Cloud Computing with Windows Azure

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why?

cheaper.
risk mitigation.
agility.
what?
elastic compute.
scalable storage.
network topology.
how?

self service.

pay as you go.

cloud managed.
windows azure

Developer Experience
Use existing skills and tools.

Windows Azure
SQL Azure
AppFabric

Compute
Storage
Management
Relational data
Management
Connectivity
Access control
Service Management
- manages the Windows Azure OS
- monitors every application
- optimizes hardware utilization.

Storage Services
- store large amounts of data
- in any format

Virtualized Computation
- provides application scalability
- instances can be replicated as needed
Fabric
.collection of servers
.multiple VMs per server
.different VM sizes

Fabric controller
.interacts with a “Fabric Agent” on each machine
.monitors every VM, application and instance
.performs load balancing, check pointing and recovery
compute

...each instance runs on its own vm
...different vm sizes available
...replicated as needed
storage

- REST and client library access
- NTFS APIs for drives
- uses 512 bit secret
metadata <name, value> pairs, up to 8KB per blob
block and page blob
...size limit depends of blob type
block blob

targeted at streaming workloads
each blob consists of a sequence of blocks
blocks are uploaded and separately committed
size limit 200GB per blob
blob access

Anonymous access for public downloadable and cacheable content

Shared Access Signature (SAS) -> time limited, uniquely generated URLs
A page blob is targeted at random read/write workloads. Each blob consists of an array of pages. Each page range write is committed on PUT. Size limit 1TB per blob.
drive

- provides a durable NTFS volume
- page blob mounted over the network as an NTFS drive
- accessed through existing NTFS APIs to access
- local storage for cache to serve reads
each entity can have up to 255 properties
each property is stored as a <name, typed value> pair
each entity requires a PartitionKey & RowKey
transactions within partitions only
no fixed schema
continuation token for query results > 1000 entries
<table>
<thead>
<tr>
<th>PartitionKey (Category)</th>
<th>RowKey (Title)</th>
<th>Timestamp</th>
<th>ReleaseDate</th>
</tr>
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<tbody>
<tr>
<td>Action</td>
<td>Fast &amp; Furious</td>
<td></td>
<td>2009</td>
</tr>
<tr>
<td>Action</td>
<td>The Bourne Ultimatum</td>
<td></td>
<td>2007</td>
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<td>Open Season 2</td>
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<tr>
<td>war</td>
<td>Defiance</td>
<td></td>
<td>2008</td>
</tr>
</tbody>
</table>
queues

messages can be up to 8KB
many workers may consume the queue
working with queues

- message placed in queue
- worker de-queues message
- message is marked as invisible for a specified time
- worker deletes message when finished processing it
- message may be processed more than once
- make message processing idempotent
- messages put into queue may be processed in any order
working with queues

use blob to store large messages, store blob ref in message
storage options

Azure Table

Azure Blob

Azure Drive

Azure Queue

SQL Azure

Structured Storage

Unstructured Storage

NTFS Drive

Service Communication

Relational Database
compute elasticity

observe load

(CPU meter, queue size, IO capacity, ...)

vertical - adjust vm resources

horizontal - adjust # of instances
life cycle

Users

Administrator

Source Control Manager

Development

Test

Build Package

Build Server

Test local

Test live

Publish

Windows Azure

Production

Staging

Test

Production

Staging
Pricing

Compute:
- Per Service Hour
  - Starting at $0.12/service hour +
  - Variable instance sizes

Storage
- Per GB stored & transactions
  - Blob & table $0.15 / GB
  - Storage Access = $0.10 / 100K Transactions

Bandwidth
- Per GB transfer in or out of a datacenter
  - US/EU Bandwidth = $0.10 in / $0.15 out / GB
  - Asia Pacific = $0.30 in / $0.45 out / GB
Developing Applications for the Cloud on the Microsoft Windows Azure™ Platform

conclusion

platform as a service. familiar and open. symmetric.

go to sitecore session @ JA0O

http://www.windowsazure.com