Azure for Enterprises

What and Why?

Microsoft Azure

A public cloud platform

- Microsoft Azure provides Internet-accessible computing resources
  - It runs in data centers around the world

Barriers to Public Cloud Adoption

Security

? Can a public cloud platform keep my data and applications safe?

ANSWER
You must learn to trust your public cloud provider

Barriers to Public Cloud Adoption

Compliance

Can I still meet regulatory requirements in the public cloud?

ANSWER
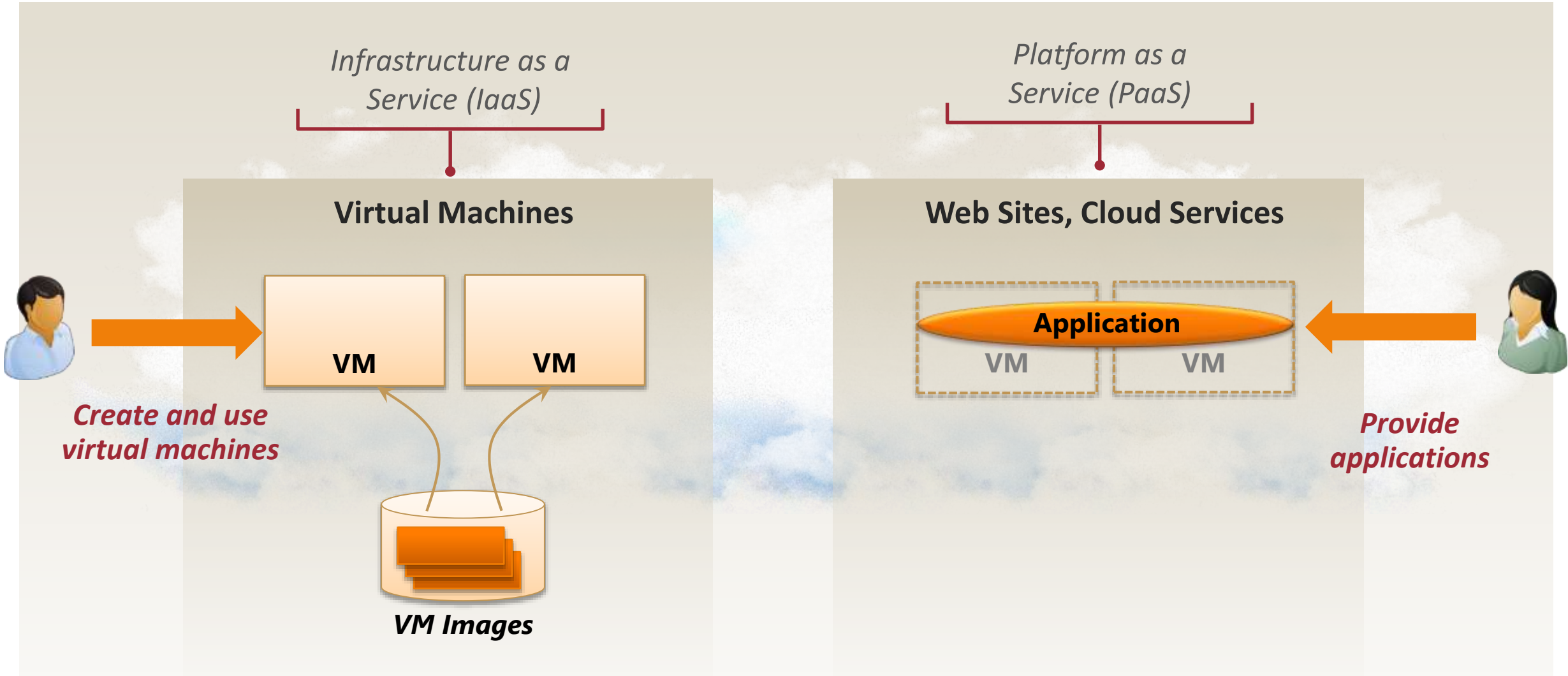You must understand the rules that apply to you

COUNTRY	Laws and Regulations for Off-Premises Computing					
	FINANCIAL SERVICES	HEALTHCARE	RETAILING	NATIONAL GOVERNMENT	LOCAL GOVERNMENT	. . .
United States	?	?	?	?	?	?
Germany	?	?	?	?	?	?
France	?	?	?	?	?	?
United Kingdom	?	?	?	?	?	?
South Korea	?	?	?	?	?	?
Australia	?	?	?	?	?	?
. . .	?	?	?	?	?	?

Microsoft Azure Technologies

Compute

Microsoft Azure Technologies

Data management

Binary storage

IaaS relational storage

PaaS relational storage

Blob Storage

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0111110110

DBMS in a VM

SQL Server, MySQL, …

VM

SQL Database, …
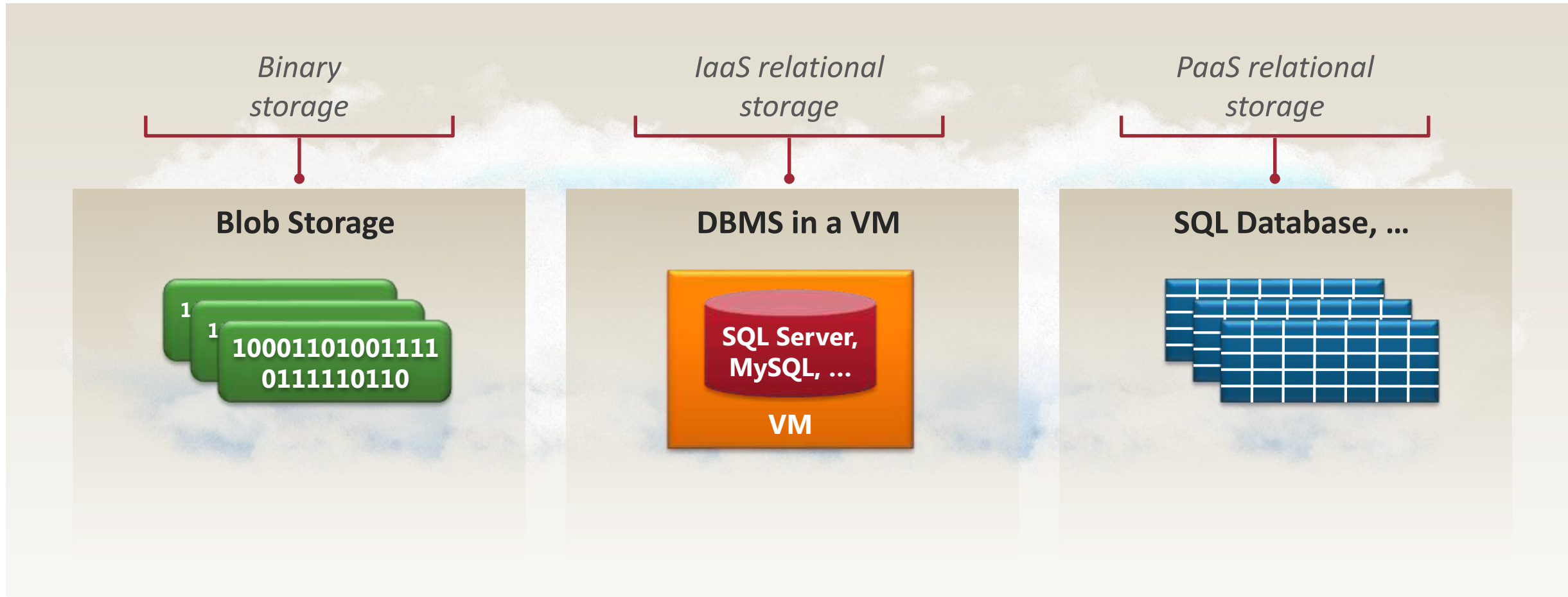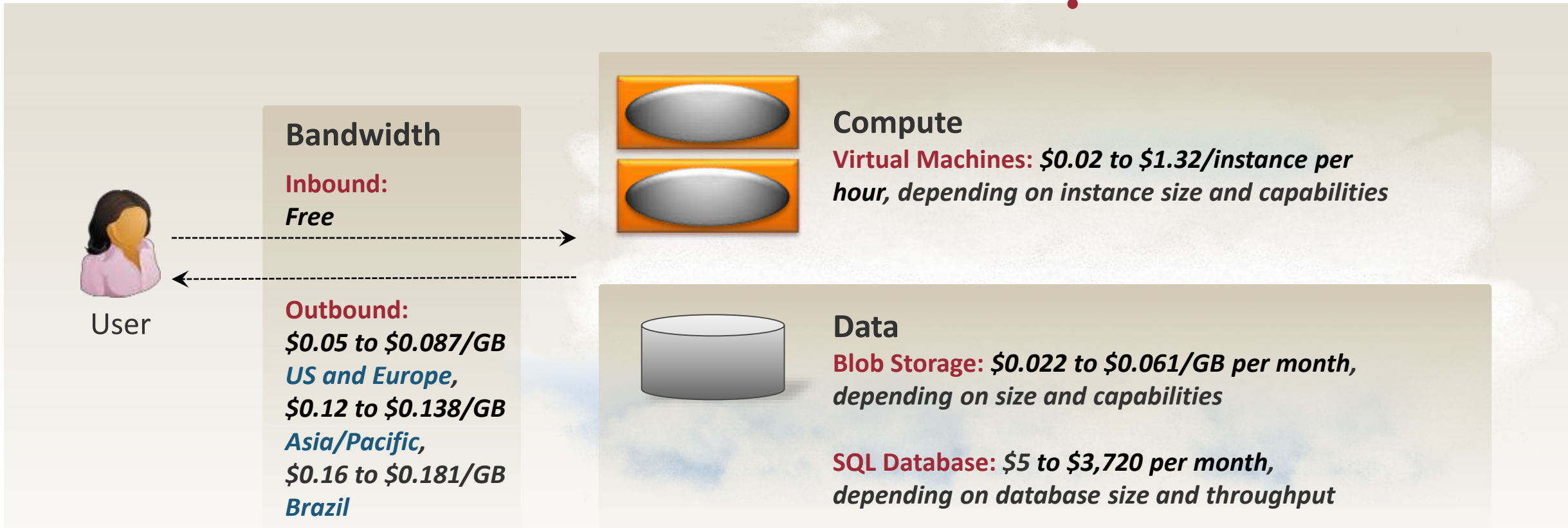
Microsoft Azure

Pricing examples (in US dollars)

Enterprise agreements, etc. commonly discount these prices

User

Bandwidth

Inbound:
Free

Outbound:
$0.05 to $0.087/GB US and Europe, *$0.12 to $0.138/GB* Asia/Pacific, *$0.16 to $0.181/GB* Brazil

Compute
Virtual Machines: *$0.02 to $1.32/instance per hour, depending on instance size and capabilities*

Data
Blob Storage: *$0.022 to $0.061/GB per month, depending on size and capabilities*

SQL Database: *$5 to $3,720 per month, depending on database size and throughput*

What Public Cloud Platforms Can Provide

Infrastructure
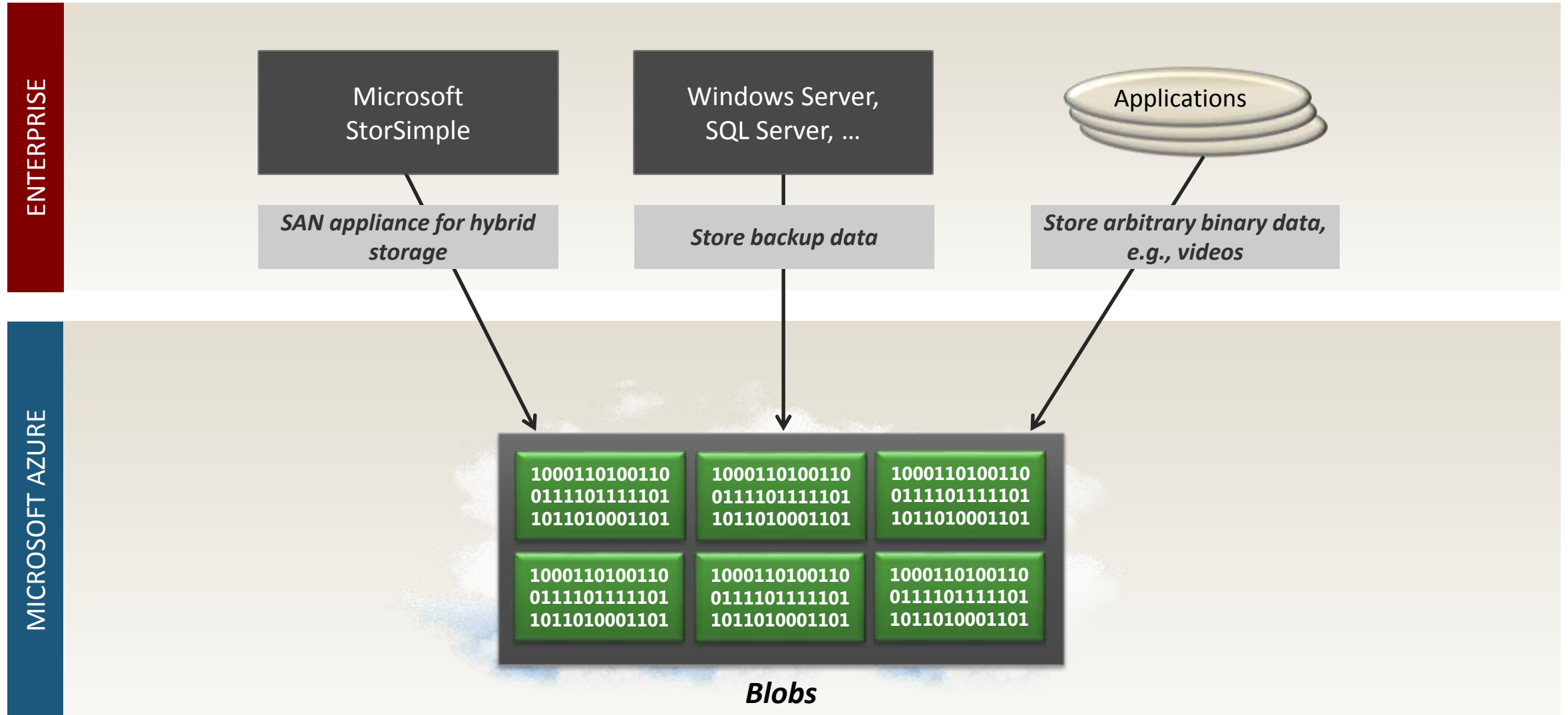
David Chappell
& Associates

Infrastructure

Example scenarios

- Data storage

- Cloud identity

- VMs on demand

- Disaster recovery

- Deploying packaged applications

- Moving existing applications to the public cloud

Data Storage

Example: Using Azure Blobs

Microsoft StorSimple

Windows Server, SQL Server, ...

Applications

SAN appliance for hybrid storage

Store backup data

Store arbitrary binary data, e.g., videos

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0111101111101
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Blobs

Data Storage

Why do this?

$ Lower cost

EXAMPLE

One terabyte stored in geo-redundant blobs

- **Operations on the data:** 10,000,000/month
- **Data transfer out:** 500 gigabytes/month

COSTS

Storage:	$61/month
Operations:	$0.50/month
Data transfer:	$43.01/month (US/Europe)
	$68.31/month (Asia/Pacific)
	$89.60/month (Brazil)

Total: **$104.51/month (US/Europe)**
$129.81/month (Asia/Pacific)
$151.10/month (Brazil)

Cloud Identity

Example: Single sign-on for SaaS applications

ENTERPRISE

IT Admin

Windows Server
Active Directory

1 Login

User

3 Access on-premises and SaaS applications

On-Premises Application

MICROSOFT AZURE

2 Configure link

Azure Active Directory

SaaS Application

OTHER CLOUD ENVIRONMENT
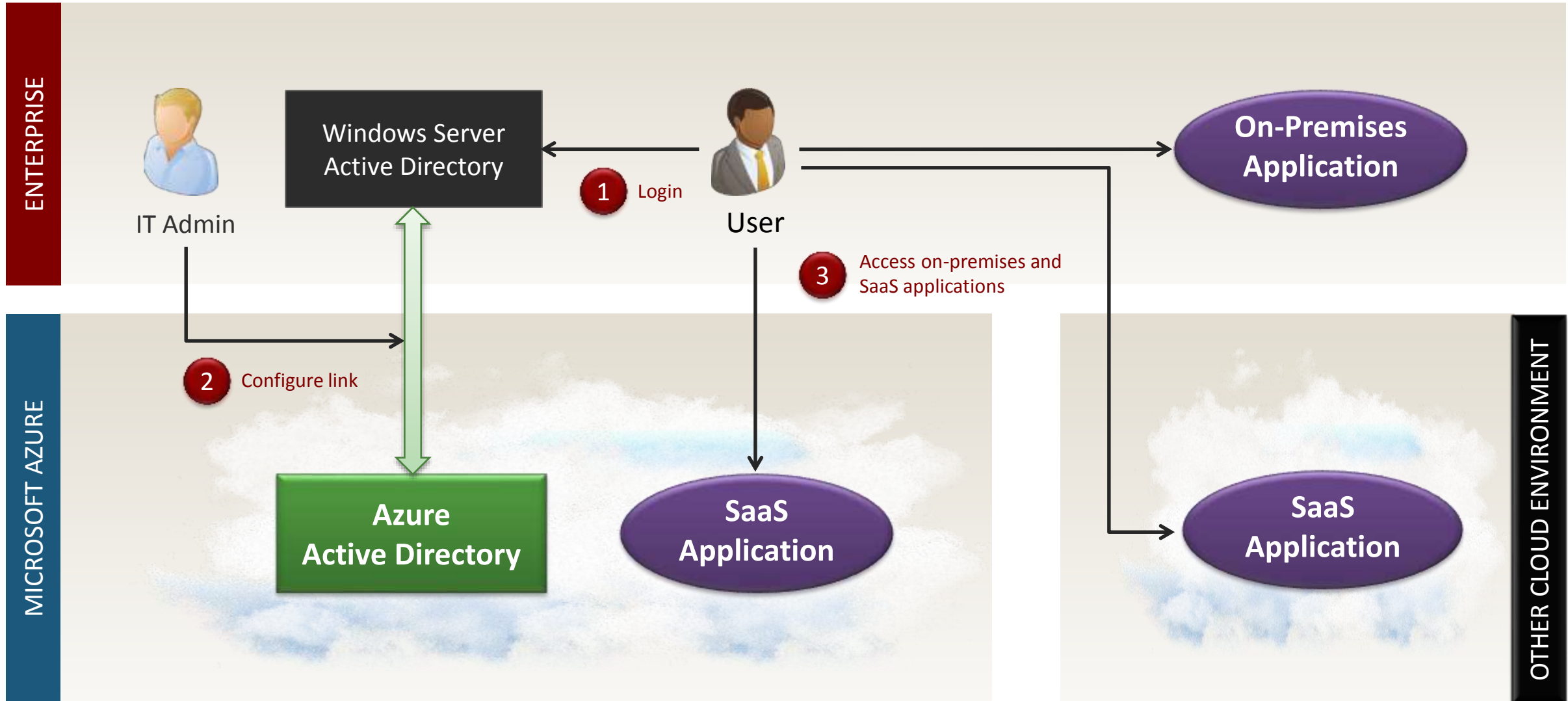
SaaS Application

Cloud Identity

Why do this?

Single sign-on to diverse SaaS applications

Azure AD Premium supports:
- Office 365
- Dynamics CRM Online
- Google Apps
- Salesforce CRM
- ServiceNow
- Dropbox
- Many more

Multi-factor authentication

Azure AD Premium can require a password plus phone-delivered code for logins

Simpler identity administration

Azure AD Premium provides:
- Self-service password resets for SaaS applications
- Reports of who accessed which applications, etc.

VMs on Demand

Example: A dev/test environment on Azure
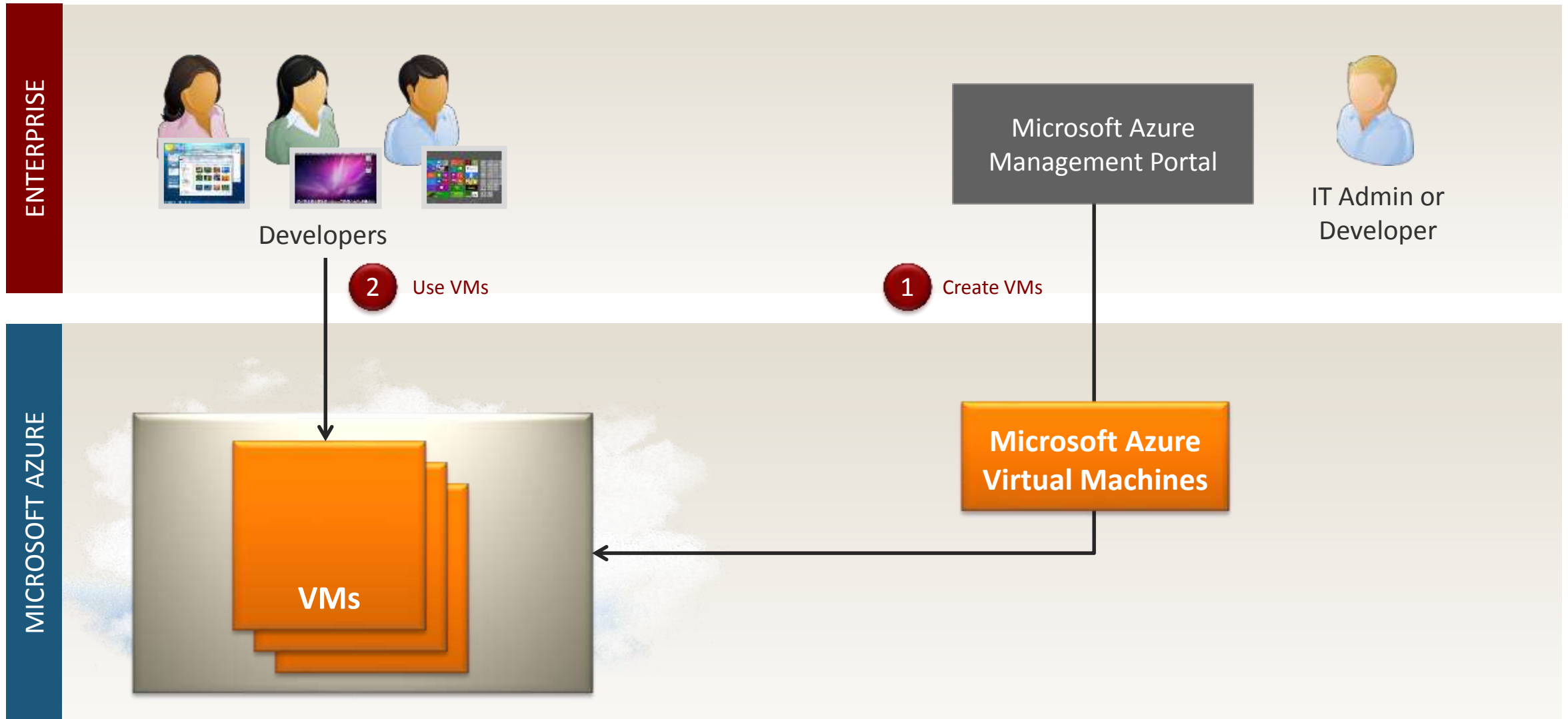
VMs on Demand

Why do this?

Fast and simple way to get inexpensive VMs

Can use Microsoft Azure-provided VHDs or your own, Windows or Linux

Users can potentially access cloud VMs as if they were local

Useful in many situations

Dev/test environment for cloud or on-premises apps

Innovation/proof of concept projects

Can shut down VMs when they're not needed

Such as nights or weekends when developers aren't active

Disaster Recovery

Example: Database failover to Azure
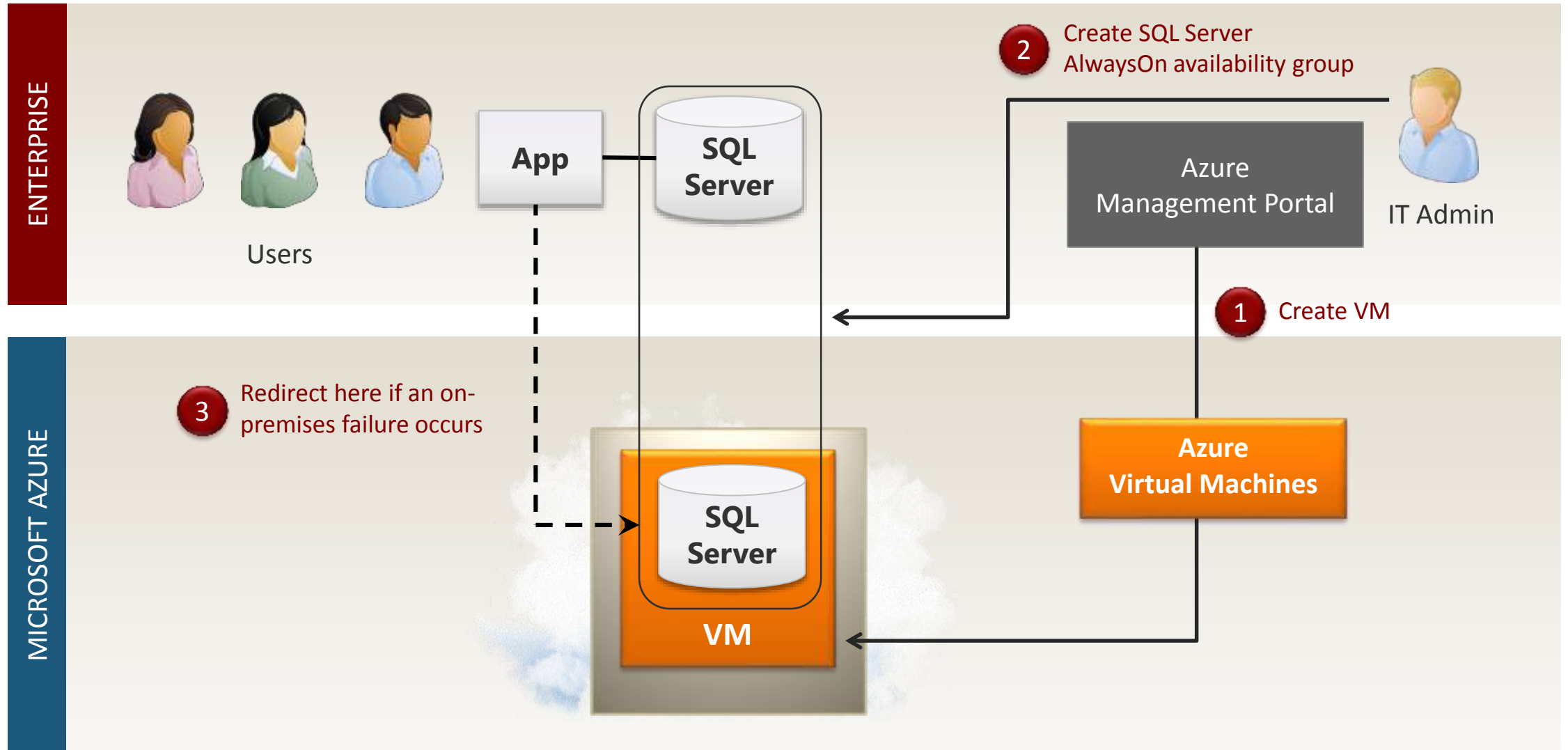
Disaster Recovery

Why do this?

Can cover a range of scenarios

Another option, Azure Site Recovery, allows replicating Hyper-V and VMware VMs in the cloud

VMs can be grouped together, then started in a specific order

Lower cost

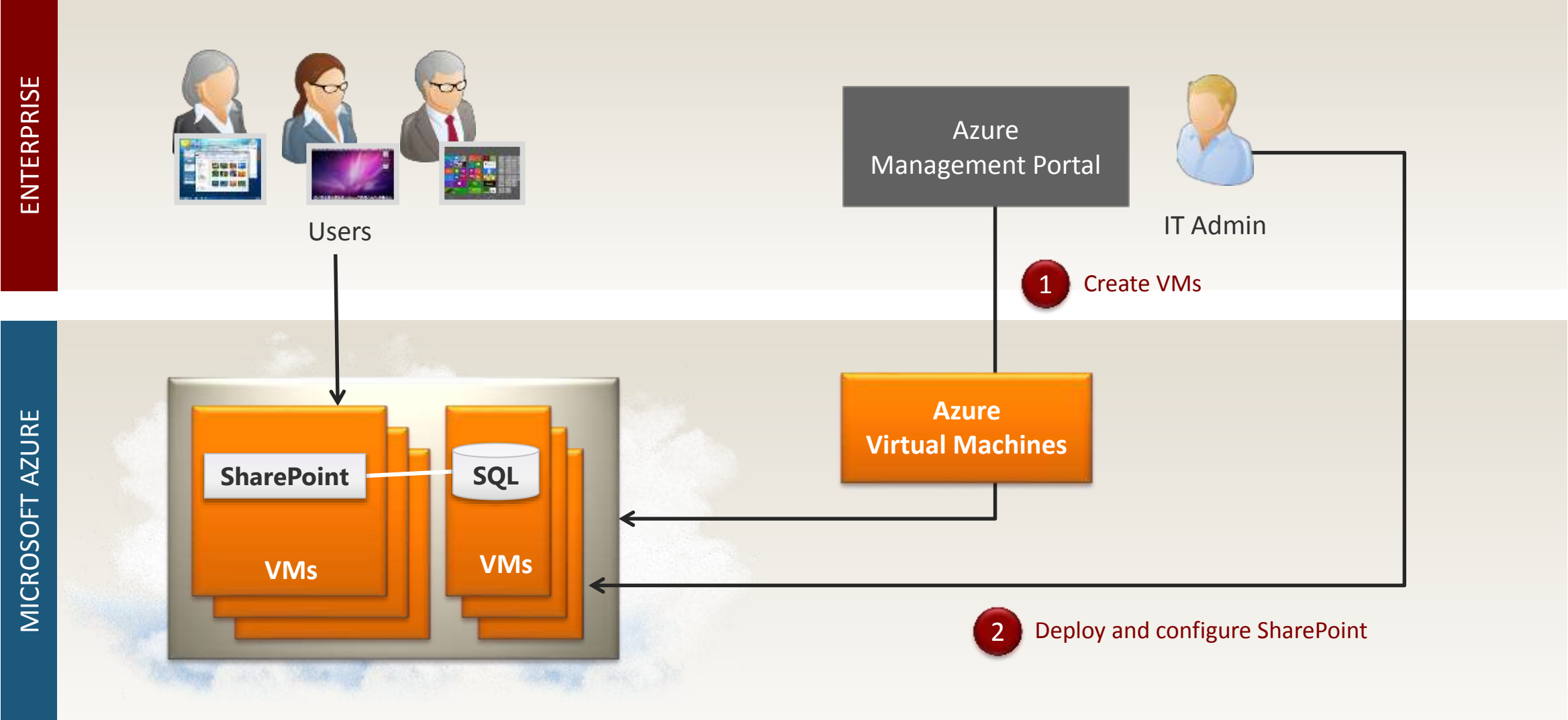No need to maintain a dedicated facility just for DR

Can instead potentially create (and pay for) VMs only when they're needed

Provides global recovery options

Microsoft Azure has datacenters around the world

Deploying Packaged Applications

Example: SharePoint on Azure

ENTERPRISE

Users

Azure
Management Portal

IT Admin

1 Create VMs

MICROSOFT AZURE

SharePoint — **SQL**

VMs   **VMs**

**Azure
Virtual Machines**

2 Deploy and configure SharePoint

Deploying Packaged Applications

Why do this?

Faster deployment	**IT resources become an operating expense**	**Lower cost**
No need to wait for central IT	Rather than a capital expense	Microsoft Azure is probably cheaper today and certainly cheaper tomorrow; prices keep going down

Moving Existing Applications to the Public Cloud

Example: Moving a custom application to Azure
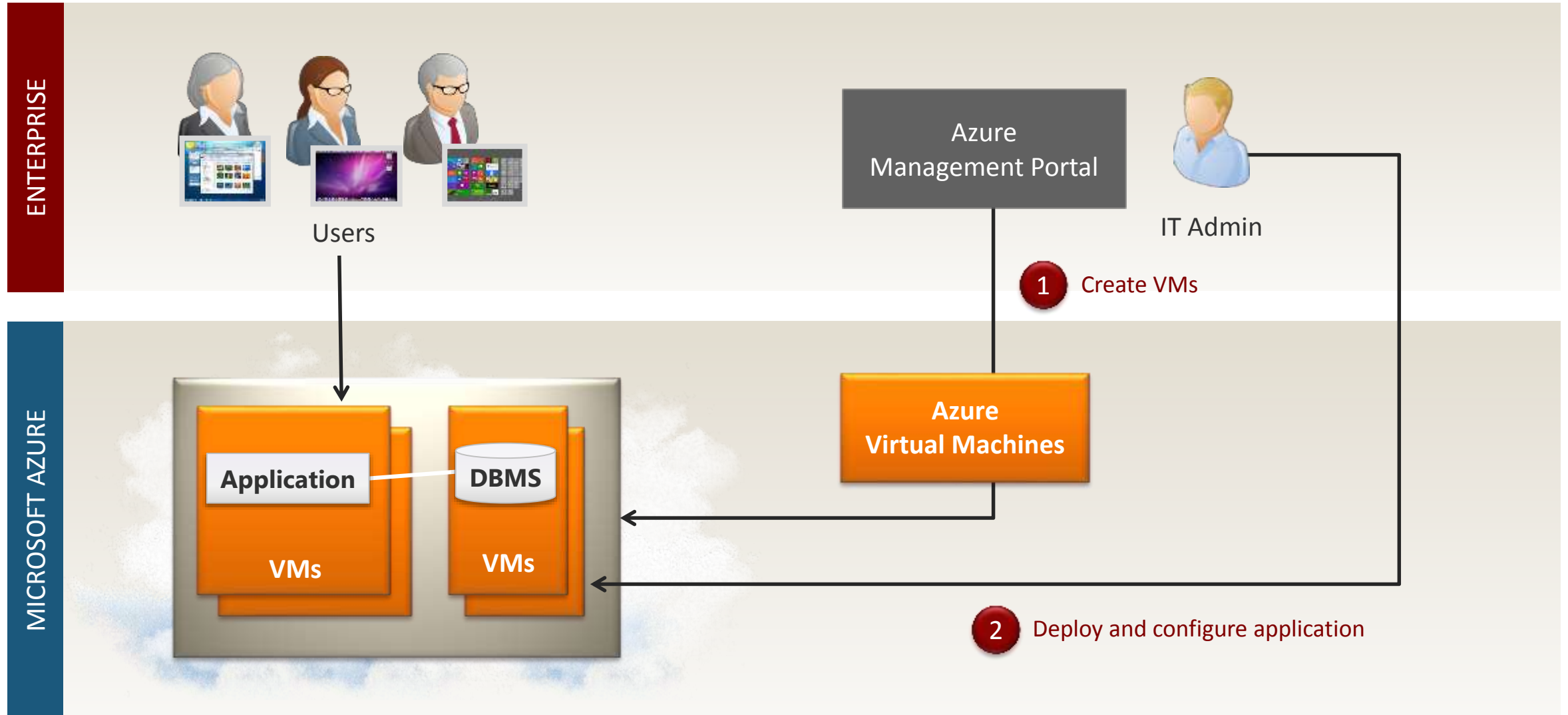
Moving Existing Applications to the Public Cloud

Why do this?

Lower cost

EXAMPLE

Two medium VMs ($.18/hour each) running continuously

Stores 100 gigabytes
- **Operations on the data:** 30,000,000/month
- **Data transfer out:** 50 gigabytes/month

COSTS

Compute:	$268.00/month
Storage:	$6.10/month
Bandwidth:	$3.92/month *(US and Europe)*
	$6.21/month *(Asia/Pacific)*
	$8.15/month *(Brazil)*

Total: **$278.02/month** *(US/Europe)*
$280.31/month *(Asia/Pacific)*
$282.25/month *(Brazil)*

Making good decisions here requires knowing your current costs

Infrastructure
Summarizing the scenarios

- Data storage

- Cloud identity

- VMs on demand

- Disaster recovery

- Deploying packaged applications

- Moving existing applications to the public cloud

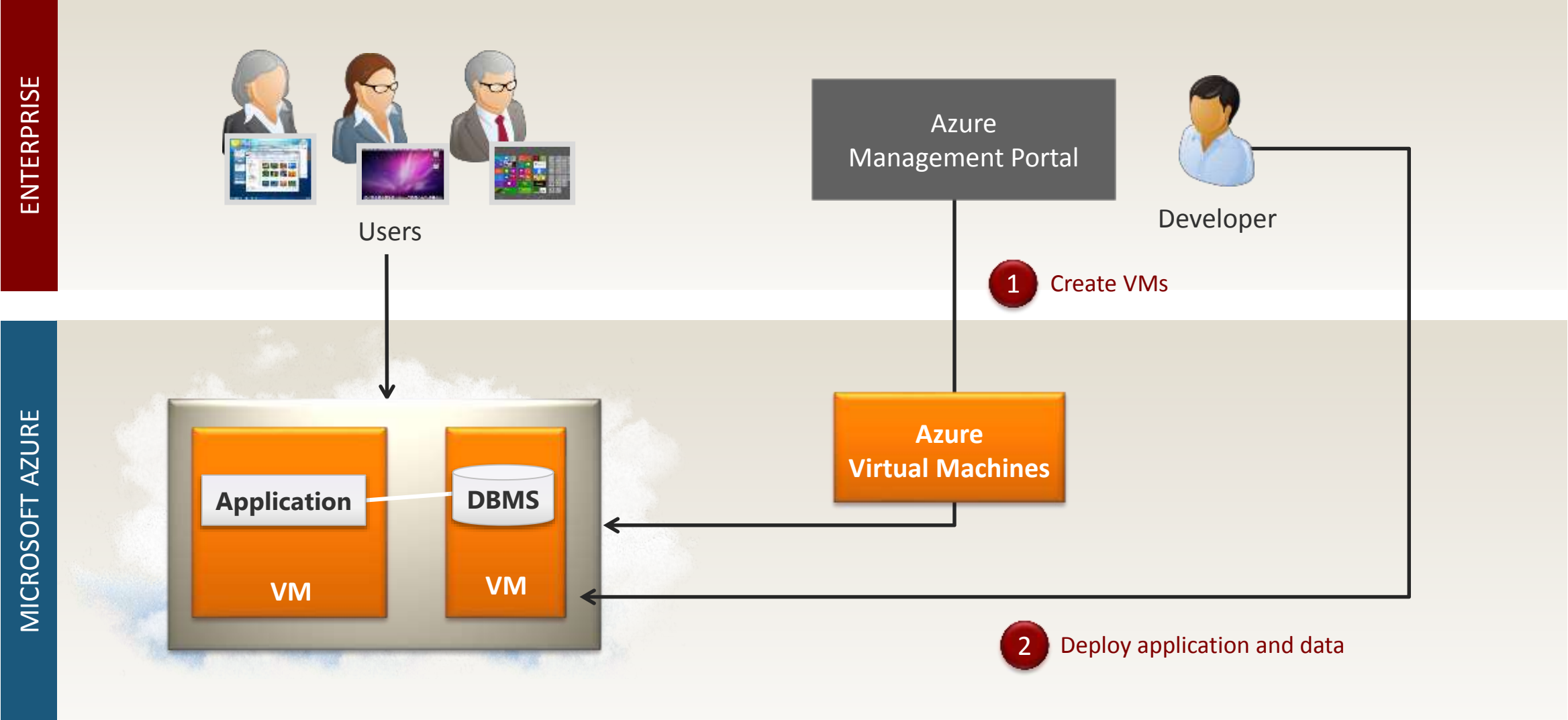# What Public Cloud Platforms Can Provide

Applications

Applications

Example scenarios

- New employee-facing applications

- New customer-facing applications

- New parallel applications

New Employee-Facing Applications

Example: An IaaS application

New Employee-Facing Applications

Why do this?

Ease and speed of deployment	**Capabilities you can't easily get otherwise**	**Lower cost**
No need to wait for central IT	Geographic distribution Easy up-and-down scaling Especially important for spiky apps	Because of public cloud platform scale and/or elasticity

New Employee-Facing Applications

Example: A PaaS application
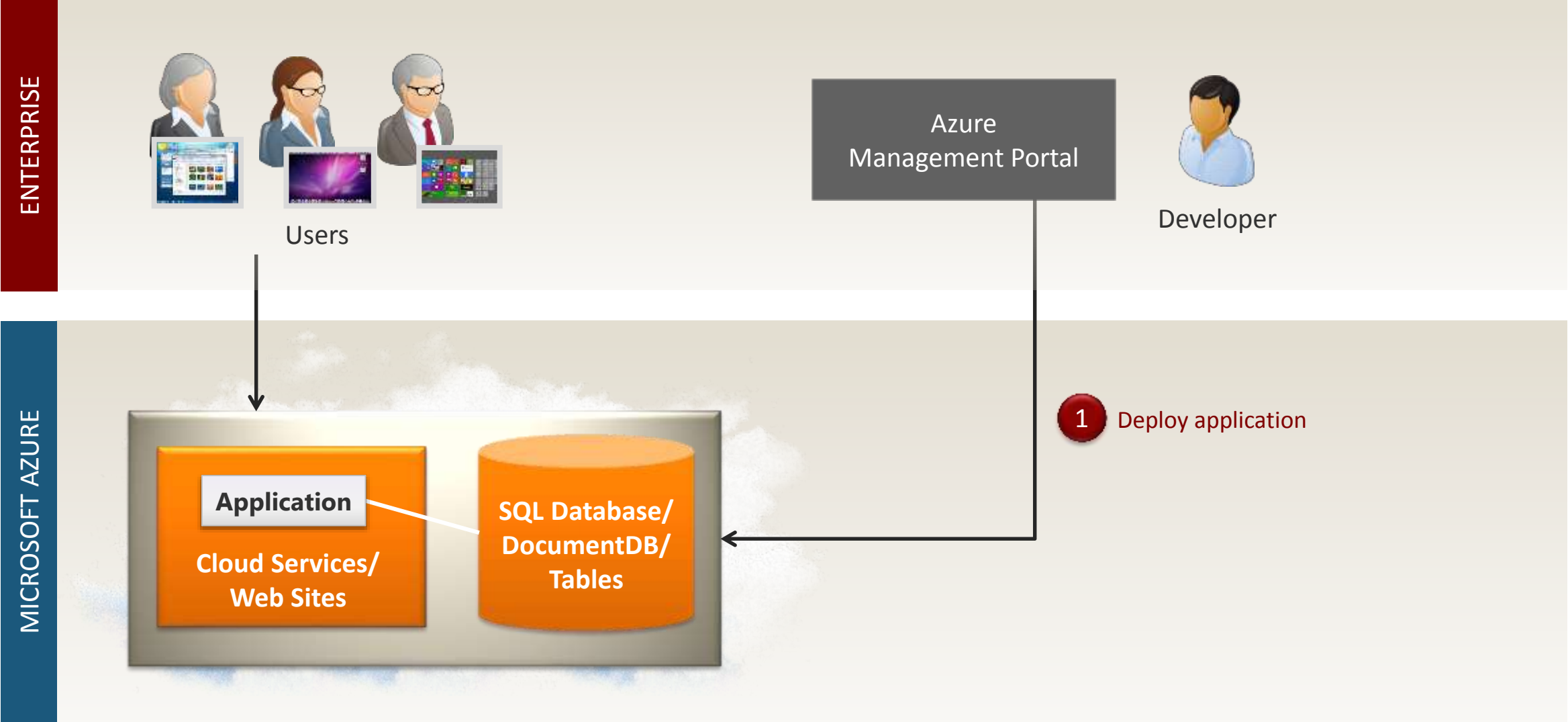
New Employee-Facing Application with PaaS

Why use PaaS rather than IaaS?

Ease and speed of deployment

The PaaS platform already exists--no need to create it
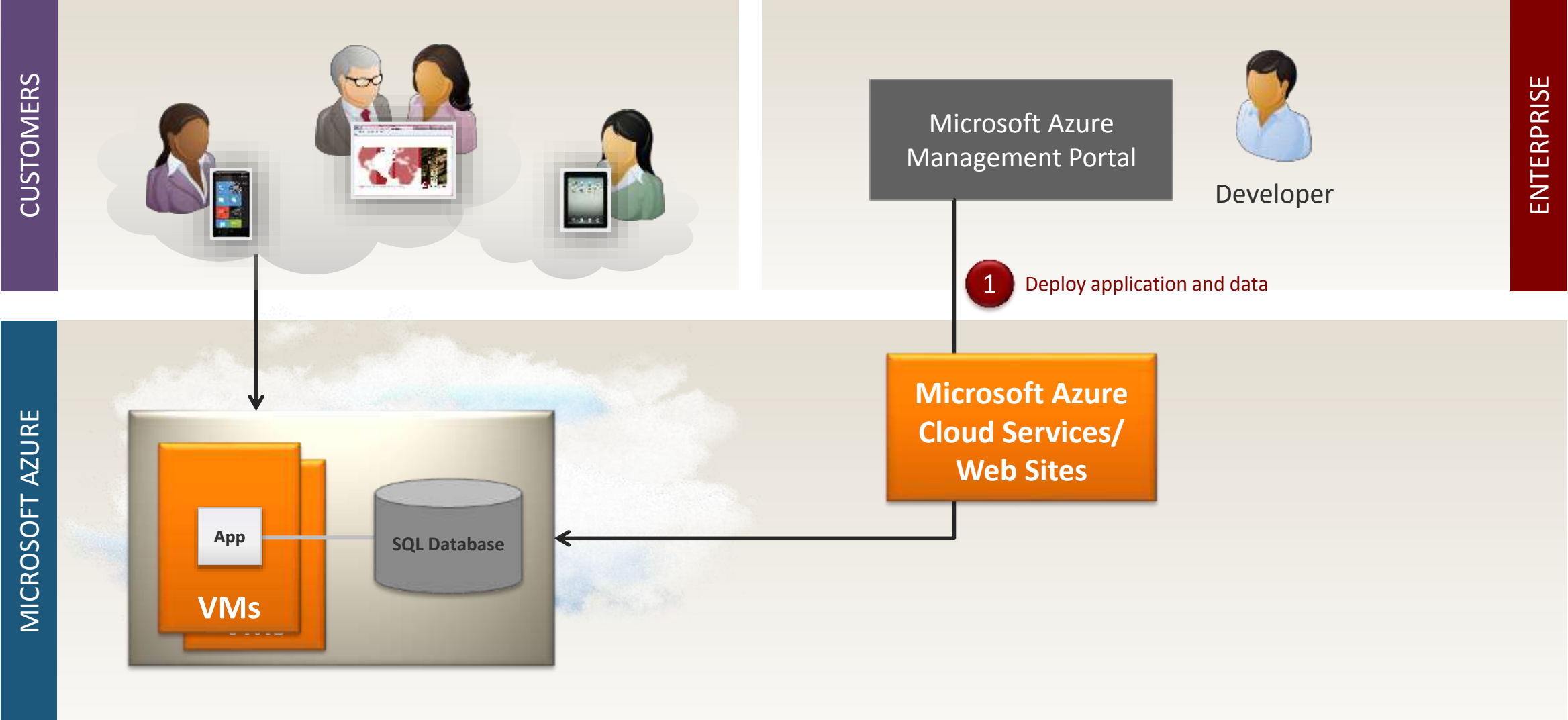
Lower management cost

The PaaS platform maintains the environment for you

Lower risk

Fewer things to configure means fewer opportunities for error

New Customer-Facing Applications

Example: A PaaS application

New Customer-Facing Applications

Why do this?

Capabilities you can't easily get otherwise, such as:

Massive scale
Easy up-and-down scaling
High reliability
Geographic distribution
NoSQL database service

Lower cost

Because of public cloud platform scale and elasticity

Ease and speed of deployment

Especially with PaaS

New Customer-Facing Applications

Where public cloud platforms are an especially good fit

Application Characteristic	Examples
Needs fast access to computing resources with no commitment	*Marketing web sites, high-risk innovative apps*
Requires massive or global scale	*Consumer web applications*
Has very spiky usage	*Online ticket sales*
Running application on-premises raises security issues	*Cloud backends for enterprise mobile applications*
Don't want in-house IT	*Start-ups, progressive businesses*

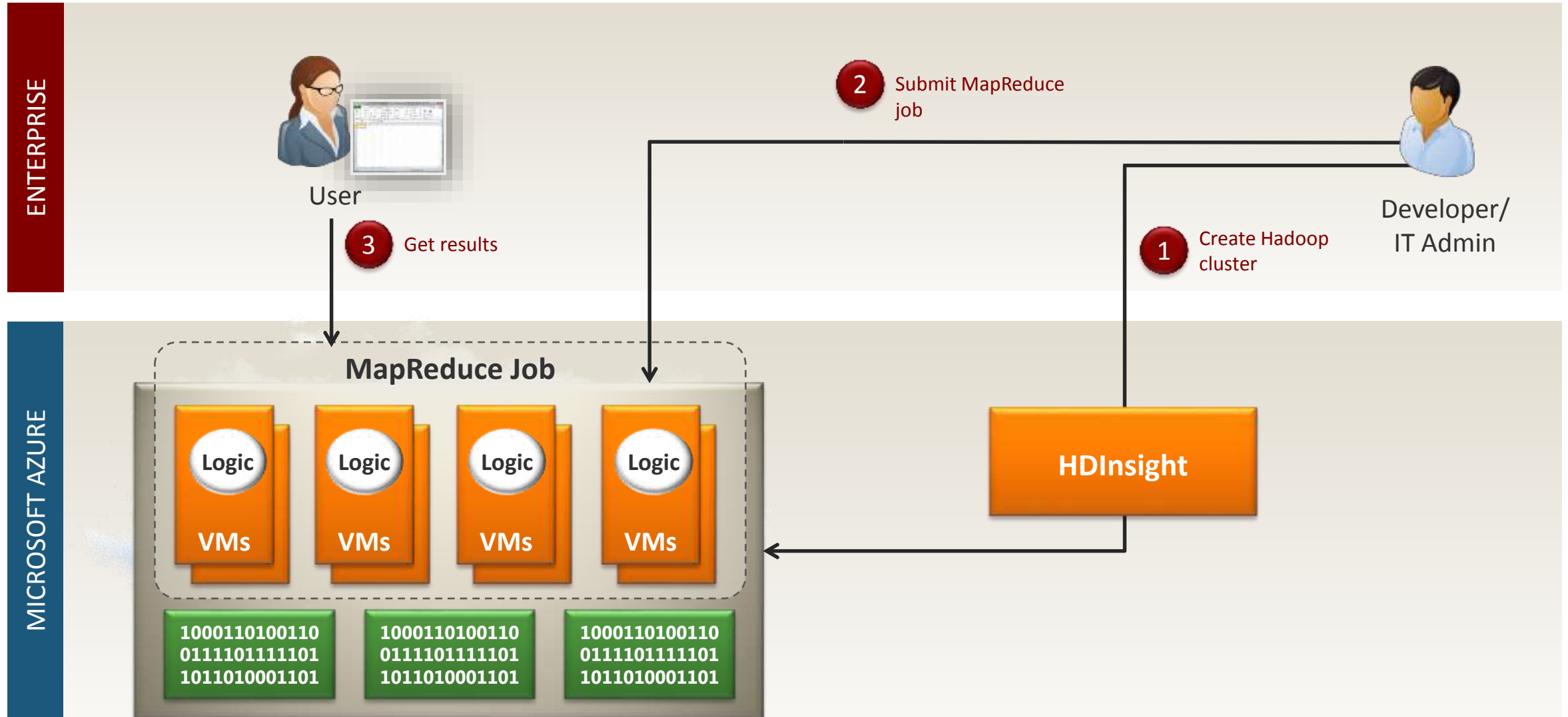# New Parallel Applications

Example: An HPC application on Microsoft Azure
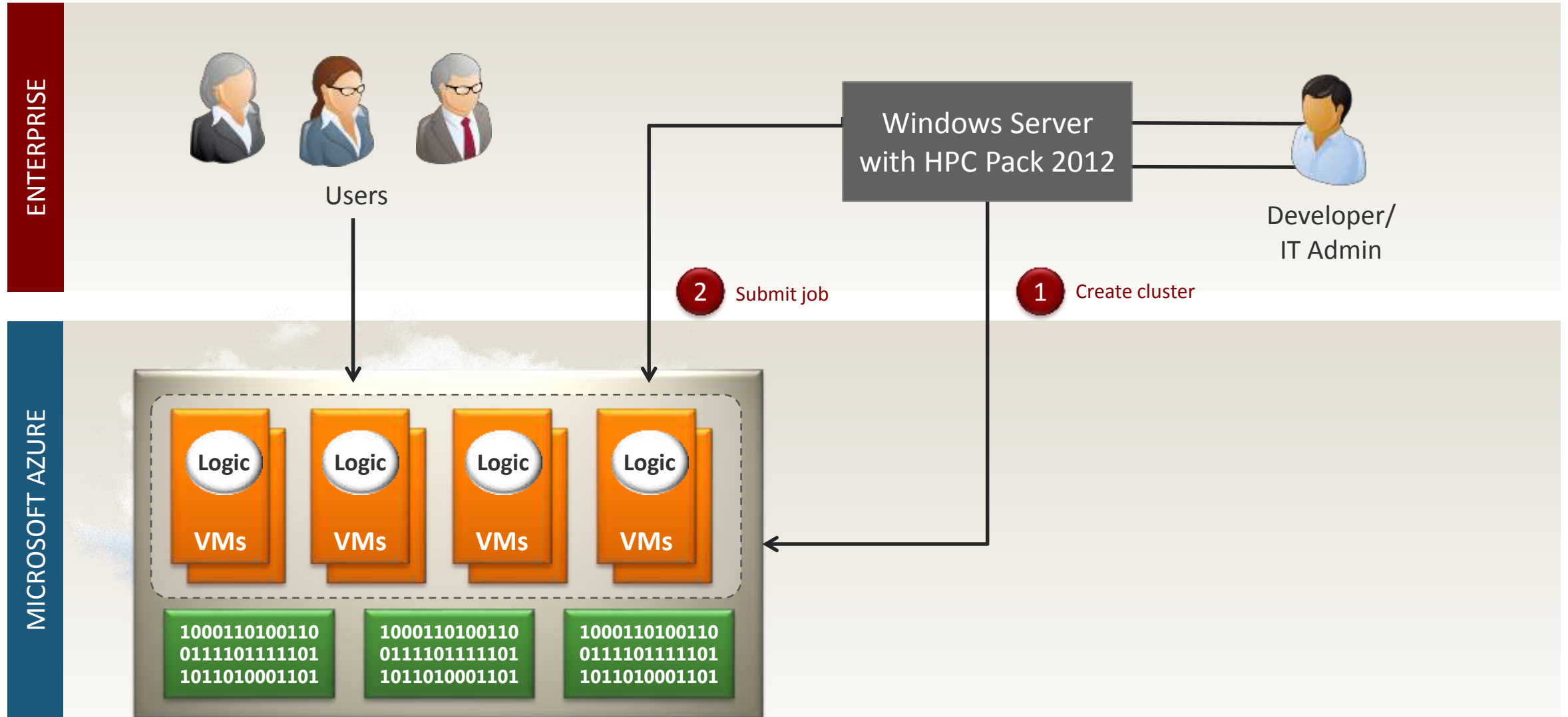
New Parallel Applications

Example: A big data application using HDInsight

New Parallel Applications

Why do this?

Lower cost

Pay only for the VMs you need when you need them

On-demand access to an HPC cluster

Windows HPC Server provides built-in support for creating and managing a cluster on Microsoft Azure

On-demand access to a Hadoop cluster

HDInsight provides built-in support for creating and managing a Hadoop cluster

Applications
Summarizing the scenarios

- New employee-facing applications

- New customer-facing applications

- New parallel applications

Conclusions

- Public cloud platforms can provide:
    - Lower cost and higher reliability for infrastructure
    - Better support for new applications

- At least one scenario probably has value for every enterprise right now

What are you waiting for?

About the Speaker

David Chappell is Principal of Chappell & Associates (www.davidchappell.com) in San Francisco, California. Through his speaking, writing, and consulting, he helps people around the world understand, use, and make better decisions about new technology. David has been the keynote speaker for more than a hundred events and conferences on five continents, and his seminars have been attended by tens of thousands of business and IT leaders, architects, and developers in forty-five countries. His books have been published in a dozen languages and used regularly in courses at MIT, ETH Zurich, and other universities. In his consulting practice, he has helped clients such as Hewlett-Packard, IBM, Microsoft, Stanford University, and Target Corporation adopt new technologies, market new products, and educate their customers and staff.