



# SQL Server 2005 End of Support & the Modernisation Opportunity

Louise Cooke  
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# Agenda

- Data Centric Culture
- The Evolution of SQL Server
- The Modernisation Opportunity
  
- SQL Server 2005 End of Support
- Why upgrade to SQL Server 2014
- Introduction to SQL Server 2016
  
- Create a SQL Database with Azure
- Incentives Updates
- Guide to Tools and Resources
  
- Next Steps and Close

Data Centric Culture

Evolution of SQL Server

The Modernisation Opportunity

Louise Cooke

# Data differentiates today's leading companies

Diverse data



New analytics



More people

+ Speed

\$ 53b

Data dividend

- ➔ Employee productivity
- ➔ Operations improvement
- ➔ Product innovations
- ➔ Higher sales

# The Evolution of SQL Server

Increased performance and functionality – release over release

2005

2014



## SQL Server 2005

Solid offering for departmental IT & enhanced enterprise data platform.

*"Microsoft has made considerable strides in automating SQL Servers management tasks & improving performance tuning & uptime"*

eWeek 2005

## SQL Server 2008

Comprehensive data platform solution with massive strides in mission critical & business intelligence capabilities

*"Upgrading to Microsoft's SQL Server 2008 delivered an anticipated ROI of between 162% & 181%."*

Forrester  
TEI Study 2008

## SQL Server 2008 R2

Comprehensive, integrated data management & business intelligence with award-winning analytics.

*PowerPivot: Named one of eWeek's Top 10 Technologies of 2010*

eWeek

## SQL Server 2012

A new standard for mission critical databases & end-to-end business intelligence with cloud-ready technologies & solutions.

*"SQL Server 2012 delivers an ROI of up to 189% with a 1 year payback period"*

Forrester  
TEI Study 2012

## SQL Server 2014

Build mission-critical apps using high-performance, in-memory technology across OLTP, data warehousing, BI and analytics workloads without having to buy expensive add-ons or high-end appliances.

Up to 30x faster transactions  
100x query performance gains  
Enhanced high availability with up to 8 readable secondaries  
Enhanced security and scalability  
Hybrid backup and disaster recovery

*According to Forrester, the payback period for SQL Server 2014 is only 9.5 months.*

Forrester  
TEI Study 2014

# The Modernisation Opportunity

## Business drivers to upgrade

- **Performance slowdowns & availability/uptime requirements**
- **Need better reporting and BI; make business decisions faster**

## Top reasons to upgrade

- 1) End of extended support – impact on security, compliance and maintenance costs: **12<sup>th</sup> April 2016**
- 2) Ageing SQL Server 2008, and Windows Server 2008
- 3) Enhanced SQL Server 2014 features and performance (and soon SQL server 2016)
- 4) Save costs by upgrading both Windows Server and SQL Server
- 5) Cloud strategy

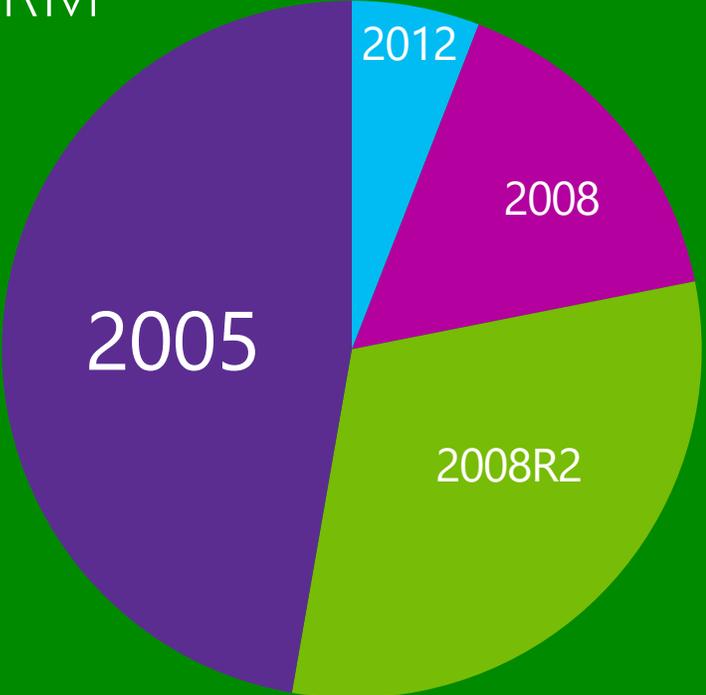
**82% of small and midsize organizations are still running at least one occurrence of SQL Server 2005.**

**More than half of SQL Server 2005 runs on Windows Server 2003.**

# The Install Base is Ripe for Upgrade

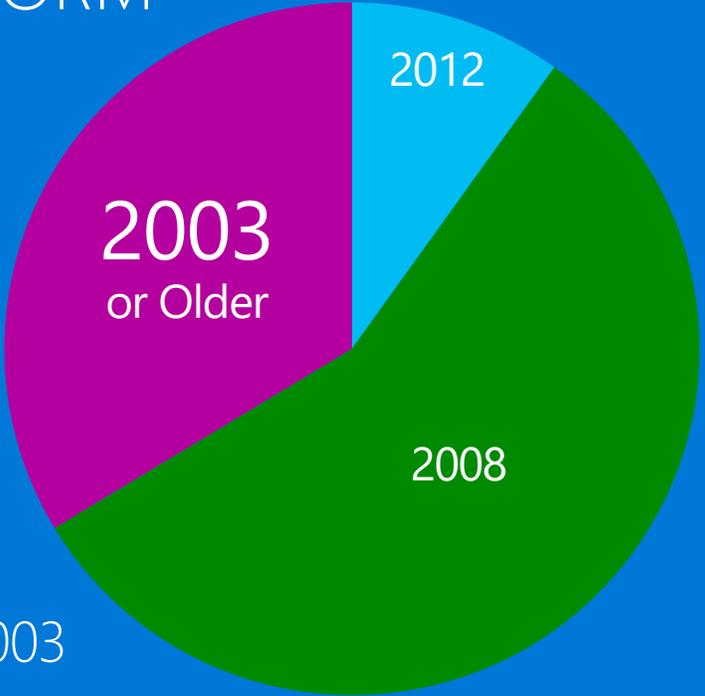
## DATA PLATFORM

47%  
of SQL Server  
instances are  
SQL Server 2005



## CLOUD PLATFORM

34%  
of Windows Server  
instances are  
Windows Server 2003  
or older



SQL Server 2005 End of Support  
Why Upgrade to SQL Server 2014  
Introduction to SQL Server 2016

Anthony Saxby

# End of Support for SQL Server 2005 April 12, 2016

## No security updates

There will be no access to critical security updates, opening the potential for business interruptions

## Higher maintenance costs

Maintaining legacy servers, firewalls, intrusion systems, etc. gets expensive quickly

## Compliance concerns

As support ends, your organization will likely fail to meet regulatory standards compliance

# Why Upgrade to SQL Server 2014?

## Maintain security and compliance



The least vulnerable database platform six years in a row\*, engineered for **security** from the ground-up

Manage **compliance** audit requirements

Keep receiving **support**, security updates and hotfixes

## Faster insights from any data



Easy access to data, big and small BI with the familiarity of Office; power of the cloud

**A complete BI solution**

## Achieve mission critical performance



Get up to 30x **faster** transactions and more than 100x query performance gains with in-Memory

Experience the **9's you need**—greater HA and DR with AlwaysOn

**Scale** across compute, networking and storage with Windows Server 2012 R2 and up to 640 logical processors

## Optimize data infrastructure



**Virtualize and consolidate** your data platform for maximum performance at low TCO

Choose the best of on-premises and Azure with **hybrid cloud**

Migrate web applications to **Azure SQL Database** to reduce administrative needs

\* SQL Server Standard includes basic AlwaysOn High Availability. Basic includes 2 node Failover Clustering.

# Three Steps to Upgrading your Customers



## 1. Discover

Categorize applications  
and workloads



## 2. Target

Identify your destination(s)



## 3. Upgrade

Make the move

# Discover

Assess your current environment

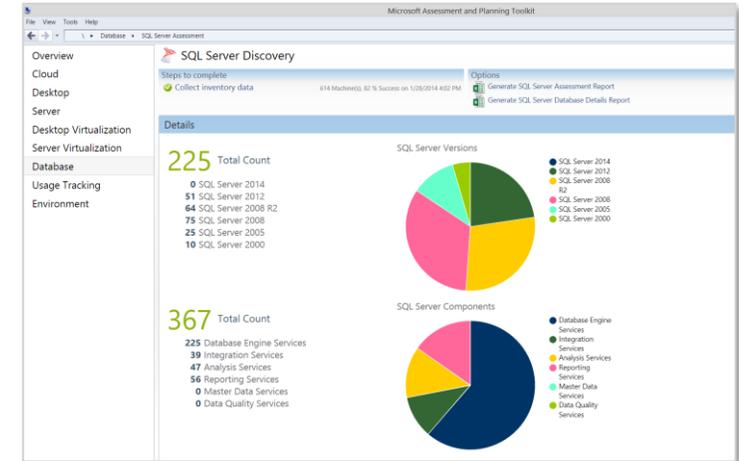
Identify Instances running SQL Server 2005 using Map Toolkit

Landscape

Build the landscape and overview of existing SQL Server and databases

Map Toolkit

Agentless inventory, assessment, and reporting tool that helps assessing current IT



Computer Name	SQL Server Instance Name	SQL Server Product Name	SQL Server Version	SQL Server Service Pack	SQL Server Edition
MAP-CM12	MSSQLSERVER	Microsoft SQL Server 2012	11.1.3000.0	SP1	Enterprise Evaluation
SQL-MAP-TEST.CONTOSO.COM	MSSQLSERVER	Microsoft SQL Server 2012	11.1.3000.0	SP1	Enterprise Evaluation
MAP-CM12	MSSQLSERVER	Microsoft SQL Server 2012	11.1.3000.0	SP1	Enterprise Evaluation
SQL-MAP-TEST.CONTOSO.COM	MSSQLSERVER	Microsoft SQL Server 2012	11.1.3000.0	SP1	Enterprise Evaluation
MAP-AC12	MSSQLSMSDPM2012	Microsoft SQL Server 2008 R2	10.52.4000.0	SP2	Standard
SQL-MAP-TEST.CONTOSO.COM	MSSQLSERVER	Microsoft SQL Server 2012	11.1.3000.0	SP1	Enterprise Evaluation
MAP-SC12	MSSQLSERVER	Microsoft SQL Server 2012	11.1.3000.0	SP1	Enterprise Evaluation
SQL-MAP-TEST.CONTOSO.COM	MSSQLSQULEXP_VIM	Microsoft SQL Server 2005	9.3.4035.00	SP3	Express
MAP-SCENTER	MSSQLSQULEXP_VIM	Microsoft SQL Server 2005	9.3.4035.00	SP3	Express
SQL-MAP-TEST.CONTOSO.COM	MSSQLSMAAPS	Microsoft SQL Server 2012	11.0.2100.60		Developer
SQL-WA-USA.CONTOSO.COM	MSSQLSMAAPS	Microsoft SQL Server 2008	10.3.5500.0	SP3	Enterprise
POM-3P7P-01.CONTOSO.COM	MSSQLSERVER	Microsoft SQL Server 2012	11.0.2100.60		Enterprise
POM-3P7P-02.USA.CONTOSO.COM	MSSQLSMAAPS	Microsoft SQL Server 2008 R2	10.51.2500.0		Standard
SQL-MAP-TEST.CONTOSO.COM	MSSQLSQULEXPRESS	Microsoft SQL Server 2008	10.3.5500.0	SP3	Express
POM-3P7P	MSSQLSMAFTOOLKIT	Microsoft SQL Server 2012	11.0.2100.60		Enterprise
SQL-WA-USA.CONTOSO.COM	MSSQLSMAFTOOLKIT	Microsoft SQL Server 2012	11.0.2100.60		Enterprise

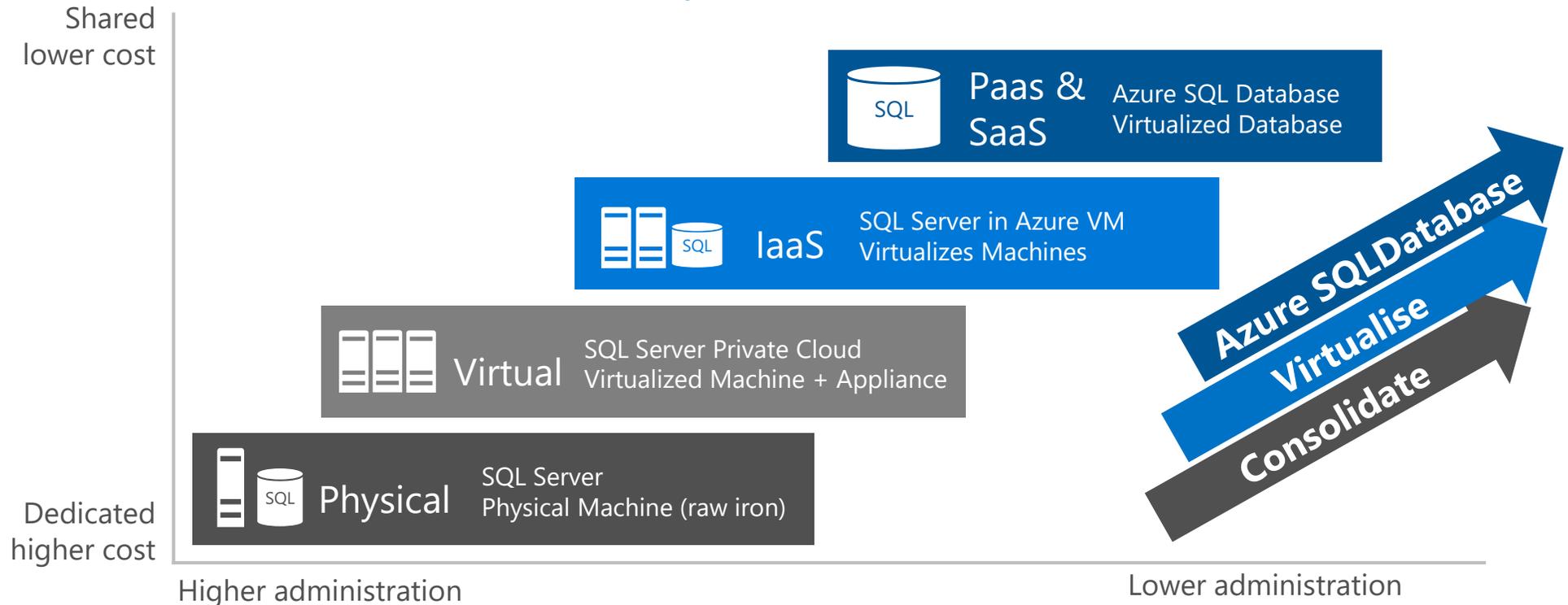


# Target

## Upgrade scenarios

- Achieve mission-critical performance on-premises
- Virtualize and consolidate with Windows Server
- Reduce TCO and increase availability with Azure VMs
- Easy on-ramp to cloud for web applications with Azure SQL Database

## Hybrid cloud



# Upgrade

## Upgrade Strategies

Understand common upgrade scenarios and strategies involved in upgrading SQL Server

### In-Place

Replace existing SQL Server 2005 Instance with SQL Server 2014 Instance on the same hardware / platform

### Side by Side

Install SQL Server 2014 as secondary instance on the same hardware / platform

### New Instance / Installation

Install SQL Server 2014 as a new instance on different hardware, platform (On-Premises Physical, Virtualized, Azure)

Most common and recommended upgrade strategy for SQL Server 2005 to SQL Server 2014 upgrades



# SQL Server 2016 : Everything built-in

Industry leader in Mission Critical OLTP

**built-in**

Most secure database

**built-in**

Highest performing data warehouse

**built-in**

End-to-end mobile BI on any device

**built-in**

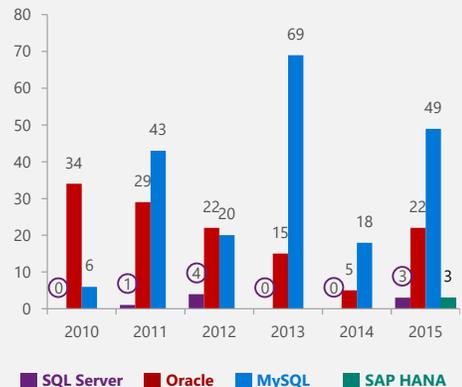
In-database Advanced Analytics

**built-in**

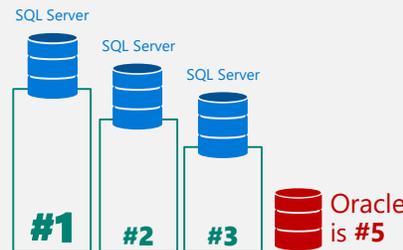
## Industry leader



## 6 years in a row least vulnerable

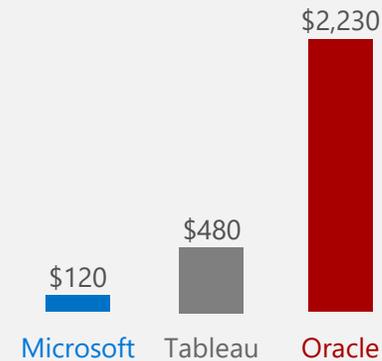


## #1 performance



TPC-H non-clustered 10TB

## A fraction of the cost



Self-service BI per user

## R + in-memory



at massive scale

In-memory across all workloads



Consistent experience from on-premises to cloud



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National Institute of Standards and Technology Comprehensive Vulnerability Database update 10/2015

TPC-H non-clustered results as of 04/06/15, 5/04/15, 4/15/14 and 11/25/13, respectively. [http://www.tpc.org/tpch/results/tpch\\_perf\\_results.asp?resulttype=noncluster](http://www.tpc.org/tpch/results/tpch_perf_results.asp?resulttype=noncluster)

# What's New in SQL Server 2016 Since 2014

OLTP Performance	Security	Data Warehousing	Business Intelligence	Advanced Analytics	Hybrid Cloud
<p>Real-time operational analytics with in-memory OLTP or on disk</p> <p>In-memory for more applications</p> <p>Unparalleled scalability with Windows Server 2016, with 12TB memory and Windows Server 2016 max cores</p> <p>Multiple node failover clustering (3 synchronous, up to 8 replicas)</p> <p>SQL Server Development Tools in Visual Studio</p> <p>Query Store</p> <p>Temporal support</p>	<p>Transparent Data Encryption</p> <p>Always Encrypted</p>	<p>Operational analytics</p> <p>In-memory ColumnStore</p> <p>Deployment rights for APS</p> <p>Enhanced In-memory ColumnStore for DW</p> <p>PolyBase for simple T-SQL to query structured and unstructured data</p> <p>Enhanced database caching</p> <p>Up to 15,000 partitions</p>	<p>Mobile BI</p> <p>Enhanced SSIS</p> <p>Enterprise-grade Analysis Services</p> <p>Advanced tabular models</p> <p>JSON support</p> <p>Enhanced DQS</p> <p>Enhanced MDS</p> <p>Enhanced Reporting Services</p> <p>Temporal tables</p> <p>In-memory analytics</p> <p>Advanced data mining</p> <p>Access to reports online or offline</p> <p>Create mobile reports using the SQL Server Mobile Report Publisher</p> <p>Consume with Power BI mobile apps</p>	<p>R built-in to your T-SQL</p> <p>RRE APIs with full parallelism and no memory limits for scale/performance</p> <p>Built-in In-memory Advanced Analytics</p> <p>Advanced tabular model</p> <p>Direct query</p> <p>Advanced data mining</p>	<p>Stretch database</p> <p>Partitioning for efficient data loading</p> <p>Hybrid scenarios with SSIS</p> <p>Enhanced backup to Azure</p> <p>Easy migration to the cloud</p> <p>Simplified cloud DR with AlwaysOn replicas</p>

# Use SQL Server 2016 to Drive SA Attach

Prepare your customers for a revolutionary step forward in Microsoft Data Platform by selling Software Assurance

### In-memory enhancements

Operational analytics and enhanced performance

0100101010110

30X In-memory OLTP + 100X In-memory ColumnStore

Real-time operational analytics

### Always Encrypted

Trusted

```
SELECT Name FROM Patients WHERE SSN=@SSN @SSN='198-33-0987'
```

Result Set: Name: Jim Gray

Enhanced ADO.NET Library

SQL Server

```
SELECT Name FROM Patients WHERE SSN=@SSN @SSN=0x7ff654ae6d
```

Result Set: Name: 0x19ca706fbd9a

Name	SSN	Country
0x21ba906fdb521x7fg655se2e	USA	
0x19ca706fbd9a0x7ff654ae6d	USA	
1x59cm676rfd8b0y8fj754ea2c	USA	

Master Columnar key, Encrypted Columnar key

### Advanced Analytics

In database analytics at massive scale

New R scripts

Microsoft Azure Marketplace

Extensibility R Integration

Analytic Library

T-SQL Interface

Relational Data

Built-in to SQL Server

Data Scientist: Interact directly with data

Data Developer/DBA: Manage data and analytics together

Example Solutions

- Fraud detection
- Sales forecasting
- Warehouse efficiency
- Predictive maintenance

### Mobile BI

Windows, iOS, Android, HTML5

### Stretch Database

Microsoft Azure

Azure SQL Database

Name	SSN	Date
Jane Doe	cm61ba906fd	2/28/2005
Jim Gray	ox7ff654ae6d	3/18/2005
John Smith	izy36cg776rg	4/10/2005
Bill Brown	nx290pldo90l	4/27/2005
Sue Daniels	ypo85ba616lj	5/12/2005
Sarah Jones	bns51ra806fd	5/22/2005
Jake Marks	mci12hh906jf	6/07/2005
Eric Mears	utb76b916gi	6/18/2005
Dan Hogan	px61hi9306jf	7/1/2005
Sam Johns	ol43bi506gd	7/12/2014
David Simon	tx83hal916fi	7/29/2014
Mel Burns	nb95re926gi	8/10/2014
Reed Dean	vc61ira536fe	8/23/2014

SQL Server, App

# How to use your \$100 Azure Credit Incentive opportunity update Guide to Tools and Resources

Louise Cooke

Richard Wills

Paula Costa

# Do you have \$100 monthly Azure Credit?

## Create a SQL Database

[SQL Database](#) delivers predictable performance, scalability with no downtime, business continuity and data protection—all with near-zero administration

A sample SQL 250 GB database with 10 data throughput units is less than \$100/month\*\*. Ready to jump in? It's easy to [create your first SQL database](#) or [an elastic database pool](#)

See how quickly you can create a SQL database – [our video shows you how](#)



\*\*Sample pricing – data as of Jan. 11, 2016.

# SQL 2x CI – Double your incentives and Win!

Double your Incentives **2X**

Increase SQL Server sales and reduce SQL 2005 Installed base.

Annuity SKU	Current Earnings	Incremental Earnings	Total Earnings
SQL Premium	7%	2x	14%
SQL Standard	7%	2x	14%
SQL CAL	7%	2x	14%

Non-Annuity SKU	Current Earnings	Incremental Earnings	Total Earnings
SQL Premium	2%	2x	4%
SQL Standard	2%	2x	4%
SQL CAL	2%	2x	4%

- **Payout:** Partners can receive double the Managed Reseller Channel Incentive accelerator
  - 7% incremental on Annuity
  - 2% incremental on Non Annuity

- **SKUs:** SQL Enterprise, SQL BI, SQL Standard, SQL CAL only

## Eligibility and Restrictions

- Open to qualified partners participating in Microsoft's existing Managed Reseller Incentive Program. Standard program terms apply.
- Pays from \$1 of revenue during offer period
- Incentive will be paid as 100% coop funds through standard CI processes
- [aka.ms/partnerincentives](http://aka.ms/partnerincentives)

### Offer Period & Registration

From February 1<sup>st</sup> to June 30<sup>th</sup>, 2016.  
Partner registration not required.

### Partner Eligibility

CI Eligible Managed Resellers only.  
No distributors or other partner types.

### Customer Eligibility

SMB customers only (as segmented by Microsoft).

### Selling Motion

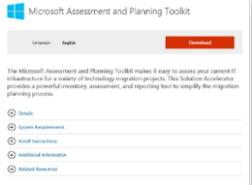
SQL Server EOS/Reduce SQL 2005 IB.  
SQL w SA oppty for SQL 2016 launch.

\*Please see [aka.ms/partnerincentives](http://aka.ms/partnerincentives) for details.

# Guide to Tools and Resources



# SQL 2005 EOS Campaign Bill of Materials

Internal Readiness			
Name	Image	Description	Link
Training Webinar		Watch the Data Platform University partner session 'Why Upgrade to SQL Server 2014 and 2016'	<a href="https://mspartnerlp.mspartner.microsoft.com/LearningPath/LearningPath/DLPPaths?trackId=1697&amp;rowId=2282&amp;trackPathId=9333">https://mspartnerlp.mspartner.microsoft.com/LearningPath/LearningPath/DLPPaths?trackId=1697&amp;rowId=2282&amp;trackPathId=9333</a>
CLM Selling Guide for SQL Upgrade		Customer Lifecycle Management Selling Guide for moving from SQL 2005 to SQL Server 2014. Includes common questions and objections.	 <b>CLM Sell Guide</b> <b>SQL</b>
SQL Server 2005 End of Support MAP Toolkit		The Microsoft Assessment and Planning Toolkit makes it easy to assess your customer's current IT infrastructure for a variety of technology migration projects. This solution accelerator provides a powerful inventory, assessment, and reporting tool to simplify the migration planning process.	<a href="https://readytogo.microsoft.com/en-gb/layouts/RTG/AssetViewer.aspx?AssetUrl=https%3a%2f%2freadytogo.microsoft.com%2fglobal%2fAsset%2fPages%2fMAP-Toolkit.aspx">https://readytogo.microsoft.com/en-gb/layouts/RTG/AssetViewer.aspx?AssetUrl=https%3a%2f%2freadytogo.microsoft.com%2fglobal%2fAsset%2fPages%2fMAP-Toolkit.aspx</a>
Upgrading to SQL Server 2014 Customer Presentation		This is a customer facing presentation on what end of support means for their business and the benefits of upgrading to SQL Server 2014.	<a href="https://readytogo.microsoft.com/en-gb/layouts/RTG/AssetViewer.aspx?AssetUrl=https%3a%2f%2freadytogo.microsoft.com%2fglobal%2fAsset%2fPages%2fUpgrading%20to%20SQL%20Server%202014%20Customer%20Presentation.aspx">https://readytogo.microsoft.com/en-gb/layouts/RTG/AssetViewer.aspx?AssetUrl=https%3a%2f%2freadytogo.microsoft.com%2fglobal%2fAsset%2fPages%2fUpgrading%20to%20SQL%20Server%202014%20Customer%20Presentation.aspx</a>
SQL positioning guide for sellers		SQL positioning guide for sellers including the Gartner Magic Quadrant positioning, including links to case studies.	 <b>Positioning Guide</b> <b>SQL</b>

# SQL 2005 EOS Campaign Bill of Materials

To Customer Material			
Names	Image	Description	Link
Customer Webcast		Webcast for customer viewing: SQL Server 2005 Upgrade: The Path to Better Database Performance and Security	<a href="https://event.on24.com/eventRegistration/EventLobbyServlet?target=reg20.jsp&amp;referrer=&amp;eventid=1093993&amp;sessionid=1&amp;key=38DCB7CC79296DE766613D7608D4A0C8&amp;regTag=&amp;sourcepage=register">https://event.on24.com/eventRegistration/EventLobbyServlet?target=reg20.jsp&amp;referrer=&amp;eventid=1093993&amp;sessionid=1&amp;key=38DCB7CC79296DE766613D7608D4A0C8&amp;regTag=&amp;sourcepage=register</a>
To customer eDM		SQL Server 2005 End of Support customer email copy. Customer ready email to invite customers to understand what end of support means for their business.	<a href="https://readytogo.microsoft.com/en-gb/layouts/RTG/DownloadCampaign.aspx?campurl=https%3A//readytogo.microsoft.com/global/Campaign/Pages/SQL%20Server%202005%20End%20of%20Support.aspx">https://readytogo.microsoft.com/en-gb/layouts/RTG/DownloadCampaign.aspx?campurl=https%3A//readytogo.microsoft.com/global/Campaign/Pages/SQL%20Server%202005%20End%20of%20Support.aspx</a>
ModernBiz SQL Server		Here is the link to the ModernBiz SQL assets,	<a href="https://readytogo.microsoft.com/en-us/layouts/RTG/DownloadCampaign.aspx?campurl=https%3A//readytogo.microsoft.com/en-us/Campaign/Pages/%28US%29%20ModernBiz%20SQL%20Server.aspx">https://readytogo.microsoft.com/en-us/layouts/RTG/DownloadCampaign.aspx?campurl=https%3A//readytogo.microsoft.com/en-us/Campaign/Pages/%28US%29%20ModernBiz%20SQL%20Server.aspx</a>
ModernBiz Campaigns		SQL appears as part of the solution in the following Modernbiz campaigns: Grow Efficiently and Connect with Customers	<a href="https://mspartner.microsoft.com/en/qq/Documents/MarketingURL.aspx?Modernbiz-overview">https://mspartner.microsoft.com/en/qq/Documents/MarketingURL.aspx?Modernbiz-overview</a>
ModernBiz Grow Efficiently		Contains a customer facing section on SQL Server	<a href="https://readytogo.microsoft.com/global/layouts/RTG/AssetViewer.aspx?AssetUrl=https://readytogo.microsoft.com/global/Asset/Pages/ModernBiz%20-%20Grow%20Efficiently%20Pitch%20Deck.aspx">https://readytogo.microsoft.com/global/layouts/RTG/AssetViewer.aspx?AssetUrl=https://readytogo.microsoft.com/global/Asset/Pages/ModernBiz%20-%20Grow%20Efficiently%20Pitch%20Deck.aspx</a>

# Next Steps

## Upgrade your customers from SQL Server 2005 to 2014/16

Use and customize the ready-to-go marketing assets to target your SQL Server 2005 customers

## Win new business with SQL Server 2016

Use the support MAP toolkit to help identify instances of SQL Server 2005 in your customer environments

## Sell Azure through hybrid data scenarios

Identify customers with potential for easy on ramp to the cloud through the virtualization and Azure SQL Database

Q&A

Thank you!

**Please provide feedback!**

# Appendix

# SQL Server 2016 Enterprise

OLTP Performance	Security	Data Warehousing	Business Intelligence	Advanced Analytics	Hybrid Cloud
<ul style="list-style-type: none"> <li>• OS max cores and memory</li> <li>• Enhanced in-memory OLTP performance</li> <li>• Operational analytics</li> <li>• Enhanced AlwaysOn with no domain join (WS 2016)</li> <li>• QueryStore</li> <li>• Temporal</li> </ul>	<ul style="list-style-type: none"> <li>• Always Encrypted</li> <li>• Row-level security</li> <li>• Dynamic data masking</li> <li>• Enhanced separation of duties</li> <li>• Enhanced SQL Server auditing</li> <li>• Transparent data encryption</li> </ul>	<ul style="list-style-type: none"> <li>• Enhanced in-memory ColumnStore</li> <li>• PolyBase in scale-out configuration (head and compute nodes)</li> <li>• Deployment rights for APS</li> <li>• Distributed query processing</li> <li>• Support for JSON</li> </ul>	<ul style="list-style-type: none"> <li>• End-to-end mobile BI on all major platforms</li> <li>• Enhanced direct query</li> <li>• In-memory analytics</li> <li>• Advanced data mining</li> <li>• Advanced tabular</li> <li>• Web portal experience (all reports in 1 place)</li> <li>• Modernized reports</li> <li>• Pin report to Power BI</li> <li>• Enhanced multi-dimensional models</li> </ul>	<ul style="list-style-type: none"> <li>• In database Advanced Analytics</li> <li>• R integration with massive parallel processing for performance and scale</li> <li>• Works with in-memory technology</li> <li>• Run in database or standalone</li> <li>• Connectivity to R Open</li> </ul>	<ul style="list-style-type: none"> <li>• Stretch Database</li> <li>• Enhanced backup to Azure</li> <li>• Enhanced HA and DR with Azure – ease of use, no domain join (WS2016)</li> <li>• SSIS integration with Azure Data Factory and Azure SQL Data Warehouse</li> </ul>

Enterprise

# SQL Server 2016 Standard

	OLTP Performance	Security	Data Warehousing	Business Intelligence	Advanced Analytics	Hybrid Cloud
Standard	<ul style="list-style-type: none"><li>• Disk-based OLTP</li><li>• 24 cores max and 128 GB max memory</li><li>• 2-node single database failover (non-readable secondary)</li><li>• Temporal</li></ul>	<ul style="list-style-type: none"><li>• Row-level security</li><li>• Dynamic data masking</li><li>• Basic auditing</li><li>• Separation of duties</li></ul>	<ul style="list-style-type: none"><li>• PolyBase (compute node only)</li><li>• Support for JSON</li></ul>	<ul style="list-style-type: none"><li>• Basic tabular (16GB memory per instance)</li><li>• Modernized reports</li><li>• Pin report to Power BI</li><li>• Enhanced multi-dimensional models</li></ul>	<ul style="list-style-type: none"><li>• Single-threaded for RRE</li><li>• Connectivity to R Open</li></ul>	<ul style="list-style-type: none"><li>• Stretch Database</li><li>• Backup to Azure</li></ul>

# What's new in SQL Server 2016 since 2014

OLTP Performance	Security	Data Warehousing	Business Intelligence	Advanced Analytics	Hybrid Cloud
<p>Real-time operational analytics with in-memory OLTP or on disk</p> <p>In-memory for more applications</p> <p>Unparalleled scalability with Windows Server 2016, with 12TB memory and Windows Server 2016 max cores</p> <p>Multiple node failover clustering (3 synchronous, up to 8 replicas)</p> <p>SQL Server Development Tools in Visual Studio</p> <p>Query Store</p> <p>Temporal support</p>	<p>Transparent Data Encryption</p> <p>Always Encrypted</p>	<p>Operational analytics</p> <p>In-memory ColumnStore</p> <p>Deployment rights for APS</p> <p>Enhanced In-memory ColumnStore for DW</p> <p>PolyBase for simple T-SQL to query structured and unstructured data</p> <p>Enhanced database caching</p> <p>Up to 15,000 partitions</p>	<p>Mobile BI</p> <p>Enhanced SSIS</p> <p>Enterprise-grade Analysis Services</p> <p>Advanced tabular models</p> <p>JSON support</p> <p>Enhanced DQS</p> <p>Enhanced MDS</p> <p>Enhanced Reporting Services</p> <p>Temporal tables</p> <p>In-memory analytics</p> <p>Advanced data mining</p> <p>Access to reports online or offline</p> <p>Create mobile reports using the SQL Server Mobile Report Publisher</p> <p>Consume with Power BI mobile apps</p>	<p>R built-in to your T-SQL</p> <p>RRE APIs with full parallelism and no memory limits for scale/performance</p> <p>Built-in In-memory Advanced Analytics</p> <p>Advanced tabular model</p> <p>Direct query</p> <p>Advanced data mining</p>	<p>Stretch database</p> <p>Partitioning for efficient data loading</p> <p>Hybrid scenarios with SSIS</p> <p>Enhanced backup to Azure</p> <p>Easy migration to the cloud</p> <p>Simplified cloud DR with AlwaysOn replicas</p>

# What's new in SQL Server 2016 since 2012

OLTP Performance	Security	Data Warehousing	Business Intelligence	Advanced Analytics	Hybrid Cloud
<p>Real-time operational analytics with in-memory OLTP or on disk</p> <p>In-memory for more applications</p> <p>Unparalleled scalability with Windows Server 2016, with 12TB memory and Windows Server 2016 max cores</p> <p>Enhanced AlwaysOn, with 8 secondaries and Replica Wizard</p> <p>Multiple node failover clustering (3 synchronous, up to 8 replicas)</p> <p>In memory OLTP</p> <p>Buffer Pool Extension to SSDs</p> <p>Enhanced query processing</p> <p>Resource Governor adds IO governance</p> <p>SysPrep as cluster level</p> <p>Predictable performance with tiering of compute, network and storage with Windows Server 2012 R2</p> <p>Delayed Durability</p> <p>Clustered Shared Volume support, VHDX support (Windows Server 2012 R2)</p> <p>Manage on-premises and cloud apps (System Center 2012 R2)</p> <p>Query optimization enhancements</p> <p>Query Store</p> <p>Temporal support</p>	<p>Transparent Data Encryption</p> <p>Always Encrypted</p> <p>Enhanced separation of duties</p> <p>CC certification at High Assurance Level for 2014</p> <p>Backup encryption support</p>	<p>Operational analytics</p> <p>In-memory ColumnStore</p> <p>Deployment rights for APS</p> <p>Enhanced In-memory ColumnStore for DW</p> <p>PolyBase for simple T-SQL to query structured and unstructured data</p> <p>Enhanced database caching</p> <p>Up to 15,000 partitions</p> <p>Analytics Platform System</p>	<p>Mobile BI</p> <p>Enhanced SSIS</p> <p>Enterprise-grade Analysis Services</p> <p>Advanced tabular models</p> <p>Enhanced multidimensional models</p> <p>JSON support</p> <p>Enhanced DQS</p> <p>Enhanced MDS</p> <p>Enhanced Reporting Services</p> <p>Temporal tables</p> <p>In-memory analytics</p> <p>Advanced data mining</p> <p>Create mobile reports using the SQL Server Mobile Report Publisher</p> <p>Consume with Power BI mobile apps on all major platforms</p> <p>Azure HDInsight Service</p> <p>Pin report items to Power BI</p> <p>Power Map for Excel</p> <p>Mobile BI interfaces for Power BI</p>	<p>R built-in to your T-SQL</p> <p>RRE APIs with full parallelism and no memory limits for scale/performance</p> <p>Built-in In-memory Advanced Analytics</p> <p>Advanced tabular model</p> <p>Direct query</p> <p>Advanced data mining</p>	<p>Stretch database</p> <p>Partitioning for efficient data loading</p> <p>Hybrid scenarios with SSIS</p> <p>Enhanced backup to Azure</p> <p>Easy migration to the cloud</p> <p>Simplified cloud DR with AlwaysOn replicas</p> <p>Simplified backup to Azure</p> <p>Support for backup of previous versions of SQL Server to Azure</p> <p>Cloud back-up encryption support</p> <p>Simplified cloud Disaster Recovery with AlwaysOn replicas in Azure VMs</p> <p>New Azure Deployment UI for SQL Server</p> <p>Larger SQL Server VMs and memory sizes available in Azure</p>

# What's new in SQL Server 2016 since 2008 R2

## OLTP Performance

Real-time operational analytics with in-memory OLTP or on disk

In-memory for more applications

Unparalleled scalability with Windows Server 2016, with 12TB memory and Windows Server 2016 max cores

Enhanced AlwaysOn, with 8 secondaries and Replica Wizard

Multiple node failover clustering (3 synchronous, up to 8 replicas)

In memory OLTP

Buffer Pool Extension to SSDs

Enhanced query processing

Resource Governor adds IO governance

SysPrep as cluster level

Predictable performance with tiering of compute, network and storage with Windows Server 2012 R2

Delayed Durability

Clustered Shared Volume support, VHDX support (Windows Server 2012 R2)

Manage on-premises and cloud apps (System Center 2012 R2)

Query optimization enhancements

Recovery Advisor

Windows Server Core

Live Migration

Online operations enhancements

Query Store

Temporal support

SQL Server Data Tools

Local DB runtime (Express)

Data-tier application component project template

Data-Tier Application Framework (DAC Fx)

Interoperability support (ADO.NET, ODBC, JDBC, PDO, ADO APIs and .NET C/C++, Java, Linux and PHP platforms)

Enhanced support for ANSI SQL standards

Transact-SQL Static Code Analysis tools

Transact-SQL code snippets

Intellisense

FileTable build on FILESTREAM

Remote Blob Storage with SharePoint 2010

Statistical Semantic Search

Spatial features, include Full Globe and arcs

Large user-defined data types

Distributed Replay

Contained Database Authentication

System Center Management Pack for SQL Server 2012

Windows PowerShell 2.0 support

Multi-server Management with SQL Server Utility Control Point

Data Tier Application Component

## Security

Transparent Data Encryption

Always Encrypted

Enhanced separation of duty

CC certification at High Assurance Level for 2014

Backup encryption support

Enhanced separation of duties

Default schema for groups

SQL Server Audit

SQL Server fine-grained auditing

## Data Warehousing

Operational analytics

In-memory ColumnStore

Deployment rights for APS

Enhanced In-memory ColumnStore for DW

PolyBase for simple T-SQL to query structured and unstructured data

Enhanced database caching

Up to 15,000 partitions

Analytics Platform System

## Business Intelligence

Mobile BI

Enhanced SSIS

Enterprise-grade Analysis Services

Advanced tabular models

In-memory analytics

Enhanced multidimensional models

JSON support

Enhanced DQS

Enhanced MDS

Modern Reporting Services

Temporal tables

Advanced data mining

Create mobile reports using the SQL Server Mobile Report Publisher

Consume with Power BI mobile apps

Azure HDInsight Service

Power BI

Power Map for Excel

Mash up data from different sources, such as Oracle & Hadoop

HA for StreamInsight, complex event processing

SQL Server Data Tools support for BI

Change Data Capture for Oracle

Import PowerPivot models into Analysis Services

## Advanced Analytics

R built-in to your T-SQL

RRE APIs with full parallelism and no memory limits for scale/performance

Built-in In-memory Advanced Analytics

Advanced tabular model

Direct query

Advanced data mining

SSDT in Visual Studio

## Hybrid Cloud

Stretch database

Partitioning for efficient data loading

Hybrid scenarios with SSIS

Enhanced backup to Azure

Easy migration to the cloud

Simplified cloud DR with AlwaysOn replicas

Simplified backup to Azure

Support for backup of previous versions of SQL Server to Azure

Cloud back-up encryption support

Simplified cloud Disaster Recovery with AlwaysOn replicas in Azure VMs

New Azure Deployment UI for SQL Server

Larger SQL Server VMs and memory sizes available in Azure

DAC enhancements: Import/export with Azure SQL Database

SQL Server Data Tools

License Monthly (with SA)

Resource Governor enhancements

Snapshot backups to Azure via SQL Server Management Studio



**Customer profile**

Customer bought SQL and is on an old version. Their trusted Microsoft partner is continuously working with them to advise of the security implications and helping them upgrade to SQL Server 2014.

**Did you Know?**

- 82% of small and midsize organizations are still running at least one occurrence of SQL Server 2005.
- SQL Server 2014 runs up to 13X faster than SQL Server 2005 (benchmark results published for SQL Server 2014 [www.tpc.org/4069](http://www.tpc.org/4069))

**Upselling opportunities**

- Discuss that SQL Server 2005 end of extended support is April 12, 2016. So, **now** is the time for your customers' to modernize their database to avoid security and compliancy risks and ensure continued compatibility.

**Safeguard your Business**

Maintain Security and Compliance

Availability

CUSTOMER UPGRADE CONVERSATIONS

- With SQL end of life on April 12, 2016, have you assessed the **security and compliance risk**?
- What are the costs involved by choosing to remain on **older, less** performant and reliable technology including the **time your IT department will spend protecting vulnerable data plus the cost to the company of lost or slower business transactions**?
- Are you looking for your database solution to help you **achieve the highest level of protection and compliance** and reduce its vulnerability?

- Do you have any issues with **downtime** with your **old** database servers? What would be the cost to your business if you were to lose access to your **mission critical** applications?
- What measures do you have in place to ensure **business continuity** and **protection** of critical data? Is **significant investment** required for database disaster recovery for your organization?
- How **much time do you spend** in deploying IT resources for manging mission critical applications?

TOP BUSINESS NEEDS

- **Maintaining security.** Provision of security patching and maintenance updates to protect apps to ensure reliability
- **Peace of mind** that your applications are supported on a compliant database platform to minimize risk and costs
- **Advanced data security** for protecting your business critical data. **Cost reductions** from **improved data security** and patch requirements from legacy systems

- Ensure your database – and your business, is **always running**. Improved uptime for applications can help drive new revenue via greater direct online sales, as well as through more effective sales-led engagements
- Ensuring data is **backed up** and systems are back up again quickly in cases of downtime
- **Affordable** disaster recovery and data backup. Protect you business from the unthinkable

WHY UPGRADE TO SQL 2014

- Upgrading to SQL Server 2014 will **improve security**
- **Now** is a great time to upgrade to the latest Windows Server software, especially with major **end-of-support milestones** occurring. For SQL Server 2005 customers, Extended Support **will end on April 12, 2016**
- Newer database solutions help provide **improved security**. Security issues are reduced by upgrading to SQL Server 2014. **Security issues** in legacy systems requires patches to ensure that the data is secure between the database platform and mission critical applications
- Reductions in patches result in **avoiding significant costs** in security management and remediation
- **Extend security** with SQL Server 2014 by enabling **encryption** for your backup files for added protection to ensure continuity

- Upgrading **can improve uptime. Higher availability** and DR (disaster recovery) with AlwaysOn
- Automate database backups to **minimize data loss**
- **Restore to the cloud** if onsite servers are down. Back up your on-premises database to Microsoft Azure easily and efficiently
- **Eliminate capital expenditure** for storage hardware enabling you to pay only for what you use
- **Reduce hardware costs.** Upgrading offers the ability to use **secondary servers with SQL 2014** as part of its database infrastructure. The secondary server **no longer needs to remain idle** waiting for a failover. Instead can be used for back-up, reporting, ad hoc queries, or other uses
- Scalable across **compute, networking, and storage** with Windows Server 2012 R2 and up to 640 logical processors, virtualization and live migration support

COMMON QUESTIONS AND OBJECTIONS

- What are the implications of not updating SQL Server 2005?
- *Support ends for **SQL Server 2005** on April 12, 2016, Without security updates and hotfixes, your customers are exposed to additional security threats, as well as increased management and support costs. Risks include:*
  1. *Threats to business applications such as payroll, HR, and accounting.*
  2. *Elevated danger of cyberattacks on computer systems and databases.*
  3. *Noncompliance with PCI security standards for businesses that accept credit cards.*
  4. *Breaches of HIPAA data policies for businesses that handle client healthcare data.*
  5. *Performance bottlenecks for mission-critical applications. Ensure you are protected now.*

- I am not ready to upgrade to SQL 2014
- *Upgrading to SQL Server 2014 now will enable you to take advantage of the many new capabilities available with dramatic performance gains, higher availability and scalability and rich BI capabilities. SQL Server offers small and midsize organizations a fast, highly available database, and a cloud ready platform that will grow with your business. Also with SQL 2005 end of life, you really must act now so that you are not exposed to additional security threats, as well as increased management and support costs. One of the great benefits of virtualization is how easy it makes the upgrade process. By virtualizing your servers, you are separating the entire workload, including all apps and data, from the physical machine. Once virtualized, moving the contents to a new server is trivial.*

RESOURCES

[Support for SQL Server 2005 ends on April 12, 2016. Read on readytogo.microsoft.com](http://readytogo.microsoft.com)

[Begin the technical migration and upgrade process now](#)



**Customer profile**

Customer bought SQL and is on an old version. Their trusted Microsoft partner is continuously working with them to advise of the security implications and helping them upgrade to SQL Server 2014.

**Did you Know?**

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**Upselling opportunities**

- Discuss that SQL Server 2005 end of extended support is April 12, 2016. So, **now** is the time for your customers' to modernize their database to avoid security and compliant risks and ensure continued compatibility.

**Grow Efficiently**

Optimized Data Platform

Performance and Scalability

CUSTOMER UPGRADE CONVERSATIONS

- As your business grows, do you find that your IT needs **grow** too? How do you **cost effectively** scale your applications as new users come on board?
- Do you have a **seasonal business** where database usage and demand **fluctuates** at particular points in time i.e. spike in customers placing orders at certain times in the year?

- As your company grows, have you considered the **demands** on the databases that support core business functions such as finance, inventory, order processing and customer management?
- Does your IT infrastructure provide **predictable, fast reliable** service for supporting customers i.e. orders placed on time, orders fulfilled on time, fast response to customer enquiries etc.?

TOP BUSINESS NEEDS

- **Ease of migration** and expansion of cloud capabilities
- Ensuring you can **scale the business** but keep costs to a minimum. Even in times of growth **controlling costs** and fulfilling customer demand is critical to achieve ongoing success
- **Ensuring service levels** with your customers and ensuring users' **productivity** is maintained in times of growth
- Ensuring business as usual as you **grow and transform** you business
- **Easy on-ramp to cloud.** Easy-to-use, built in tools to develop to the cloud. Enable **hybrid cloud** scenarios
- **Scale up** on-premises or **scale-out via private clouds** with Windows Server for maximum performance

- **User productivity** and **error reduction** improvements by moving away from less reliable application connectivity with legacy systems
- **IT resource productivity** and support reductions
- **Minimizing risk** of slow performing or unavailable database that causes poor productivity and risk of losing customers
- **Increased profitability** from improved direct and sales-led revenue due to less application downtime, improved application reliability, and integration with other applications
- **Faster insights** on any data so that you can make decisions in real time in order to plan your business

WHY UPGRADE TO SQL SERVER 2014

- **Reduce costs** with your investment in modern technology on premise and compliment with cloud technologies working seamlessly
- **Get flexible** options from server to hybrid cloud solutions, host your SQL database in the cloud by moving it into a Microsoft Azure Virtual Machine **reducing** hardware and IT costs.
- Ability to leverage **hybrid set up** by being able to **easily transition** on premise servers to virtual machines in the cloud for **agility, reliability and performance**
- Additional upgrade value with **Azure:**
- ✓ **Protection** against failure and system downtime, you can get disaster recovery for your SQL Server database in the cloud with Microsoft Azure.
- ✓ Disaster recovery can help to dramatically **minimize service** disruption if your database goes down
- ✓ Leverages Azure infrastructure, you can **avoid** the **capital and operational** costs of purchasing and maintaining additional hardware

- Upgrading can deliver **faster application performance.** Speed up transactions without buying new hardware. Breakthrough in-memory performance. Proven **13 x higher** performance plus in memory OLTP delivering up to **30 x additional** OLTP performance gains
- Employees are able to complete work faster and more accurately. **New and upgraded applications** with SQL Server provide new features and greater connectivity options across data sources and applications that are accessible from mobile locations.
- Keep your database **up and running** more of the time. SQL Server 2014 makes fast, **highly-available** database functionality affordable to any size of organization
- **Faster insights** into data found across your organization, and to deliver BI (business intelligence) in an easily consumable manner so business users can ask and answer questions through familiar tools such as Office 365/Excel. Easy access to data, big or small.

COMMON QUESTIONS AND OBJECTIONS

- How should I decide where to run my database applications i.e. on premise or in the cloud?
- *SQL Server offers small and midsize organizations a fast, highly available database—and a cloud-ready data platform that will grow with your business. SQL Server 2014 dramatically speeds transactions with new in-memory capabilities. Cloud capabilities make it easy for your organization to choose where to deploy your applications—whether on-premises, in the cloud, or a combination of both. Many organizations value the fast deployment and endless scalability of the cloud and find this is a perfect fit for the needs. Microsoft offers a common platform for achieving both.*

- Will I be entitled to SQL Server 2016 when it becomes available?
- *If you have current Software Assurance for SQL Server, you will be able to upgrade to SQL Server 2016 when it becomes available. One of the many benefits of Software Assurance is the new version rights, so make sure you renew your Software Assurance. As the biggest leap forward in Microsoft's data platform history, SQL Server 2016 delivers breakthrough performance. Encryption technology helps protect your data in the cloud, with master keys sitting with the application, without any application changes. Even higher availability and performance enhancements. At massive scale built in advanced analytics provides the scalability and performance benefits. Powerful insights on any device. Mobile BI provides business insights for on premises data through rich visualizations on mobile devices for Windows, iOS and Android.*

RESOURCES

[Chose the SQL Server edition that meets your needs](#)

[What's new in SQL Server 2016?](#)

# Handling Upgrade Objections

Can't we do nothing because the application will eventually go away?

You'll be open to data security issues  
Older applications become harder to migrate and upgrade

Can't we move to the cloud & leave it running on 2005?

This does not change the fact that you will still be running on an unsupported database, you will just be doing it at another datacenter

We will move to a competitive platform because nothing requires that I say on SQL Server

Moving to a competitive platform is costly, and will no doubt require you to upgrade to that vendors latest technology

# Mission critical performance with SQL Server 2014

## Breakthrough performance

13x performance from 2005, 5.5x from 2008 with up to 30x additional gains from in-memory OLTP

## High availability

The 9's you need with readable secondaries using AlwaysOn

## Security

Least vulnerable database six years in a row\*, with encryption, key management, auditing, and separation of duties

## Scalability

Scale across compute, networking and storage with Windows Server

## Manageability

Improved manageability with policy-based management, distributed replay, improved performance tuning and Windows PowerShell support

## Programmability

Reduce complexity with advanced developer tools including T-SQL enhancements plus support for unstructured and complex data



# Faster insights from any data with SQL Server 2014

## Easy access to data, big and small

Search, access, and shape internal and external data, and combine with unstructured data

## Scale and manage data across the enterprise

Scale your BI models and enrich your data with tools like master data services, data quality services and enhanced integration services

## Powerful insights with familiar tools

Speed up time to insight with familiarity of Excel in Office and Office 365 and mobile interfaces for Power BI

# Optimize your data platform investment with SQL Server 2014

## Virtualize and consolidate

Scale up on-premises or scale-out via private cloud with Windows Server for maximum performance and low TCO

## Hybrid cloud solutions

Enable new hybrid scenarios like cloud backup and cloud DR to reduce costs and improve business continuity

## Easy on-ramp to cloud

Easy to use built-in tools to deploy to the cloud

## Complete and consistent

Deploy common development and management tools and consistent data programming model



# SQL Server 2014

Know your database is operating at the same speed as your business

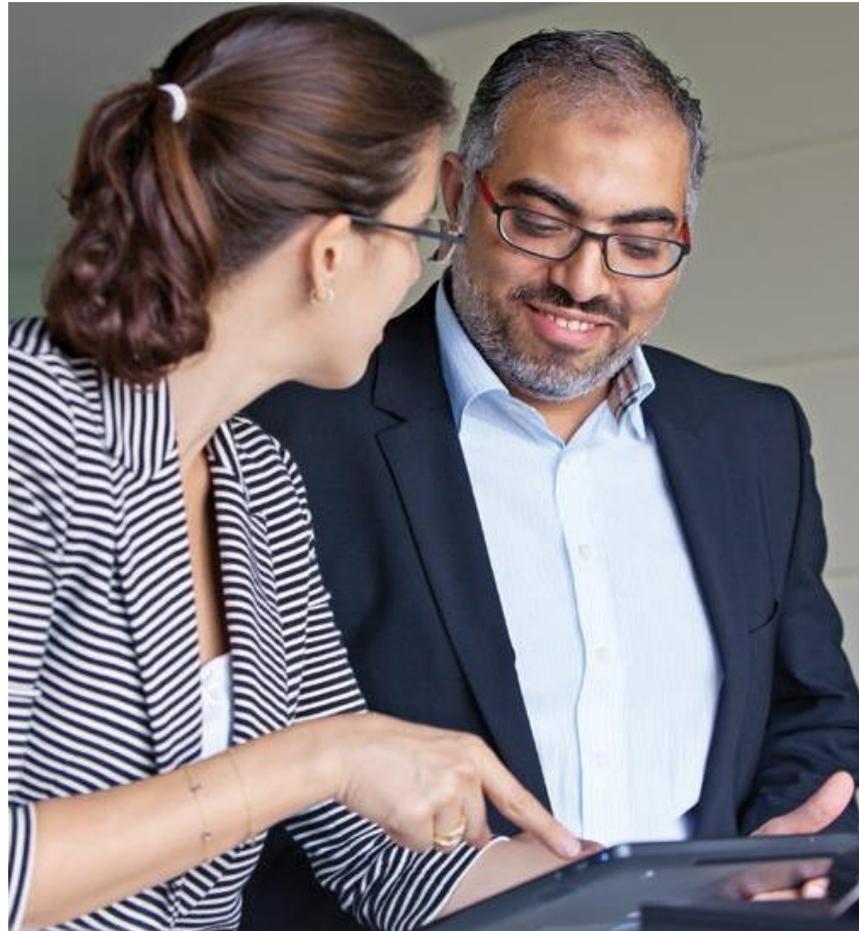
A slow-performing or unavailable database can cause significant business challenges.



Poor  
Productivity



Lost  
Customers



Get powerful database functionality, affordable to small and midsize organizations

Speed up transactions without having to buy new hardware

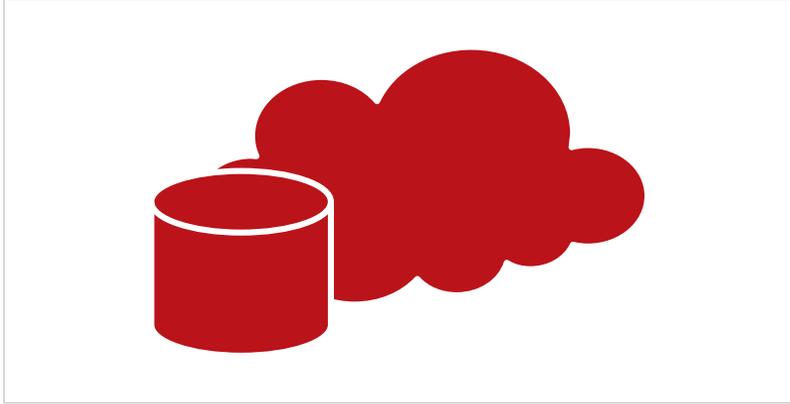
Avoid downtime—for your database and your business

Rely on the most widely used, most secure database<sup>1,2</sup>.

 Play video

<sup>1</sup> 46% market share per IDC Unit Share. <sup>2</sup> National Institute of Standards and Technology Comprehensive Vulnerability Database 4/2014.

# Modernize your data platform in the way that's best for your business



## 3 great options:

- ✓ Virtualize and consolidate with Windows Server
- ✓ Reduce TCO and increase availability with Azure VMs
- ✓ Easy on-ramp to cloud for web applications



Reduce CAPEX and OPEX by moving to Microsoft Azure

133% ROI by migrating to Microsoft Azure<sup>1</sup>

9.5 month payback on SQL Server 2014 migration<sup>1</sup>

<sup>1</sup>Forrester Consulting, The Total Economic Impact(TM) of Microsoft SQL Server, a commissioned study conducted on behalf of Microsoft, July 2014.

# The benefits of upgrading to SQL Server 2014



## Boost database performance

- Get **13x higher performance** over SQL Server 2005 and **5.5x** over SQL Server 2008<sup>1</sup>
- Get up to **30x faster** transactions with in-Memory OLTP
- Achieve greater **high availability** and **disaster recovery** with AlwaysOn

## Prepare for the unexpected

- Get peace of mind with **cloud backup** on Microsoft Azure
- Rely on the **least vulnerable database** six years in a row<sup>2</sup>
- Manage **compliance** audit requirements

## Modernize your data platform

- **Virtualize and consolidate** your data platform and OS for greater performance at low TCO
- Optimize your infrastructure investments with **hybrid cloud**
- Migrate and run web applications on **Azure SQL Database**

<sup>1</sup>Based on TPC-E benchmark results published for SQL Server 2014 ([www.tpc.org/4069](http://www.tpc.org/4069)), SQL Server 2008 ([www.tpc.org/4023](http://www.tpc.org/4023)), SQL Server 2005 ([www.tpc.org/4001](http://www.tpc.org/4001)) as of 10/8/14.

<sup>2</sup>National Institute of Standards and Technology Comprehensive Vulnerability Database 4/2014.

# Chemical company transforms business with all-in move to the latest Microsoft platform

JARCHEM delayed an IT investment for many years, resulting in system conflicts, business slowdowns, and reduced capabilities.

With Microsoft partner eMazzanti Technologies, JARCHEM updated PCs and servers to new Microsoft technologies including Windows 8.1, Windows Server 2012 R2 & Hyper V, Office 365, and SQL Server 2012.

Now, everything “just works” and JARCHEM can focus on the business of delivering innovative chemicals to customers around the world.



“Now we can get to the data we need to make decisions in a few minutes, instead of hours...our new technology helps us to be fast and responsive, which are the things we pride ourselves on.”

Dennis Boyd, Vice President, Sales & Marketing  
JARCHEM Industries, Inc.

- ➔ Reduced data processing time from hours to minutes for faster decision making
- ➔ Integration between Excel and SQL Server eliminates manual data processes
- ➔ Consistent, up-to-date software saves employees time from system startup to sharing documents
- ➔ Fast, responsive technology helps JARCHEM maintain a customer service edge



# Now is a great time to modernize your database

Take action now to avoid security and compliance risks and ensure continued compatibility.

## SQL Server 2005

End of Extended Support  
is April 12, 2016.

[▶ Play video](#)

# What does end of support mean?

## No security updates

There will be no access to critical security updates, opening the potential for business interruptions

## Higher maintenance costs

Maintaining legacy servers, firewalls, intrusion systems, etc. gets expensive quickly

## Compliance Concerns

As support ends, your organization will likely fail to meet regulatory compliance

# SQL Server 2014 Standard Edition

## Performance



SQL Server 2014 Standard Edition offers new performance enhancements to keep your database applications running fast, including:

- Higher max memory allocation of 128 GB.
- Extend buffer pool to non-volatile storage such as SSD (solid state drives) for even more memory with no risk of data loss.
- Query planning enhancements aid in easy performance tuning.
- Delayed Durability provides increased performance when disk I/O is slow.
- Improvements to Full-Text Search and FILESTREAM offer dramatic performance and scale advances for building content management applications.

## Availability



Basic high availability for SMBs, including:

- Database Mirroring
- Log Shipping
- Two-node Failover Clustering

Support for Windows Server Core, which can reduce OS patching by as much as 50-60%<sup>1</sup>

## Security



Secure by Design

Fewest vulnerabilities of any major database 5 years running

Active Directory Authentication

Enhanced Separation of Duty

Basic Auditing and New Backup Encryption

<sup>1</sup> The percentage reduction in patching varies and can be less based on the server roles that are enabled and the type of patches that are applied.

# SQL Server 2014 Enterprise Edition in-memory technologies

## Built-in



On average 10x faster, without having to rewrite entire app  
Leverage full SQL Server capabilities

## Flexible



Select only highly utilized tables to be in-memory  
Optimize in-memory to fit existing hardware

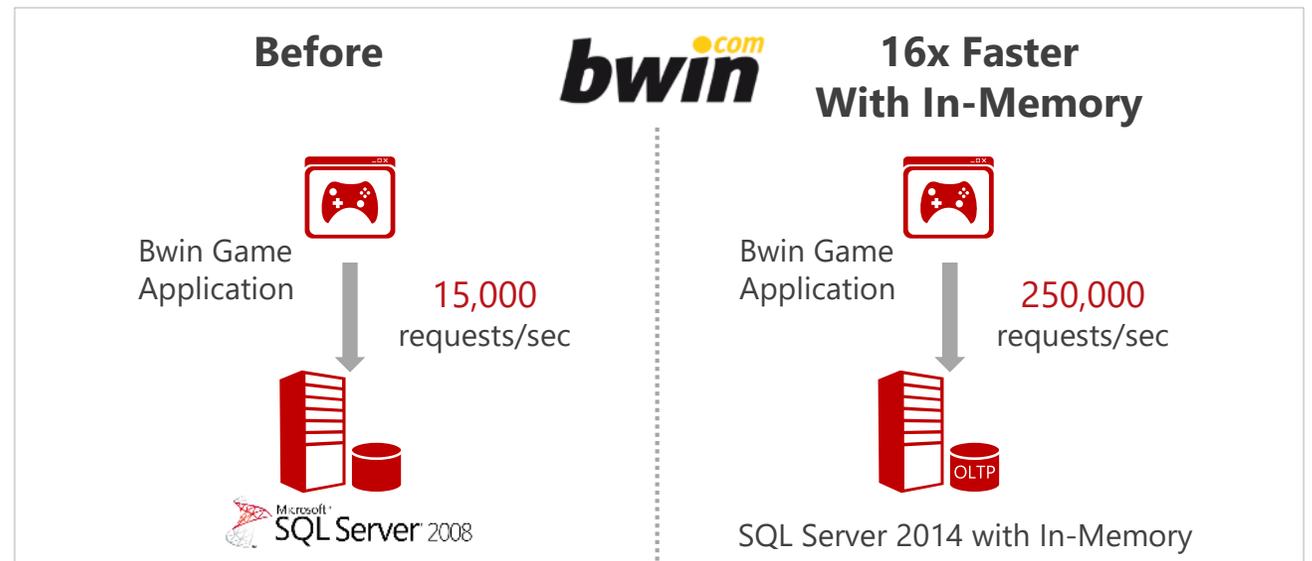
## Spans All Workloads



In-memory performance across OLTP, DW, and BI  
All in a single SKU

## Key Features

- New In-Memory OLTP
- Enhanced In-Memory ColumnStore for DW
- In-Memory BI with PowerPivot
- Buffer Pool Extension to SSDs and Enhanced Query Processing



# SQL Server 2014 – a major leap forward

FEATURES		SQL Server 2005	SQL Server 2008	SQL Server 2008 R2	SQL Server 2012	SQL Server 2014
<b>Performance</b>	In-Memory OLTP*	✗	✗	✗	✗	✓
	In-Memory ColumnStore*	✗	✗	✗	✓	✓
	Buffer Pool Extension to SSDs	✗	✗	✗	✗	✓
	Enhanced virtualization support and Live Migration	✗	✗	✓	✓	✓
<b>Availability</b>	Always On*	✗	✗	✗	✓	✓
	Database Recovery Advisor	✗	✗	✗	✓	✓
	Windows Server Core Support	✗	✗	✗	✓	✓
<b>Security</b>	Transparent Data Encryption*	✗	✓	✓	✓	✓
	Backup Encryption Support	✗	✗	✗	✗	✓
	Enhanced Separation of Duties	✗	✗	✗	✗	✓
<b>Cloud-Readiness</b>	Simplified Backup to Microsoft Azure	✗	✗	✗	✗	✓
	Larger SQL Server VMs and memory sizes available in Microsoft Azure	✗	✗	✗	✗	✓
	Gallery of VM images in Microsoft Azure	✗	✗	✓	✓	✓
<b>Management &amp; Programmability</b>	Policy Based Management	✗	✓	✓	✓	✓
	Distributed Replay	✗	✗	✗	✓	✓

\*SQL Server Enterprise Edition only