EXPANDING THE BOUNDARIES OF BUSINESS INTELLIGENCE

THE NEW ERA OF BI GOES FAR BEYOND DATA AND REPORTING

Until recently, business intelligence (BI) applications were used primarily to collect and analyze historical data. Analytical tools, concentrated in the hands of just a few well-trained users, produced reports for high-level strategic decision making. Now the role of BI is expanding as businesses are looking to collect more information, analyze it quickly, distribute it to multiple users and deliver it back into transactional applications to tune core business processes in real-time.

To support this expanding vision, many businesses are working to consolidate their fragmented BI systems and applications. This integration effort allows the BI infrastructure to support more users while reducing costs. Dual-Core Intel® Itanium® processors running Windows or Linux offer a much needed resource for this consolidation. They provide the high-end scalability and availability of traditional RISC and mainframe architectures, as well as the flexibility of standards-based servers and widely supported operating systems that help organizations reduce their total costs.

MOVING TOWARDS UBQUITOUS BUSINESS INTELLIGENCE

"The new era of BI, which is already here, goes far beyond data and reporting. BI is becoming proactive, real-time, operational, integrated with business processes and extending beyond the boundaries of the organization," says Neil Raden, Intelligent Enterprise.¹

Most business and IT decision makers are well aware of the enormous value locked inside enterprise data and are focused on tapping that potential for competitive advantage. Yet for most large businesses, moving forward means first taking a step back to assess existing solutions and new opportunities.

ANATOMY OF A BUSINESS INTELLIGENCE SYSTEM

BI solutions are complex and typically include a number of components running on different systems (Figure 1). These systems contain valuable information which IT organizations identify, collect, reformat and cleanse. Then IT loads the data into a staging database, a data warehouse and possibly multiple data marts for analysis. This process, known as ETL (Extract Transform and Load), helps ensure the data is validated and integrated, enabling efficient analysis and a single-version-of-the-truth.

The data warehouse is the foundation of BI, and the point where server workloads are most demanding. In today’s business environment, data warehouse and ETL processes need to support large data volumes (which typically double every year), global environments and 24x7 operations. Not only must businesses integrate more data, but in many cases, they must load it faster to deliver more timely information to decision makers. As a result, batch update windows are shrinking. Many IT organizations are already finding they no longer have the luxury of nightly or weekly updates, but must load new data into their warehouses within a few hours.

RE-ENGINEERING BUSINESS INTELLIGENCE SYSTEMS

Today, BI capabilities are expanding. Businesses are evaluating and deploying various strategies that can increase the value of BI systems and decrease infrastructure cost, including:

- Consolidate BI systems
- Increase software reuse and integration
- Widely distribute information and analytical tools
- Improve feedback mechanisms

A BUSINESS INTELLIGENCE PLATFORM FOR A NEW ERA

The transition to a more versatile and expanding business intelligence system requires a high performance computing platform that can deliver extreme performance, scalability, availability and flexibility. The underlying server infrastructure is well served by today’s Dual-Core Intel Itanium processors, which deliver mainframe-class capabilities and meet crucial system requirements:

- **Scalability:**
  - Per Cluster: Up to 10,000+ processors per cluster (Linux)
  - Per Server: 512 dual-core processors with 128TB of globally shared memory
  - Per Processor: 1,000 TB memory addressability, 24MB cache and 8GB/s I/O bandwidth

- **Mainframe-class Availability:**
  - Advanced error detection and correction across all major data paths
  - Industry-leading innovations, such as core-level lockstep
  - Mainframe-class systems available from multiple vendors

- **Flexibility through a Widely Supported, Standards-based Architecture:**
  - Supported by 9 of the top 10 server vendors
  - Multi-OS support: Windows, Linux, UNIX and more
  - More than 12,000 applications from more than 2,000 ISVs

INDUSTRY-LEADING BENCHMARK RESULTS

Itanium-based servers were specifically designed to handle the large data volumes and complex transactions of BI applications. They support multiple terabytes of physical memory and high-performance Dual-Core Intel Itanium processors with up to 24MB of on-die cache, more than any other current processor architecture. Itanium-based servers are delivering world-record performance for today’s most demanding, data-intensive applications (Table 1).

<table>
<thead>
<tr>
<th>WORKLOAD</th>
<th>BENCHMARK</th>
<th>RESULT(^a)</th>
<th>STATUS(^c)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data Warehouse</td>
<td>TPC-H Benchmark @ 30,000GB</td>
<td>150,960.5QphH @ 46.69$/QphH</td>
<td>World Record</td>
</tr>
<tr>
<td>OLTP (Online Transaction Processing)</td>
<td>TPC-C Benchmark(^b) (tpmC)</td>
<td>4,092,779</td>
<td>World Record</td>
</tr>
<tr>
<td>ERP (Enterprise Resource Planning)</td>
<td>Two-tier SAP SD(^b) Benchmark (Users)</td>
<td>30,000</td>
<td>World Record</td>
</tr>
<tr>
<td>Java Server</td>
<td>SPECjbb 2005 (BOPS)</td>
<td>4,231,610</td>
<td>World Record</td>
</tr>
</tbody>
</table>

Table 1. High-End Benchmarks For Dual-Core Itanium Processor-Based Servers

HIGH AVAILABILITY FOR MISSION-CRITICAL SUPPORT

As BI applications stretch beyond their traditional roots to link directly with transactional applications, they are beginning to have a direct impact on revenue streams and operational efficiency. With this evolution, the cost of downtime is increasing. “It is no longer acceptable to have a warehouse with a lower standard of availability, fault tolerance or disaster recovery than operational systems,” says Mark A. Beyer, Gartner Analyst.\(^2\)

Itanium-based systems are well-suited for these mission-critical applications, delivering the kind of per system stability and high-availability typically associated with high-end RISC and mainframe systems. Extensive capabilities for error monitoring, containment and correction are built into the Dual-Core Intel Itanium processor, along with an Enhanced Machine Check Architecture that provides a standards-based foundation for integrated, system-wide error management.

THE ROAD AHEAD

BI has been around for more than 30 years. It has proven its strategic value, yet enormous potential remains untapped. Future innovations will be directed at making it easier to use, less costly and more pervasive.

“...a vast population exists whose business intelligence requirements have not been met to their full potential. The next wave of BI will reach out to these employees as well as other organizational stakeholders such as suppliers, partners, customers, and government agencies....”


To take advantage of these developments, most businesses will need:

- A strategic, enterprise-wide approach to BI to avoid tactical, stovepipe implementations that add complexity and limit options.
- A better understanding of enterprise processes, and the points where BI can be used to improve them.
- Standardization of enterprise master data and metadata as part of broader data quality and compliance effort.
- Strategies for identifying and integrating “shadow BI” solutions, such as spreadsheets, that can thwart attempts to achieve a single-version-of-the-truth.
- Better use of SOA to populate data warehouses from a wider variety of sources and to deliver information where, when and how it is needed.

- Simpler and more pervasive analytical tools and distribution mechanisms that give more users access to better information that is pertinent to their needs.

As business intelligence solutions evolve, many companies are making system changes that require higher levels of performance, scalability and availability from the BI infrastructure and greater flexibility for extending solutions as change continues.

Itanium-based servers running Windows or Linux offer a high-performance computing solution for these growing requirements. They deliver the scalability and availability of traditional RISC and mainframe systems, but on a more flexible, affordable and widely supported hardware and software platform. As businesses continue to extend their BI solutions, these advantages will be valuable in helping them keep pace with technological change and growing business demands.

For more information on Itanium-based solutions for business intelligence, please visit www.itaniumsolutions.com/apac

\(^a\) Performance tests and ratings are measured using specific computer systems and/or components and reflect the approximate performance of Intel products as measured by those tests. Any difference in system hardware or software design or configuration may affect actual performance. Buyers should consult other sources of information to evaluate the performance of systems or components they are considering purchasing. For more information on performance tests and on the performance of Intel products, visit http://www.intel.com/performance/resources/limits.htm


\(^c\) The benchmark results shown are world records or #1 for the specified OS as of 20 March 07.