THE POWER OF THE CLOUD IS CLOSER THAN YOU THINK

Jeff Hoffmann
Robert Peterson

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Agenda

- SWC Introduction
- What is the Cloud?
- What is Azure?
- Why Build Applications for Azure?
- Case Studies
  - Converting an Application to Azure
  - Building an Application for Azure
- Questions and Next Steps
Tweet to @SWCTechPartners with the hashtag #SWCEvents with questions and comments during the presentation!
Create Three Small Azure Environments:

- Development
- Staging
- Production

Deploy a Basic Application to All Environments

Perform Basic Load Testing

Assess Performance Needs

Rescale Environment & Setup Autoscale

Microsoft Azure
**About SWC Technology Partners**

**SWC** is a leading provider of innovative IT solutions for the midmarket. For more than 30 years, **SWC** has excelled at providing strategic guidance and delivering best-in-class solutions tailored to fit growing organizations.
About SWC Technology Partners

- Software Architecture
- Custom Development
- Collaboration
- Business Intelligence
- CRM
- SharePoint
About SWC Technology Partners

- Digital Creative & Design
- Digital Marketing Platforms
- SEO / SEM
- Social Media
- Videography
About SWC Technology Partners

- IT Strategy & Security Advisory
- Advanced Networking
- Virtualization & Consolidation
- Unified Communications
- Systems Management
About SWC Technology Partners

- Monitor & Manage
- Service Desk
- Remote & Onsite Support
- Enhanced Managed Services
- Zephyr EDI & Data Solutions
At SWC we get past the hype and help our clients use the Cloud to move their business to new heights.

- Advisory
- Infrastructure
- Software
- AppDev
- Recovery
Awards

BEST PLACES TO WORK 2014

2012 2013 2014

CRAIN'S CHICAGO BUSINESS

Inc. 5000
THE INC. 500|5000 IS AN EXCLUSIVE RANKING OF AMERICA'S FASTEST-GROWING PRIVATE COMPANIES
2012 2013 2014

AWARDS

Microsoft Partner
CENTRAL REGION PARTNER OF THE YEAR AWARD CUSTOMER LOYALTY AND SATISFACTION
2007 2009 2011 2012

2011 2012 2013 2014

101 BEST & BRIGHTEST TO WORK FOR

2012 2013

2012
THE COMPUTERWORLD HONORS PROGRAM LAUREATE

The Computerworld Honors program, founded in 1988, recognizes organizations and individuals who have used information technology to change the world for the better.

INTERACTIVE MEDIA AWARDS WINNER 2013

The Interactive Media Awards honor individuals and organizations for their outstanding achievement in website design and development.

PROUD MEMBER OF THE GLOBAL EDITION 2013

2011 2012 2013 2014

BRILLSTREET®

2011 2012 2013 2014

TOP 50 CHICAGO EMPLOYERS

2012 2013
“There’s no way that company exists in a year.”

Tom Siebel, Founder of Siebel CRM Systems, referring to SalesForce.com (2001)
“The computer industry is the only industry that is more fashion-driven than women's fashion. Maybe I'm an idiot, but I have no idea what anyone is talking about. What is [the Cloud]? It's complete gibberish. It's insane. When is this idiocy going to stop?”

Larry Ellison, CEO, Oracle Corporation, referring to the Cloud (2008)
The **Cloud** is...

“...**scalable** IT-enabled capabilities...delivered ‘as a **service**’ to external customers using **Internet** technologies”

“**IT services** that are deployed and delivered over the **Internet** and are **scalable** on demand”
Cloud Service Model View

Cloud Consumers

- **Software as a Service (SaaS)**
  - Office 365, Salesforce, SharePoint Online...

- **Platform as a Service (PaaS)**
  - Development Platform, Execution Runtime, Database, Web...

- **Infrastructure as a Service (IaaS)**
  - Compute, Network, Storage...
Cloud Deployment Model View

Private

On Premises

Public

THE CLOUD

HYBRID
Our Cloud Solutions include:

Cloud Advisory

HOST
IaaS

BUILD
PaaS

RUN
SaaS

RECOVER
RaaS
WHO CARES?
We need Development, Staging, QA and Production environments for a webserver, 2 SQL databases and an SFTP server. And we only need it for 1 year.

– Technical Architect / Developer

I need to load test my environment and application in anticipation of my go-live date.

– Quality Assurance Manager
I want the ability to stage my code before going live and roll it back if I have problems with minimal downtime.

– Release Manager

I want to minimize the overhead of maintaining multiple, under utilized integration and testing environments.

– CIO / Director of IT
WINDOWS AZURE & SWC:
BRING CLOUD TO YOUR BUSINESS
Comprehensive set of services that enables you to quickly build, deploy and manage applications across a global network of Microsoft-managed data centers.
MICROSOFT AZURE GLOBAL FOOTPRINT

16 REGIONS WORLDWIDE IN 2014
WEBSITES WITH GLOBAL REACH

- Build websites with global scale
- Built-in support for open web frameworks
- Managed by Microsoft
- Improve performance with Traffic Manager
REACH WHERE YOUR DATACENTER WON’T

WINDOWS AZURE MOBILE SERVICES
TURNKEY BACKEND FOR MOBILE APPS

• Extend internal web apps to mobile devices
• Quickly build and deploy consumer-facing apps
• Land your app on any platform or device

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Windows Azure

**App Services**
- Cloud Services
- Caching
- Identity
- Service Bus
- Media
- Mobile Services
- Web Sites
- Integration
- HPC
- Analytics

**Data Services**
- SQL Database
- HDInsight
- Table
- Blob Storage

**Infrastructure Services**
- Virtual Machines
- Virtual Network
- VPN
- Traffic Manager
- CDN
Windows Azure

DEVELOP, TEST, RUN YOUR APPS

TEST & DEVELOPMENT ON-PREMISES

- Limited hardware budget
- Limited software licensing
- Resource contention with VMs
- Compromised developer agility
- Realistic scale tests often challenging

YOUR DATACENTER

DEVELOPERS

Use VMs

VMs IN TEST/DEV ENVIRONMENT

IT ADMIN

Provision VMs
Windows Azure

DEVELOP, TEST, RUN YOUR APPS

TEST & DEVELOPMENT USING WINDOWS AZURE

- Cost effective (pay for what you use)
- Improved developer agility with platform services
- Ready to use gallery of images
- Ship tested in realistic scale scenarios
- Use existing development tools & languages
- Access on-premise resources if necessary

DEVELOPERS

USE VMs

PROVISION VMs

MANAGE ENVIRONMENT

IT ADMIN
BUILDING & MIGRATING APPLICATIONS TO THE AZURE CLOUD
Why Build Applications in the Cloud?

- **Speed**
- **Scale**
- **Economics**
Provision in Minutes

- Websites
- Cloud Services
- SQL Databases
- Virtual Machines from the Gallery:
  - Application Servers (SQL Server, SharePoint, BizTalk)
  - Linux Servers (CentOS, Ubuntu, SUSE)
  - Etc...

Scale is Built-In

- Sticky Sessions / Pre-configured load balancers
- Service Bus
- Pre-built Mobile web services
- Redis cache – Shares data between website instances
- CDN feature set
- Geo-located applications/data and re-direction
- Application Insights

Deploy and Roll Back Easily

- Continuous Deployment with Git, TFS, GitHub
- Deploy from Visual Studio or Visual Studio Online
- Compare source and destination files and skip unmodified files
- Easily roll back to previous version of the website
- Automate deployments
- Schedule automated deployments
- Eliminate downtime associated with deployments

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Performance-based Autoscaling
Schedule-based Autoscaling
API and .NET SDK for scaling by defined performance counters
Scale all Azure Compute Services
✓ Cloud Services
✓ Virtual Machines
✓ Mobile Services
✓ Web Sites
- Pay-As-You-Go Pricing Model
- No commitment – pay only for what you use each month
- Cancel at any time
- Spin up (and down) environments as and when you need them
- Real-time analysis of current and projected spend to make adjustments on the fly
- Costs a fraction of on-premise in most cases
CASE STUDY: MIGRATING AN EXISTING APP TO AZURE
Case Study for Moving an Existing App to Azure

Context

- Web-based registration system for conventions and tradeshows
- Pre-show continuing education features
- Onsite tradeshows registration and self-service kiosk software
- More than 30K registrants are processed by the system for an event
- Users demand one second response time

Considerations

- Consistent, peak load four weeks of the year
- 48 weeks of the year utilize a fraction of the bandwidth used during peak load
- Existing architecture – performance degrades after 50 concurrent users
- Hardware is four years old and due for a refresh

Opportunities

- SCALE – Scale application to accommodate anticipated load
- ECONOMICS – Pay less for infrastructure
Our Tests

Application Requests Per Hour

- Co-Lo
- 1 Small
- 4 Small
- 1 Large
- 4 Large

50 Users vs 1,000 Users
Our Tests

Co-Lo does not satisfy peak loads.

1 small Azure server satisfies non-peak load. 4 large Azure servers satisfy peak loads.
Our Tests

Scale from small to large to satisfy peak
Memory and bandwidth needed to support load were larger than anticipated. In less than 10 minutes, the server size was reduced to a smaller instance and auto-scale was configured to add a new server whenever CPU exceeds 60%
Application Remediation

- Absolute path references changed to relative paths
- Shift file-based logging to a database table
- Uploaded content shifted to blob storage
- Session state provider changed and serialized
- Printing leverages web services to allow for on-premise printing

Database Remediation

- Primary key remediation
- Database triggers removed
- Extended properties removed
## Results By the Numbers

### SPEED
- **Number of hours to provision 3 environments**: 2
- **Number of days to retro-fit**: 7

### SCALE
- **Increase in user load during peak**: 2000%
- **Difference in cost from peak to non-peak usage**: 600%
- **Minutes it takes to manually scale up or down**: 5

### ECONOMICS
- **Dollars per day for baseline licensing and infrastructure**: 3
- **Dollars per day at the peak**: 36
- **Savings compared to on-premise solutions that meet needs**: 84%
- **Savings compared to current on-premise solution**: 78%
CASE STUDY — BUILDING AN APPLICATION FOR AZURE
Case Study for Building a New App for Azure

Context
- Event Marketing and Incentive firm supporting major mobile telecom client
- Sales team mobile dashboard used for tracking individual performance
- Registration and onboarding management system

Considerations
- Initial load: 2800+ users following go-live
- Site will serve 80MB videos
- Go-live crash associated with unexpected load will cripple user adoption
- One more thing, we launch in three weeks…

Opportunities
- SPEED: Launch in three weeks (start to finish)
- SCALE: Handle anticipated usage spikes
- ECONOMICS: Environments not needed after 14 months
Performance Impacts of Moving an App to Azure

Cost ($) Per Week

Utilization
Co-Lo
Azure

Week

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## Results By the Numbers

<table>
<thead>
<tr>
<th>Category</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SPEED</strong></td>
<td>3</td>
<td>Number of environments stood up in three hours</td>
</tr>
<tr>
<td><strong>SPEED</strong></td>
<td>80%</td>
<td>Code deployment time reduction</td>
</tr>
<tr>
<td><strong>SPEED</strong></td>
<td>3</td>
<td>Weeks from start to launch</td>
</tr>
<tr>
<td><strong>SCALE</strong></td>
<td>4</td>
<td>Hours devoted to load testing</td>
</tr>
<tr>
<td><strong>SCALE</strong></td>
<td>5</td>
<td>Minutes to manually scale down the infrastructure</td>
</tr>
<tr>
<td><strong>SCALE</strong></td>
<td>2</td>
<td>Days before we scaled the infrastructure down to the minimum</td>
</tr>
<tr>
<td><strong>ECONOMICS</strong></td>
<td>10%</td>
<td>Cost of Azure solution vs. co-located solutions</td>
</tr>
<tr>
<td><strong>ECONOMICS</strong></td>
<td>5</td>
<td>Dollars per day for licensing and infrastructure</td>
</tr>
<tr>
<td><strong>ECONOMICS</strong></td>
<td>0</td>
<td>Dollars per day when program is complete</td>
</tr>
</tbody>
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ACTIVELY EVOLVING ARCHITECTURE
Live Streaming
Stream sports events and concerts, through the cloud on any digital device

Content Protection
Azure Media's Content Protection offering includes static and dynamic encryption

DocumentDB
Azure's fully-managed NoSQL database service, offering query and transactions

Azure Search
A fully-managed service for web and mobile app search capabilities

Auditing for SQL DB
Tracks and logs events that occur on your Azure SQL Database to Azure Storage

Event Hubs
Provides easy provisioning of capacity to ingest events from millions of devices

Machine Learning
Easily design, test, operationalize and manage predictive analytics in the cloud

Azure Site Recovery
Formerly Azure Hyper-V Recovery Manager, allows you to replicate VMs to Azure

Azure RemoteApp
Delivers Windows Server session-based business applications for global access

Azure Automation
Automate the creation, monitoring, deployment and maintenance of resources

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NEXT STEPS
What Applications are the Strongest Candidates?

.NET/SQL CONVERSIONS:
- Hardware nearing end-of-life
- Performance/load is a problem
- Load is inconsistent

NEW .NET/SQL APPLICATIONS:
- All applications should be considered except when:
  - Compliance forbids it
  - User interface requires real-time, high speed, integration with on-premise data
1-Day Azure Conversion Readiness Assessment

- Identify remediation effort
- Quantify benefit
- High-level go-forward plan

1-Day Azure Development Planning

- Understand application requirements
- Identify Azure architecture opportunities and strategies
- Confirm Azure ROI benefit
Get Started with Microsoft-Sponsored Assessments
Focused on Cloud Solutions (Azure, Dynamics CRM, Lync, O365, Power BI, SharePoint & System Center)
Thinking About Moving to the Cloud? Let Microsoft Help You Pay for It!
Thank You For Joining Us!

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To learn more, please contact:

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