

The Changing Face of Mission-Critical IT

in an Always-On World

We constantly hear talk about cloud computing, Big Data and the Internet of Things, but not much about a topic that lies at the heart of all these trends: mission-critical computing. Yet a recent IDG Research survey clearly shows mission-critical computing is increasing in importance and that a true mission-critical environment requires tactical and strategic focus on how hardware, applications, processes, and people work together.

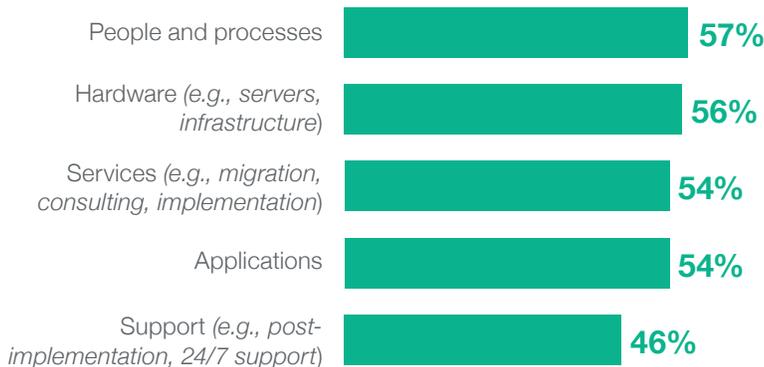
Mission-critical computing refers to powerful infrastructures that handle an enterprise’s most important applications and databases, systems that must be “always on” – such as enterprise resource planning (ERP), customer relationship management (CRM) and online transaction processing (OLTP) systems. For

these applications to complete transactions in real time, often from a mobile end point, they increasingly need to execute on mission-critical systems in a data center.

More than six in 10 respondents to the IDG Research survey of 200 IT and business decision makers said mission critical has increased in importance as an IT investment focus over the last two years. The verbatim responses from the IDG research study participants demonstrate the importance of mission-critical in today’s world:

- “Without it we will cease to remain even reasonably competitive in our crowded market.”
- “We’ve had outages in our hosted environments which have affected our customers and caused downtime, resulting in missing SLAs and paying fees.”

Figure 1: **Investments in Next 12 Months as Part of Mission-Critical Strategy**



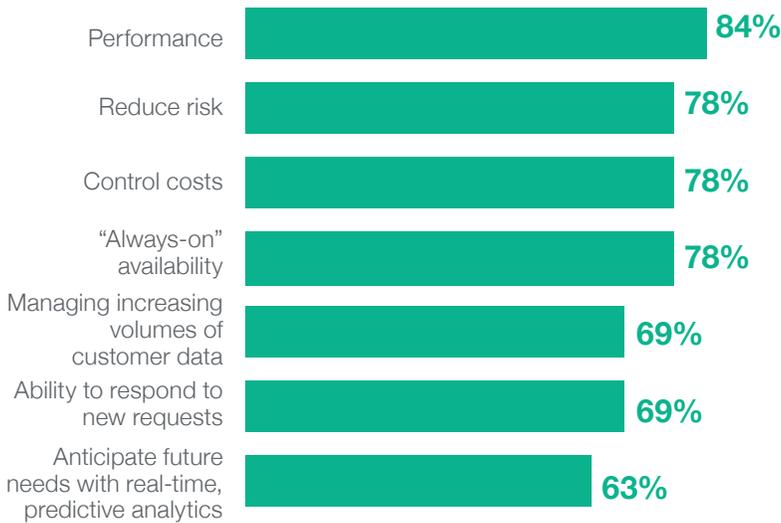
Decision-makers plan to invest quite evenly in four specific areas related to mission-critical applications: people and processes, hardware, services, and applications. In other words, they plan to develop comprehensive solutions.

“Mission critical is not just a server, it’s more a philosophy and an overarching approach to computing,” says Jim Lofink, Marketing Manager for Mission Critical Servers at Hewlett Packard Enterprise (HPE).

For mission-critical applications, each component in the chain – from the mobile device to the network and back-end databases and storage systems – is critical; if any link is broken and the application doesn’t work, it doesn’t really matter to the end user which piece is broken. That underscores the idea that delivering a mission-critical compute environment requires a comprehensive plan, not just a focus on one particular area (see Figure 1).



Figure 2: **Top Drivers of Mission-Critical Plans and Strategy**



The survey also showed that the very definition of the term “mission critical” is becoming quite broad. It is most often associated with characteristics including high availability, reliability, and security, but it also includes compliance, performance at scale, and serviceability.

“The survey shows that good enough is not good enough anymore,” Lofink says. “Companies used to be willing to sacrifice some availability for lower cost. But in today’s always-on world where users expect instantaneous responses, people realize the consequences are too great if your infrastructure is non-responsive or goes down.”

A Closer Look at Mission-Critical Investments

For mission-critical applications in larger enterprises, Unix (48 percent) and Linux (42 percent) continue to dominate, along with Oracle (56 percent) and IBM DB2 (27 percent) databases. Microsoft SQL Server has a growing presence in large enterprises, with a larger presence in small to mid-size companies. From an application standpoint, SAP’s business suite is prominent (38 percent). Use of Windows and Linux represent a shift from years past, when most mission-critical loads ran on mainframes and Unix systems. The survey clearly shows companies are now more confident in the reliability of Windows and Linux.

“In coming years, the database lineup may well skew more toward in-memory databases such as SAP HANA and SQL Server,” Lofink says. The real-time nature of in-memory promises significant performance gains for applications that are vital to the success of a business, including OLTP applications, ERP, CRM and supply chain. It also enables mixed environments combining transaction processing and real-time analytics.

Mission-Critical Drivers and Challenges

Asked what’s driving their mission-critical infrastructure plans and strategy, survey respondents cited a number of factors, including performance, risk reduction, controlling costs, and availability (see Figure 2).

Many of these responses speak to the changing nature of the applications supported by mission-critical platforms, which have increasingly become customer-facing online ones. Customers now have greater access to and dependence upon mission-critical data via the applications they use, and they expect results more quickly than they did in the past. If a customer can’t place an order with one store, there’s another alternative just a few clicks away. That means any system involved in fulfilling the transaction needs mission-critical performance and availability because a system failure can impact not only revenue but a company’s reputation in the industry.

In an open-ended question, survey respondents were asked to describe their “dream state” for their mission-critical environment. Responses included:

- “24/7 without any downtime or staff”
- “Flexible, reliable and cost-effective”
- “A self-adjusting and scalable system which has little cost and is 100 percent reliable via cloud workload applications delivered via IT team and its key partners to industry standards”
- “Cost-effective, secure and future-proof”
- “High-performing, flexible and reliable service supporting customer expectations”
- “Instantly scalable, fault-resistant, quick to change”

These quotes reflect the challenges organizations are facing with respect to mission-critical workloads. Asked to name them specifically, maintaining availability and avoiding downtime was the top response, cited by 45 percent of respondents (see Figure 3, page 3). That underpins the need for mission-critical systems to be “always on.”

Figure 3: **Biggest Challenges with Respect to Mission-Critical Workloads**



Other popular responses included high operating costs, which embodies the common need to do more with less, and application performance, which is critical for applications such as e-commerce. Similarly, nearly four in 10 respondents (39 percent) are highly concerned about the ability of their mission-critical environments to accommodate future business demands. Interestingly, security did not make the list of top concerns, although it was the third most-often cited term associated with “mission critical,” after “always on” and “reliable.”

Looking ahead, respondents said they expect drivers for mission-critical infrastructure to change somewhat over the coming three years. Drivers that will increase in importance include managing more customer data, performance, modern applications, risk reduction and more (see Figure 4).

The drivers show customers face the challenge of balancing risk, availability, and performance with the

costs of a mission-critical environment, especially in an increasingly mobile environment with a massive influx of IoT data. When investigating new approaches to mission critical, they need to examine all sides of the equation.

Analytics is an example of a modern business application that illustrates the type of changes taking place. At one time, companies had decision support systems that relied on batch processing to look at perhaps a few months’ worth of data, using applications that ran for hours. While such applications still exist, companies today rely on analytics applications that produce answers in seconds, not overnight. These analytics engines run on the same systems as their transaction processing applications and feed an array of mobile devices, applications, and systems that are integral to day-to-day business.

Consider a classic retail application. A shopper uses a retailer’s store locator to find the closest location, then searches on a certain product, maybe a smart phone. The store – or one of its suppliers – may want to send the shopper a coupon for some accessories, like a case or headphones. The trick is to do so immediately, while the shopper is in the store and before the window of opportunity closes.

“In the past, business processing applications and analytics were two separate environments,” says Kate O’Neill, Marketing Director of Mission Critical Servers for HPE. “More and more, they’re blending into one. It shines a brighter light on the availability and performance that’s needed from these systems to support such applications.”

Mission Critical and the Cloud

Cloud computing looms large over just about all aspects of IT today, and mission critical is no exception. The IDG Research survey shows that, on average, companies have 19 percent of their mission-critical workloads deployed to a public or hybrid cloud environment. Additionally, of those who had mission-critical cloud deployments, half said less than 10 percent of their mission-critical workloads were in the cloud. One read of the data suggests that customers want to be able to move mission-critical workloads to the cloud, but feel the risk of doing so outweighs the benefits. As a result, adoption of hybrid cloud implementations is taking off.

Cloud also came up several times in the survey’s

Figure 4: **Anticipated Change in Importance of Mission-Critical Drivers**
(over the next three years)



verbatim responses with respect to the mission-critical “dream state:”

- “A private cloud for persistent storage and services that can scale seamlessly into public cloud environments when more computation is required.”
- “We continue to review hardware, software and cloud solutions to improve our mission-critical environment.”
- “Cloud-enabled, always on, easy to use and maintain”
- “Everything supported in the cloud”

Such responses indicate customers are increasingly factoring in cloud options for their mission-critical infrastructure. “But while applications may run on public or hybrid cloud infrastructure, the data that’s driving the decision-making behind the applications is likely to remain in-house and potentially on a private cloud,” Lofink says. It is vital, therefore, to understand the use of the cloud within an organization’s environment and how the mission-critical data links to these cloud-based applications.

Attributes of Mission-Critical Technology Providers

The IDG survey also explored what customers look for in providers of mission-critical technology and infrastructure. Not surprisingly, the top four attributes

are reliability, trustworthiness, high-quality support services, and scalability.

Beyond that, respondents also want proven technology that’s flexible and agile, and able to be deployed quickly. They value providers with experience in their particular vertical industry (which makes sense, given that time to market can be critical), as well as those that are willing to partner with customers, to tailor solutions to their needs.

Again, this speaks to the idea that mission critical isn’t just about the server infrastructure; it’s more an overall attitude and way of doing business. If a mission-critical application is down it may mean lost revenue or brand damage — so customers want partners with the expertise, experience and solutions they can count on.

The HPE Approach to Mission Critical

HPE has decades of experience in providing infrastructure to support the world’s most demanding, highly available, mission-critical environments. It understands well what today’s customers are looking for with respect to mission-critical infrastructure. HPE is well positioned to help customers find the right combination of servers, storage and network technology for their specific mission-critical application. Its professional services team understands that each workload is different; there’s no one-size-fits-all solution when it comes to mission critical. Rather, the idea is to find the right combination of availability, performance, scale and cost for each environment.

Rabobank banks on HPE Integrity NonStop to ensure 24/7/365 global operations

Rabobank is a leading Dutch bank and offers a range of financial services, from commercial banking and asset management to insurance and real estate to over nine million clients around the world. To ensure continuous availability of critical application services, the bank relies on HPE Integrity NonStop servers to minimize downtime, while optimizing peak system utilization and enabling scalability for growth.

Transactions through mobile apps, point of sale (POS) devices, ATMs, branch offices, and the Internet occur 24/7/365. Clients expect bank services to be there without fail, which makes infrastructure availability and integrity a top priority for Rabobank’s IT organization.

That's why Rabobank runs its most critical banking applications on HPE NonStop platforms. These include production banking applications, including payments, ATM and POS terminals, Internet and mobile banking, and communications and middleware hubs. In their own words: "It's very simple: we want to stay in business, so we run our business on NonStop. It's always on, always reliable," says Fred Böcker, Product Manager, NonStop Enterprise Solutions, Rabobank.

Pella Reduces Oracle Costs and Simplifies Environment with Superdome X

Window and door manufacturer, Pella Corp., has experienced significant benefits from its move to Superdome X. Thousands of orders flow into Pella's ERP system daily from the company's network of showrooms and leading retailers. The company's products are highly customizable, resulting in more than 50 million possible product configurations. To handle the load, Pella needed to increase the performance of its Oracle Business Suite ERP applications and 26 Oracle databases. Porting them from UNIX systems to a pair of Superdome X Servers running Red Hat Enterprise Linux proved to be the answer. The move enabled the company to avoid \$200,000 in incremental database licensing costs, thanks to Superdome X support for hard partitioning, which garners more favorable licensing terms from Oracle than virtual partitioning. The move also boosted performance while lowering operating costs by another \$200,000 per year. In order to ensure business continuity in the event of a disaster and eliminate single points of failure, Pella's separate hot-backup site for its production ERP environment links to the production system via HPE Serviceguard for Linux clustering technology. "We embrace the scalability, flexibility, and long-term economics of Superdome X. It allows us to reduce our operational costs and avoid incremental Oracle licensing costs. In addition, we have the flexibility to scale up and scale out to support increased performance requirements for our mission-critical ERP applications over time," said Jim Thomas, Director of IT Operations, Pella

PT Pancamitra Packindo increases output with ERP system

PT Pancamitra Packindo, a Jakarta based corrugated box manufacturer, has increased throughput by 50 per cent as well as achieved continuous production and reduced costs thanks to an new, integrated, end-to-end CPS/Enterprise ERP system, running on

HP Integrity Servers with HP-UX. Based in Jakarta, PT Pancamitra Packindo specialises in packaging products and services, and is a major producer of corrugated cardboard boxes and other packaging. Faced by a competitive market and constant pressure to reduce costs, the company looked for a fully integrated management system that would handle its production. Having reviewed the available options in the market, PT Pancamitra Packindo chose a system based around the CPS (Corrugated Packaging Solution)/Enterprise software from HPE's partner Prestige Atlantic Asia, which runs on HPE Integrity servers with HP-UX 11i v3. "We were looking for a supplier that provided consistent quality, and the ability to respond quickly," says Franco Agung, IT manager at PT Pancamitra Packindo. "HPE and Prestige met these requirements, and offered us the best after sales support available. I was happy to choose HP-UX, which is very stable." The company runs a 24/7 round-the-clock production line, with three shifts, so reliable operation is essential. Agung comments, "The HPE system has to be up and running so we can make our product – if it is not working, we have to stop the production process."

As these examples illustrate, HPE has broad capabilities it can bring to bear on mission-critical applications. From its portfolio of mission-critical solutions spanning Integrity NonStop, Integrity Superdome X, Integrity Servers with HP-UX, Integrity MC990 X and clustering software Serviceguard, plus storage, and network equipment, to its partnerships, know-how and services, HPE truly does have all the mission-critical bases covered.

Conclusion

In an era where customers and employees alike expect fast results, from anywhere on any device, it's clear that more and more systems have to be deemed mission critical. And clearly, as the IDG Research data illustrates, mission-critical systems are becoming more important, but they require customers to balance performance, availability and risk against cost. In a world where loyalty and revenue can be lost in seconds, you need to fully evaluate the options for your mission critical environment. Ultimately, you need solutions you can trust.

To learn more about how HPE can help address your mission-critical requirements, go to www.hpe.com/info/MissionCritical.