SOLUTION BRIEF

SGI ADAPTIVE DATA WAREHOUSE SOLUTION

SGI® Adaptive Data Warehouse Solution

Exceptional scalability and performance to support faster, more informed business decisions

SGI Adaptive Data Warehouse Solution Advantages

- Enables more complex and ad hoc queries to help enterprises make faster, more informed business decisions
- Scales readily and economically to adapt to growing business requirements
- Supports the analysis of massive amounts of data, helping organizations manage operations more effectively and gain a competitive edge

Business Benefits

- Helps business users make better decisions more quickly
- Provides the ability to perform analyses that were previously impossible or too time consuming
- Enables enterprises to rapidly analyze much greater amounts of data

Technology Benefits

- Up to 5X faster query performance
- More adaptable to changing requirements
- Support for massive amounts of data

Managing corporate performance is paramount in today's competitive environment. Companies need to be able to collect, integrate, analyze, and act on information faster than ever before. However, coalescing enterprise information is often difficult. Business tasks, such as invoicing, shipment tracking, partner communications, and financial reporting often create a variety of disparate databases, logs, and records. Many companies are challenged to transform mountains of electronically generated data into valuable information.

Data warehouses and business intelligence tools can speed information analysis, helping enterprises make faster, smarter decisions. By aggregating and organizing data from multiple sources, data warehouses aid in creating an integrated view of critical business information. As the value of these solutions becomes increasingly clear, enterprise decision makers are demanding faster access to even more information. As a result, IT organizations must now cope with rapidly expanding data repositories, more demanding ad-hoc queries, and the need for real-time data integration.

Data warehouses with rigid architectures or scalability limits often fail to support growth or begin to exhibit degraded performance. Minimizing the number of users that can access the system or placing constraints on the amount and types of data stored can help. However, these restrictions can inhibit key decision makers from recognizing and responding to evolving business conditions.

The SGI Adaptive Data Warehouse Solution

Building on 25 years of experience in High Performance Computing, the SGI® Adaptive Data Warehouse Solution is built for exceptional scalability and throughput. The SGI Adaptive Data Warehouse Solution can be configured to meet current requirements and easily grow and adapt to match changing business needs. The solution combines powerful, flexible, and scalable SGI® Altix® servers and SGI® InfiniteStorage hardware and software with Oracle® Real Application Clusters (RAC) technology (Figure 1).

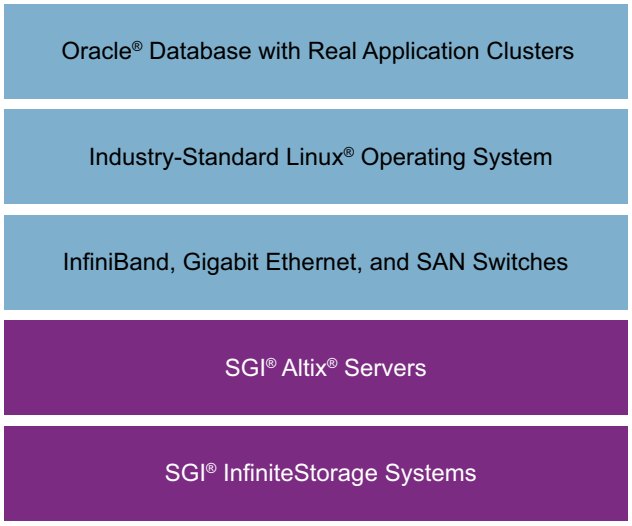

Figure 1. Key components of the SGI Adaptive Data Warehouse Solution

Performance for Faster, More Informed Business Decisions

With increasing frequency, enterprises are tasked to collect and analyze large amounts of data in real time. Many data warehouse solutions strain under heavy user loads, frequent ad-hoc queries, and the demands associated with interactive data visualization. As delays in response times increase and queries stall, user productivity can decline rapidly. The SGI Adaptive Data Warehouse Solution scales to enable large numbers of users to simultaneously query, analyze, and visualize data, helping organizations effectively make faster, more informed business decisions.

In order to offer exceptional scalability and throughput, the solution eliminates bottlenecks by optimizing bandwidth along the entire I/O path – within each server and between nodes. SGI servers are designed with fast I/O and memory access channels and large memory subsystems, enabling applications to load more data in main memory and complete queries and transactions faster. In addition, SGI's extensive experience with InfiniBand technology works with SGI platforms to create a solution that maximizes bandwidth and minimizes latencies for data transfers between nodes.

In fact, the SGI Adaptive Warehouse Solution provides exceptional throughput in mixed workload and complex query environments, delivering up to five times faster query performance than competitive offerings. As a result, enterprises can perform deeper analyses, make analytical capabilities available to more users, and find and analyze more information in shorter time frames.

Economically Adapt to Growing Requirements

Given the usefulness of data warehousing solutions in today's enterprises, user count and data storage growth are often an inevitable reality. As demands rise, the technology behind the solution must be able to scale and provide IT organizations with data warehouse platforms that help reduce the complexity and expense of system expansion.

The SGI Adaptive Data Warehouse Solution is available in multiple, flexible reference configurations that can readily adapt to match changing business requirements. The solution supports horizontally and vertically scalable architectural approaches, and protects technology investments by helping organizations avoid forklift upgrades. Platform expansion costs are also kept to a minimum by providing configurations with the capability to add processors, memory, and I/O independently.

Build a Massively Scalable Business Advantage

In order to make competitive advances, organizations need better insight into customer and operational data that is growing at an exponential rate (Figure 2). In many cases, information flows in faster and from more sources than existing data warehouse solutions can process. The SGI Adaptive Data Warehouse Solution expands where other systems reach capacity limits, supporting the analysis of massive amounts of data.

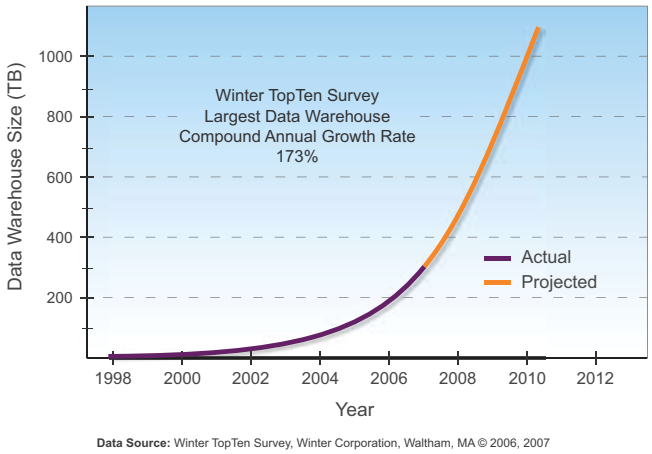

Figure 2. The growth rate for enterprise data warehouses is expected to rapidly accelerate through the year 2010

SGI Adaptive Data Warehouse Solution

SGI platforms effectively harness thousands of processors, terabytes of memory, and multiple petabytes of data. By applying award winning High Performance Computing expertise to data-intensive enterprise needs, SGI is creating efficient, high throughput business solutions. SGI's extremely scalable data warehousing solution can help organizations manage operations more effectively and gain the competitive edge needed for business growth.

Simplify Deployment of an Effective Data Warehouse Solution

While the benefits of a data warehouse are clear, complex architectures and configuration procedures can stall progress. The SGI Adaptive Data Warehouse Solution breaks through the challenges of building reliable, scalable enterprise application architectures and lets organizations get solutions up and running fast. SGI's pre-defined configurations — consisting of hardware, software, and professional services — simplify the task of getting the implementation and deployment of data warehousing project right the first time. In addition, the SGI Adaptive Data Warehouse Solution avoids the use of proprietary technology that can create vendor lock-in, increase costs, and limit the longevity, flexibility, and usefulness of a solution.

Within the solution, energy efficient SGI Altix servers, incorporating the latest Intel® processor technologies and running the Linux® operating system, deliver uncompromised performance and the flexibility to execute thousands of commercial off-the-shelf applications. Qlogic InfiniBand switches and standard Gigabit Ethernet switches provide high bandwidth connections between nodes, while Brocade fibre channel switches speed data transfer between SGI Altix servers and SGI InfiniteStorage systems. Finally, Oracle RAC technology ties the nodes together offering flexible scalability options and enhancing availability. By utilizing industry-standard components, the SGI Adaptive Warehouse solution helps protect technology investments, reduce costs, and simplify solution integration.

SGI Adaptive Data Warehouse Solution Family

The SGI Adaptive Data Warehouse Solution Family offers multiple entry points and growth paths to accommodate various expansion and architecture strategies. Three solution families are provided: Midrange, Large, and Ultra Large (Figure 3). The Midrange family utilizes SGI® Altix® XE250 servers, SGI® InfiniteStorage 220 systems, and an InfiniBand node interconnect switch to support scalability to 40 TB of user data. The Large family incorporates SGI® Altix® 450 servers and SGI InfiniteStorage 220 systems to scale to support as much as 160 TB of user data. The Ultra Large product family scales to 640 TB and beyond, and is based on SGI® Altix® 4700 servers and SGI® InfiniteStorage 4600 systems. Each configuration can be further customized to meet specific enterprise growth requirements. In addition, transitioning from one product family to another is as simple as upgrading servers and growing the existing storage infrastructure.

SGI Altix Servers

Reliable, high-performance SGI Altix servers are designed to help organizations optimize business intelligence and data warehousing implementations — without breaking budgets. Industry-standard components and energy and real estate efficiency help minimize total cost of ownership. Powerful processors, fast and wide system buses, and massive memory expansion capabilities work together within Altix servers to support high throughput transaction processing engines.

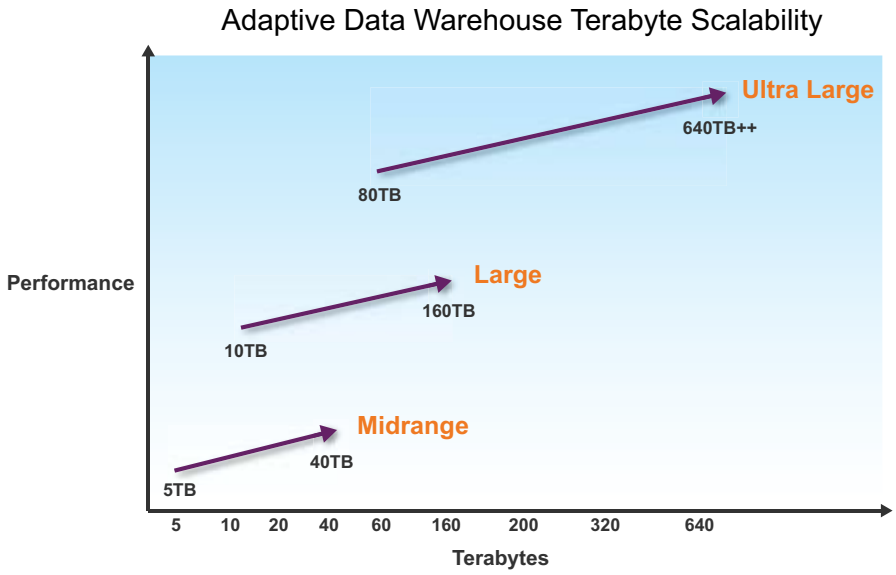

Figure 3. The SGI Adaptive Datawarehouse Family offers multiple entry points and exceptional scalability

The SGI Altix XE250 server is a powerful, compact system that is ideal for scale-out architectures and incremental expansion strategies. Leveraging the strength and versatility of Dual-Core and Quad-Core Intel® Xeon® Processors, SGI Altix XE250 servers provide organizations with a fast, reliable platform at an exceptional price point. SGI Altix 450 and 4700 servers combine the power of Intel® Itanium® Processors and industry-standard Linux environments with the SGI NUMAflex® architecture and global shared memory to create a platform that is powerful, uniquely flexible, and highly reliable. The SGI NUMAflex blade architecture pushes these SGI servers past the scalability limitations of other platforms by enabling the independent expansion of processors, memory, and I/O capacity (Figure 4).

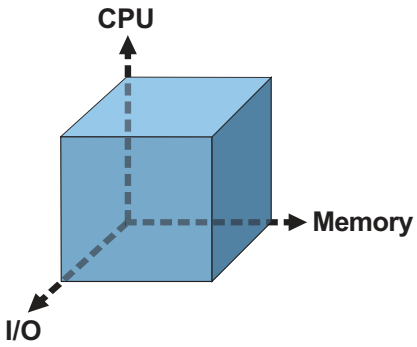

Figure 4. The SGI NumaFlex architecure enables independent scalaing of processor, I/O, and memory capacity

SGI InfiniteStorage Systems

Versatile SGI InfiniteStorage systems deliver scalable capacity and connectivity while reducing the complexity of storage area network management to help enterprises efficiently respond to rapidly growing data volumes. By incorporating an appliance-like design, SGI InfiniteStorage 220 systems provide cost-effective storage that affords low cost capacity scaling while offering very high bandwidth for large query performance. SGI InfiniteStorage 4600 arrays provide exceptional performance, scalability, and availability. With internal expansion to hundreds of terabytes and the ability to deliver uncompromising performance of over 6 Gigabits per second, SGI InfiniteStorage 4600 systems are ideal for bandwidth intensive environments.

Infiniband Cluster Node Interconnect

High-performance server and storage systems are essential for achieving high throughput levels. However, interconnects also heavily influence performance. An InfiniBand node interconnect is used in the Midrange family of scale-out clusters to improve bandwidth and lower latency between nodes.

Oracle RAC Technology

Oracle Real Application ClustersOracle Database with Real Application Clusters technology provides many features to help maximize the uptime and scalability of SGI Adaptive Data Warehouse Solutions. Oracle's architecture enables the execution of maintenance operations without service interruption, supports dynamic integration of new CPU and memory resources into the cluster, and simplifies the intelligent distribution and balance of workloads across multiple database nodes.

SGI Services

The right expertise can streamline the process of deploying new enterprise solutions and enable organizations to avoid common pitfalls. SGI Professional Services engagements deliver a wealth of knowledge and expertise to data warehousing projects. During SGI Professional Services engagements, seasoned experts work to simplify customizations, ease solution architecture and deployment, and speed project completion.

About SGI

For over 25 years, SGI has provided high-performance server and storage solutions that enable companies to overcome the challenges of complex data-intensive workflows and accelerate breakthrough discoveries, innovation, and information transformation. Now, SGI is applying its long-standing leadership to the design of systems that process and store extremely large data sets. Providing flexible, massively scalable, and high-performance servers based on open industry standards, SGI solutions facilitate the effective processing of large data sets in real time and at less cost

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