



New Zealand

Visual Studio
ALM
Conference

SQL Server Denali Overview

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About Peter Ward

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Codenames

- Apollo – Columnar Indexes
- Atlanta – SQL Server Monitoring
- Crescent – New Adhoc Reporting
- Dallas – Azure Information Marketplace
- HADRON – AlwaysON
- Juneau – SQL Server Studio

SQL Server Denali

Mission Critical Platform

Higher availability with less planned and unplanned downtime

Utilization of standby hardware for read-only operations

Increased DW performance and scale

Dynamic Development

Productive, unified developer experience

Improved interoperability for flexibility and choice

Extending database services to non-relational scenarios

Pervasive Insight

Reduced operating and capital expenses

Improved business continuity, scalability, and availability

Improved environmental sustainability

Standardized build for SQL Server instances

Mission-Critical Platform

- High Availability & Disaster Recovery
 - Reduced downtime
 - Integrated solution across shared and non-shared storage
 - Lower TCO through integrated management and app centric failover
- Data Warehousing Performance and Scale
 - Column-oriented store for 5-100X performance gains
 - Up to 15k partitions for larger scale sliding window scenarios
- Enhanced fundamentals for Mission Critical workloads
 - Role Separation and enhanced Audit for Compliance
 - High performance tracing for Supportability
 - Distributed replay for testing at scale

New HADR Capabilities

- Reduce downtime for planned events
 - Windows Server core support – 50-60% fewer OS patch reboots
 - Reliable and flexible failure detection – configure up to 5 levels of severity to initiate failover
 - Automatic client redirection
- Protect against unplanned failures
 - Multiple Secondaries - Up to 5 secondary nodes
 - Stretch Clusters
 - Integrated failover management for local/regional/DR secondaries
- Lower TCO
 - Utilize standby hardware for backups, reporting, ad hoc queries
 - Integrated manageability for one stop configuration
 - Failover unit with contained dependencies (e.g. Logins)

Column Oriented Relational Store

- Dramatically faster query processing
 - Acceleration of common DW query types
 - Star joins
 - Scanning, filtering, aggregating on large tables
- Query speed-up varies with query, data. 5x not uncommon some queries greater than 100x faster
- Easier to use than summary aggregates
- Compression
 - Exploits redundancy within columns
 - Less IO, more data fits in memory
- Only fetching needed columns
 - Typical DW query references 10-15% of fact table columns
 - Less IO, more data fits in memory
- Main-memory-oriented algorithms that leverage current HW trends

Security Enhancements

- Flexible Server roles, for role separation
- Define server roles with specific permissions
- Enhanced Audit, for compliance
 - All SKUs now auditable (Management experience still in EE)
 - User defined audit events
- No need to define a default schema for each user, thus simplifying security management

Tracing

- SQL Trace replaced with Extended Events to provide flexible event selection, logging, and filtering capabilities
- New UI to simplify diagnosis of functional and performance troubleshooting

Partitions

- Support for 15,000 Partitions
- Enhanced ability to manage your data lifecycle
- Store more data for a given partition interval
- Load data more frequently (shorter intervals)

Dynamic Development

- Visual Tools for SQL Server
 - Native database application development experience
 - Offline build and debug capability
 - Ships with SQL Server, lights up with Visual Studio
- Platform for new data types – Beyond Relational
 - Win32 API access for files in SQL Server
 - Tier-1 Mission critical Scale for Full-Text Search & Filestream
- Productive programming surface for Data-Tier applications
 - “Contained” database
 - T-SQL enhancements

Visual Tools for SQL Server

- Offline project-oriented database development
 - Use a project to author, build, debug, package code & deploy
 - Includes full-fidelity parser
 - if the Development tool says “it compiles”, it works!
 - Support for local development without a full SQL Server install
- Modern code & designer experience
 - All of the modern code & modern designer features for T-SQL as a first class language in Visual Studio for both project & online code experiences
- Application project and database project integration
 - Changes in ASP.NET projects ripple through to database projects

Data-Tier Applications

- Data-Tier Application model
 - Investments in a coherent & portable data-tier application model in the form of the *Contained Database*
 - Logins are part of the database
 - Application specific collation – avoids TempDB collation conflicts
 - Extend DAC support
 - Permissions, Cursor, Hierarchy ID, Spatial, Statistics etc.
 - Build DAC for On-premise and Cloud targets
- Programming Surface
 - Continued investment in T-SQL
 - Sequence generator support
 - Improved error handling through THROW/Re-THROW
 - Paging support through OFFSET and FETCH

Introduction to Crescent

- [Data Visualization Done Right: Project Crescent](#)

Reporting Services

Empower Users

Project “Crescent”

Thin ad-hoc data
exploration

Innovative
visualizations and
interactivity

Rich presentations

Intuitive Alerting

End-user Alerting

Defined from within
operational or ad-hoc
reports

Intuitive alert rules

Self-managed through
SharePoint

Increased Efficiency

RS as a SharePoint
Shared Service

Scale-out for RS Service
applications

SharePoint cross-farm
reporting

Integrated backup,
recovery & logging

Analysis Services

BI Semantic Model

Single model for reporting & analysis

Rich semantics:

Sophisticated logic using DAX

Cached or real-time

Dynamic Development

PowerPivot like interactive design

VertiPaq engine for high performance

Enterprise scale: partitions, paging

Enterprise security: column level, row level

Pervasive Insight

Reduced operating and capital expenses

Improved business continuity, scalability, and availability

Improved environmental sustainability

Standardized build for SQL Server instances

Data Integration & Management

Empower Users

New SSIS Server and
Admin Experience

Robustness & Usability
Improved for New and

Advanced Developers
Data Lineage & Impact

Analysis for IS & DB
objects

Intuitive Alerting

“Enterprise Ready” &
“Platform Ready”
Data Management

Domain Neutral Data
Management
Foundation

Support for Domain-
specific Data Quality &
sample domains in
MDS

Increased Efficiency

DQS, MDS, & SSIS
integration

ITPro tools for analysis,
configuration & mgmt

Easily interact with
MDS or DQS services
from Excel, backed by
Excel Services
(SharePoint)

Denali Highlights

- Higher Availability with Better Utilization of Secondary H/W
- Faster Data Warehouse Query Performance
- Support for Larger Scale Sliding Window Scenarios
- Empowering users to create rich, interactive reports
- Enabling developers to develop powerful, high scale attractive BI apps without traditional design & tuning
- Cost effective integrated Enterprise Data Integration Management solution
- Enabling ISVs and developers to use the database for transactional semantics while still storing data on cheaper filesystem storage

Questions

