

## The Cloud Computing Comparison Between Databases

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### Abstract

Internet to cloud computing The invent of internet taught IT world how to use the front end of business application at the ease of browser but the control of data, application, its storage and deployment was still resting in individual premises of every organization. It was a need of time that business house were looking for someone to help them in developing, installing, configuring, testing, staging, and running their hundreds of business application from SAP, Microsoft, and Oracle in failsafe environment with lesser time and headache.

**Keywords:** Cloud, SQL Azure, Windows Azure, Oracle, Query, Database, Derived table, ODBC, OLAP

### Introduction

The Cloud computing used in the real world with different databases and various methods. We have selected few databases and tested the Cloud computing process methods in the particular database with comparing another database. The open source databases run hundreds of millions of public-facing and private applications worldwide, but how effective is this technology and how do these products compare? For answers, we reviewed two popular free or open source database products: Microsoft SQL Server and SQL azure, Oracle. When selecting commands for our review we chose fully featured relational database management system (RDBMS) products with features such as procedures, functions, triggers and cursors. While we did test large tables. For the test data, we used a truncated log file from one of our Web servers containing a million-plus record. The same test data was used across all

two products. We ran standard tests such as bulk inserts/imports and performed data manipulation tasks via SELECT, UPDATE AND DELETE statements.

## **Azure and Oracle**

### **1.1. Windows Azure:**

A collection of virtual Microsoft operating systems that can run your web applications and services in the cloud. For example, you can create a web service that converts US dollars to Euros; then, you can deploy the service on Windows Azure and allow it to scale as needed. Note that Windows Azure can run .NET applications and other platforms.

### **1.2. SQL Azure:**

Microsoft's transactional database offering for cloud computing based on Microsoft SQL Server 2008. For example, you can store your customer database in the cloud using SQL Azure and consume customer data using services deployed in Windows Azure.

### **1.3. Cloud Computing**

Cloud computing on Microsoft Azure is a natural evolution of computing flexibility in which the actual physical storage and implementation details are decoupled from the software solution. For example, deploying services in Windows Azure doesn't require any knowledge of the machine running the service or any of the core services (IIS version, operating system patches, and so on). You may never know which machine is running your software. Connecting to a Windows Azure server is performed through logical names, just like connecting to SQL Azure.

### **1.4 Oracle**

The Oracle Database Appliance is an engineered system of software, servers, storage, and networking that provides a simple, reliable, and affordable way to deploy, manage, and support high-availability database workloads

### **1.5 Client-Side Query Cache**

This feature enables caching of query result sets in client memory. The cached result set data is transparently kept consistent with any changes done on the server side. Applications leveraging this feature see improved performance for queries which have a cache hit. Additionally, a query serviced by the cache avoids round trips to the server for sending the query and fetching the results. It also reduces the server CPU that would have been consumed for processing the query, thereby improving server scalability.

### **1.6 Oracle Data mining**

Oracle Data Mining provides comprehensive, state-of-the-art data mining functionality within Oracle Database. Oracle Data Mining is implemented in the

Oracle Database kernel, and mining models are first class database objects. Oracle Data Mining processes use built-in features of Oracle Database to maximize scalability and make efficient use of system resources. No Data Movement. Some data mining products require that the data be exported from a corporate database and converted to a specialized format for mining. With Oracle Data Mining, no data movement or conversion is needed. This makes the entire mining process less complex, time-consuming, and error-prone. Security. Your data is protected by the extensive security mechanisms of Oracle Database. Moreover, specific database privileges are needed for different data mining activities. Only users with the appropriate privileges can score (apply) mining models.

### **1.7 Online Analytical Processing (OLAP)**

Online Analytical Processing (OLAP) analyzes data from a data warehouse, for business processes such as forecasting, planning, and what-if analysis.

## **Data Organization In Cloud Computing**

Cloud computing comes into focus only when you think about what IT always needs: a way to increase capacity or add capabilities on the fly without investing in new infrastructure, training new personnel, or licensing new software. Cloud computing encompasses any subscription-based or pay-per-use service that, in real time over the Internet, extends IT's existing capabilities. Cloud computing is at an early stage, with a motley crew of providers large and small delivering a slew of cloud-based services, from full-blown applications to storage services to spam filtering.

- Introduction to Cloud Categories: Overviews that provide detailed background information to help you distinguish various categories of cloud providers and select the right one.
- Comparison Grids: Side-by-side feature-comparison tables for various cloud providers with vendors grouped by category.
- Solution Data Sheets: Summaries that list the main features for each cloud vendor along with unbiased, expert reviews.
- Audience Survey: A summary and analysis from our 2013 survey of developers and IT professionals about their cloud technology preferences and usage patterns.
- Cloud Glossary: A helpful dictionary for terms related to cloud computing

## **Windows Azure Cloud Computing**

Windows Azure is Microsoft's operating system for cloud computing. As with other technologies for cloud computing, Windows Azure is intended to simplify IT management and minimize up-front and ongoing expenses. To this end, Azure was designed to facilitate the management of scalable Web applications over the Internet. The hosting and management environment is maintained at Microsoft data centers. Windows Azure can be used to create, distribute and upgrade Web applications without the need to maintain expensive, often underutilized resources onsite. New Web services and applications can be written and debugged with a minimum of

overhead and personnel expense. New capabilities can be added "on the fly" to existing packaged applications. The Azure operating system is the central component of the company's Azure Services Platform, which also includes separate application, security, storage and virtualization service layers and a desktop development environment.

Windows Azure supports a wide variety of Microsoft and third-party standards, protocols, programming languages and platforms. Examples include XML (Extensible Markup Language), REST (representational state transfer), SOAP (Simple Object Access Protocol), Eclipse, Ruby, PHP and Python. Windows Azure was codenamed "Red Dog" and was temporarily called "Windows Cloud"

### **Oracle Cloud Computing**

Cloud computing is a significant advancement in the delivery of information technology and services. By providing on demand access to a shared pool of computing resources in a self-service, dynamically scaled and metered manner, cloud computing offers compelling advantages in speed, agility and efficiency. Today, cloud computing is at an early stage in its lifecycle, but it is also the evolution and convergence of several trends that have been driving enterprise data centers and service providers over the last several years. Cloud computing builds off a foundation of technologies such as grid computing, which includes clustering, server virtualization and dynamic provisioning, as well as SOA shared services and large scale management automation. For the better part of a decade, Oracle has been the leader in these areas with thousands of customer successes and high level of investment. Today, Oracle offers the industry's most complete, open and integrated products and services to enable public, private and hybrid clouds.

Oracle aims to make cloud computing fully enterprise-grade and supports both public and private .cloud computing to give customers choice. Oracle offers technology that enables organizations to build private clouds, leverage public clouds and provide cloud services to others. Oracle also offers a broad set of horizontal and industry applications that run in a shared services private cloud model as well as a public Software-as-a-Service (SaaS) cloud model. Push out any text that may try to fill in next to the graphic.

### **Cloud Service Creation In Windows Azure and Oracle**

Cloud services are steeped in over a decade of experience hosting SaaS platforms and products, as well as more traditional vendor solutions.

#### **Windows Azure Cloud Service Creation**

The Windows Azure Management Portal provides two ways for you to create and deploy a cloud service: Quick Create and Custom Create. This topic explains how to use the Quick Create method to create a new cloud service and then use Upload to upload and deploy a cloud service package in Windows Azure. When you use this method, the Windows Azure Management Portal makes available convenient links for

completing all requirements as you go. If you're ready to deploy your cloud service when you create it, you can do both at the same time using Custom Create.

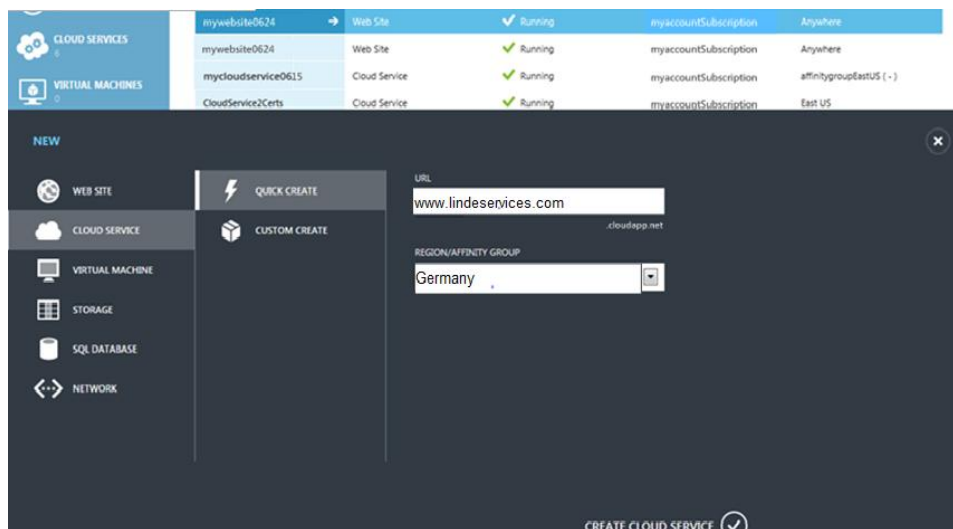
Three components are required in order to deploy an application as a cloud service in Windows Azure:

- Service definition file The cloud service definition file (.csdef) defines the service model, including the number of roles.
- Service configuration file The cloud service configuration file (.cscfg) provides configuration settings for the cloud service and individual roles, including the number of role instances.
- Service package The service package (.cspkg) contains the application code and the service definition file.

1. In the Management Portal, click New, click Cloud Service, and then click Quick Create.

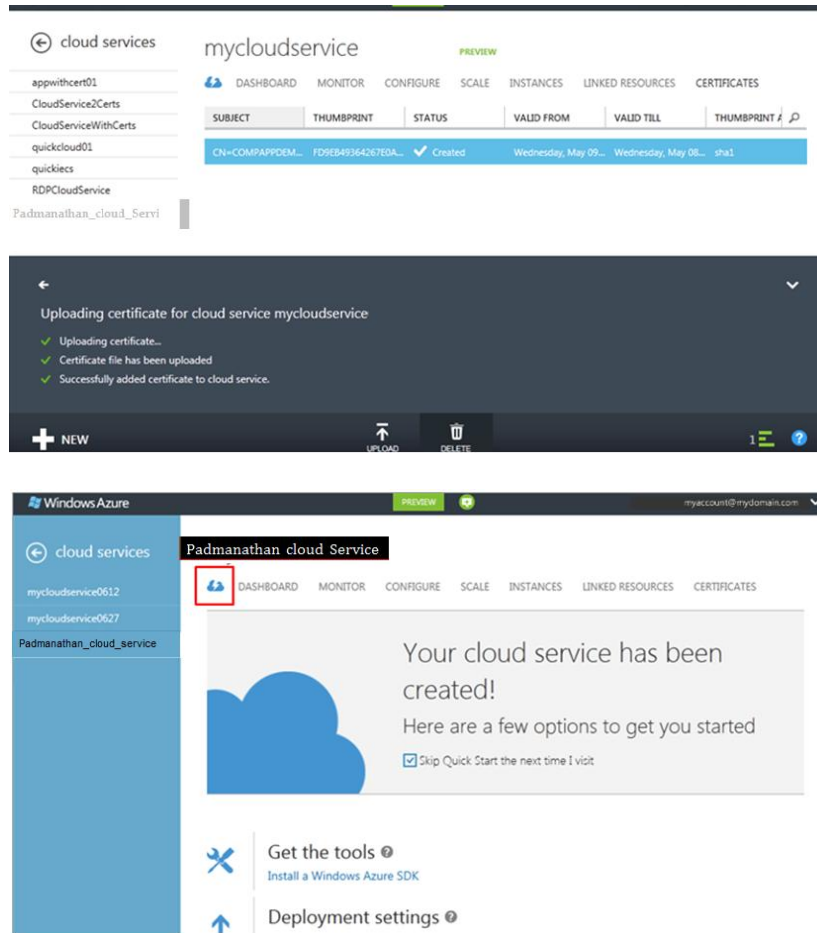
URL, enter a subdomain name to use in the public URL for accessing your cloud service in production deployments. The URL format for production deployments is [www.lindeservices.com](http://www.lindeservices.com)

In Region/Affinity Group, select the geographic region or affinity group to deploy the cloud service to. Select an affinity group if you want to deploy your cloud service to the same location as other Windows Azure services within a region.



To create an affinity group, open the Networks area of the Management Portal, click Affinity Groups, and then click either Create a new affinity group or Create. You can use affinity groups that you created in the earlier Windows Azure Management Portal. And you can create and manage affinity groups using the Windows Azure Service Management API. For more information, see Operations on Affinity Groups.

The Cloud Services area opens, with the new cloud service displayed. When the status changes to Created, cloud service creation has completed successfully.



### Cloud service creation oracle Database Service

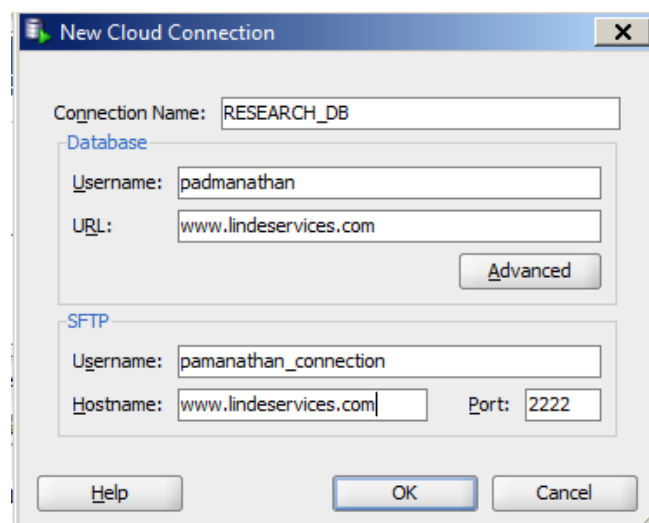


Figure 2: ODBC Driver for the SQL Azure Cloud Database Service

### **Example ODBC in SQL azure**

When connecting to a Windows Azure SQL Database using ODBC in SQL Server Native Client or the ODBC driver. When using SQL Server Native Client from SQL Server 2008 R2 or SQL Server 2008, the connection string must include the server name as part of the user name (user@server).

#### **Example:**

```
Driver={SQL server Client 10.0};  
Server=tcp:researchdb.int.msods.com,1433;  
Database: researchdb  
Uid:padmanathan@researchdb;  
Pwd=mypassword;  
Encrypt=Yes;  
Connection Timeout=60;
```

### **Table Creation and Accessing In SQL Azure and ORACLE**

The database table is collection of rows and columns. The sample database represents some of the data storage and retrieval requirements you might encounter when dealing with customer in an bank. The sample database is called bankdb and contains three main type of records: Customer, Financial, Loan and historical records of particular bank

Each customer has a PAN number, Customer\_Name, Currency\_Code, Branch\_Name, and Branch\_id. Some Customer earns an Interest in addition to their bank balance. All customers' related information is stored in the Place called customer table. The table creation in the database has been followed a process. Each database having own procedure to create table. Which is discussed in the below topic.

#### **Table Creation in SQL AZURE**

SQL Azure provides the base functionality of a relational database for use by applications. If an application has data that needs to be hosted in a relational database management system (RDBMS), then this is the way to go. It provides all of the common semantics for data access via SQL statements. In addition, SQL Server Management Studio (SSMS) can hook directly up to SQL Azure, which provides for an easy-to-use and well-known means of working with the database outside of the code. If an application currently uses SQL Server or a similar RDBMS back end, then SQL Azure will be the easiest path in moving your data to the cloud.

SQL Azure is also the best choice for providing cloud-based access to structured data. This is true whether the app is hosted in Windows Azure or not. If you have a mobile app or even a desktop app, SQL Azure is the way to put the data in the cloud and access it from those applications.

#### **Table Creation In Oracle**

The CREATE TABLE statement to create one of the following types of tables:

A relational table, which is the basic structure to hold user data. An object table, which is a table that uses an object type for a column definition. An object table is explicitly defined to hold object instances of a particular type. You can also create an object type and then use it in a column when creating a relational table. Tables are created with no data unless a subquery is specified. You can add rows to a table with the INSERT statement. After creating a table, you can define additional columns, partitions, and integrity constraints with the ADD clause of the ALTER TABLE statement. You can change the definition of an existing column or partition with the MODIFY clause of the ALTER TABLE statement.

**Table 2:** Comparison

S No	Command	SQL AZURE	ORACLE
1	Table Creation	Database Creation via Web	Create Via command or script
2	Database access	Access database from local computer	Access database from TNS and connect string
3	Connect web	Connect to Web database via local SSMS	Connecting web through Webclient
4	Executing DDL Query	Run DDL within context of database container	Run in SQL plus or PL/SQL or Script
5	Querying Select into statement	Supports different way(Ex given)	Supports

SSMS –SQL SERVER MANAGEMENT STUDIO

## OLAP Cube Queries

### Oracle SQL

The data consists of skirt with colours (dark = 8, pastel = 35, white = 10, total =53), dress with colours (dark=20,pastel = 10, white = 5,total=35), shirt with colours (dark=14,pastel=7,white=28, total=49) pant with colours(dark=20, pastel=2, white=5, total=27).

The total (dark =62, pastel = 54, white = 48, total = 164)

The variables size and number are reserved words in oracle. They are changed to size1 and number1.

Select item\_name, color, size1, sum(number1) from sales group by cube (item\_name, color,size1);

This result is displayed below.



**Item\_Name Color Size1 Sum(Number1)**

656  
all 656  
all 328  
all all 328  
dark 124  
dark all 124  
pastel 108  
pastel all 108  
white 96

**Conclusion**

The packages by Microsoft and Oracle say they follow same standards, the differences in Cloud computing process. A careful comparison is given in this paper based on the examples of the valuable text book which can be taken as guidance for mastering both, both by students and professionals who want to switch over one from another. The cloud-based messaging and communication infrastructure supported by Windows Azure Service Bus includes reliable message queuing and durable publish/subscribe messaging capabilities. This article detailed some best practices in managing the specifics involved in the lifecycle of such Querying and Cloud connections, and provided guidance on selecting supported database with an awareness of resource efficacy.

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