

Move to the Cloud

Presenter Name



Expense reporting backlog

- Improve architecture, maintainability, and quality
 - Adopt a services architecture
- Improve accessibility, scalability, and operations
 - Move to the cloud
- Update the user experience
 - Build a more modern-looking user experience
- Expand device support
 - Companion apps for Windows Store and Windows Phone

Agenda

Windows Azure vision
Windows Azure SQL
Windows Azure Web Sites
Windows Azure Active Directory
Windows Azure Service Bus





app services



virtual
machines



web sites



cloud
services



mobile
services



SQL
database



HDInsight



tables



blob
storage



virtual
network



traffic
manager

compute

data services

networks

Global Physical Infrastructure

servers / network / datacenters

Automated

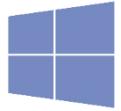
Elastic

Managed Resources

Usage Based

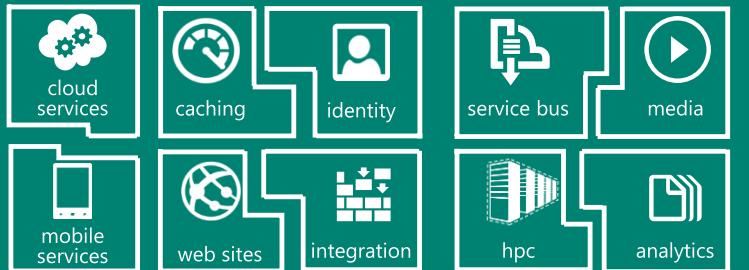
W. US, East US, N Central US, S Central US, N Europe, W Europe,
E Asia, SE Asia + 24 Edge CDN Locations





Windows Azure

app
services



data
services



infrastructure
services



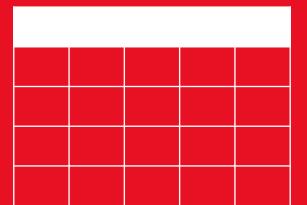
Windows Azure SQL



Windows Azure data management options

NON-RELATIONAL

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Blob Storage

A cloud storage service offering the simplest way to store large amounts of unstructured text or binary data, such as video, audio and images, and for creating virtual hard drives in the cloud.

Best for inexpensive, scalable storage of data

Tables

A NoSQL key/value store that provides simple access to semi-structured data at a lower cost for applications that do not need robust querying capabilities

Best for inexpensive, scalable storage of semi-structured data

HDInsight

A Big Data implementation 100% compatible with Hadoop.

Best for Big Data Analytics across semi-structured and unstructured data

RELATIONAL



SQL Server in a VM

A full-featured instance of SQL Server running in a Windows Azure Virtual Machine for quickly and easily running or testing SQL Server applications in the cloud

Best for existing and new applications needing full SQL Server feature set



SQL Database

A feature-rich, fully managed relational database service that offers a highly productive experience with business-ready capabilities built on SQL Server technology

Best for new cloud applications needing relational capabilities and high availability

Options for relational data services in the cloud

INFRASTRUCTURE AS A SERVICE (IaaS)



SQL Server in a
Windows Azure Virtual Machine

Full Control & Flexibility

Highly Customized Environment

Eliminate Hardware Costs

Decrease Time to Market

PLATFORM AS A SERVICE (PaaS)



Windows Azure SQL Database

Simplified Administration

Fully Managed Service

Eliminate Hardware & Administrative Costs

Build Modern Apps

Windows Azure SQL Database



Fully managed (no patching of DB or OS)

**Built in HA for Database
99.9% SLA**

Simplified Azure Management Portal

Scale Out

Scale via Azure Management Portal

Rapid Application Development

Easy Database Portability

Familiar Development Tools

Choice of Platform

Common Architecture with SQL Server

Insights with SQL Reporting

Move on-prem SQL to Azure SQL

- Create the database in Windows Azure SQL
- Use SQL Server Management Studio to migrate the DB contents
 - This automates the process of exporting the data to a local bacpac and importing it to the cloud DB
- Verify the Windows Azure SQL DB
- Update connection strings to point to the new DB

Windows Azure Web Sites



Windows Azure Web Sites



Scalable

High-density and secure web hosting

Open publishing methods and protocols

Integrated and open solution



Automated

Lowers customer onboarding costs and streamlines upselling

Upsell from shared to reserved



Flexible

Support for PHP, Node.js, and ASP.NET

Metering and throttling of resources

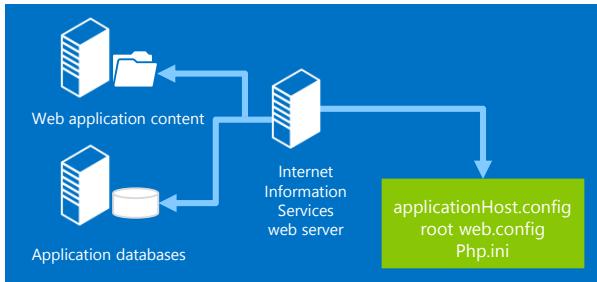
Fully integrated into Web App Gallery

Evolving from machine-centric to distributed

Traditional machine-centric model

With multiple web applications, challenges for service providers include:

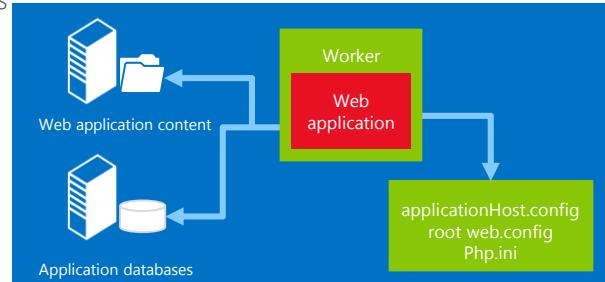
- Increased load and management complexities
- Security - Isolating stored data, authentication & authorization mechanisms
- Scaling - Auto-scaling platform compute, scaling platform storage
- Provisioning tenant resources
- Lack of support for multiple SSL web sites; applications have affinity to single servers



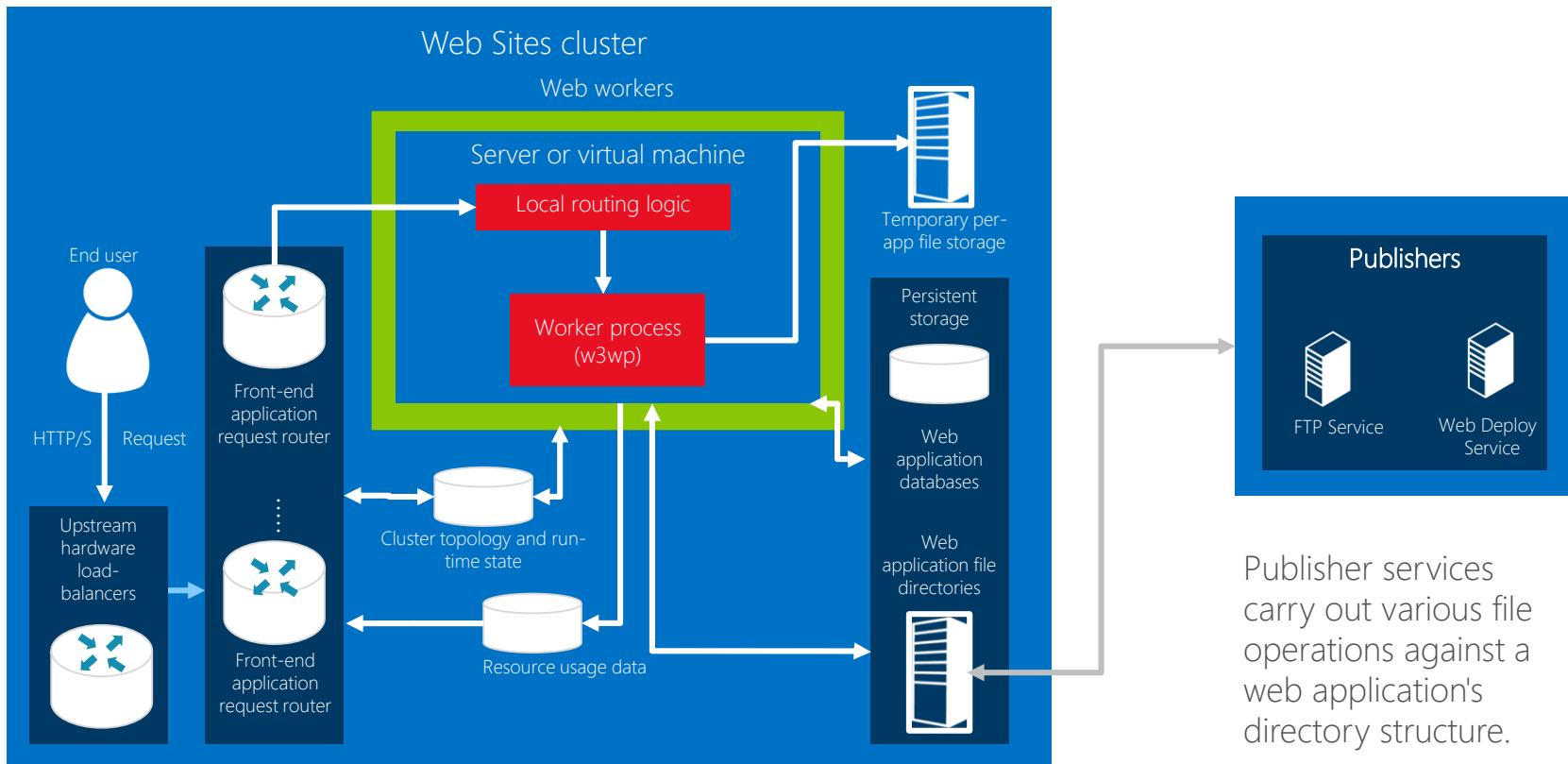
Distributed model

Web Sites allocates a web application to a specific process (or processes):

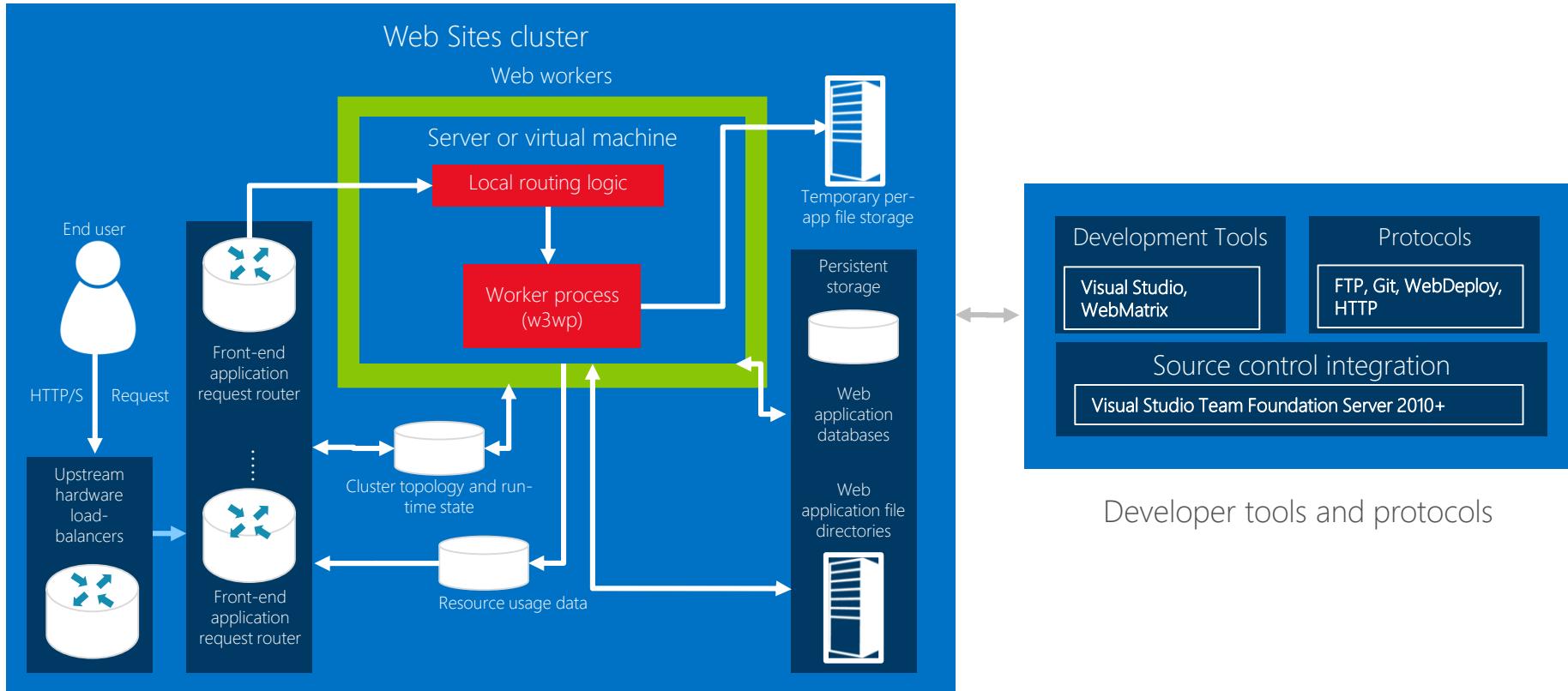
- Distributes load by allocating web applications to specific processes
- Enhances management by requiring no change to code for existing applications
- Provides a scalable and elastic resource pool capable of running an arbitrary set of web applications
- Provides multiple SSL Web sites that use unique server certificates for HTTPS binding; applications are freed from affinity to single servers



Publishing in Windows Azure Web Sites



Development tools and protocols support



Move on-prem WCF to Azure Web Site

- Create the Web Site in Windows Azure
- Import the publish settings into Visual Studio
 - This will help us create a publish profile so we can automate deployments
- Publish the application
 - It will deploy only changed files
- Verify the application
- Update the WCF service URLs to point to the cloud-hosted service

Demo Windows Azure Web sites

Name

Windows Azure Active Directory



Windows Azure Active Directory

- Azure-hosted directory service
 - Can be used standalone or with directory sync to mirror on-prem directories
- Default directory domain is
`<unique>.onmicrosoft.com`
 - Custom domains supported
- Add users for directory domain
 - Can use onmicrosoft.com domain, custom domain, or Microsoft account
- Enables single sign-on via access control service and/or “applications”

Protocols to connect with WAAD

	Purpose	Details
REST/HTTP directory access	Create, Read, Update, Delete directory objects and relationships	Compatible with OData V3 Authenticate with OAuth 2.0
OAuth 2.0	Service to service authentication Delegated access	JWT token format
SAML 2.0	Web application authentication	SAML 2.0 token format Used with Office 365 Services
WS-Federation 1.3	Web application authentication	SAML 1.1 token format Used with Office 365 Services

Windows Azure Authentication Library

- Makes it easy to add authentication using Windows Azure AD
- Takes advantage of OAuth2 code grant
- Packaged as a Windows Runtime Component (WinRT for store apps)
 - Available to both XAML and JavaScript apps
- Wraps WebAuthenticationBroker
 - Web-based authentication flows and single sign on across trusted apps
- Uses CredentialVault
 - Persistent token caching, automatic token refreshing and roaming

Secure WCF service with WAAD

1. Create the directory in Windows Azure
2. Add users (or import via sync from on-prem AD)
3. Create a service application in WAAD
4. Update the WCF service using the service application settings
 - It must verify authorization tokens when present in the header
 - It must return a proper “Unauthorized” with a pointer to the correct login page when a token header is not present

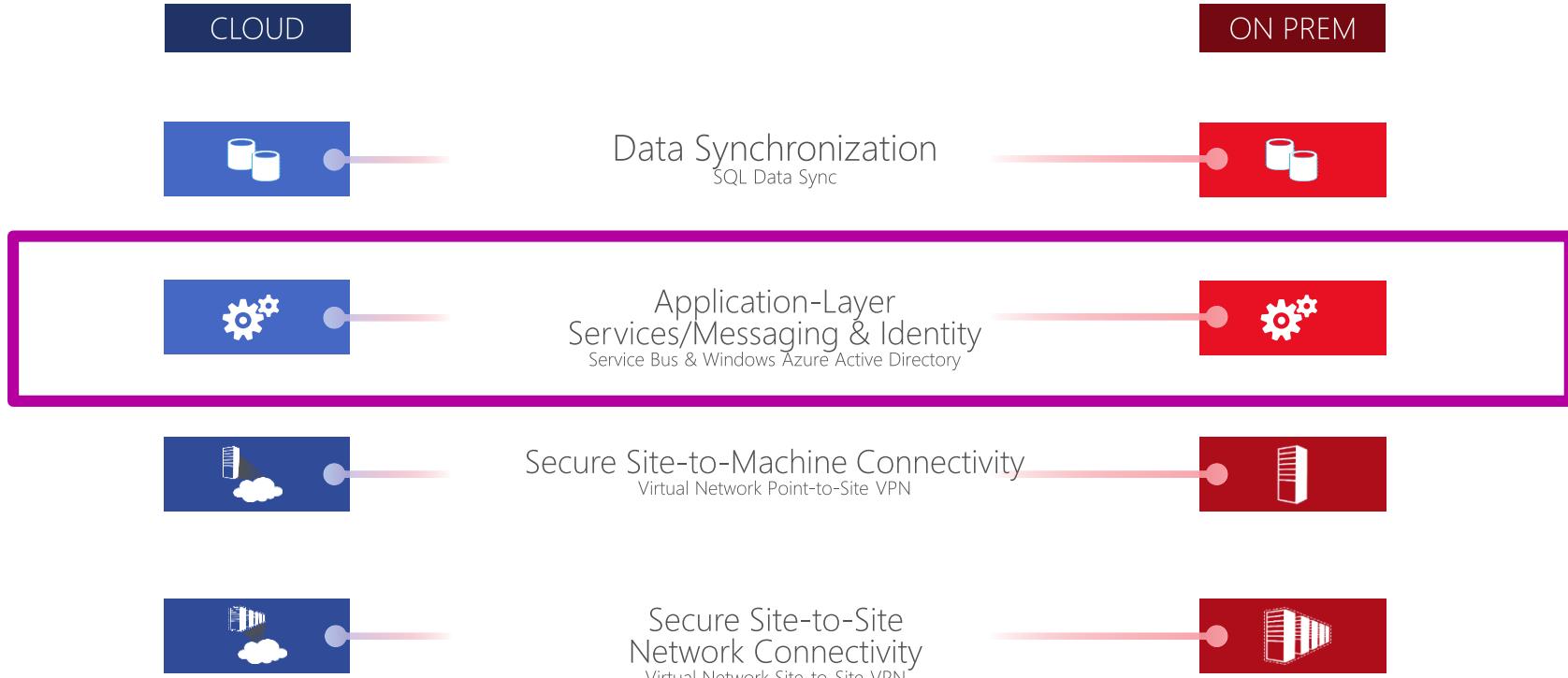
Secure WCF service with WAAD

5. Create a client application in WAAD and allow it access to the service application's API
6. Update the WPF app to use the AD library with the client application settings
 - This provides all necessary authorization UI and simplifies the access to acquiring the token in code
7. Verify the authorized experience

Windows Azure Service Bus



Hybrid application needs



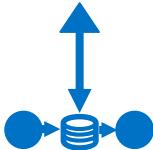
Windows Azure Service Bus



Connectivity

Rich options for interconnecting apps across network boundaries

- Service Relay
- Protocol Tunnel Eventing



Messaging

Reliable, transaction-aware cloud messaging infrastructure for business apps

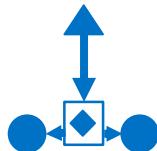
- Queuing Pub/Sub
- Reliable Transfer



Service Management

Consistent management surface and service observation capabilities

- Naming, Discovery
- Monitoring

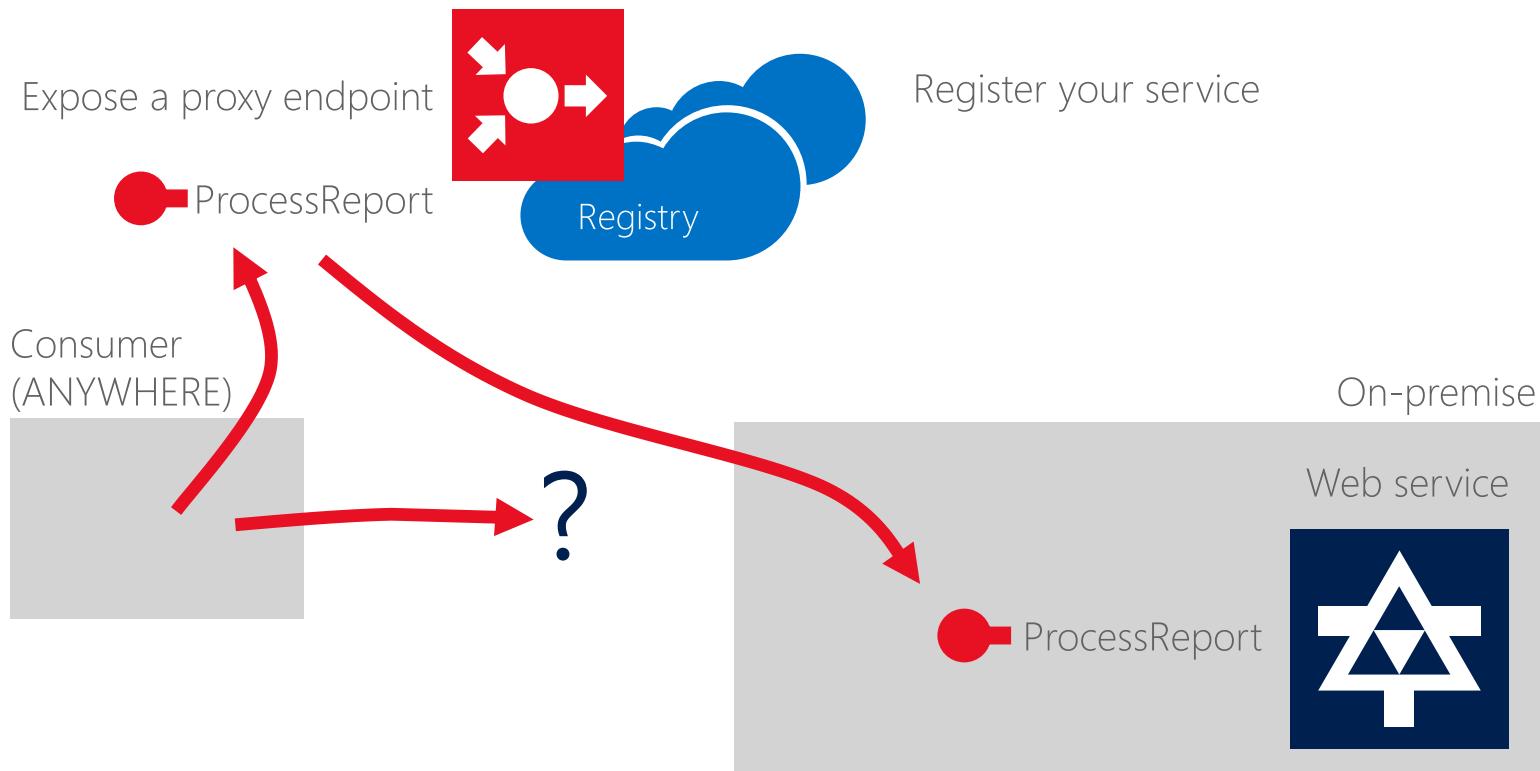


Integration Routing

Content-based routing, document transformation, and process coordination

- Coordination Transformation

Service Bus Relay



Summary

Windows Azure vision
Windows Azure SQL
Windows Azure Web Sites
Windows Azure Active Directory
Windows Azure Service Bus

Resources

- Windows Azure Training Kit - August 2013
 - <http://www.microsoft.com/en-us/download/details.aspx?id=8396>
- Build Your First Cloud App: An Introduction to Windows Azure Cloud Services
 - <http://channel9.msdn.com/Events/TechEd/NorthAmerica/2013/WAD-B321#fbid=kt1W5OJuY58>
- Lap Around Windows Azure SQL Database and Microsoft SQL Server in Windows Azure Virtual Machines
 - <http://channel9.msdn.com/Events/TechEd/NorthAmerica/2013/DBI-B201#fbid=kt1W5OJuY58>

Resources

- Introduction to Windows Azure Active Directory
 - <http://channel9.msdn.com/Events/TechEd/NorthAmerica/2013/WAD-B309#fbid=kt1W5OJuY58>
- Securing Rich Client Applications Using OAuth 2.0 and Windows Active Directory
 - <http://channel9.msdn.com/Events/TechEd/NorthAmerica/2013/WAD-B307#fbid=kt1W5OJuY58>
- Connected Clients and Continuous Services with Windows Azure Service Bus
 - <http://channel9.msdn.com/Events/TechEd/NorthAmerica/2013/WAD-B336#fbid=kt1W5OJuY58>



Microsoft

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