

Solution Brief

NEC Directs Attention to Solving Server-side Stress

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Abstract: NEC has introduced the Express5800/A2000 Series Servers to accommodate enterprise application demands with peak server reliability, availability, and serviceability. The new server architecture and NEC engineering functionality align well with many of the most important IT priorities in 2014, including virtualization, big data and advanced data analytics. With the Express5800/A2000 Servers, NEC has the opportunity to educate application owners and work with system integrators to drive awareness and ultimately investment in its new server platform, which will help drive customer value.

When Downtime Is Not an Option

Data analysis has always played a key role in enabling businesses to harness value from electronically stored information. Banking on the potential value that data can bring to an organization, executives are demanding more from it by expecting faster, more impactful analytic results. To empower the server at the heart of the data center, NEC has introduced the Express5800/A2000 Series Servers to accommodate enterprise application demands with performance scalability, configuration flexibility, and peak reliability.

These next-generation servers from NEC are ready to accommodate some of today's demanding workloads. The new server line includes:

- Impressive performance and scalability with a hardware design that can include a maximum of four (60cores/120threads) new Intel Xeon Processor E7 V2 Product Family (Ivy-Bridge-EX), up to 4TB memory (with 64 x 64GB DIMM), and 16 slots of PCI-Express 3.0.
- High availability delivered through engineering innovations that include CPU core, memory, and I/O optimization techniques that provide features to support demanding business applications.
- RAS (reliability, availability, and serviceability) technologies that include MCA recovery, memory scrubbing, double device data correction (DDDC), redundant core I/O, and two service processors (SP). NEC also includes the ability to add memory and I/O online without stopping the system.
- Capacity optimization that enables the flexible use of CPU cores based on actual application requirements. These features offer resource optimization according to a customer's workload and protect the customer's investment, potentially having a significant economic impact in terms of software licensing.

The NEC Express5800/A2000 Series Servers are available in a 4U chassis with the flexibility to scale from 2 to 3 or 4 CPUs. It also offers high availability options that include advanced features such as dynamic CPU (core) de-allocation, a redundant service processor, a clock, and core I/O. The NEC Express5800/A2000 Series Servers are designed for customers who have consolidation and virtualization efforts underway; large database workloads that take advantage of the high availability capabilities; and specific applications such as Microsoft SQL Server and ERP applications commonly found in businesses globally.

The NEC Express5800/A2000 Series Delivers Architecture for Demanding Business Applications

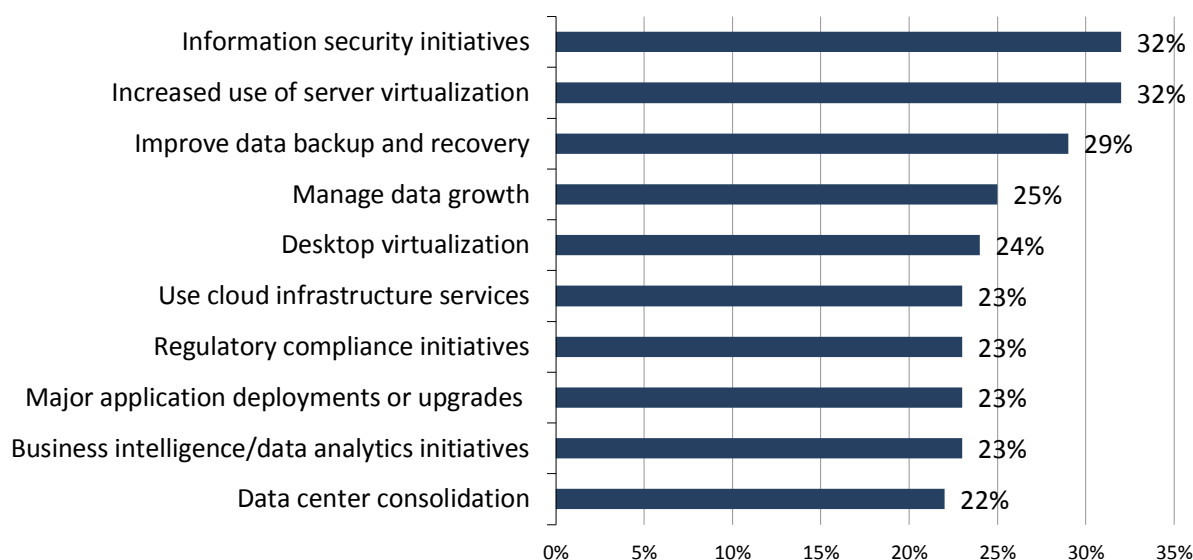
The NEC Express5800/A2000 Series has inherited some of the DNA only found in mainframe or UNIX technology. This architecture and engineering feat has enabled NEC to take on demanding large scale data transactions, search workloads, business analytics, and line-of-business-critical applications that are being virtualized. Virtualization, modern applications, new private cloud architecture, and public cloud consumption models are creating increased stress on the IT environment. In parallel, chipset architecture, and specifically server architecture, is racing ahead to keep pace with these demands. NEC has added 50% more cores than the previous E7 chip set and 25% more cache to this series, and

the system can be customized and tuned to deliver the performance required by some of the most demanding workloads in the business. Applications and server virtualization hypervisors have incorporated features that assist IT in maintaining uptime, but the server architecture deserves special attention to ensure businesses are operating at optimal performance, capacity utilization, and availability.

This new server architecture’s enterprise-class functionality along with the experience and expertise of NEC’s engineering team offers functionality that aligns well with many of the most important IT priorities reported by ESG research respondents. As shown in Figure 1, these include increased use of virtualization, managing data growth, and major application deployments and upgrades.

Figure 1. Top Ten IT Priorities for 2014

Top 10 most important IT priorities over the next 12 months. (Percent of respondents, N=562, ten responses accepted)



Source: Enterprise Strategy Group, 2014.

These top IT priorities, combined with private cloud initiatives and big data challenges are causing IT to further inspect new data center architecture and alternative server platforms. The NEC Express5800/A2000 Series Servers enable IT professionals to:

- Work with application owners and DBAs to drill into the unique capabilities, including hot memory and spare service processors, and address some of the most demanding I/O-intensive, high-performance computing challenges.
- Build custom configurations with the ability to populate 2, 3, or 4 sockets, and enable or disable cores based on performance requirements. They can also add additional CPUs as needed. The NEC platform is also well suited for customers who require large amounts of memory without the additional cores for performance. For example, the Express5800/A2020b 2 socket server (all cores activated), with a memory and I/O expansion device that provides access to all the memory risers, is ideal for customers who require high amounts of memory, without the additional cores for performance. This provides performance gains, access to all memory and I/O, and potentially significant cost savings in software licensing.
- Take full advantage of the Intel Xeon Processor E7 v2 Product Family, often referred to as Ivy-Bridge-EX. New processors from Intel give the server manufacturers an opportunity to refresh their platforms and design in new features that are faster and more reliable, with the ability to enable IT to confidently share server resources out to multiple virtual machines or dedicate specific demanding applications to a single server resource with a high degree of confidence. While some of these technical nuances often get overlooked, with more demand on the server and higher utilization rates, they deserve a second look.

NEC's Engineering and Architecture Create a Runway for New Business Opportunities

NEC has intimate knowledge of the deep technical features and functionality that are required in today's demanding data center workloads. This engineering expertise is extremely valuable and provides NEC with an opportunity to deliver a proven server platform into the market. To maximize awareness to help drive customer value and sales of the Express5800/A2000 Servers, NEC has the opportunity to:

- Align the marketing of the advanced engineering built into the Express5800/A2000 Series Servers with top IT priorities and current initiatives that are underway. Stellar engineering certainly impacts technology decision making, but NEC also has to show its expertise in modern database deployments, private cloud architectures, and major system upgrades such as SAP. NEC can tailor its message to virtualization architects, DBAs, and application architects to help accelerate this effort.
- Speak in business terms to IT decision makers. NEC risks some of its engineering efforts going unrecognized by critical IT decision makers if it cannot efficiently turn the architectural differentiators of the Express5800/A2000 Series Servers into terms that inspire action and promote awareness for those responsible for IT decisions at the business level. NEC has the opportunity to lock into the positive economic impact the servers will have in these application environments and educate its potential customers about the short-term TCO and longer term ROI benefits.
- Create close partnerships with system integrators (SIs) that focus on modern applications and data center design. NEC can leverage the existing relationship SIs have with their customers to help position NEC as part of the recommendation and design being deployed by the SIs. A programmatic approach with the reseller and integrator community will help pinpoint large database environments, ERP applications, and virtualization initiatives that can take advantage of NEC's architecture.

Combing through NEC spec sheets would be impressive to IT professionals who have detailed knowledge of server design and have watched how it has evolved over the years. NEC's solution will impress IT gear heads and excite them about the innovation it is bringing to the market. In parallel, NEC needs to step through the technical specifications and engineering highlights and shine the spotlight on the performance, reliability, serviceability, and expandability it can stand up with leading business applications.

The Bigger Truth

Advances in memory management, CPU core allocation, and I/O availability are a stable foundation that IT can trust and build upon as further IT consolidation occurs and business demands escalate.

IT organizations do everything they can to avoid downtime and application latency, which cause service disruption and loss of business productivity. NEC is a strong technology partner that helps these organizations invest in, deploy, and maintain a stable foundation that ensures that applications perform as expected and that IT delivers the agreed upon services with its line of business owners. On the outside, these servers may have a similar look and flashing lights, but inside the box, NEC has raised the bar in engineering design and architecture stability. Businesses that are evaluating new server hardware should include NEC on the list of server vendors in their research and be prepared to see that it's what's inside the box that really matters.