

Blade Server

NEC Express5800/SIGMABLADE



NEC's superior platform management and virtualization technologies build a solid foundation for server consolidation

NEC Express5800
<http://www.nec.com/express/>

For further information, please contact:

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Consolidate and simplify

Has your IT environment become overly complex as your business has grown? The NEC Express5800/SIGMABLADE servers are designed to uncomplicate your infrastructure and simplify your server management.

For many years, NEC has made advances in high-density packaging, high-speed processing, and high-reliability and high-availability technologies.

With the introduction of our blade servers, these technologies have evolved further to incorporate the functionality and performance requirements essential for enterprise servers. NEC's blade servers simplify IT management and deliver high levels of availability to provide you with an optimal server consolidation platform for unifying decentralized systems.

NEC Express5800/SIGMABLADE servers deliver energy savings, space savings and superior performance in a compact form factor. This new product offering will provide the foundation for your business infrastructure.

Enable your IT infrastructure to keep pace with changing business requirements



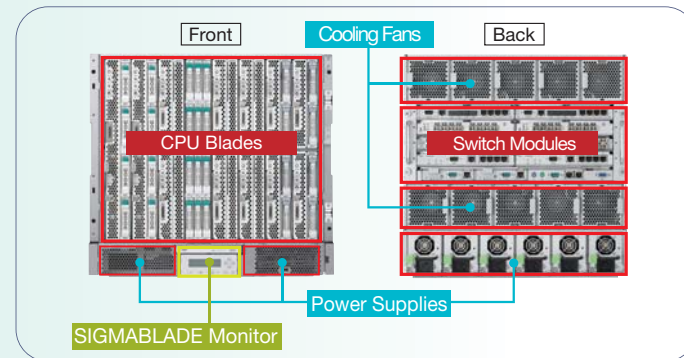
Blade Enclosures

NEC's blade enclosures support any consolidation scenario

For medium and large-scale consolidations of mission-critical applications

SIGMABLADE-H v2

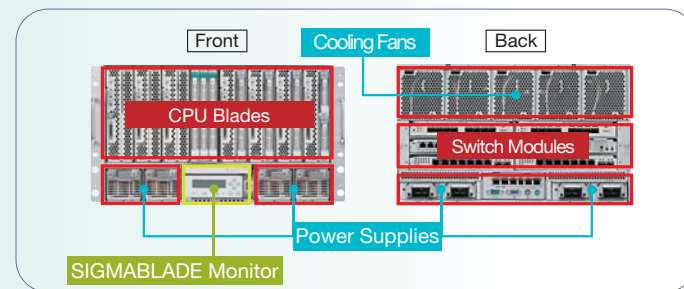
- ◆ A high-speed backplane in a 10U form factor (max. 80 Gbps)
- ◆ A maximum of 16 CPU blades and 8 switch modules
- ◆ Hot-plug redundant power supplies, fans and switches
- ◆ Up to 2 EM Cards for remote KVM functionality
- ◆ A SIGMABLADE Monitor to display status codes



For small and medium-scale consolidations of distributed systems

SIGMABLADE-M

- ◆ A high-speed backplane in a 6U form factor (max. 60 Gbps)
- ◆ A maximum of 8 CPU blades and 6 switch modules
- ◆ Hot-plug redundant power supplies, fans and switches
- ◆ Up to 2 EM Cards for remote KVM functionality
- ◆ A SIGMABLADE Monitor to display status codes
- ◆ Noise-reduced power supplies



CPU Blades

NEC's CPU Blades — Find which one matches your needs

4-Socket Blade

Four-Socket Blade Server B140a-T

With a maximum capacity of four Intel® Xeon® processors, this four-way blade server combines scalability with high performance, making it ideal for mission-critical systems.

* Only for installation in the SIGMABLADE-H or SIGMABLADE-H v2.

Ideal Applications

- Database
- ERP



SAS
Max. 1.2TB

Memory
Max. 128GB

2-Socket Blade

Standard Blade Server B120a

New

The Standard Blade Server features up to two latest Intel® Xeon® processor 5500 series and is suitable for server consolidation, including managing an existing server group.

Ideal Applications

- Web
- Mail
- Clustering (scientific computation)
- Database



SAS
Max. 600GB

SATA
Max. 146GB

Memory
Max. 128GB

SAN Boot Server B120a-d

The SAN Boot Server is ideal for migrating from the existing servers. The B120a-d features Intel® Xeon® processor 5500 series, large-capacity memory, and scalable expansion slots.

Ideal Applications

- Virtualization
- Server consolidation



Memory
Max. 96GB

Storage and I/O Blade

Storage and I/O Blade AD106a

The Storage and I/O Blade provides large-capacity storage with highly reliable RAID configuration capability and scalable expansion support, and are combined with the Standard Server or SAN Boot Server in a Blade Enclosure.

Ideal Applications

- Hard disk drive expansion
- I/O expansion



SAS
Max. 1.8TB

Switch Modules

Save time and effort with no-hassle cabling

LAN Switches

Server LAN cables are consolidated in an intelligent switch inside the enclosure. This reduces the number of LAN cables and simplifies cabling. Standard network switch functions, such as VLAN, are also built in, which helps to reduce operation management costs.

10GbE Intelligent Switch (L3)

[For SIGMABLADE-H/-H v2/-M]



With 16 internal ports and 4 external ports, this switch offers high-speed switching and routing at 10 Gbps. It is suitable for high speed and large bandwidth applications, such as connecting with mission-critical networks or offering on-demand video.

GbE Intelligent Switch (L3)

[For SIGMABLADE-H/-H v2/-M]



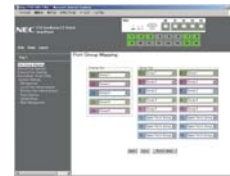
GbE Intelligent Switch (L2)

[For SIGMABLADE-H/-H v2/-M]



Manage switch settings in a graphical window

With the GbE Intelligent L2 Switch, users can choose between the L2 switch mode and the SmartPanel mode when managing settings. In the SmartPanel mode, settings can be set intuitively in a graphical window. This makes it easy for customers with limited networking experience to configure the settings. Additionally, problems caused by setting errors, such as the occurrence of loops, can be prevented.



LAN Pass-Through Cards

This option is ideal for users wanting to use open ports on existing network switches, use switches from the same vendor, or reduce costs.

GbE Pass-Through Card

[For SIGMABLADE-H v2]



GbE Pass-Through Card

[For SIGMABLADE-M]



Fibre Channel Switches

The server FC cables are consolidated in an internal FC switch. This reduces the number of FC cables and simplifies cabling. The installation of standard FC switch functions, such as zoning, reduces management costs.

4G Fibre Channel Switch (24 ports)

[For SIGMABLADE-H/-H v2]



4G Fibre Channel Switch (12 ports)

[For SIGMABLADE-H/-H v2/-M]



Fibre Channel Pass-Through Cards

This option is ideal for users wanting to use open ports on existing FC switches, use switches from the same vendor, or reduce costs.

2/4G Fibre Channel Pass-Through Card

[For SIGMABLADE-H v2]



2/4G Fibre Channel Pass-Through Card

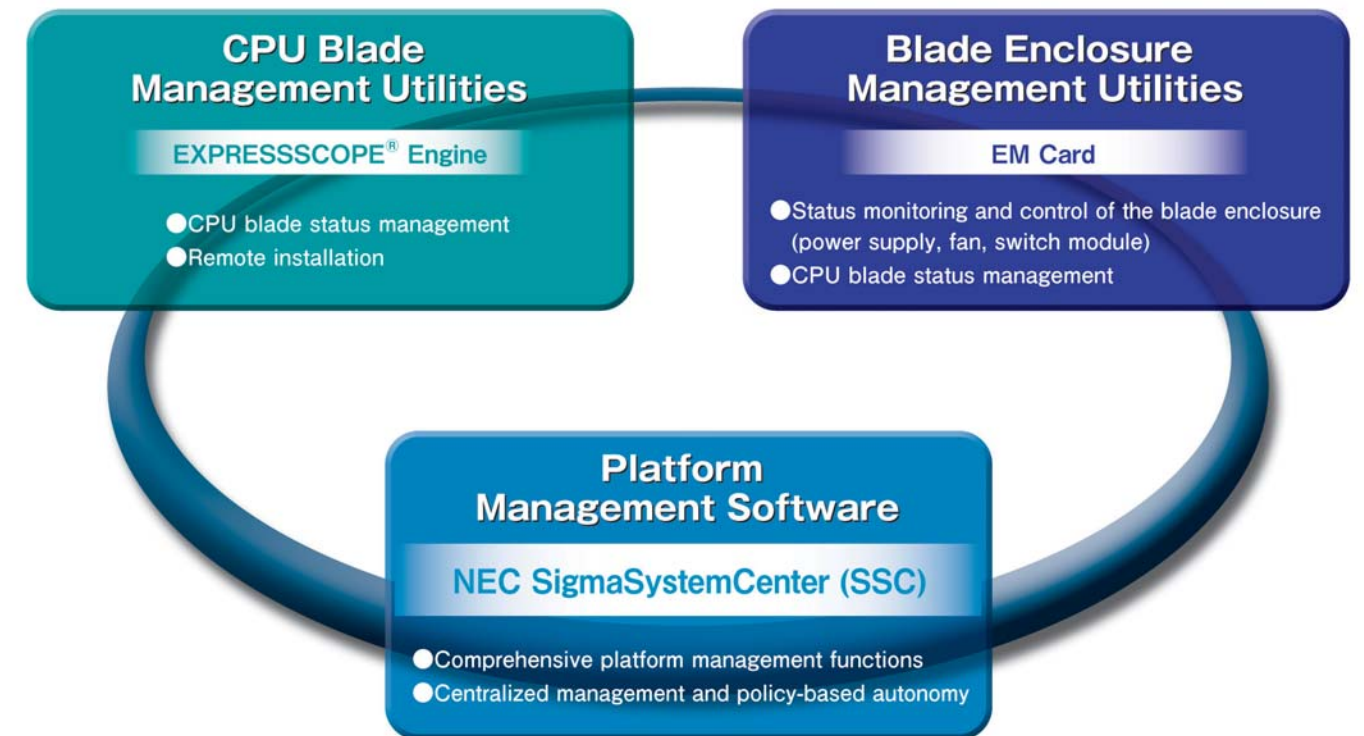
[For SIGMABLADE-M]



Management Module

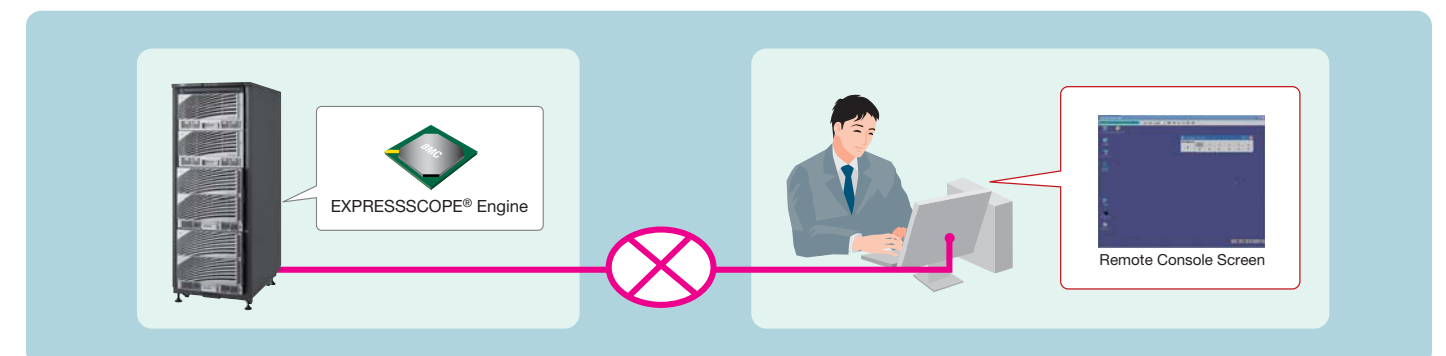
Hardware and software utilities for efficient management

NEC Express5800/SIGMABLADE servers include Enclosure Management (EM) Cards in the blade enclosure and an EXPRESSSCOPE Engine® on CPU blades. Utilization of SigmaSystemCenter (SSC) platform management software delivers centralized administration, policy-based autonomy, and reduced total operating costs and system administrator workload.



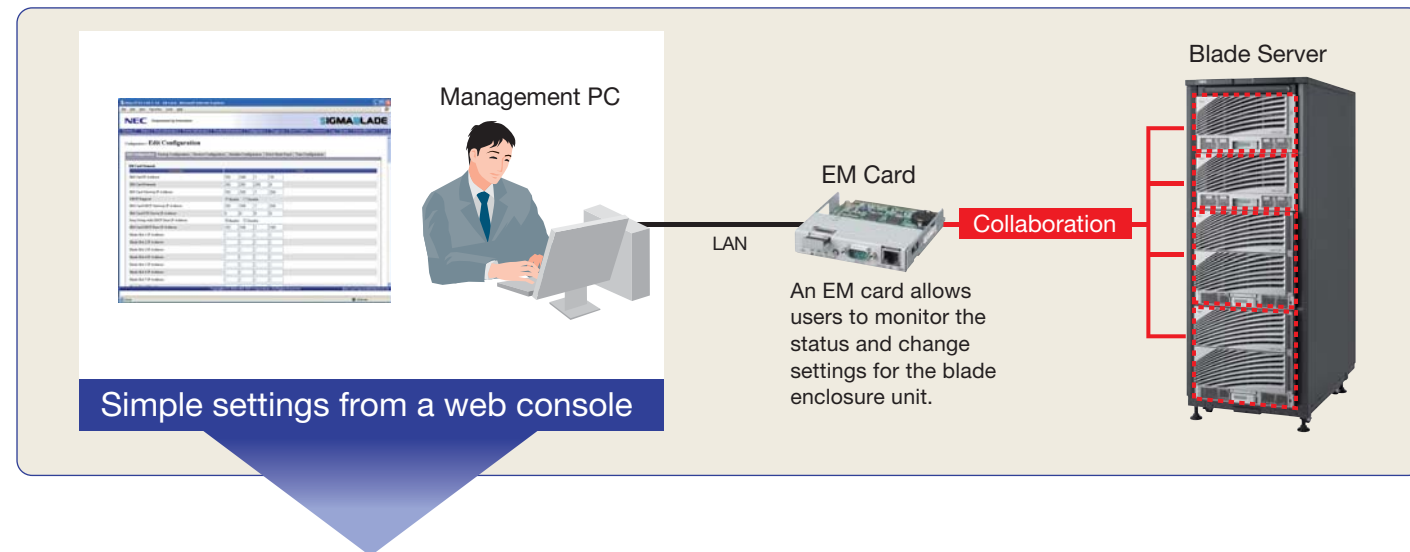
EXPRESSSCOPE® Engine Remote Management Utility

The EXPRESSSCOPE® Engine and DianaScope® remote management utility allow remote control and monitoring of a managed server even when its OS is not functioning (when the power is off, during BIOS startup, or if the OS stalls). They also enable proactive alerting, automatic operation of the managed server, and error logging and viewing of server settings from a remote web browser, thus creating a highly reliable operating environment.



Hardware Management

EM Card simplifies remote management

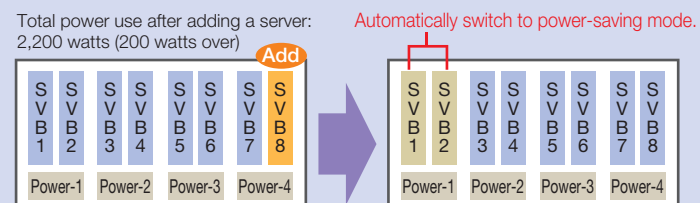


Efficient power management

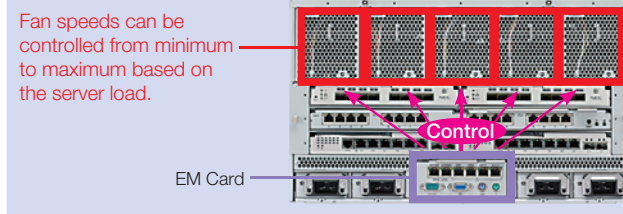
By limiting the amount of power that can be used by each blade enclosure unit (setting a maximum power value) and controlling fan rotation speeds to match the operating status of each CPU blade, unnecessary power consumption is reduced.

Power allocation between CPU Blades in an enclosure

Limiting power usage for the entire blade enclosure to 2,000 watts:

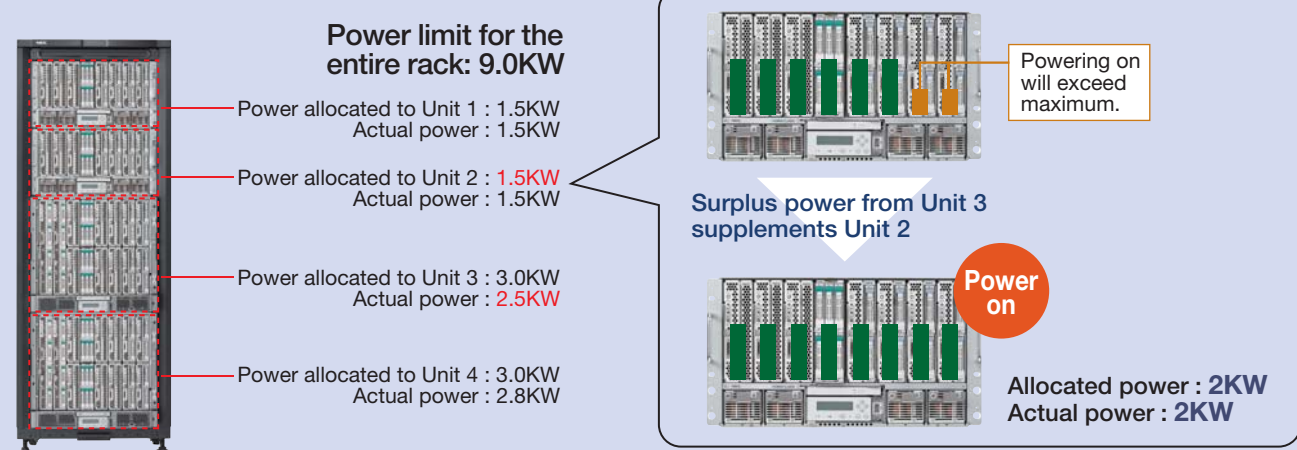


Fan speed control function



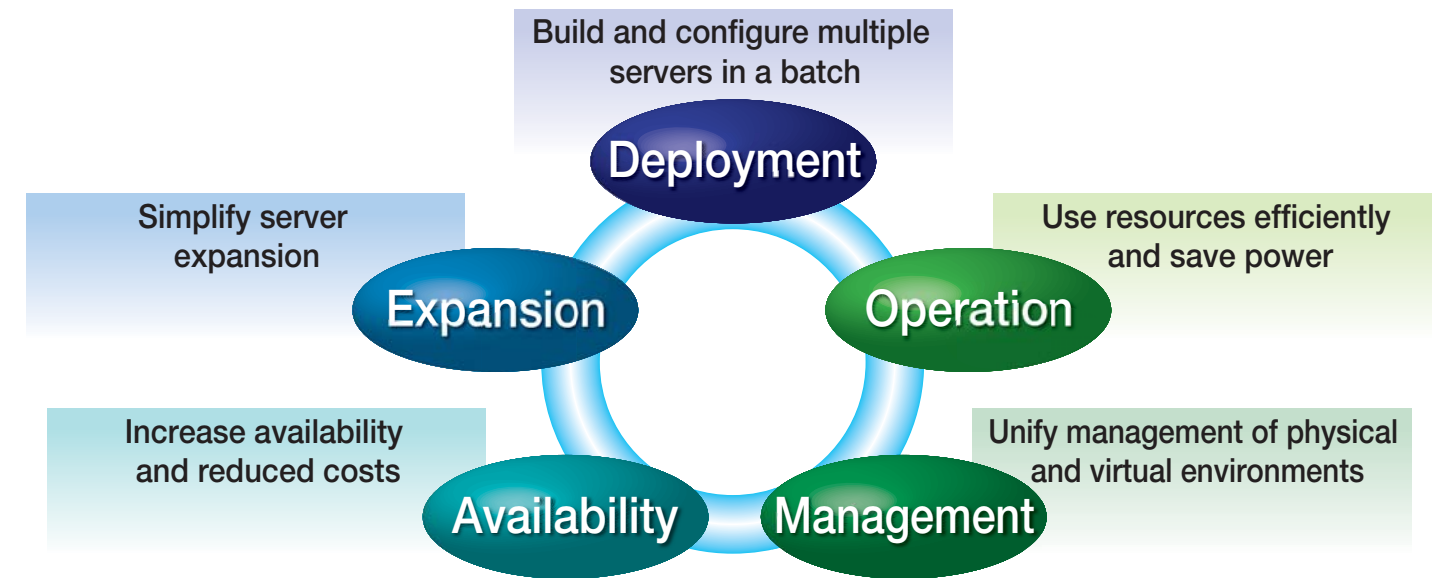
Power allocation between enclosures in a cabinet

The EM Cards interact with each other across the enclosures for optimal power allocation and keep overall power consumption below the maximum.



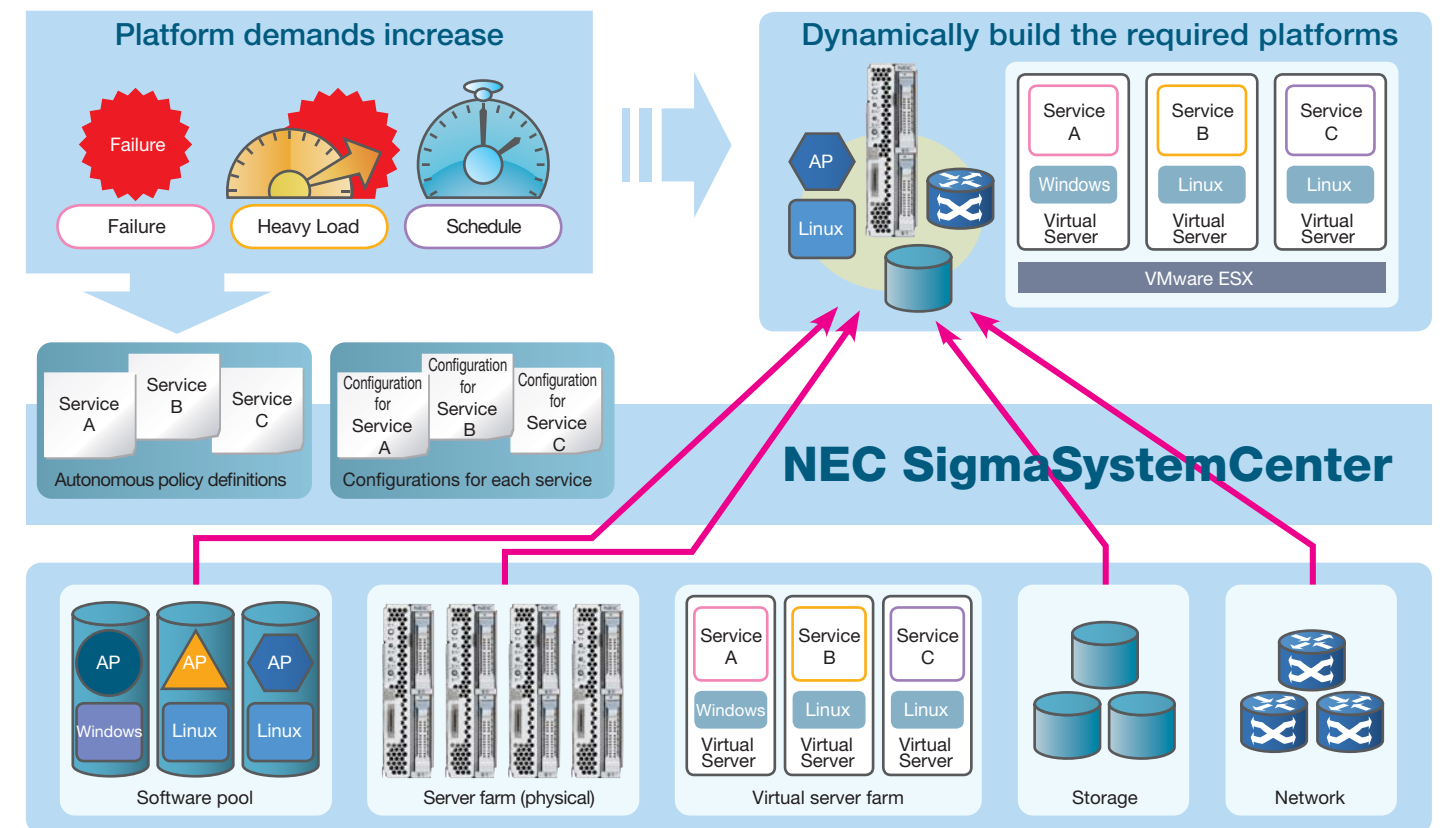
Platform Management

Optimal resource allocation lowers TCO



Optimal platform utilization

SigmaSystemCenter (SSC) manages both the physical server environment and the virtual environments, storage and network resources. This single tool offers all of the functionality necessary for platform management without the need to distinguish between physical and virtual resources. Users can check the operational status of each resource, perform everyday operations such as distributing patches, automatically recovering from failure and expanding or reorganizing servers (changing the role of a server by changing its initial operating system, applications, and network settings) based on workloads.



NEC SigmaSystemCenter

NEC SigmaSystemCenter
Standard Edition

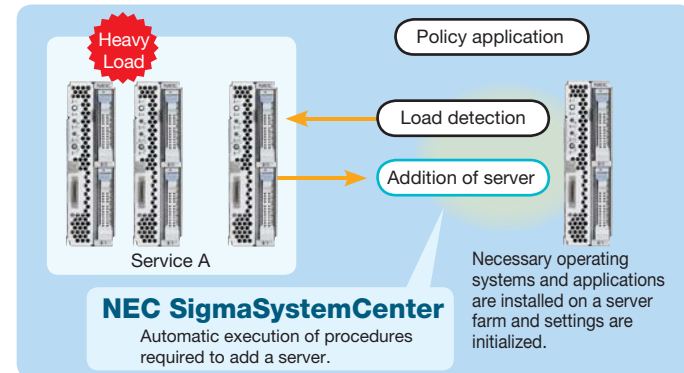
This edition targets the NEC Express5800 Series servers and the Windows and Linux operating systems that run on them. It is suitable for consolidating management of departmental servers, decentralized systems and client integration on small-to-medium systems.

Platform Management

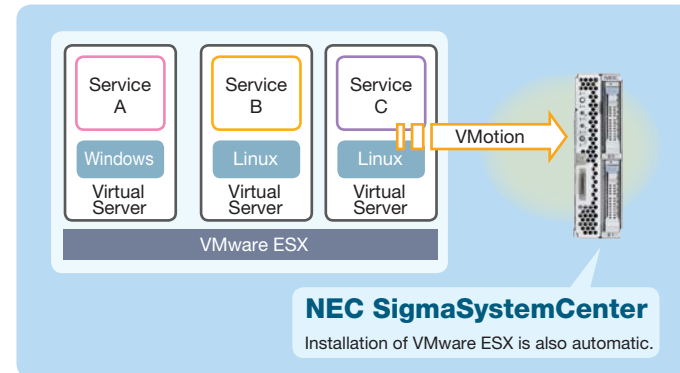
NEC SigmaSystemCenter features

Provide automatic load balancing

The operating systems and necessary applications can be automatically installed on additional server blades as workloads increase, based on policy settings, providing continuous operations. SigmaSystemCenter (SSC) automatically adds servers by configuring storage and network settings and installing operating systems and applications.



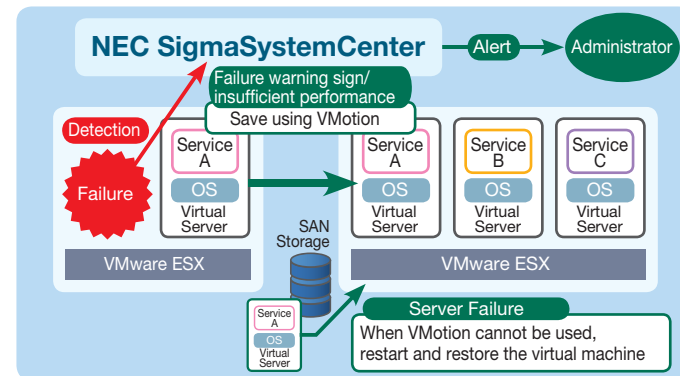
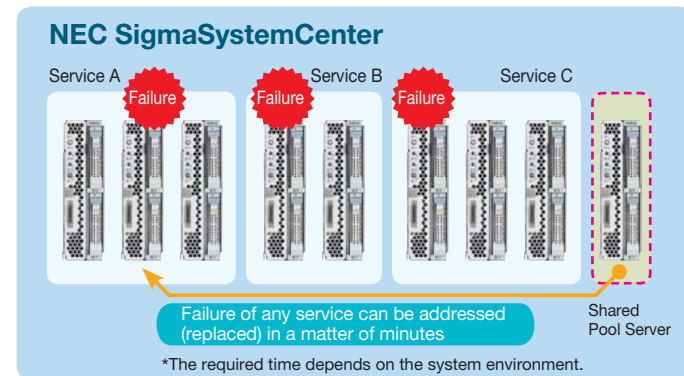
Even in virtual environments such as VMware, a new server can be built when a high-load status is detected. A virtual machine can be moved using the live migration function, without stopping operations. As a result, server loads can be normalized and system downtime prevented.



Reduce hardware cost while improving availability

By preparing a minimum of one shared server for multiple services, users can respond to the failure of any service. Conventional service clustering and standby servers become obsolete, while achieving cost reductions and improved availability.

If there are signs of failure or reduced performance in a virtual environment, use Live Migration to redistribute a virtual machine. If a server fails, restart and restore a virtual machine on a healthy server. Steps such as these deliver higher availability even in virtual environments.

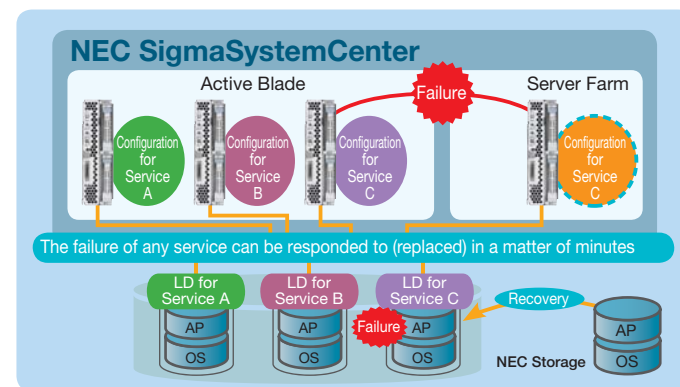
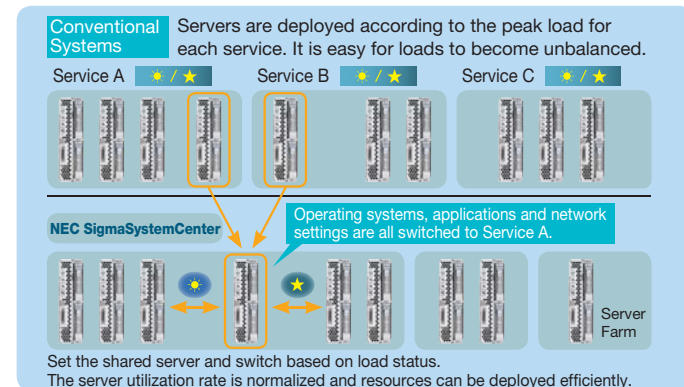


Optimize server resources

Typically servers are deployed based on the peak load for each service. However, SSC shares resources and responds flexibly to changes in load, allowing users to respond to abrupt changes in their business environment.

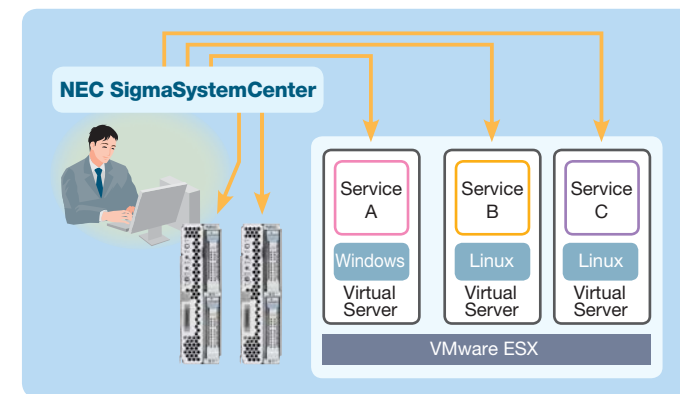
Enable highly reliable SAN boot for automatic recovery

If the SAN boot structure fails, service definitions can be applied to a server to enable automatic recovery. Even if the boot image is damaged, the necessary data is restored from the management server and the system recovers. This functionality delivers a SAN boot system with superior reliability.



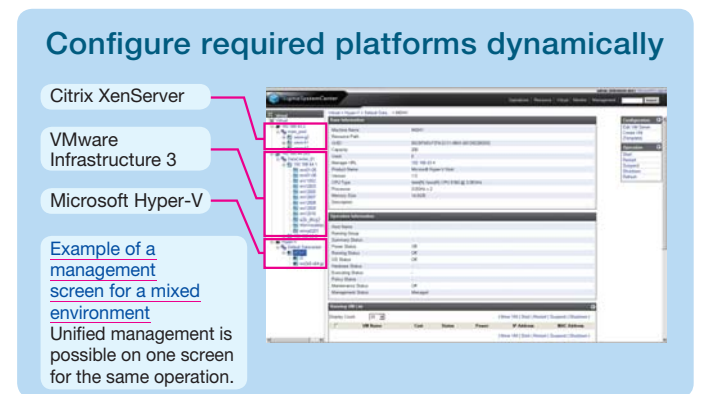
Install security patches remotely

The complicated daily process of applying patches can be performed remotely in a batch over the network. Patches can be installed together without differentiating between physical and virtual servers, offering significant time savings to administrators.



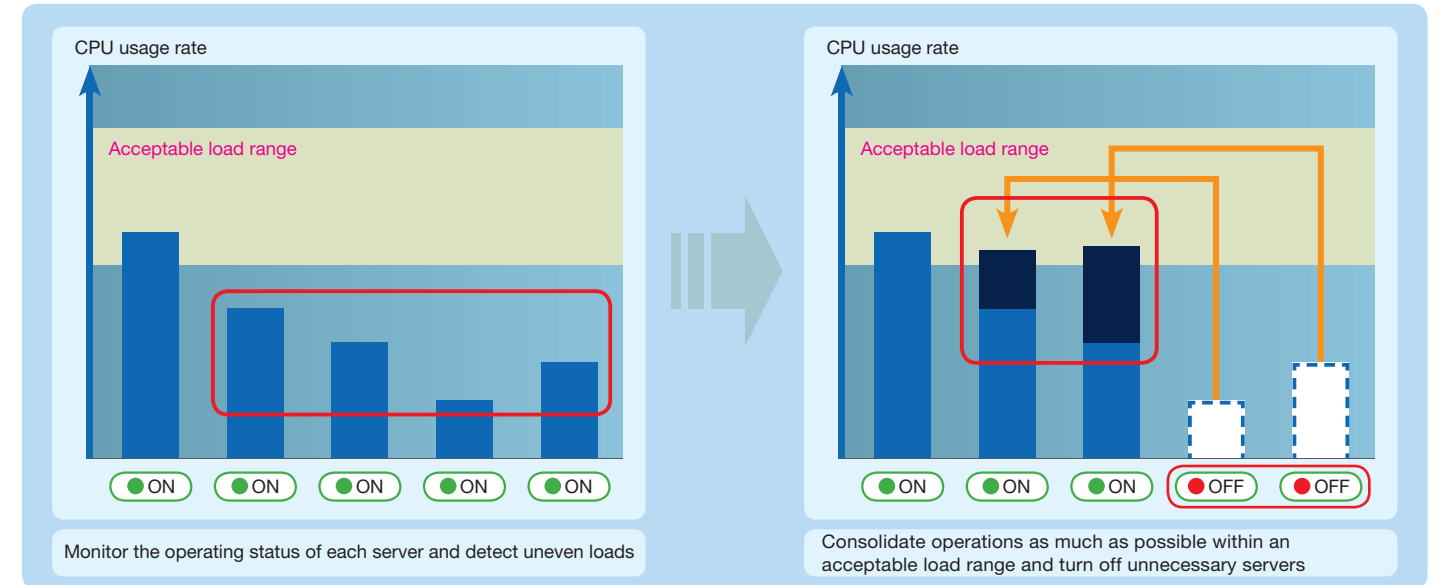
Integrated VM technology

SSC provides integrated VM technology, enabling unified management of different virtual platforms, including physical environments. The integrated management of physical and virtual environments (including VMware® Infrastructure, Citrix XenServer, and Microsoft Hyper-V) is possible.



Save power automatically

Uneven server loads are detected, and virtual machines are consolidated so that performance remains within an acceptable range. Servers that become unused as a result of this process can be shut down, enabling power-savings. When operational loads increase, servers are restarted and operations are redistributed to normalize the load. For this reason, NEC offers a new generation of management functionality in which required performance and energy efficiency automatically coexist.



Superior operability and manageability

Integrated management screen for simple operations

Management of primary functions is completely integrated. It is possible to learn how to use the system in a short period of time and use advanced functions with ease.

Role management of user access rights

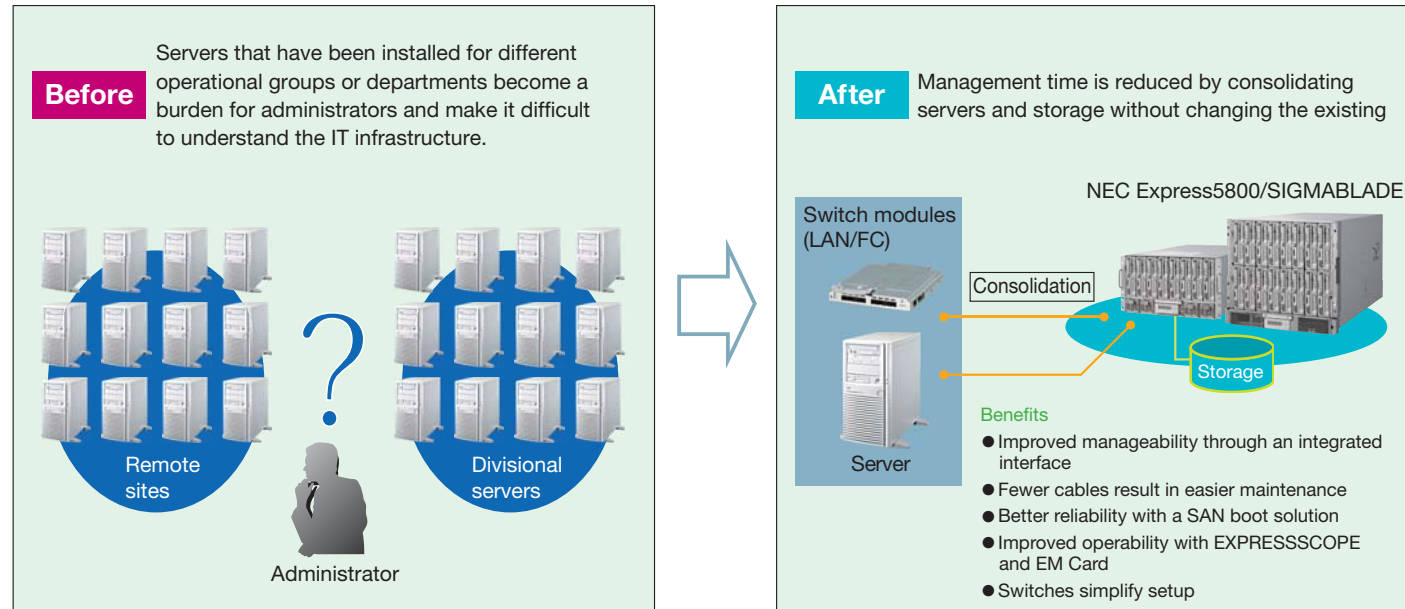
For platform management, the resources shared by multiple services and settings for administrator access rights are important. Through SSC, you can set up administrators and differentiate between management, operation and viewing rights according to each of the resource groups being managed. The information displayed differs depending on the access rights that have been specified. This prevents operational errors and loss of information.

Server Consolidation

NEC Express5800/SIGMABLADE Benefits

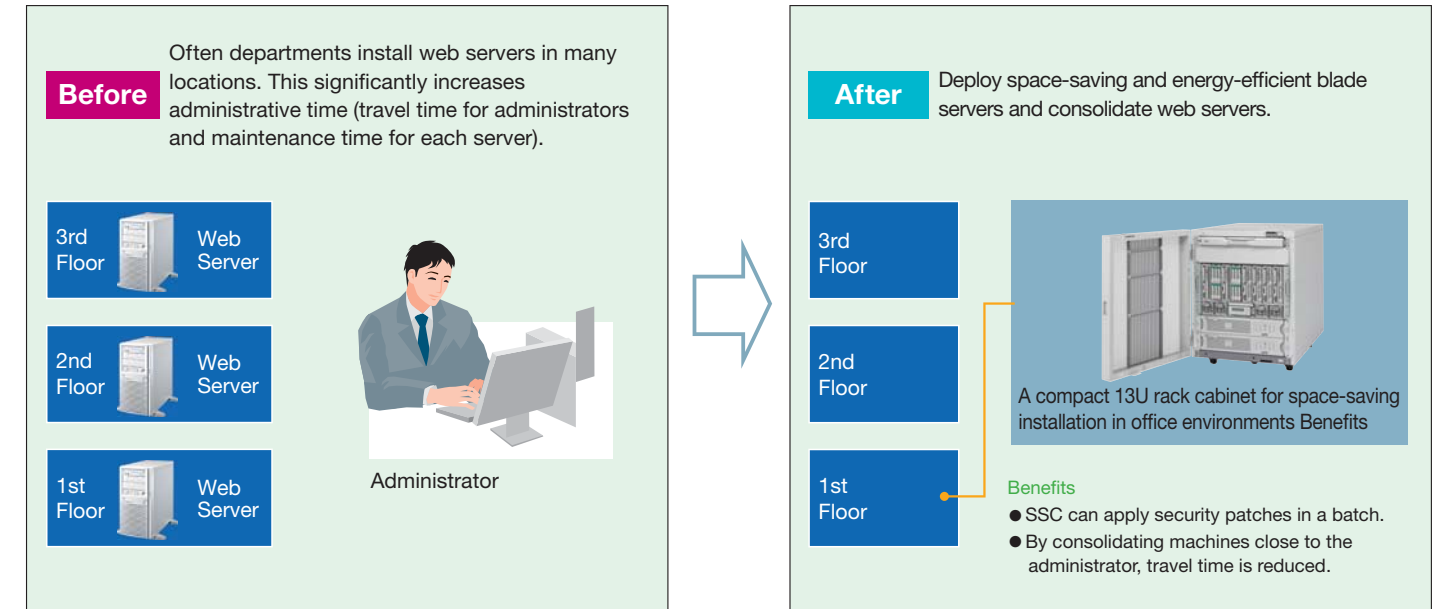
Review and consolidate an organization's decentralized servers

Rapid changes in the business environment have made it necessary for all companies to improve their IT platform. NEC Express5800/SIGMABLADE products equip your business with the IT platform necessary to adapt to these changes.



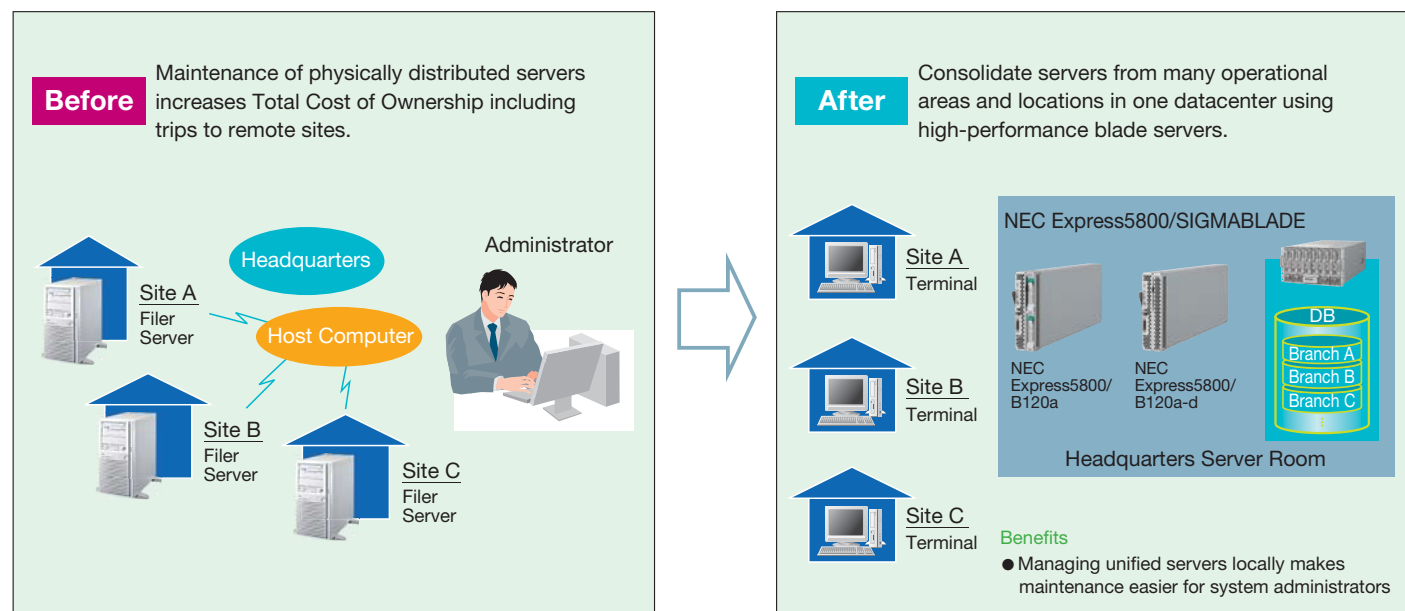
Consolidate internal web servers

Often departments install web servers in many locations. This significantly increases administrative time (travel time for administrators and maintenance time for each server). Eliminate these worries instantly with simpler management provided by compact blade servers.






















Consolidate operational servers and locations

Managing servers scattered among operational areas is a problem. NEC Express5800/SIGMABLADE products, with high-performance CPUs, eliminate these worries.



Specifications

Blade Enclosures																							
				SIGMABLADE-M 				SIGMABLADE-H v2 															
Max. Configuration	CPU Blade	8						16															
	Switch Module	6						8															
	EM Card	2						2															
	Power Supply	4						6															
	Cooling Fan	5						10															
Height	6U						10U																
Max. Power Consumption	5,013W						9,724W																
Dimensions (W x D x H mm)	484.8 x 829 x 264.2						483 x 823 x 442																
Max. Weight	119kg						209kg																
				LAN Options				FC Options				LAN Options				FC Options							
				GbE Intelligent Switch (L2) 	GbE Intelligent Switch (L3) 	10GbE Intelligent Switch (L3) 	GbE Pass-Through Card 	4G FC Switch 	2/4G FC Pass-Through Card 	(12 ports)	GbE Intelligent Switch (L2) 	GbE Intelligent Switch (L3) 	10GbE Intelligent Switch (L3) 	GbE Pass-Through Card 	4G FC Switch 	4G FC Switch 	2/4G FC Pass-Through Card 						
Interconnect Ports (CPU Blades)				16				8				16				8				16			
User Ports				5	5	4	16	4	16		5	5	4	16	4	8	16						
CPU Blades												Storage and I/O Blade											
				B120a 				B120a-d 				B140a-T*2 				AD106a 							
Processor																							
Intel® Xeon® Processor																							
Processor	Processor number	E5502 (1.86 GHz)	E5504 (2 GHz)	L5520 (2.26 GHz LV)	X5550 (2.66 GHz)	X5570 (2.93 GHz)	E5502 (1.86 GHz)	E5504 (2 GHz)	L5520 (2.26 GHz LV)	X5550 (2.66 GHz)	X5570 (2.93 GHz)	E7220 (2.93 GHz)	E7310 (1.60 GHz)	E7450 (2.40 GHz)									
	Max. Processors	2						2						4									
	Core Count	2	4			2			4			2	4		6								
Memory																							
DDR3-1066 Registered or DDR3-1333 Unbuffered DIMM																							
Max.	128 GB						96 GB						128 GB										
Storage																							
2.5-inch SAS/SATA																							
Max.	600GB (SAS) / 146GB (SATA)						-						2.5-inch SAS										
RAID	RAID 0/1*1						-						RAID 0/1/5										
Mezzanine Slots [Vacant]																							
1[1] x Type-1, 1[1] x Type-2 (Type-1 supported)						1[1] x Type-1, 1[1] x Type-2 (Type-1 supported)						2 [2] x Type-1, 2 [2] x Type-2 (Type-1 supported)											
Network																							
2 x 1000BASE-X						2 x 1000BASE-X						4 x 1000BASE-X											
OS Supported																							
Microsoft® Windows Server® 2003 R2, Standard Edition Microsoft® Windows Server® 2003 R2, Enterprise Edition Microsoft® Windows Server® 2003 R2, Standard x64 Edition Microsoft® Windows Server® 2003 R2, Enterprise x64 Edition Microsoft® Windows Server® 2008 Standard Microsoft® Windows Server® 2008 Enterprise Microsoft® Windows Server® 2008 Standard x64 Microsoft® Windows Server® 2008 Enterprise x64 Red Hat Enterprise Linux AS4 (x86) / AS4 (EM64T) Red Hat Enterprise Linux AS4 (x86) / AS4 (EM64T) Red Hat Enterprise Linux 5 (x86) / (EM64T) Red Hat Enterprise Linux AP 5 (x86) / (EM64T)						Microsoft® Windows Server® 2003 R2, Standard Edition Microsoft® Windows Server® 2003 R2, Enterprise Edition Microsoft® Windows Server® 2003 R2, Standard x64 Edition Microsoft® Windows Server® 2003 R2, Enterprise x64 Edition Microsoft® Windows Server® 2008 Standard Microsoft® Windows Server® 2008 Enterprise Microsoft® Windows Server® 2008 Standard x64 Microsoft® Windows Server® 2008 Enterprise x64 Red Hat Enterprise Linux AS4 (x86) / AS4 (EM64T) Red Hat Enterprise Linux AS4 (x86) / AS4 (EM64T) Red Hat Enterprise Linux 5 (x86) / (EM64T) Red Hat Enterprise Linux AP 5 (x86) / (EM64T)						Microsoft® Windows Server® 2003 R2, Standard Edition Microsoft® Windows Server® 2003 R2, Enterprise Edition Microsoft® Windows Server® 2003 R2, Standard x64 Edition Microsoft® Windows Server® 2003 R2, Enterprise x64 Edition Microsoft® Windows Server® 2008 Standard Microsoft® Windows Server® 2008 Enterprise Microsoft® Windows Server® 2008 Standard x64 Microsoft® Windows Server® 2008 Enterprise x64 Red Hat Enterprise Linux AS4 (x86) Red Hat Enterprise Linux AS4 (EM64T) Red Hat Enterprise Linux Advanced Platform 5 (x86) Red Hat Enterprise Linux Advanced Platform 5 (EM64T)											

*1 Linux does not support on-board disk array on the B120a.

*2 Supported by SIGMABLADE-H v2 only.