LIBERATE

Your infrastructure

With HP NonStop Database Solution for OLTP and Data Warehouse database applications

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HP NonStop Database Product Manager
11 April 2011
Today’s Agenda

NonStop SQL

• Value Proposition
• Roadmap & Releases
• Partners & Use Cases
• Database Column Encryption
• Proof Points
• Release 3.0

NonStop SQL versus Oracle 11g

In summary
VALUE PROPOSITION
Overview

Databases are critical to your business

Enterprise database hosts business critical information  
Databases support critical business functions

Databases control all touch points of enterprise  
DBAs are responsible for the wellness of business
The Database Decision
Customers are looking for a database that

- Grows with your business without sacrificing performance
- Provides information at the right time
- Meets global business needs 24x7
- Avoids complexity of too many moving parts
- Does not cripple IT budgets
The HP NonStop Database Solution

The industry’s best TCO with unrivaled scalability and availability tackling the most critical business challenges

- State-of-the-art, ANSI standards based SQL engine with open access from client environments
- Easy-to-use, out-of-the-box clustered configurations, Online database management operations
- Proven 24x7 available database
- Linear scalable workloads
- Parallel execution of simple OLTP, complex queries, Mixed workloads, and database maintenance tasks
- Trusted HP expertise with comprehensive mission-critical services and world-class partnering
HP NonStop SQL: Modern, Standard and Differentiated

Modern
Data flow driven
Cluster aware
Virtualized data
Integrated hardware and software stack

Standard
ANSI – 2003
ODBC 3.5
JDBC 3.0
.NET

Differentiated
Absolute Data Integrity
Linear Scalability
Continuous Availability
Online Manageability
Concurrent OLTP & Mixed Workload handling
Massively parallel processing

NonStop SQL
Modernize with NonStop SQL

Connect

Federate

Report

ODBC, JDBC, .NET

Federated Views

Encrypt

Decrypt

SQL/MX

Alerts

SQL/MP

Other..
Standardize with NonStop SQL

- ANSI SQL 2003 standards
- ODBC 3.0 access to SQL
- JDBC 3.5 access
- Format Preserving Column Encryption (FPE) AES-256

FPE AES-256

Encrypt

Decrypt

ODBC 3.0, JDBC 3.5, .NET
Differentiate with NonStop SQL

- Massive linear scalability and parallelism
- Unwavering 24 x 7 database availability
- Absolute data integrity
- Online VLDB manageability
- Complex and varied mixed workload support
- Industry leader with lowest TCO in its class of servers

NonStop Provides What Other Databases Fail To Deliver
NonStop SQL

ROADMAP & RELEASES
NonStop SQL Strategy

• Lead and win in mission critical enterprise applications market space
• Retain existing customers, increase usage
  – Invest in Performance, Quality, and new features
  – Modern Application Development
  – Security & Compliance
• New apps and customer acquisition
  – Enable low cost port
  – Lead with RAS value-prop and best in class TCO
HP NonStop SQL 2.3.4
February 2010, H06.20, J06.09

Modern
Embedded SQL in DLLs
Cascaded Updates/Deletes

Standard
Thread aware
OSS ODBC/MX Driver

Differentiated
Performance enhancements
Quality improvements
Defect Backlog addressed
Stricter Quality standards
Display Explain changes

NonStop SQL/MX 2.3.4
HP NonStop SQL 3.0
February 2011, H06.22, J06.11

Modern
- Large rows – 32k
- Large keys – 2k
- Numeric precision – 128 digits

Standard
- 64 bit ODBC and JDBC Drivers

Differentiated
- Optimizer enhancements
- Executor Performance improvements
- Quality improvements

NonStop SQL/MX 3.0
HP NonStop SQL 3.1 - Target Q4 2011

Modern
- Separation of Duties
- Change ownership of schemas
- Table Rename

Standard
- SSL Support in Connectivity Clients and NSM/Web
- NAT support in NSM/Web

Differentiated
- Performance improvements for large number of Connections
- MX Compiler performance enhancements
- Similarity Check (Prototype) enhancements

Future product plans, dates, and functionality are subject to change without notice.
HP NonStop SQL 3.2 Target 1H2012

Modern
- Sequence
- NVL
- Decode
- Stored Procedures in C/C++
- GROUP BY
- SPJ Debugging and Profiling
- More…

Standard
- Transaction Support in SPJs
- SQL Statement Logging

Differentiated
- MDAM enhancements
- Sort and Join Performance improvements
- Search Path for module files
- Quality improvements

Future product plans, dates, and functionality are subject to change without notice
AN INTRODUCTION TO SQL/MX 3.0
SQL R3.0 Objective

• Support revenue opportunities

• Support customer satisfaction issues

• Improve development efficiencies

• Maintain product quality and stability

• Maintain product performance

• Deliver it by May 2011
Large rows

- Large rows up to 32k for MX Tables, both range and hash partitioned tables

- Requires 32k Blocks support

- Error returned if you try to use 32k rows with 4k blocks

- System default stays at 4k blocks

- Metadata system and user tables use both 4k and 32k blocks
Large keys

• Large keys up to 2k for MX Tables only
  – Supports both range and hash partitioned tables
  – Limit reduced to 2032 (32k blocks) when Triggers are used
  – Limit with 4k blocks is 2010 only, or 1994 when triggers are used

• Applies to clustering keys of base tables, indexes and triggers

• For nonunique indexes, maximum length of the index reduced by the length of the clustering key of the underlying table
Extended Numeric Precision

• Numeric data type precision increased to 128 digits, for MX Tables only
• Support available only from dynamic SQL
• Support from embedded SQL coming in a later release
• Pcode optimizations made to improve performance
Enhanced Connectivity Drivers

- 64 bit ODBC drivers for Windows
- 64 bit JDBC T4 drivers for JDK 1.5 or later
- Connectivity Services now support 32k blocks and 32k rows
Other changes

- Support new “fast rowcount” -- Select Row Count From <table>
- Support EID Trace Points for better debugging and diagnostic analysis
- Support ISO8859-1, UCS2, KANJI, and KSC5601 character sets for MP tables
- Support ISO8859-1, UCS2 and KSC5601 character sets for MX tables
- Metadata Upgrade utility to 3.0 format
- Fallback to pre R3.0 format available with certain restrictions
- Allow data movement from pre R3.0 system to 3.0 system using BR2 and RDF

Application recompilation required in all cases
Quality improvements

• No regressions from R2.3.4
• Focused design reviews
• 100% code inspections
• 1000+ New test cases
• 400+ defect fixes from 2.3.4 and 250+ defect fixes from Neoview 2.4 SP1 and SP2 merged
• Enhanced and automated (99.5%) regression test library
• Extended tests with “friends of SQL/MX”, partner and customer workloads
PARTNERS & USE CASES
Attunity: Comprehensive NonStop SQL/MP Connectivity

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<th>SQL/MP</th>
<th>SQL/MX with MP tables</th>
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Attunity: Proven Integration with Crystal Reports

• **Supported Crystal Reports versions:**
  - Crystal Reports 8.5
  - Crystal Reports 9
  - Crystal Reports 10
  - Crystal Reports XI
  - Crystal Reports XI R2
  - Crystal Reports 2008

• **Supported HP NonStop systems:**
  - HP NonStop S-Series
  - HP NonStop NS-Series
  - HP NonStop Blade System

• For more information contact, Itamar Ankorion, itamar.ankorion@attunity.com
Data Reporting from Federated sources

Numerous Reporting tools supported
- SAP/ Business Objects Crystal Reports
- IBM Cognos
- Microsoft Excel and Reporting Services

Real Time Data Access from multiple heterogeneous sources

SQL/MP
- Enscribe
- Direct SQL access
- Federation views

HP NonStop Itanium

Hundreds of files & tables

Enscribe

SQL/MP

HP NonStop Itanium
Merlon Database Manageability Product Suite

• SQLXpress – comprehensive database management software for NonStop SQL/MX with support for SQL/MP tables etc

• MARS – Merlon Auto Reload System for reload detection and execution of SQL and Enscribe files

• Discover – continuously predicts and corrects potential disk and file full problems before they can cause an outage including reloads

• Partner – partition analysis for SQL and Enscribe files

• MPpress – host based report writer for SQL/MP, SQL/MX and Enscribe databases

• For more information, contact Rick Pettifer, Pettifer@merlon.com
NuWave XML Vault

- Store and Retrieve XML Documents
- Multiple criteria to retrieve the stored XML Document
- Document Store can be accessed via Web and Command Line interfaces
- Java APIs for storage and retrieval
- For more information, contact Ernie Guerrera eguerrera@nuwave-tech.com
Voltage SecureData API and Toolkit

• Encrypt and Decrypt Database Columns using Format Preserving Encryption (FPE) algorithms
• Requires no changes to underlying data schemas
• Requires few changes to applications
• Centralized, automated key management
• Flexible options to integrate encryption in your environment

• For more information, contact Mark Bower, Mark.Bower@Voltage.com
Format-Preserving Encryption (FPE)

- FPE allows direct encryption/masking of data, without loss of formatting
  - Supports data of any format
    - Credit Card, Social Security, Bank Account, Generic Alphanumerics, Dates, etc.
    - Maintain rules such as credit card checksums
  - Preserves referential integrity
    - Allows encrypted data to be used as database indices & foreign keys
    - Enables searching on encrypted data without performance impact
  - Encrypt all or part of a value
    - For example, only encrypt middle digits of credit card
    - Allows for important data properties to be maintained even when data is masked
Persistent Data Protection
Encrypting Credit Card Numbers

Customer Services or Web Application

- Only encrypted CC#'s in persistent storage
  - In-place encryption
- At billing time, temporarily decrypt CC# and pass to app
PROOF POINTS
NonStop SQL handles critical business needs
Customers are starting to realize it ...

A major international supermarkets store evaluates NonStop SQL to handle growth
Needs capability to add twice as many stores, twice as much assortment, and double the forecast period

A semiconductor company evaluates NonStop SQL for its superior availability

Objective is to manage production lines with no unplanned downtime
NonStop SQL handles critical business needs

Customers get it

An internet service provider selects NonStop SQL over Oracle and Sybase to manage Petabytes of database, 100,000+ tps
No outage since going live in 1995, managed with 2 DBAs

An intelligence agency selects NonStop SQL over Oracle; currently manages 250++TB of database growing at 20% annually
Drives 39,000 ingests per second concurrently with Thousands of ad-hoc and OLAP queries while doing database maintenance activities
Major Japanese securities company

Problem: Current Sybase/Oracle/Sun database has reached its limits
          Major scalability and availability issues

Objectives:

          Modernize application
          Improve availability
          Handle customer growth
          Lower TCO

Requirements:

          24x7 availability: application cannot tolerate
          unplanned outage of more than five minutes
          Deliver near real time response time for OLTP transactions

Solution:

          Customer is migrating application and databases from
          Sybase/Oracle to NonStop SQL
SQL/MX AND ORACLE 11G
Optimize your database environment
With HP NonStop SQL scalability

Impact on throughput and response time as more nodes are added to the cluster

- Oracle throughput does not scale well, response time degrades severely
- NonStop SQL throughput increases linearly, response time stays stable
- NonStop SQL beats Oracle RAC on the scalability dimension
Oracle and High Availability Trends?

• 90% surveyed customers report significant Oracle database induced unplanned outages in a year

• 25% Oracle outages lasted longer than 10 hours, some lasted more than 24 hours

Source (Oracle Data): Independent Oracle Users Group (IOUG) 2006 Survey on High Availability Trends
Optimize your database environment

With out of the box clustered HP NonStop SQL

• Oracle requires complex RAC configurations to create a clustered database
  • NonStop SQL is delivered as an “out-of-the-box” clustered database

• Oracle requires complex RAC configurations and highly skilled and expensive DBAs that leads to higher operational costs
  • NonStop – “out-of-the-box” configuration keeps costs lower
Optimize your database environment

Provide information in real time

- Oracle uses complex application partitioning and add-on licensing to handle mixed workloads
  - NonStop SQL has industry’s most elegant mixed workload handling, no add-on licensing or configuration
- With Oracle, data is replicated to another server to run reports
  - NonStop executes concurrent database updates, queries and batch operations
- With Oracle, it is hard to get a current view of the state of the enterprise
  - In contrast, NonStop customers have near real-time access to data
Oracle RAC 11g loses the TCO Battle
Means more for saving money with NonStop SQL

- Oracle RAC uses a cluster of cheap commodity servers, each running its own instance of OS and database
  - NonStop SQL deploys as a single clustered database image
- Oracle requires Partitioning Software licenses & additional Storage and Networking components and costs
  - NonStop has fewer moving parts and less complexity
- Oracle’s complexity results in higher operational costs
  - NonStop architecture leads to lower operating costs
To help you migrate and open up your application

- HP has partnered with Ispirer Systems, leader in database and application migrations since 1999
- SQLWays from Ispirer automates database migration from Oracle to NonStop SQL
- SQLWays converts DDL, DML, Scripts, and application business logic
- More than 400 customers worldwide
- Project timelines varied from one week to six
Key Benefits of Using Ispirer SQLWays

• Customer POC achieved 100% automated conversion from Oracle PL/SQL to NonStop SQL using Ispirer SQLWays
  – 97% complex SQL statements were tested successfully
    • Testing continues for remaining statements
  – 100% simple SQL statements were tested successfully

• Saves more than 70% off traditional migration budgets

• Converted code is readable and maintainable
  – No extraneous library or middleware required at run-time
THANK YOU
THE INSTANT-ON ENTERPRISE IS HERE.