



**Introduction of
ExpressCluster X SingleServerSafe**

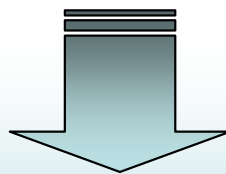
NEC Corporation

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Introduction

- **Users require High Availability (HA) for not only enterprise but also general purpose servers for their business continuity plan**
- **In today's business, IT system down causes an incalculable loss of money and business opportunity**
- **HA demand for Windows and Linux servers has been increasing since these servers have replaced high-end servers**

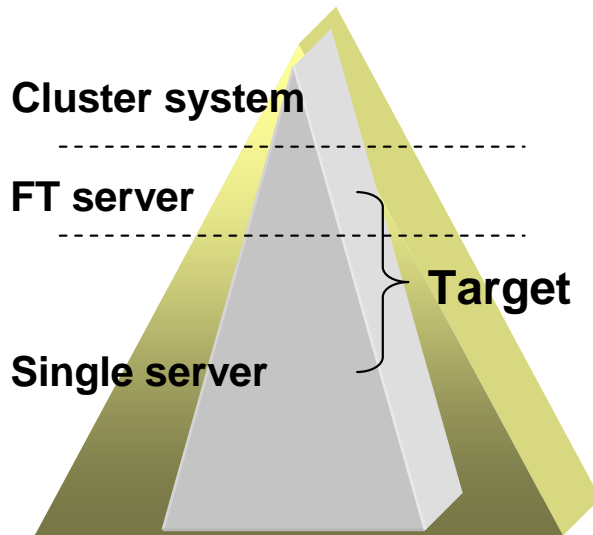


Clustering know-how of ExpressCluster X is utilized to increase HA and robustness of single server

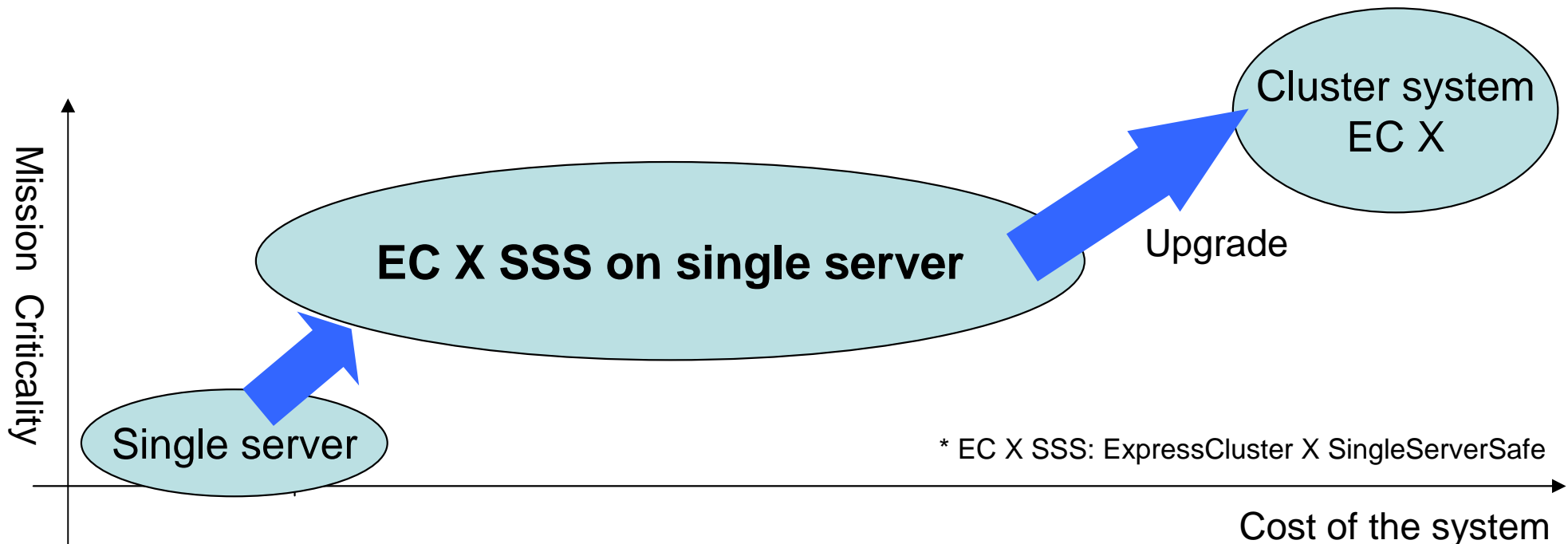
That is ... ExpressCluster X SingleServerSafe

Target Market

Features of ExpressCluster X SingleServerSafe



- EC X SSS can detect both hardware and software failures and reboot server or restart applications to recover the system
- EC X SSS can run on not only general server but also FT (Fault Tolerant) server
- There is an optional license to upgrade EC X SSS to clustering software EC X



* EC X SSS: ExpressCluster X SingleServerSafe

Appeal Points

■ **SSS also stands for**

✓ **Smart Failure Detection**

- Detect HW/SW failures and take an appropriate action

✓ **Simple User Interface**

- Reduce the possibility of error in user operation

✓ **Suitable Business Continuity Solution for SMB**

- X SSS is reasonable solution to improve BC

■ **User-friendly Java-based management GUI**

- **All you have to do is install Web browser and JRE to use management GUI that is called WebManager**

Easy Installation & Configuration

■ Installation

➤ Windows version

- User-friendly install wizard leads the user to install SSS correctly

➤ Linux version

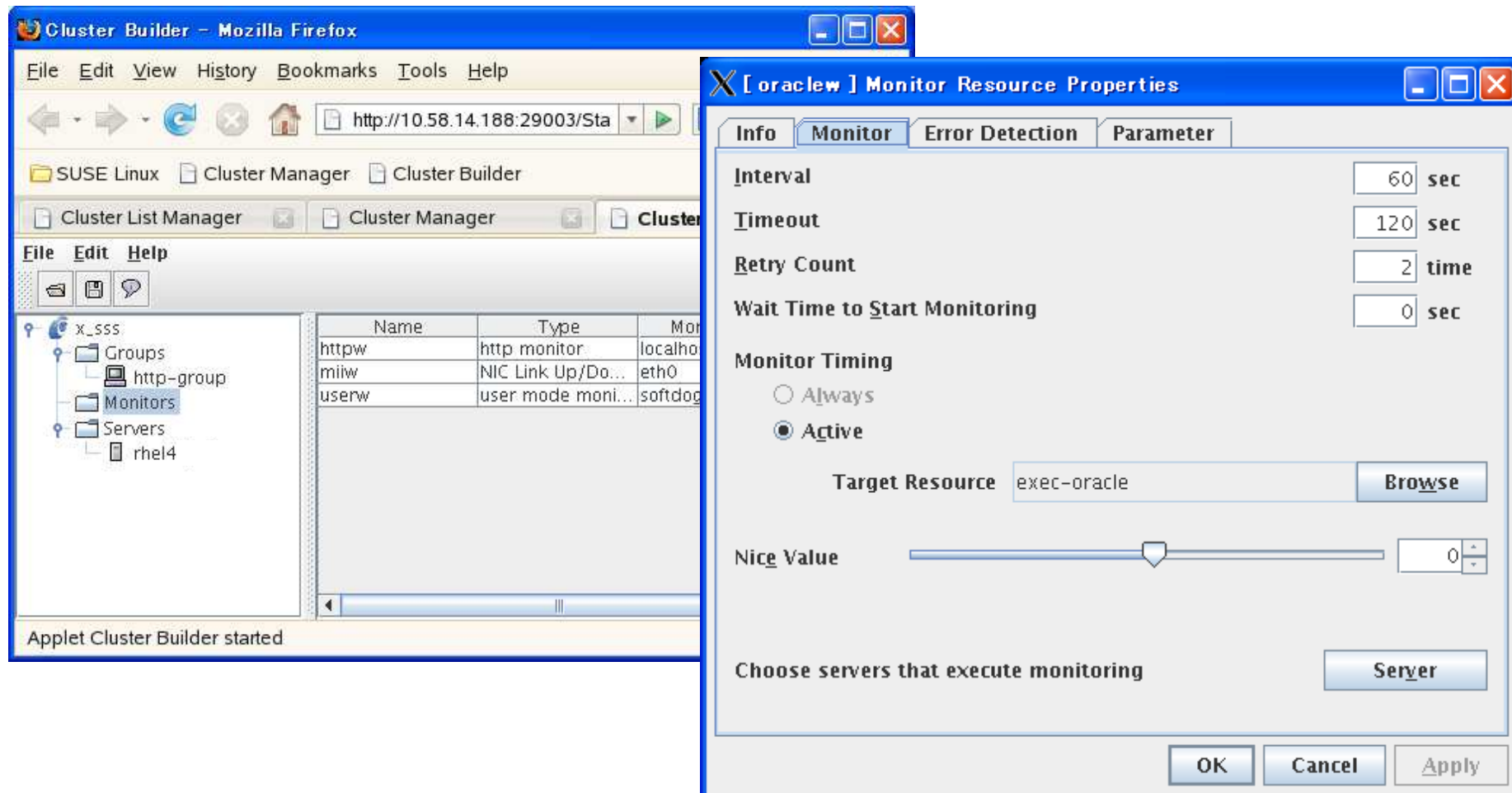
- Just one rpm command is required for installation

■ Configuration

- ✓ It is possible to create system configuration file using only user-friendly GUI - Builder
- ✓ It is just needed to prepare Java-enabled Web browser to launch Builder
- ✓ It is possible to save configuration file anywhere and recover the system only using this file

Builder

- User-friendly GUI is helpful for user to create configuration file correctly
- Flexible setting or fine tuning is available



Easy Operation

- **It is possible to operate cluster system using only user-friendly GUI – WebManger**
 - **Shutdown/reboot server**
 - **Suspend/resume EC X SSS service**
 - **Start/stop application or service**
 - **Suspend/resume monitor resources**
 - **Collect all log files for detailed failure analysis**

- **It is just needed to prepare Java-enabled Web browser to use WebManger**

- **It is possible to launch Builder on WebManger console**

WebManager

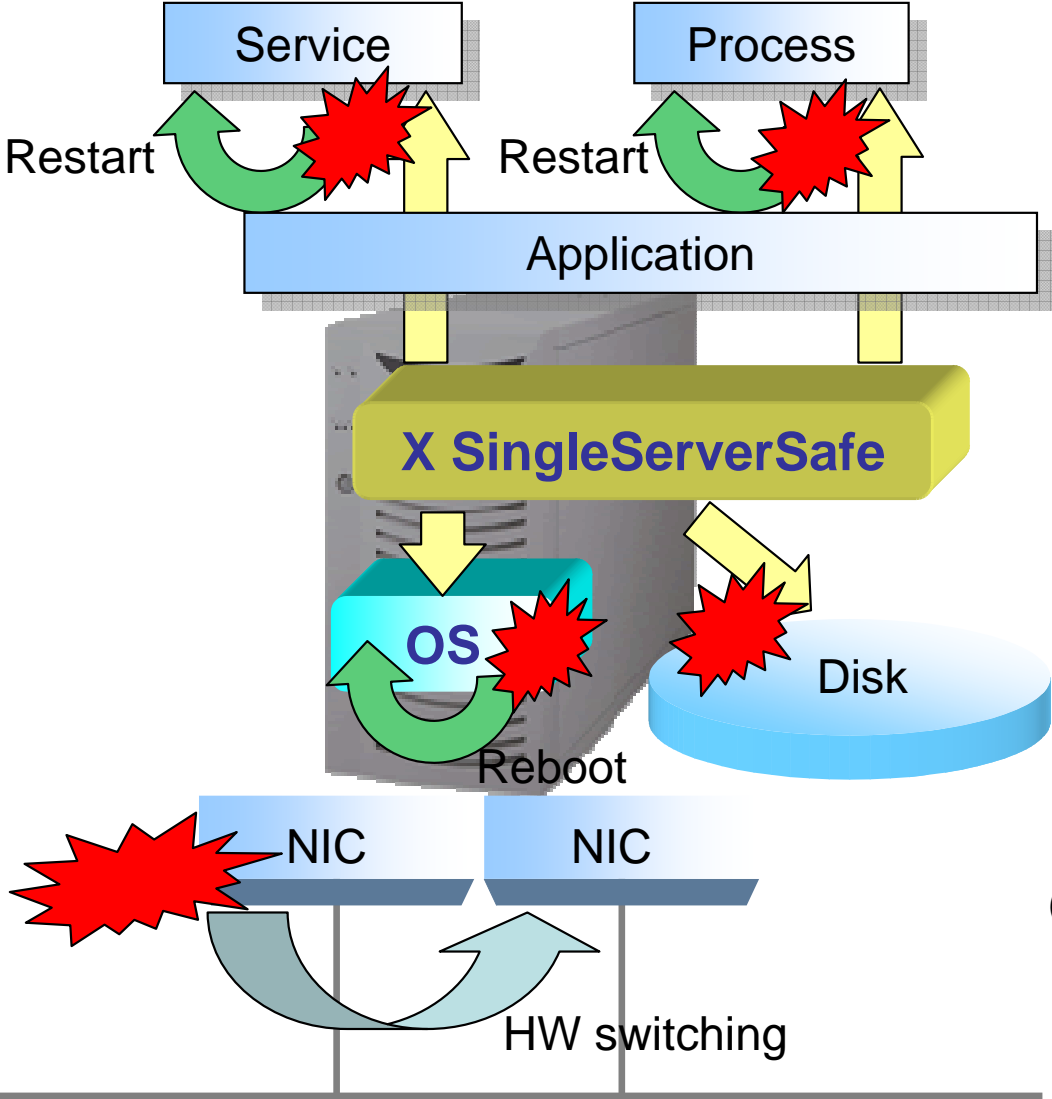
Integrated WebManager can monitor the status of both cluster and SSS systems

WebManager is to look the details of each cluster or SSS system

The screenshot displays the ExpressCluster X WebManager interface in Mozilla Firefox. The main window shows a tree view of the cluster structure with 'Server: rhel4u3-1' selected. The right pane displays the 'User-Mode Monitor Name: userw' configuration for the selected server. Below this, a table shows the resource status on each server, with 'rhel4u3-1' listed as 'Online'. At the bottom, a log table provides detailed event information.

Received Time	Time	Server Name	Module Name	Event ID	Event Description
2007/12/07 10:36:24.659	2007/12/07 10:36:24.612	rhel4u3-1	rc	11	Activating group
2007/12/07 10:36:24.553	2007/12/07 10:36:24.534	rhel4u3-1	rm	1	Monitoring http
2007/12/07 10:36:15.700	2007/12/07 10:36:15.581	rhel4u3-1	rc	10	Activating group
2007/12/07 10:36:15.524	2007/12/07 10:36:14.793	rhel4u3-1	rm	1	Monitoring miw
2007/12/07 10:36:15.512	2007/12/07 10:36:14.781	rhel4u3-1	rm	1	Monitoring user
2007/12/07 10:36:14.934	2007/12/07 10:36:14.780	rhel4u3-1	rm	51	The trial license
2007/12/07 10:36:13.127	2007/12/07 10:36:12.898	rhel4u3-1	nm	6	All servers have
2007/12/07 10:36:12.704	2007/12/07 10:36:12.607	rhel4u3-1	nm	1	Server rhel4u3

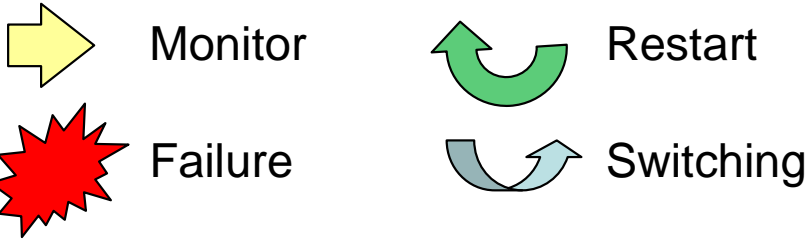
Recovery Targets



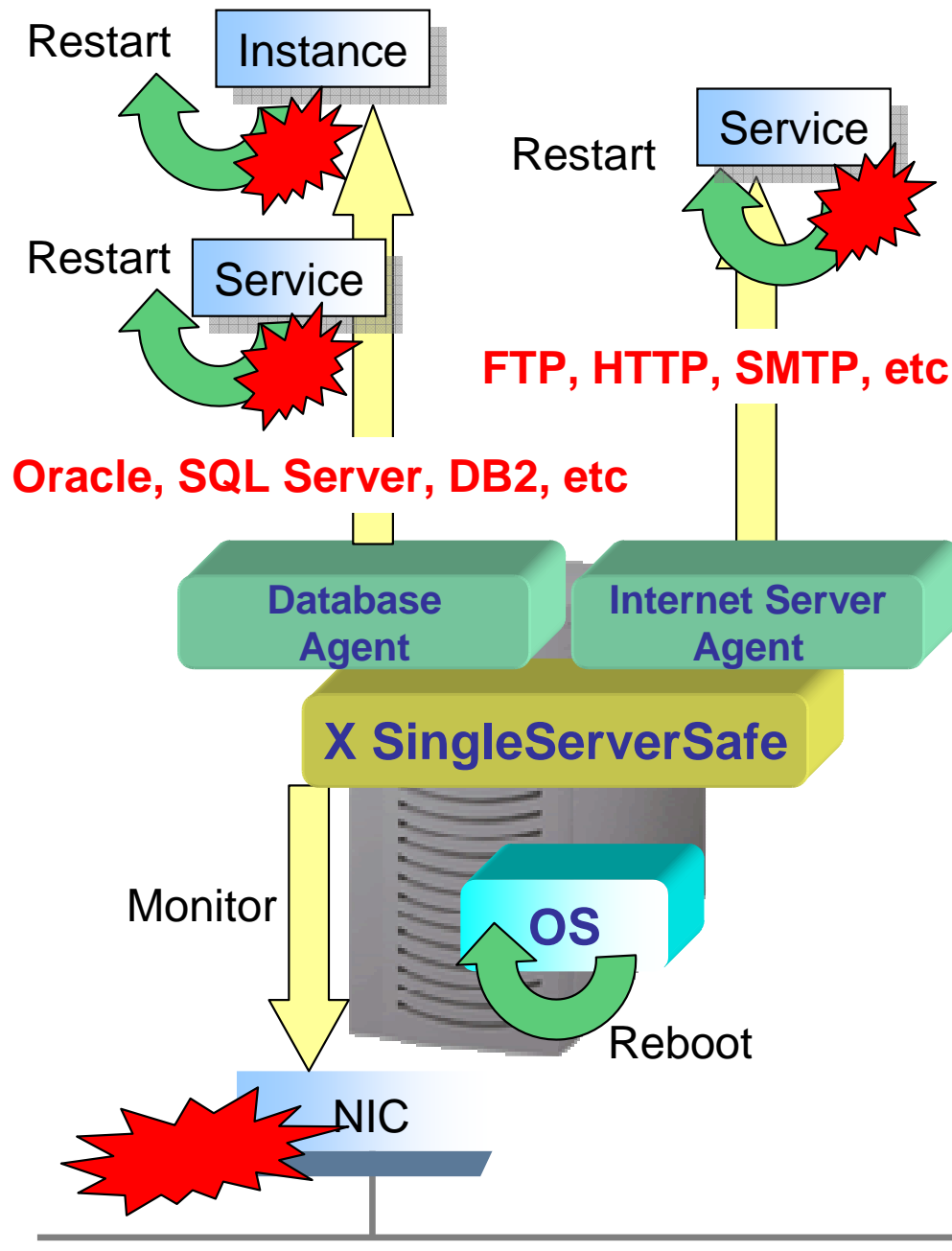
Recovery Targets and Actions

- OS
Reboot the system if OS hung up
- NIC (Windows ver.)
Switch to standby NIC (*)
- Disk
Reboot the system if disk error happens
- Service/Process
 1. Retry to restart service/process several times
 2. Reboot the system if application error happen after several times retry action

(*) Do not use this function of ft server



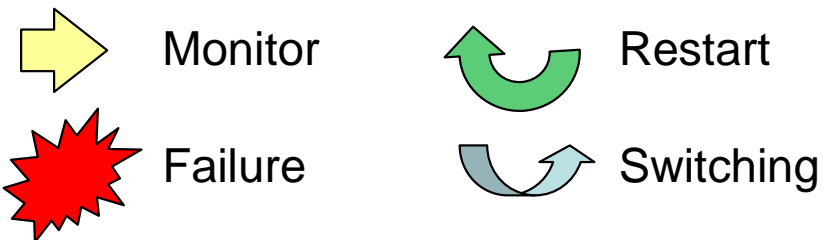
Agent Options



Agent options can detect application or service hung up and will restart them automatically

Recovery Targets

- Database Agent
Oracle, MS SQL Server, DB2, etc
- Internet Server Agent
HTTP, SMTP, POP3, etc
- Application Server Agent
Tuxedo, WebLogic, WebSphere, etc
- File Server Agent (Linux ver.)
Samba, NFS



Product Lineup (Windows)

Product Name	Summary
ExpressCluster X SingleServerSafe 1.0 (1 CPU license)	It improves HA of single server against HW/SW failures
ExpressCluster X SingleServerSafe 1.0 (2 CPUs license)	
ExpressCluster X Database Agent 1.0 (1 node license)	It enhances DB monitoring function
ExpressCluster X Internet Server Agent 1.0 (1 node license)	It enhances internet services monitoring
ExpressCluster X Application Server Agent 1.0 (1 node license)	It enhances AP server application monitoring
ExpressCluster X Alert Service 1.0 (1 node license)	It sends e-mail to the administrators when some failure happens
ExpressCluster X SingleServerSafe upgrade license	This license is to upgrade to cluster system

Product Lineup (Linux)

Product Name	Summary
ExpressCluster X SingleServerSafe 1.0 (1 CPU license)	It improves HA of single server against HW/SW failures
ExpressCluster X SingleServerSafe 1.0 (2 CPUs license)	
ExpressCluster X Database Agent 1.0 (1 node license)	It enhances DB monitoring function
ExpressCluster X Internet Server 1.0 Agent (1 node license)	It enhances internet services monitoring
ExpressCluster X Application Server Agent 1.0 (1 node license)	It enhances AP server application monitoring
ExpressCluster X File Server Agent 1.0 (1 node license)	It enhances file server application monitoring
ExpressCluster X Alert Service 1.0 (1 node license)	It sends e-mail to the administrators when some failure happens
ExpressCluster X SingleServerSafe upgrade license	This license is to upgrade to cluster system

System Requirements

ExpressCluster X SingleServerSafe		
	Windows version	Linux version
Architecture	IA32, x86_64	IA32, x86_64
Memory	IA32: 60MB ~ X86_64: 110MB ~	IA32: 64MB ~ X86_64: 64MB ~
Disk	IA32: 20MB ~ X86_64: 40MB ~	IA32/x86_64: 104MB ~
Support OS	Windows Server 2003 SE/EE	RHEL AS/ES 4 update 4, 5 RHEL 5 SLES 9 SP3 SLES 10 Asianux Server 3 Turbolinux 10 Server MIRACLE LINUX V4.0 SP2

RHEL: Red Hat Enterprise Linux

SLES: Novell SUSE LINUX Enterprise Server

System Requirements

	WebManger/Builder
Architecture	IA32
Support Java version	JRE, Standard Edition Version 1.5.0_06 or later
Confirmed Web Browser	Internet Explorer 7 Internet Explorer 6 SP2 Firefox 2.0.0.1 Konqueror3.3.1-5.13
Confirmed OS	Windows Vista Windows XP SP2 Windows Server 2003 SE/EE RHEL AS/ES 4 RHEL 5 SLES 9, 10

JRE: Java Runtime Environment

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