

**Microsoft SQL Server
on HP Integrity
Servers:**

Lowering Total Cost of Ownership
(TCO) through server consolidation

*An Alinean White Paper
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EXECUTIVE SUMMARY

Ever since the introduction of Windows NT in the early 1990s Microsoft has long coveted the prestigious and lucrative data center server market. Throughout the 1990s and early 2000s, though, each time Microsoft and Intel improved on scalability and reliability, the burgeoning demands of the highest performance OLTP ERP systems and the mushrooming scale of the largest business intelligence databases stayed one step ahead of Intel's peak performance. Now, with the introduction of Intel's new (Montecito) multi-core Itanium II processors Windows systems rival or even exceed the performance of the most scalable Unix/RISC based systems.

With this leap in scalability customers are now looking at the new Itanium II based servers as platforms for satisfying both the need for greater performance and size, as well as improved IT efficiency through server consolidation. Specifically, many organizations are looking to consolidate their previous sprawl of Microsoft SQL Server implementations on the highly reliable and scalable HP Integrity line of servers. This paper examines the economic justification for server consolidation of Microsoft SQL Server databases on HP Integrity servers through the financial analysis of two distinct customer environments. The financial analysis presented in this paper is based on the detailed technical assessment and recommendations of SQL Server technical consultants, Scalability Experts, www.scalabilityexperts.com.

Each case compares the investment in new hardware, software and services as well as on-going operational expenses for the consolidated HP Integrity solution with analogous costs for maintaining and growing the original server infrastructures. In addition, the study also examines an alternative approach for each case of consolidating on the latest HP ProLiant x86 based servers. The results of these cases consistently revealed significant savings in moving to the HP Integrity servers, with an average TCO savings of 47.2% for the HP Integrity solutions over the current environments over a three year analysis period. Similarly, the HP Integrity solutions averaged a 33% lower TCO over the alternative x86 based HP ProLiant proposals.

TCO Comparison Results Summary

The results of the study revealed significant opportunity for both cost reduction and improved service delivery through server consolidation of Microsoft SQL Server instances on the HP Integrity platform. Including initial investments in new server hardware, database license upgrades and migration costs, the HP Integrity solutions were projected to reduce IT costs by an impressive 26.5% compared to maintaining and growing the original environments over the three year analysis period. When softer business benefits of reduced downtime and improved time to market of new applications were also included in the comparison, the HP Integrity solutions were projected to reduce total business costs by 47.2%.

TCO Comparison (Average Three Year Costs)	Original Server Environment	HP Integrity Solution	HP Integrity Savings	Percentage Difference
Server Hardware	\$691,034	\$1,198,362	(\$507,329)	-73.4%
Server Software	\$2,453,402	\$1,696,739	\$756,663	30.8%
IT Operations Labor	\$1,589,589	\$589,007	\$1,000,583	62.9%
Facilities	\$196,293	\$46,248	\$150,045	76.4%
Change Costs	\$0	\$91,008	(\$91,008)	0.0%
Total IT Costs	\$4,930,318	\$3,621,364	\$1,308,954	26.5%
Costs of Downtime	\$1,616,613	\$70,457	\$1,546,156	95.6%
Agility Opportunity Costs	\$482,430	\$16,636	\$465,794	96.6%
Total All Costs	\$7,029,360	\$3,708,456	\$3,320,904	47.2%

Figure 1: Average Three Year TCO Comparison Chart

Table 1 above shows the average costs for both cases for the original server environments, and the proposed HP Integrity solutions over a three year analysis period. The table also shows the average savings and percentage difference from implementing the Integrity solutions.

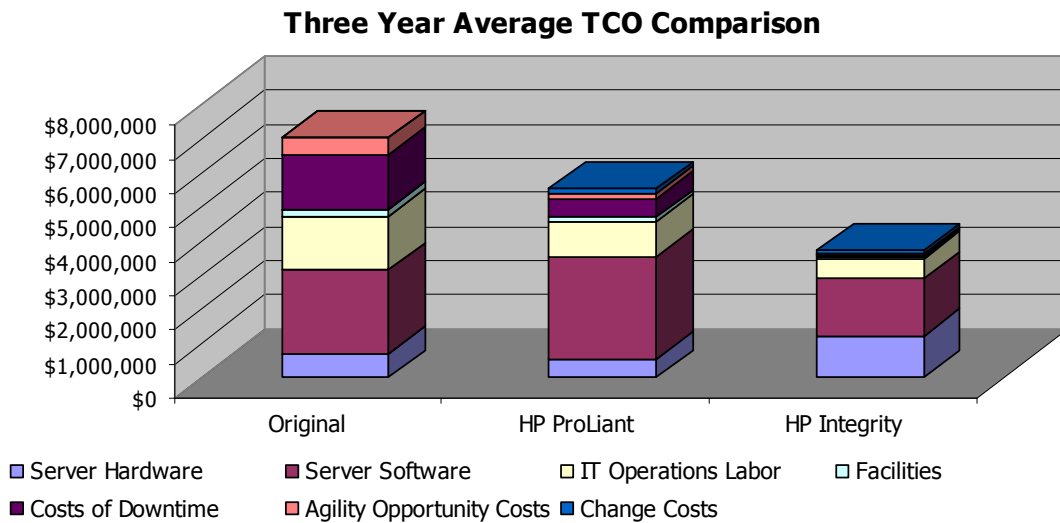


Figure 2: Average Three Year TCO Comparison Graph

THE CASE FOR SERVER CONSOLIDATION

With the introduction of highly scalable enterprise class Intel based servers there are several benefits of server consolidation. Organizations can now economically upgrade to much more scalable servers with greater processing power for high volume transaction processing applications and increased memory access for large decision support databases. Server consolidation provides an opportunity to leverage the flexibility of larger systems for multiple applications, which can significantly improve server resource utilization. Centralizing computing resources enables organizations to improve the efficiency of server management, as well as more easily leverage best practices and improve service levels.

Enterprise Class Scalability

The raw processing power of the latest Itanium II multi-core processors now rivals and even exceeds the performance of the fastest RISC based chips on the market. As Intel's largest partner HP has worked closely with the chip manufacturer to build its Integrity line of servers to maximize the efficiency of the Itanium II processors for real world application performance. The sx2000 chip sets available in the high end Integrity servers provides maximum memory and I/O bandwidth for the Itanium II CPUs.

These new 64 bit servers along with Microsoft Windows 2003 and Microsoft SQL Server 2005 provide near linear scalability for over 16 CPUs and access up to 2 TBs of memory. This improved scalability means companies can now easily upgrade performance constrained 32 bit x86 based SQL Server instances without migrating to more costly RISC based platforms.

Improved Utilization

Increased scale and performance also means that multiple applications including databases can be combined on a single physical server. Traditionally, organizations often purchased unique servers for each new application requirement. These servers were sized for anticipated peak workloads. As workloads change over time, or actual processing requirements differ from original expectations, most servers end up with either very low average utilization rates or quickly exceeding available processing capacity. Placing

multiple SQL Server databases on a single server platform allows administrators to balance available processing resources more evenly, and improve overall server utilization.

SQL Server databases can be consolidated on a single server by either combining multiple instances or by running multiple instances in separate virtual machines. The HP Virtualization Manager simplifies the management of Windows instances running with the HP Virtual Machine technology.

Manageability

Historically, two thirds of IT budgets have been spent on ongoing support and maintenance of computing infrastructures. Consolidating and centralizing operations and administrative activities provides substantial opportunity for leveraging skills and improving IT efficiency. Reducing the physical number of supported devices in an organization also lowers change management and problem diagnosis requirements. HP further simplifies systems management for Integrity servers by imbedding powerful utilities and integrating with enterprise systems management frameworks, such as HP OpenView.

Improved Service Levels

Systems availability can be enhanced through server consolidation by leveraging systems management best practices and upgrading to more reliable systems. The HP Integrity servers have been engineered from the ground up for mission critical levels of high availability with many levels of internal error checking and redundant components.

Today, service delivery means more than just reliability, availability and serviceability (RAS). It also includes consistent security and compliance management, which are much easier to enforce with centralized management.

STUDY METHODOLOGY AND GOALS

The results of this study are based on two customer cases for a global professional services provider, and a rapidly expanding specialty retailer. In both cases Scalability Experts, a well respected database consultancy specializing in Microsoft SQL Server design and tuning, performed a detailed technical assessment of the customers original Microsoft SQL Server implementations. From these assessments Scalability Experts recommended specific HP Integrity and HP ProLiant configurations to accommodate current computing requirements and additional capacity for growth over a two year period.

The financial analysis discussed in this paper is based on the ongoing operational expenses for the customers' original environments including anticipated expenditures for growth. Calculations for the two proposed solutions for each case are based on current pricing for the proposed HP hardware configurations, required software licenses, and ongoing support costs.

Since the relative scopes of the environments were fairly similar, much of the paper discusses the average results from both cases. The later sections of the paper break out the individual configurations and unique business issues for each customer.

Risk Adjustments

Since the realization of revenue and productivity improvements from higher systems availability may be impacted by several factors, we have discounted all indirect costs associated with downtime by a conservative 80% in all references throughout the paper. This treatment has been applied consistently to the indirect costs for all three scenarios, including the current environment, the HP ProLiant solution and the HP Integrity solution. We have also applied this same 80% discount factor to costs associated with time to market delays for new applications due to server provisioning.

BENEFITS OVERVIEW

Table 3 shows the combined average costs from both cases for each of the configurations. The Indirect costs for downtime and agility (time to market) have been discounted by an 80% realization factor to reflect the risk that these improvements in operations may not result in corresponding financial savings.

TCO Comparison (Average Three Year Costs)	Original Server Environment	HP ProLiant Solution	HP Integrity Solution
Server Hardware	\$691,034	\$535,097	\$1,198,362
Server Software	\$2,453,402	\$2,991,529	\$1,696,739
IT Operations Labor	\$1,589,589	\$1,043,168	\$589,007
Facilities	\$196,293	\$127,968	\$46,248
Change Costs	\$0	\$120,120	\$91,008
Total IT Costs	\$4,930,318	\$4,817,880	\$3,621,364
Costs of Downtime	\$1,616,613	\$548,550	\$70,457
Agility Opportunity Costs	\$482,430	\$166,355	\$16,636
Total All Costs	\$7,029,360	\$5,532,785	\$3,708,456

Figure 3: Average Three Year TCO Comparison Chart

Server Hardware Investment

When considering a server consolidation many people mistakenly place too much emphasis on the initial purchase price of server hardware in guiding their decisions. On the surface it may appear that newer faster x86 based systems can offer sufficient processing power to accommodate current workloads with additional capacity for growth at an attractive price. Consolidating on new x86 servers can reduce server counts by half, but it rarely provides the significant savings in software licensing, server management and improved resource utilization that results from moving to a scalable virtualized environment.

In fact, consolidating on new x86 based systems often results in merely accelerating normal upgrades for growth and replacement of existing systems. The similarity between the total hardware investment plans for the HP ProLiant proposals and the expected costs for maintaining and growing the original server environments illustrates this point. The Server Hardware figures used in this analysis include both the cost of acquisition of new equipment as well as annual support and maintenance contracts for the three year analysis period. The average total hardware investment for the HP ProLiant proposals was only slightly less than the analogous costs of \$691,034 for maintaining and growing the original environments. By replacing all of the existing servers with the latest HP ProLiant servers customers satisfied their needs for growth and replacements for the entire three year analysis period at one point in time, compared to addressing these needs on an ongoing basis.

In contrast the average total hardware expenditure of \$1,198,362 for the HP Integrity proposals was nearly twice the expected costs for maintaining and growing the original server infrastructures over the three year analysis period. However, factoring in higher server utilization through load balancing and virtualization the HP Integrity configurations were sized to provide much greater scalability and flexibility than the alternative x86 configurations. While the x86 servers were expected to provide a useful life span of three years, the Integrity servers were anticipated to remain in service for five years, thus greatly diminishing any advantages in initial purchase price for the x86 servers.

Software Licensing

One of the biggest advantages for the HP Integrity solution came from reduced software licensing and maintenance costs. With the more powerful and scalable multi-core Itanium II processors the HP Integrity

servers required fewer total processors than the original configurations or the alternative HP ProLiant options.

The study focused on the initial licensing and annual maintenance costs for three primary software components; the Operating System, Database and Systems Management Software. All costs for the original server environments were based on current maintenance costs plus expectations for growth, averaging approximately 20% per year. Since the study participants were moving from 32 bit implementations to 64 bit configurations new Operating System and Database software licenses were required for all new servers. The HP ProLiant systems were configured with Microsoft Windows Server 2003 R2 Enterprise Edition and Microsoft SQL Server 2005 Enterprise Edition. The HP Integrity systems were configured with Microsoft Windows Server 2003 R2 Datacenter Edition and Microsoft SQL Server 2005 Enterprise Edition.

The costs for the Windows operating system for the HP ProLiant and HP Integrity solutions worked out to be nearly identical. Enterprise Edition was priced at \$3,199 per processor and Datacenter Edition was priced at \$32,000 per server. The big difference came in the licensing for SQL Server, which was priced at \$24,999 per processor. Since the HP Integrity solutions averaged half as many total processors as the HP ProLiant configurations, it resulted in an average savings of \$829,148 in initial software costs for the HP Integrity solutions over the HP ProLiant options. This difference in software licensing costs essentially made up for the difference in initial hardware costs.

Average Software Licensing and Annual Support Costs	Original Environment	HP ProLiant Proposal	HP Integrity Proposal
Average Server Count	43	18.5	2.5
Total Processor Count	206	74	40
Microsoft Windows Server 2003 Licenses	\$25,592	\$59,182	\$80,000
Microsoft SQL Server 2005 Licenses	\$599,976	\$1,849,926	\$999,960
Total New License Costs	\$625,568	\$1,909,108	\$1,079,960
Annual Windows Support	\$33,078	\$13,020	\$17,600
Annual SQL Server Support	\$535,000	\$332,987	\$179,993
Annual Systems Management Support	\$41,200	\$14,800	\$8,000
Total Annual Software Support	\$609,278	\$360,807	\$205,593
Three Year Total Software Costs	\$2,453,402	\$2,991,529	\$1,696,739

Figure 4: Three Year Software License and Support Cost Comparison

In comparing the software licensing costs for the HP ProLiant solutions with the software costs for the original environments, though, the increased software costs for the new HP ProLiant systems almost negated all other IT cost savings for this option. Some these added costs could be avoided, though, if existing 32 bit licenses were merely transferred to new servers, rather than upgrading all equipment to 64 bit configurations.

The software licenses for the systems management software were able to transfer to the new hardware configurations in all cases. The lower processor counts for the HP ProLiant and HP Integrity solutions both freed up software licenses for reallocation to other projects, as well as lowered on-going support costs for the database servers. The analysis did not include the value of any freed up software licenses.

Server Operations and Administration Labor Costs

One of the biggest benefits of server consolidation is improving the efficiency of server operations and administration. When servers are purchased in an ad-hoc fashion based on varying business needs by

multiple departments, it results in a myriad of hardware and software configurations with skills spread across the company and no single set of best practice procedures.

By consolidating on average 50 servers onto 2 HP Integrity servers, we projected reducing required server operations and administration staff by two thirds, from approximately six full time equivalents (FTEs) to around two. This resulted in saving nearly \$335,000 per year for staff, which could be reassigned to other projects. Most of the savings came from routine systems configuration, tuning and problem diagnosis. Since the number of SQL Server database instances was not reduced significantly, database administration workloads did not change significantly.

Facilities Costs

Although newer faster servers are much more energy efficient than older models, the monetary savings in facilities costs from server consolidation are typically not a huge factor in overall benefits, unless hundreds of servers can be eliminated. In the scope of our study the reduction in physical servers resulted in lower energy and space consumption, but this was the smallest factor in the analysis. On average our study participants could lower facilities costs by nearly 80%, but this resulted in only \$50,000 of savings per year.

Perhaps a bigger benefit of server consolidation, which we did not explicitly calculate in our study, is the impact of reaching data center capacity. Today, many organizations are rapidly approaching the space, cooling and available power capacity limitations their data centers. These organizations simply can not add additional processing capabilities without consolidating and removing existing equipment. Server consolidation becomes a necessary strategy for satisfying growing computing requirements without undertaking the often tremendous expense of building additional data center capacity. Similarly, many datacenters may have available floor space, but they are reaching their power and cooling limitations.

Availability Impact

In addition to the hard cost savings of server consolidation, another major benefit is the improvement of service levels and systems availability. The latest HP Integrity servers are built from the ground up for enterprise class high availability. In this study we modeled the costs of downtime from both lost employee productivity and customer facing revenue generating applications for planned system maintenance and unplanned outages. The business impact of revenue losses were calculated by multiplying the revenue losses by the company's incremental net margin. Figure 5 below shows the distribution of the average of downtime costs for the original environments and the comparison of downtime costs for the HP ProLiant and HP Integrity solutions. On average the HP Integrity solution was able to reduce the costs of downtime by an impressive 95%.

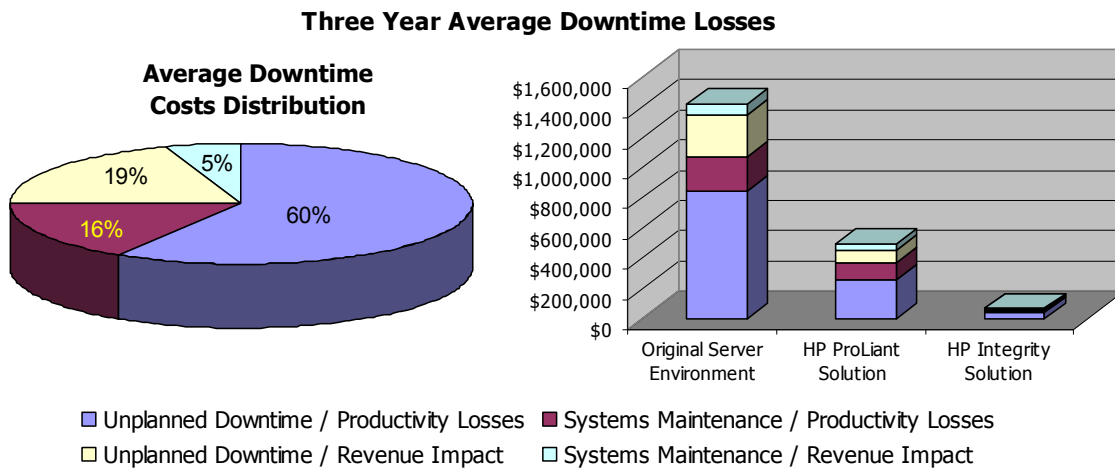


Figure 5: Three year average costs of downtime

Agility

Another significant business benefit of server consolidation and virtualization is increased flexibility, which can accelerate IT projects. With the traditional practice of sizing, procuring, configuring, and installing server resources on an individual project basis, the end-to-end server provisioning processes can often take from twelve to thirty six weeks in many organizations. In contrast, utility computing facilities can now provision server instances on large partitioned servers in a matter of hours with end-to-end fulfillment times dropping to mere days. This means that business applications can be brought on-line faster, delivering value to the organization quicker. Our study participants were able to reduce server provisioning times from twelve weeks on average to four days with the HP Integrity solution. This faster time to market resulted in an average benefit of over \$150,000 per year.

CASE STUDY DETAILS

Specialty Retailer

Our specialty retailer is based in the United States with over 550 store locations spread across the country. At the time of the study this 20 year old business was growing rapidly at about 20% per year with annual revenue nearly \$1.4 billion.

Business Issues

As a retailer focusing on fashion rather than technology, many IT functions were left up to the various lines of business. Although the organization had standardized on Microsoft SQL Server for departmental databases, there were no common IT practices among the business units. Servers were scattered in supply closets and offices with no backups or standards for configurations or software upgrades. Server utilization was often as low as 5%, while some servers were operating at maximum capacity.

The organization needed to centralize server resources to improve service levels, and reduce the business exposure to risk. During the consolidation, they were also interested in creating a cost efficient environment for growth and rapid change.

Original Environment

The original server environment consisted of 40 IBM xSeries servers ranging from 2 to 16 processors. Although server administration resources were spread across multiple departments and most tasks were performed on a part time basis, the company estimated that the equivalent of six full time resources were responsible for managing the server systems. Ongoing operational expenses exceeded \$750,000 per year for annual hardware and software support contracts. In addition, the company was spending approximately \$130,000 per year on new hardware and software for growth and upgrades.

Proposed Solutions - ProLiant and Integrity

Scalability Experts proposed two alternative configurations to accommodate the retailer's current computing requirements and future growth needs. The first alternative consisted of 17 HP DL580 ProLiant servers, which would be configured in a clustered environment. The servers would each have four dual-core Xeon processors and 16 GB of memory. The other proposal consisted of 3 HP rx8620 Integrity servers with 16 Itanium II processors and 64 GB of memory each. Table 6 below provides summary information on the three alternative server configurations and initial purchase information for the two new proposals.

Specialty Retailer Configurations	Original Environment	HP ProLiant Proposal	HP Integrity Proposal
Servers	40	17	3
Total Processors	212	68	48
Initial Hardware Costs	-	\$395,138	\$916,154
Windows Licenses	-	\$217,532	\$96,000
SQL Server Licenses	-	\$1,699,932	\$1,199,952
Total Initial HW & SW		\$2,312,602	\$2,212,106

Table 6: Specialty Retailer Server Configuration Summaries

Financial Analysis

Table 7 below shows the projected three year total cost of ownership for the original environment, the HP ProLiant proposal, the HP Integrity proposal and the savings between the original environment and the preferred HP Integrity solution. (Note: the hardware and software costs differ from the initial purchase prices included above based on the inclusion of annual support contract costs.)

Specialty Retailer (3 Year TCO Comparison)	Original Environment	HP ProLiant Proposal	HP Integrity Proposal	Savings with HP Integrity	Difference HP Integrity
Server Hardware	\$639,387	\$504,474	\$1,259,001	(\$619,614)	-96.9%
Server Software	\$2,268,162	\$2,748,971	\$2,036,085	\$232,077	10.2%
IT Operations Labor	\$1,458,216	\$956,952	\$540,327	\$917,889	62.9%
Facilities	\$171,861	\$117,591	\$55,029	\$116,832	68.0%
Change Costs	\$0	\$108,129	\$76,328	(\$76,328)	0.0%
Total IT Costs	\$4,537,626	\$4,436,117	\$3,966,770	\$570,856	12.6%
Costs of Downtime	\$1,034,387	\$354,827	\$45,701	\$988,686	95.6%
Agility Opportunity Costs	\$416,324	\$143,560	\$14,356	\$401,968	96.6%
Total All Costs	\$5,988,337	\$4,934,504	\$4,026,827	\$1,961,510	32.8%

Table 7: Specialty Retailer Three Year TCO Comparison

Professional Services

Our professional services firm provides management and financial consulting services in over 110 countries world wide with annual revenue exceeding \$20 billion from a staff of over 120,000 professionals.

Business Issues

As a federated organization with regional practice managers controlling local operations the company had duplicate systems spread across regions with different standards and processes within each region. The SQL Server consolidation effort was part of a corporate initiative to consolidate IT resources and improve overall service levels. After reviewing the business functions associated with many of the SQL Server instances the corporate director of database management decided that several databases needed to be reconfigured in a high availability environment with hot stand-by resources for fail over.

Original Environment

The original server environment consisted of 46 Intel based HP DL servers ranging from 2 to 8 processors with the predominant configuration being HP DL380s with 4 processors. The organization was managing both the server hardware and database applications with a total staff of six systems and database

administrators. Ongoing operational expenses for the existing servers averaged \$700,000 per year for hardware, operating system and database support contracts.

In addition to supporting the current server environment, the organization determined that an additional six HP DL580s would be needed in order to bring the current server configuration up to a high availability standard with redundant fail over capabilities. These additional servers were expected to cost approximately \$125,000 for new hardware, and \$620,000 for additional software licenses. The costs of these additional servers required for high availability are included in the costs figures for the original environment for parity in comparison of the alternatives.

Proposed Solutions - ProLiant and Integrity

Scalability Experts proposed two alternative configurations to accommodate the service provider's current computing requirements and high availability needs. The first alternative consisted of 20 HP DL580 ProLiant servers which would be configured in a clustered environment. The servers would each have four dual-core Xeon processors and 8 GB of memory. The other proposal consisted of 2 HP rx8640 Integrity servers with 16 dual-core Itanium II processors and 32 GB of memory each. Table 8 below provides summary information on the three alternative server configurations and initial purchase information for the two new proposals.

Professional Services Configurations	Original Environment	HP ProLiant Proposal	HP Integrity Proposal
Servers	46	20	2
Total Processors	200	80	32
Initial Hardware Costs	-	\$421,140	\$767,772
Windows Licenses	-	\$255,920	\$64,000
SQL Server Licenses	-	\$1,999,920	\$799,968
Total Initial HW & SW		\$2,676,980	\$1,631,740

Table 8: Professional Services Server Configuration Summaries

Financial Analysis

Table 9 below shows the projected three year total costs for the original environment, the HP ProLiant proposal, the HP Integrity proposal and the savings between the original environment and the preferred HP Integrity solution. (Note: the hardware and software costs differ from the initial purchase prices included above based on the inclusion of annual support contract costs.)

Professional Services (3 Year TCO Comparison)	Original Environment	HP ProLiant Proposal	HP Integrity Proposal	Savings with HP Integrity	Difference HP Integrity
Server Hardware	\$742,680	\$565,719	\$1,137,723	(\$395,043)	-53.2%
Server Software	\$2,638,642	\$3,234,086	\$1,357,390	\$1,281,252	48.6%
IT Operations Labor	\$1,720,962	\$1,129,383	\$637,686	\$1,083,276	62.9%
Facilities	\$220,725	\$138,345	\$37,467	\$183,258	83.0%
Change Costs	\$0	\$132,110	\$105,688	(\$105,688)	0.0%
Total IT Costs	\$5,323,009	\$5,199,643	\$3,275,954	\$2,047,055	38.5%
Costs of Downtime	\$2,198,838	\$742,272	\$95,213	\$2,103,625	95.7%
Agility Opportunity Costs	\$548,535	\$189,150	\$18,915	\$529,620	96.6%
Total All Costs	\$8,070,382	\$6,131,065	\$3,390,082	\$4,680,300	58.0%

Table 9: Professional Services Three Year TCO Comparison

CONCLUSION

With the introduction of Intel's latest 64 bit multi-core Itanium II processors the HP Integrity line of servers now rival and even exceed the scalability and performance of high end Unix/RISC systems. This means that customers can easily upgrade to the more scalable Integrity systems without costly migrations to alternative architectures. In addition, the much more powerful HP Integrity servers are an excellent platform for consolidating the historical sprawl of SQL Server implementations. With their greater processing capacity and support for Microsoft Virtual Server Environments customers can safely run many instances of SQL Server on a single HP Integrity server.

This study clearly showed that consolidating SQL Server databases on HP Integrity servers was not only technically practical, but also financially advantageous. Although the HP Integrity servers have a much higher initial purchase price than x86 based servers, the longer expected useful life span of the HP Integrity servers and the ability to achieve much higher average utilization rates with the Integrity's advanced virtualization capabilities negates much of this difference in purchase prices. In addition, the more powerful Itanium II processors enable customers to significantly lower total processor counts, thus making up for any difference in hardware costs with reduced software licensing and support costs. The study showed that software licensing for the HP Integrity solutions was less than half of the costs for the HP ProLiant configurations, based on reduced processor counts.

Although server consolidation enables organizations to improve resource utilization, much of the true value comes from increasing IT efficiency, improving service levels and enhancing flexibility. By consolidating and centralizing resources organizations can more easily leverage valuable IT staff, and more consistently implement best practices, thus lowering overall systems management requirements and significantly improving systems availability. Additionally, leveraging a virtualized environment allows organizations to more easily reallocate resources based on changing requirements, and more quickly provision new services to meet business needs. Server consolidation on a truly scalable platform, such as the HP Integrity line of servers, not only can deliver positive economic advantages in the short term, but can position your organization for lower operating costs, and improved service delivery for years to come.

ABOUT ALINEAN

Since 1994, the Alinean team has been the pioneering builder of tools to help quantify and improve the ROI and TCO of IT investments. Alinean was named for the Spanish word for "Align", matching the Alinean mission as the leading developer of analytical tools to help IT vendors, consultants and IT executives align IT investments with business strategies.

The Alinean team has over a decade of experience in the practical development and application of ROI and TCO methodologies, models and tools to optimizing IT investment decision making. In 1994, the Alinean team formed Interpose, the original pioneers of ROI tools, developing analytical software for over 50 major IT vendors and consulting companies worldwide, and creating the industry standard TCO Manager and TCO Analyst software. Interpose was sold to Gartner in 1998, where the team continued their developments and marketing of ROI and TCO software tools. The original team reunited to form Alinean in 2001, once again becoming the leading pioneers and developers of ROI sales and analytical tools. Current customers include leading IT solution providers such as HP, IBM, Dell, Intel, Symantec, NetIQ, EMC, SAP, Oracle, SBC, and Microsoft, as well as leading consultancies and Global 1000 companies.

Additional information about Alinean and helpful ROI educational resources can be found at <http://www.alinean.com>.