



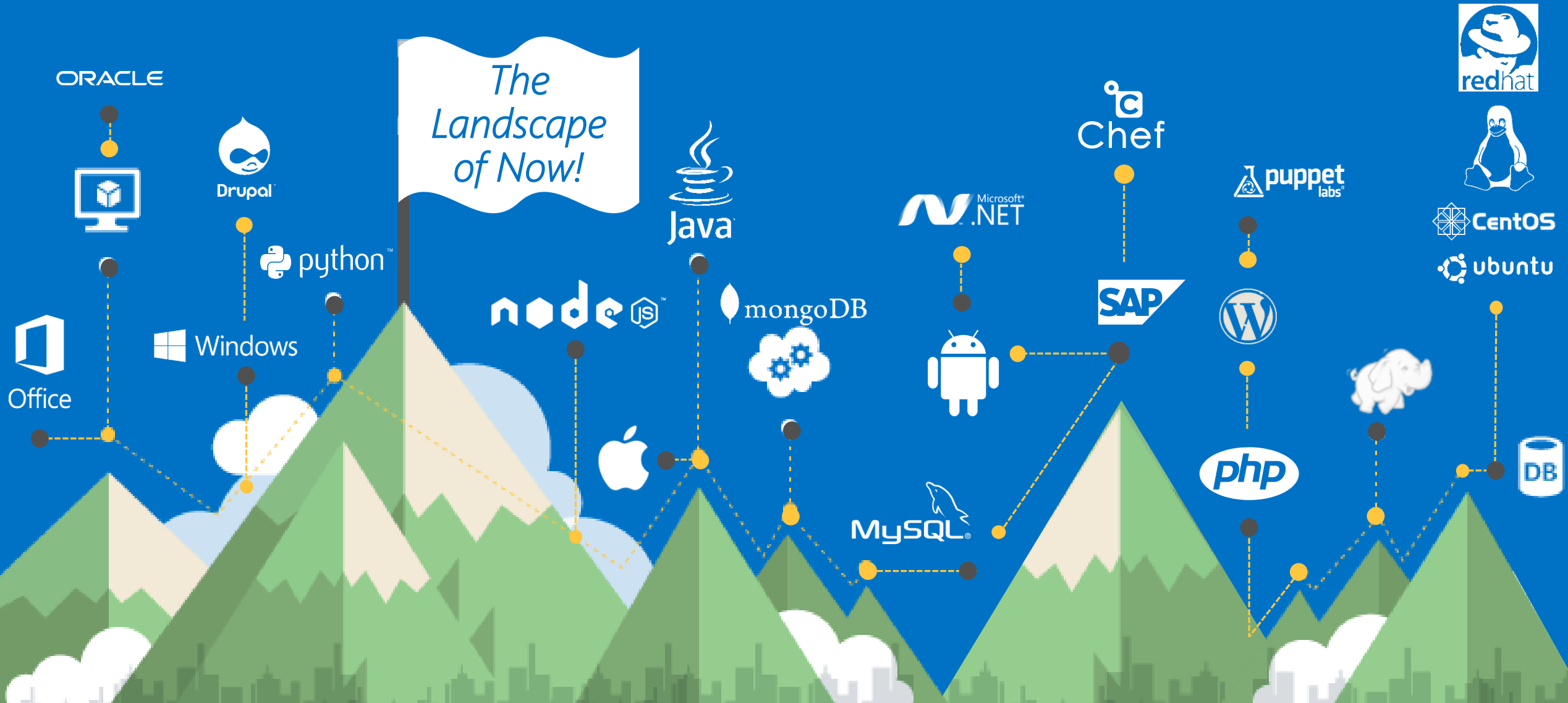
# Modern IT Infrastructure for Education: Microsoft + Open Source

Andrey Terekhov, Ph.D.  
Open Source Lead  
Microsoft APAC HQ

Microsoft+



# Your Infrastructure is a Function of Time



# Microsoft + Open Source Momentum

"Azure Container Service is different and offers the broadest hint yet that Microsoft wants to build real products with open source, not merely leverage it where it's convenient"

**InfoWorld** Serdar Yegulalp

Microsoft: the Open Source Company

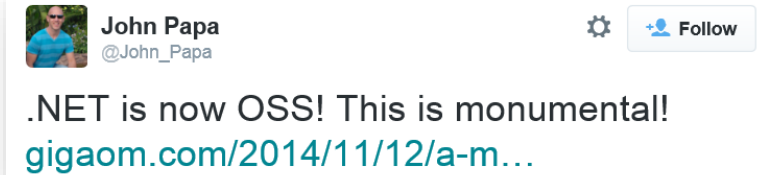
"This is not your dad's Microsoft"

**ZDNet** Steven J. Vaughan-Nichols

Redmond top man  
Satya Nadella:  
'Microsoft LOVES Linux'



**The Register** Neil McAllister



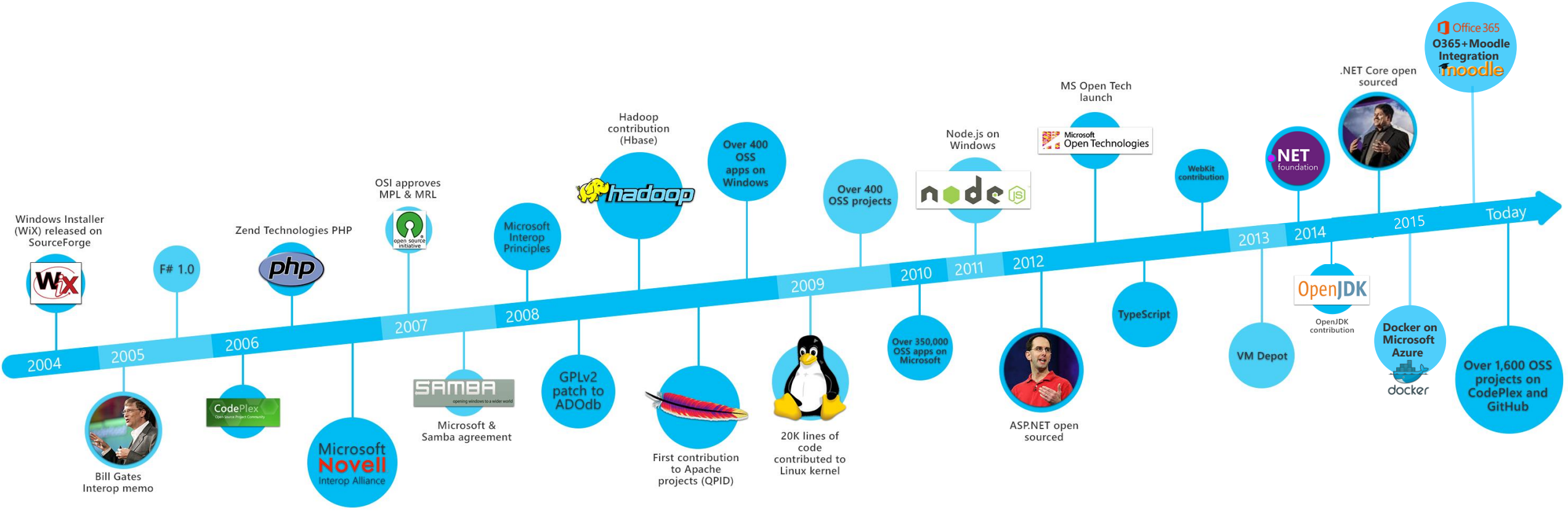
Source: [Tweet](#) by John Papa (Google Developer Expert, Microsoft Regional Director and MVP)

Dead and buried:  
Microsoft's holy war on  
open-source software

"Years ago, Microsoft's CEO described open source as a cancer. Times have changed. Just ask 22-year Redmond veteran and open-source proponent Mark Hill."

**c|net** Charles Cooper

# 10+ Years of Open Source Involvement



# Committed to Standards

150+

standards organizations

400+

working groups

**W3C** WORLD WIDE WEB  
consortium

**I E T F**

**OASIS**

**IEEE**

**OMA**  
Open Mobile Alliance

# We're Reimagining Microsoft

## Our Mission



We will **empower**  
every person and  
every organization  
on the planet  
to achieve more

## Our Strategy

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

## Our Ambitions



Reinvent productivity & business processes



Build the intelligent cloud platform

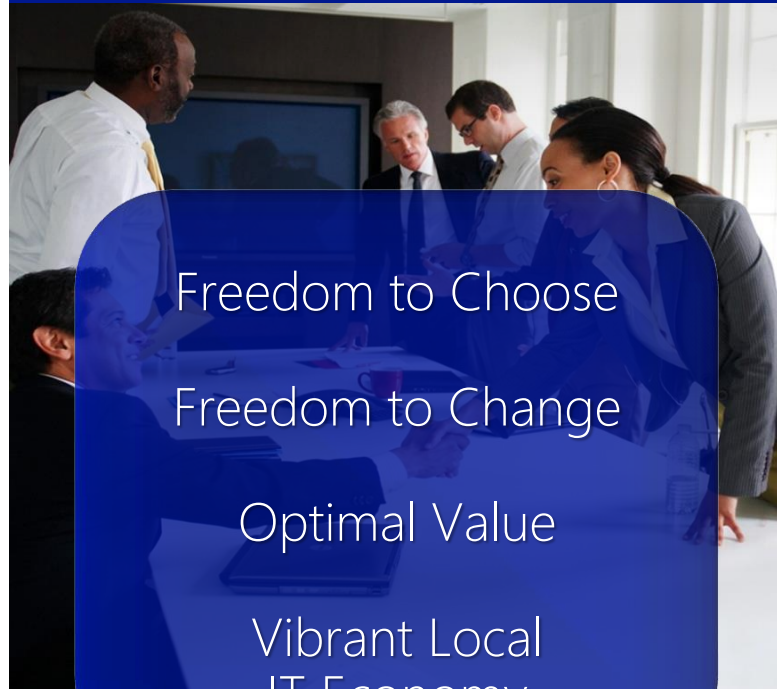


Create more personal computing

# The Microsoft Open Approach

*For your journey to the cloud*

Empowering  
Customers



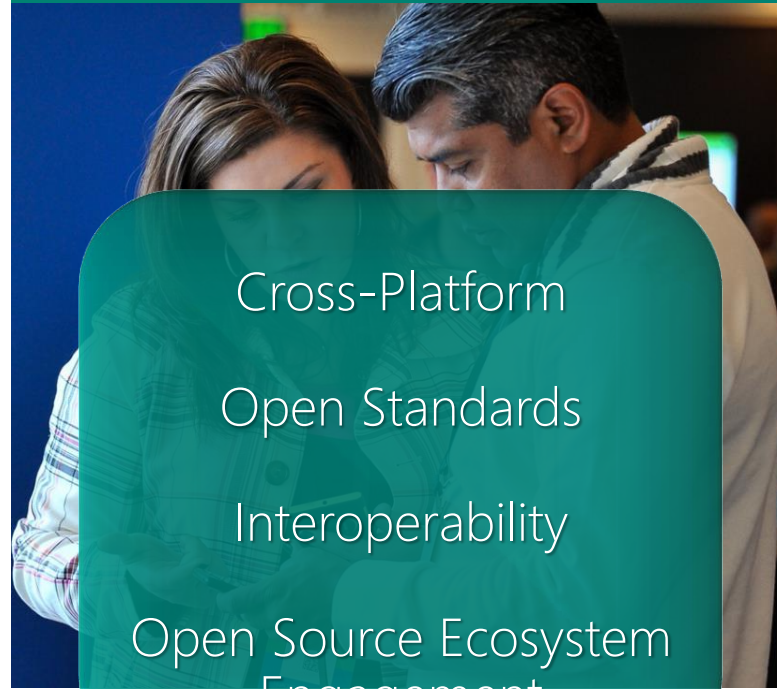
Freedom to Choose

Freedom to Change

Optimal Value

Vibrant Local  
IT Economy

By Enabling  
Choice



Cross-Platform

Open Standards

Interoperability

Open Source Ecosystem  
Engagement

To Provide a  
Trusted Cloud



Secure

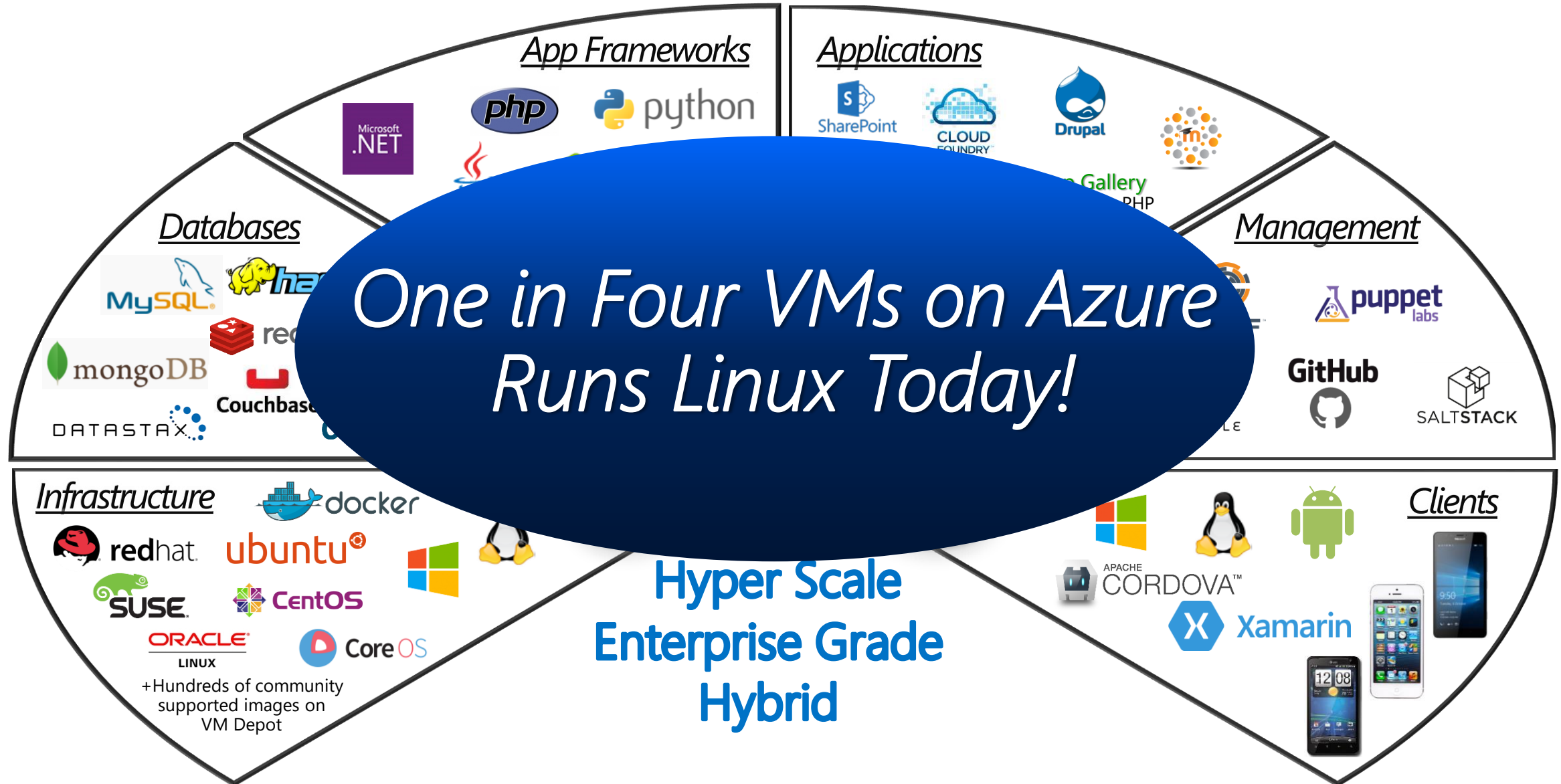
Privacy & Control

Compliance

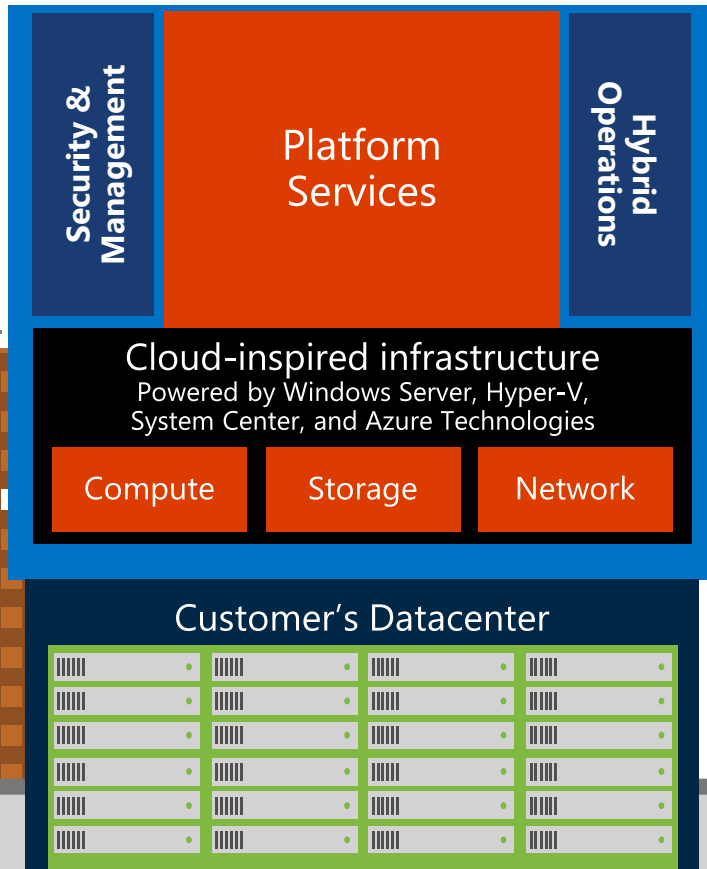
Transparent

# Microsoft Azure is an Open Cloud

*We've delivered an open, broad, and flexible cloud across the stack*

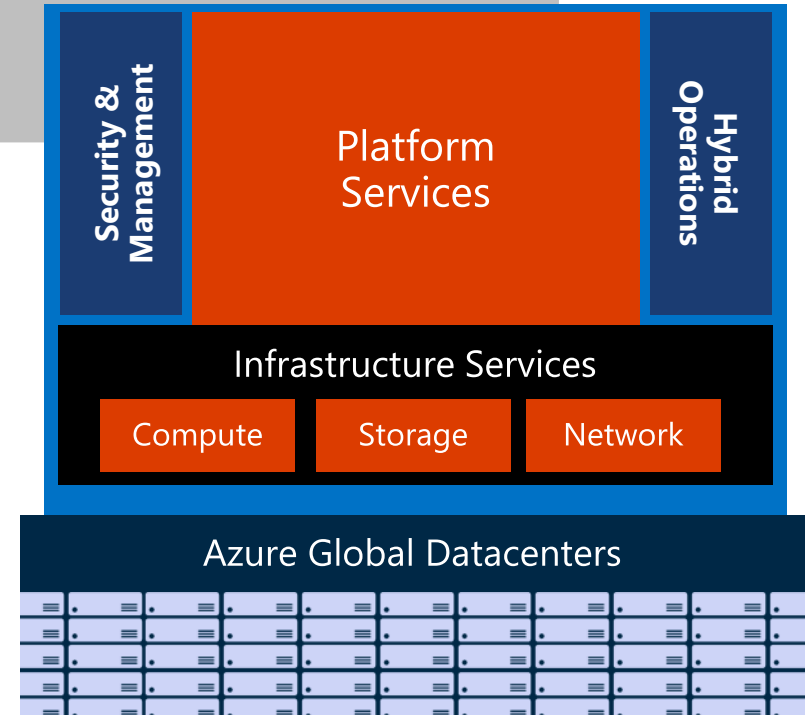
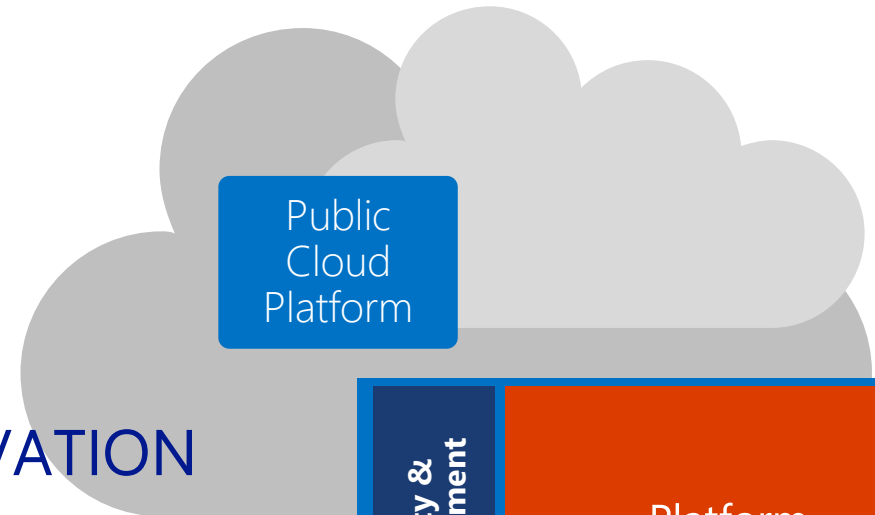


# The Azure Platform Strategy



Microsoft Azure Stack & Cloud Platform System

## INNOVATION



Microsoft Azure  
Public, Global, Shared Datacenters

# Open Source on Azure: Addressing Industry Trends

## Next-Gen Architectures



Empowering developers to do more in the cloud  
Hyper-scale software-defined storage  
Containers & microservice architectures like Docker – across hybrid cloud



## Managed Services



Many Hyper-scale managed services today eg. HDInsight (Hadoop) on Win/Linux  
Strong open source partner ecosystem – over 3000 elements in Marketplace today  
More open source services on the way



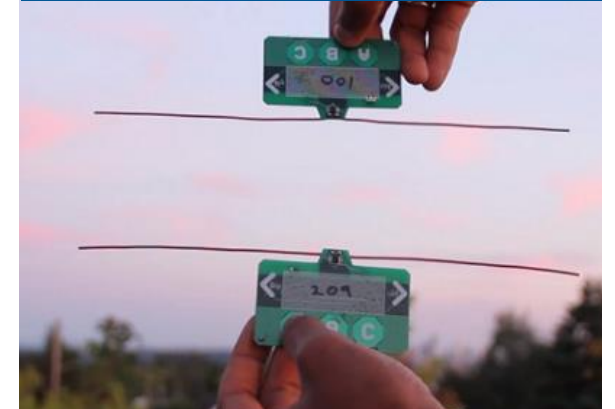
## DevOps



Support for multiple open source configuration management tools  
Broad availability of SDKs and cross-platform tools for multiple languages  
Incorporating Linux support in PowerShell DSC



## Internet of Things



Comprehensive data pipeline – from thing to analytics  
Powerful backend for all devices, RESTful interfaces, AMQP support  
Azure Service Bus, Event Hubs, Notification Hubs, Stream Analytics, Apache Storm



# Azure Open Source Customers



More customer stories at [customers.microsoft.com](http://customers.microsoft.com)!

# Microsoft Cloud Seamlessly Provides Reliable, Secure and Flexible Infrastructure for Open-Source Learning Management Systems



“It is really easy to host open source solutions on Azure - our IT team migrated the entire system to Azure by themselves, in under a month! Since we started using Azure, we experienced zero downtime!”

— Dyah Paminta Rahayu, Head of the IT Division, Universitas Terbuka

# Creating world-class airline websites



Garuda uses Microsoft Azure to securely host open source ticketing sites



## Objectives

- Enhance security and reliability of airline ticket-purchasing sites
- Preserve freedom to use the preferred web-development tools
- Make site updates and refreshes easier

## Tactics

- Migrated ecommerce sites to Microsoft cloud service, Azure
- Worked with Microsoft Premier Support to complete migration in 6 weeks

## Results

- Great online experience for customers with reduced latency even during peak seasons and promotions
- More up-to-date websites, with updates taking 1/10 the time
- Improved security for customer data, with e-commerce sites protected by world-class experts



“It took just six weeks to transition our entire e-commerce operations to Azure! Azure gives us the development flexibility we need and has very high security standards in place. We’ve tried it for ourselves and believe that Azure supports a vast array of open technologies!”

— Denny Permana, Senior Manager for IT Strategic Planning and Architecture, Garuda Indonesia

# Top European business school, ESADE, needed a tech refresh

Cloud targeted as best way to increase flexibility and cut operational cost



## Objectives

- A virtualized old infrastructure needed to be replaced
- Better technology to run day to day operations and its development environment needed
- Best of Open Source (Moodle, Drupal) identified to help students and host new University website

## Tactics

- Experienced local Microsoft Gold Certified Partner Tokiota achieved rapid results
- AWS investigated, but Azure accepted as better new host environment
- Oracle Linux new Cross-University Open Source of choice

## Results

- ESADE now has a completely IaaS back end
- Provisioning of machines and use of Azure templates making admin extremely easy
- Reduced cost, simpler management and lower operational costs main deliverables so far

東京' TOKIOTA



“Looking back, I think what was interesting for us about Azure remains so; its openness.”

— Miguel Lopez Luque, System Manager, ESADE

# Online learning platform in search of speed and security

## Moodle migrates to Microsoft Azure servers to obtain reliability



UNIVERSIDAD DE  
**Belgrano**  
BUENOS AIRES - ARGENTINA

### Objectives

- The University of Belgrano's virtual platform had periods of low speed and made students' work too cumbersome.

### Tactics

- The university decided to migrate its open source platform, Moodle, to Microsoft Azure cloud-based servers.

### Results

- Reliable platform for online education, at twice the speed
- Online statistics and faster backup
- System security and efficiency for students and professors
- Time needed to access platform and complete assignments dropped by 40%



"We wanted a more powerful tool that could provide statistics, faster backup and higher security levels and efficiency for students and professors."

— Ignacio Baigorria, Administrative Coordinator of FEDEV,  
University of Belgrano

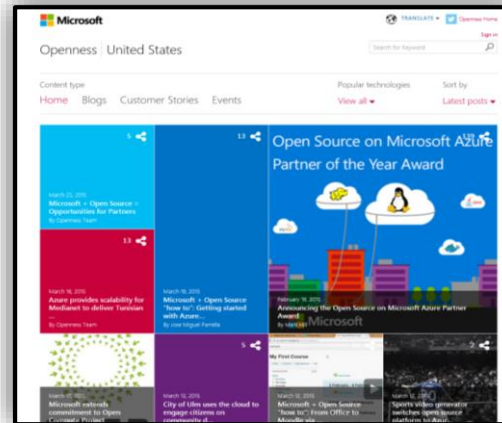
# Want to Learn More?



## Microsoft Openness

Learn more about our commitment to embracing Open Source

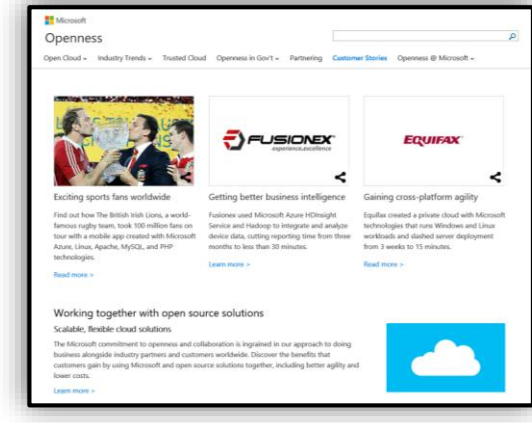
<http://www.microsoft.com/Openness>



## Openness Blog

Read about the latest developments and momentum

<http://openness.microsoft.com/blog>



## Customer Stories

Access the latest OSS on Azure customer stories

Found [here](#)



# Microsoft Virtual Academy

free e-learning platform and delivered by experts



## What is MVA ?

Microsoft Virtual Academy (MVA) offers online Microsoft training delivered by experts to **help technologists continually learn**. Successful technologists never stop learning and great technology never stops evolving.

Our mission is to help developers, knowledgeable IT professionals and advanced students learn the latest technology, build their skills, and advance their careers. **MVA is free of charge**, and the entire service is hosted on **Windows Azure**.

Become an MVA member so that you can earn points for your learning, achieve different levels of badges and status relative to others in your country or around the world, and get certificates when you complete an entire course.

## Covered Products/Technology

- Windows Server 2016
- Windows 10
- System Center 2012 R2
- Virtualization
- Microsoft Azure
- Security
- SQL Server 2014
- And more

## By the numbers

WW Students registered	1.2M
WW Self-assessments passed	1.3M
Indonesia Students registered	17,947
Indonesia Self-assessments passed (infra)	12,580

Learn more / Register

Go to [microsoftvirtualacademy.com](https://microsoftvirtualacademy.com)



# The Microsoft Trusted Cloud

**200+** cloud services

**1+** million servers

**\$15B+** infrastructure investment

**1 billion** customers

**90 countries** worldwide

Microsoft Azure

 Microsoft Dynamics CRM Online

Microsoft Intune

 Office 365

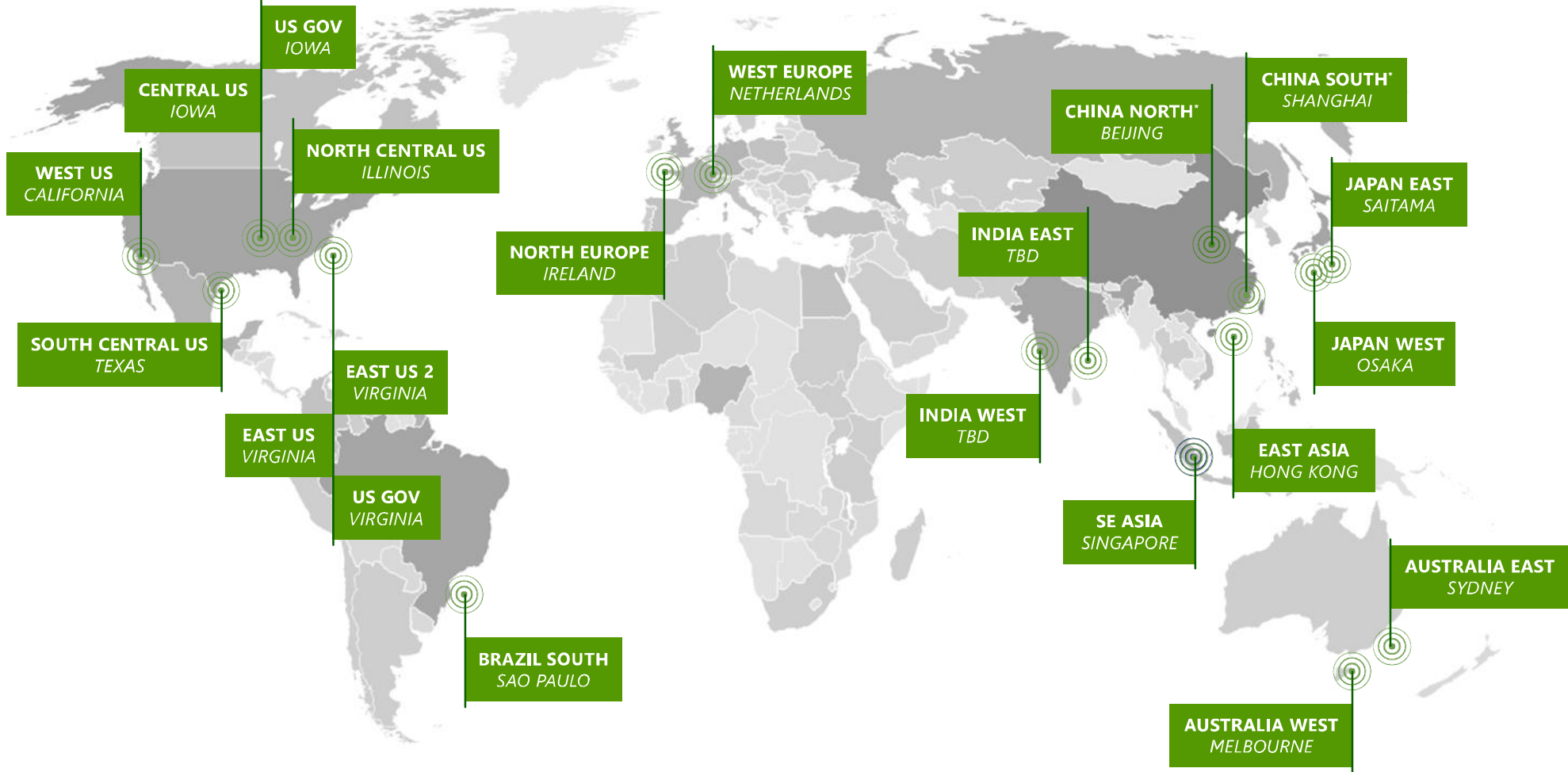
bing

 XBOX

skype™

msn 

# Global datacenter footprint



100+ Datacenters in over 40 countries