

Windows Azure and Cloud Computing

A Whitepaper from the AWS Technology Centre

“In the same way that most businesses would not dream of doing their print and publishing internally, businesses won’t manage their own information technology ... I think cloud computing will become the norm”.
Bill Murphy, Managing Director at BT. Special Report, The Daily Telegraph, Friday 4th December 2009.

1. Introduction

Cloud computing is arguably the next big paradigm shift in the IT industry. Customers can now rent IT infrastructure and services securely via the Internet rather than incurring the capital expenditure and running costs of provisioning their own systems.

Compute and storage capacity can quickly be added or removed to meet demand, with customers typically only paying for what they use.

The idea is not new, and there are already established players including Amazon Web Services that provide access to internet-connected virtual servers on a pay-as-you-go basis.

Whilst Microsoft is a late entrant to this market, it’s unique proposition and standing within the enterprise computing arena makes it a good choice for customers looking to exploit cloud technology.

2. What can cloud computing do for me?

Here are some example scenarios where cloud computing makes good business sense:

- Companies that have new or experimental business streams that don’t want to invest in infrastructure until profitability is proven.
- Start up companies that have low budgets and need to “Fail fast or scale fast”.
- Joint ventures between organisations that need to share infrastructure or extranet facilities.
- Software vendors moving from providing package implementations to online Software as a Service.
- Small companies that aspire to compete with global companies.
- Short turn-around projects that need to expedite internal IT or accounting bureaucracy.
- Projects that need a large amount of compute power for short periods of time. E.g. Yearend financial data processing or value-at-risk calculations.

Here are some characteristics of applications that tend to be a good technology fit:

- Applications that need massive scale
- Applications that need high reliability
- Applications with variable load
- Applications with short or unpredictable lifetimes
- Applications with data storage and replication issues
- Applications with a geographically distributed user base
- Applications with multimedia needing a Content Distribution Network (CDN).

3. What is Windows Azure?

The Windows Azure platform is a set of cloud computing services that can be used together or independently that enable:

- Developers to use existing skills and familiar tools to develop cloud applications
- ISVs and System Integrators to rapidly reach market and pay as they go
- IT Managers to gain access to a new set of resources without adding complexity
- Businesses of all sizes to quickly respond as business needs change

Windows Azure provides a scalable environment with compute, storage, hosting, and management capabilities. It links to on-premises applications with secure connectivity, messaging, and identity management.

With commercial availability in January 2010 and paid usage from February 1, 2010, the platform consists of Windows Azure, SQL Azure, Windows Azure Platform AppFabric, developer tools and a new product, codenamed “Dallas”.

Compute is “platform as a service” in that it provides ready-made virtual machines configured as either “web roles” or “worker roles” that can run .NET applications. (It’s also possible to spawn processes facilitating other kinds of Windows based applications such as Java, PHP and Ruby. More VM options are planned).

Storage provides Blobs (analogous to files), Queues and Tables at massive scale.

Blobs can optionally be served via Microsoft’s Content Distribution Network (CDN) allowing multimedia video or large images to be edge cached around the world.

Microsoft® SQL Azure™ Database is a cloud-based relational database service built on SQL Server® technologies. It provides a highly available, scalable, multi-tenant database service hosted by Microsoft in the cloud. SQL Azure Database helps to ease provisioning and deployment of multiple databases. Developers do not have to install, setup, patch or manage any software. High availability and fault tolerance is built-in and no physical administration is required. SQL Azure Database supports Transact-SQL (T-SQL). Customers can use existing knowledge in T-SQL development and a familiar relational data model for symmetry with existing on-premises databases. SQL Azure Database can

help reduce costs by integrating with existing toolsets and providing symmetry with on-premises and cloud databases.

Windows Azure AppFabric includes The Service Bus and Access Control.

Service Bus helps to provide secure connectivity between loosely-coupled services and applications, enabling them to navigate firewalls or network boundaries and to use a variety of communication patterns. Services that register on Service Bus can easily be discovered and accessed, across any network topology.

The Microsoft® Access Control helps you build federated authorization into your applications and services, without the complicated programming that is normally required to secure applications that extend beyond organizational boundaries. With its support for a simple declarative model of rules and claims, Access Control rules can easily and flexibly be configured to cover a variety of security needs and different identity-management infrastructures.

Microsoft® Codename "Dallas" is a new service allowing developers and information workers to easily discover, purchase and manage premium data subscriptions in the Windows Azure platform. Dallas is an information marketplace that brings data, imagery, and real-time web services from leading commercial data providers and authoritative public data sources together into a single location, under a unified provisioning and billing framework. Additionally, Dallas APIs allow developers and information workers to consume this premium content with virtually any platform, application or business workflow.

4. Corporate Social Responsibility

In April 2007, Gartner estimated that the Information and Communication Technologies (ICT) industry generates about 2% of total global CO2 emissions which is comparable to the aviation industry. By providing shared infrastructure and shared capacity, cloud computing can help organisations to cut their energy consumption, reducing operational costs and carbon footprint in line with Corporate Social Responsibility (CSR) policies.

5. About AWS

AWS is a Microsoft Gold Partner that has been working with the Windows Azure Platform since summer 2008 when it was only available to selected partners under NDA and still had the codename "Red Dog". We worked closely with Microsoft to port the RNLI MOB Guardian system and this was one of the key case studies for the Azure launch at the Microsoft professional Developers Conference in 2008.

We have subsequently been involved in a Technology Adoption Programme (TAP) and various deep dive events under NDA. We've been exposes to pre release software and had the opportunity to contribute to the product strategy and direction.

We have been actively involved in the Windows Azure technical community and have

open sourced several code samples and demonstration projects. These include SocketShifter which shows how to use the Service Bus to provide secure ad-hoc Virtual Private Network connections, and J-Azure, a Java class library for accessing Windows Azure Storage.

In 2009, the Microsoft UK Developer and Platform Evangelism (DPE) team asked us to put together a consultancy package as part of their Systems Integrator (SI) enablement programme. This resulted in the Windows Azure Assessment Survey programme.

Richard Prodger was a speaker at the Microsoft Professional Developers Conference in 2009 where a major Microsoft/AWS case study accompanied the commercial launch of the Windows Azure Platform.



6. How can I find out more?

AWS is running a number of Windows Azure Assessment Surveys that consist of a workshop and a follow up consultancy report that explore how the Windows Azure Platform could assist with your own projects and business challenges. For more information, please contact info@aws.net or call +44 1473 834560.

For more information about our innovative work with the RNLI, please see the case study Developer Scales Search-and-Rescue Application to Help Save More Lives at Sea. (<http://bit.ly/33aW2Y>).

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