

# Windows Azure™

## Endpoints and Load Balancing

# Azure Endpoints and Load Balancing

- This session:
  - Compute endpoints
  - VIPs
  - Custom domains
  - Azure datacenter load balancer (AppFabric)
  - Azure Traffic Manager

# Azure Endpoints

- Compute internal and external (including Remote Desktop)
- Storage (blob, table, queue)
- SQL Azure
- CDN (blob, /cdn)
- Service Bus, Access Control, Azure Connect, etc

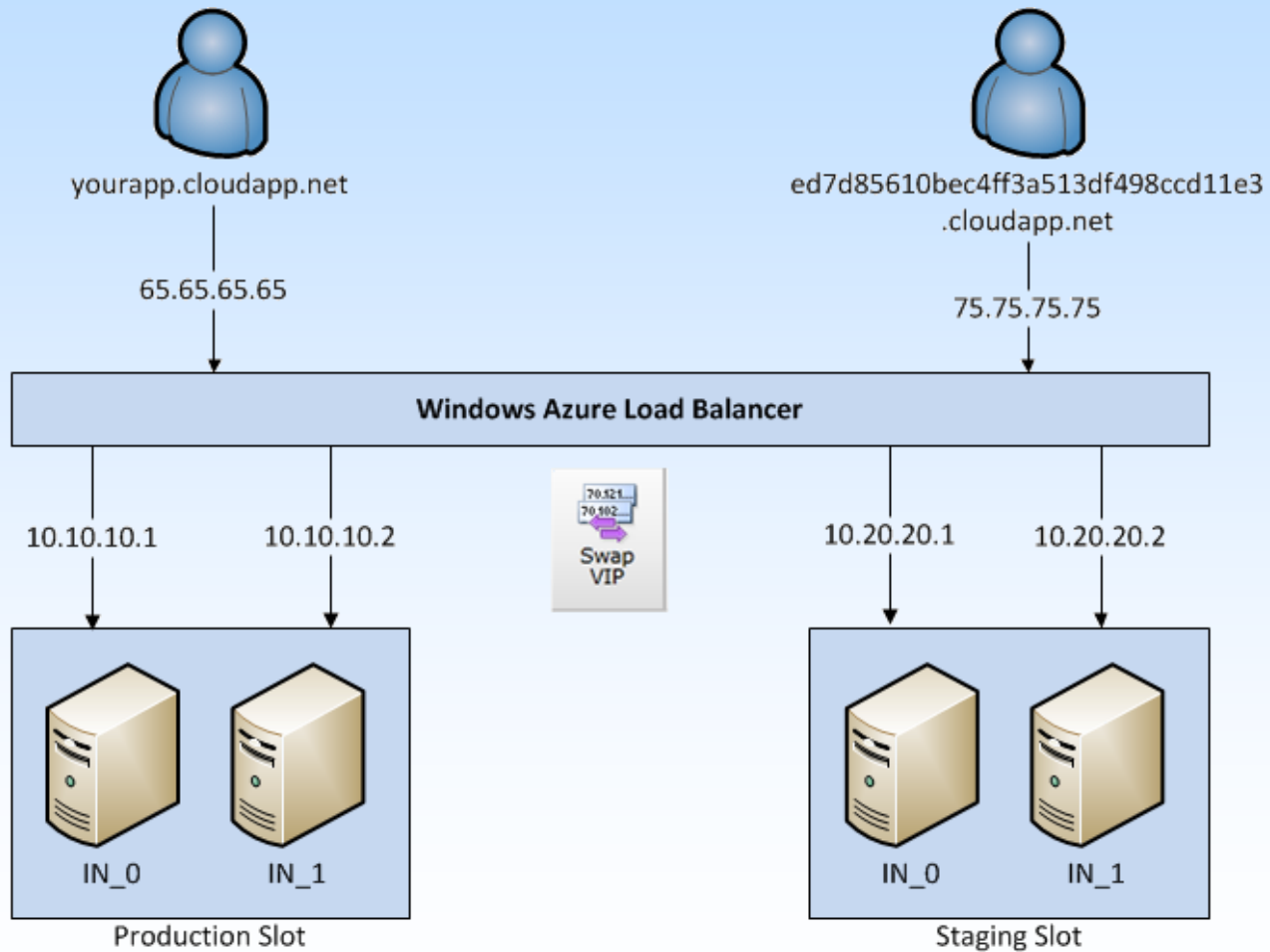
# Compute Endpoints

- 25 input (external) and 25 internal endpoints per service
- Internal endpoints
  - Only accessible within the deployment
  - Do not route through the load balancer
- Network Traffic Rules for inter-role traffic
- Multiple web sites under one web role:
  - Windows Azure Accelerator for Web Roles

# Virtual IP Persistence

- Azure doesn't have Elastic IPs, however a deployment will always maintain the same VIP
- DNS Azure ([dnsazure.com](https://dnsazure.com))
- Official UserVoice ([www.mygreatwindowsazureidea.com](https://www.mygreatwindowsazureidea.com))
  - “Provide DNS Services for my domains and sub-domains” (397156)
  - “Create Elastic IPs so we can actually create web addressable apps with full DNS, not \*.cloudapp.net” (397428)

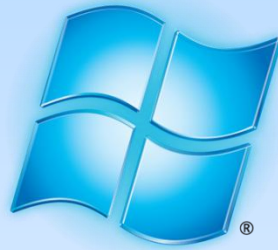
# “Swap VIP”



Note: You cannot change the endpoints between the two deployments.

# Custom Domains

- Compute
  - CNAME limitations
- Storage
- CDN
  - Compute
  - Storage

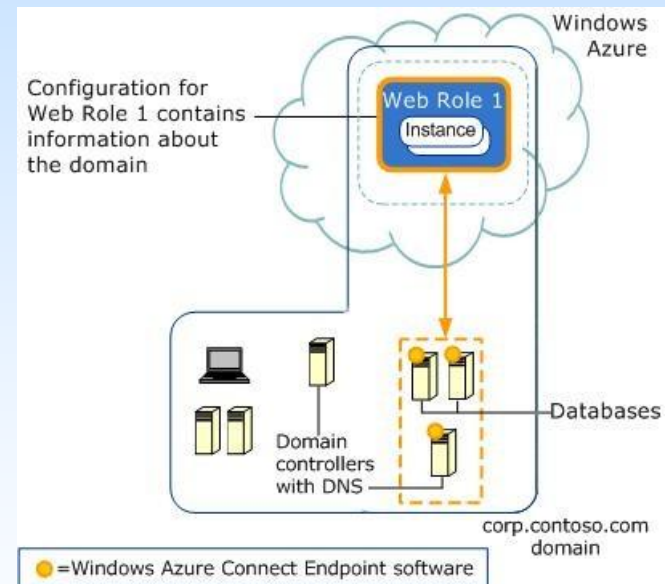
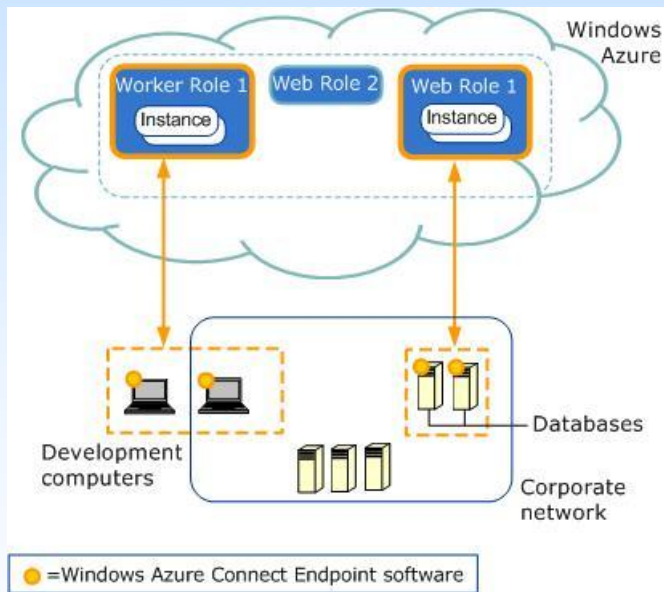


Windows Azure™  
ServiceDefinition.csdef  
Demo



# Windows Azure Connect (CTP)

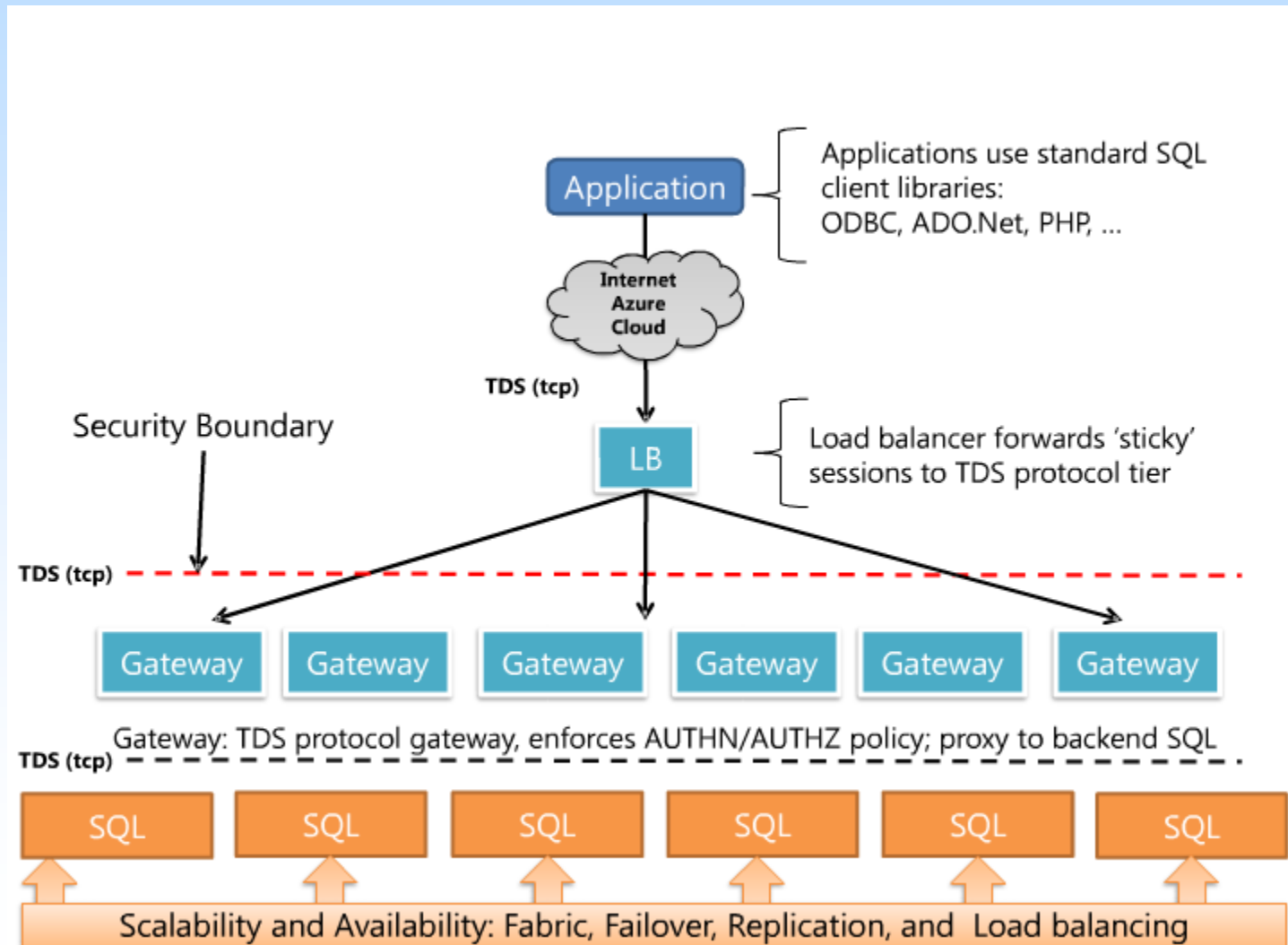
- IPsec tunnel to on-premises applications or AD



# Load Balancing

- Why?
  - Increase throughput
  - Improve response time
  - Avoid overload
  - Improve reliability through redundancy
- All Azure services are behind a load balancer, including SQL Azure
- Windows Azure Autoscaling Application Block (WASABi)
  - Paul Boucher presented at BAUG #3
  - <http://blog.paulboucher.com/2012/04/28/autoscaling-azure-at-brisbane-azure-user-group/>

# SQL Azure Load Balancing

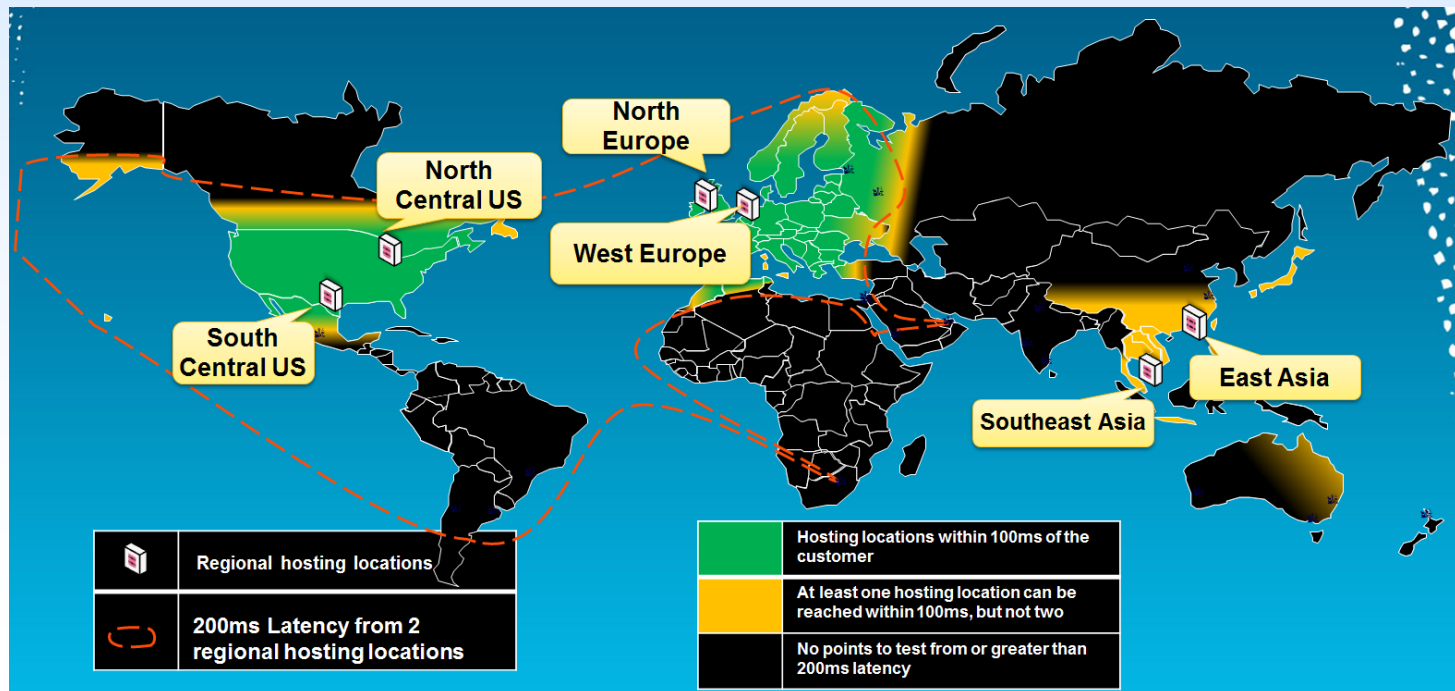


# Risk Management (just one slide)

- Cloud will have downtime
  - VM instance, fault domain, datacenter, and even whole provider
- More redundancy, more cost

# Azure Datacenters


- North America
  - North Central US - Chicago, IL
  - South Central US - San Antonio, TX
  - West US
  - East US
- Asia
  - East Asia - Hong Kong, China
  - South East Asia - Singapore
- Europe
  - West Europe - Amsterdam, Netherlands
  - North Europe - Dublin, Ireland
- CDN provided across 24 datacenters



# Azure Traffic Manager (CTP)

- DNS load balancer for multiple compute services
- Available in CTP at no charge
- 30secs between checks
  - Data transfer charges apply for service monitoring
- Outgress for Asia is more expensive:
  - North America and Europe regions: \$0.12/GB
  - Asia Pacific Region: \$0.19/GB

# Recent Azure Outage

Service  

Service [Sub-Region]	May 12	May 11	May 10	May 9	May 8	May 7	May 6
Windows Azure Compute [East Asia]							
Windows Azure Compute [East US]							
Windows Azure Compute [North Central US]							
Windows Azure Compute [North Europe]							
Windows Azure Compute [South Central US]							
Windows Azure Compute [Southeast Asia]							
Windows Azure Compute [West Europe]							
Windows Azure Compute [West US]							

Page Last Updated: 12 May 2012 3:26 AM UTC

	Normal service availability		Performance degradation		Service interruption		Additional information
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# Recent Azure Outage

- [RESOLVED] Windows Azure Outage in North Central US sub-region
- 11-May-12
  - **4:25 AM UTC** We are experiencing an issue with all Windows Azure services in the North Central US sub-region. We are actively investigating this issue and working to resolve it as soon as possible. Further updates will be published to keep you apprised of the situation. We apologize for any inconvenience this causes our customers.
  - **5:25 AM UTC** We have traced down the root cause of this outage to a faulty networking device and we are working on mitigating the impact. Further updates will be published to keep you apprised of the situation. We apologize for any inconvenience this causes our customers.
  - **6:25 AM UTC** We have isolated the faulty networking device at 11:04 PM PST and have observed network traffic improvement in the North Central US sub-region. Full restoration of the network traffic is still being validated. Further updates will be published to keep you apprised of the situation. We apologize for any inconvenience this caused our customers.
  - **7:25 AM UTC** We are still observing some network traffic disruption in the North Central US sub-region, down to less than 3% packet loss across a limited set of clusters in this sub-region, and continue to validate the mitigation in place. Further updates will be published to keep you apprised of the situation. We apologize for any inconvenience this causes our customers.
  - **8:25 AM UTC** We are still observing intermittent and limited network traffic disruption in the North Central US sub-region, but the potential customer impact is now very low. We have engaged in the repair steps on the networking device causing the traffic disruption. Further updates will be published to keep you apprised of the situation. We apologize for any inconvenience this causes our customers.
  - **9:25 AM UTC** The repair steps are still underway on the networking device that caused the traffic disruption. Network traffic has been steady at 100% with no packet loss since the previous notification. Further updates will be published to keep you apprised of the situation. We apologize for any inconvenience this causes our customers.
  - **9:30 AM UTC** The repair steps have been executed and successfully validated. Network traffic has been fully restored in the North Central US sub-region. We apologize for any inconvenience this caused our customers.
- <https://www.windowsazure.com/en-us/support/service-dashboard/>



# Multi-datacenter Issues

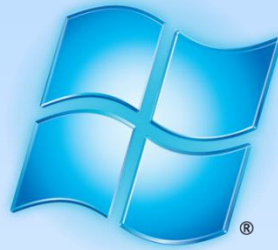
- 29<sup>th</sup> February 2012 Leap Year bug
- [RESOLVED] Intermittent Timeouts
  - **30-Apr-12 8:06 PM UTC**
    - We are actively investigating an intermittent timeout issue in SQL Azure which is likely to happen during database copies or sharing splits. We are working to resolve it as soon as possible. Further updates will be published to keep you apprised of the situation. We apologize for any inconvenience this causes our customers.
  - **2-May-12 12:55 AM UTC**
    - We continue to work on repair steps to mitigate the issue. Further updates will be published to keep you apprised of the situation. We apologize for any inconvenience this causes our customers.
  - **6-May-12 2:15 AM UTC**
    - We have found the issue and implemented a resolution. Service is now running as normal. We apologize for any inconvenience this causes our customers.

Service: SQL Azure Database

Service [Sub-Region]	May 5	May 4	May 3	May 2	May 1	Apr 30	Apr 29
SQL Azure Database [East Asia]	✓	✓	⚠	⚠	⚠	⚠	✓
SQL Azure Database [North Central US]	⚠	⚠	⚠	⚠	⚠	⚠	✓
SQL Azure Database [North Europe]	✓	⚠	⚠	⚠	⚠	⚠	✓
SQL Azure Database [South Central US]	⚠	⚠	⚠	⚠	⚠	⚠	✓
SQL Azure Database [Southeast Asia]	✓	⚠	⚠	⚠	⚠	⚠	✓
SQL Azure Database [West Europe]	⚠	⚠	⚠	⚠	⚠	⚠	✓

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✓	Normal service availability	⚠	Performance degradation	✗	Service interruption	📄	Additional information
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Windows Azure<sup>™</sup>  
Traffic Manager  
Demo



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