

Building Secure And Reliable Cloud Services: The Microsoft Story

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Businesses are taking advantage of Cloud computing

50%

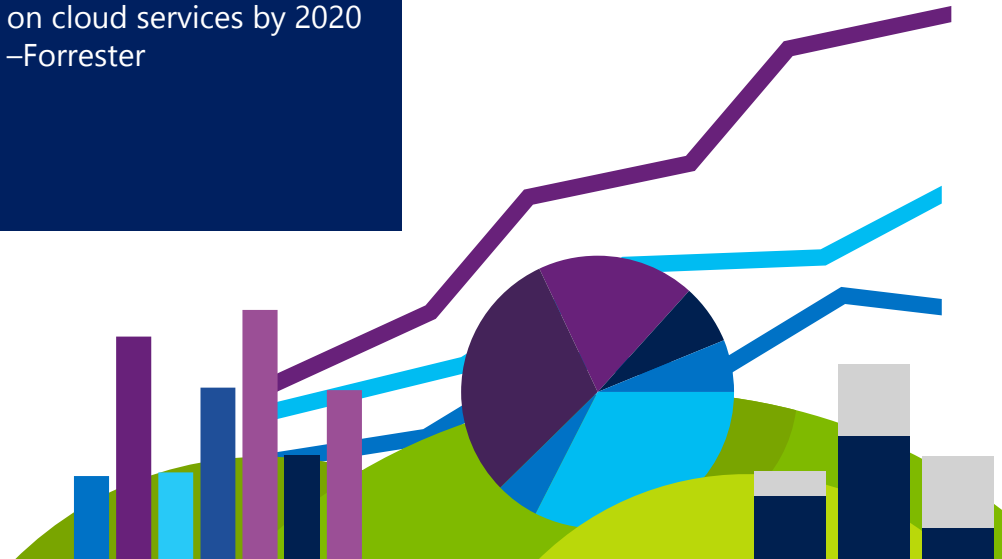
more than half of surveyed CIO company's business to be running over public cloud by 2020
-Gartner

70%

of CIOs will embrace a "cloud first" strategy in 2016 -IDC

45%

of total IT services spent on cloud services by 2020
-Forrester



Cloud innovation

OPPORTUNITY FOR SECURITY & COMPLIANCE BENEFITS

Benefits realized

94%

experienced security benefits they didn't previously have on-premise

62%

said privacy protection increased as a result of moving to the cloud

Barriers to Cloud Adoption study, ComScore, September 2013



SECURITY

- Design/Operation
- Infrastructure
- Network
- Identity/access
- Data



PRIVACY



COMPLIANCE

Cloud security and reliability challenges



Growing interdependence amongst cloud providers and customers

Complex global regulatory requirements and industry standards

Evolving technologies, massive scale, changing business models, dynamic hosting environments

Continuous and increasing sophistication of attacks

5.8+ billion
worldwide queries each month



250+ million
active users



400+ million
Active
accounts



2.4+ million
emails per day

Microsoft
Exchange
Hosted Services

8.6+ trillion
objects in Windows Azure
storage



48+ million
users in 41
markets



50+ million
active users



1 in 4
Enterprise customers



50+ billion
Minutes of connections handled
each day

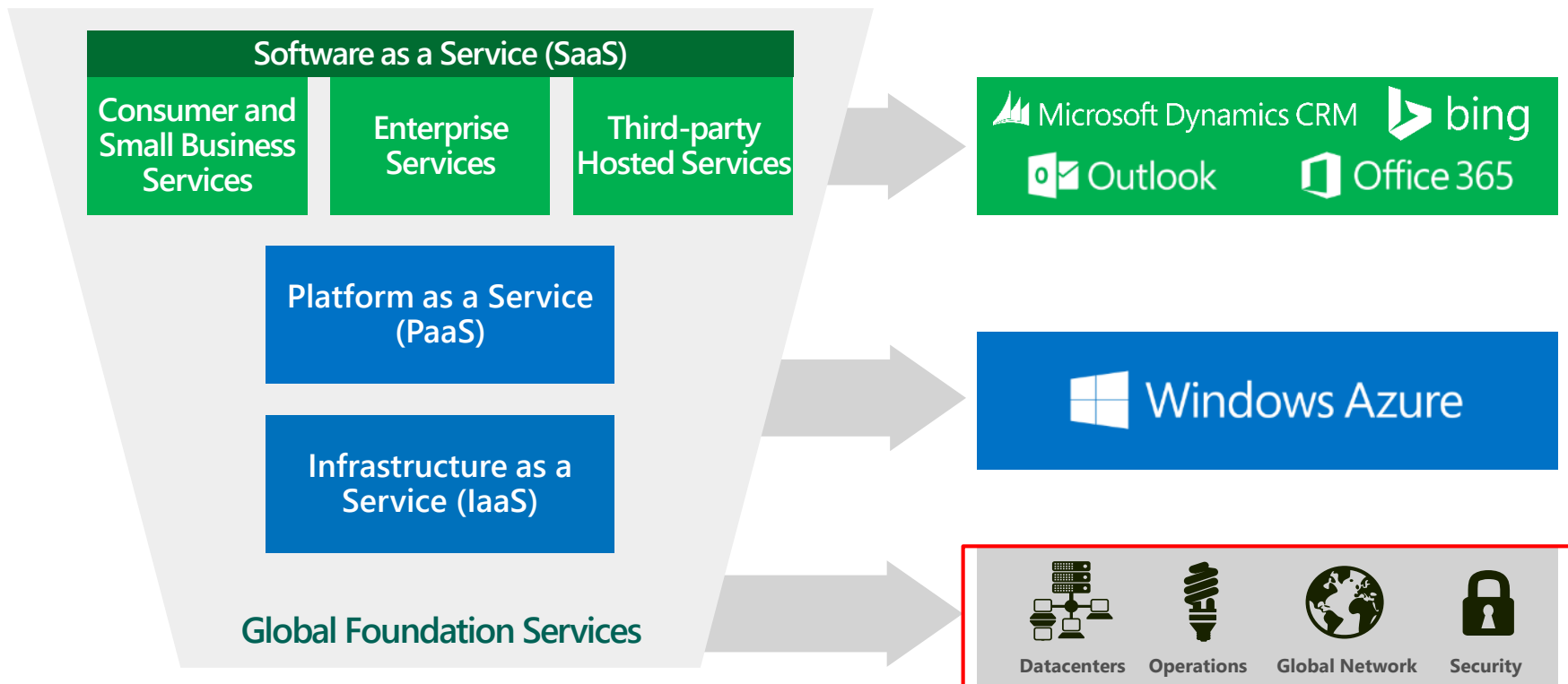


200+ Cloud Services

1+ billion customers · 20+ million businesses · 90+ markets worldwide

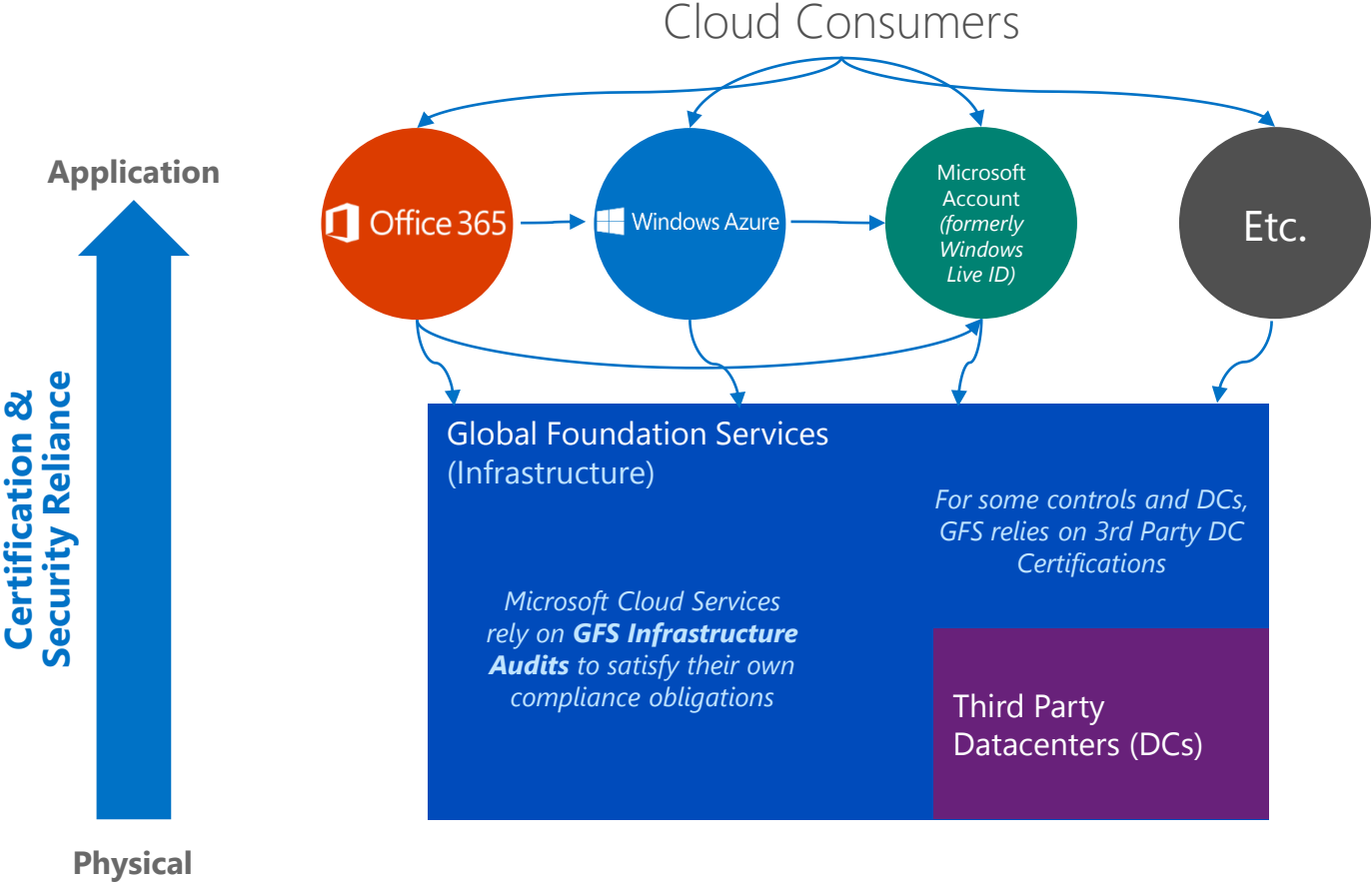


Microsoft's cloud environment



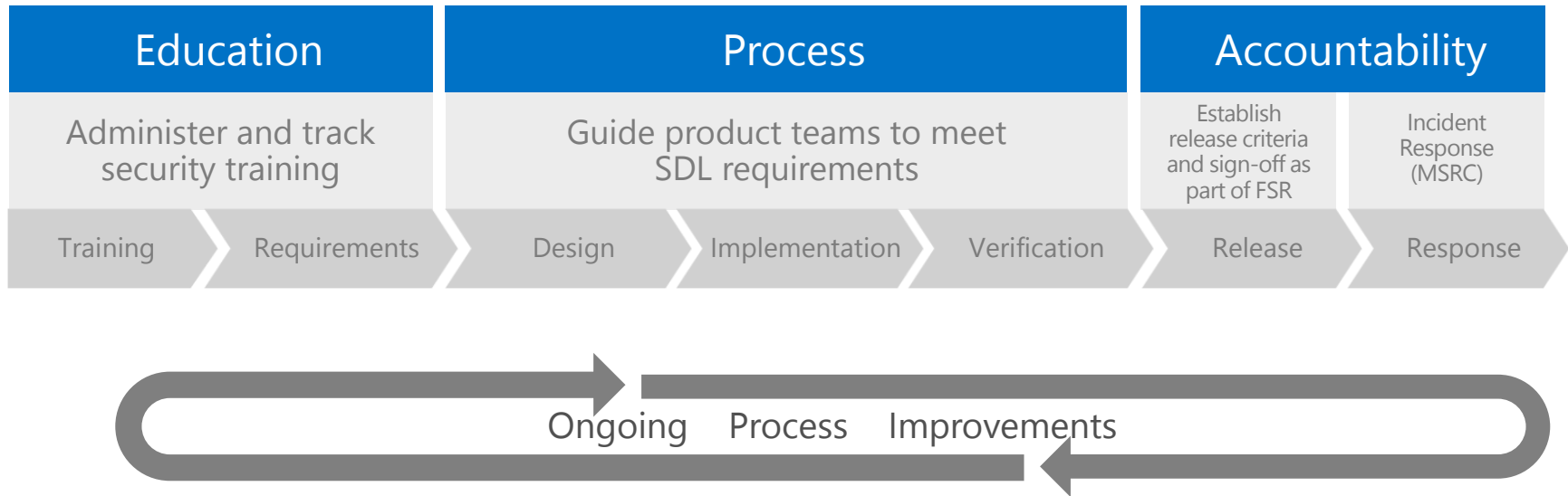
"99.9% Uptime \$\$ Backed SLAs for Office 365 and Azure"

Cloud reliance – Security and compliance



Microsoft Security Development Lifecycle

Security by design - Reduce vulnerabilities, limit exploit severity



<http://www.microsoft.com/security/sdl/default.aspx>

Defense-in-depth: infrastructure security



Identity and access management



Configuration and Vulnerability Scanning



24x7x365 Incident Response

Infrastructure compliance capabilities

(as of January 2014)

ISO / IEC 27001:2005 Certification	✓
SSAE 16/ISAE 3402 SOC 1, AT101 SOC 2 and 3 Attestation	✓
HIPAA/HITECH	✓
PCI Data Security Standard Certification	✓
FISMA Certification & Accreditation	✓
FedRAMP P-ATO by the Joint Authorization Board	✓
Various State, Federal, and International Privacy Laws (95/46/EC—aka EU Data Protection Directive; California SB1386; etc.)	✓

Datacenter evolution

1989-2005

2007

2009

2012

Future

Generation 1

Generation 2

Generation 3

Generation 4

Generation 5

2.0+ PUE

1.4 – 1.6 PUE

1.2 – 1.5 PUE

1.12 – 1.20 PUE

1.07 – 1.19 PUE



Colocation



Density



Containment



Modular



Integrated

Server
Capacity
20 year Technology

Rack
Density & Deployment
Minimized Resource Impact

Containers, PODs
Scalability & Sustainability
Air & Water
Economization
Differentiated SLAs

ITPACs & Colocations
Reduced Carbon
Right-Sized
Faster Time-to-Market
Outside Air Cooled

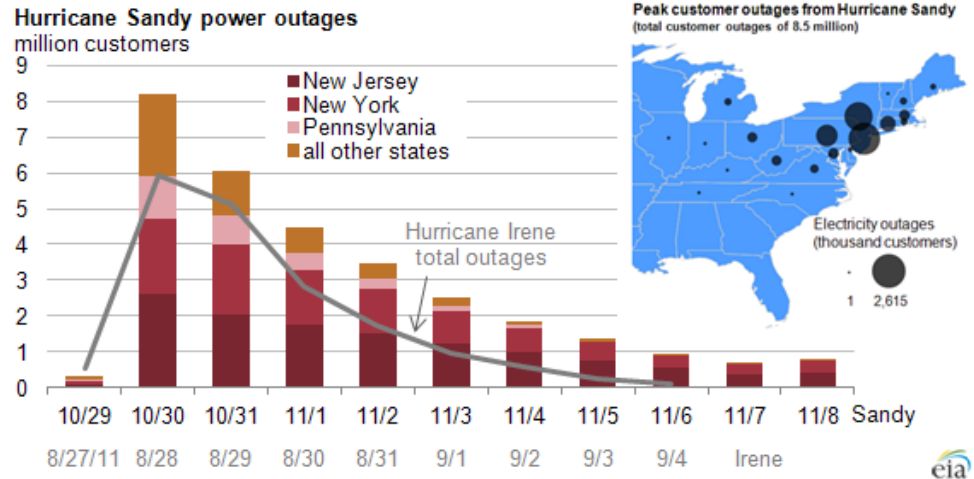
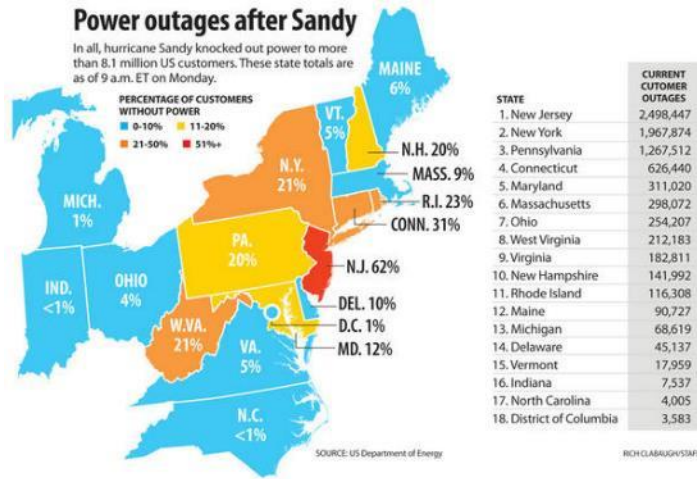
Integrated System
Resilient Software
Common Infrastructure
Operational Simplicity
Flexible & Scalable

Case Study Hurricane Sandy



Power outage

About 8.6 million citizens lost electricity in the U.S. during the storm



Source: U.S. Department of Energy, Office of Electricity Delivery and Reliability situation reports. Chart data reflect situation posted at 3:00 PM EST on November 9 2012.

Contingency & business continuity measures

Hurricane Sandy was meticulously managed end-to-end

- Initiated a proactive war room with monitoring and control
- Delivered internal communications
 - Latest developments on hurricane status
 - Health of services
 - Contingency plans
- BCP implemented on all Edge services and properties
- Supply of fuel to generators on regular basis
- Worked with service providers for restoration of internet circuits



Impact to infrastructure & services

Infrastructure Challenges

- **Drop in capacity** via network provider fiber cut
- **Water flooding** caused partial failure of communications lines
- **Water leakages** during storm period at facilities
- **Core network device outages** due to combination of power, network, and load issues

Services

Microsoft services were migrated to avoid service impact



Results

- ✓ Successful implementation of Business Continuity and Disaster Recovery Plans
- ✓ No major service impact to customers
- ✓ No significant impact to the datacenter or assets
- ✓ Increased resources to aid local relief efforts
- ✓ Excellent overall coordination among internal and external teams for combined execution to ensure minimal impact



Considerations for choice in cloud services provider



Require that the provider has attained **third-party certifications and audits**, e.g., ISO/IEC 27001:2005

Know the value of your data and processes and the **security and compliance obligations** you need to meet

Ensure a clear understanding of security and **compliance roles and responsibilities** for delivered services

Consider the ability of vendors to accommodate **changing security and compliance requirements**

Ensure data and services can be brought **back in house** if necessary

Require transparency in security policies and operations



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