Supporting Mission Critical Workloads with X6
Article (withdrawn product)

Mission-critical workloads support the business in every dimension, its organization, its employees, and its customers. These workloads are the most demanding types of applications and databases running on servers today and include ERP, CRM, data warehouses, business intelligence and analytics. They must be available on a 24 x 7 x 365 basis.

Many businesses today continue to run critical applications and store important data in legacy closed-platform silos. The acquisition cost of these systems has always been high, and customers typically are not able to choose hardware and software independently. Over time, ongoing operating costs have continued to escalate. Maintaining the hardware and applications—and finding skilled support resources to help manage SLAs, all contribute to these costs.

Any outage of the mission-critical server infrastructure results in reduced revenue, reduced profitability, reduced employee productivity, and reduced customer loyalty. Any interruption in the operation or availability of these workloads will have a ripple effect throughout the organization because downtime interferes with business processes and interrupts business continuity. That means that mission-critical workloads, must run on highly reliable and available platforms to ensure that business processes are running smoothly.

As customers transform their datacenters to support mission critical workloads, there has been increasing demand for “Unix” like performance, RAS, scalability, and security on x86. This, in turn, has led to increased interest in x86-based scale-up systems, in which compute, storage, and networking have been integrated into a single, more efficient system with a larger number of sockets and cores to achieve a better cost-performance ratio.

The Increased Importance of Mission Critical Workloads

The importance of Mission Critical workloads is increasing every day. Let's take a look at what is driving Mission Critical workloads becoming more important.

- The volume of mission-critical workloads is increasing
- Downtime is unacceptable in a 24 x7 x 365 world. High reliability and availability is a must have.
- Virtualization and scalability for large databases and new workloads is becoming a top priority
- Real-time data analysis with Big data is growing
- Security is a growing concern and priority
- Aligning workloads with the data center infrastructure to support them
- Serviceability to perform quick and easy repairs and upgrades
- More integration of business and IT innovation
- Creating larger instances of databases in a single server
- Simplifying IT management and reducing operational costs

Typical requirements to support the Mission Critical Workloads

The typical requirements to support the mission-critical workloads are as follows:

- **High Reliability & Availability**
  Detection and self-healing of errors as well as the ability of the system to continue processing production workloads, even in the presence of faults.

  Lenovo x3850 and x3950 X6 servers feature advanced reliability, availability and serviceability (RAS) features. X6 servers drive outstanding system availability and uninterrupted application performance needed to host mission-critical applications.

- **Scalability**
  Databases expand and applications are accessed by a growing number of users over time. The capacity to support growing workloads is paramount. The ability to scale up involves more than merely adding processors; it includes the ability to balance the scale-up with enough memory and I/O resources to ensure continued performance at high levels

  Lenovo X6 servers scale from 2 sockets to 8 sockets and up to 192 cores of processing power. The X6 servers scale up to 12TB of memory to run the most memory demanding workloads.

- **Virtualization**
  Virtualization technology creates a more dynamic and fluid environment in which compute capacity can be treated as a resource pool, protecting application service levels and improving agility and responsiveness to business needs. Importantly, virtualization isolates workloads so that they do not interfere with one another.

  The Lenovo X6 servers provide strong virtualization capabilities with scalable memory levels up to 6TB for a 4 socket and 12TB for an 8 socket server. X6 servers support the most popular VM Operating systems such as VMware, Red Hat Enterprise Linux and Oracle VM.

- **Serviceability**
  Good Serviceability allows clients to avoid repeat failures with accurate diagnostics, perform concurrent repairs on higher failure rate items and perform quick and easy repairs or upgrades.

  The X6 modular design and front/rear access provides unmatched serviceability.

As you can see mission-critical workloads, if interrupted, could become "showstoppers" for business processes within the enterprise. Thousands of end users are accessing transactional workloads and corporate databases — and any outage has a "ripple effect" throughout the organization.

Mission-critical workloads, whether they are applications or databases, must run on highly reliable and available, scalable and capable platforms such as the Lenovo x3850 X6 and x3950 X6 to ensure that business processes are running smoothly.

Lenovo x3850 X6 and x3950 X6

The Lenovo X6 servers are the high end of Lenovo's server portfolio. The x3850 X6 is a 4U rack server scalable to four processors. The x3950 X6 is an 8U rack server scalable to eight processors. These X6 servers have many advantages over other servers.

Lenovo X6 servers deliver exceptionally fast application performance. Equipped with the new Intel Xeon processor E7-4800 v4 and E7-8800 v4 processors, the x3850 X6 and x3950 X6 servers can deliver up to 6 TB or 12 TB of memory and 96 or 192 cores of processing power, respectively.

Further reading

Read other Lenovo Press articles about X6 servers:

- Matching Workloads with Lenovo X6 Servers
- Lenovo X6 Server RAS Features
- Advantages of Lenovo X6 Servers

About the author

Randall Lundin is the Mission Critical Product Manager in Lenovo Infrastructure Solutions Group. His responsibilities include managing and planning Lenovo's 4-socket and 8-socket servers.

Related product families

Product families related to this document are the following:

- 4-Socket Rack Servers
- 8-Socket Rack Servers
- Large Memory Capacity Servers

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