

Microsoft Azure Workshop

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#UKDXAzure

Agenda

- 9:30am *Registration opens*
 - 10am *Workshop starts, with breaks for coffee and lunch*
 - 2pm *Networking and informal one to one discussions*
 - 3pm *Machine Learning and DevOps 'workshops'*
 - 4pm *Close*
-
- The Road to the Modern Cloud
 - Micro-services in Azure
 - DevOps on Azure
 - The Internet of Things and Azure
 - The Azure data platform + machine learning

The Road to the modern cloud

David Gristwood



Microsoft over the last few years ... the only constant is CHANGE

the guardian

Microsoft

Satya Nadella named Microsoft CEO as Bill Gates steps down as chairman

Veteran insider becomes only third boss in tech giant's history as co-founder Gates assumes new role on Microsoft's board



Dominic Rushe in New York

Tuesday 4 February 2014 17:05 GMT

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HP's Security Solutions

We report more cyber intrusions than anyone else in the world.

ORACLE

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Oracle Press Release

Microsoft and Oracle announce enterprise partnership

Deal will help customers embrace cloud computing by providing greater choice and flexibility.

REDMOND, Wash., and REDWOOD CITY, Calif. — June 24, 2013 — Microsoft Corp. and Oracle Corp. today announced a partnership that will enable customers to run Oracle software on Windows Server Hyper-V and in Windows Azure. Customers will be able to deploy Oracle software — including Java, Oracle Database and Oracle WebLogic Server — on Windows Server Hyper-V or in Windows Azure and receive full support from Oracle. Terms of the deal were not disclosed.

As part of this partnership, Oracle will certify and support Oracle software — including Java, Oracle Database and Oracle WebLogic Server — on Windows Server Hyper-V and in Windows Azure. Microsoft will also offer Java, Oracle Database and Oracle WebLogic Server to Windows Azure customers, and Oracle will make Oracle Linux available to Windows Azure customers. Java developers, IT professionals, and businesses will benefit from the flexibility to deploy fully.


ZDNet

MUST READ: WHY WON'T MICROSOFT PUBLISH WINDOWS 10 UPDATE RELEASE NOTES?

Microsoft: The open-source company

Microsoft loves Linux, is adopting Docker for its servers, and just bought Revolution Analytics, the biggest open-source R statistical language company. This is not your dad's Microsoft.

By Steven J. Vaughan-Nichols for Linux and Open Source | January 26, 2015 — 19:04 GMT (19:04 GMT) | Topic: Cloud



This cloud opens one stadium to 450 million fans.

See the story

Microsoft has long used open-source software, like the BSD code behind its original TCP/IP network stack, they just didn't admit it. That was in Bill Gates' day. It's a different story today. Recently, Microsoft CEO Satya Nadella said that Microsoft loves Linux and Microsoft just acquired Revolution Analytics, which is the major open-source player for the R statistical analysis language.

computing

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Microsoft returns to court to protect customers from US government data grabs

By Graeme Burton

09 Dec 2014 0 Comments



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Latest stories from Internet

M5 chief says Twitter, Facebook, should be monitoring users and notifying authorities about suspects

Is Elon Musk's 'space internet' more promising than previous attempts?

Elon Musk's space internet project

Microsoft has begun the latest round in a test case that will determine the extent of state power to sequester data from servers held overseas.

The long-running case between Microsoft and the US government revolves around a demand by US government agencies to access private Hotmail emails held on Microsoft data centres located in Ireland. Microsoft claims that the demand exceeds US authorities' jurisdictions, while the US government claims that Microsoft is obliged to hand over any data that it demands, held anywhere in the world.

COMPUTERWORLD

Home > Operating Systems > Microsoft Windows

Microsoft: Windows 10, it's on us



Credit: Shutterstock

Pulls the free upgrade trigger, will give away new OS to Windows 7 and 8.1 customers

By Gregg Keizer

Computerworld | Jan 22, 2015 12:56 PM PT

CNBC


HOME U.S. NEWS MARKETS INVESTING TECH SMALL BIZ

TECHNOLOGY RE/CODE MOBILE SOCIAL MEDIA ENTERPRISE GAMING CYBERSECURITY

Why there was a Microsoft executive at Apple's event

Josh Lipton | @CNBCJosh

Thursday, 10 Sep 2015 | 12:38 PM ET



Beck Diefenbach | Reuters

Kirk Koenigsbauer (left) is greeted by Apple's Phil Schiller as he takes the stage to discuss Microsoft Office for the iPad Pro during an Apple media event in San Francisco on Sept. 9, 2015.

"Hell froze over."

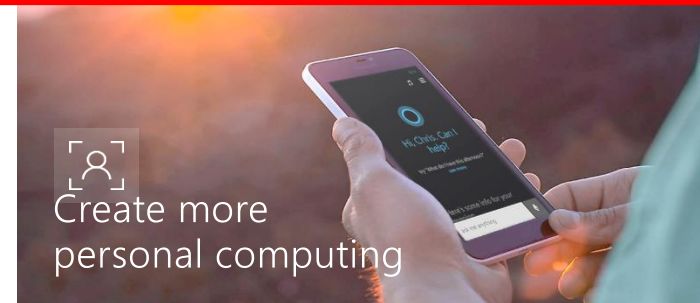
Microsoft mission

Empower every person and every organization on the planet to achieve more



Microsoft Strategy

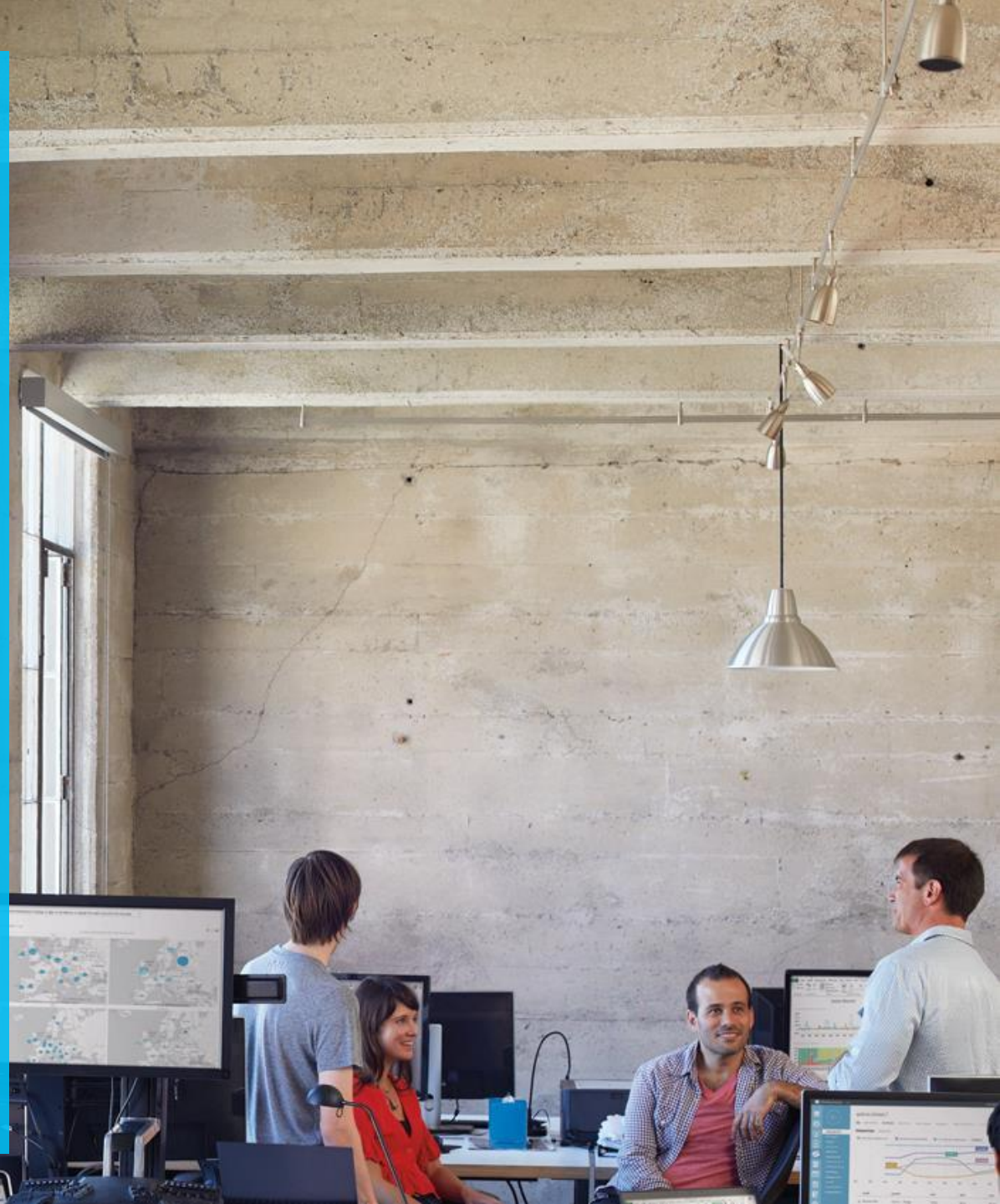
Build best-in-class platforms and productivity services for a mobile-first, cloud-first world





Microsoft Azure

The cloud platform
built for business and
innovation



Why are people moving to the Cloud?

"Cloud is a given. CIOs no longer ask whether they should use cloud, but rather how."

QUICK & EASY

- Deploy in minutes
- Shorter development cycles
- Building blocks allow quick value (and failure)

ELASTIC SCALE

- Scale/burst to your needs
- Global Coverage for global scale

ECONOMICS

- No upfront costs
- No long-term commitments
- No wasted, under-used capacity

CREATE VALUE

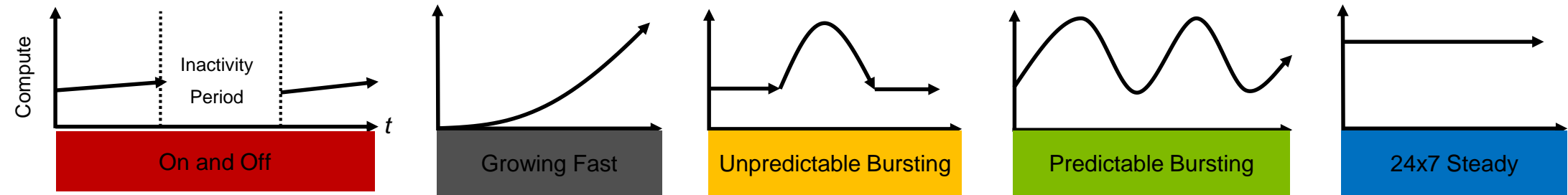
- Engage customers with Web/Mobile apps
- Unlock insights with Big Data & ML
- Create your own Internet of Things (IoT)

....and to quote real customers:

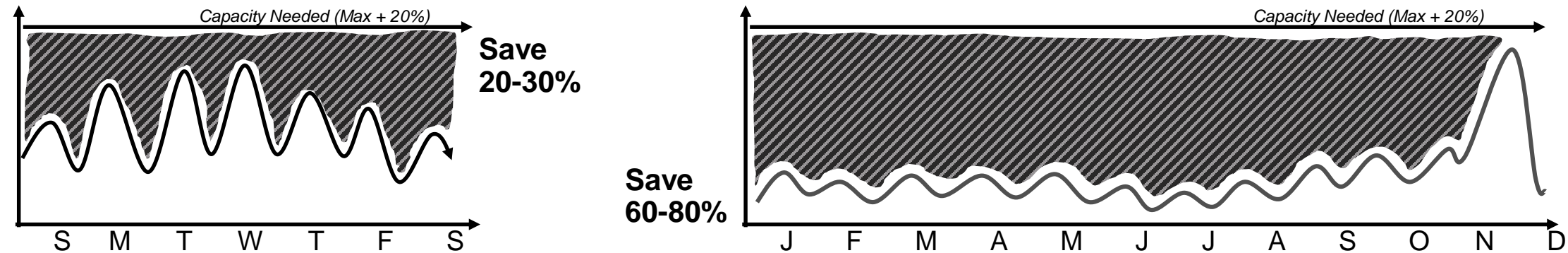
- *"I am a Start-up, I have no option"*
- *"Current hoster is too expensive"*
- *"We need to get our skunkworks project launched"*
- *"We hate IT"*
- *"We need to gain Control from IT"*
- *"It's cool to do cloud"*
- *\$127bn spend on public Cloud by 2018*
- *"My customer is demanding it"*
- *"New entrants in marketplace cheaper"*
- *"Cloud to service long tail"*
- *"Headache managing many instances"*
- *"My hoster only has a DC in the UK"*

What workloads are moving to the Cloud?

ISV Application Patterns



Typical Capacity Planning vs Cloud Cost Savings



What Application Patterns are moving to the cloud?



Disruption and uncertainty

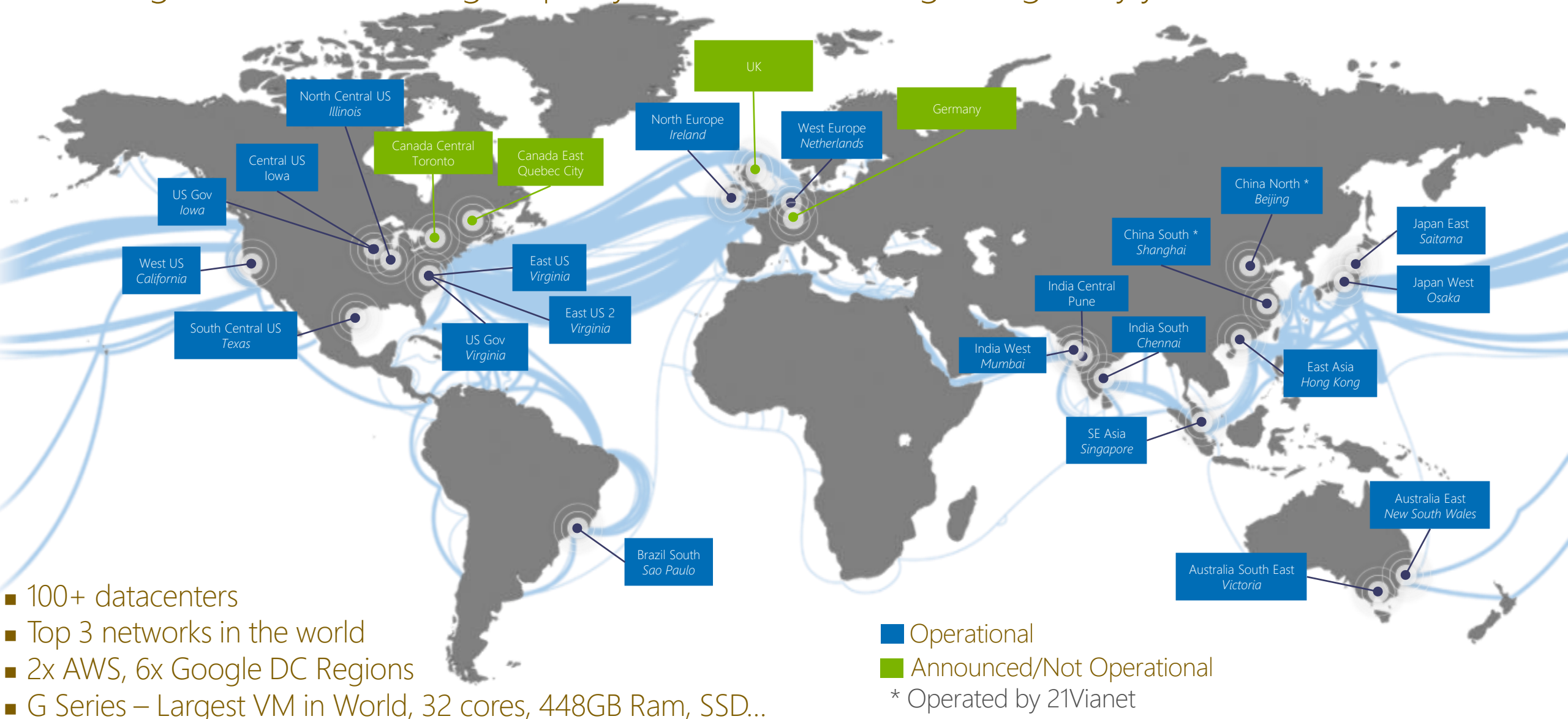
- Can I move to the cloud?
- How will it change my sales model?
- How to I work out my costs?
- How do I migrate my customers?
- What new products will I develop?
- Will customers want to go to the cloud?

Common ISV options for “On-Prem”

- Co-existence of same on-prem and cloud offering
 - Single(-ish) code base, different deployment
- Move to the cloud
 - Deprecate on-prem solution
 - Slowly move customers to cloud, only sell new cloud offering
- Create new low-cost cloud offering
 - Less features than the on-prem solution
 - Capture the “long tail” of customers who can’t afford on-prem
- Hybrid solution
 - Leave some parts of the system on-prem and burst out to the cloud

Huge infrastructure scale is the enabler

24 Regions Worldwide...huge capacity around the world...growing every year



Azure momentum

~100,000

New Azure customer
subscriptions/month

20 Million

SQL database hours
used every day

> 50 Trillion

Storage objects
in Azure

> 5 Trillion

Storage transactions
every month

425 Million

Azure Active
Directory Users

60 Billion

Hits to Websites run on
Azure Web App Service

57%






























Of Fortune 500 Companies
use Microsoft Azure

1 Trillion

Messages delivered every
month with Event Hubs

OPEN - Azure is an Open Cloud



	Microsoft Integrated	Ecosystem Provided
Languages, Dev Tools and App Containers	 docker  Visual Studio Online  node  python  java  	 Ruby  Jenkins <u>Bring your own</u>
CMS and Apps	 WordPress  Joomla!  Drupal	Windows* Web App Gallery <u>Dozens of .NET and PHP CMS and Web applications</u>
Devices	   	 Xamarin  APACHE CORDOVA™ <u>Via HTML/JS, cross-platform and native</u>
Databases	Microsoft SQL Server  hadoop  redis	 clear db  MySQL  mongoDB  DocDB DATASTAX
Management	  CHEF  puppet labs	 ANSIBLE  SALTSTACK  libcloud jclouds
Operating systems	 Windows  <u>Ubuntu, SUSE, OpenSUSE, OpenLogic, CentOS-based, Oracle Linux, CoreOS</u>	 VM Depot  FreeBSD <u>Bring your own</u>

- Microsoft is an active and mature participant & contributor to OSS projects
- Broad OSS ecosystem in Azure marketplace and validated/curated by Microsoft
- Visual Studio 2015 are supporting developers not running our platform
- > 20% of Azure deployments are on Linux

Platform Services

Security & Management

- Portal
- Active Directory
- Multi-Factor Authentication
- Automation
- Key Vault
- Store / Marketplace
- VM Image Gallery & VM Depot

Compute

- Cloud Services
- Service Fabric
- Batch
- Remote App

Web and Mobile

- Web Apps
- API Apps
- API Management
- Mobile Apps
- Logic Apps
- Notification Hubs

Developer Services

- Visual Studio
- Azure SDK
- Team Project
- Application Insights

Hybrid Operations

- Azure AD Connect Health
- AD Privileged Identity Management
- Backup
- Operational Insights
- Import/Export
- Site Recovery
- StorSimple

Integration

- Storage Queues
- Biztalk Services
- Hybrid Connections
- Service Bus

Analytics & IoT

- HDInsight
- Machine Learning
- Data Factory
- IoT and Event Hubs
- Stream Analytics
- Mobile Engagement

Data

- SQL Database
- SQL Data Warehouse
- Redis Cache
- Search
- DocumentDB
- Tables

Media & CDN

- Media Services
- Content Delivery Network (CDN)

Infrastructure Services

Compute

- Virtual Machines
- Containers

Storage

- BLOB Storage
- Azure Files
- Premium Storage

Networking

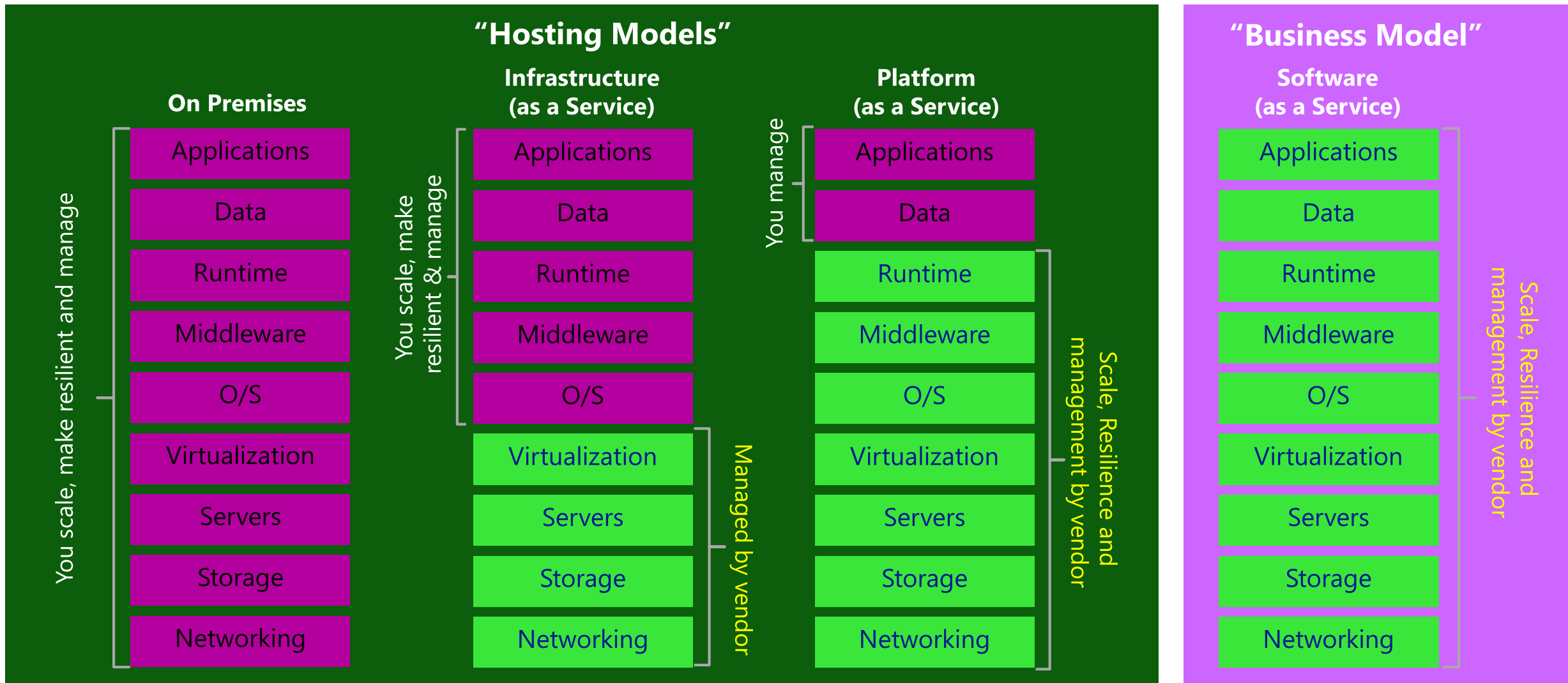
- Virtual Network
- Load Balancer
- DNS
- Express Route
- Traffic Manager
- VPN Gateway
- Application Gateway

Datacenter Infrastructure (24 Regions, 19 Online)



Cloud choices – IaaS and PaaS

Where to put the development effort?



Two really popular PaaS offerings for ISVs

App Services



Web Apps



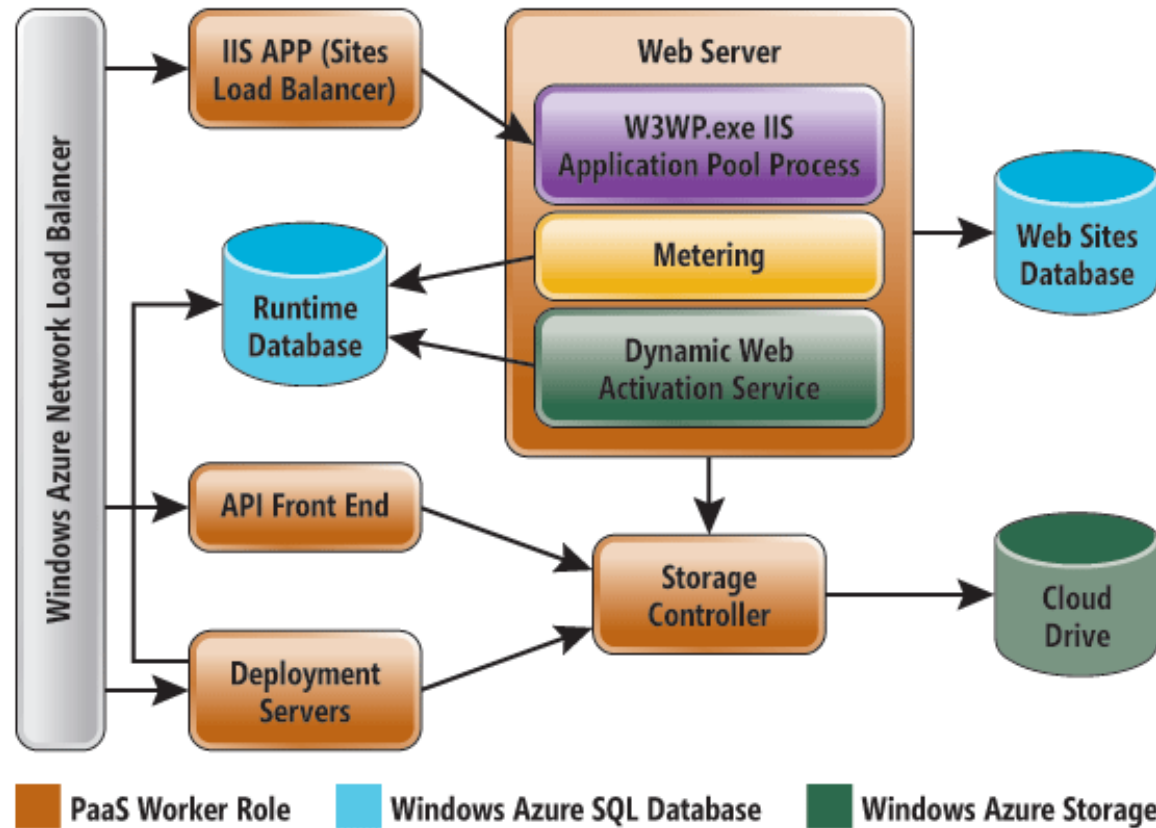
Web Jobs

Data



SQL
Database

"Web sites as a service"



App Service is a cloud platform to build powerful web and mobile apps that connect to data anywhere, in the cloud or on-premises

Azure App Services

Settings

GENERAL

- Properties >
- Apps >
- File System Storage >
- Networking >

APP SERVICE PLAN

- Scale Up (App Service Plan) >
- Scale Out (App Service Plan) >

OBSERVE

Choose your pricing tier

Browse the available plans and their features

App Service Environments are available in the Premium tier. They offer even greater scale options, private access, and more. [Learn more](#)

★ Recommended | [View all](#)

S1 Standard		B1 Basic		P2 Premium	
1	Core	1	Core	2	Core
1.75	GB RAM	1.75	GB RAM	3.5	GB RAM
50 GB Storage		10 GB Storage		BizTalk Services	
5 SNI, 1 IP Custom domains		Custom domains		250 GB Storage	
Up to 10 instances Auto scale		Up to 3 instances Manual scale		Up to 20 instances * Subject to availability	
Daily Backup				20 slots Web app staging	
5 slots Web app staging				50 times daily Backup	
Traffic Manager Geo availability				Traffic Manager Geo availability	
45.45		34.09		149.99	
GBP/MONTH (ESTIMATED)		GBP/MONTH (ESTIMATED)		GBP/MONTH (ESTIMATED)	

Choose pricing tier

Azure App Services

The diagram illustrates the Azure App Services architecture. It shows a central 'AZURE WEB SITE' box with a GitHub logo. To the left, 'END USERS' (represented by a monitor, laptop, and smartphone) interact with the site. To the right, 'DEVELOPERS' (represented by laptops) interact with the site. Above the central box, the text 'Develop apps with...' is followed by a list of supported languages: .NET, Python, Node.js, Java, and PHP. The screenshot on the right shows the 'Application settings' page for an application named 'bandontheruntracker'. The settings include:

- .NET Framework version: v4.6
- PHP version: 5.4
- Java version: Off
- Python version: Off
- Platform: 32-bit (selected), 64-bit
- Web sockets: Off (selected), On
- Always On: Off (selected), On
- Managed Pipeline Version: Integrated (selected), Classic
- Auto swap destinations cannot be configured from production slot
- Auto Swap: Off (selected), On
- Auto Swap Slot: (empty dropdown)
- Debugging: (empty dropdown)
- Remote debugging: Off (selected), On

Choose of dev languages

Azure App Services



Auto scale

Scale setting
Sitewithsqlserver

Save Discard

1 0.8 0.6 0.4 0.2 0

FEB 19 FEB 20 FEB 21 FEB 22 FEB 23 FEB 24 FEB 25

INSTANCES
1

Scale by: schedule and performance rules

Description: Create your own set of rules. Create a schedule that adjusts your instance counts based on time and performance metrics.
Default, scale 1 - 2

Settings: CPU Percentage > 80 (increase count by 1)
CPU Percentage < 60 (decrease count by 1)
Add Rule
Add Profile

Scale rule

80% 60% 40% 20% 0%

FEB 19 FEB 21 FEB 23 FEB 25

* Resource: Sitewithsqlserver (serverfarms)

* Metric name: CPU Percentage

* Operator: Greater than

Threshold: 80

Duration (minutes): 10

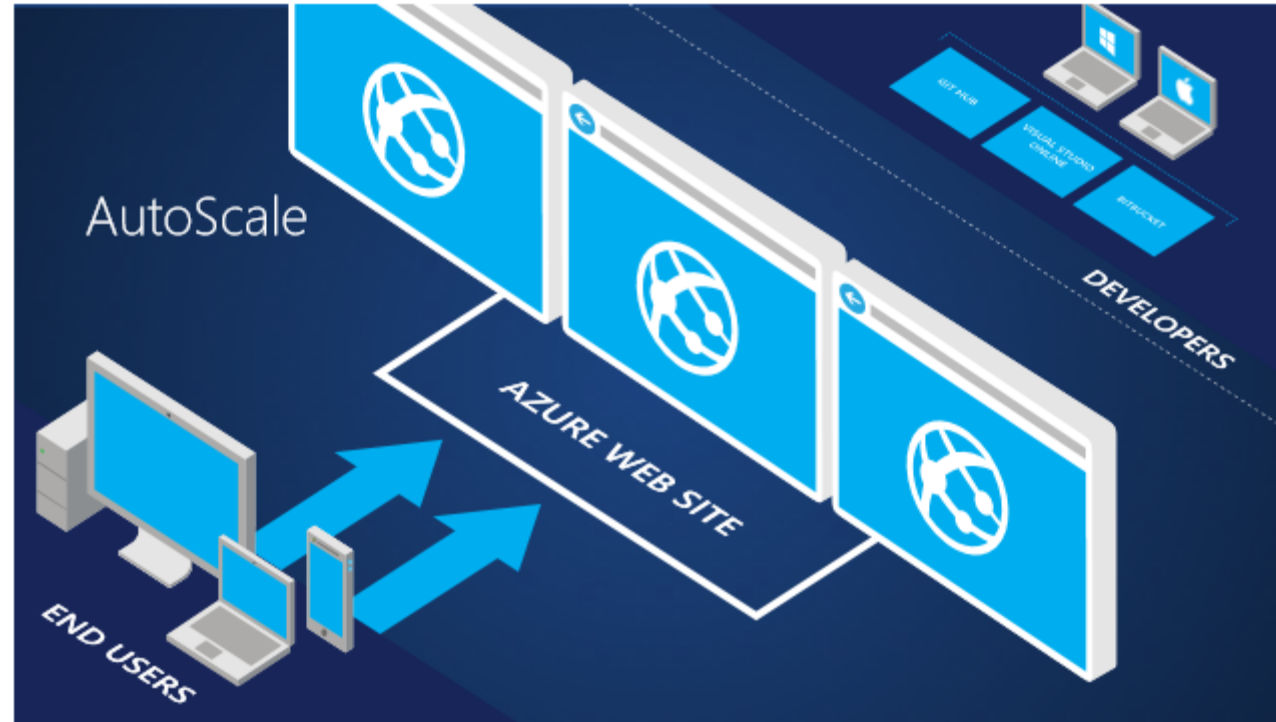
Time aggregation: Average

* Action: increase count by

Value: 1

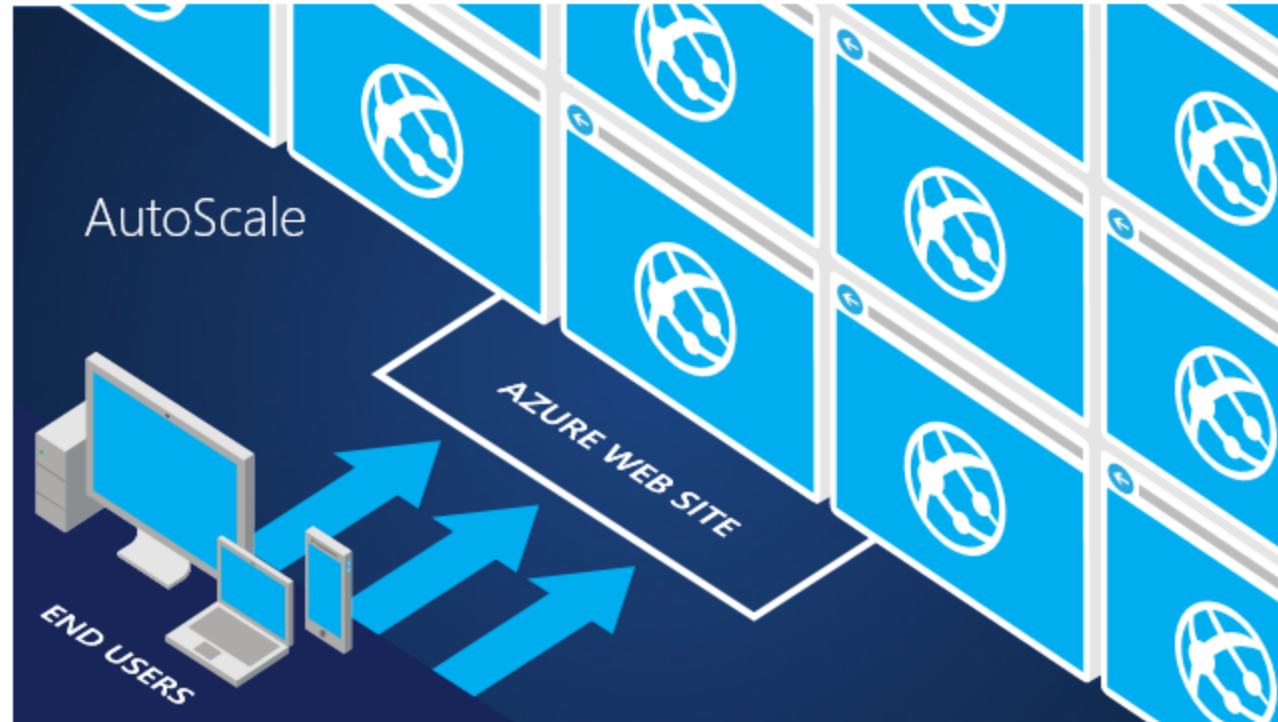
Cool down (minutes): 10

Azure App Services



Auto scale

Azure App Services



Auto scale

Azure App Services



Deployment slots
MYWORDPRESSWEBAPP

+
Add Slot

NAME	STATUS	APP SERVICE PLAN
mywordpresswebapp-staging	Running	
mywordpresswebapp-dev	Running	
mywordpresswebapp-test	Running	

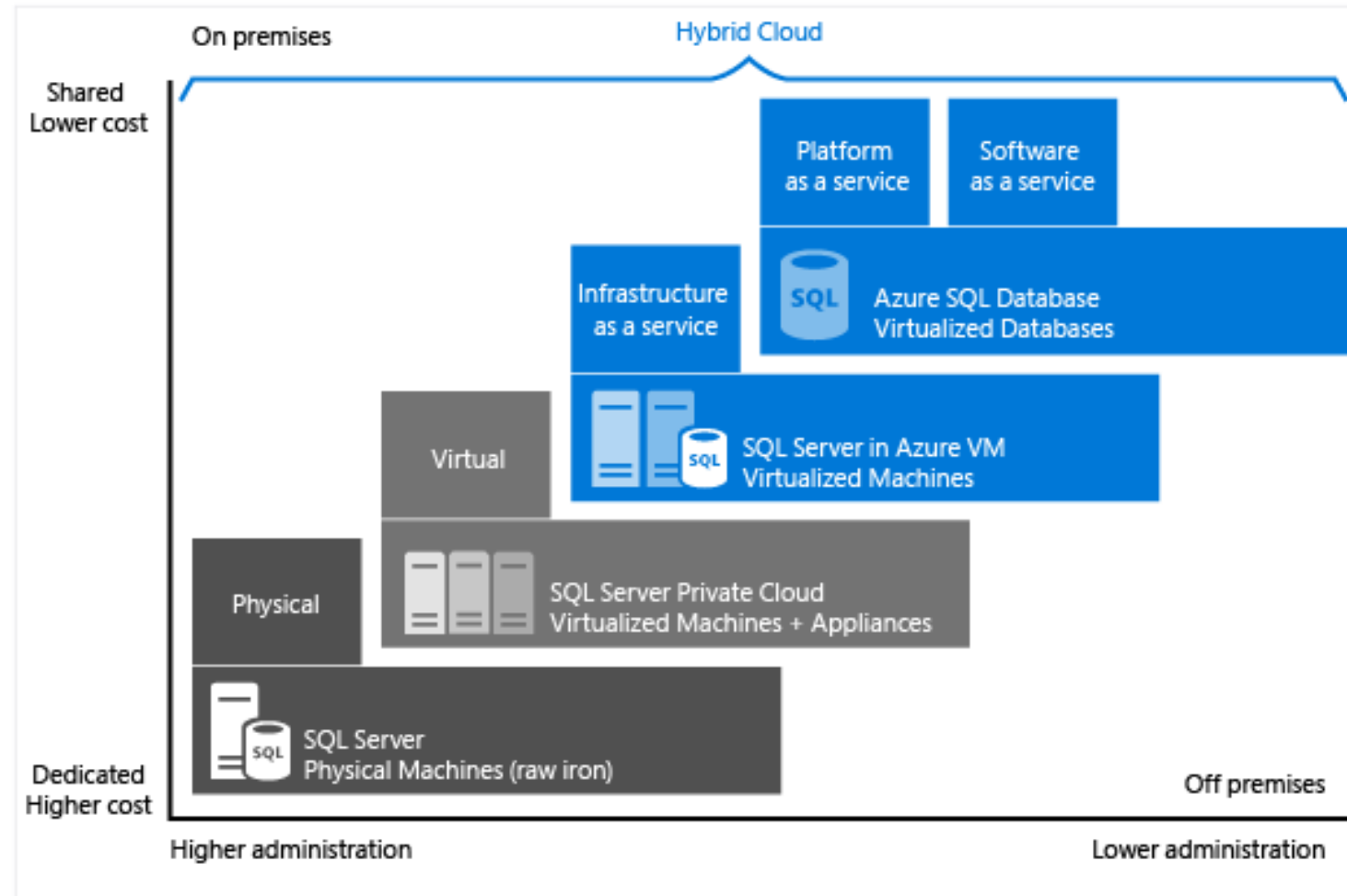
Staging slots

Azure App Services



Integration with Traffic Manager

SQL Database (aka 'SQL Azure')

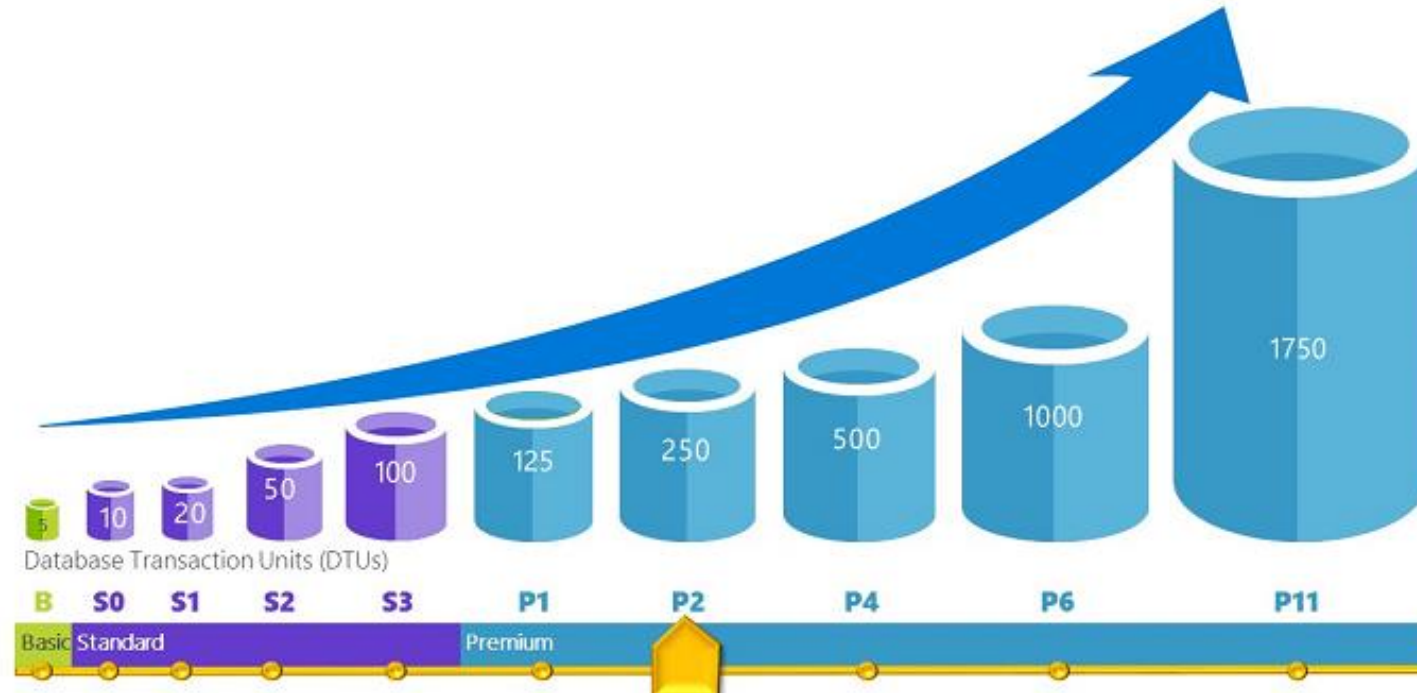


SQL Database

B Basic	S1 Standard	P1 Premium
5 DTUs	20 DTUs	125 DTUs
Up to 2GB	Up to 250 GB	Up to 500 GB
Point In Time Resto...	Standard Geo-Repli...	Active Geo-Replicat...
Auditing	Point In Time Resto...	Point In Time Resto...
Auditing	Auditing	Auditing
3.05	18.33	284.07
GBP/MONTH (ESTIMATED 31 BASI...	GBP/MONTH (ESTIMATED 31 S1 D...	GBP/MONTH (ESTIMATED 31 P1 D...

- Available in Basic, Standard, and Premium *service tiers*
- Supports lightweight to heavyweight database workloads
- Change the service tier manually or programmatically

SQL Database



- Database Transaction Unit (DTU) is unit of measure represents relative power databases
- Each performance level provides increasing set of resources ('power') designed to deliver increasingly higher throughput.
- Rating measured using the Azure SQL Database Benchmark (ASDB)

