



**INVESTMENT PROTECTION.  
EVERYONE PROMISES IT.  
ONLY SUN MAKES IT A REALITY.**

*Sun's commitment to investment protection gives you  
unsurpassed advantages*

White paper

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## Executive Summary

This white paper explores the ways in which businesses and organizations can develop their investment protection strategy using solutions and services from Sun Microsystems. Sun follows a highly developed two-part strategy of delivering products that can be leveraged over time, plus assisting with expense management from both financial and architectural perspectives. The first aspect of the strategy includes operating system, hardware, storage and software technologies that provide long-term investment protection, while the second aspect includes unique expense management programs like the Sun<sup>SM</sup> Upgrade Advantage Program, finance packages and architectural services. The result of the strategy is that Sun's customers save money, gain purchasing power, and reduce Total Cost of Ownership. This paper illustrates how.

## Introduction

Investment protection, in the context of IT, means extending the life of customers' investments in technology, people, processes and tools, while putting in place financial and architectural measures to ensure they get the best value for money from every aspect of their infrastructure, over its entire lifespan. This means purchasing systems that offer good price-performance, ensuring that they operate at peak efficiency, and leveraging associated investments—such as applications and skills—as much as possible over time. For any business or organization, keeping costs low is a key goal, and IT is often second only to staffing as the largest cost center.

Organizations and their IT infrastructures face changing pressures to which they must respond: technology obsolescence and the resulting loss of support and increased maintenance costs; growing demand for computing and storage performance; changing business and IT structures in the light of site moves, mergers or acquisitions. These must be effectively managed to meet business objectives for service availability, risk management and cost reduction.

An investment protection strategy includes both financial and architectural expense management and an efficient, ongoing technology refresh strategy. Leveraging the financial value of existing investments to take advantage of technology innovations can produce a more efficient infrastructure that better supports business goals. Doing this non-disruptively, by preserving existing applications and skills, and taking advantage of outside expertise and experience to reduce risk and time-to-value, is the mark of an advanced investment protection strategy. As well as saving money and increasing purchasing power, investment protection means designing an architecture that includes measures to lower ongoing expenses, such as downtime and management workload, while also preparing for future performance demands and new hardware, applications and services that may arise.

## chapter 2

# Sun's Investment Protection Strategy

It's Sun's ongoing commitment to investment protection that distinguishes us from the competition and results in unsurpassed advantages for our customers. We are the only major systems and services vendor to make investment protection the foundation of our product design from the beginning, and we follow a two-part strategy to achieve it.

The first part is to deliver systems that provide long-term value to our customers. By delivering smarter technology options we help them build standardized architectures that drive economies of scale, save money, gain purchasing power and reduce Total Cost of Ownership. This in turn gives access to the benefits of new technology and improves the organization's flexibility to respond to changing business requirements.

All our technologies are engineered to work closely together, to scale easily, to be upgradeable non-disruptively, to minimize costly downtime and to preserve application investments across generations of hardware and operating systems. It is our unique 'systems approach' that creates the hardware and software advantages that extend system life. For example, unique among operating system vendors, Sun also promises to protect your IT investments by guaranteeing that existing Solaris™ applications will run unmodified on Solaris 10. And we stay at the forefront of investment protection at a technological level by continually adding capabilities to our solutions that protect your assets.

At Sun, investment protection goes beyond preserving a customer's equity in our products. It includes assistance with expense management from both a financial and architectural perspective. This means our customers gain greater purchasing power when they implement technology refresh strategies, and they achieve a lower Total Cost of Ownership for the years that follow. Sun's expense management assistance is headed by the Sun Upgrade Advantage Program, an innovative program that is designed to help customers uncover hidden equity in their current IT investments. This program, which reduces acquisition costs by giving superior, upfront trade-up allowances for Sun and third-party products, is complemented by finance and leasing programs that help further reduce upfront costs as well as reducing costs over time.

To Sun, investment protection means helping customers derive the most value from their infrastructures with professional services, further reducing Total Cost of Ownership. We do this by assisting with implementation, ongoing management, support, migration and managed services, as well as by offering innovative delivery methods like utility computing and the pay-as-you-use Sun Java™ Enterprise System. With the business and technology skills that Sun and our partners bring to the table, based on proven methodologies, our customers can manage change and day-to-day operations at a lower cost, finish projects more quickly and minimize the risk and disruption of technology change.

Through this combination of technology refresh and financial and architectural expense management, Sun helps its customers increase their purchasing power and lower their costs, in order to maximize their investment protection and develop their competitive edge.

## chapter 3

## Technology Refresh Strategy

### 3.1 Introduction

Legacy systems no longer offer their organizations sufficient levels of performance, flexibility, availability or manageability, which can restrict the creation and development of services and applications. In addition, as leases and maintenance contracts expire, it can often cost more to maintain legacy equipment than to replace it.

To overcome these challenges, IT infrastructure technology must be upgraded or replaced as non-disruptively as possible with more competitive systems that better serve the business, depending on the particular objectives of the organization. Because Sun is a systems company, it offers standards-based, end-to-end solutions, all integrated so you can get the most from innovations in technology without unnecessarily costly implementations. All Sun hardware and software has been designed with investment protection in mind, and what's more, Sun continuously adds capabilities that protect your number-one asset — information.

A large defense and aerospace systems supplier has recently refreshed its entire engineering environment, including workstations and servers. By upgrading from earlier Sun and HP workstations and servers to the latest AMD Opteron and UltraSPARC III servers and workstations, the company has been able to take advantage of increased performance to develop its competitive edge, while preserving application investments on Solaris and uncovering the equity within its legacy systems through an additional 20% trade-up discount.

### 3.2 Solaris Operating System

A major online auction house takes advantage of the full range of Sun's investment protection services, including platinum SunSpectrum™ support, managed services, the Sun Upgrade Advantage Program and binary compatibility between different versions of the Solaris OS. By regularly trading up its memory and processing power with Sun uniboards — Sun authorized 350 returns for the company in 2004 — the auction house manages its technology refresh strategy and saves money, without affecting its applications. A major consolidation effort is also underway, halving the number of search servers, which has been achieved with the purchasing power of the Sun Upgrade Advantage Program. This is already significantly improving the website's performance while cutting costs for the company.

The operating system is at the core of any IT infrastructure, and as such it is key to any investment protection effort. For years, Solaris has incorporated technologies and design decisions that enhance investment protection; Solaris 10 takes these even further and is the best choice for any organization that is looking to maximize long-term value.

Whether off-the-shelf or custom-built, an organization's applications are a significant investment: not just in their own right, but in terms of the data they manage and the skills needed to use them effectively. The operating system must ensure that these investments are maintained. The most important of Solaris 10's features in this regard is binary compatibility. Sun guarantees that an application certified to run on earlier versions of Solaris will run on Solaris 10, without need for recompiling the application code. If a customer discovers an application that does not work, Sun will fix Solaris so it does. Binary compatibility not only minimizes cost but also helps ensure that upgrades between versions are non-disruptive.

Solaris runs on a wide range of different hardware platforms, from Sun and other vendors, which enables organizations to make the right decision to suit different areas of their business while preserving consistency and easy transfer of skills. Sun servers not only run on UltraSPARC™, but also 64-bit AMD Opteron™ processors and 32- and 64-bit processors from Intel. Sun also gives you the choice of running Linux applications natively, at full performance, thanks to the forthcoming Solaris Linux Application Environment, which loads portions of the Linux kernel directly into Solaris. And building on Sun's already extensive community of developers, OpenSolaris™ allows faster, easier modifications to be made directly to the Solaris source code for even greater choice and cost-effectiveness. With choice of platforms and applications, organizations can make future choices unencumbered by the cost of retraining staff, and free from being locked into inappropriate technology choices by a vendor's restrictive portfolio.

When consolidating legacy hardware on to higher-density Sun computing platforms, customers may wish to keep vital systems isolated from one another to maintain security and availability. And during a migration period itself, it is helpful to isolate applications for testing and configuration purposes. Solaris Containers let administrators create numerous virtual systems on the same hardware, which are logically separate to ensure security and prevent problems from affecting other applications. Containers also allow resources to be allocated at will for improved performance, scalability and utilization, which further enhances the value derived from IT investments.

The combination of Solaris and Sun servers offers compelling performance for those looking to refresh aging technology. A completely rewritten TCP/IP stack and optimizations for SPARC and x64 multi-threading capabilities ensure that Solaris 10 is faster than ever before. But thanks to Solaris's unique DTrace diagnostic engine, application performance can be tuned to produce even more dramatic improvements—often in the league of several hundred percent. In this way, greater application workloads can be completed on the same hardware, increasing the value of investments.

When applications are unavailable due to hardware or software downtime, the business incurs costs and derives no value from those investments. And every hour spent managing, configuring and maintaining features of the operating system and servers contributes to overall Total Cost of Ownership (TCO) and reduces value. Solaris 10 is one of the most manageable operating systems available, incorporating automation, self-service, wizards and pre-configured profiles to reduce the time and effort it takes to complete common tasks. Advanced security features incorporated from the military-grade Trusted Solaris operating system help ensure that security threats don't contribute to downtime. And predictive self-healing and fast rebooting improve levels of availability still further. By freeing staff to deliver more strategic value to the business, and by ensuring that infrastructure elements work hard, 24/7, Solaris assists with investment protection.

### 3.3 Servers

A well-known American university chose Sun to upgrade its data-warehouse servers to develop its business intelligence capabilities in response to growing usage and under pressure of its educational budget. From its two Sun Enterprise™ 5000 servers running Solaris and Oracle, the university made a smooth migration to two Sun Fire™ E2900s, which use the UltraSPARC IV processor. The result is a 5x increase in query response times, improved scalability and a 95% data-availability rate.

The choice of a server infrastructure can have a significant effect on the long-term TCO of your IT investments. The Sun server portfolio incorporates a comprehensive range of technologies and features that expressly address several key aspects of investment protection.

At a processor level, Sun offers a choice of different architectures to suit different application workloads, facilities and anticipated growth in demand. Whether SPARC or x86, every Sun server can run Solaris or Linux. UltraSPARC IV features Chip Multi-Threading, or CMT, and was one of the first Multi-Threading processors to become available. CMT greatly improves the throughput of the processor to support consolidation efforts and ensure a longer effective lifespan for the server by enabling performance improvements, without needing to overhaul applications or migrate servers.

AMD Opteron x64 processors also feature Multi-Threading capabilities and offer linear scalability to support easy future expansion. AMD Opteron eases the transition to 64-bit computing while also preserving your investment in 32-bit applications by allowing simultaneous, full-speed 32-bit code execution.

Sun servers are engineered for flexibility, now and in the future. Mixed-speed CPU support lets Sun customers take advantage of faster processors without throttling their performance to the speed of the slowest processor in the system. This lets customers maximize performance at the lowest cost. Similarly, our hot-swappable uniboards and memory boards allow servers to be radically upgraded (or repaired) on the fly without the large cost or inconvenience of a complete box-swap, and without incurring downtime.

In addition, Sun servers are proven in reviews and industry-standard benchmarks to offer leading price-performance and to set world records in common application scenarios. This allows infrastructure to stay current and effective for longer, producing a faster Return On Investment (ROI) than other servers.

### 3.4 Storage

One US state recently consolidated its entire healthcare program's storage infrastructure with the help of Sun migration services. Storage was consolidated on a new Sun StorEdge™ 9980 and some older Sun storage arrays, all centrally managed as part of the system. With a maximum capacity of over 147 TB, not only have they simplified operations, they now have room for future expansion as well. The state received a significant reduction in acquisition costs of the SE9980 by trading in legacy storage. They have also seen significant performance improvements to their online healthcare systems running on Sun servers.

Data volumes are growing faster than any other aspect of IT, due to the growth in electronic communication types, and the tighter restrictions on archiving to comply with regulations. As a result, an organization's storage infrastructure has a more important role to play in investment protection.

Sun storage solutions include capabilities that help customers to get more value from their old storage infrastructure elements even while they benefit from the increased performance of new storage systems. And Sun storage solutions do this while lowering ongoing management costs and improving long-term flexibility.

Storage arrays like the Sun StorEdge 6920 enable organizations to virtualize their storage into a single virtual pool, irrespective of how the physical storage is divided. Even legacy hardware from third-party vendors can be virtualized and managed by Sun StorEdge software. Virtualization allows storage to be allocated to suit business needs, and lowers ongoing management costs, while preserving legacy investments. By tiering storage according to the performance needs of particular data types and the capabilities of particular storage arrays, the best balance of price against performance is easily attained. Virtualization also makes expansion of the storage network transparent to users and administrators for easier future scalability.

Data must not only be retained for archival purposes; it needs to be stored and accessible so the information itself provides value to the business. Sun storage systems help create an enterprise content management system that automatically archives data for the appropriate period. Continuous replication, instant restore and other business-continuity data services maintain availability to lower downtime. This level of commitment to business continuity is reflected in the Sun StorEdge 9990 array's optional 100% data availability guarantee.

### 3.5 Software

Purchasing the necessary software to complete an organization's IT infrastructure can be a costly business. First there is the expense of evaluating and procuring the different software elements from a range of vendors; then it must be installed, integrated and supported. Interoperability is far from assured, and the upfront cost can be significant. Sun offers its own range of enterprise software, the Sun Java™ Enterprise System. For a single monthly fee per employee, the Java Enterprise System gives businesses a complete, integrated, pre-tested suite of essential enterprise software. By doing so, support is simplified, implementation becomes much faster and more cost-effective, and expense is managed by spreading the cost over months. As time goes on, the Java Enterprise System is kept current to help businesses take advantage of the latest innovations. The Java Enterprise System includes features that improve overall system availability and manageability, to help the rest of the infrastructure deliver maximum value and lower TCO.

## chapter 4

# Expense Management Assistance

## 4.1 Introduction

To get the most from IT investments at the lowest cost, organizations need more than just well-designed products: they need a complete, end-to-end package of services that optimize those products and leverage skills and experience to minimize risk and time-to-value for the infrastructure. And in addition to this architectural approach to expense management, they need a vendor that takes a holistic approach with financial services, too. With these two aspects of expense management, customers gain upfront purchasing power while reducing TCO over time.

Sun is a global company with more than a decade's experience performing migrations and supporting some of the biggest businesses in every industry to optimize their IT infrastructures. As well as support, preventive and managed services, Sun offers consultation, assessment and design services that cover every one of our solutions.

## 4.2 Sun Upgrade Advantage Program

One major semiconductor manufacturer, a Sun customer for more than 20 years, uses the Sun Upgrade Advantage Program for up to 70% of its orders—and during one year has saved over one million dollars as a result. During the company's upgrade to Solaris 10, Sun's commitment to binary compatibility came into its own and meant the manufacturer could keep using its existing Electronic Design Automation (EDA) applications.

By using the Sun Upgrade Advantage Program to update its engineering server and workstation environments, another leading EDA firm has saved over \$400K in the last year thanks to the program's aggressive trade-up allowances.

At the forefront of Sun's investment protection services portfolio is the Sun Upgrade Advantage Program. Designed to reduce acquisition costs, and thereby give organizations more purchasing power to put towards the latest technology, the Sun Upgrade Advantage Program is the keystone of any Sun technology refresh strategy.

With the Sun Upgrade Advantage Program customers gain aggressive trade-up allowances on legacy Sun or third-party hardware, which they can immediately put towards new technology as upfront savings, rather than rebates. The discounts are significant—up to 35%—and are often augmented by special promotions. Furthermore, the Sun Upgrade Advantage Program is unique by qualifying a large number of systems, specifically including third-party hardware. And because the saving is felt immediately, it can help customers to accelerate their cost justification and uncover the hidden equity in their legacy systems.

When an organization uses the Sun Upgrade Advantage Program it benefits from a full 90-day window in which to perform the migration from its legacy systems to the new Sun equipment before it has to return its old hardware to Sun. This helps lower risk during the migration period and enables a smooth transition. And when returning the legacy equipment, Sun will collect it from the customer at no cost and take care of environmentally friendly disposal, again at no cost. With the Sun Upgrade Advantage Program organizations have an easy and low-risk way to adopt a technology-refresh strategy that can extract final value from legacy hardware and help improve purchasing power.

The Sun Upgrade Advantage Program is complemented by Sun's Finance and Leasing programs, which offer an alternative to outright purchasing if you suspect that your IT needs could increase or change substantially within the next two or three years.

Sun Microsystems Finance enables you to mix and match lease term length, purchase option and payment structure to create a tailored, flexible way to align budget constraints and particular cash flow cycles with technology needs and project deadlines. Take advantage of various lease term lengths and payment structures such as graduated payments, skip ("seasonal") payments and deferred payments.

**One of the world's leading Electronic Design Automation (EDA) businesses also leases engineering workstations on two year lease cycles and it typically refreshes its systems at the end of the lease term. The company relies on Sun's leasing programs to conserve cash flow, protect its credit line and simplify budgeting with fixed, predictable payments. It has been leveraging the Sun Upgrade Advantage Program and other Investment Protection advantages for over five years to keep its engineering team equipped with the latest high-performance Sun workstations.**

Speak to your account manager to find out more about what we can offer you and to hear about the latest offers and terms available.

### 4.3 Support

When the IT infrastructure is not running at full effectiveness, or ceases to run at all, the business does not perform to its full potential and costs may be incurred when business continuity is broken. In short, the Total Cost of Ownership of the solution rises, and the value it delivers declines. This is not investment protection.

Sun offers expert support for all its solutions at a level to suit individual budgets and the criticality of different systems. For hardware and software systems, SunSpectrum<sup>sm</sup> support packages are available at levels to suit various organizations, and cover all software running on the server systems. On-site maintenance, upgrades, patches and telephone support can all be included to keep the infrastructure working. Independent research by analyst firm Forrester has shown that SunSpectrum delivers 67% ROI within 12 months, showing that Sun support is exceptional value for money.

For Solaris support, Solaris Service Plans also offer flexible levels of attention and cover the operating system on non-Sun hardware. We also make available separate support for our software, which is included in the monthly fee for the Sun Java Enterprise System and its component suites.

### 4.4 Managed Services

In addition to the costs of hardware and software, running an IT infrastructure requires significant manpower and associated skills, not just in particular technologies, but in getting them to work together to form systems and understanding how they create the unique infrastructure of an individual organization. With the right skills at hand, an infrastructure can perform better, experience less downtime and respond more quickly to changing circumstances. But acquiring the right level of skills can be difficult. This is especially true for short-term projects like migrations and upgrades, where a smooth process is essential.

A managed service is an ideal way to get the most value from IT investments while minimizing training and related costs, speeding projects and cutting risk. Sun offers a wide range of managed services at levels to suit every organization, from remote monitoring and support to full data-center management, and from short-term agreements to long-term contracts. By taking advantage of these offerings, Sun customers benefit from the specialist skills and lengthy experience of Sun engineers and service consultants, as well as the economies of scale and proven methodologies that a global company like Sun can leverage. Infrastructures can be run more effectively with less downtime, meaning they deliver greater value for longer, and the cost of skill acquisition is removed.

One step beyond managed services is utility computing and storage, a new concept in computing innovated by Sun. Utility computing means processing and storage resources are located in Sun's data centers and rented as needed by the customer each month. Instead of acquiring, installing and maintaining new servers and storage arrays to cope with large processing jobs, customers can supplement their existing infrastructure by connecting to the Sun Grid to purchase cycles of computing power or gigabytes of storage at a very low rate, without need for up-front purchases, acquisition of in-house skills or overprovisioning for future growth. Utility computing is extremely flexible and immune from depreciation, so is an ideal way to complete an investment protection strategy.

#### 4.5 Professional Services

**As part of an ongoing consolidation program and in response to continuing growth, a large storage and data-management solutions provider recently migrated from five Sun Enterprise™ 10000 servers to two Sun E25K™ servers using the Sun Upgrade Advantage Program and aided by Sun's specialist migration services and support. A specially extended trade-up window and significant up-front cost savings helped the company perform its migration, which has enhanced the performance of the business's production systems, including Customer Relationship Management and Enterprise Resource Planning applications.**

The expense management side of Sun's total investment protection strategy is completed by several services from our professional services portfolio, specifically targeted at refining our customers' investment protection solution by continually lowering your Total Cost of Ownership.

Initially, customers can select a full TCO Analysis and Architectural Assessment to explore the state of their current infrastructure and its associated costs, from the infrastructure elements themselves, to operating expenses, the impact to the business of downtime, and so on. Sun consultants will explore the different options available and make recommendations accordingly, and will set these out in detail with targets for savings that could be achieved. With the TCO Analysis and Architectural Assessment, Sun customers have all they need to measure ROI and make a full cost justification for any project they choose to undertake.

Following on from this, Sun offers Migration, Installation and Consolidation Services suited for a wide variety of projects, all benefiting from our many years of experience and adhering to our established, best-practice methodologies and proven reference architectures. Each of these service groups focuses on preserving investments in applications and skills, reducing risk and cost during the process itself, and developing a future-proof architecture that is efficient, scalable and highly optimized.

With Sun expense management services, the total cost of the IT infrastructure is reduced, while it performs better and is better equipped for future demands as part of a successful investment protection strategy.

chapter 5

## Sun – An Investment Protection Company

Sun's strategy, technology and assistance solutions are all founded on a company with unrivalled credentials for protecting its customers' investments, and an unequalled commitment to developing these credentials into the future.

### 5.1 R&D

Sun's commitment to investment protection is exemplified by our ongoing research and development. More than \$1.7 billion is spent each year on advancing our technology to produce solutions that work better to achieve real business results faster and with less effort. Such investment in R&D helps ensure that investment protection is designed into all our products and is applied toward developing open standards that facilitate interoperability.

### 5.2 Relationships

By working in partnership with other organizations, Sun ensures that its customers, their systems and applications receive the greatest level of support and access to specialist skills and solutions that complement the Sun portfolio.

More than 20,000 iForce™ partners, 4.5 million Java developers and major software vendors are committed to Solaris, SPARC and to Sun, delivering a breadth of expertise and applications that offer long-term stability. Added to this, Sun has close relationships with AMD, Microsoft, StorageTek and Fujitsu to ensure optimization, interoperability and the widest set of complementary solutions, which helps give our customers greater assurance that their investments will deliver value for years to come while allowing greater choice from a single vendor.

Furthermore, Sun is a leading member of dozens of standards bodies, contributing code, innovations and thought-leadership that guides and helps shape the technologies of the future while ensuring compatibility with the technologies of today.

### 5.3 Roadmaps and the future

One of the principles that Sun customers value most is our commitment to roadmaps. We rigorously plan the development of all our technologies on an extensive roadmap to map out smooth migration paths and compatibility, both between different solutions and between generations of the same technology. This planning helps us achieve our objective of producing solutions that can be extended and leveraged over time. We continue our collaborative relationship with our customers by making sure to convey our intentions and future direction to our customers to help them with their planning for the future.

Sun is pushing the future towards technological developments that will enhance investment protection further. IT infrastructures from Sun are developing to create standardized components, built to proven, established architectures that allow faster, less risky implementation and deliver optimal performance at a lower cost than more expensive custom architectures. Standardization helps to reduce TCO and better places infrastructures for interoperability and scalability to cope with future changes more easily. This is ideal for investment protection. Beyond standardization, our utility computing solution delivers economies of scale, spreads the cost of computing and ensures fair 'pay as you go' pricing.

## chapter 6

## Conclusion

Every organization needs to get the most from its IT investments by managing costs and ensuring long-term performance with optimized technology, upgrades and technology refresh strategies. Sun is uniquely placed to help businesses and organizations in every industry achieve this goal, through our ongoing commitment to investment protection, which has always been part of our product and services strategy. Because we've held this commitment from the very beginning, our systems have an unmatched inherent level of extensibility that delivers investment protection.

By focusing clearly on systems that deliver economies of scale and that can be leveraged over time, we build business solutions that are designed for long-term value. These systems work together to optimize performance, scalability and future upgrade possibilities, while reducing overall costs through management and availability.

By concentrating equally on financial expense management, we offer customers flexible finance and leasing packages as well as up-front purchasing power through the Sun Upgrade Advantage Program to help make the most of legacy systems. Our architectural expense management services help minimize upfront and ongoing costs for any infrastructure element.

Through these capabilities, our scale and our experience, we help our customers save money, reduce their Total Cost of Ownership and gain purchasing power to thrive in a climate of business change and take advantage of technology innovation.

To find out more about Sun's investment protection strategy, technology and assistance, visit [www.sun.com/ibb](http://www.sun.com/ibb) or talk to your Sun account manager.

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