Conquering the challenges of data center complexity

A thought leadership paper from HP

Business white paper
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Conquering the challenges of data center complexity

Today, servers based on industry standard processors, along with Microsoft® or open-source operating systems, are supplanting proprietary, single-vendor solutions. That’s true even for bet-the-business applications like order processing and online commerce, where even a scintilla of downtime might cost millions. What’s more, as virtualization tools become more robust, they hold the promise of wringing additional capability from those economical hardware solutions, boosting usability rates and lowering the cost of providing each individual virtual server. And even the most security-conscious CIOs are looking to tie into computing resources from the cloud, whether to handle short-term demand or as a matter of everyday operations.

While all of these trends can help lower the cost of computing and make it both more secure and more efficient, there’s a fly in the ointment: they add complexity.

Who owns the problem?
Purchasing hardware and software separately provides flexibility, cost savings, and the ability to react quickly to business opportunities—but it also means that you’re dealing with multiple entities if something goes wrong. Add in a hypervisor from a separate virtualization vendor and now things get even more complex. Plus, isolating a problem in a hardware-firmware-software stack is not a trivial exercise.

Where is my data, really?
A closely allied issue is the flexible—make that transitory—location of data in a virtualized environment. Increased virtualization, while improving the overall efficiency of physical hardware such as servers and storage, makes it all the more difficult to locate and correct the root cause of a problem. When VMotion can seamlessly move a server and its workload from one box to another, managers may always be a few steps behind. Virtual machines, virtual storage, virtual networking—they all add to the difficulty in isolating a problem to hardware or software, let alone pinning down which actual asset is the culprit.

Where is John? Where is Satchiko? Where is Ashok?
An oft-cited Forrester study says that “Fueled by broadband adoption, better collaboration tools, and growing management experience, the US telecommuting ranks will swell to 63 million by 2016.”1 And while prized by employees, the remote-worker arrangement is proving to be a headache. In fact, according to a survey of CIOs by Computerworld UK, performance issues have led to IT departments spending more time and money on supporting the staff who are working offsite. Some 32 percent of CIOs polled said their IT departments were spending half their time supporting remote workers.2 The problems range from the difficulty of keeping all these remote employees updated with the latest software patches, to the struggle to provide cost-effective support, to the effort required to troubleshoot and repair remotely.

How can I manage change?
Managing change, and keeping your software and hardware up to date, can be a career in itself. Such change management, including upgrades, patches, and the like, isn’t sexy. It doesn’t result in strategic initiatives or brilliant new products. But it can—and does—squander an inordinate amount of IT staff time and effort. And in spite of that, it’s often not done very well. Gartner CIO polling found that:

“Enterprise network managers rarely considered rigorous configuration and change management, compliance audits or disaster recovery rollback processes when executing network configuration alterations, even though they are the things that often cause network problems.”3

And most important: Whom will you call?
With all this added complexity to deal with, it would appear that more staff is needed. But even though you’re now using x86 servers for business-critical applications in a way you didn’t in the past—and even betting your business more and more on your x86 environment—it’s likely you’ll have to handle even these new complexity-caused problems with your current budget and staff.

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The CIO’s new role...
If you’re a CIO, you know that your role is changing. You’re being expected to assume an altogether new definition of your IT mission. You’re being asked to reinvent your duties and magically transform your position into that of a business leader who is much more than a technical virtuoso. IDC tells us that “business managers are looking to IT for help in attaining better business results—and that requires a shift in resources from maintaining existing systems to implementing strategic projects that can directly impact the bottom line.”

... Is locked in the prison of complexity
But how can you move your business forward and execute on strategic initiatives if you’re always battling fires—fires whose origin can often be traced to complexity?

Thankfully, there’s a way to absolve yourself from the need to deal with complexity, to break free from this prison. The secret is to rely on services from another organization for the day-to-day grunt work of managing your IT environment and dealing with problems that arise—while you and your staff focus on building competitive advantage with high-value projects that advance your business. What follows is a discussion of how third-party services can help.

Eight important features to look for in an external service provider
The optimum solution is to rely for support on an external service provider who can reduce complexity and simplify operations in your organization. But what should you look for?

1. Means and method for total control
Top of the list in utilizing an external service provider is that you need someone to be in charge. A recent IDC survey found that nearly half of respondents were relying on 10 or more software support services, and more than a quarter had upwards of 20 vendors delivering support. The survey found similar trends for hardware support. Such a profusion of providers actually leads to an increase, rather than the desired decrease, in complexity.

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For this reason, smart CIOs increasingly choose a single vendor to manage all their support services. Such a so-called primary service vendor can provide overall service management expertise and ensure that your service management vision is executed. You want a primary service vendor that can implement a broad span of control and oversee the big picture.

2. Predictive and proactive
The next key to reducing complexity and improving efficiency is with support that is both predictive and proactive. Waiting for the red light is too late—in a complex environment you want to simplify troubleshooting with a predictive approach that can “fix it before it breaks.” That means you want a vendor who will replace manual activities with automated systems, who can offer continual data collection and monitoring, and who has proactive processes that reduce risk and enable the enforcement of compliance policies. Look for a vendor with remote data-gathering and diagnostic capabilities, automated support delivery systems, online savvy, and well-designed, easy-to-use portals for interacting with their online support.

3. A single contact and cross-stack competence
It goes without saying that any provider of technical services must be able to operate in all parts of your system, with a thorough knowledge of hardware and firmware, as well as an understanding of products from key independent software vendors (ISVs). Ideally, you want that service vendor to offer a single point of contact for hardware, software, and data center support, someone who will own the problem and is able to act as the arbiter for any finger-pointing.

4. Support tuned to mobility and technology convergence
In today’s world, it is important that whoever is handling service for you is comfortable handling a variety of converging technologies. With staffs comprising increasing numbers of remote workers, and the widespread adoption of smartphones, tablets, and other mobile devices—often in spite of, rather than enabled by, corporate IT—your staff wants support when and where they need it.

5. Management of patches and upgrades
Patches and upgrades are a major source of complexity, and are often the main activity for most IT personnel in many organizations. Think about the time your IT staff spends in coordinating, deploying, testing, and verifying patches and upgrades. (Incredibly, some organizations still attempt to manage all this complexity with spreadsheets!) A primary service vendor handling that patch and upgrade management can release your own internal resources for strategic IT initiatives that will advance your business and make it more competitive.

6. Broad, even worldwide, scope
No CIO wants to bet the business on a small shop. In a world in which enterprises regularly span states, countries, and continents, you want a provider that can offer consistent support offerings across multiple geographies, as well as across product lines. Besides ensuring predictable uptime throughout the interlinked IT ecosystem, such consistency can help you reduce and make sense of all the contracts for support services. In fact, coordinating support delivery and consolidating support contracts can significantly reduce IT complexity and can also help day-to-day management of issues and problems.

“A consistent process across the IT environment can make it easier to diagnose and resolve complex issues that involve multiple technologies supporting business processes worldwide.”

—“The Business Value of Comprehensive Support Services,” IDC, March 2011

7. Commitment to resolution times
Break-fix should be the last line of defense. But when there is an outage, your service vendor should be able to commit to a specific window of time when it will be repaired. Indeed, time-to-repair is the number-one issue for the IT department, and the main reason for the cost differences in service contracts.

8. And a variety of targeted options
You want to look for a vendor that has a range of targeted service offerings, allowing services to be tailored to your particular IT environment and support needs. You may find it best to choose a vendor who can deliver top-level management and predictive support for your entire IT environment, a vendor that can take ownership of any and all problems and see them through to completion. Such a solution will be effective at getting you back online quickly. Or you find it more cost-effective to choose a service level that can help you simply isolate and diagnose a problem and then allow you to deal with the hardware or software vendor yourself. You may even want to choose one service level for most of your organization and a higher level for mission-critical applications and infrastructure. The important thing is that you have a flexible menu of choices.
Real-world example: HP Always-On services

While it may seem like a tall order, there are, in fact, industry-leading primary-service vendors who can offer most, if not all, of the features of the ideal service provider. HP is such a vendor. In fact, HP is currently rolling out a revamped, simpler suite of Always-On service offerings designed to reduce operating expenses while combating IT complexity and freeing your staff for more business-relevant duties.

HP technical services for industry standard servers have all the attributes needed to help you break out of the complexity prison:

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Besides reducing complexity, the new HP Always-On support portfolio is also designed to simplify the support experience and make it at once more proactive and more personal.

HP services alleviate complexity by helping you:
• Design your infrastructure better
• Test it more completely
• Deploy it faster
• Manage change more efficiently
• Keep your technology up-to-date and optimized

An explanation of all the services in the new portfolio is beyond the scope of this white paper. But you can see something of the wide range of available choices in the four levels of care represented by HP Proactive Care, Foundation Care, Lifecycle Event Services, and Data Center Care.

HP Proactive Care: when you’re betting the business on x86

The best option is HP Proactive Care when you’re betting the business on more complex virtualized x86 server environments. These innovative, high-value, cost-effective proactive support services deliver high levels of application availability. They also shield you from complexity because HP manages the complete IT environment. With HP Proactive Care you get:
• Full-stack support, including hardware and software
• Firmware/software management and best-practice advice
• Direct line to advanced technical skills from HP specialists
• Assigned Technical Solution Specialist
• Technical Account Manager for proactive report reviews

HP Foundation Care: when you want economical and efficient reactive support

In today’s always-on world, the onus is on IT to drive innovation, leading organizations to prioritize resources for core competencies and leaving few for IT support. However, it is the rare business that can afford much downtime. Any unplanned outage can cause loss of revenue and reputation alike.

HP Foundation Care is a family of hardware and software support services with a targeted range of response times, coverage windows, and length-of-term options. With an end-to-end approach that covers all parts of your IT system, HP Foundation Care offers the reliable hardware and software support services necessary to drive improved availability, quickly resolve any disruptions to your IT, and keep your business always on.

With today’s intricate IT infrastructures, knowing which part of the system is the root cause of an outage is often time-consuming and difficult to identify. It could be anywhere in that complex stack of hardware, firmware, and software elements.

But at HP we understand your converged and virtualized server environment. And with HP’s new Collaborative Support services, we offer a cost-effective solution for reactive support. If you have Collaborative Support, HP takes your call 24x7 and helps resolve the issue.

Collaborative Support is a services support solution that gives you a single point of contact for server problem diagnosis, hardware problem resolution, basic software diagnosis, and problem isolation and resolution where a remedy is available to HP. If the reported incident is related to a supported third-party software product and cannot be resolved by applying a known fix, HP will contact the third-party vendor and create a problem incident with them. For you as the customer, this means you don’t have to bounce between multiple vendors or wade through multiple support levels to identify whether there is a hardware or software problem.

HP Lifecycle Event Services: when you want added incremental value at every stage

HP Lifecycle Event Services offers comprehensive, end-to-end technical services that address and add value at every stage of the IT lifecycle. These services include:
• Decision stage
  Strategy focused services help you develop a roadmap and understand the financial impact of the solution.
• Planning stage
Design services provide more formal planning, including assessment and architecture design and planning services.

• Deployment and installation
HP installation and deployment services help you determine what level of services you’ll need. If your needs aren’t met by standard-offering HP Care Pack services, we can provide a custom statement of work for the deployment.

• Ongoing operation
After deployment, we provide ongoing operational and optimization services to keep your system performing at top-notch levels.

• Training
HP education services offer extensive classes and certifications to get your staff up to speed on new technologies.

HP Data Center Care: when you want custom support for your IT solution
HP Data Center Care is a custom service solution designed to meet your specific needs. This support solution provides specialists who possess the essential skills and knowledge to proactively reduce your system downtime, improve service processes, cut operations costs, and accelerate growth by aligning service levels with business needs. HP Data Center Services are especially effective at reducing the complexity of designing, implementing, and supporting cloud, multivendor, and virtualized solutions. Available services include:

• IT Transformation
These strategic advisory and implementation services for the enterprise help you tighten the alignment between your IT operations and business requirements.

• Enterprise Private Cloud
Services transform inefficient, siloed, legacy-IT-oriented architectures and data centers into flexible, efficient, business service-oriented, shared service clouds— including clouds that are on premises as well as hybrid clouds.

• Converged Data Center
Services design, build, and support your multivendor data center according to a model that is highly consolidated, virtualized, and automated, allowing you to gain greater value from both capital and operational expenditures.

Figure 2: Cut through complexity with tools like HP Support Center, HP Insight Remote Support, and HP Insight Online that let you manage every part of your infrastructure from a single pane of glass.
Other choices, too
These are just a few of the several levels of support services available from HP. The variety of support offerings means you can limit complexity with support tailored to your particular IT environment, no matter your budget or availability requirements.

The added bonus of HP support automation
A key element used by HP to reduce complexity is support automation, a unique integrated, automated management and support experience that delivers seamless management and HP know-how across the x86 server lifecycle—from server deployment to ongoing support to continual improvement. Support automation is found in most HP support offerings; for example, both HP Proactive Care and HP Foundation Care rely on automation such as:

- **HP Support Center**
  A convenient, comprehensive support portal where you can manage contracts and warranties online, submit support cases, and chat with HP experts.

- **HP Insight Remote Support**
  A remote monitoring and support platform based on innovative onboard management capabilities. Besides providing secure 24x7 monitoring, accurate troubleshooting, and fast problem resolution, Insight Remote Support reduces complexity and saves time with rapid setup and configuration for server features such as onboard phone-home support. It provides:
  - Continuous remote monitoring, 24x7, for better control and stability of your environment
  - Automated notification, so you can do more with less
  - Accurate problem resolution in less time

- **HP Insight Online**
  Secure, one-stop access to the information you need to support your IT environment from anywhere, anytime. Through the HP Support Center portal, Insight Online provides the ability to easily track service events and support cases, view device configurations, and proactively monitor your HP contracts and warranties. Such information allows your own staff or HP Authorized Services Partner to be more efficient in supporting your HP environment.

Summing up
As long as IT departments continue to couple commodity x86 servers from a variety of vendors with separately purchased business and professional software suites, IT complexity is likely to remain an issue, with the most conspicuous effects appearing along the fault line between hardware and software. CIOs and IT professionals who would follow industry advice to work on projects that advance the business are instead held back by the time and effort they must devote to managing and troubleshooting problems in this complicated environment. But by drawing on the services of a primary service vendor for support—a vendor such as HP—organizations in the enterprise and SMB space alike can conquer complexity and free their IT staffs to cultivate greater business value.

For more details about HP services, or to contact HP, see: [www.hp.com/services](http://www.hp.com/services)