

# Microsoft Cloud Services and Platform Options

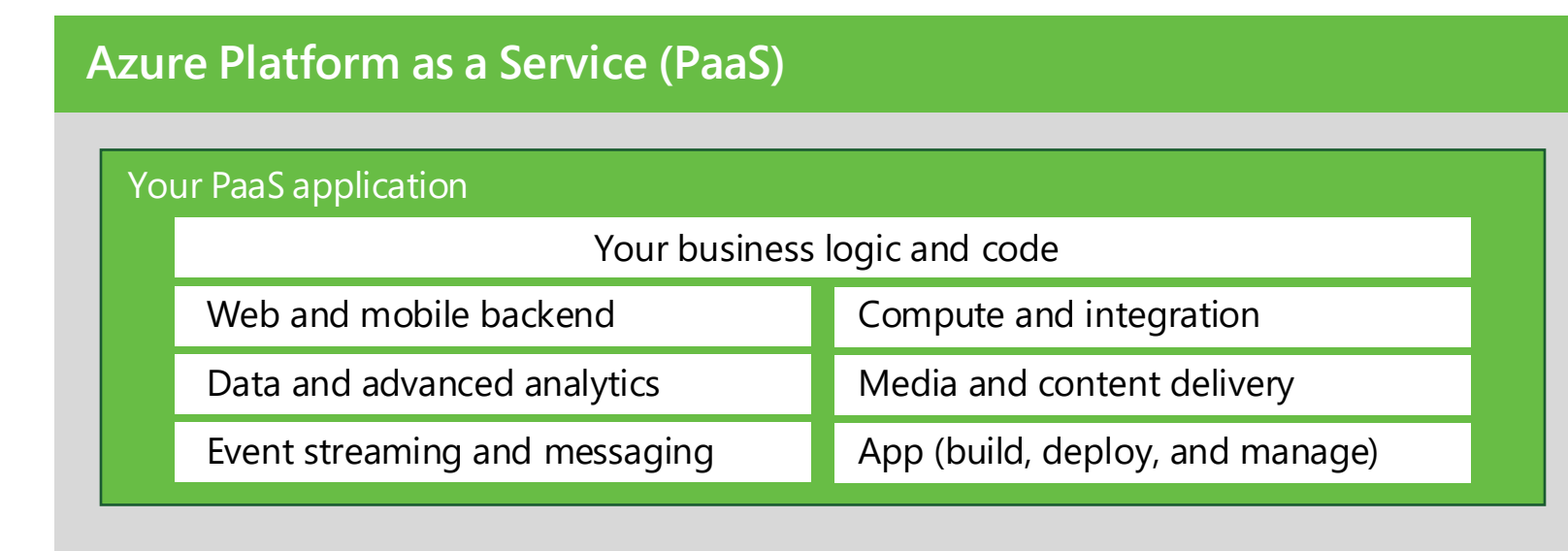
# What IT decision makers and architects need to know about Microsoft cloud solutions

## Microsoft SaaS Services

Software as a Service (SaaS)	
Office 365 — Office Exchange SharePoint Lync, Skype for Business OneDrive for Business Office Delve Project	OneDrive for Business Yammer Microsoft Dynamics CRM Microsoft Intune

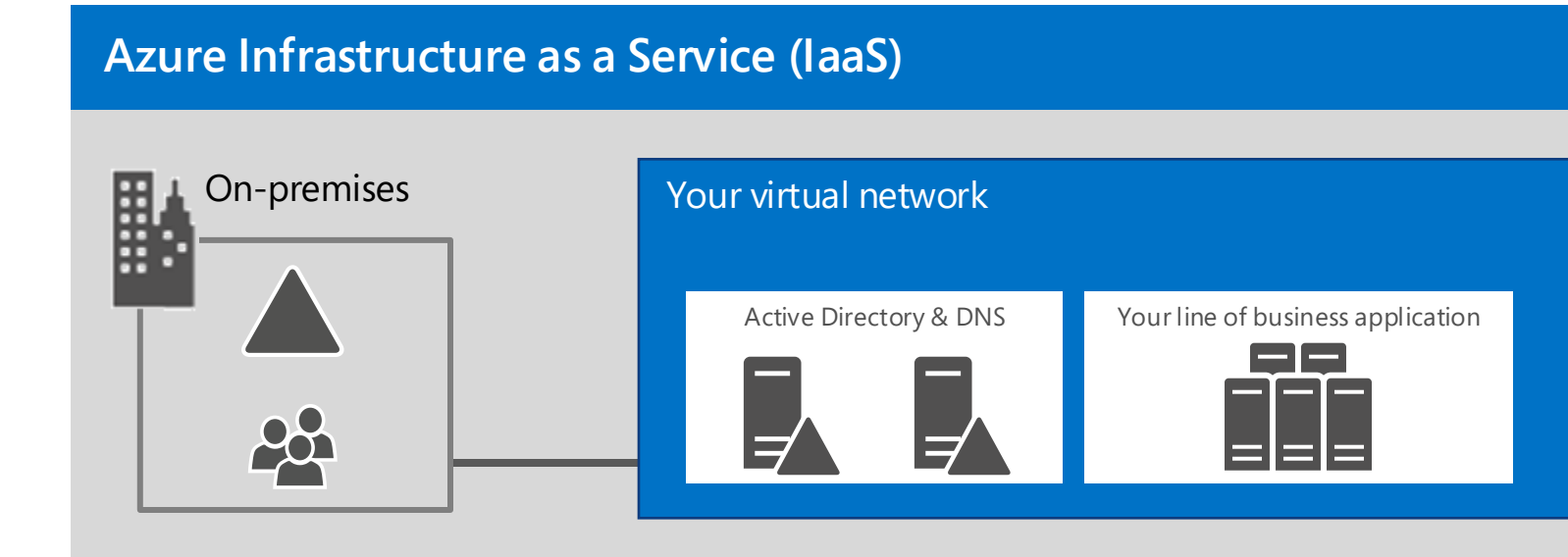
- Taking advantage of productivity workloads provided in the cloud is a first step for many enterprise organizations.
- Get started quickly.
  - Rich feature set is always up to date.
  - Frees organizations to focus IT resources on strategic applications.
  - Includes a Microsoft Azure Active Directory tenant for use with other Microsoft cloud services.

## Microsoft Azure PaaS



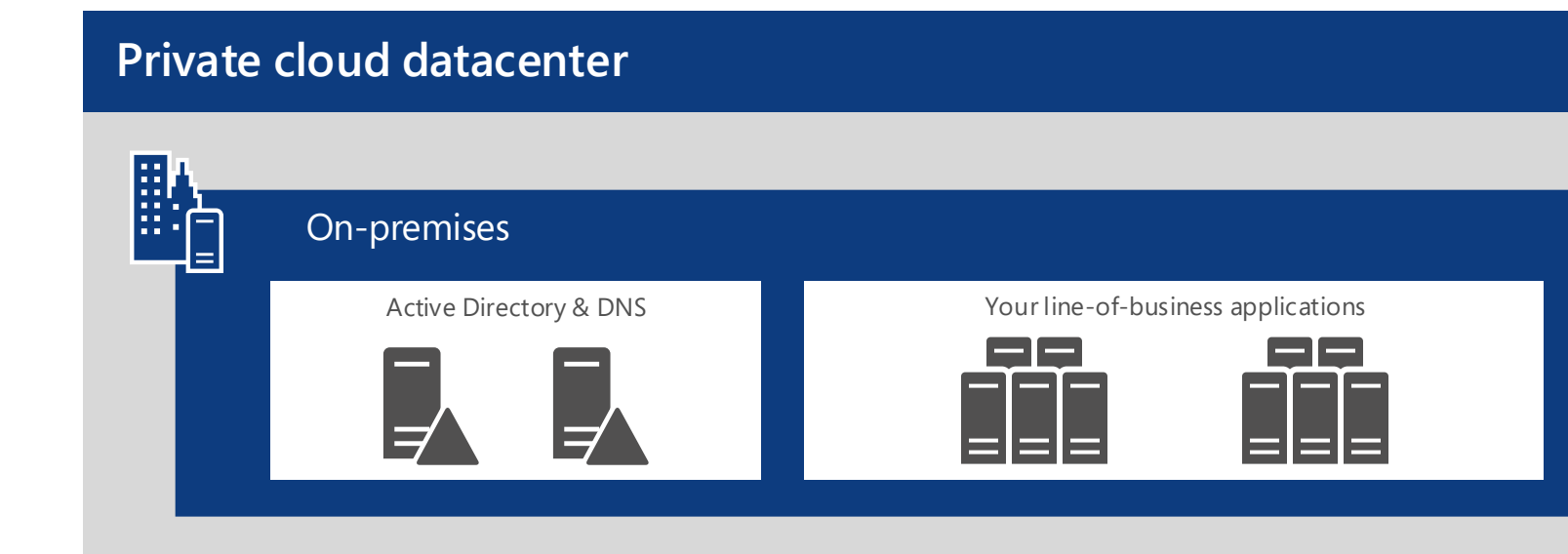
- Use the Azure PaaS open and flexible platform to quickly build, deploy, and manage cloud-enabled applications across the global network of datacenters managed by Microsoft.
- Build modern applications and focus on functionality instead of infrastructure.
  - Build applications that are not possible on-premises.
  - Support for many programming languages including .Net, Java, PHP, Ruby, Node.js, Python, and more.
  - Choice of frameworks including .Net, ExpressJS, Rails, Zend, and more.

## Microsoft Azure IaaS



- Extend your IT infrastructure to the cloud by using Azure compute, storage, and networking features and resources.
- Combine Azure IaaS with Azure PaaS features as you move existing workloads to the cloud.
  - Create, resize, and decommission virtual machines in minutes for dev and test scenarios.
  - Reduce your on-premises servers and your overall datacenter costs.
  - Plan, size, and scale your infrastructure to support your long-term cloud adoption plans.

## Private cloud



- Private cloud datacenters excel at hosting services that remain on-premises to support hybrid cloud solutions. Organizations that excel with private cloud IaaS capabilities can benefit from taking this approach with a broader portfolio.
- Combines Windows Server, System Center, and other Microsoft technologies to provide a private IaaS environment.
  - Provides the benefits of IaaS but on your terms with dedicated resources, complete control, greater potential for customization, and greater datacenter efficiency.

### Overview

### Core capabilities

<b>Office 365</b> Enterprise cloud productivity and collaboration services	<b>Yammer</b> Enterprise cloud social networking
<ul style="list-style-type: none"> <li>• Office</li> <li>• Exchange</li> <li>• SharePoint</li> <li>• Lync, Skype for Business</li> <li>• OneDrive for Business</li> <li>• Office Delve</li> <li>• Project</li> </ul>	<b>Microsoft Dynamics CRM</b> Enterprise cloud customer relationship management
<b>OneDrive for Business</b> File storage and synchronization for enterprises	<b>Microsoft Intune</b> Enterprise cloud PC and mobile device management
<b>Azure Active Directory</b> Provides an identity and access management solution: directory services, identity governance, security, and application access management.	<b>Azure Multi-Factor Authentication</b> Used with Azure Active Directory, it allows you to safeguard access to data and applications while employing a simple sign-in process.

Microsoft Azure PaaS is a growing collection of integrated services—compute, storage, data, app, and networking—that helps you move faster, do more, and save money.	
<b>Azure Web Apps</b> Build websites with .Net, PHP, Python, Java, or Node.js and deploy in seconds.	<b>Azure Mobile Services</b> Create highly functional mobile apps that can access backend capabilities.
<b>Azure Storage</b> Massively scale storage in different types. Manage SQL databases as a service. Secure and dedicated Redis cache.	<b>Azure Stream Analytics</b> Perform real-time stream processing in the cloud for Internet of Things solutions. Create dashboards and alerts.
<b>Azure Compute</b> Quickly deploy and manage multi-tier apps. Achieve continuous availability.	<b>Azure Logic Apps</b> Develop powerful integration solutions with SaaS and enterprise applications.
<b>Azure Media Services</b> Encode, store, and stream video and audio at scale. Deliver content globally.	<b>Azure API Apps</b> Expose and your application its APIs to your SaaS and enterprise applications.

Microsoft Azure IaaS includes network services and virtual machines. These services can be combined with any PaaS services.	
<b>Virtual Network</b> Provision and manage virtual networks in Azure and securely link to your on-premises IT infrastructure.	<b>Virtual Machines</b> Create new virtual machines or create and upload your own to create pre-configured virtual machines.
<b>ExpressRoute</b> Connects on-premises infrastructure directly to the Microsoft network that contains Azure datacenters, without using the Internet.	<b>Traffic Manager</b> Load balance incoming global traffic across multiple services running in the same or different datacenters.
<b>Manage your environment using the Azure portal, Azure PowerShell, or the Azure Command Line Interface (CLI).</b>	

<b>Windows Server</b> Delivers an enterprise-class, multi-tenant datacenter and cloud infrastructure.	<b>System Center</b> Unified management across on-premises, service provider, and Microsoft Azure environments.
<b>Generation 2 Virtual Machines</b> Advanced virtual machine features.	<b>Virtual Machine Manager (VMM)</b> Configure and manage virtualization hosts, networking, and storage resources for private clouds.
<b>Hyper-V Replica</b> Provides asynchronous replication of Hyper-V virtual machines between two hosting servers.	<b>App Controller &amp; Service Manager</b> Provide application self-service — Delegate authority to users to create applications and cloud environments.
<b>Live Migration</b> Move a running virtual machine from one physical server to another without interruption of service.	<b>Configuration Manager</b> Manage PCs & servers, setting configuration and ensuring compliance with security policies.

### Best for...

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|---|--|---|--|--|---|---|---|
| <p>All productivity workloads:</p> <ul style="list-style-type: none"> <li>• Organization-wide email</li> <li>• Instant messaging, video conferencing</li> <li>• Sharing organization data, team sites, project sites</li> <li>• Secure cloud-storage for business documents</li> <li>• Desktop and cloud-based applications that are always up to date</li> </ul> | <p>Enterprise-wide, private social networking:</p> <ul style="list-style-type: none"> <li>• Share information across teams &amp; projects</li> <li>• Connect to the right people</li> </ul> <p>Manage mobile devices, PCs, and applications from the cloud</p> <p>Manage customer relationships, including sales, service, and marketing</p> | <ul style="list-style-type: none"> <li>• Mobile applications</li> <li>• Hybrid cloud storage with StorSimple</li> <li>• Media streaming</li> <li>• Big data solutions using HD Insights</li> <li>• Machine learning and other advanced analytics scenarios</li> <li>• B2B e-commerce</li> </ul> | <ul style="list-style-type: none"> <li>• Scalable web portals and sites</li> <li>• Multichannel marketing</li> <li>• E-commerce website</li> <li>• Gaming apps</li> <li>• Video archiving</li> <li>• Internet of Things (IoT) solutions</li> </ul> | <ul style="list-style-type: none"> <li>• Development and test environments</li> <li>• Disaster recovery of on-premises solutions</li> <li>• Big data solutions using HDInsight</li> <li>• SAP solutions</li> </ul> | <ul style="list-style-type: none"> <li>• SQL Server test, backup, and disaster recovery</li> <li>• Power BI solutions</li> <li>• Windows Server 2003 end of support migration</li> <li>• Datacenter expansion or replacement</li> </ul> | <ul style="list-style-type: none"> <li>• Running core network services to support hybrid cloud environments: <ul style="list-style-type: none"> <li>• Windows Server Active Directory</li> <li>• Domain Name System (DNS)</li> <li>• Windows Server Update Services</li> <li>• Microsoft System Center 2012 R2 Configuration Manager</li> </ul> </li> <li>• Compliance with data sovereignty, privacy, and regulatory requirements</li> </ul> | <ul style="list-style-type: none"> <li>• Legacy applications</li> <li>• Implementing a chargeback process based on consumption for business units in your organization</li> <li>• Providing delegated authority and tools to implement a self-service model</li> <li>• Constructing and spanning cloud environments across multiple datacenters, infrastructure, and service providers</li> </ul> |
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### Required skills

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|---|--|--|--|---|---|---|
| <p>Plan and implement:</p> <ul style="list-style-type: none"> <li>• Identity integration with your on-premises Windows Server Active Directory</li> <li>• Network connectivity (Internet or ExpressRoute for Office 365 and Dynamics CRM Online)</li> <li>• Data governance and security policy</li> <li>• Administrative privilege management</li> </ul> | <p>Design and develop modern applications using cloud principles</p> <p>Developer and operations resources</p> <p>Application lifecycle management</p> | <p>Plan and implement:</p> <ul style="list-style-type: none"> <li>• Identity integration</li> <li>• Network connectivity (Internet or ExpressRoute)</li> <li>• Data governance and security policy</li> <li>• Administrative privilege management</li> </ul> | <p>Re-architect applications for the cloud</p> <p>Design and implement network integration:</p> <ul style="list-style-type: none"> <li>• Datacenter sites, IP addressing, route configuration</li> <li>• Cross-premises Azure virtual network connectivity with a site-to-site VPN connection or ExpressRoute</li> </ul> | <p>Patch and update operating system and applications</p> <p>Plan and implement:</p> <ul style="list-style-type: none"> <li>• Identity integration</li> <li>• Data governance and security policy</li> <li>• Administrative privilege management</li> </ul> | <p>Plan hardware and software, design and implement core networking, storage, and compute capabilities</p> <p>Address different types of availability, scalability, and performance needs</p> <p>Anticipate and mitigate security risks and vulnerabilities</p> | <p>Manage and operate the private cloud infrastructure:</p> <ul style="list-style-type: none"> <li>• Define virtual machine sizes available for self-service provisioning</li> <li>• Define and measure SLAs</li> <li>• Monitor infrastructure and services</li> <li>• Consumption billing to business units</li> </ul> |
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## Balance of responsibility

The balance of control and responsibility for managing solutions depends on the category of the service. The following chart summarizes the balance of responsibility for both Microsoft and the customer.

	SaaS	PaaS	IaaS	On prem
Data governance & rights management	Microsoft	Customer	Customer	Customer
Client endpoints	Microsoft	Customer	Customer	Customer
Account & access management	Microsoft	Customer	Customer	Customer
Identity & Directory Infrastructure	Microsoft	Customer	Customer	Customer
Application	Customer	Customer	Customer	Customer
Network controls	Customer	Customer	Customer	Customer
Operating system	Customer	Customer	Customer	Customer
Physical hosts	Customer	Customer	Customer	Customer
Physical network	Customer	Customer	Customer	Customer
Physical datacenter	Customer	Customer	Customer	Customer

## Microsoft IT moves its workloads to the cloud

Microsoft IT completes its migration to the cloud in 2015

- Modernization and efficiency demands are driving Microsoft IT to a "cloud first" strategy.
- Two datacenters are closing in the near future, leases on others will expire.
  - Thousands of servers are reaching end of life (EOL), with replacement requiring \$200 million over the next five years.

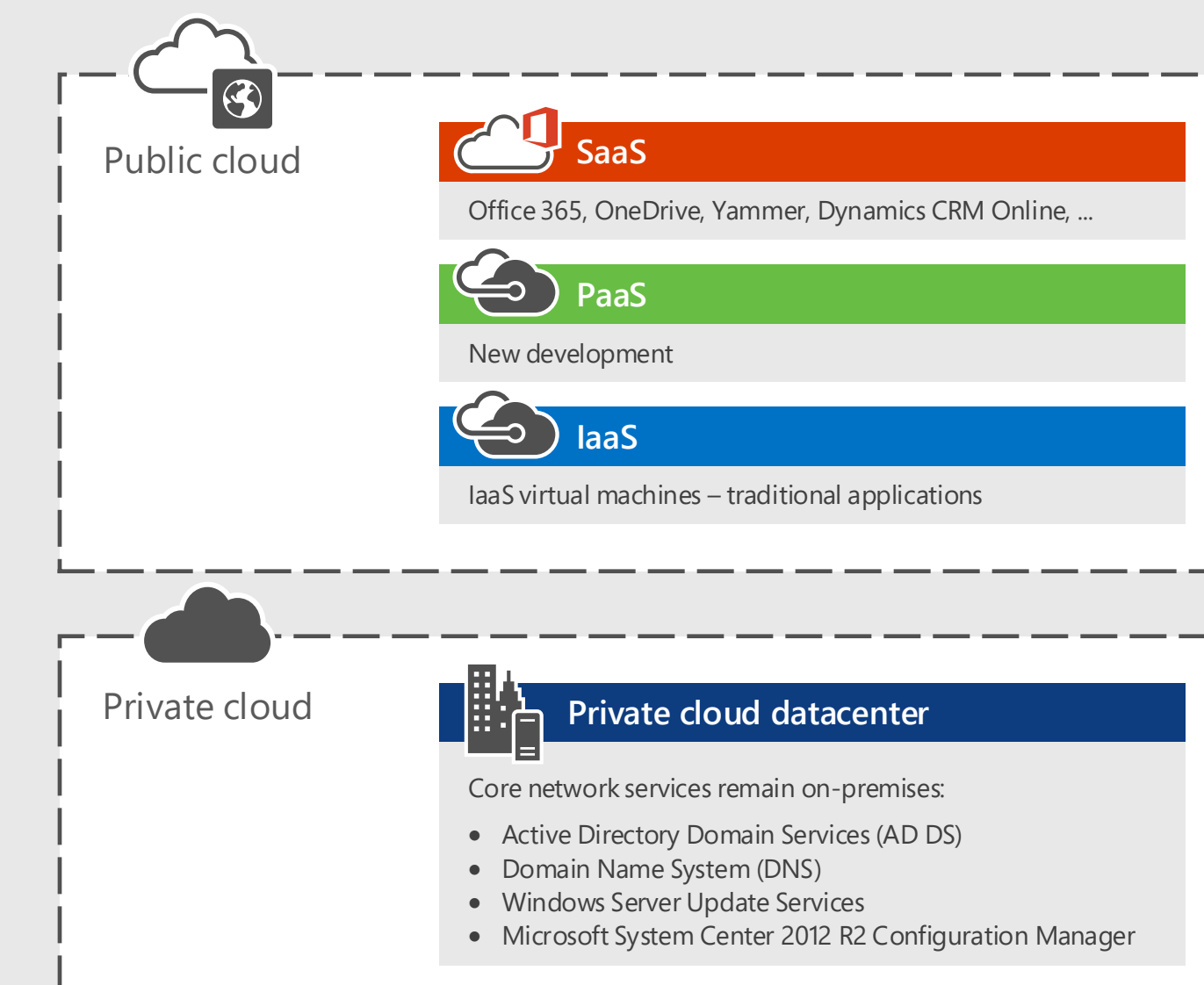
"The journey to Microsoft Azure is strategic. For Microsoft IT, this journey fundamentally changes how we enable a hybrid cloud and increase agility and scalability, while moving away from the traditional datacenter model."

Rick Stover, General Manager - Microsoft IT Service Deployment and Operation

[Managing a Microsoft Azure hybrid environment Technical Case Study](#)

### Three-phased approach

- Productivity workloads move to SaaS**  
Microsoft IT moved quickly to take advantage of Microsoft SaaS offerings with employees using Office 365, Yammer, and OneDrive. Microsoft also uses Dynamics CRM Online.
- New development and modern applications move to PaaS**  
New applications are optimized for cloud computing. Focus is on functionality rather than infrastructure.
- Existing applications move to IaaS**  
Existing applications are moved to IaaS virtual machines using one of two approaches:
  - **Lift and shift**—existing virtual machines are shifted to the cloud.
  - **Build in the cloud**—applications are prebuilt in Azure and traditional methods are used to back up and restore data.



Efficiency increases

### Microsoft IT's hybrid cloud infrastructure

Even though a complete migration to the public cloud is the goal, retaining core network services in traditional datacenters for the near future results in a hybrid cloud.

### Microsoft Azure adoption timeline

Taking advantage of SaaS services allows Microsoft IT to focus on developing new strategic applications in Azure PaaS and migrate existing applications from expiring hardware to Azure IaaS.

