UTILIZING MICROSOFT AZURE TO LEVERAGE THE POWER OF THE CLOUD

Taking advantage of Azure’s enhanced business intelligence potential

May 18, 2017
RSM overview

Fifth largest audit, tax and consulting firm in the U.S.

• Over $1.6 billion in revenue
• 80 offices and more than 9,000 employees in the United States
• Internationally*
  ▪ Presence in more than 110 countries
  ▪ More than 38,000 people in over 740 offices
  ▪ $4.4 billion (U.S.) in worldwide revenues

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Today’s presenter

Drew Wilson
- Microsoft Presales Engineer
- Based in the Dallas, TX office
- Experience evaluating, recommending and designing a vast array of enterprise applications

Mike Faloney
- Director
- Based in the Richmond, VA office
- National Business Intelligence capabilities lead
We offer a comprehensive scope of technology services, covering IT strategy, application and systems integration, infrastructure and outsourcing.
Agenda

• Framing the discussion
• Microsoft Azure and Business Intelligence
• Why Business Intelligence on the Azure platform?
• Implementing Business Intelligence on the Azure platform
• Wrap up
• Q&A
FRAMING THE DISCUSSION
Framing the discussion

Business Intelligence (BI)

- Business/Data analytics
- Decision support
- Data warehousing
- Big data
Most organizations have a wealth of data, they only use a portion of it in their decision making process.
The challenge (cont.)

Do no the ability to effectively and efficiently transform their raw data into actionable information.
RSM’s business intelligence approach

Data strategy

- Strategy and Data Management ("Data-Managed")
  - Proactively defining and managing as a strategic enterprise asset to foster innovation, drive organizational excellence and create competitive advantage

- Reporting, Analytics, Information Delivery ("Data-Out")
  - The ability for end-users to consume the integrated data in an efficient and effective manner

- The Data Foundation ("Data-In")
  - The integration of data from multiple, disparate sources into a trusted, understandable form

Data architecture

- Big data & Internet of Things
  - Exploratory analytics
  - Near real-time analytics/alerting
  - Predictive analytics

- Data governance
  - Retrospective reporting & analysis
  - BI Portals
  - SharePoint Integration

The Data Foundation
MICROSOFT AZURE AND BUSINESS INTELLIGENCE
What is Microsoft Azure?

• Growing collection of integrated cloud services
  – Developers and IT professionals build, deploy, and manage applications through Microsoft’s global network of datacenters

• Freedom to build and deploy wherever you want
  – Using the tools, applications, and frameworks of your choice
Azure platform
### Business Intelligence related components

#### Intelligence & analytics
- HDInsight
- Machine learning
- Stream analytics
- Cognitive services
- Azure Bot Service
- Data Lake Analytics
- Data Lake Store
- Data Factory
- Power BI Embedded
- Data Catalog
- Log Analytics
- Apache Spark for Azure HDInsight
- Recommendation API
- Computer Vision PIA
- Emotion API
- Face API
- Bing Speech API
- Web Language Model API
- Speaker Recommendation API
- Bing Autosuggest API
- Bing Spell Check API
- Translator Speech API
- Translator Text API
- Text Analytics API
- Azure Analysis Services
- Dynamics 365 for Customer Insights
- Custom Speech Service

#### Databases
- SQL Database
- SQL Data Warehouse
- SQL Server Stretch Database
- DocumentDB
- Redis Cache
- Data Factory

#### Enterprise Integration
- Logic Apps
- Service Bus
- API Management
- Data Catalog
- StorSimple
- SQL Server Stretch Database
- Data Factory
- BizTalk Services

#### Internet of Things
- IoT Hub
- Event Hubs
- Stream Analytics
- Machine Learning
- Notification Hubs
- Time Series Insights

#### Developer Tools
- Visual Studio Team Services
- Azure DevTest Labs
- Application Insights
- API Management
- HockeyApp
BUSINESS INTELLIGENCE ON THE AZURE PLATFORM
Why Azure?

Azure is...

- Flexible
- Scalable
- Faster
- Economy of Scale
### Flexible

<table>
<thead>
<tr>
<th><strong>Breadth of capabilities available</strong></th>
<th><strong>Multiple ways to implement business intelligence capabilities</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Wide range of tools</td>
<td>• From the Azure SQL DB to Azure DW to the Azure Data Factory</td>
</tr>
<tr>
<td>• Frameworks and application options for development of solutions</td>
<td>• Allows for a multitude of ways to realize analytics</td>
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<tr>
<td>• Constantly expanding to include new functionality and capabilities</td>
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<table>
<thead>
<tr>
<th><strong>Ability to test new components and capabilities in an inexpensive manner</strong></th>
<th><strong>Ability to use the right tool, at the right time in the lifecycle</strong></th>
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<tbody>
<tr>
<td>• Provides the ability to quickly explore new or different ways to accomplish analytics</td>
<td>• All components are services</td>
</tr>
<tr>
<td>• Pricing is based on consumption</td>
<td>• Use what you need when you need it</td>
</tr>
<tr>
<td>• Testing new components = inexpensive</td>
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## Faster

| Focus on the solution, not the platform | • No resources needed for maintaining infrastructure (servers, disk space, etc.)  
|• Focus is on development of the solution |
|---|---|
| Quicker deployment | • No infrastructure and other platform related components  
|• Deployment of new functionality without significant (if any) downtime |
| Ability to use the right tool, at the right time in the lifecycle | • All components are services  
|• Use what you need when you need it |
| Ability to test new components and capabilities in an inexpensive manner | • Explore new or different ways to accomplish analytics  
|• Quickly assess alternatives |
# Scalable

<table>
<thead>
<tr>
<th>Elasticity</th>
<th>Flexible computing power</th>
<th>Scale vertically or horizontally</th>
<th>Support for non-Microsoft products</th>
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</thead>
<tbody>
<tr>
<td>• Scale up and down to meet the demands</td>
<td>• Meet additional computing power as needed</td>
<td>• i.e. Vertically scale from 2 processors to 50 processors</td>
<td>• Integrate product of your choice in developing BI</td>
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<tr>
<td>of the business and/or solution</td>
<td>• On-demand elasticity, only pay for what you use</td>
<td>within the same VM</td>
<td>solutions</td>
</tr>
<tr>
<td>• On-demand elasticity, only pay for what</td>
<td>• High-availability</td>
<td>• i.e. Horizontally scale from using 25-five 2-processor</td>
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<td>you use</td>
<td>• Data close to the compute</td>
<td>VM</td>
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<td>• Speeds faster than traditional BI architectures</td>
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## Economies of scale

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<th>Using tools you normally might not be able to afford</th>
<th>Enterprise capabilities for small to medium size companies</th>
<th>Paying lower prices for “commodity” items</th>
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<td>• Consumption based model</td>
<td>• Managed infrastructure</td>
<td>• Most organizations don’t have purchasing power to negotiate the lowest price for hardware</td>
</tr>
<tr>
<td>• Affordable usage of components and tools</td>
<td>• Allows SMB sized organizations to build enterprise solutions</td>
<td>• Managed platform allows organizations to focus on core of the business</td>
</tr>
<tr>
<td></td>
<td>• Fraction of the cost of traditional BI</td>
<td>• Delivers analytic solutions to drive business</td>
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IMPLEMENTING BUSINESS INTELLIGENCE ON THE AZURE PLATFORM
Azure SQL database and data warehouse

Azure SQL database

- Cloud based database as a service
- Leverage existing skill sets familiar with SQL server
  - Some functionality not available
- Certain traditional SQL Server functionality not supported with Azure SQL database
  - SSIS is replaced with data factory functionality
- Limitations related to size of database

Elastic data warehouse allows immediate scalability
Pay for what you use
Decouples the storage and compute
  - Provides ability to scale independently to meet specific analytic needs

Azure SQL data warehouse
Streamlined approach to integrate all types of data

Traditional data integration focused mainly on structured data and requires additional software components to incorporate unstructured data into the analytic platform.

The Azure data factory is designed to integrate a wide range of structured and unstructured data into the analytic platform using pipelines and activities.
Implementing business intelligence on Azure Data Factory

Ingest and transform/load approach to data integration allows for a single data integration platform for both structured and unstructured data.

Offers integrated, scalable storage of structured and unstructured data.

Ingest and transform/load approach decouples the compute power with the data.
How can Power BI be utilized?

- Broad collection of data visualizations and interactive reports
  - Can quickly integrate into solutions
  - Can be used as-is or customized to meet specific needs
  - Scalable to meet you specific usage needs and features
    - “Pay-as-you-go” consumption based pricing model

- Standalone business intelligence tool
- Built-in functionality to develop and deploy:
  - Reports, analytics and data visualizations
- Different pricing depending on the version
  - i.e. Power BI desktop, Power BI pro, Power BI premium
Big data = Complex data that traditional methods cannot process in a timely manner
- Due to the volume, variety or velocity

Big data on Microsoft
- Provide abilities process all types of data, and provides meaningful and actionable analytics

Includes ability to:
- Process large volumes of both:
  - Structured (ex. transactions)
  - Unstructured data (ex. sensor data)
- Stream data in real-time
- Provide insights and predictions related to the data
- Generate powerful analytics and data visualizations
Internet of things (IoT)

- Concept that devices generate data that can be leveraged to perform reporting and analytics for business use
- Unstructured data (including data generated by sensors, machines, etc.)
  - Comprise that largest percentage of data

- Azure platform provides ability to:
  - Connect, collect, process and analyze data from devices, machines and sensors
  - Process high-volumes of data
  - Report and analyze the data through real-time streaming
  - Send push notifications to a variety of platforms
  - Report and analyze on time-series data
WRAP UP
QUESTIONS AND ANSWERS?
Contact information for today’s presenters

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THANK YOU FOR YOUR TIME AND ATTENTION