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Analyze the Future

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Business Value Highlights

528%
5-year ROI

9 months
to breakeven

48%
lower IT infrastructure costs

67%
less IT staff time spent "keeping the lights on"

98%
Less unplanned downtime

29%
faster application development life cycles

The Business Value of Cisco UCS Integrated Infrastructure Solutions for Running SAP Workloads

EXECUTIVE SUMMARY

Several factors are rapidly transforming the global SAP environment. First, SAP landscapes — as well as the infrastructure on which they run — have become too siloed, complex, and costly in businesses everywhere. Second, SAP has announced that HANA and S/4HANA are the platforms of the future and that support for Oracle, IBM's DB2, and Microsoft SQL Server will end in 2025. Third, many firms are still running their SAP applications on older Unix-based platforms, which are becoming unsustainable. Fourth, data is the new currency, and data flows are voluminous, diverse, and valuable in terms of the insight they may provide.

Organizations must develop an ability to take in a mix of structured and unstructured data from mobile, Internet of things, social networks, and other sources to gain real-time insights for competitive reasons. These abilities require high-capacity, well-performing, scalable, reliable, and in-memory-enabled infrastructure. Combining the need to consolidate, simplify, and improve management; reduce cost; and obtain the ability to take advantage of big data with SAP applications, whether on HANA or on another database, points to the advantages that can be achieved with a converged infrastructure.

To investigate these potential advantages further, IDC interviewed multiple organizations running SAP workloads on Cisco UCS Integrated Infrastructure solutions to understand the impact in terms of performance, business outcomes, and datacenter and staff time costs. IDC's research reveals that organizations deploying Cisco UCS benefit from much-improved SAP workload performance that makes their users more productive and drives superior business outcomes. Based on these interviews, IDC projects that these organizations will achieve an average five-year return on investment (ROI) of 528% and break even on their investment in nine months by:

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» Improving the productivity of employees whose work depends on the performance of SAP workloads

» Capturing more revenue through enhanced SAP-related processes and business operations

» Spending less on datacenter hardware and associated operating costs

» Freeing up IT staff time for higher-value activities

» Reducing the impact of unplanned systems and application outages on their operations

Situation Overview

The global SAP ecosystem is on the verge of a massive transition based on four factors:

1. For many years, SAP applications have been proliferating in enterprise datacenters to the point where the size and complexity of a typical SAP environment — which according to various observers now takes five instances on average — can no longer be fully measured or understood. The infrastructure in the datacenter on which SAP applications run has similarly burgeoned to the point where the resulting cost and management inefficiencies are becoming a significant opex factor for IT. In response, more and more organizations have started to shift toward integration, in many cases onto a converged infrastructure, to remedy this situation.

2. SAP has announced a clear and unequivocal direction toward HANA and S/4HANA as the platform on which it will continue to build its solutions. For decades, SAP applications have been running on solid relational database management systems such as Oracle, IBM's DB2, and Microsoft SQL Server. While SAP has stated that it will continue to support these databases until 2025, SAP's R&D funds from now on will be poured primarily into innovations around the company's own database, HANA, and the S/4HANA platform, which integrates HANA and Business Suite. Organizations on other databases at some point will have to make a decision — depending on how well these databases keep up with enabling evolving SAP applications — about whether they should switch to HANA. SAP believes that HANA can provide significant savings in hardware, software, and labor costs; however, IDC has not separately verified that claimed advantage in this white paper.

> SAP has announced a clear and unequivocal direction toward HANA and S/4HANA as the platform on which it will continue to build its solutions.

3. Quite a few firms are still running their SAP applications on Unix-based platforms. The older generations of these systems are becoming costly, hard to manage, and difficult to operate in a world in which systems are opening up to cloud, mobile, open source solutions, APIs, and modern application development frameworks. These organizations are in a triple bind — they are experiencing many of the inefficiencies of their aging hardware, they are on an operating environment with a dwarfed ecosystem, and they cannot run HANA now or in the future, as HANA is strictly Linux based.

4. Several, by now well-known, phenomena in the market are transforming the way businesses operate. Data is the new currency, and data flows are voluminous, diverse, and valuable in terms of the insight they may provide yet — at the same time — so short-lived that the only way to take advantage of them is to intelligently drink from the hose, so to speak. What this means is to have the ability to take the data in from mobile, Internet of things, social networks, and other sources; to be able to manage this mix of structured and unstructured data; and to have the capability to gain instant insights from the data streams by performing complex analytics on them in real time. These abilities require high-capacity, well-performing, scalable, reliable, and in-memory-enabled infrastructure.

> The two core SAP systems that thousands of enterprises depend on to run the business and remain competitive are SAP Business Warehouse (BW) and SAP Business Suite.

The two core SAP systems that thousands of enterprises depend on to run the business and remain competitive are SAP Business Warehouse (BW) and SAP Business Suite. BW is at the heart of SAP's enterprise data warehouse solutions for reporting and analyzing data to optimize business processes. SAP Business Suite consists of a set of critical business applications: Enterprise Resource Planning (ERP), Customer Relationship Management (CRM), Supplier Relationship Management (SRM), Supply Chain Management (SCM), and Product Lifecycle Management (PLM). Business Suite integrates information and processes, serves as a collaboration platform, and provides industry-specific functionality.

Organizations can benefit from running BW and Business Suite on a converged infrastructure for multiple reasons, which this white paper demonstrates. But equally important is the fact that if a converged infrastructure has in-memory capabilities and it has been certified for HANA by SAP, then organizations will be able to process transactions and analytics in real time within the same system using Business Suite on HANA. Real-time analytics are considered today's holy grail of market responsiveness — businesses without that capability will not be able to compete against the insights that their competitors are extracting from data in flight and then acting upon with in-the-moment offers, positioning shifts, and dynamic pricing.

Currently, many organizations are carefully moving their BW environment to HANA, while some have taken the plunge and migrated to Business Suite, which is a more complex migration. In the near future, those that make the shift to Business Suite on HANA will be able

Whether or not organizations running SAP applications are ready for HANA, they need to put in place compute and network infrastructure solutions that maximize the performance and ease the operation of SAP applications and, down the road if they so choose, SAP HANA.

to take the final step toward S/4HANA, the platform that integrates all business processes and industry-specific solutions and consolidates them on the HANA-only platform.

Whether or not organizations running SAP applications are ready for HANA, they need to put in place compute and network infrastructure solutions that maximize the performance and ease the operation of SAP applications and, down the road if they so choose, SAP HANA. Accomplishing this can be challenging in the context of competing demands placed on IT departments and making organizations' IT operations as cost effective as possible while also increasing business agility. A complete data analytics platform includes both hardware elements and software elements. The software elements include applications for discovery and analytics to support real-time analysis and automated transaction decision making. The hardware elements include optimized infrastructure that consists of servers, storage, and networking, with centralized management for all hardware elements.

With regard to HANA appliances, or Tailored Datacenter Integration (TDI), where IT instead of the vendor puts the various components together, SAP defines strict hardware requirements to ensure optimal HANA performance. All hardware components must be certified by SAP. In an appliance, the required software, including firmware, storage software, operating system (OS), and the HANA platform, is preloaded by the hardware vendor. Key design characteristics of an architecture include the following:

» High-speed networking I/O components to ensure maximum performance

» High-throughput storage I/O components to ensure data persistency

» Redundant components to grant availability of mission-critical applications

Many vendors design HANA appliances to SAP's specifications, but that does not mean that they are interchangeable — the platforms differ from each other in many ways, including design architecture, scalability, component selection, and management complexity. In the following sections, this white paper investigates the business value of Cisco's UCS Integrated Infrastructure for SAP and HANA. Cisco and SAP have collaborated for several years, and Cisco has delivered multiple UCS and Application Centric Infrastructure (ACI) configurations for HANA that are designed for role- or policy-based management and provisioning, fast transaction processing, and real-time insights.

Cisco UCS Integrated Infrastructure Solutions

A principal design element of UCS is to break away from static IT datacenter models and deliver an IT approach that pools server, storage, and networking resources into a flexible virtualized environment that can be provisioned just in time (or reprovisioned) as workloads and business demands require. The UCS Integrated Infrastructure for SAP solution is designed to host various workloads of SAP HANA and other SAP applications in a scalable manner — for both scaling up (better for Business Suite) and scaling out (better for Business Warehouse). UCS Integrated Infrastructure for SAP consists of:

» **Compute:** Rackmounted (C-Series) and blade (B-Series) servers based on Intel Xeon E5 and E7 Processors. Rackmounted and blade servers can be managed under the same UCS domain, which makes the compute hardware form agnostic (further helped by UCS' stateless computing). The compute component is in-memory enabled (a principal HANA requirement) and includes Cisco Extended Memory Technology, which helps applications manage large data sets and facilitates an increased number of virtual machines (VMs) per server. The system uses auto-discovery — if a blade is added into the chassis or a rack server is connected to the fabric extender, then discovery and inventory of the added compute resource will be automatic. This can have a positive effect on SAP user productivity.

» **Storage.** UCS provides access to both storage area networks (SANs) and network-attached storage (NAS) over its unified fabric, which gives businesses a selection of storage access approaches — over Ethernet (NFS or iSCSI), Fiber Channel, and Fiber Channel over Ethernet (FCoE). EMC's VMX is one option for the storage solutions that can be attached to the appliance. In an SAP HANA TDI solution (in which IT combines the various components for its HANA system), the unified fabric enables IT to select any suitable SAP-certified storage solution from any vendor, a distinct advantage of the fabric.

» **Network.** UCS draws on Cisco's proven expertise in networking, leveraging Cisco Nexus to enable high-bandwidth and low-latency connectivity between SAP HANA nodes and the persistency layer; this also allows SAP HANA deployments to scale more easily and transparently. Cisco's unified fabric reduces cost by minimizing the required number of network adapters, switches, and cables as well as by decreasing power and cooling needs. The network consists of low-latency, lossless, 10Gbps unified network fabric.

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» **UCS Manager, which delivers unified management of all hardware and software through a choice of interfaces:** a GUI, a command line interface, or an XML API. UCS Manager can control up to 40 chassis, each with 8 blades, and as such allows IT to manage thousands of virtual machines. It consists of embedded firmware in the Fabric Interconnects, which means that no external physical or virtual devices are needed, simplifying its scalability. UCS Manager uses policy-based management to automate maintenance tasks, allowing IT to streamline routine tasks such as deployment, provisioning, monitoring, and problem remediation. Automation also helps increase operational agility while reducing risks and errors associated with manual tasks.

» **UCS Service Profiles, which are predefined images, with server, storage, and networking characteristics that speed and simplify provisioning.** The server characteristics, including LAN and SAN connections, are abstracted from the physical node hardware and reside in Cisco UCS Manager, which automates the configuration of compute, fabric extenders, and interconnects to match the specified service profile. Cisco has also certified its ACI solution for SAP HANA, extending similar configuration, provisioning, and security automation to the application layer and creating a holistic policy-driven TDI landscape for HANA applications.

» **UCS Director.** The UCS Director serves as the unified management tool for Cisco's Integrated Infrastructure systems, encompassing heterogeneous support for third-party solutions. Individual devices, hypervisors, and virtual machine management are abstracted into the UCS Director layer. The automated end-to-end management workflow replaces the manual provisioning processes, enabling simplified operations of the integrated infrastructure. This is particularly valuable when deploying the new generation of SAP HANA applications such as BW, Business Suite on HANA, S/4HANA, and HANA Vora, SAP's new in-memory query engine that plugs into Apache Spark execution to perform interactive analytics on Hadoop.

» **Virtualization.** Businesses can run HANA on bare metal or in a virtualized environment. UCS virtualization is achieved with VMware vSphere; the system has been designed to enhance the performance, scalability, and management of a virtualized environment, which means that security, diagnostic, and policy enforcement tools are extended into the virtualized environment.

» **Operating systems.** UCS Integrated Infrastructure for HANA runs on SUSE Enterprise Linux and SUSE Enterprise Server for SAP as well as on Red Hat Enterprise Linux for SAP HANA.

Cisco provides multiple UCS HANA appliances with various configurations. They are available with 2, 4, or 8 sockets; with Haswell-EX E7, Ivy Bridge-EX E7, and Westmere-EX E7 architectures; and as scale-up (BW and/or Business Suite on HANA) or scale-out (BW) appliance types.

The Business Value Of Cisco UCS Integrated Infrastructure Solutions

Study Demographics

IDC interviewed multiple organizations that have deployed Cisco UCS Integrated Infrastructure solutions to run a variety of SAP workloads. Interviews with organizations running SAP focused on the impact of Cisco UCS on SAP workloads, including performance, availability, and costs. Interviews were with organizations averaging 37,400 employees using 1,050 business applications running on 239 physical servers. Interviews captured the experiences of several verticals (see Table 1).

TABLE 1

Demographics of Interviewed Organizations Using Cisco UCS Integrated Infrastructure Solutions for SAP Workloads		
	Average	**Median**
Number of employees	37,400	21,000
Number of IT staff	3,160	800
Number of IT users	36,010	17,850
Total number of business applications	1,050	1,050
Total number of physical servers	239	188
Regions	North America, EMEA	
Industries	IT services, manufacturing, IT consulting, agriculture, energy	

Source: IDC, 2016

Interviewed organizations are running various SAP workloads on VCE Vblock Systems and FlexPod solutions. They have an average of 43 servers within their Cisco UCS environments running an average of 90 business applications — including SAP workloads and applications — being used by just over 18,000 users on average (see Table 2).

Interviewed organizations each described unique use cases for their Cisco UCS Integrated Infrastructure solutions:

» A university whose IT services department is supporting faculty using SAP HANA and providing teaching applications based on SAP ERP and SAP Enterprise to other departments at the university and other universities

» A manufacturer running SAP ERP applications in conjunction with its CRM system and an IT consulting company and an agricultural company using Cisco UCS for their SAP Enterprise Central Component (SAP ECC) workloads

» An energy company running SAP business management software

TABLE 2

Cisco UCS Integrated Infrastructure Environments of Interviewed Organizations Running SAP Workloads		
	Average	**Median**
Number of Cisco UCS Integrated Infrastructure machines	5	4
Number of Cisco UCS servers	43	30
Number of Cisco UCS users	18,010	17,850
Number of Cisco UCS business applications	90	13

Source: IDC, 2016

Business Value Analysis

Interviewed organizations running SAP workloads reported much-improved performance with their Cisco UCS platforms. In addition, they are benefiting from having a reliable, cost-effective, and efficient environment for these important business applications. As a result, employees using SAP applications for their daily work have become more productive, and business results have improved. The organizations reported capturing benefits such as operational efficiencies through higher employee productivity and increased revenue from

better supporting customer-facing operations. IDC projects that interviewed organizations running SAP workloads on Cisco UCS Integrated Infrastructure solutions will achieve business value worth an average of $32,114 per 100 users per year over five years ($5.78 million per organization) in the following ways (see Figure 1):

» **Business productivity benefits.** Improved SAP workload performance results in employee time savings and productivity gains as well as being able to better provide services and products to customers, which can result in more revenue. IDC puts the value of user productivity gains and higher revenue at an annual average value of $14,031 per 100 users ($2.53 million per organization) over five years.

» **Risk mitigation and user productivity benefits.** Reducing the frequency, duration, and impact of unplanned downtime minimizes the impact of outages of SAP workloads on employees and business operations. IDC estimates that reducing lost productive time and revenue leakage will have an average annual value of $10,693 per 100 users ($1.93 million per organization) over five years.

» **IT staff productivity benefits.** Consolidation of hardware, automation, and efficiencies from Cisco UCS Manager in the context of supporting SAP environments enable IT staff members to spend less time "keeping the lights on" and have more time for business-enabling activities. IDC projects that these IT staff time savings and efficiencies will have an average value of $6,315 per 100 users per year ($1.14 million per organization) over five years.

» **IT infrastructure cost reductions.** Moving SAP workloads to converged Cisco infrastructure environments reduces costs for network and server hardware as well as power and datacenter space. IDC calculates that interviewed organizations will realize cost savings worth an annual average of $1,075 per 100 users ($0.19 million per organization) over five years.

FIGURE 1

Average Annual Benefits per 100 Users

Annual average benefits per 100 users: $32,114

Source: IDC, 2016

Business Productivity Benefits

Interviewed organizations reported improving performance of key SAP workloads significantly with Cisco UCS Integrated Infrastructure solutions. Given the centrality to the business operations of SAP software such as SAP ERP and ECC, SAP business management software, and increasingly SAP HANA, strong improvements in performance can both drive higher employee productivity and improve business results. IDC projects that interviewed organizations will achieve substantial value from both improved productivity and higher revenue with Cisco UCS running their SAP workloads: higher employee productivity worth an average per year of $13,853 per 100 users and average additional revenue of $1,190 per 100 users per year (see Table 3).

TABLE 3

Business Productivity Benefits of Using Cisco UCS Integrated Infrastructure for SAP Workloads		
	Per Organization	**Per 100 Users**
Increased user productivity		
Number of additional productive hours	67,000	372
Value of additional productive hours per year	$2.5 million	$13,853
Higher revenue — business impact		
Increased revenue per year	$214,300	$1,190

Source: IDC, 2016

The university's IT department reported: *"Wow, do we have improved workload performance . . . . I would say a 300% increase in performance — and we hardly stress the system now."*

The IT consulting firm echoed this sentiment: *"I would say that with the new Cisco UCS hardware, we've seen a performance improvement of about 30% to 35%."*

Interviewed organizations uniformly reported improved performance of their SAP workloads, with several organizations quantifying the impact on performance:

» **The university's IT department reported:** *"Wow, do we have improved workload performance . . . . I would say a 300% increase in performance — and we hardly stress the system now."*

» **The IT consulting firm echoed this sentiment:** *"I would say that with the new Cisco UCS hardware, we've seen a performance improvement of about 30% to 35%."*

These levels of performance improvements for SAP workloads are translating to higher employee productivity and better business results. Interviewed organizations provided a number of examples of how they are making business operations more efficient and creating new business opportunities:
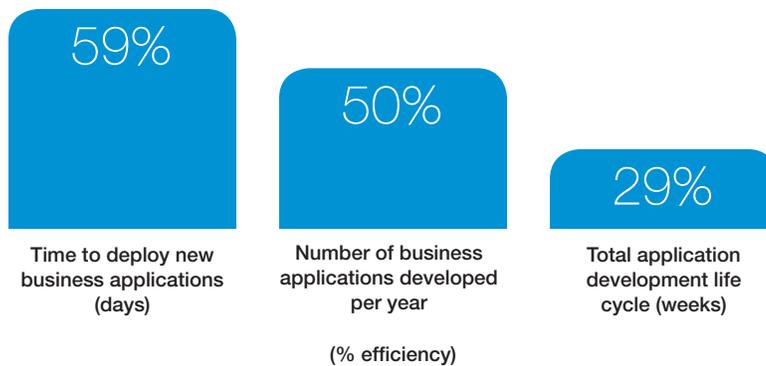
"Our Cisco UCS infrastructure has helped improve our supply chain operations because we're able to better and more quickly run big data analyses in conjunction with our ERP software on Cisco UCS. As a result, our supply chain has been more accurate, and we're seeing fewer mistakes, which reduces the amount of capital investment we need in inventory by millions of dollars per year — I'd put the Cisco UCS impact on this at about 15%."

» **Improved performance supporting business processes.** The manufacturing company reported: *"Our Cisco UCS infrastructure has helped improve our supply chain operations because we're able to better and more quickly run big data analyses in conjunction with our ERP software on Cisco UCS. As a result, our supply chain has been more accurate, and we're seeing fewer mistakes, which reduces the amount of capital investment we need in inventory by millions of dollars per year — I'd put the Cisco UCS impact on this at about 15%."*

» **Better understanding of business opportunities.** The agricultural company explained how Cisco UCS Integrated Infrastructure solutions are improving its ability to perform timely batch processes, which provides data to potentially grow its business: *"We used to have to close business to get batch jobs through, and with Cisco UCS, they complete significantly faster, so there's talk of expanding business hours around data collection. It means that there is better and timely data to make decisions with — instead of getting a smaller set of data, you look at the business in expanded windows."*

In addition to improved performance, interviewed organizations running SAP workloads on Cisco UCS Integrated Infrastructure solutions are benefiting from improved IT agility and scalability. This translates to more efficient application development efforts and faster time to market for applications and services (see Figure 2). The university's IT department commented: *"What we can do with Cisco UCS is deploy systems within hours instead of days …. We try to forecast what demand will be and prebuild it — so our response time is a lot faster now, and we get 10 to 20 requests per day for new services."*

FIGURE 2

Business Agility KPIs: Cisco UCS Integrated Infrastructure for SAP Workloads

59%	50%	29%
Time to deploy new business applications (days)	Number of business applications developed per year	Total application development life cycle (weeks)

(% efficiency)

Source: IDC, 2016

Risk Mitigation — User Productivity Benefits

Interviewed organizations reported they have substantially reduced the impact of SAP workload and application outages that negatively affect users and business operations. Thanks to failover, automation, higher virtualization levels, and software-based processes, systems and applications are down less often and are online again in less time. IDC's research shows that interviewed organizations have reduced substantially the frequency (93% fewer unplanned downtime instances) and impact of unplanned outages (98% lower impact on users). The energy company running SAP business management software commented on how its Cisco UCS platform is supporting its business operations through resiliency and robustness: "With Cisco, we never get unplanned downtime, knock on wood. With our previous hardware, it happened 2-3 times per year for about two hours per time. We have almost 5,000 users in our peak hours and 2,000 in our nonpeak hours. Certain parts of the production will actually stop if this system is down at the wrong time."

As shown in Table 4, interviewed organizations deploying Cisco UCS also benefit by being better able to take nondisruptive planned downtime. This means that they can make needed upgrades and apply patches, which can translate to better application performance and higher availability.

TABLE 4

Risk Mitigation of Unplanned Downtime: Cisco UCS Integrated Infrastructure for SAP Workloads

	Before Cisco UCS	With Cisco UCS	Difference	% Change
Unplanned downtime productivity impact				
Number of instances of unplanned downtime per year	18.3	1.4	16.9	93
MTTR (hours)	2.5	0.6	1.9	77
Productive hours lost per 100 users per year	283	5	278	98
Productive hours lost per Cisco UCS server per year	1,174	20	1,154	98
FTE impact	27.1	0.5	26.6	98
Planned downtime productivity impact				
Number of instances of planned downtime per year	20.2	16.0	4.2	21
MTTR (hours)	5.9	4.3	1.6	27
Productive hours lost per 100 users per year	80	46	34	43
Productive hours lost per Cisco UCS server per year	332	191	141	43
FTE impact	7.7	4.4	3.3	43

Source: IDC, 2016

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"Now, with Cisco UCS, there's a single built-in tool, so they don't have to spend as much time managing, and it saves time... Cisco UCS has allowed us to grow our services substantially without requiring additional resources."

IT Staff Productivity Benefits

IT teams are more efficient with Cisco UCS Integrated Infrastructure solutions, which means they can support the same workloads with less staff time or handle expanding workload environments without needing to provide additional staff resources. Interviewed organizations running SAP workloads on Cisco UCS attributed staff efficiencies to breaking down IT staff silos, accessing support from a single vendor, and preintegration and preconfiguration. In addition, greater use of automation and software-driven processes as well as fewer outages and other problems that require a response have reduced the amount of IT staff time needed to support day-to-day operations. The IT consulting company noted the benefit of having a single performance management tool supporting its SAP workloads: *"Before, each server had its own performance management tool, and the support team had to spend time on each server. Now, with Cisco UCS, there's a single built-in tool, so they don't have to spend as much time managing, and it saves time."* Based on these advantages of Cisco UCS, organizations reported that they now spend 67% less IT staff time "keeping the lights on" and need 77% less IT staff time per 100 users to manage and support equivalent workloads and applications (see Figure 3).

With Cisco UCS, these organizations not only provide IT services more efficiently but also have been able to use freed-up time to better support business operations. This benefit is not indefinable, either: the IT department at the university noted that it has been able to double its internal customer base without increasing the size of the IT staff team supporting and managing its services: *"Cisco UCS has allowed us to grow our services substantially without requiring additional resources."*

FIGURE 3

IT Staff Productivity Gains: Cisco UCS Integrated Infrastructure for SAP Workloads

| 136	31
Before Cisco UCS	With Cisco UCS

(hours per 100 users per year)
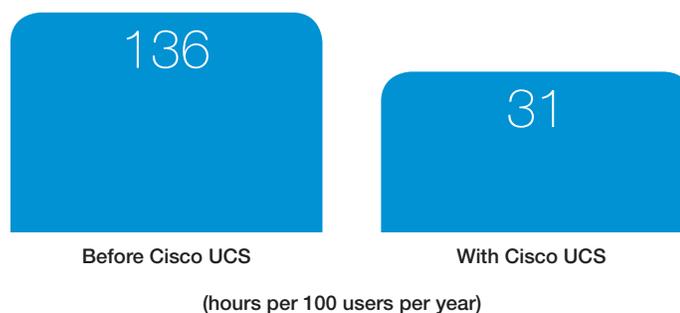
Source: IDC, 2016

"We went from 22 racks of gear to 2 with Cisco UCS, or about a tenfold reduction in footprint. Of course, power went down significantly — I'm sure it's about one-fifth of what we used to use."

IT Infrastructure Cost Reductions

Interviewed organizations reported that Cisco UCS Integrated Infrastructure solutions are serving as a cost-effective infrastructure foundation for running SAP workloads and business applications. In particular, organizations are optimizing costs related to network and server hardware through the integrated nature and design of their Cisco UCS platforms. Meanwhile, they also need less floor space and consume less power, which is helping them run their datacenter operations more cost effectively. The university's IT team providing SAP-based teaching applications noted: *"We went from 22 racks of gear to 2 with Cisco UCS, or about a tenfold reduction in footprint. Of course, power went down significantly — I'm sure it's about one-fifth of what we used to use."* IDC calculates that compared with the cost of building out and running a comparable three-tier datacenter environment, these organizations are saving 48% with their Cisco UCS platforms (see Figure 4).

FIGURE 4

Five-Year IT Infrastructure Costs per 100 Users: Cisco UCS Integrated Infrastructure for SAP Workloads
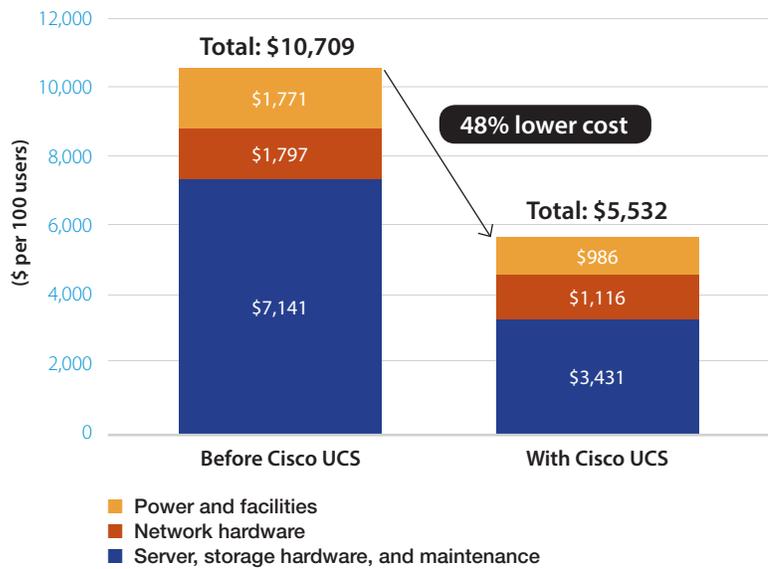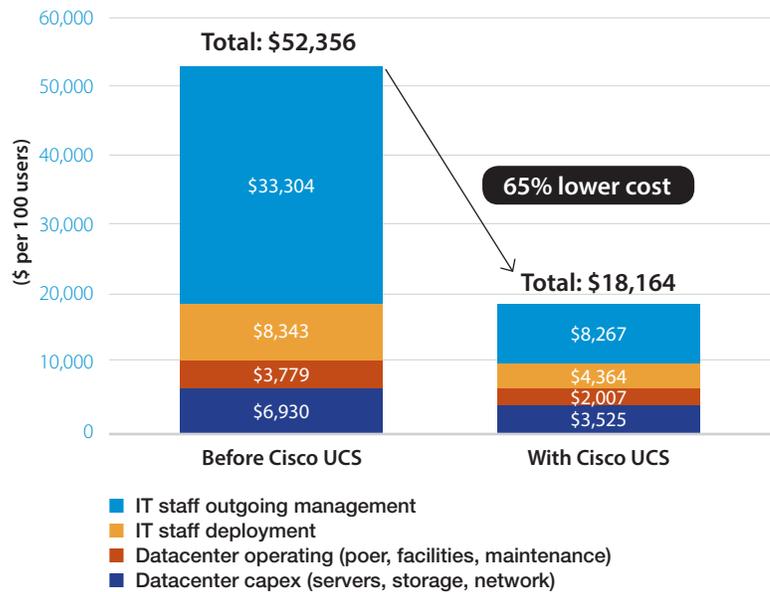

Source: IDC, 2016

Total Cost of Operations

Based on IT infrastructure costs and staff time requirements for running SAP workloads on Cisco UCS Integrated Infrastructure solutions compared with what they would have required for a comparable three-tier environment, IDC projects that interviewed organizations will

be able to run the same SAP workloads at an average 65% lower cost over five years. Figure 5 demonstrates in particular the substantial benefit of reducing the amount of IT staff time needed to deploy and manage the SAP workloads running on their Cisco UCS platforms.

FIGURE 5

Five-Year Cost of Operations per 100 Users: Cisco UCS Integrated Infrastructure for SAP Workloads

- ■ IT staff outgoing management
- ■ IT staff deployment
- ■ Datacenter operating (poer, facilities, maintenance)
- ■ Datacenter capex (servers, storage, network)

Source: IDC, 2016

ROI Analysis

IDC interviewed multiple organizations that are running SAP workloads, including SAP HANA, on Cisco UCS Integrated Infrastructure solutions. Based on these interviews, IDC has calculated the benefits and costs to these organizations of running these workloads on their Cisco UCS platforms compared with their previous environments. IDC used the following three-step method for conducting the ROI analysis:

1. **Gathered quantitative benefit information during the interviews using a before-and-after assessment of the organizations' Cisco UCS Integrated Infrastructure environments and previous environments.** In this study, the benefits included IT staff and user productivity gains, increased revenue, and IT infrastructure cost reductions.

2. **Created a complete investment (five-year total cost analysis) profile based on the interviews.** Investments go beyond the initial and annual costs of deploying Cisco UCS Integrated Infrastructure solutions and can include additional costs such as migrations, planning, consulting, configuration or maintenance, and staff or user training.

3. **Calculated the ROI and payback period.** IDC conducted a depreciated cash flow analysis of the benefits and investments for the organizations' use of Cisco UCS Integrated Infrastructure solutions over a five-year period. ROI is the ratio of the net present value (NPV) and the discounted investment. The payback period is the point at which cumulative benefits equal the initial investment.

Table 5 presents IDC's analysis of the average discounted benefits, discounted investment, and return on investment for interviewed organizations' investment in and use of Cisco UCS Integrated Infrastructure solutions to run SAP workloads. IDC projects that these organizations will invest a five-year discounted total of $18,051 per 100 users ($3.2 million per organization), which will yield discounted business benefits with a value of $113,349 per 100 users ($20.4 million per organization). Based on these average discounted investment and benefits, IDC calculates that these organizations running SAP workloads on Cisco UCS Integrated Infrastructure solutions will achieve an average ROI of 528% and break even on their investment in nine months.

TABLE 5

Five-Year ROI Analysis			
	Per Organization	**Per 100 Users**	**Per Cisco UCS Server**
Benefit (discounted)	$20.4 million	$113,349	$470,374
Investment (discounted)	$3.2 million	$18,051	$74,908
Net present value (NPV)	$17.2 million	$95,298	$395
Return on investment (ROI)	528%	528%	528%
Payback period	9 months	9 months	9 months
Discount rate	12%	12%	12%

Source: IDC, 2016

Challenges and Opportunities

For Businesses

Organizations with extensive SAP landscapes are facing a number of challenges. First of all, it is likely that their SAP environment has become too complex and costly and is probably siloed with multiple instances across the organization. Many applications — even custom applications — tie into the landscape, further complicating the environment. Such an environment is difficult to manage and leads to unnecessarily high costs in terms of both software licenses and hardware infrastructure.

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Any solution considered to resolve these issues will require disentanglement, consolidation, and simplification, possibly on different hardware. Most IT departments will not take this task lightly, especially because their business probably depends on the SAP landscape. Furthermore, most organizations are still deciding whether or not they want to make the move to HANA from their current database. This too is not an easy decision, again because deploying HANA requires extensive testing before data migration can be considered. What's more, database managers have worked on their Oracle, DB2, or SQL databases for many years and are now facing new uncertainties.

Nevertheless, there are advantages in terms of simplification and cost reduction to be gained from taking some bold steps. IDC believes that a converged infrastructure for SAP applications and/or HANA should be taken into serious consideration for all the reasons stated in this document. The adoption of converged systems has evolved to a point where the technology can be considered mainstream, with a significant number of proven case studies. A well-designed HANA appliance on converged infrastructure that integrates servers with in-memory capabilities, flexible storage, and unified networking into a single system can help IT achieve greater agility and operational efficiency with its SAP landscape.

For Cisco

> The greatest challenge that Cisco is facing with its UCS Integrated Infrastructure for SAP and SAP HANA is competition.

The greatest challenge that Cisco is facing with its UCS Integrated Infrastructure for SAP and SAP HANA is competition. Over a dozen vendors offer HANA appliances — some on converged infrastructure. Cisco has a range of differentiating capabilities, including Application Centric Infrastructure, which provides high-level policies to dynamically improve cluster performance, automatically reposition parts of a cluster for other types of workloads (for easy redeployment of resources), and ensure secure isolation of users as well as data streams in this shared environment. Furthermore, Cisco has a long history in switching technology innovation that can help its appliances perform better. In particular, scale-out appliances — which are network sensitive in terms of their performance — can benefit

from this competency. But while scale out is a necessary first step for many businesses that are running BW, the eventual evolution toward Business Suite on HANA and then S/4HANA will translate into a preference for scale-up solutions. Cisco is already delivering eight-socket appliances and should make sure that it continues to expand that offering, including the additional resilience that customers demand from single-node systems.

Meanwhile, Cisco has plenty of opportunities to bring in new customers that are running SAP on legacy systems or on inefficient siloed environments or to upgrade its existing customers. All these customers have a lot of questions. How will I migrate my existing SAP landscape without disrupting the business? Should we move to HANA? Should we opt for an appliance or for TDI? How do we transition from an Oracle or a DB2 or an SQL shop to HANA? How do we transition from Windows or Unix to Linux if we opt for HANA? What is SAP's road map for HANA? The vendor that provides as much objective and customized support with these critical questions alongside its solutions will win the hearts, minds, and wallets of IT organizations.

Summary and Conclusion

Organizations are facing a confluence of trends, pressuring them to improve the performance and cost-effectiveness of their IT environments supporting SAP applications. Already voluminous amounts of data continue to grow rapidly, and data-based insights are becoming more central to operations and business prospects. Meanwhile, the evolving nature of SAP landscapes has left legacy infrastructure platforms at many organizations too siloed, complex, and costly to continue to maintain or expand. These factors have left many organizations taking a hard look at how they can better and more cost effectively support their SAP environments, which are expanding in scope and business importance.

Converged infrastructure solutions offer a potential solution for better supporting SAP environments through consolidation, improved performance, and ease of deployment and management. This white paper shows that organizations deploying Cisco UCS Integrated Infrastructure solutions have achieved strong value through improved SAP application performance and reliability as well as cost and staff time efficiencies. Since moving to the Cisco UCS platform, employees using SAP applications for their daily work have become more productive, and business results have improved, demonstrating that these organizations are meeting the challenge of supporting their SAP landscapes.

Appendix

IDC's standard ROI methodology was utilized for this project. This methodology is based on gathering data from five organizations currently using Cisco UCS Integrated Infrastructure solutions to run SAP workloads as the foundation for the model. Based on these interviews, IDC performs a three-step process to calculate the ROI and payback period:

» Measure the savings from reduced IT costs (staff, hardware, software, maintenance, and IT support) and increased user productivity over the term of the deployment compared with their previous infrastructure environments.

» Ascertain the investment made in deploying Cisco UCS Integrated Infrastructure solutions and the associated migration, training, and support costs.

» Project the costs and savings over a five-year period and calculate the ROI and payback period for the deployed solution.

IDC bases the payback period and ROI calculations on a number of assumptions, which are summarized as follows:

» Time values are multiplied by burdened salary (salary + 28% for benefits and overhead) to quantify efficiency and manager productivity savings.

» Downtime values are a product of the number of hours of downtime multiplied by the number of users affected.

» The impact of unplanned downtime is quantified in terms of impaired end-user productivity and lost revenue.

» Lost productivity is a product of downtime multiplied by burdened salary.

» The net present value of the five-year savings is calculated by subtracting the amount that would have been realized by investing the original sum in an instrument yielding a 12% return to allow for the missed opportunity cost. This accounts for both the assumed cost of money and the assumed rate of return.

Because every hour of downtime does not equate to a lost hour of productivity or revenue generation, IDC attributes only a fraction of the result to savings. As part of our assessment, we asked each company what fraction of downtime hours to use in calculating productivity savings and the reduction in lost revenue. IDC then taxes the revenue at that rate.

Further, because IT solutions require a deployment period, the full benefits of the solution are not available during deployment. To capture this reality, IDC prorates the benefits on a monthly basis and then subtracts the deployment time from the first-year savings.

Note: All numbers in this document may not be exact due to rounding.

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