

SUNET

Molnet är relevant för alla
– framtiden i Azure är nu –

Magnus Mårtensson
LOFTYSOFT



Point of order

Does anyone in the audience
need me to present this session in *English*?

If not I will do it in *Skånska*!

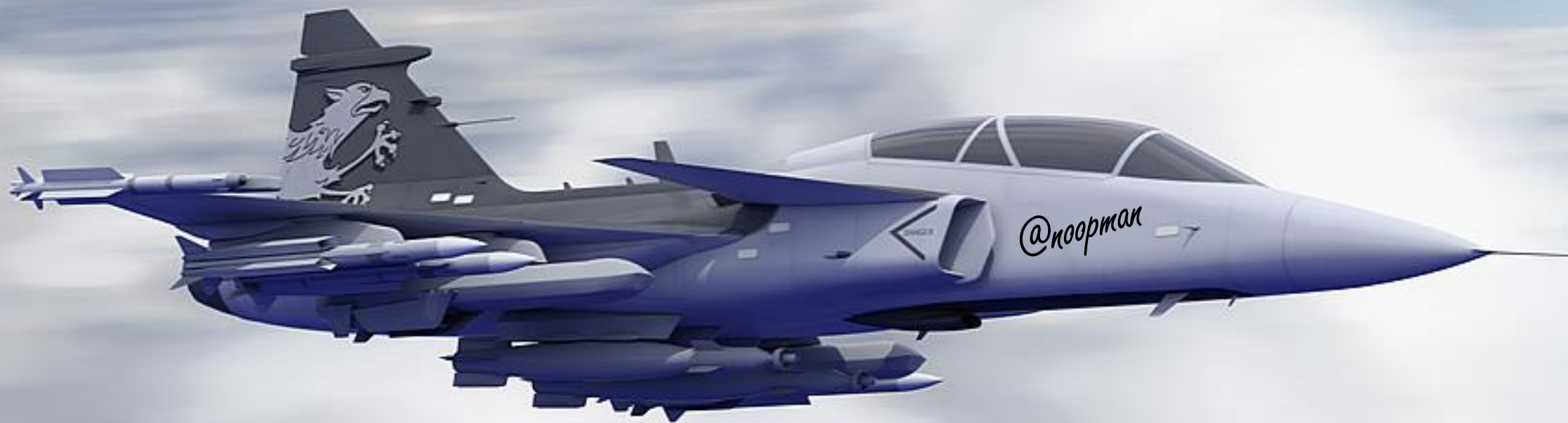
What are the things the Cloud brings that makes it different?

What new things do we need to take into account when migrating to building for the Cloud?

What is the path when *going Cloudy*?

You!





magnus@loftysoft.com





ANNE OCH MAGNUS BEVAKAR STUDENTERNAS INTRESSEN

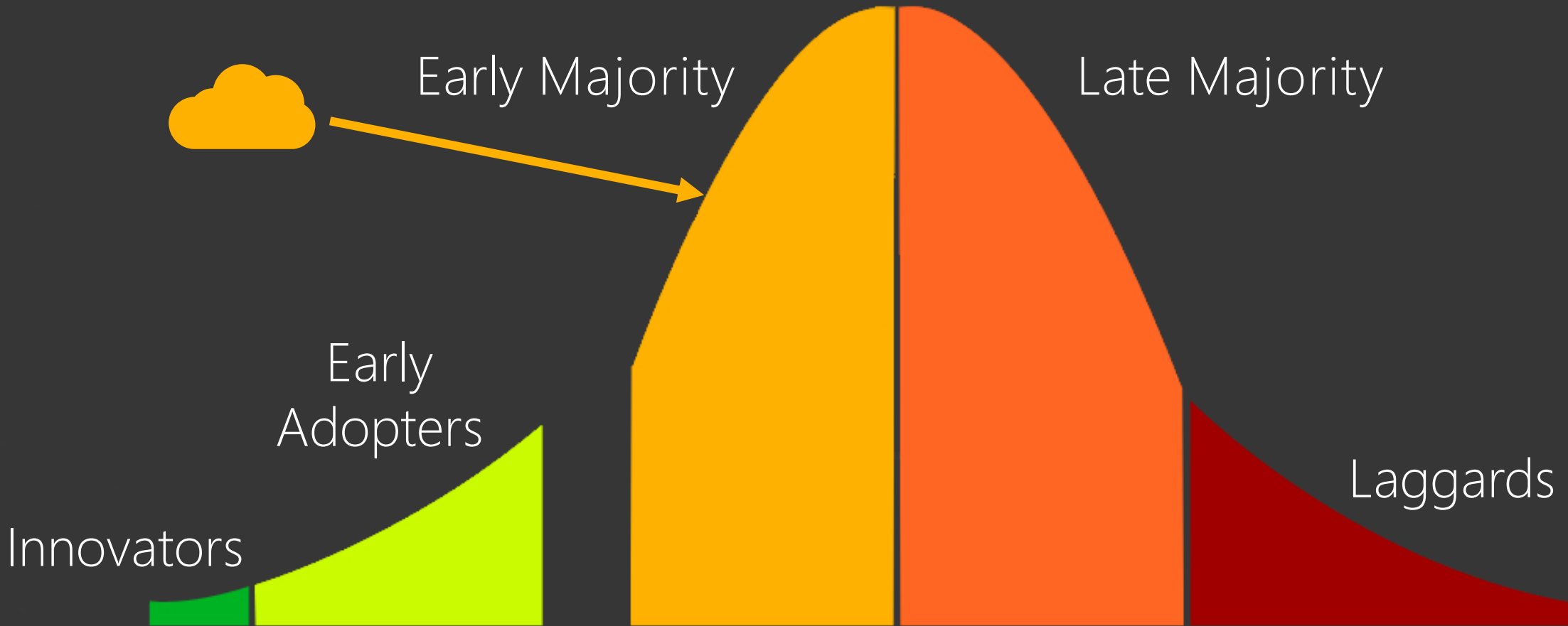
SUNET-styrelsen har fått tillökning! Numera har även två studeranderepresentanter säte där. De två som SFS utsett att föra studenternas talan är Anne Ehrenholm och Magnus Mårtensson.

#GlobalAzure Bootcamp April 16, 2016.



global.azurebootcamp.net

Technology Adoption Lifecycle



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
- 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 and more coming)



* Content over Conversation Disclaimer *

The important thing
is the conversation we will have!



Network Coverage

Express Route Partners

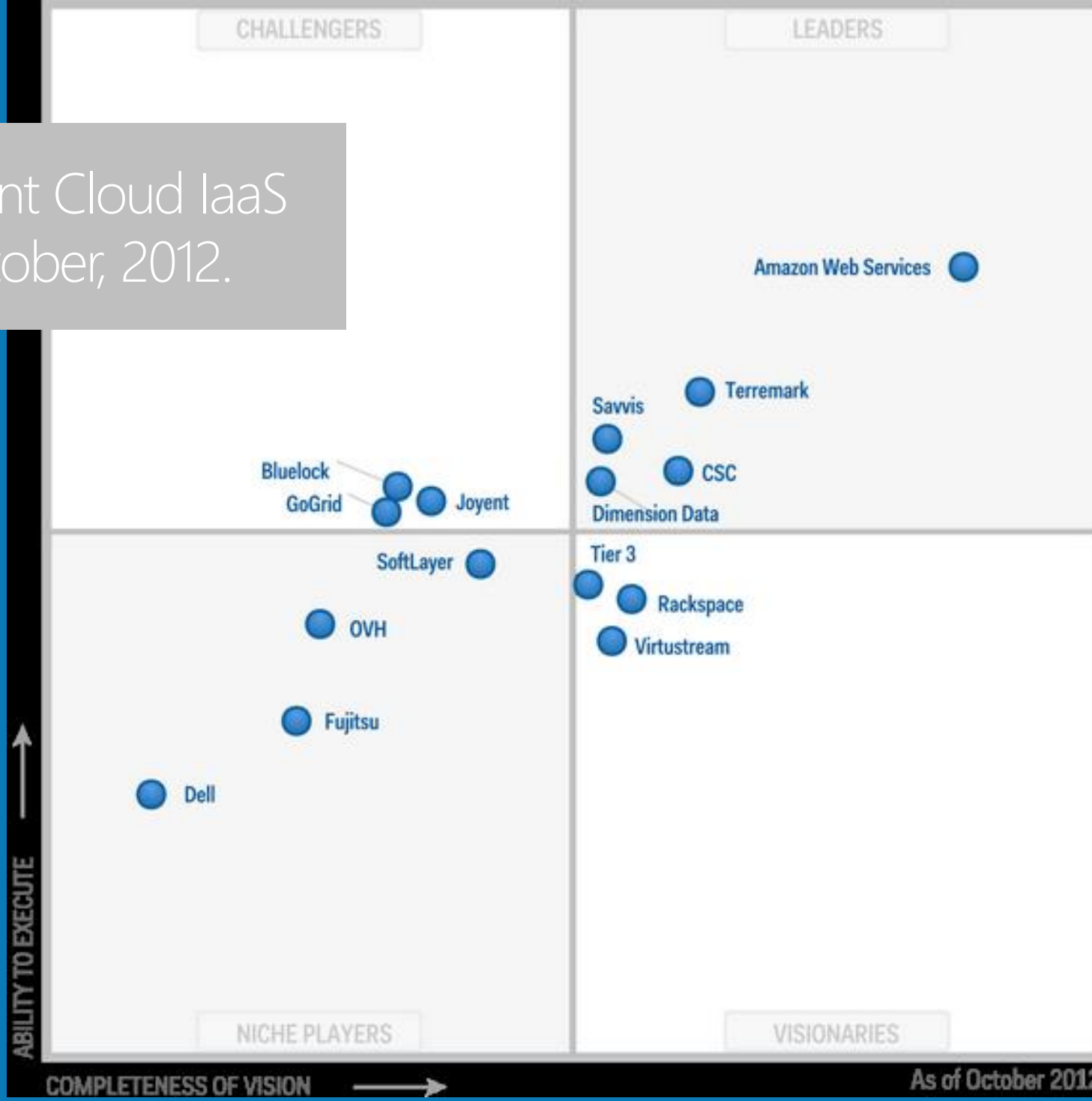


Plus 31 CDN Point of Presence locations



- AZURE REGIONS
- EXPRESSROUTE LOCATIONS
- CDN POINT OF PRESENCE

Magic Quadrant Cloud IaaS
Gartner, October, 2012.



As of October 2012

Magic Quadrant Cloud IaaS
Gartner, August 19, 2013.



Magic Quadrant Cloud IaaS
Gartner, May 28, 2014.



Magic Quadrant Cloud IaaS
Gartner, May 18, 2015.



Magic Quadrant Cloud PaaS
Gartner, January 8, 2013.



Magic Quadrant Cloud PaaS
Gartner, March 24, 2015.



ABILITY TO EXECUTE ↑

COMPLETENESS OF VISION →

As of March 2015

Industry validation



Summary of Major Vendor Emphasis

	Build Private Services	Deliver Services	Services Delivered*			Private Offerings	
			IaaS	PaaS	SaaS	Enabling Tech.	Packaged Cloud
Amazon	○	●	●	●	○	None	None
salesforce.com	○	●	○	●	●	None	None
Google	○	●	●	●	●	None	None
Microsoft	●	●	●	●	●	●	●
IBM	●	●	●	●	●	●	●
VMware	●	●	○	●	●	●	●
Oracle	●	●	●	●	●	●	●
SAP	○	●	○	●	●	None	None
HP	●	●	●	●	●	●	●

Note: This is not an evaluation of capabilities, but rather of emphasis.



* The provider may offer public, community or virtual private services

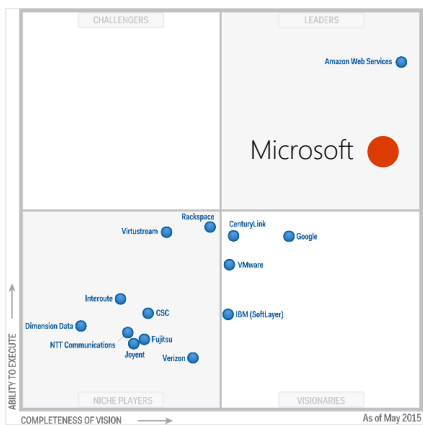
Gartner

"Microsoft's comprehensive hybrid story, which spans applications and platforms as well as infrastructure, is highly attractive to many companies, drawing them towards the cloud in general."

LYDIA LEONG,
GARTNER

Microsoft Leads Everywhere...

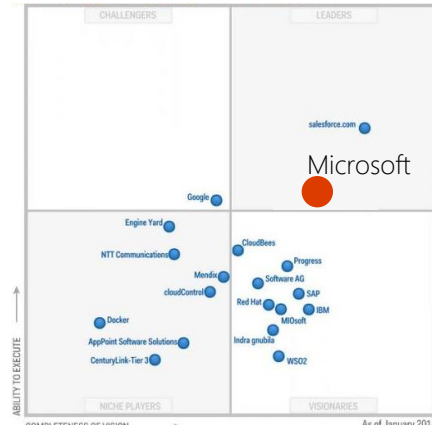
Public Cloud IaaS (May 2015)



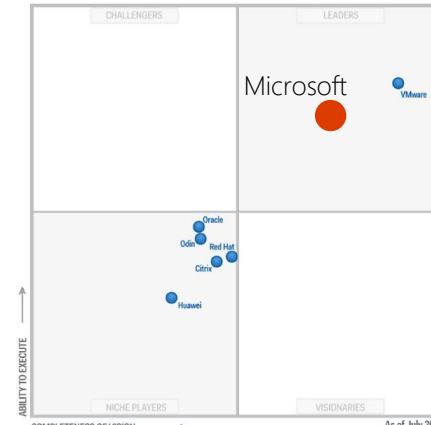
Cloud Storage (June 2015)



Enterprise App PaaS (Jan 2014)



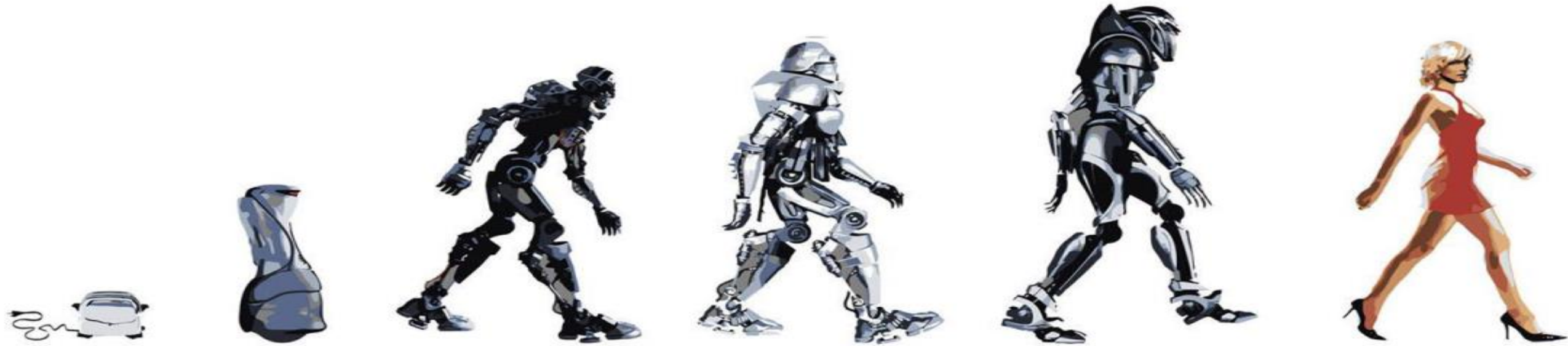
X86 Server Virt (July 2015)



Operational DBMS Systems (Oct 2015)



Hybrid



EVOLUTION OF THE CYLON

Battlestar Galactica

The three Big Ones are *AWS, Azure & AppEngine*.

Azure has a complete set of offerings in the Cloud.

Azure owns the on premise -> hybrid -> Cloud story.



Microsoft Azure

Enterprise Grade Enhancements



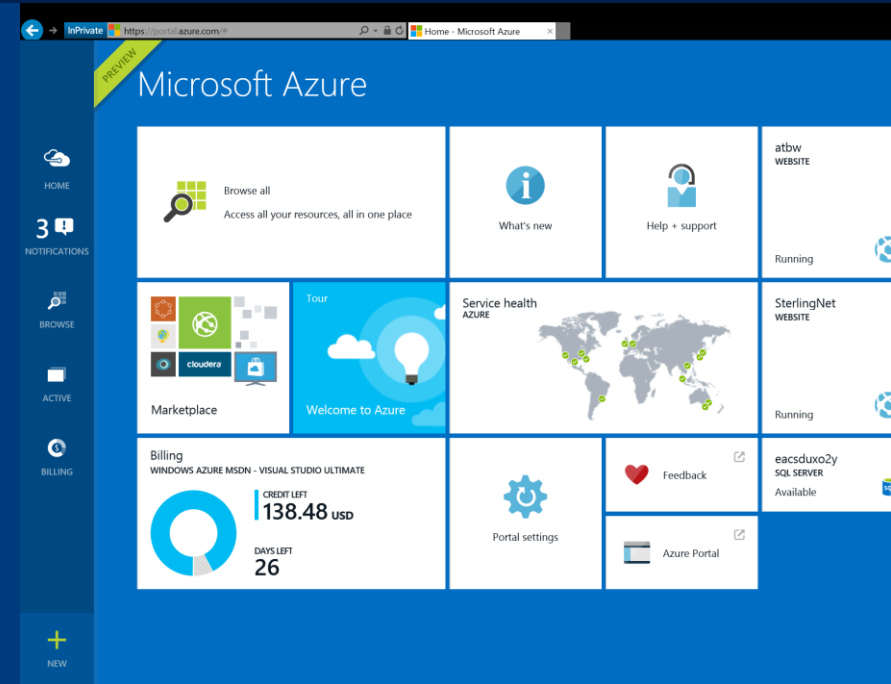
Largest VMs in Public Cloud

Optimized for data workloads
Up to 32 CPU cores, 450 GB RAM,
6.5 TB local SSD
Latest generation Intel processor



Premium Storage

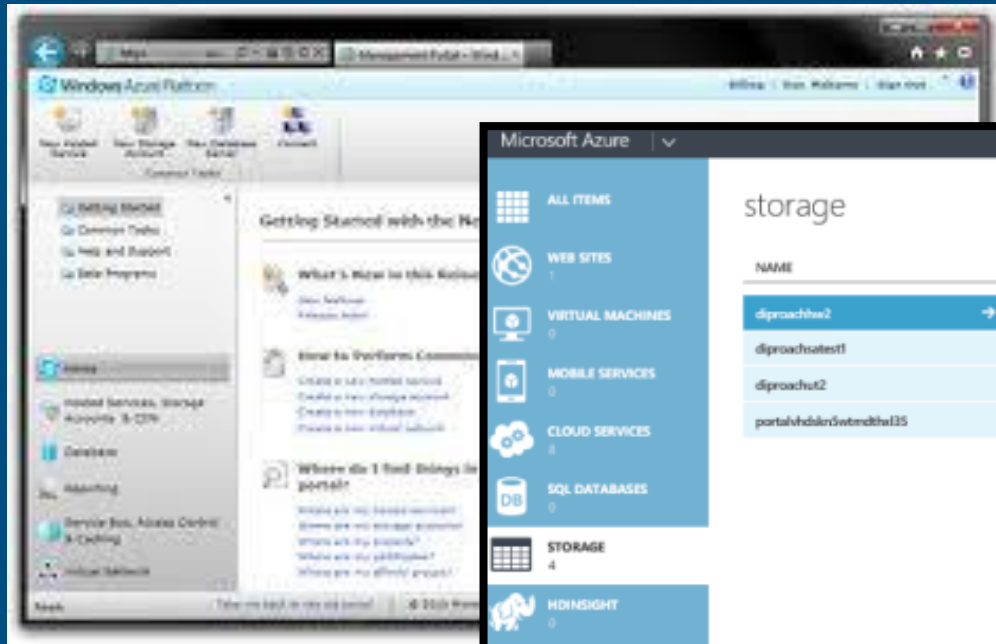
Up to 64 TB of storage per VM
>50,000 IOPS per VM
Less than 1ms read latency



End to End Management

Integrated management portal
Application Templates
Lifecycle Management
Role Based Access Control
Billing API

Three Management Portals (so far)



This screenshot shows the Microsoft Azure portal interface. The top navigation bar includes 'Microsoft Azure', 'CREDIT STATUS', and 'Subscriptions'. The left sidebar lists various services, with 'STORAGE' selected and showing a count of 4. The main content area displays a table titled 'storage' with the following data:

NAME	STATUS	LOCATION	SUBSCRIPTION
diproachw2	Online	West US	Windows Az
diproachstest1	Online	West US	Windows Az
diproachst2	Online	West US	Windows Az
portalvhdbin5vtrndth135	Online	North Europe	Windows Az

This screenshot shows the Microsoft Azure dashboard. The top navigation bar includes 'Microsoft Azure' and the user's name 'Austin Banner'. The dashboard is divided into several sections:

- Service health:** A world map showing service health across different regions.
- Requests and errors today:** A bar chart showing requests and errors over time, with a total of 75.55k requests and 0 HTTP server errors.
- Billing:** A line chart showing current charges of 0.00 USD and 11 days left.
- Sessions per browser:** A donut chart showing sessions for Internet Explorer, Chrome, Firefox, and Safari, with a total of 20021 sessions.
- Events in the past week:** A bar chart showing events over time.
- Page views (top 5 pa...):** A line chart showing page views for different pages.
- Database Size:** A donut chart showing database size at 60%.

Huge infrastructure scale is the enabler

24 Regions Worldwide, more in production around the world.



- 100+ datacenters
- Top 3 networks in the world
- 2x AWS, 6x Google DC Regions
- G Series – Largest VM in World, 32 cores, 448GB Ram, SSD...

500+

New releases in
the last 12 months

Azure Site Recovery: Protect VMWare and Physical Servers
in Public Preview

Azure Backup Generally Available

Azure API Management Premium simplifies high availability and
massive scale for APIs

ExpressRoute for Office 365

Azure Active Directory Dynamic Membership For Groups

Automatic Password Change for Social Media Shared Accounts

Compute-Intensive A10 and A11 Virtual Machine Instances

Remote Desktop app for Windows Phone support for Gateway
and Remote Resources

Informatica Cloud Agent availability in Linux and Windows Virtual
Machines

Azure DocumentDB Hadoop Connector

Azure HDInsight support for more VM sizes

Enterprise-Grade Array-Based Replication and Disaster Recovery
with AFB and System Center CA

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
- 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, 22 Online)



Building applications today
is becoming less about building applications
and more about using existing services
to bolt applications together!

Chris Auld, Regional Director, InterGen

SQL Database to Azure

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
- Azure Functions "Serverless"
- 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
- 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

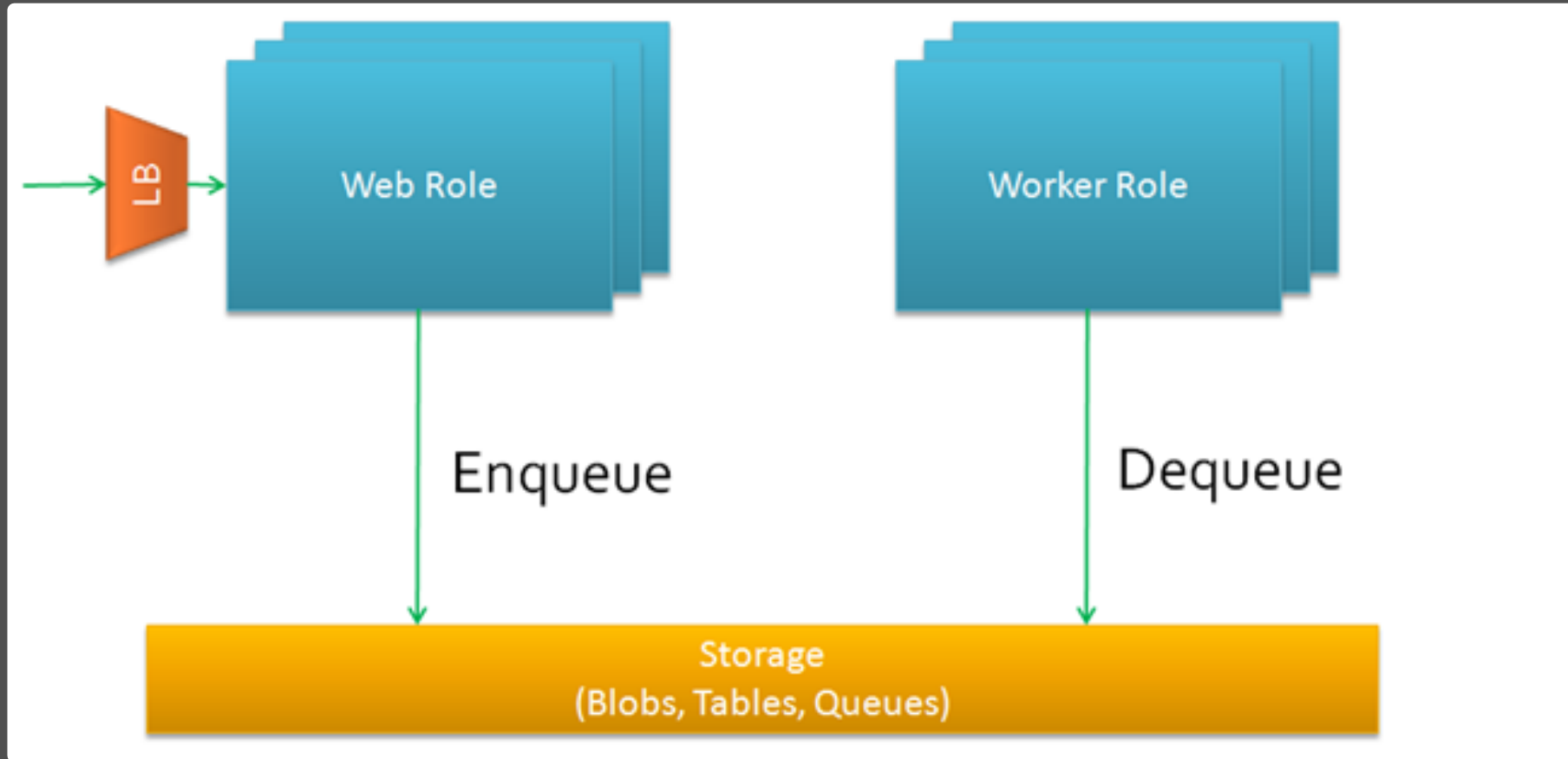
Datacenter Infrastructure (24 Regions, 22 Online)





Cloud Service

Microsoft Azure CloudService Architecture





Virtual Machine



Cloud Service



Virtual Machine



Cloud Service

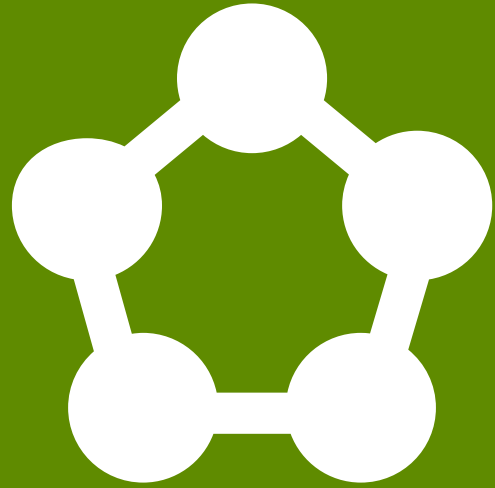


Web Site

WebApp in Azure



Virtual
Machine



Service
Fabric



Cloud
Service



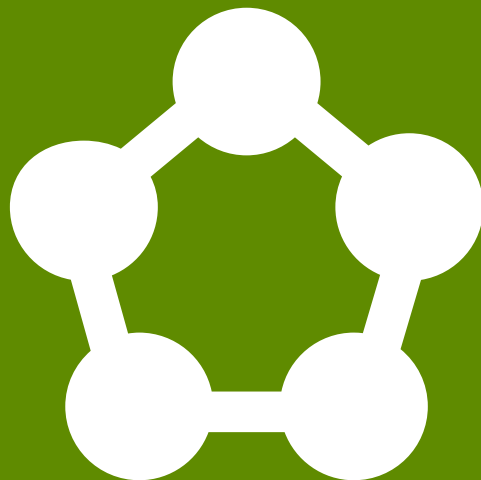
WebApp



Virtual
Machine



Container



Service
Fabric



Cloud
Service



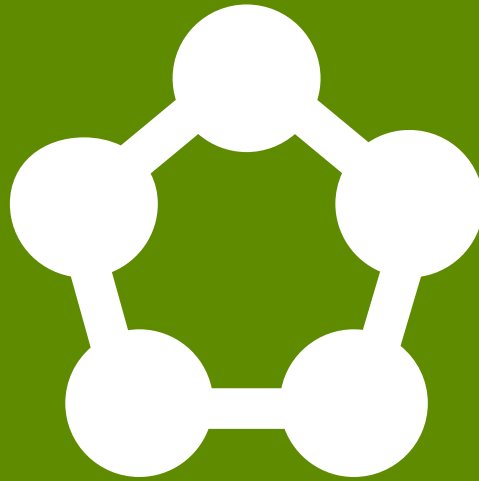
WebApp



Virtual
Machine



Container



Service
Fabric



Cloud
Service



WebApp

Serverless
Compute



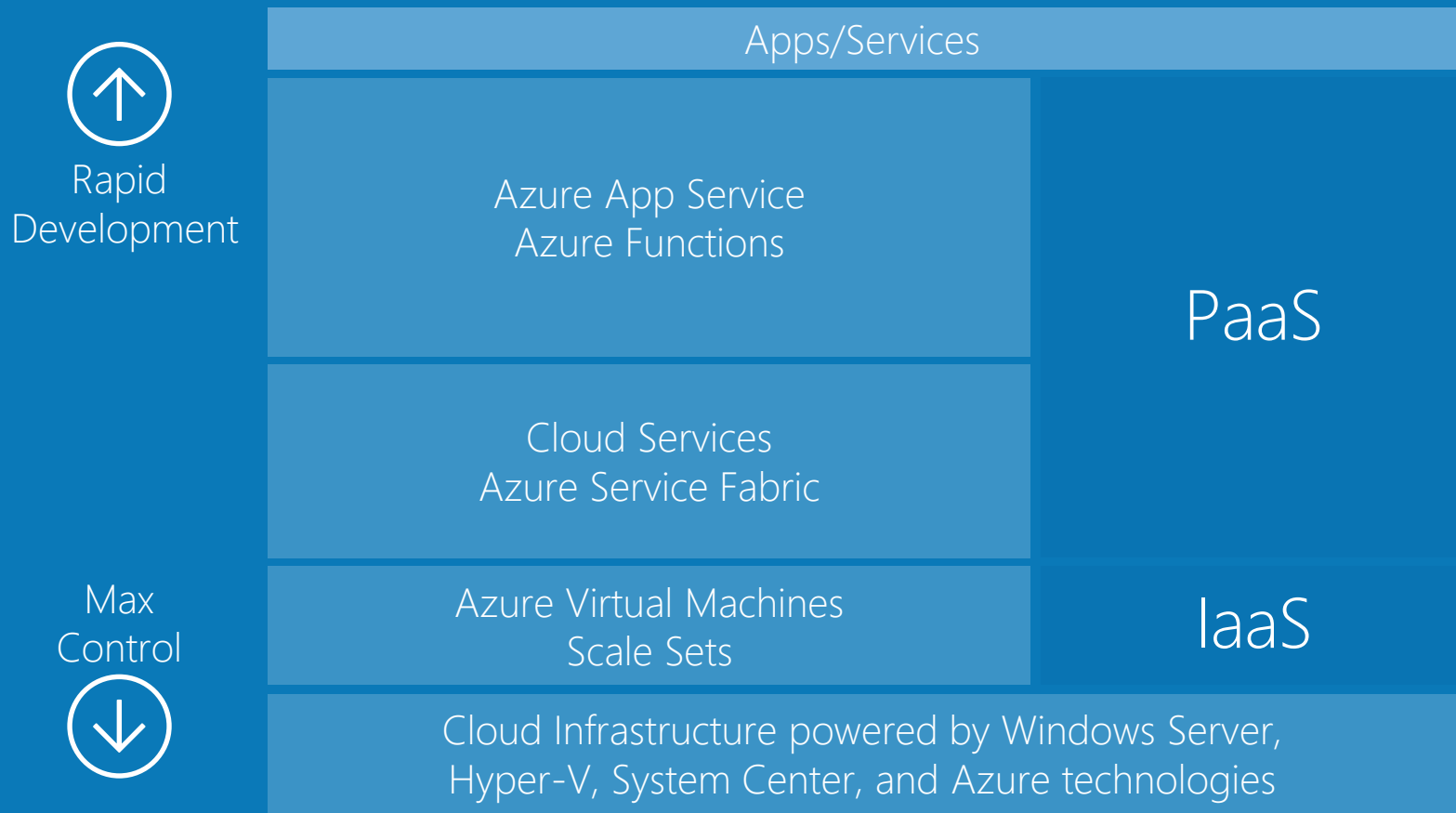


Worker Role

Simple Batch

Azure Functions

The Microsoft App Platform



IaaS

vs.

PaaS

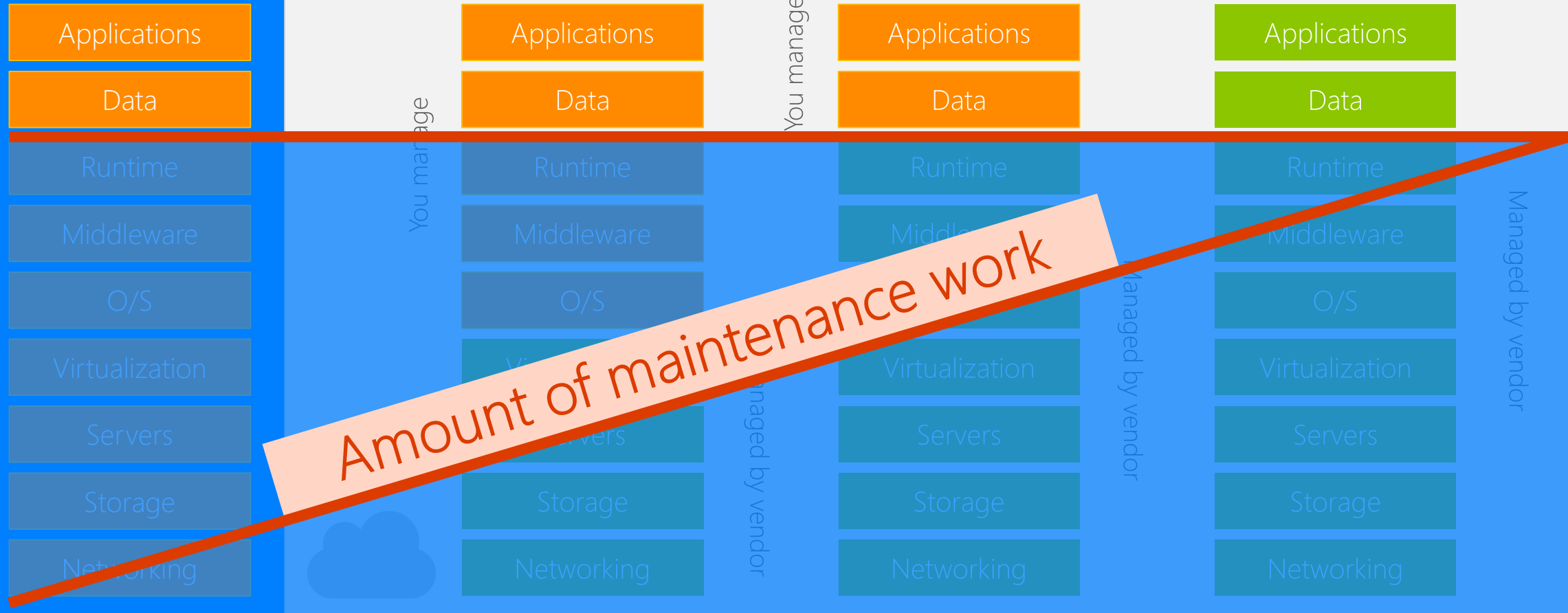
Cloud Computing

On Premise

Infrastructure
(as a Service)

Platform
(as a Service)

Software
(as a Service)



cost considerations

"Lift and Shift"

vs.

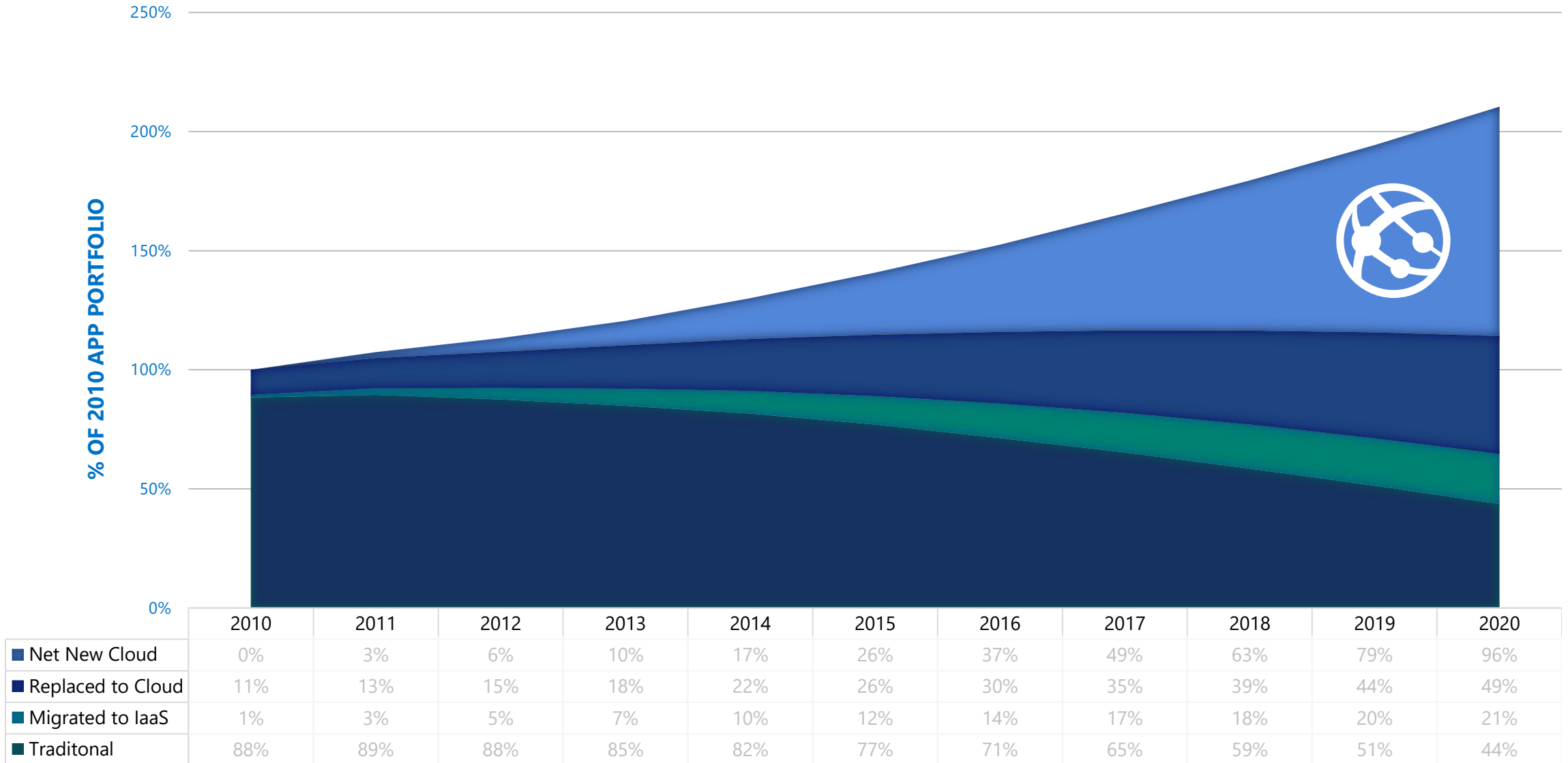
TCO

IaaS vs. PaaS

“Bottom Line: IaaS Is Winning”

(That's a limited and skewed view which will be proven wrong in the end! /Magnus)

Why architect for the cloud?



“Microsoft believes that PaaS provides *the best* foundation for creating, running and managing custom applications.”

bit.ly/ITasaService – Microsoft 2010

“Infrastructure services (IaaS) like compute, storage and networking defined the “first generation” of cloud computing adoption...

...many organizations are increasingly turning to platform services (PaaS) to create and deploy applications more quickly.

I call this the shift *from infrastructure to innovation*, and it's underway today.”

bit.ly/InfrastructureToInnovation Azure CTO Mark Russinovich, 2016

Horseless Carriage



In the inevitable PaaS future

We won't think about CPUs, RAMs,
Hard Drives and Network Capacity!

In the inevitable PaaS future

The expectation will be that your App/Service has the right amount of throughput/transactions/capacity per time unit, always, no matter if it's a huge peak or a slow weekend!

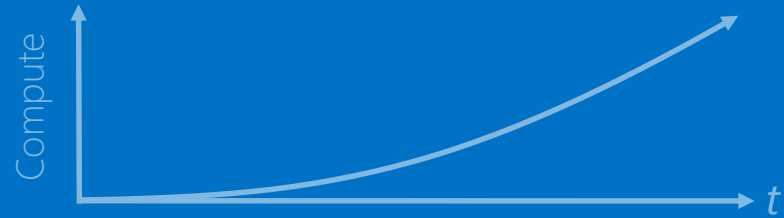
In the inevitable PaaS future

And you will pay
only for what you use!

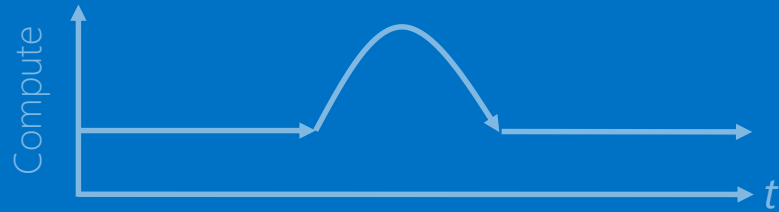
Cloud Computing Patterns



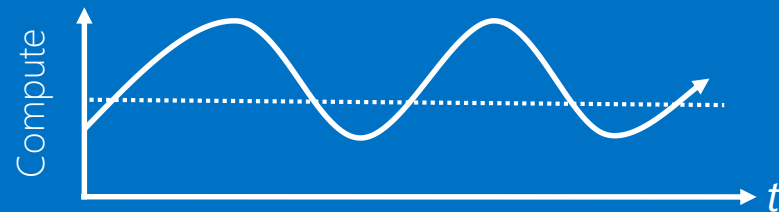
On and Off



Growing Fast



Unpredictable Bursting



Predictable Bursting

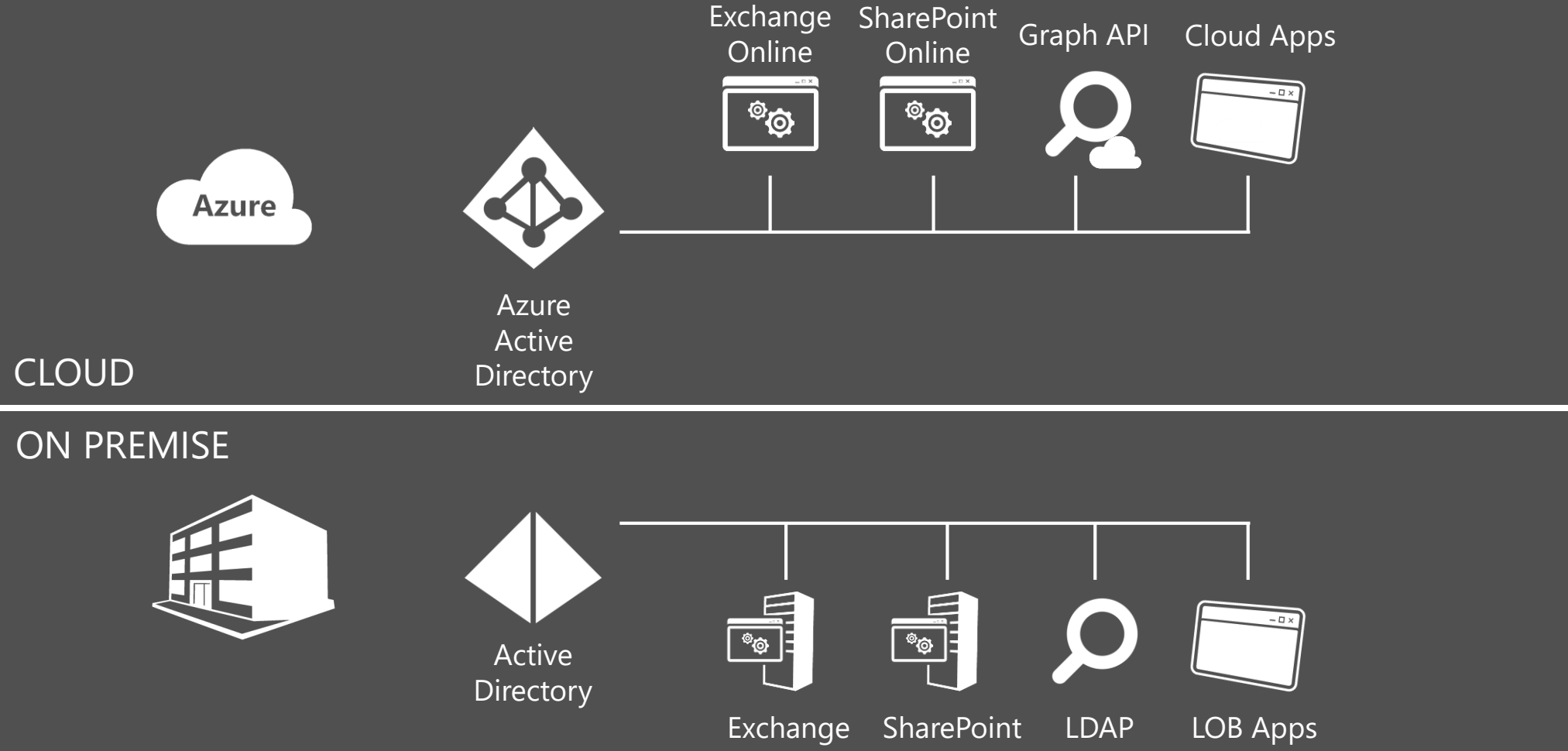
We are moving *from infrastructure to innovation*.

No cost calculations on premise or on VMs can measure up to elastic pay-per-use in the Cloud.

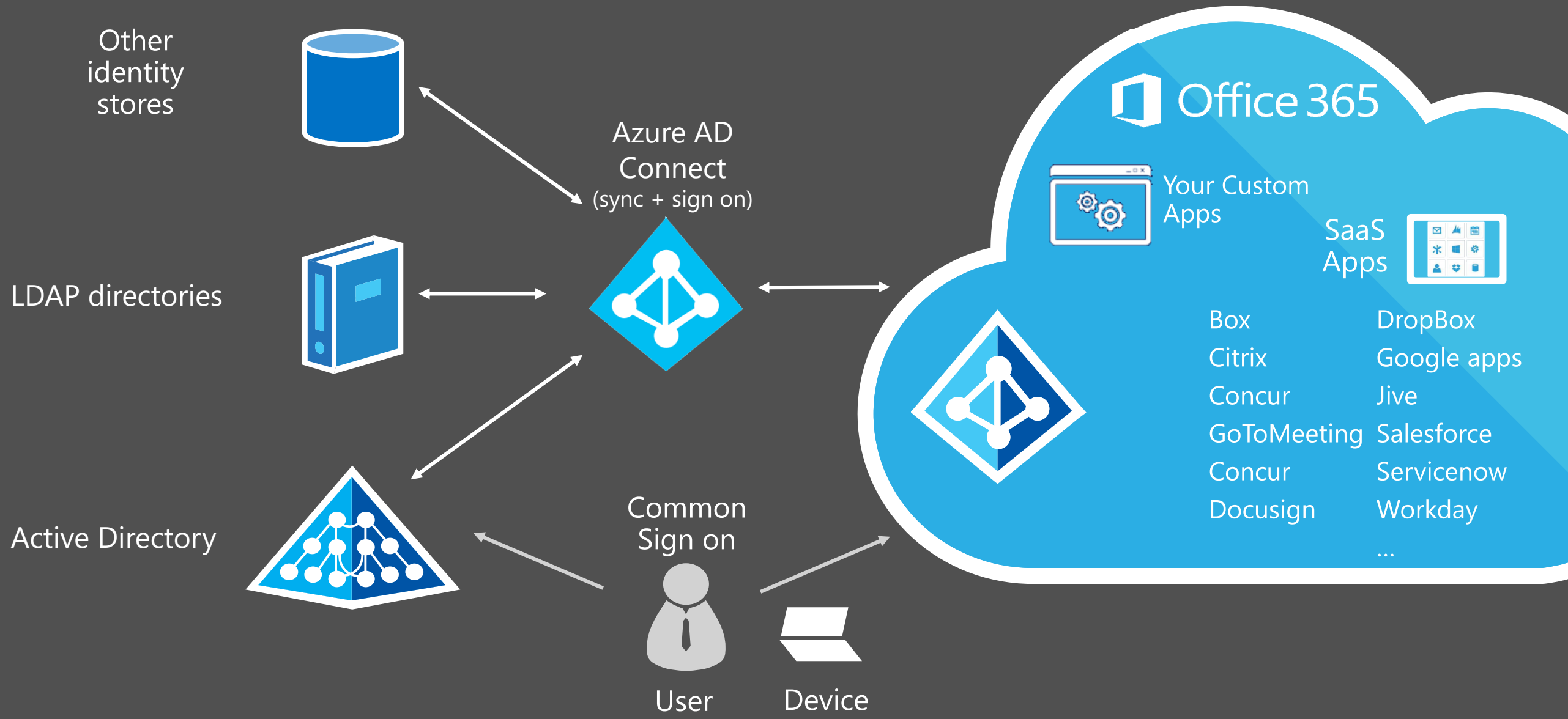
PaaS and Serverless Compute is the focus & the goal.

No way the Cloud is secure!

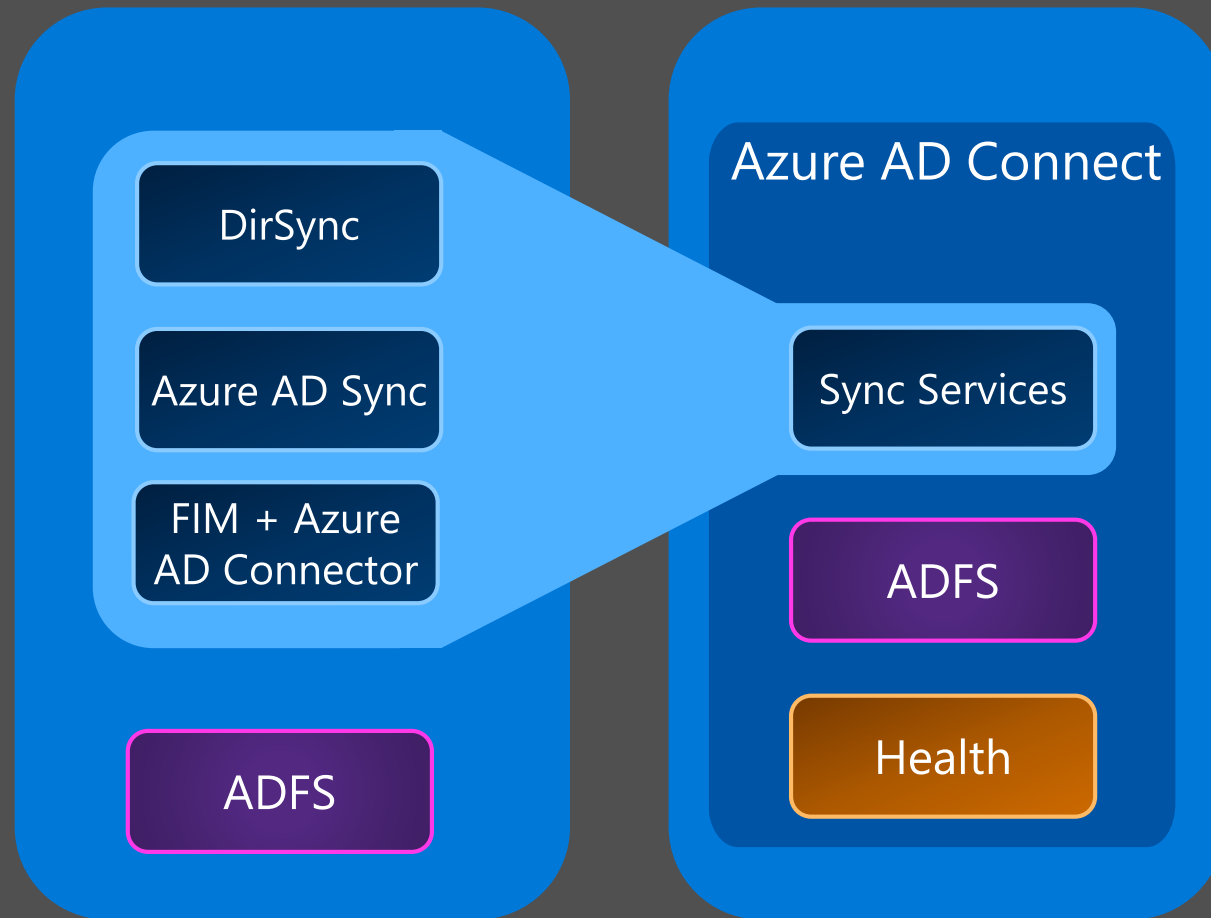
AD On Premise and Azure



Azure AD Connect: Your Identity Bridge



Making hybrid identity simple



Azure Active Directory
Connect

Consolidated
deployment assistant for
your identity bridge
components.

Azure AD has lots of high end features like
Privileged Identity Management



Azure AD Privileged
Identity Management

Privileged Identity Management

Privileged Identity Management

PREVIEW

- Manage identities
- Activate my role
- Review administrative access

Azure AD Privileged Identity Management

PREVIEW

Activity Add tiles (+)

Security alerts

ACTIVE ALERTS

0 Alerts

No alerts were found

Users in admin roles

1 Users

[Audit history](#) [Quick start](#)

Role summary Add tiles (+)

Roles

[CLICK HERE TO VIEW ALL USER ROLES](#)

ROLE NAME	MULTI-FACTO...	USERS	ACTIVE	TEMPORARY
Global Administrator	YES	1	1 (100%)	0 (0%)
Security Administrator	YES	1	1 (100%)	1 (100%)

Security reviews Add tiles (+)

Active security reviews

[CLICK HERE TO VIEW ALL REVIEWS](#)

NAME	OWNER	END DATE
No active security reviews were found		

[Add a group \(+\)](#)

AAD – lots of features

SSO for Cloud Apps

Application Proxy for on Premise Apps

Multi Factor Authentication

B2B

B2C

Password Self Service Reset

Group Management Self Service

Advanced Security Reports and Alerts

Company Branding

Enterprise SLA

...

Monitors entire Azure deployments for compliance with security policies you define.

Simple point-and-click remediation.

bit.ly/azureSecurityCenter



Azure Trust Center bit.ly/azuretrustcenter

- ✓ Security: We work to keep your data safe.
- ✓ Privacy: You own and control your customer data.
- ✓ Transparency: You know how your data is stored and accessed, and how we help secure it.
- ✓ Compliance: We conform to global standards.

Security is not the most critical or even interesting issue
in a Cloud adoption strategy!

Basically Microsoft has got this covered!

Any questions?

Have it *your way* in the Cloud!

OSS on Azure



Linux in Azure



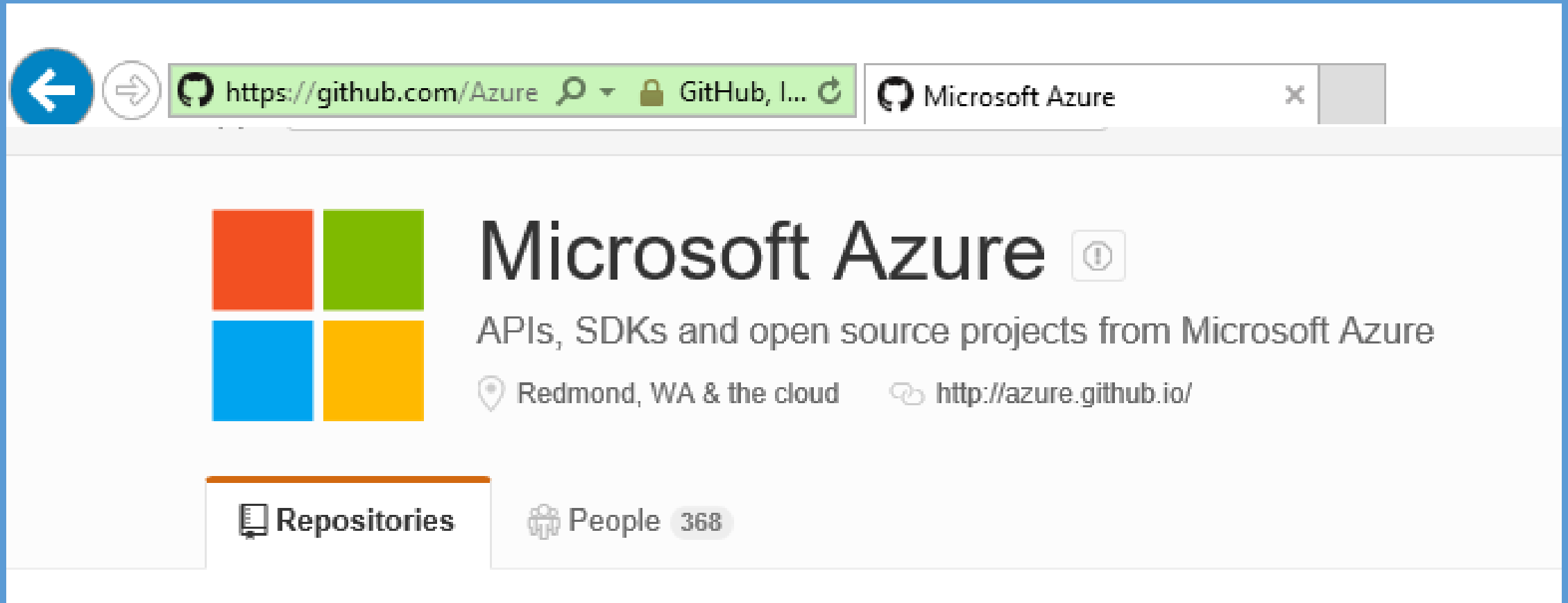


bit.ly/microsoftredhat



SQL Server  Linux

What about languages on Azure?



The screenshot shows a web browser window with the address bar displaying `https://github.com/Azure`. The page content includes the Microsoft Azure logo (four colored squares: red, green, blue, yellow), the text "Microsoft Azure" with an information icon, and the subtitle "APIs, SDKs and open source projects from Microsoft Azure". Below this, it lists the location "Redmond, WA & the cloud" and the URL "http://azure.github.io/". At the bottom, there are two tabs: "Repositories" and "People 368".

github.com/azure

Hybrid



EVOLUTION OF THE CYLON

Battlestar Galactica

Power of Azure in your datacenter

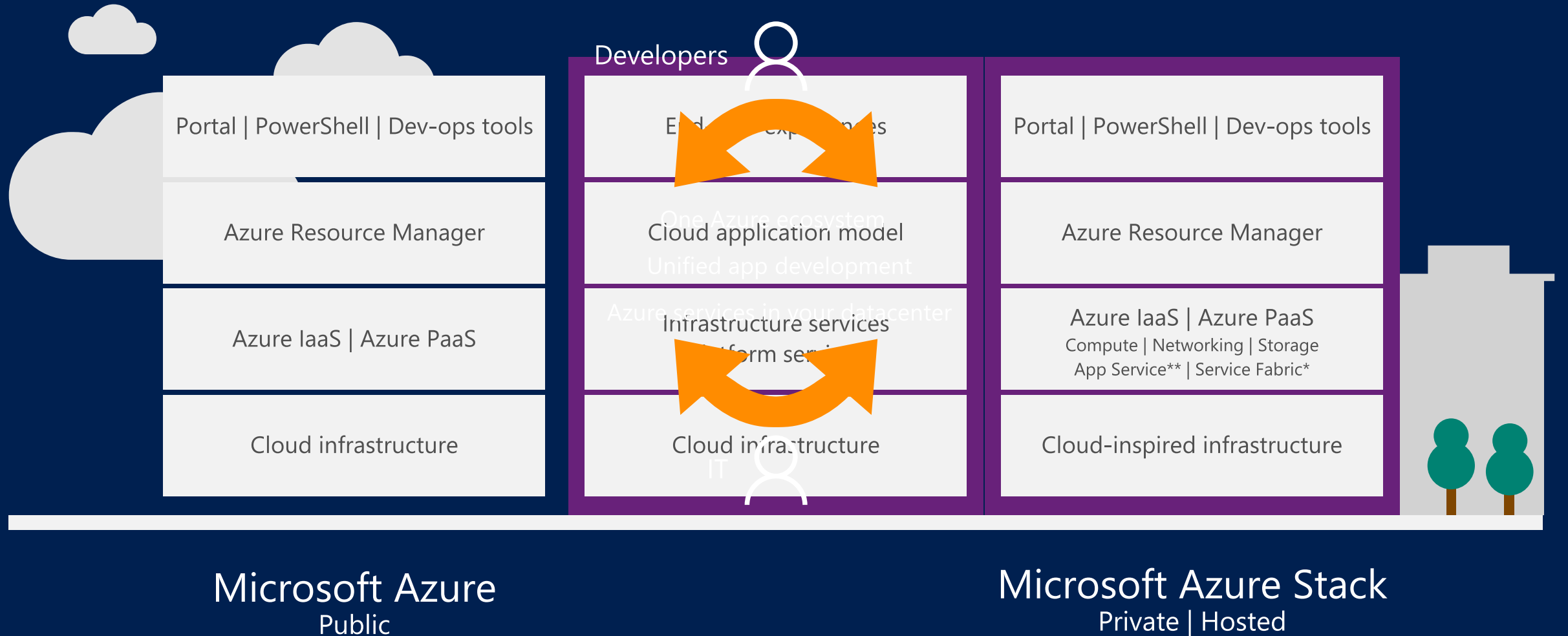
The logo for Azure Stack, featuring a white cloud shape with the text "Azure Stack" inside in a blue font.

Azure Stack

Microsoft Azure Stack is a new hybrid cloud platform product that enables organizations to deliver Azure services from their own datacenter thereby helping them achieve more.

bit.ly/azure-stack

Microsoft's hybrid cloud platform



TP1 = Technical Preview 1

** - Only Web Apps is in TP1, * - not in TP1

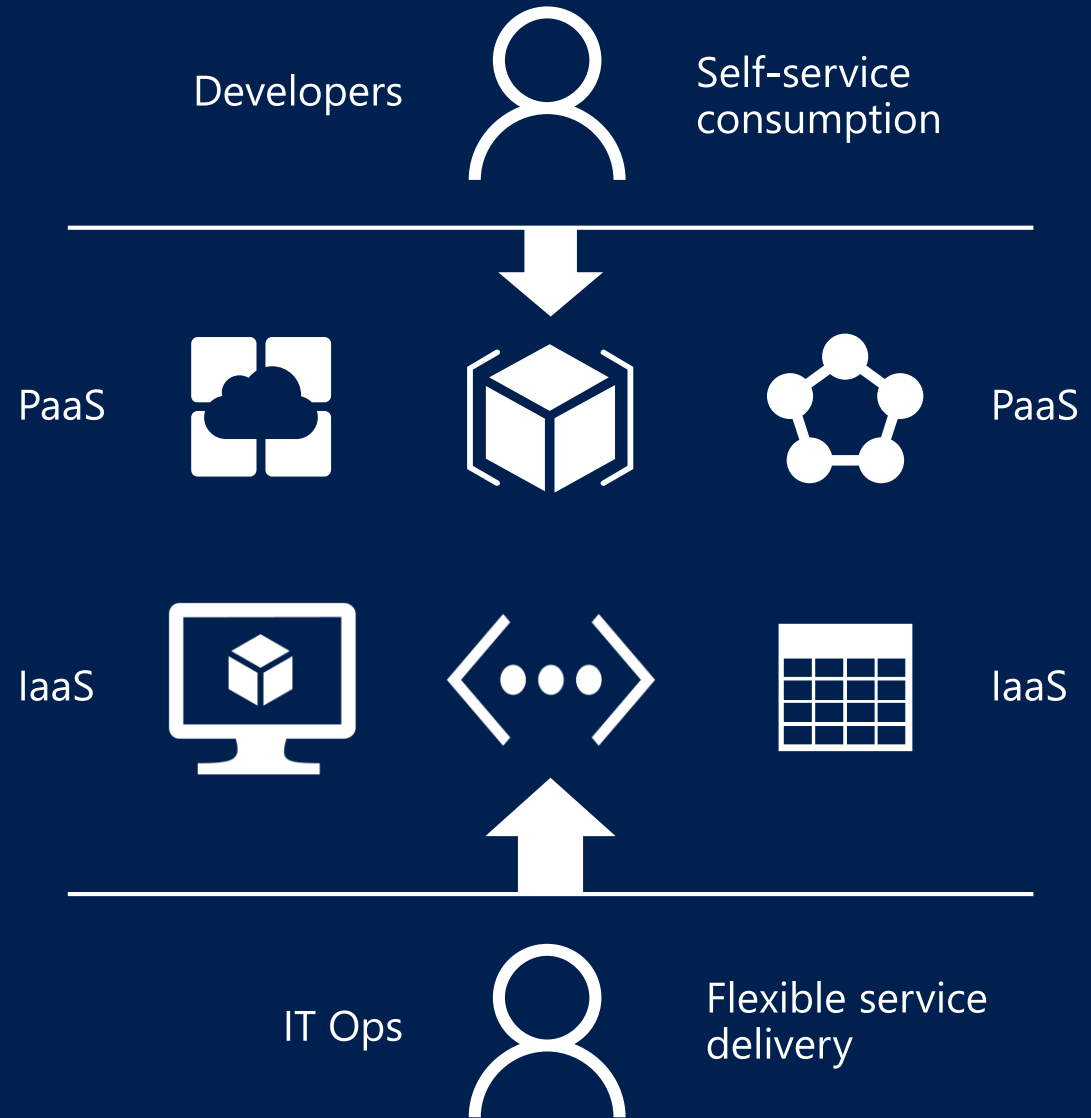
Azure services in your datacenter

Transform datacenter resources into cloud services

Self-service IaaS—Virtual Machines, Virtual Network, Storage, Docker-enabled containers

Self-service PaaS— App Service**, Service Fabric*

Flexible service delivery with Azure-based management and automation tools



Unified app development

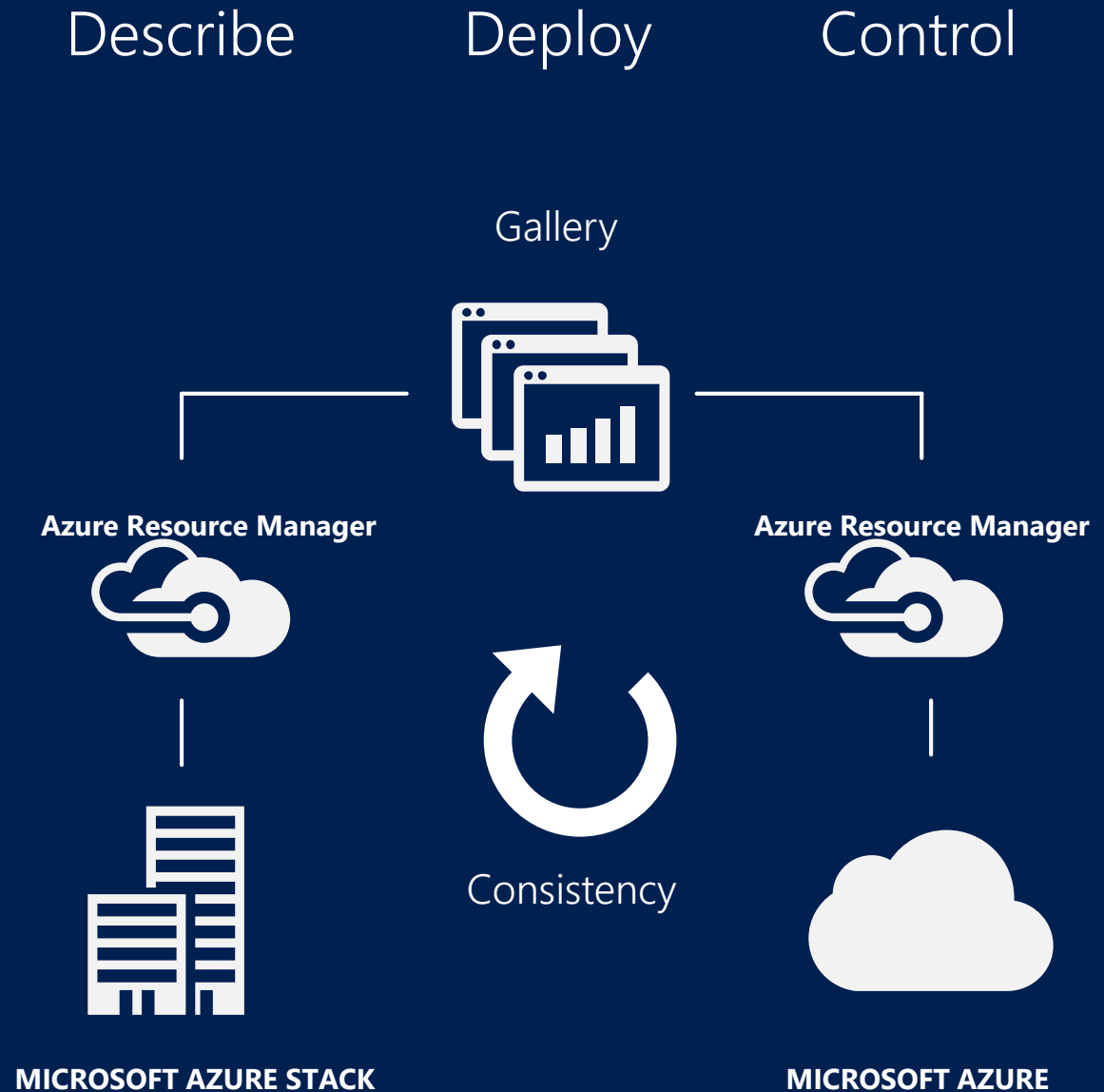
Write once, deploy to Azure or Azure Stack

Identical application model with same APIs

Role-based Access Control (RBAC)

Same deployment experience—PowerShell, Azure portal, or Visual Studio

Choice of open source application platforms, languages, and frameworks

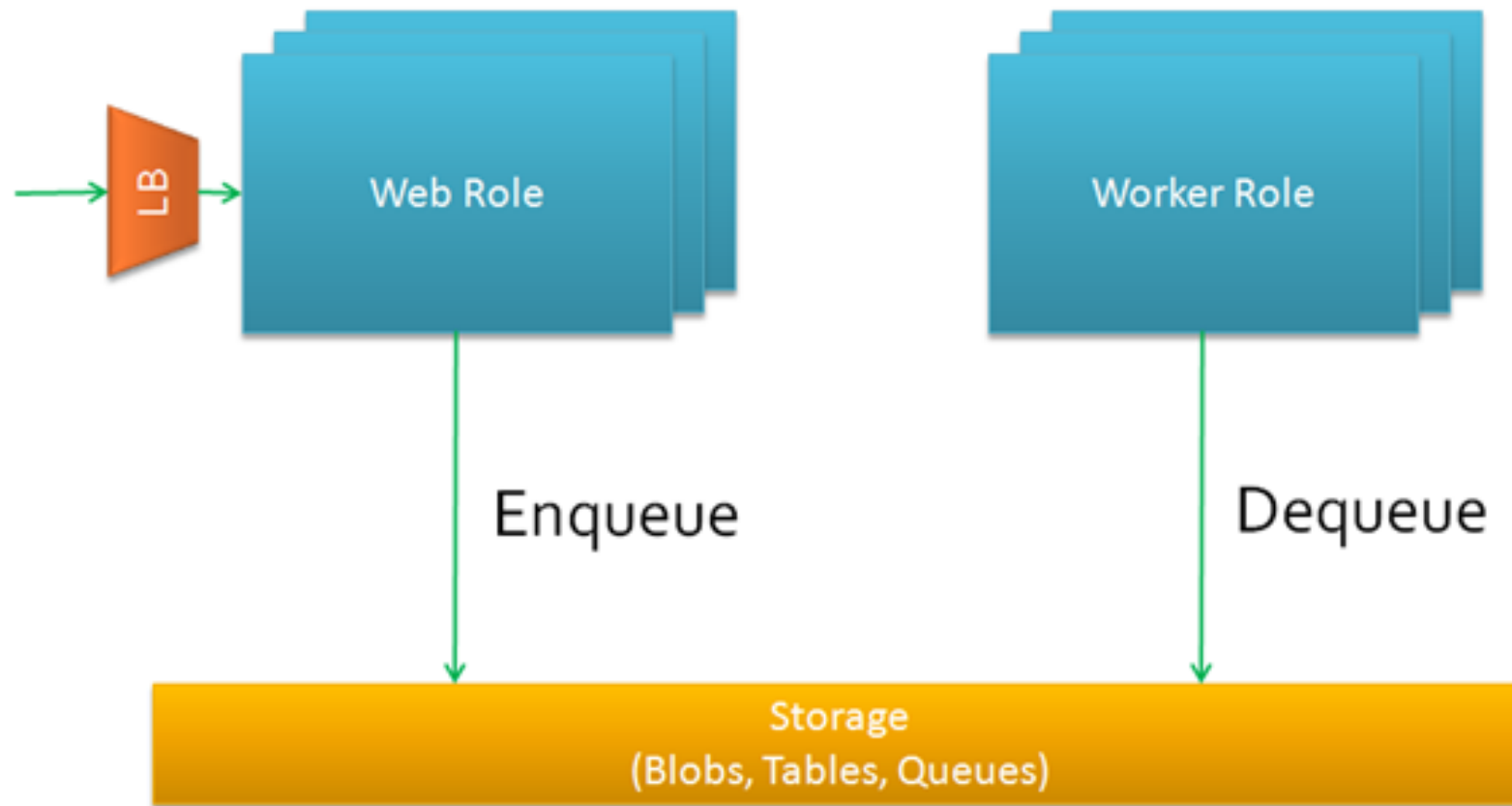


On Premise Azure is (finally) looking good!

Azure vNet is a fully capable solution to support Hybrid security.

Express Route for the high end demands.

Microsoft Azure CloudService Architecture



All I ever wanted to do
was run a few lines of code!

Enter "SimpleBatch"!
Or as the product was named:

WebJobs

WebJobs is a simple,
low maintenance, highly agile,
low ceremony and highly efficient way
to run your business functions
in the Azure Platform.

Next Step:

Serverless Compute

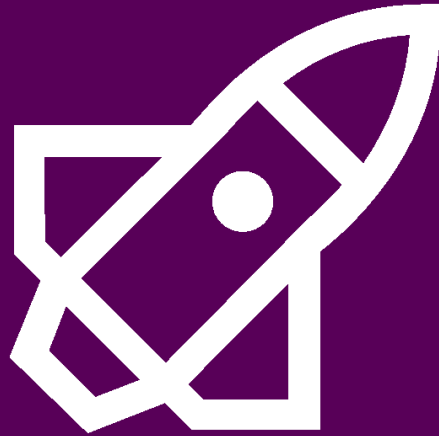
[AWS Lambda | Google Cloud Functions | IBM Bluemix OpenWhisk]

And now also...



bit.ly/AzureFunctions

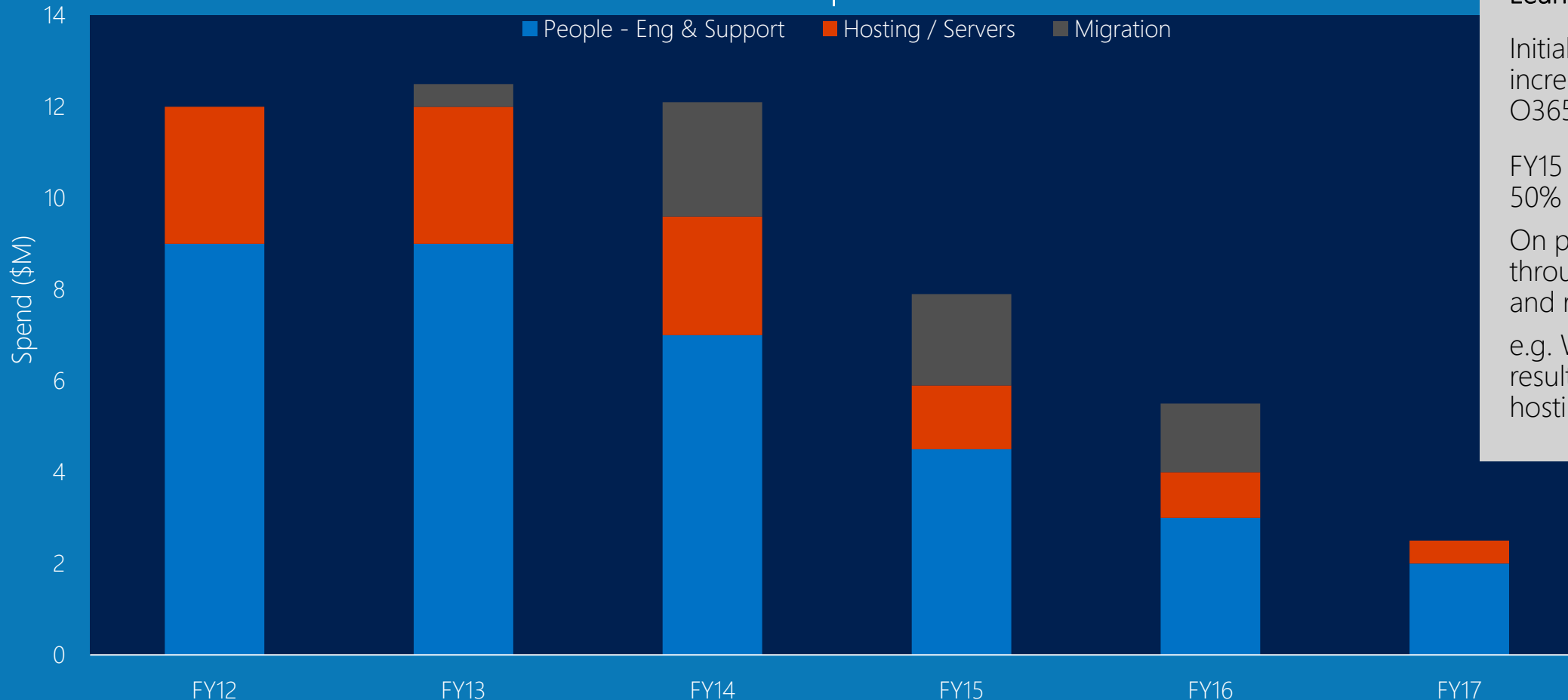
Azure App Service Logic Apps



bit.ly/AppServiceLogicApps

Driving On Prem Cost Reduction

Microsoft IT SharePoint On Prem Spend



Learnings:

Initial on prem spend increased in FY13/14 with O365 migration execution

FY15 people costs down by 50% from FY12

On prem savings achieved through farm retirement and role re-alignment

e.g. WW MySite retirement resulted in ~\$400k annual hosting savings

O365 Kickoff, Build Foundation

Drive Cloud Adoption, MySites->O365

Utility Migration, Portal Start

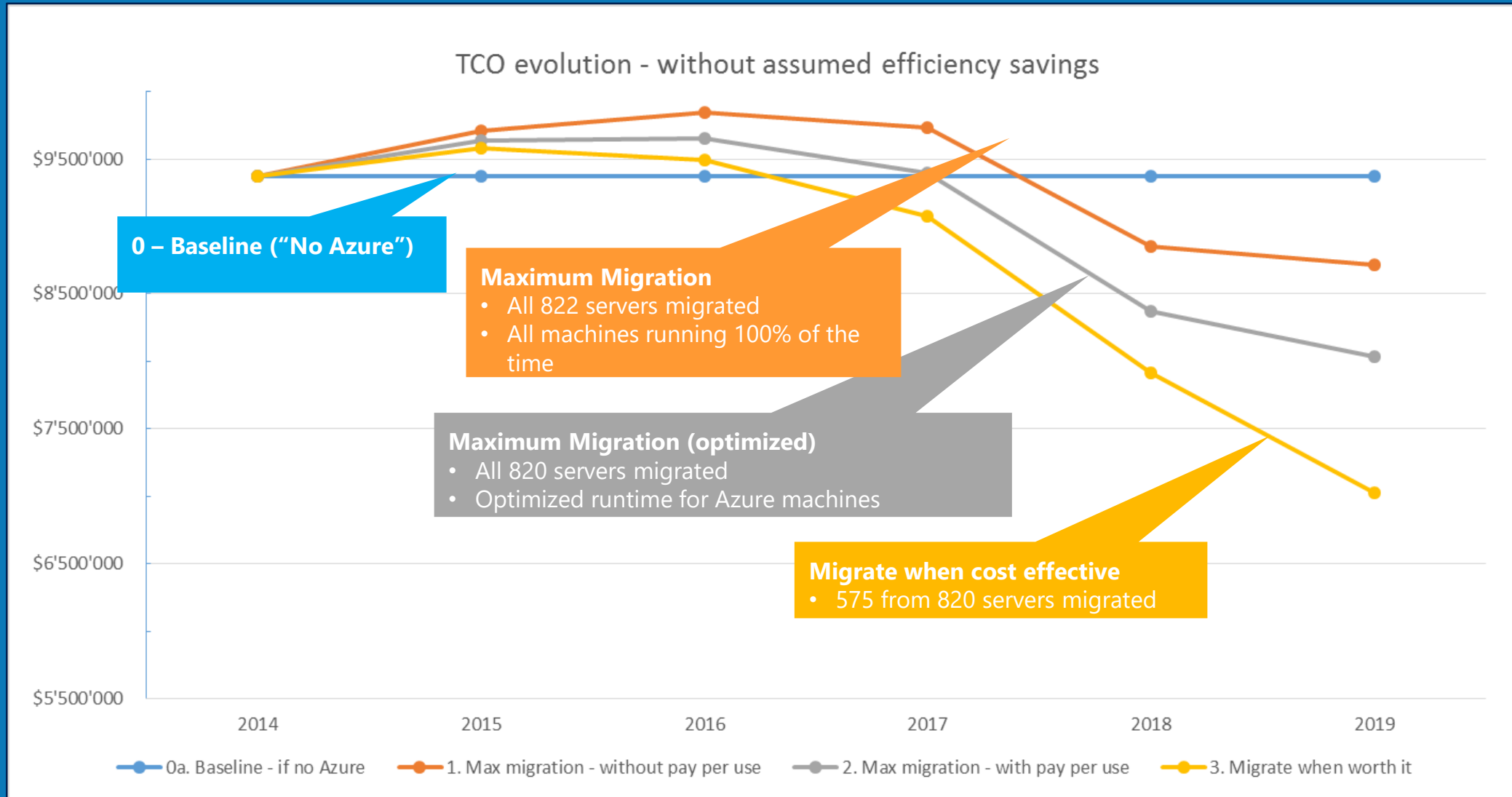
Major portals; Corp portal, IT, Finance, Prem consolidation

HR, Legal, Sales migration

Regional retirement

*Does not include costs for on premises software licensing or O365

Potential Savings with different scenarios



Some final advice...

Almost Flying in the Clouds (anti-pattern)



“We can’t use the Cloud”

What do you do now?

Be creative!



Get the right experts in the room early!

POC with Cloud amateurs is pointless!

Services are bolted together – applications are not built!

Automate deployments, environments, scaling – life!

We are moving *from infrastructure to innovation!*

Cloud Computing

Because it's
inevitable
and really
#awesome!



(Yes, it's Scott Guthrie!)

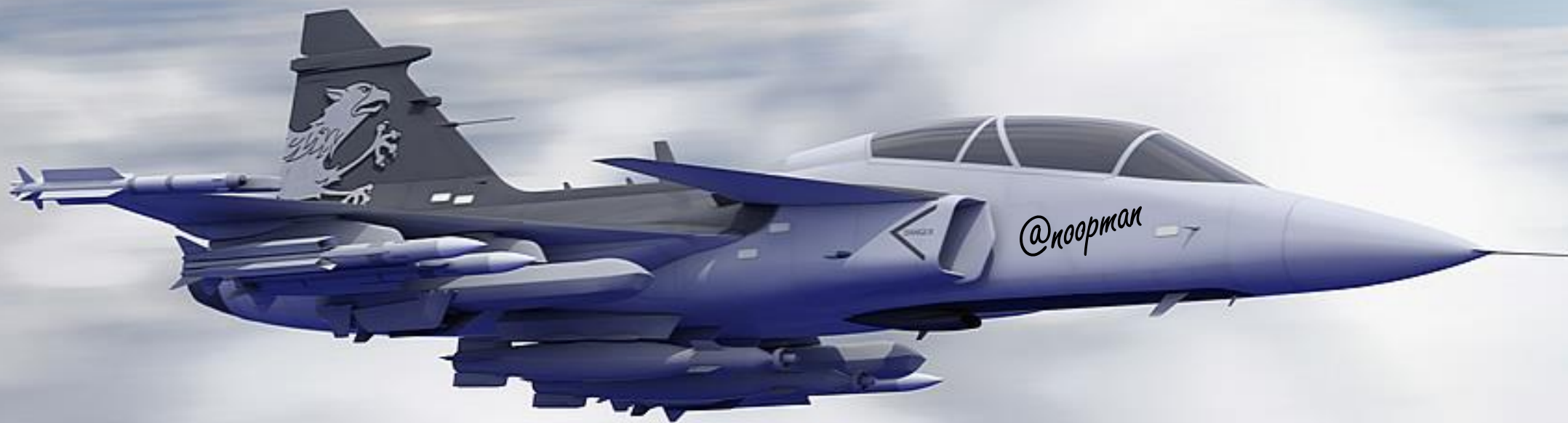
Don't miss the opportunity!



Start your journey...



...small!



Microsoft
Regional Director

magnus@loftysoft.com





I HIRED A CONSULTANT
TO HELP US EVOLVE OUR
PRODUCTS TO CLOUD
COMPUTING.



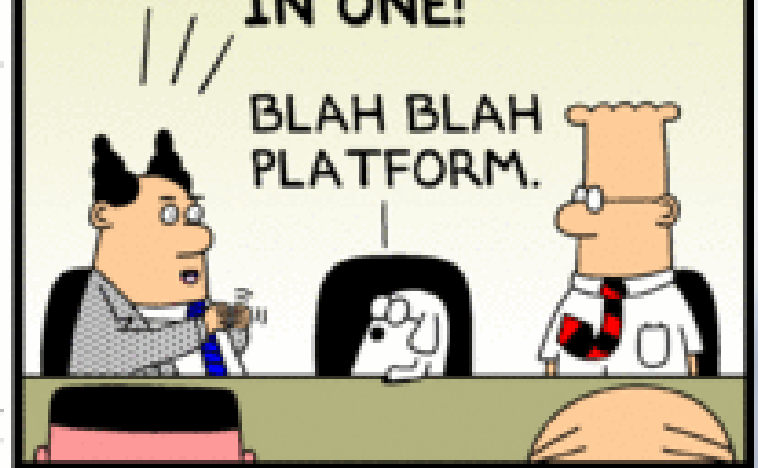
Dilbert.com DilbertCartoonist@gmail.com

BLAH BLAH CLOUD.
BLAH BLAH CLOUD.
BLAH BLAH CLOUD.
BLAH BLAH CLOUD.



1-7-11 © 2011 Scott Adams, Inc./Dist. by UFS, Inc.

IT'S AS IF YOU'RE A
TECHNOLOGIST AND
A PHILOSOPHER ALL
IN ONE!



Microsoft
Regional Director

magnus@loftysoft.com

