Microsoft SQL Server Code Name "Denali" Overview

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Microsoft® SQL Server®

Caveats

- Dates and capabilities are subject to change.

- Any screen captures or concepts are prototypes only.

- Packaging of new capabilities is yet to be determined.

- This deck is not a complete view of all investments.

Market Trends

Increased User Expectations
(driven by Consumerization)

Structured & Unstructured Data Explosion

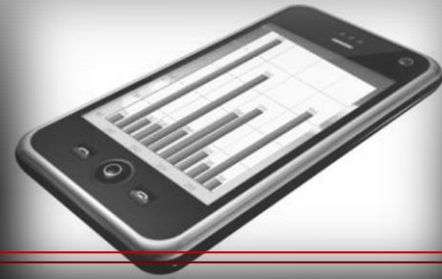**Pressure for IT Agility & Cost Efficiency**

High Demand for Contextual Information

SEARCH

IT Evolution and Innovation

Innovative User Interfaces

User Empowerment

Ubiquitous Data Infrastructure

Maturity of Cloud & Virtualization

Information Platform Vision

Empowered
IT

Pervasive
Insight

Dynamic
Development

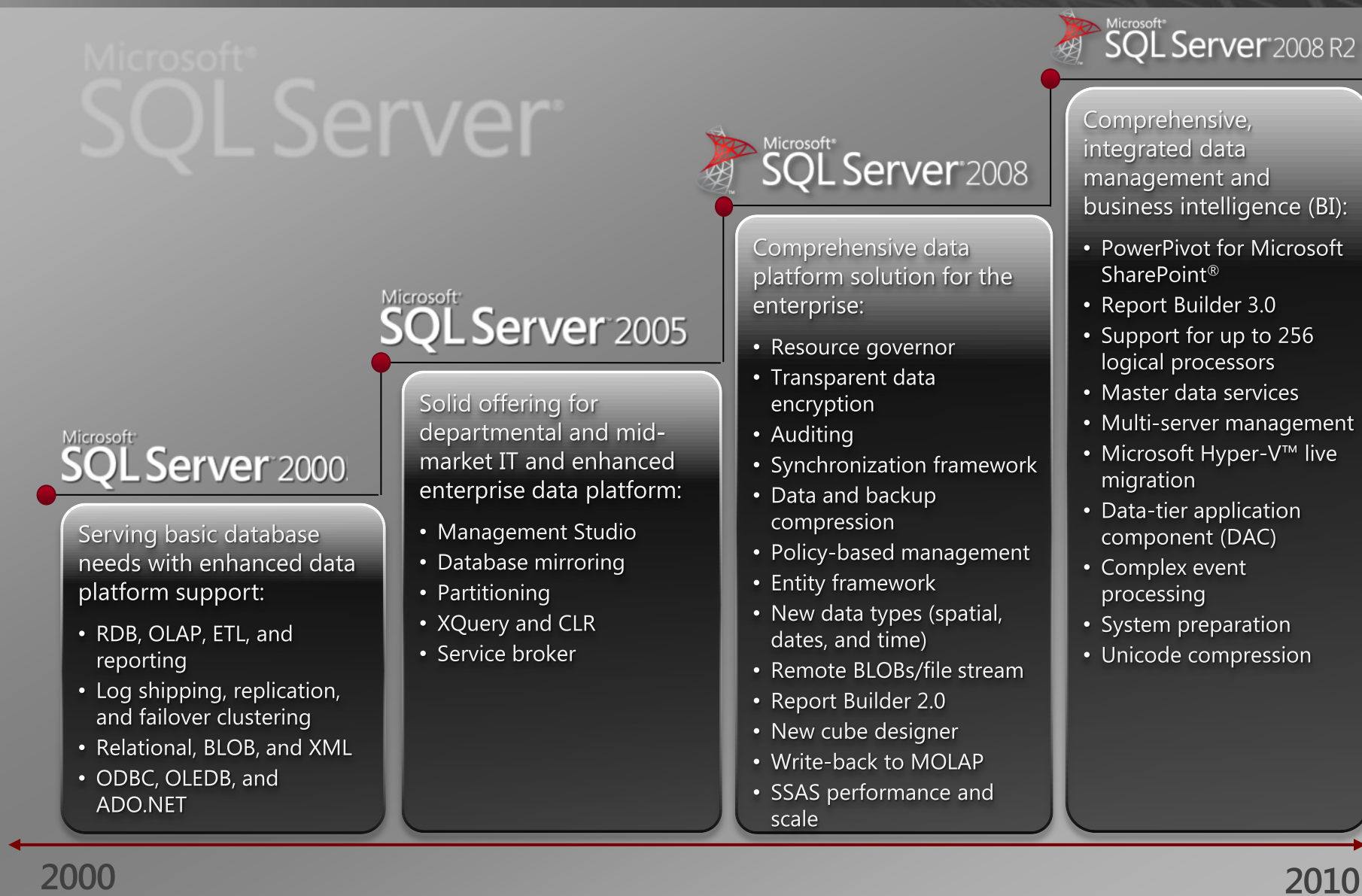## Mission-Critical Platform

Desktop and Mobile

Server and Data Center

Cloud

Microsoft SQL Server Evolution
Increased functionality and enterprise-level performance over the last decade

Microsoft®
SQL Server®

Microsoft®
SQL Server®2008 R2

Microsoft®
SQL Server®2008

Microsoft®
SQL Server®2005

Microsoft®
SQL Server®2000

Serving basic database needs with enhanced data platform support:

- RDB, OLAP, ETL, and reporting
- Log shipping, replication, and failover clustering
- Relational, BLOB, and XML
- ODBC, OLEDB, and ADO.NET

Solid offering for departmental and mid-market IT and enhanced enterprise data platform:

- Management Studio
- Database mirroring
- Partitioning
- XQuery and CLR
- Service broker

Comprehensive data platform solution for the enterprise:

- Resource governor
- Transparent data encryption
- Auditing
- Synchronization framework
- Data and backup compression
- Policy-based management
- Entity framework
- New data types (spatial, dates, and time)
- Remote BLOBs/file stream
- Report Builder 2.0
- New cube designer
- Write-back to MOLAP
- SSAS performance and scale

Comprehensive, integrated data management and business intelligence (BI):

- PowerPivot for Microsoft SharePoint®
- Report Builder 3.0
- Support for up to 256 logical processors
- Master data services
- Multi-server management
- Microsoft Hyper-V™ live migration
- Data-tier application component (DAC)
- Complex event processing
- System preparation
- Unicode compression

2000

2010

Microsoft® SQL Server® Code Name "Denali"

Delivering business agility and innovation to gain strategic value out of your information

MISSION-CRITICAL PLATFORM

Increase flexibility with integrated high availability

Gain higher return on high availability investments

Get breakthrough data warehousing scale and performance

DEVELOPER and IT PRODUCTIVITY

Realize lower cost of IT administration

Accelerate time-to-market for developers

Build more flexible, innovative applications

PERVASIVE INSIGHT

Expand the reach of BI to business users

Get advanced analytic performance

Deliver credible, consistent data to right users

Mission-Critical Platform

NEW, INTEGRATED HIGH AVAILABILITY

Greater flexibility with HADR

New HADR solution with SQL Server "Denali" AlwaysOn

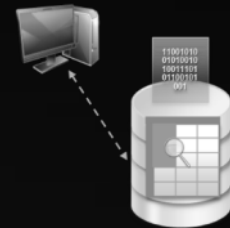Support for Windows Server Core to reduce planned downtime

HIGHER RETURN ON HIGH AVAILABILITY INVESTMENTS

Increased use of hardware

Simplified configuration and monitoring

BREAKTHROUGH PERFORMANCE AND SCALE

Column-based query accelerator for dramatic performance gains

Up to 15,000 partitions for larger scale sliding-window scenarios

High Availability and Disaster Recovery
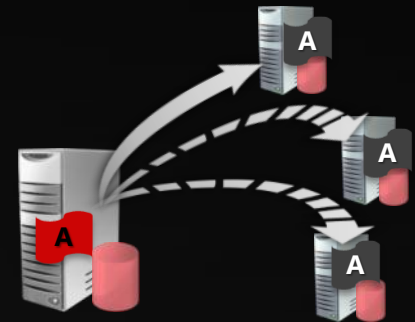## SQL Server "Denali" AlwaysOn

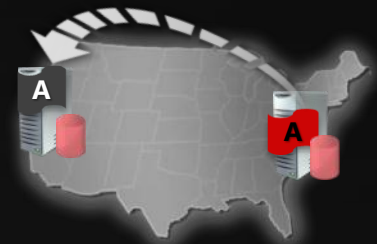## Increase flexibility with new, integrated HADR solution

- Faster failover, easier administration with Availability Groups

  - Identify databases to failover as a unit to reduce unplanned downtime

  - Faster application failover using virtual name

  - Increase application uptime using flexible failover policy

  - Enable better data redundancy and protection with up to four secondaries and up to two synchronous secondaries

- Limited downtime with enhanced online operations

- Run Microsoft SQL Server® on Windows Server® Core to reduce planned downtime (50-60% fewer OS patch reboots)

Shared Storage

Non-Shared Storage

Disaster Recovery

Maximize Resources

Higher return on high availability investments

- Increase hardware utilization through active secondaries for backups, reporting, and ad hoc queries

- Reuse existing infrastructure with support for both SAN and direct attached storage

Simplify management and administration

- Integrated manageability for one-stop configuration

- Easy setup and monitoring integrated into Microsoft SQL Server Management Studio

- Availability Groups that provide failover units with contained dependencies (such as logons)
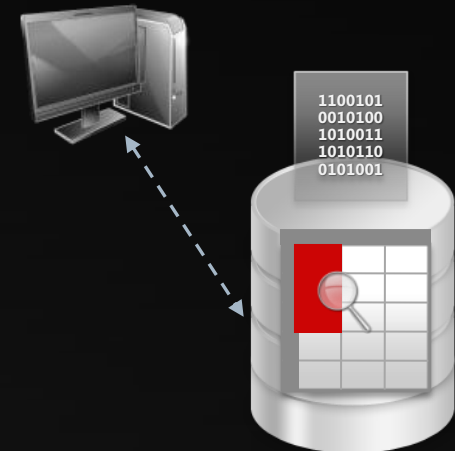
Breakthrough Performance and Scale

Column-based query accelerator

- Dramatically faster star-join query processing—much faster than current SQL Server (~10X)

  - Query speed increase varies with query and data

- Reduced I/O

- Consistent query performance

- Reduced performance tuning effort

Up to 15,000 partitioning for very large databases

- Support for large sliding-window scenarios

IT and Developer Productivity

LOWER COST OF IT ADMINISTRATION

Security and supportability enhancements

Simplified application testing and upgrade

ABILITY TO DRIVE NEW, INNOVATIVE PRODUCTS

Going beyond relational data

Greater interoperability for web applications

ACCELERATE TIME-TO-MARKET FOR DEVELOPERS

Single database application development experience

Offline build and debug capability

Ships with SQL Server, lights up with Microsoft Visual Studio®

Lower Cost of IT Administration and Greater Operational Control

Security enhancements for role separation and compliance

- Flexible server roles for easier separation of duties
- Improve compliance by using audit for all editions of SQL Server
- Simplified security management with default schema for groups

Improved supportability

- Flexible event selection, logging, and filtering with Extended Events
- Simplified diagnosis of functional and performance troubleshooting with new user interface for Extended Events

Simplified application testing and upgrade

- Minimize errors in upgrades and proactively conduct capacity testing with Distributed Replay to simulate production environment

Build New, Innovative Applications

Beyond relational data

- FileTable for backing up, restoring, searching, and updating Microsoft Windows® files

- Dramatic performance enhancements for FILESTREAM and Full-text Search for storing and searching documents

- Provide deeper insight to unstructured data with semantic concept extraction and similarity search

- Leverage spatial data in new ways through advanced and even faster 2D spatial support

Greater interoperability and new capabilities

- Support for PHP applications through PHP/PDO

- Adds analytics to custom business intelligence applications with VertiPaq in-memory analytics

Unified SQL Server Developer Tools

Unified database development experience

- Single development portal to author complete BI solutions or integrate data across databases and platforms

- Ships with SQL Server "Denali" and Microsoft Visual Studio® for seamless integration
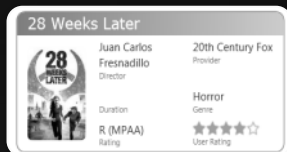
High productivity tooling for modern developer experience

- SQL Server edition-specific development and deployment

- Provides modern code and designer features for T-SQL as a first-class language

- Author, build, debug, and package code, and then deploy

- Supports local development without a full SQL Server install

- Simplify application development, deployment, and maintenance with extended support for Data-tier Applications

Pervasive Insight

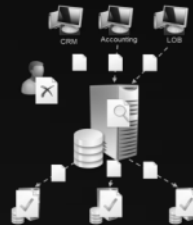## EXPAND THE REACH OF BI TO BUSINESS USERS

Magnifying the reach of BI with Project "Crescent"

Removing barriers between data and analytics

Amplifying collaboration

PERFORM ADVANCED ANALYTICS AND INCREASE ORGANIZATIONAL ALIGNMENT

Fast and scalable new BI semantic model

Enhanced experience

Unified modeling experience

DELIVER CONSISTENT DATA TO THE RIGHT USERS AT THE RIGHT TIME

Greater ease-of-use for quick ramp on SSIS and MDS

New capabilities to better track, analyze, and cleanse data
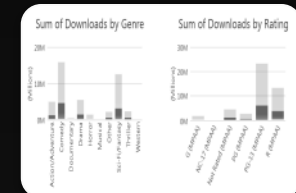
Expand Reach of BI to Business Users

Magnify the reach of your business intelligence solutions with Project "Crescent"

- Highly interactive web-based authoring and sharing of information
- Drive greater insights through smart and powerful data querying
- New presentation and storyboard turns pervasive into persuasive

Remove barriers between data and analytics

- Rich new features in PowerPivot, including hierarchy and KPI creation
- Sophisticated calculations that span personal to corporate BI

Amplify collaboration

- Turn pervasive into persuasive with new presentation mode and insight storyboard
- Proactive and personalized alerts on data-driven events

Advanced Analytic Performance and Increased Organizational Alignment
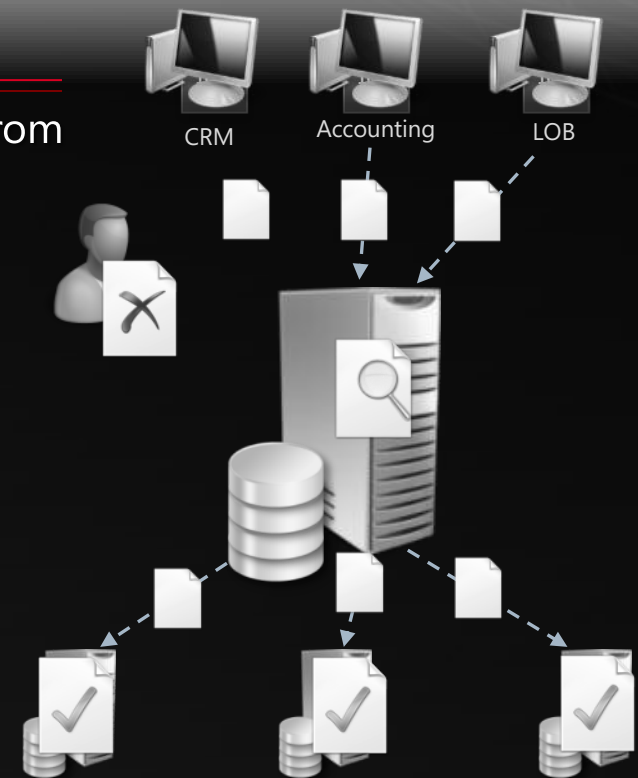
Fast and Scalable BI Semantic Model

- VertiPaq in-memory column store technology, scaling from the desktop to the data center
- Optimized for new hardware
- Single model for Reporting and Analytics
- Cached and real-time access to information

Enhanced Security

- SharePoint and Active Directory® security models
- Control to row and column levels

Unified Modeling Experience

- Either in Microsoft Excel® or BIDS
- Support for Visual Studio 2010

CRM   Accounting   LOB

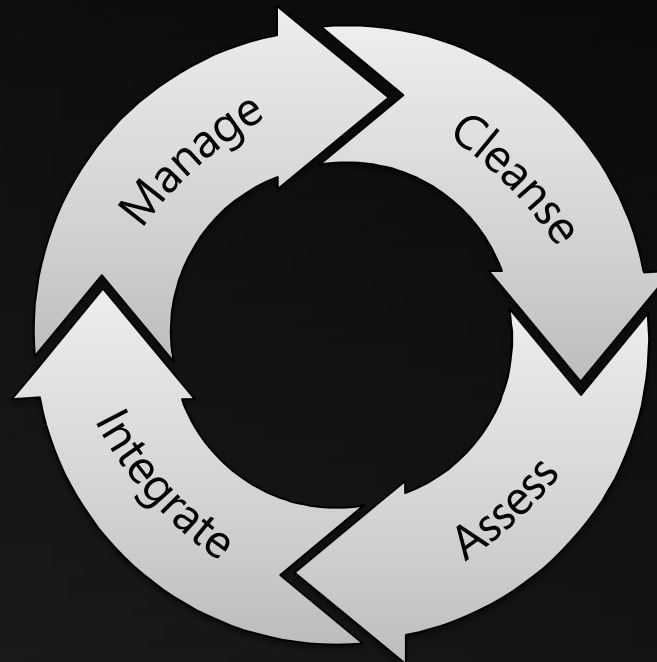# Deliver Consistent Data to the Right Users at the Right Time

Enterprise Data Integration & Management

Master Data Services

Data quality

Familiar tools

Performance

Integration Services

Easy data loading

Data Quality Services

Profiling

Cleansing

Matching

Impact Analysis

Lineage tracking with data sources

SQL Server Code Name "Denali" Highlights

- Get a new HADR solution with SQL Server "Denali" AlwaysOn

- Provide unified SQL Server developer tools

- Deliver consistent data to the right users at the right time

- Expand reach of BI to business users

Comprehensive Information Platform
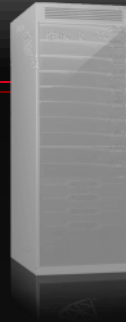
Microsoft® SQL Server "Denali"

Microsoft® SQL Server 2008 R2
Parallel Data Warehouse

Microsoft® SQL Azure

Increased high availability and performance

Single development portal for data developers

Next generation self-service BI capabilities

Enterprise data integration and management tools

MPP support for 10s to 100s TB DW

Seamless integration with Microsoft BI

Optimized appliances for increased performance and time to solution

Extends information platform as cloud service

Consistent, familiar model and tools

Self-managed, highly available cloud service

Microsoft®

Your potential. Our passion.®