By enabling a consistent and flexible hybrid cloud environment, your developers can leverage the same tools and processes to build apps for both hybrid and public cloud, and then deploy them to the optimal target platform that best meets your business, regulatory, and technical requirements. It also allows you to accelerate development by using pre-built solutions from the Azure Marketplace, including many open source tools and technologies.

² “Cloud Computing Trends: 2017 State of the Cloud Survey,” RightScale, February 2017.

³ “Voice of the Enterprise: Cloud Computing,” 451 Research, 2017.

⁴ “Microsoft Azure is becoming Cloud platform of choice,” Techaisle blog, August 2016.

⁵ “Microsoft Azure's Evangelist: 120,000 New Subscribers Monthly,” Channel Partners, April 2017.

Azure Stack allows you to deploy and operate both infrastructure-as-a-service (IaaS) and platform-as-a-service (PaaS) services using the same tools and offering the same experience as Azure public cloud. Taking virtualization to the next level, Azure IaaS leverages the capabilities of Virtual Machine Scale Sets with true autoscaling, enabling you to quickly build, deploy, and scale modern apps including containerized workloads. At the same time, Azure-consistent services enable hybrid deployment and portability of fully managed PaaS (Azure App Service) and serverless computing (Azure Functions) apps in your own data center.

To help you get up and running quickly, Azure Stack is available as an integrated solution through a select group of Microsoft partners. But to help you maximize the benefits of Azure Stack, you need to choose the right partner to support your business needs.

Common enterprise use cases for Azure hybrid cloud

Microsoft has specifically designed Azure Stack as a unique offering to address many of the challenges that businesses face today. While the list below is by no means exhaustive, it includes the key use cases relevant to enterprise organizations.

Ensure compliance, data sovereignty, and security

While many organizations enjoy the ease, flexibility, and cost model of a public cloud, they're hesitant when it comes to using it for specific applications and data. Azure Stack is designed to address those concerns. It provides easy access to services that must meet specific compliance, data sovereignty, and security requirements.

Going back to our original example in the introduction of this white paper, Europe has data sovereignty regulations that require data to be kept either within the European Union or within a country's borders. Azure Stack enables you to run the same service across multiple countries—as you would using a public cloud—but meet data sovereignty requirements by deploying the same application in data centers located in each country, thereby ensuring personal data is kept within that country's borders.

Maximize performance

If your applications—such as analytics—demand extremely high levels of performance, public cloud may not offer the results you're looking for.

For example, using public cloud to analyze large sets of data located in your data center requires that you first upload the data. But that may take a long time and not return the results as quickly as you need to give you the competitive edge. Public cloud may also not meet your expectations if your applications require low or consistent latency. In both cases, running your workload in an Azure Stack environment offers the performance you need—under your control.

Connect edge and disconnected applications

In some cases, you may be running applications either on the edge or ones that disconnect from your data center for a period of time.

Some examples of applications that disconnect for a period of time are those that run on cruise ships in a mini data center to manage the operations of the ship. When the ship is in port, the mini data center on the ship is connected to the main data center. But when the ship is at sea, the mini data center runs disconnected from the main data center. Rather than having to wait to analyze data when the ship returns to port, running Azure Stack enables cruise companies to do local, onboard analysis of the data. Results can then be uploaded to the main data center upon docking.



Accelerate modern application development

Today, modern applications—or cloud-native applications—are developed to run as microservices in many different environments. Developers don't want to have to use a different set of development tools for different microservices just because they run in a different environment. The fastest and most efficient option is to develop applications using a consistent set of tools and then deploy the application to wherever it's required.

Azure Stack and Azure are API-compatible, eliminating that concern. A common API allows developers to develop applications once, and then easily deploy them to either Azure public cloud or Azure Stack running in a private cloud, with no changes to the application.

Accelerating Hybrid IT with HPE ProLiant for Microsoft Azure Stack

For more than 30 years, HPE and Microsoft have been helping their joint customers optimize their IT environment, leverage new consumption models, and accelerate their desired business outcomes.

HPE ProLiant for Microsoft Azure Stack—a pre-tested, factory-integrated hybrid **cloud solution**—reflects HPE and Microsoft's common cloud vision. It allows you to quickly transform your on-premises data center resources into flexible hybrid cloud services—providing a faster, easier, and simpler development, management, and security experience that's consistent with Azure public cloud services.

Co-engineered by **HPE** and Microsoft, the solution enables you to rapidly deploy apps across your Azure Stack private cloud and Azure public cloud, and then easily move those apps as your security, compliance, cost, and performance requirements change as your business grows.

Built on the HPE ProLiant DL380 third-party switches Server, HPE ProLiant for Microsoft Azure Stack is your complete compute, storage, networking, and software cloud solution. The HPE ProLiant for Microsoft Azure Stack hybrid cloud solution is designed to help both enterprises and service providers realize the best that Hybrid IT has to offer—the agility, simplicity, and economics of public cloud combined with the performance, security, and control of an on-premises private cloud.

HPE ProLiant for Microsoft Azure Stack

Deliver Azure-consistent services from your data center

Common developer experience for Azure and Azure Stack simplifies app development	Multiple configuration options (processors, memory, storage, nodes)
Workload portability across Azure and Azure Stack	Multiple packaging options
Integrated system management simplifies operations (HPE OneView)	Multiple financing options (capital purchase, pay as you go, leasing)
Single vendor support minimizes downtime	Multiple sourcing options (HPE, HPE & Microsoft, direct CSP, indirect CSP)



* Available when HPE is the Microsoft cloud service provider (CSP) of record

Figure 1. Accelerate time to market with an Azure-consistent developer experience in a Hybrid IT environment



Unique capabilities for deploying Microsoft Azure Stack

While Azure Stack delivers Azure-consistent services in your own hybrid cloud, HPE ProLiant for Microsoft Azure Stack makes it easy to get up and running quickly with unique options and capabilities to help ensure a fast, smooth, and affordable deployment. The **HPE ProLiant for Microsoft Azure Stack** solution is more configurable than competing solutions to meet the specific needs of your workload, and includes integrated management to help identify and address issues faster.

HPE ProLiant for Microsoft Azure Stack provides you with:

- A high-quality solution built by two of the biggest names in the industry—HPE and Microsoft—with the HPE ProLiant DL380 Server as the foundation
- HPE OneView—a powerful infrastructure automation tool that enables you to proactively manage compute, storage, and networking to meet the needs of your workloads
- A configurable solution that seamlessly scales to meet application requirements with the option to choose the best processor, memory, or storage for the use case
- HPE Pointnext to help you plan and implement all of your Azure hybrid cloud projects including security, workload migration, identity management, backup and site recovery, and networking
- Global, enterprise-class support with remote monitoring and management, and single point of contact to help make your cloud journey as smooth as possible
- HPE | Microsoft Innovation Centers—located in Washington, Switzerland, and Singapore—where HPE and Microsoft experts are waiting to discuss business planning, technical deployments, or implementing a proof-of-concept to help test your use cases and prove the value of Azure Stack for your business

Simplifying your Azure Stack deployment with HPE Pointnext

HPE has trained thousands of HPE Technology Consultants—with extensive Azure, Azure Stack, and hybrid cloud experience—to help you define and implement your right mix of public cloud, private cloud, and traditional IT, offering a customized, step-by-step transformation to Azure hybrid cloud.

HPE Pointnext is an innovative IT services organization specifically created to simplify your journey to Hybrid IT and power the Intelligent Edge. As an agile technology partner, HPE Pointnext can help you modernize your legacy infrastructure, give you cloud flexibility in all your environments, and drive rapid transformation across your enterprise—all on your own terms.

HPE Pointnext can also meet your needs for global, enterprise-class support. HPE Proactive Care helps prevent issues before they impact your business, while HPE Datacenter Care provides end-to-end support for your Hybrid IT environment.

Your foundation for delivering Azure Stack services—HPE ProLiant for Microsoft Azure Stack

The hybrid cloud platform you need to quickly and easily:

- Deploy applications across Azure public and private clouds
- Support multiple use cases for moving existing apps to the cloud, or developing and deploying cloud-native apps
- Meet agility, compliance, performance, security, and cost requirements
- Use the same Azure APIs to migrate apps between private and public clouds
- Improve IT and developer productivity with a consistent development, management, and security experience



Deliver Azure-consistent services—fast

HPE ProLiant for Microsoft Azure Stack provides an opportunity to partner with HPE and accelerate the deployment of Microsoft Azure Stack for the rapid delivery of hybrid cloud services you need to drive business growth.

As a pre-integrated, factory-built, hybrid cloud solution, HPE ProLiant for Microsoft Azure Stack accelerates deployment and simplifies scaling, enabling you to deliver the agility and accelerated time to market your business is looking for—fast. It leverages the power of HPE with full opportunity lifecycle support, including consumption-based pricing, pre- and post-sales consulting and professional services, and collaborative marketing.

As a bonus, HPE and Microsoft's unique Azure Stack partnership includes access to the HPE | Microsoft Azure Stack Innovation Center, where you can take advantage of hybrid cloud experts to test your use cases.

Whether you're just beginning or well on your way in your cloud journey, HPE can help you deploy the right mix of Hybrid IT services to deliver on-premises, Azure-consistent services, and realize the business outcomes you desire.

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