Pricing the Cloud

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Windows Azure CONNECTIONS

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Agenda

- The impact of pricing
- Azure pricing tools
- Estimating costs across features
- Mapping costs to customers
- Monitoring costs

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The Impact of Pricing

- Cloud pricing has impact on your business
- Cloud architecture and feature selection
- Estimation of immediate costs
- Estimation of costs as the business grows
- Cost to the business per user
- Revenue required to offset costs (and yield a profit)

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Windows Azure Platform Costs

- VM size and compute charges
- Azure Storage and SQL Azure costs
- CDN costs (blobs, javascript, any content)
- Access Control for authentication
- Service Bus connections
- Caching size requirements
- Bandwidth usage across all features

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Sign Up Options

- Free Trial, 90 days
- Pay-as-you-go
- Subscriptions
- Member Savings
  - MSDN, BizSpark, MPN

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Azure Pricing Tools

- Tools are useful for rough estimates only
- http://www.microsoft.com/windowsazure/pricing-calculator/
  - Pricing Calculator
  - TCO Calculator
- Still require thinking through each cost aspect and the estimated numbers

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Compute Instance

- What size VM and how many?
- Factors:
  - CPU
  - Memory
  - Disk space
  - Bandwidth

Virtual Machine Size	CPU Cores	Memory	Disk Space for Local Storage Resources in Web and Worker Roles	Disk Space for Local Storage Resources in a VM Role	Allocated Bandwidth (Mbps)
ExtraSmall	Shared	768 MB	19,480 MB (6,144 MB is reserved for system files)	20 GB	5
Small	1	1.75 GB	229,400 MB (6,144 MB is reserved for system files)	165 GB	100
Medium	2	3.5 GB	500,760 MB (6,144 MB is reserved for system files)	340 GB	200
Large	4	7 GB	1,023,000 MB (6,144 MB is reserved for system files)	850 GB	400
ExtraLarge	8	14 GB	2,087,960 MB (6,144 MB is reserved for system files)	1890 GB	800

Storage

Standard pay-as-you-go pricing for storage
$0.14 per GB stored per month based on the daily average
$0.01 per 10,000 storage transactions

- How much storage is used across tables, blobs, queues?
  - How many rows per user by table grouping?
  - How much media?
  - What generates queue messages?

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Storage

Standard pay-as-you-go pricing for storage
$0.14 per GB stored per month based on the daily average
$0.01 per 10,000 storage transactions

- How many transactions?
  - Differs by table, blob, queue
  - All CRUD operations
  - Queue reads even if they don't return an item
    - Use increasing read intervals for empty queues

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SQL Azure

Standard pay-as-you-go (Web edition) pricing
$9.99 per database up to 1GB per month
$49.95 per database up to 5GB per month

Standard pay-as-you-go (Business Edition) pricing
$99.99 per database up to 10GB per month
$199.98 per database up to 20GB per month
$299.97 per database up to 30GB per month
$399.96 per database up to 40GB per month
$499.95 per database up to 50GB per month

- Replace table storage
  - 10GB storage is usually plenty
  - Up to 50GB storage available
  - No transfer costs (minimal for tables)
- Blobs remain in Azure storage
- Queues remain in Azure storage

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AppFabric Cache

Standard pay-as-you-go pricing for caching
128 MB cache for $45.00
256 MB cache for $55.00
512 MB cache for $75.00
1 GB cache for $110.00
2 GB cache for $180.00
4 GB cache for $325.00

- Monthly fee by size
- Typical Web caching
  - Browser sessions
  - Shopping carts
- Application data
  - Varies with application requirements

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AppFabric Service Bus

- Service connections
  - At service host startup
  - Receive message buffer
- Client connections
  - Each “proxy” to call endpoints
  - Send message to buffer
- Concurrent connections, not in total!!!!
  - Averaged each 5 min period

Standard pay-as-you-go pricing for Service Bus connections
$3.99 per connection on a “pay-as-you-go” basis
Pack of 5 connections $9.95
Pack of 25 connections $49.75
Pack of 100 connections $199.00
Pack of 500 connections $995.00

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App Fabric Access Control

Standard pay-as-you-go pricing for Access Control
$1.99 per 100,000 transactions

- Based on number of users, how many logins on average per day? Per month?
- Pro-rated for the month

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Bandwidth

Pricing details for data transfers
North America and Europe regions: $0.15 per GB out
Asia Pacific Region: $0.20 per GB out

- Many aspects of the system
  - Blob downloads, web page data, reports, each with different usage patterns
    - Blob reads may be CDN
  - Cache traffic with on-premise servers
  - Service bus and access control traffic
- Estimate by user region

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CDN

Standard pay-as-you-go monthly pricing for the CDN
$0.15 per GB for data transfers from European and North American locations
$0.20 per GB for data transfers from other locations
$0.01 per 10,000 transactions

- Transactions same as blob storage costs
- Data transfers included in blob reads
- Future changes between CDN and storage charges could warrant separation for estimates

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Costs / User

- Allocating costs per user can vary
- Biggest costs are bandwidth and storage for large media
- Users pay for media
  - Look at storage as fixed cost per media
  - Downloads and transfers are unpredictable
    - How often does producer access media?
    - How often does consumer download purchases?

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Cost Totals

- Provide estimates by quarter
- Estimate growth trends and compare to actual values
- Quantify growth factors
  - What is per customer cost, do they pay more?
  - What is cost of doing business?
  - Can margins cover the latter?

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Monitoring Costs

Cost factor	What to monitor
VM size	CPU usage, memory, disk space, bandwidth
Storage	Average storage per user, other multipliers
Storage transactions	Average CRUD per user records, blobs; queue messages generated per user (or ?)
Cache	Average size cache per user session, average concurrent users
Service Bus	Average service restarts, average connections made per user, average concurrent users
Access Control	Average login per day per user, average users connecting per day/month
Bandwidth	Average users per region, page/service requests and data, media requests, caching requests; averages per user per day/month

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Resources

- Web Sites
  - www.michelelerouxbustamante.com
    - See blog post for content from this session
  - www.learningwcf.com
  - www.idesign.net
  - www.bitkoo.com

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