The Future is Now

Modernized IT infrastructure and agile SOA-based applications will improve agility and lower both your development and your operational costs. Here's how to get there sooner than you think.

TAKING THE FIRST steps—and the *right* steps— are key to IT modernization. And moderniza- tion— including application modernization— is the key to your business success, because without it, growth and adaptability are no longer sustainable.

The underlying challenge is that 80% of your IT budget is spent just keeping your existing environment current with business changes—making it impossible to ever really get ahead of the curve. Mainframes, and other legacy environments, have applications that are fragile from decades of updates—and that are growing more complex with each update. But, at last, concepts and technologies that spell relief have arrived to help IT organizations break out of this endless cycle.

Service Orient- ed Architecture (SOA) is the most talked-about and most familiar as- pect of application modernization. In essence, it promises to modularize and virtualize busi- ness functions associated with IT. By putting services at the core, SOA provides a new way of thinking about business processes—and, of course, the IT functions that support business.

That means with SOA, enterprises will be able to be both more flexible *and* more effi- cient—with resources used wisely and reused as appropriate. The concept of SOA is that all

> *By putting services at the core, SOA provides a new way of thinking about business processes—and, of course, the IT functions that support business.*

EXECUTIVE SUMMARY
Proven IT modernization techniques and tools finally open up the possibility of reaping new business benefits, including:
- **Stronger IT technology foundations for sustained business growth**
- **Increased infrastructure agility and flexibility to better respond to change**
- **Higher levels of reliability and service**
- **More manageable costs for IT organizations**
- **Improved alignment between business needs and IT resources**
- **Lower reliance on dwindling legacy skill sets**

applications are made up of components or services, which are distinguished from tradi- tional "application components" in that they are accessible via an industry-standard (typi- cally WSDL – Web Services Definition Lan- guage) interface.

Businesses are embracing SOA because they see it as the best way to leverage their existing IT assets while leaping ahead to give their or- ganizations the increased agility needed to be competitive in today's economy.

Road Map to Modernization
The "big bang" approach—where you rip and replace your applications and build new from the ground up—is expensive, risky, and un- necessary. In fact, one of the strengths of mod- ernization is the way in which it can leverage much that you already have. But ultimately you do need a comprehensive plan. And that plan needs to look not only at new features

such as SOA, but also at enabling technologies (including both hardware and software elements) that can make your goals a reality. With SOA, where software services are loosely coupled and shared by many different applications from all over the company, these virtualized services help smooth out the peaks and valleys created by a changing workload. When traditional architectures are faced with a changing workload, processing often becomes bogged down, so even hardware capabilities need to be considered and addressed.

Industry leaders HP, Intel, and Oracle are working together to help management seize the promise of modernization and implement SOA strategies. Together, they have the process needed to craft a plan that can achieve new levels of operational efficiency and adaptability while delivering mainframe-class reliability and performance.

HP consulting and integration professionals have the expertise in SOA and modernization design, as well as expertise in the Oracle and Intel products that support that design, to help you not only deploy the right components but also tune them precisely to deliver the results you want. HP Services has made Oracle and Intel technologies part of its worldwide competency centers, providing customers with access to architecture and consulting services, software and hardware demonstrations, and seminars and hands-on workshops.

Enabling Technology for SOA—The Hardware Layer

A key first modernization element is the Intel® processor-based HP Integrity and HP ProLiant server, which can support both scale-up and scale-out approaches for hardware deployment. Although scale-out—based on deploying larger numbers of standardized servers—has gained in popularity in recent years and is an excellent approach for many applications, there are other instances when scale-up may deliver better value as part of a modernization effort. That's because scale-up can offer increased reliability and

availability, the ability to take advantage of specific application characteristics such as memory handling and threading capabilities, and, of course, high levels of scalability. And HP can provide the expertise needed to help determine which approach is best.

Intel®-based HP Integrity servers with Intel® Itanium® 2 processors provide the ideal hardware foundation for next-generation business-critical IT solutions, with four key infrastructure advantages based on virtualization:

- Scalable performance for mission-critical applications
- Unmatched flexibility
- Optimized for business analytics
- Robust virtualization and a foundation offering reliability and availability for the datacenter

Intel® Xeon® processor-based HP ProLiant servers are excellent for building a grid of industry-standard servers with scale-out capabilities, as application servers to HP Integrity database servers, or as standalone servers in smaller or remote facilities. The HP Integrity product line also includes Superdome, with up to 128 Itanium® processors, which is ideal for scaling up.

New Dual-Core Intel® Itanium® 2 processor-based servers deliver double the performance over the previous generation and up to 20% lower power and cooling requirements through a more energy-efficient core.[1] This provides low-cost high flexibility for RISC/mainframe migration, and enables businesses to retarget the platform to meet dynamic, mission-critical needs over time.

Similarly, HP ProLiant servers with Intel Xeon processors and Dual-Core Intel® Xeon® processors provide outstanding price/performance, proven dependability, and energy-efficient performance for building a grid of industry-standard servers with scale-out capabilities. As application servers acting as "front-end" servers, Intel Xeon processor-based HP ProLiant servers are versatile, cost-effective solutions for general-purpose infrastructure applications. And Intel's

---

1 Performance measured using OLTP (NT/SQL), SPECjbb2005, SPECCPU, Linpack, and SAP-SD, from an Intel Internal Measurement (March 2006) comparing system configurations of Dual-Core Intel® Itanium® 2 processor 1.6 GHz with 24 MB L3 cache to Intel Itanium 2 processor, 1.6 GHz with 9 MB L3 cache. Actual performance may vary. See http://www.intel.com/performance/server/itanium2.

proven, mainstream, optimized 64-bit, multi-core platforms provide common technology standards to enable IT modernization.

The HP Virtual Server Environment (VSE) can deliver additional resources to your most critical applications during peak times by creating virtual servers that automatically grow and shrink. You can keep your system running to maintain continuous service levels with the complete integration of intelligent control, partitioning, and high-availability clustering. And you can simplify management through a unified infrastructure management framework that allows you to simulate virtual server utilization, do capacity planning and optimization, and control your entire virtual environment.

In addition, you can move beyond the old paradigm where the data was a cost center, and instead create a workable model for charge-back. Software service usage can be measured by transaction. Compute usage can be measured in units based on time and CPU allotment.

Ultimately, you will be able to pool standards-based software, servers, and storage into an adaptable infrastructure that appears as a single environment to users while providing capabilities that meet changing business demands.

HP Integrity systems also have the ability to attach specific software services to virtual servers, which can then "shrink and grow" together, depending upon demand. You can create hundreds of virtual servers on a single physical server and even run the software services for an entire company. Although that might sound complex, it's not. With HP Integrity Essentials—a comprehensive set of integrated tools for seamless management of HP Integrity servers—you can manage the entire environment in a single window and automate the dynamic sharing of all your computing resources. Finally, HP Global Workload Manager, an intelligent policy engine that automatically allocates resources among multiple workloads to increase server utilization, allows you to adjust computing resources

based on service-level and business-priority needs in conjunction with VSE.

Software Enablement

Oracle addresses the need to modernize by providing software-based solutions and technologies that interlock with Intel and HP capabilities. Shared services, by nature, are mission-critical. When you put these shared services in a consolidated environment, business continuity and availability become even more important. The outage of a single database or application server running multiple services could impact critical applications all around the enterprise.

The Intel, HP, and Oracle collaboration accelerates the advancement to such innovative architectures as grid computing based on Oracle Database 10g and Oracle Fusion Middleware by developing technology solutions that solve these problems by delivering modern capabilities such as application failover. These solutions offer a significant range of technology and platform choices capable of meeting the individual requirements of most organizations' operating environments, whether they run on Linux, Windows, or HP-UX. Oracle BPEL Process Manager and Web Services Manager can help you better orchestrate and execute business processes as secure, managed SOA services. Implementing Oracle's BPEL Process Manager can deliver a modular, effective way for IT departments to save time and reduce costs in the orchestration and deployment of SOA-based solutions, decreasing maintenance costs and helping to quickly adapt to changing business requirements.

The ability to quickly design and deploy SOA services and processes by leveraging standards can hasten the movement toward SOA and the creation of a true Service-Oriented Enterprise (SOE). Furthermore, Oracle

Modernization returns the highest levels of effectiveness from existing and future IT investments, including hardware and software.

Database 10g provides self-managing features that help customers to adapt to changing load requirements, speed statistics collection, instance, and memory tuning. That can make it easier to automate routine administrative tasks, greatly reducing the management burden, which can translate immediately into substantial cost savings and more effective database administration.

Elements such as Oracle Enterprise Manager Grid Control help, too, by providing workload management software that can shift computing capacity throughout a set of clustered databases as your business needs change—allowing you to run larger clusters of low-cost servers, such as server blades, to create enterprise grids.

And grid computing means you can reallocate workloads for applicable applications based on the peaks and valleys of your business cycle—helping you get the maximum from your IT investments while measuring up to the highest service-level requirements.

Together, Intel's, HP's, and Oracle's shared vision of a consolidated, virtualized, and automated infrastructure—combined with an architecture built on an SOE vision and Oracle's SOA tools—can have bottom-line benefits. Indeed, the solutions from Oracle, HP, and Intel together are optimized for outstanding performance across the entire Oracle software stack.

Implementation

Going it alone on a modernization effort entails risks—and costs. Working with its partners, HP helps companies bring their IT architectures to a new state—one that aligns with their desired future vision. The HP Services organization can work with you from the early stages of modernization, through SOA adoption and deployment, to help you deliver IT solutions that support and promote the success of your enterprise.

HP Services offers:
- Enterprise and solution architects with expertise working with multiple modernization techniques such as J2EE frameworks (BEA, SAP, JBOSS) as well as heterogeneous systems to increase the agility of enterprise IT environments
- A specific Oracle Fusion Middleware demonstration environment and proof-of-concept deployments so customers can see firsthand how the solution will perform
- Consistent methodologies and proven experience
- Implementation of the entire solution or one element at a time

HP Application Modernization Services help business modernize and align IT capabilities to meet emerging business challenges—delivering new levels of efficiency, performance, and capabilities.

HP's consulting and integration experts follow a full-project lifecycle methodology, looking at an organization's needs as they are today, and what they are expected to be in the future.

Your Modernized Future

Organizations can't afford any limitations that slow their ability to respond to change. Either you manage change effectively, or you risk falling behind in fast-moving business conditions. Adapt, or watch the advantage shift to more agile competitors. Modernization returns the highest levels of effectiveness from existing and future IT investments, including hardware and software. However, the most significant returns come from your investment in human capital.

People continue to be your greatest resource, with the most potential for a greater impact on the business. SOA can support adaptability and speed business initiatives. SOA, virtualization, and grid computing relieve IT professionals from time-consuming, repetitive administrative work, enabling them to focus more on solving business problems. And the right mix of robust hardware and enabling software will ensure that your business is built on a solid IT foundation.

LEARN MORE ABOUT IT MODERNIZATION
Additional information on HP, Intel, and Oracle "next generation" offerings and on taking the next steps to achieve modernization is available at www.nextgenerationinsights.com.