EXECUTIVE SUMMARY

Businesses with SAP landscapes are facing stark choices with multiple dimensions. Those that are running SAP applications on top of databases such as Oracle, SQL Server, or DB2 need to decide whether SAP's road map, which directs all future innovation toward the SAP HANA in-memory database, is forcing them to migrate to HANA or whether they can remain on their current database. The vendors of non-HANA databases are innovating aggressively as well, but there is momentum with businesses that are choosing to adopt HANA. A migration to HANA, however, is not simple or risk free. There are a multitude of variables: HANA or not? On a sidecar, for SAP Business Warehouse (BW), for SAP Business Suite, or even for SAP S/4HANA? Appliance or Tailored Data Center Integration (TDI) approach? On converged or nonconverged infrastructure? On Intel x86 or IBM Power? And there are many uncertainties: How do we migrate our SAP landscape without disruptions? What is SAP's future road map? How do we ensure high availability? How comfortable are we with Linux, HANA's only operating system option? And, finally, what is the total cost of ownership (TCO) of the chosen solution, and how transparent is the TCO calculation?

Depending on the decisions that IT makes and the stage the business is in on this journey, the risks and benefits will differ. Some businesses opt to take as much uncertainty as possible out of the infrastructure question by electing to run HANA on a converged system appliance. Others are comfortable with a nonconverged appliance approach, or even a TDI approach, whereby they compose the systems from various building blocks. This white paper takes a look at the benefits of the converged systems approach, wherein the infrastructure can almost be seen as a "black box" that demands very little IT attention. More specifically, this white paper looks at the business value benefits of that approach when businesses choose to make a transition to HANA on HPE's ConvergedSystem platform.
IDC interviewed seven organizations running their SAP HANA platforms on HPE ConvergedSystem 500 (CS500) and HPE ConvergedSystem 900 (CS900) integrated systems to understand the benefits and costs associated with using this HPE infrastructure. IDC found that these organizations are benefiting from the agility, reliability, strong performance, and cost-effectiveness of HPE ConvergedSystem for SAP HANA. As a result, IDC projects that these organizations will achieve an average five-year return on investment (ROI) of 384% by:

- Establishing an agile and flexible base for their SAP HANA environments
- Driving higher user productivity and improved business results
- Requiring less IT staff time to deploy and manage
- Minimizing unplanned outages and interruptions
- Having a cost-effective foundation for their SAP HANA environments

**Situation Overview**

SAP is directing all its innovation to SAP HANA, SAP’s in-memory database platform, and S/4HANA, the company’s next-generation business suite, which integrates database and applications and provides a single platform for real-time analytics and transactions. In other words, all the resources to develop innovative new features and functionalities are allocated to running SAP applications on HANA and S/4HANA.

Customers that are running SAP applications on other databases — Oracle, SQL Server, or DB2 — essentially now have two options: continue with their current databases with the, not unreasonable, assumption that their database vendor — Oracle, Microsoft, or IBM — will continue to ensure that SAP applications run well or make the jump to HANA or even S/4HANA. SAP says that it will stop supporting other vendors’ databases by 2025. That doesn’t mean that these databases will suddenly become irrelevant, though, because they, too, are now in memory-enabled, are increasingly optimized for running transactions and analytics on the same system, and can run various competing business applications from other software vendors.

Nevertheless, a significant segment of SAP customers is — carefully — moving to HANA and S/4HANA. Customers typically start with analytics, with HANA as a “sidecar.” When they have achieved a certain degree of maturity with that environment, they shift to BW on HANA. This is the stage at which some landscape consolidation and simplification can be realized in large part because of the data compression capabilities of HANA. This is a sometimes overlooked
aspect of the value that SAP HANA can provide: To enable in-memory computing, HANA significantly compresses the data in the database. For example, data worth 20TB may be compressed into 5TB on HANA, requiring a much smaller footprint in the datacenter while providing cost savings to customers in terms of hardware, licenses, and manageability.

A next step would be to run ERP or Business Suite on HANA, whereby the ultimate goal is to bring all elements together onto a single platform for transactions and analytics on the same systems, which is what SAP’s S/4HANA promises. S/4HANA, however, essentially replaces the entire environment, which is a significant leap of faith for most SAP customers.

From the perspective of the stage they are in, HANA and S/4HANA customers in the current market can broadly be divided into two segments:

» **First-time HANA customers** will typically be starting on BW. Although there are many types of BW configurations for HANA appliances and even nonappliance solutions, these SAP customers might benefit from a turnkey, converged, and optimized solution that has low risk and is modular and scalable. This will allow customers to focus on HANA, not the infrastructure it runs on. First-time users are usually fairly price sensitive and will typically not be running their mission-critical workloads on HANA until they have established a solid business case.

» **More mature customers** have been running BW on HANA in an operational environment and are now moving to Business Suite or even S/4HANA. SAP lists numerous advantages that S/4HANA can provide, including a reduced data footprint; better processing speeds; faster analytics of both structured and unstructured data, including predictive analytics; data replication for high availability; real-time processing instead of batch processing; and an overall simplification of the environment. IDC has not independently verified these stated benefits.

Many of these more mature SAP customers are larger enterprises, and they are experiencing tremendous growth in users, transactions, and data volumes. They not only tend to purchase infrastructure but also usually require a deeper relationship with a vendor. They look for consulting services around their SAP landscape and seek strong support with their database migration.

Most importantly, these SAP customers are moving their CRM, SCM, ERP, and many other business-critical SAP applications to HANA or S/4HANA to simplify their database landscape and bring analytics and transactions together. Their greatest concern, therefore, is business continuity. They require robust high-availability features, *automated* failover (which HANA itself does not provide), data protection (including backups), and disaster recovery. Large enterprises have skilled IT employees who wouldn't shy away...
from architecting an environment themselves, and some choose to do so. Others, however, choose to stay away from a piece-part approach to developing their HANA or S/4HANA environment, preferring an appliance solution, including appliances based on a converged system.

Finally, for both segments, TCO plays a major role. For smaller businesses or for organizations just starting out with HANA, the capex of an appliance is important — less so for large enterprises and mature SAP environments. TCO, however, is critical for both segments. Businesses want solutions that will reduce management cost, time spent on day-to-day infrastructure management, time spent on getting reporting out of their databases, overall data footprint, and downtime that they translate into hard-dollar value.

**Growing Interest in Converged Systems**

IDC is seeing distinct growth in the worldwide market for converged systems. Businesses are clearly attracted to the value proposition of a system that does not require IT to perform piece-part installation.

Integrated systems typically include servers, disk storage systems, networking equipment, system infrastructure software (operating system, management software, virtualization software, multipathing software, etc.), applications and/or databases, and middleware. IDC’s taxonomy breaks down integrated systems into the following two subsegments:

- **Integrated infrastructure systems** are integrated systems that are designed for general-purpose, distributed workloads that are likely to have differing performance profiles.

- **Integrated platform systems** are integrated systems that are sold with additional pre-integrated packaged software and customized system engineering, optimized to enable tools and functions such as application development software, databases, testing, and integration tools. HPE’s ConvergedSystem for SAP HANA, discussed in the HPE ConvergedSystem for SAP HANA section, falls into this category.

Figure 1 shows the ongoing growth in the two subsegments for integrated systems: integrated infrastructure and integrated platforms. Note that 4Q15 is not yet included. We expect 2015 to show annual growth for both segments compared with 2014.
Gaps in the High-End HANA Offerings

A recent IDC analysis of SAP HANA appliance offerings shows that vendors were offering more configurations, with greater socket counts and memory sizes, in the past year than in the period before. There is a clear trend toward larger systems, which can no doubt be explained by the ever-larger volumes of data that customers must process, in terms of both analysis on BW and transactions on Business Suite.

Configurations with 2 sockets declined from 49% to 26% of all offerings in the given time period, while 4- and 8-socket configurations increased. Among the 16-socket systems, the offerings were, and continue to be, few. This is still new territory for many vendors, except for a few that have the ability to build such systems, including HPE.

With regard to memory footprints, IDC is seeing all configurations below 1TB lose ground, while all configurations with 1TB+ have gained significantly, especially 1.5TB, 2TB, 3TB, and 4TB. Just as with sockets, the largest configuration in terms of memory, 16TB, is still unusual, and this has not changed recently.

With regard to just scale-up configurations, the number of offerings is increasing across all socket counts, but there are still few options for a scale-up Suite-on-HANA offering with 16 sockets.

This data suggests that there’s a gap at the very high end of HANA appliance offerings, which means that a large system such as HPE’s CS900 has little or no competition for the time being. Other vendors have begun developing large scale-up x86 systems, however, and this advantage for HPE will not last forever.
HANA Appliance Customer Needs

IDC’s recent research into customer needs in the HANA appliance market has shown that customers are rating various functionalities as important while stating that they are less satisfied with the solutions they currently have to execute those functionalities. In other words, these functionalities are sought after in the HANA appliance market.

With regard to the pre-implementation stage of a HANA appliance, customers are stating that “more integration” is very important to them, while they are less satisfied with the current solutions they have in that respect. Vendors that can deliver fully integrated systems can benefit from this customer need. Other features — including faster deployment, more consolidation options, and minimal onsite setup — were deemed slightly less critical, albeit still important, and at the same time, better fulfilled.

Regarding performance-related features, the voice of the customers appears to be fairly straightforward: More is better. Customers state that all of the following features are very important but not currently optimal on their existing systems: better system performance, faster processors, more RAM, performance-improving features, greater utilization, and easier scalability. HANA appliance vendors that focus on these needs will be able to attract customers to their solutions.

Finally, in the area of availability-related features, HANA appliance customers are looking for better data protection, improved availability, improved backup capabilities, and better memory protection (an important feature for an in-memory appliance). They are also stating that high availability without the need for failover is high on their list but less than optimal in their current environments. This is an opportunity for vendors that can deliver systems that address these needs.

Given the increase in appeal that converged systems are experiencing, the gaps in the high-end HANA appliance offerings, and the stated customer needs for more integration, better performance, and greater data protection and availability, IDC believes that HPE’s converged systems for HANA, the CS500 and CS900, are in a good position to address these market gaps and customer needs. These systems are discussed in more detail in the section that follows.

HPE ConvergedSystem for SAP HANA

With its ConvergedSystems, HPE aims to deliver purpose-built and optimized high-performance solutions for SAP HANA, not to market general-purpose servers that have been taken through the SAP certification process. While HPE built the ConvergedSystem line with standard building blocks — the HPE ProLiant DL580 for the CS500 and the HPE Integrity Superdome X for the
CS900 — HPE says that it put significant effort into performance tuning the systems, integrating HPE’s automated high availability and disaster recovery solution Serviceguard, and streamlining the order-to-operation process down to a mere 15 days. The HPE ProLiant DL580 is now available in Gen9 with Intel’s new Xeon E7-8880 and E7-8890 v4 processors (Broadwell) with up to 24 cores, and the Integrity Superdome X has just been upgraded with the same v4 processors. SAP and Intel have an extensive history of collaboration that includes the development of SAP HANA and the design of the E7 processor to optimize the chip’s performance for transactions and analytics.

HPE’s philosophy for the ConvergedSystem line is that a customer that is commencing a journey to HANA should not need to worry about infrastructure. A migration to HANA is a careful, step-by-step process that demands rigorous testing and risk management, and HPE wants customers to think of its ConvergedSystem as a “black box” that requires very little staff time. In this way, HPE is positioning the CS500 and CS900 as resources-saving alternatives to nonconverged systems that require combining certified servers with the right storage and networking, not to mention the TDI approach, which is essentially a do-it-yourself approach to implementing HANA, combining all the components in the datacenter.

HPE has worked with SAP for more than 25 years, supporting a large installed base of SAP customers that, according to HPE, provides constant feedback to the company’s development teams for each new generation of HANA appliance. The value proposition that HPE’s ConvergedSystems for HANA is focused on includes optimal TCO, high performance, robust high availability and disaster recovery, maximized landscape consolidation, and ease of ordering, deployment, and single-vendor support.

The latter is an important aspect. HANA appliance customers on nonconverged systems require support from SAP, the OS vendor (SUSE or Red Hat), the server vendor, the storage vendor, and so forth. The way support has been set up with HPE’s ConvergedSystem is that customers can call a single number. If the problem is with the hardware, HPE will be the single face to the customers because it owns the entire stack. In this respect, another advantage of HPE’s ConvergedSystem is that it is fully factory integrated and configured versus field-integrated solutions, meaning that every ConvergedSystem is standardized — this greatly simplifies the support process. If the problem turns out to be with an SAP application, HPE will transfer the call to SAP with a full case history so that a customer doesn’t have to start from scratch.

The CS500 is a 2- or 4-socket architecture; the CS900 starts at 2 sockets and scales up to 16 sockets, the largest configuration available today. The most commonly used criterion for selecting either a CS500 or a CS900 as a HANA appliance is the customer’s database size. If the customer’s database fits in the CS500 envelope — 4TB on 4 sockets in a single-node configuration, which is its maximum — then the CS500 is a relevant choice. In a scale-out configuration, the maximum is 2TB per node for 34 nodes, adding up to 68TB.
The CS900 in a scale-up configuration can scale from 1TB or 2TB in a 2-socket system to various combinations that lead to an 8-socket or a 16-socket setup, with either 8TB or 16TB, respectively. Other configurations exist as well, including 4 sockets, with 2TB, 3TB, or 4TB. For a scale-out configuration, the CS900 supports up to 192TB based on 48 nodes, with 4TB per node. HPE says that it is currently responding to customer requests for even larger scale-out configurations.

The Business Value of HPE ConvergedSystem for SAP HANA

Study Demographics

IDC interviewed seven HPE customers about their experiences using ConvergedSystem 500 and ConvergedSystem 900 to run their SAP HANA environments. Interviews were designed to obtain quantitative and qualitative information about the impact of HPE ConvergedSystem on the organizations’ costs, operations, and businesses. For the most part, these were large organizations (with an average of 29,400 employees and a median of 17,000 employees) that depend on SAP HANA and SAP applications to run their businesses. Interviews represented the experiences of organizations based in the United States and Western Europe and those of a number of industries that benefit from having robust SAP HANA and other SAP application operations (see Table 1).

| Table 1: Demographics of Interviewed Organizations Using HPE ConvergedSystem for SAP HANA |
|-------------------------------------------|-----------------|-----------------|
| **Average** | **Median**       |
| Number of employees | 29,400         | 17,000 |
| Number of IT staff | 971            | 217    |
| Number of IT users | 25,200         | 16,000 |
| Total number of business applications | 641            | 250    |
| Countries | United States, Sweden, the Netherlands, Germany |
| Industries | Cloud services, healthcare, automotive, manufacturing, retail, IT consulting |

n = 7
Source: IDC, 2016
Interviewed organizations have leveraged HPE ConvergedSystem for SAP HANA to make their SAP HANA environments more impactful and efficient and expand the scope of SAP HANA’s impact within their organizations. Almost all interviewed organizations were already running SAP Business Suite, SAP Business Warehouse, and other SAP business applications before deploying HPE ConvergedSystem for SAP HANA. However, they have grown their SAP environments since deploying HPE ConvergedSystem infrastructure and now support an average of 8,900 users of SAP applications in their SAP HANA environments on an average of 16 HPE ConvergedSystem machines. These SAP HANA environments now include an average of 45 SAP applications, 36TB of storage, and 3 databases. These organizations are supporting more than 5,000 users of SAP Business Suite, SAP Business Warehouse, and SAP enterprise applications on their HPE ConvergedSystem 500 and HPE ConvergedSystem 900 machines and more than 1,000 users of S/4HANA (see Table 2).

Interviewed organizations have leveraged HPE ConvergedSystem to upgrade and expand their SAP HANA environments. Most interviewed organizations were already running SAP HANA on their legacy datacenter infrastructure and migrated to HPE ConvergedSystem to provide an optimized infrastructure for running SAP HANA. This has proven especially important as they have expanded their SAP HANA use cases and rely on them as a foundational component of their business strategies.
HPE ConvergedSystem for SAP HANA Services

A majority of interviewed organizations are using more than one HPE service to support their SAP HANA environments, with HPE SAP Consulting Service being the most frequently used service. These organizations rely on these services to operate their HPE ConvergedSystem environments efficiently and effectively and optimize their use of SAP HANA. As one interviewed organization said: “These services save us time and money because time is money.”

Business Value Analysis

Interviewed organizations reported that HPE ConvergedSystem for SAP HANA is creating value by serving as a resilient, agile, and scalable platform on which they can cost effectively extend their SAP HANA environments. IDC calculates that these organizations will achieve average annual benefits worth $41,916 per 100 users per year ($3.74 million per organization) over five years in the following areas (see Figure 2):

- **Business productivity benefits.** Strong performance, agility, and scalability drive productivity gains for users of applications running in SAP HANA environments and lead to increased revenue for some interviewed organizations. IDC projects that the interviewed organizations will realize value worth an average of $21,819 per 100 users per year ($1.95 million per organization) over five years in higher employee productivity and revenue.

- **Risk mitigation — user productivity benefits.** Limiting the amount of productive time lost to outages in SAP HANA environments means higher employee productivity, which increases confidence in IT and business operations. IDC puts the value of higher user productivity and avoided revenue losses at an average of $14,615 per 100 users per year ($131,900 per organization) over five years.

- **IT staff productivity benefits.** Time savings and efficiencies for IT staff, which result from automation, breaking down tiered silos, use of management consoles and tools, and higher productivity for application development teams, mean that IT teams provide their businesses with more value. IDC puts the value of increased IT staff productivity at an average of $4,002 per 100 users per year ($1.30 million per organization) over five years.

- **IT infrastructure cost reductions.** Scaling up to support SAP HANA environments helps organizations reduce and avoid hardware costs and create cost efficiencies in terms of power, facilities, and maintenance. IDC calculates that interviewed organizations will reduce IT infrastructure–related costs by an average of $1,480 per 100 users per year ($356,700 per organization) over five years.
Business Productivity Benefits

HPE customers interviewed for this study described their ConvergedSystem 500 and ConvergedSystem 900 machines as providing the agility, flexibility, and performance required to support their expanding SAP HANA use cases and strategies. They create more value with SAP HANA by delivering applications within the HANA environment in less time and ensuring strong performance of these applications. These attributes of HPE ConvergedSystem help organizations that are leveraging SAP HANA to drive business value and operational efficiencies through real-time analytics and data maximize the value of SAP HANA for their organizations.

Supporting SAP HANA Environments with Agility and Scalability

Interviewed customers reported that a primary value point of HPE ConvergedSystem is its flexibility and agility in supporting evolving and expanding SAP HANA environments. They cited the power of the HPE machines and their ability to scale in terms of memory and optimize for SAP HANA workloads. This means that IT infrastructure limitations are much less likely to be a bottleneck for these organizations or to slow down their efforts to extend SAP HANA’s capabilities and uses. As one organization explained: “The value is that the HPE CS900 is hardware that can be shared among multiple applications, so we’re much more flexible. We don’t have to size for applications. With the CS900, using many applications is not a problem — you simply add an application, and performance and power is sufficient — you don’t have to add hardware if an application requires more performance.” Meanwhile, another organization spoke of scalability for its customer-facing operations as follows: “HPE ConvergedSystem for SAP HANA gives us flexibility, based on limitations with HANA in a virtualized environment. I could only scale up to 1TB. What HPE’s platform allows me to do is scale past the 1TB mark should I have clients that need to grow beyond that.”

FIGURE 2

Average Annual Benefits per 100 Users

Source: IDC, 2016

“...The value is that the HPE CS900 is hardware that can be shared among multiple applications, so we’re much more flexible. We don’t have to size for applications. With the CS900, using many applications is not a problem — you simply add an application, and performance and power is sufficient — you don’t have to add hardware if an application requires more performance.”
As shown in Figure 3, improved agility not only helps these organizations maximize the value of their current SAP HANA workloads but also enables more efficient expansion of SAP HANA environments. For example, interviewed organizations are achieving an average of 43% time savings for provisioning physical server resources — an important benefit in the context of less heavily virtualized SAP HANA environments — and an average of 60% benefit in terms of the number of applications delivered and the total time needed to deliver these applications.

**FIGURE 3**

**Business Agility KPIs**

<table>
<thead>
<tr>
<th>KPI</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time to deploy new business applications (days)</td>
<td>60%</td>
</tr>
<tr>
<td>Number of business applications developed per year</td>
<td>60%</td>
</tr>
<tr>
<td>Time to provision physical server resources</td>
<td>43%</td>
</tr>
</tbody>
</table>

(% efficiency)

*Source: IDC, 2016*

**Improving the SAP HANA Experience and Impacting the Business and Operations**

Interviewed organizations reported that HPE ConvergedSystem for SAP HANA has positively impacted their business operations and results through agility and strong performance. Most organizations described their use of SAP HANA as leading to significant operational efficiencies, cost savings, or revenue gains. In addition to crediting HPE ConvergedSystem with providing a cost-effective and efficient foundation for SAP HANA, these organizations attributed part of these SAP HANA–driven benefits to their HPE platforms. For example, most interviewed organizations credited HPE ConvergedSystem with improving or ensuring the performance of their SAP HANA environments, which translates to productivity for employees (see Table 3).

Several organizations attributed parts of higher revenue or cost savings they are achieving with SAP HANA to their HPE ConvergedSystem as a result of agility, scalability, and improved performance. For example, as one organization explained: “We’re saving millions of dollars per year with a real-time predictive maintenance application running on SAP HANA — our HPE CS900s are an important part of our solution because we don’t know another solution where we can run Business Suite and this application on one box. We’re sure, with the HPE CS900, we can meet all of the requirements that come up — we have a system that will fit our requirements.”
can run Business Suite and this application on one box. We’re sure, with the HPE CS900, we can meet all of the requirements that come up — we have a system that will fit our requirements.” Another organization spoke of HPE ConvergedSystem for SAP HANA supporting higher revenue with performance as follows: “Selling our services depends on other things than processing time, but I do think that our HPE ConvergedSystem hardware helps us increase revenue — I’d put the total value for us at around $1 million. I think we wouldn’t get quite this much if we used another solution.”

TABLE 3

<table>
<thead>
<tr>
<th>Business Productivity Benefits</th>
<th>Per Organization</th>
<th>Per 100 Users</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Increased user productivity</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of impacted users</td>
<td>6,396</td>
<td>72</td>
</tr>
<tr>
<td>Productivity gain attributable to HPE CS for SAP HANA</td>
<td>1.4%</td>
<td>1.4%</td>
</tr>
<tr>
<td>Additional productive time per year</td>
<td>59,158 hours</td>
<td>664 hours</td>
</tr>
<tr>
<td>Value per year of increased productivity</td>
<td>$1.93 million</td>
<td>$21,698</td>
</tr>
<tr>
<td><strong>Higher revenue — business impact</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Additional revenue per year attributable to HPE CS for SAP HANA</td>
<td>$72,400</td>
<td>$812</td>
</tr>
<tr>
<td>Operating margin assumption</td>
<td>15%</td>
<td>15%</td>
</tr>
<tr>
<td>Increased operating margin per year</td>
<td>$10,853</td>
<td>$122</td>
</tr>
</tbody>
</table>

Source: IDC, 2016

**IT Staff Productivity Benefits**

Interviewed organizations reported that they benefit from needing less IT staff time to support their HPE ConvergedSystem for SAP HANA infrastructure. They attributed efficiencies to having converged infrastructure, increased use of automation and orchestration, and support from HPE services. IDC calculates that these organizations require an average of 69% less IT staff time managing their HPE ConvergedSystem for SAP HANA environments (114 hours to 36 hours per 100 users per year) and an average of 51% less IT staff time responding to help desk requests and otherwise supporting users (60 hours to 29 hours per 100 users per year) (see Figure 4). As one interviewed organization explained: “The HPE ConvergedSystem is much easier to manage because it’s a single unit. We probably have two to three staff on it. If we were going to do what we are doing now with HPE ConvergedSystem, but with more traditional and less converged servers, we would need closer to six staff.”
Importantly, these organizations are saving staff time that they can reinvest in scaling out and expanding their SAP HANA environments. Given the importance of SAP HANA to the organizations’ business operations and digital transformations, freeing up staff time to support innovative activities is invaluable. As one interviewed organization noted simply: “The same three people are managing our HPE ConvergedSystem environment, but they are able to do other things — they are able to do more than in the past.”

**FIGURE 4**

**IT Staff Productivity Benefits**

<table>
<thead>
<tr>
<th></th>
<th>Before HPE ConvergedSystem for SAP HANA</th>
<th>With HPE ConvergedSystem for SAP HANA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infrastructure</td>
<td>114</td>
<td>60</td>
</tr>
<tr>
<td>Call center support</td>
<td>36</td>
<td>29</td>
</tr>
</tbody>
</table>

Source: IDC, 2016

**Risk Mitigation and Availability**

Interviewed organizations rely on HPE ConvergedSystem for SAP HANA to ensure a reliable and robust SAP HANA environment. Availability and uptime of HANA environments are critical to these organizations, and the organizations require that their underlying infrastructure ensure constant availability and high performance. Table 4 shows that these organizations have reduced the impact of unplanned downtime affecting their SAP HANA environments by 62% on average, bringing the average impact per user down to 10 minutes of lost productive time per year. Of the seven interviewed organizations, two have experienced no unplanned outages with their HPE ConvergedSystem and two others are experiencing one or fewer unplanned outages per year. As one interviewed organization explained: “We have HPE Serviceguard, so there is automatic switchover to a secondary datacenter so that we can deliver users a permanently up environment. Previously, we didn’t have any failover, and our failure rate was double.”
IT Infrastructure Cost Reductions and Cost of Operations

Interviewed organizations reported that their HPE ConvergedSystem appliances serve as cost-effective platforms for their SAP HANA operations. With HPE ConvergedSystem, they optimize hardware costs; in addition to avoiding maintenance costs associated with previous infrastructure solutions, they benefit from not needing to provision additional infrastructure to support growth within their SAP HANA environments. Further, they achieve efficiencies in terms of power consumption (19% reduction) and need less floor space (20% reduction) with HPE ConvergedSystem.

Combining these hardware cost savings with the IT staff time efficiencies discussed previously in this study and the reductions in user productivity loss resulting from unplanned outages leads to significant savings. IDC calculates that for interviewed organizations, the average five-year cost of operating HPE ConvergedSystem will be 47% less than that of a comparable environment based on their previous infrastructure solution (see Figure 5).
ROI Analysis

IDC interviewed seven HPE customers about their experiences using ConvergedSystem 500 and ConvergedSystem 900 to run their SAP HANA environments and recorded the results. IDC used the information gathered during these interviews and the following three-step method for conducting the ROI analysis:

1. Gathered quantitative benefit information during the interviews using a before-and-after assessment. In this study, the benefits included user productivity increases, higher revenue, IT staff time savings and productivity gains, and IT infrastructure cost reductions.

2. Created a complete investment (five-year total cost analysis) profile based on the interviews. Investments go beyond the annual costs of deploying HPE ConvergedSystem for SAP HANA and can include additional costs related to the solution, including 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’ deployment and use of HPE ConvergedSystem for SAP HANA 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 ROI for the HPE customers interviewed for this study. IDC calculates that these organizations will spend an average discounted total of $30,341 per 100 users per year ($2.7 million per organization) over five years on deploying and maintaining their HPE ConvergedSystem for SAP HANA infrastructure. IDC projects that in return, these organizations can expect to achieve discounted business benefits worth $146,940 per 100 users per year ($13.1 million per organization) over five years. This level of benefits and investment costs would result in an average five-year ROI of 384% and a payback period of 12 months.

**TABLE 5**

<table>
<thead>
<tr>
<th>Five-Year ROI Analysis</th>
<th>Per Organization</th>
<th>Per 100 Users</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benefit (discounted)</td>
<td>$13.1 million</td>
<td>$146,940</td>
</tr>
<tr>
<td>Investment (discounted)</td>
<td>$2.7 million</td>
<td>$30,341</td>
</tr>
<tr>
<td>Net present value (NPV)</td>
<td>$10.4 million</td>
<td>$116,599</td>
</tr>
<tr>
<td>Return on investment (ROI)</td>
<td>384%</td>
<td>384%</td>
</tr>
<tr>
<td>Payback period</td>
<td>12 months</td>
<td>12 months</td>
</tr>
<tr>
<td>Discount rate</td>
<td>12%</td>
<td>12%</td>
</tr>
</tbody>
</table>

Source: IDC, 2016

Challenges/Opportunities

The challenges that businesses face with regard to their SAP landscape can be vexing. SAP’s stated end of support for non-HANA databases is still far off, yet for many businesses, decisions are imminent:

» Businesses are asking themselves if they should stay on their current database or move to HANA. There are many advantages to non-HANA databases, and there are advantages to HANA. What’s more, a migration from one database to another will not be simple or risk free.
» Businesses that have decided to make the move are asking themselves how comfortable their staff is with Linux. Most businesses will have experience with Linux, but when they migrate from Unix or Windows, concerns about the robustness and availability of skills may play a role.

» Other decisions that need to be made are related to architecture of the new infrastructure (HANA is available on Intel x86 and IBM Power) and infrastructure type (converged or nonconverged) and whether the business should purchase a HANA appliance or go the TDI route.

» Businesses are concerned about business continuity for their SAP landscapes, especially large enterprises for which SAP applications are absolutely mission critical.

As this white paper shows, resolving this complex decision tree leads to opportunities such as simplification, consolidation, and business value advantages if organizations are moving from a legacy environment to a HANA appliance on a converged system — in this case, HPE’s CS500 or CS900 for HANA. These advantages are not comparative; in other words, the Business Value study’s stated advantages do not imply that comparable results could not be achieved with moving to a non-HANA database on a converged system. There is no silver bullet that will resolve the various complicating factors, except possibly a vendor relationship in which the vendor dedicates substantial resources to objectively help analyze a customer’s needs and propose the best possible solution.

The challenges that HPE faces in this environment are perhaps slightly less Herculean. The company is well equipped to compartmentalize itself in such a way that any decision a customer makes can potentially be an opportunity for HPE:

» A customer’s decision to not move to HANA may well mean sales of the most suitable HPE hardware for running another database (e.g., SQL Server on Superdome X).

» If a customer decides to bring in HANA on a nonconverged infrastructure, HPE has multiple nonconverged server configurations that facilitate this too — similarly, for TDI, which HPE supports if a customer wishes to go that route.

Perhaps the greatest challenge then for HPE is to guide the customer toward the best solution for its specific use case regardless of the sales outcome. HPE, like any vendor, likes to speak of “displacement wins” when a customer moves off another vendor’s hardware in favor of an HPE solution. That’s just good business. But beyond that, the only thing that should matter is a solution that truly benefits the customer. The HPE ConvergedSystem team seems very focused on the customer and intent on providing that “black box” experience.
Summary and Conclusion

A migration to HANA is a multidimensional decision that each organization has to weigh with regard to the risk factors attached to its many variables. Apart from the choice of platform, there are infrastructure decisions to be made. There are hundreds of possible configurations. There are two architectures: x86 and RISC. There are appliance and TDI approaches. And there are data migration needs and support requirements.

Some organizations can tackle these uncertainties with a hands-on approach; others, however, wish to spend less time and effort on getting a new mission-critical environment such as HANA up and running. For them, the “black box” approach of a HANA appliance that a converged system offers represents a fast and relatively simple route to an operational SAP HANA platform.

Seven organizations that have chosen to use a converged approach by deploying HPE ConvergedSystem for SAP HANA were interviewed by IDC for this study. These organizations described how they are benefiting from the agility, reliability, performance, and cost-effectiveness of HPE ConvergedSystem. They stated that they were able to improve business results and employee productivity even as they benefited from IT staff and cost efficiencies. Finally, they reported that, as a result, their HPE ConvergedSystem for SAP HANA infrastructures have become a quintessential factor in delivering value from their SAP HANA investment.

Appendix

IDC’s standard ROI methodology was utilized for this project. This methodology is based on gathering data from current users of HPE ConvergedSystem as a platform for their SAP HANA operations 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), increased user productivity, and improved revenue over the term of the deployment.

» Ascertain the investment made in deploying the solution and the associated migration, training, and support costs.

» Project the costs and savings over a five-year period and calculate the ROI and payback for the deployed solution.
IDC White Paper | The Business Value of HPE ConvergedSystem for SAP HANA

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.

» Lost revenue is a product of downtime multiplied by the average revenue generated per hour.

» 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.