Orchestrating a brighter world

NEC

SingleServerSafe Product Introduction

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NEC Corporation,
Cloud Platform Division,
(EXPRESSCLUSTER)

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Orchestrating a brighter world

NEC creates the social values of
safety, security, fairness and efficiency
to promote a more sustainable world
where everyone has the chance to reach
their full potential.

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1. Requirements for High Availability

Requirements for high availability

- Requirement for high availability expanded from traditional mission critical system to servers in departments/shops.
- Impact of server failure in complex and highly-developed IT society is getting bigger and bigger.
- Usage of Windows / Linux servers in low-end to middle-range became general in recent years, and higher availability / usability has been required more and more.

Technology of EXPRESSCLUSTER X can be applied to single server.

Maximum usage of EXPRESSCLUSTER X technology for enabling to improve availability and to avoid failure on single server.

EXPRESSCLUSTER X SingleServerSafe

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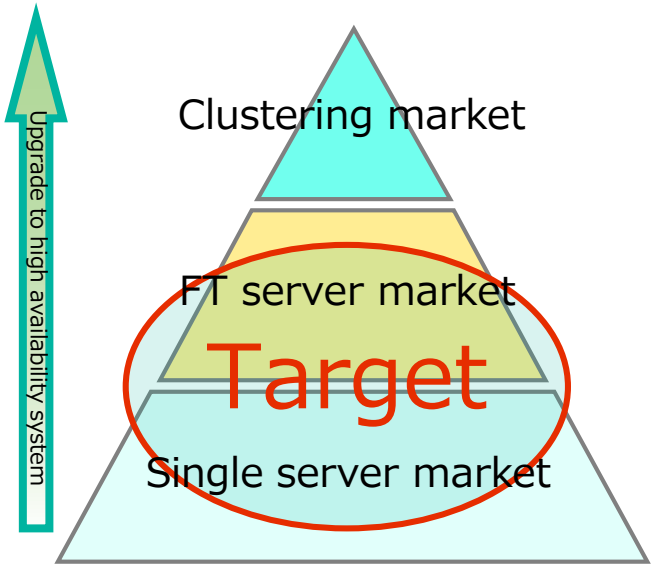
Target of EXPRESSCLUSTER X SingleServerSafe

How you avoid the server disruption of mission critical systems?



Advantage of EXPRESSCLUSTER X SingleServerSafe;

- Duplication in required systems enables to improve availability in single server.
- Monitors abnormality of HW & SW, recovers them from failure, and improves availability!
- FT server (HW duplicated server) also acquires SW availability to become server with higher reliability!
- For further availability, upgrade to clustering system is enabled.

Easy implementation compared with cluster,
achieving high robustness to the failure.

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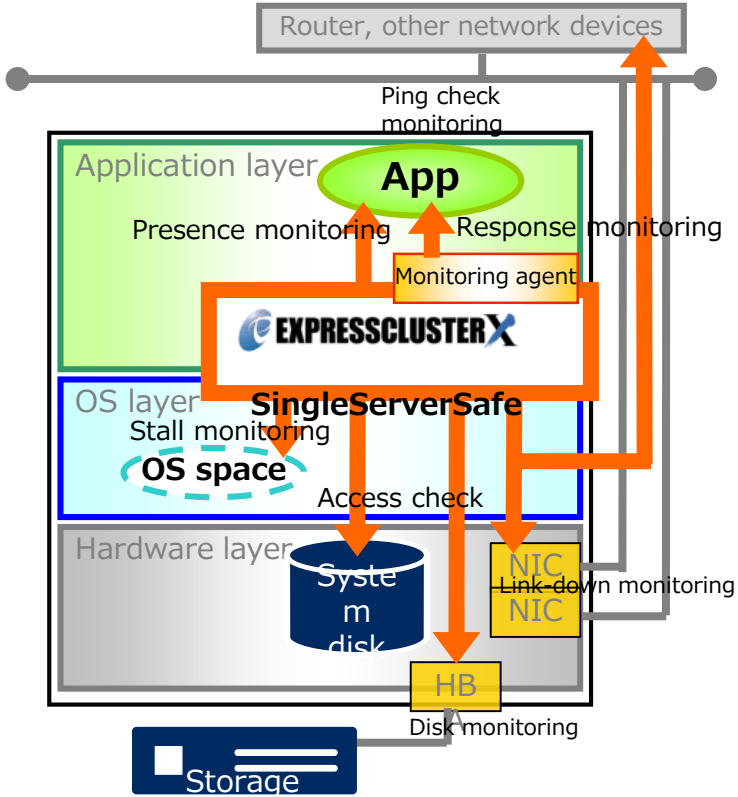
2. Product Overview

Detectable failure (monitoring target)

Accurate monitoring to check the actual status



- Application layer:
  - Presence monitoring of process
    - Restarts when process abnormality is detected
  - Monitoring agent
    - Restarts when abnormality in SQL, HTTP and so on is detected
- OS layer
  - User space monitoring
    - Restarts when abnormality in AP layer such as hang-up is detected.
- Hardware layer
  - Disk monitoring
    - Restarts when disk access abnormality is detected.
  - Ping monitoring
    - Restarts when ping abnormality is detected.
  - NIC Link UP/DOWN monitoring
    - Restarts when link-down is detected.
    - Availability can be improved by NIC duplication.

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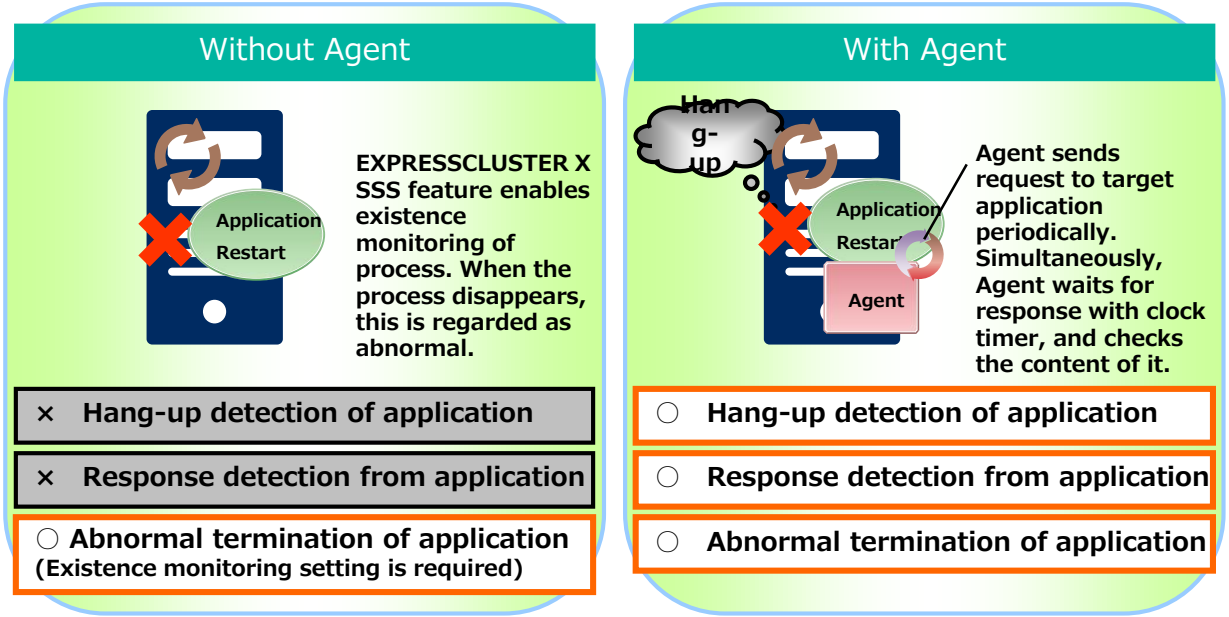
Benefit of monitoring Agent

Improves high availability due to appropriate monitoring of application

- Same monitoring Agent as Agent of EXPRESSCLUSTER X can be used.



***Monitoring Agent is strongly recommended**

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Monitoring target of Agent

Monitoring application hang-ups and abnormal events in detail!

Database (Database Agent)

Windows

Oracle, SQL Server, DB2, ODBC, PowerGres, etc

Linux

Oracle, MySQL*, PostgreSQL, PowerGresPlus, DB2, Sybase

Internet Server (Internet Server Agent)

Windows

IIS, SMTP/POP/IMAP4, HTTP,HTTPS, etc

Linux

apache, httpd, sendmail, postfix, popd, etc

File Server (File Server Agent)

Linux

Samba, NFS

Application Server (Application Server Agent)

Windows

Linux

WebLogic, WebSphere, WebOTX, Tuxedo, etc

Monitoring OS and Java VM Resource (System Resource Agent / Java Resource Agent)

Windows

Linux

- System Resource Agent
  CPU usage, memory usage, number of file handles
- Java Resource Agent
  monitoring resources on execution environment (Heap area, etc.)

*In order to use the MySQL Monitor resource, please get a paid MySQL product (MySQL subscription or MySQL OEM license that matches your MySQL usage).

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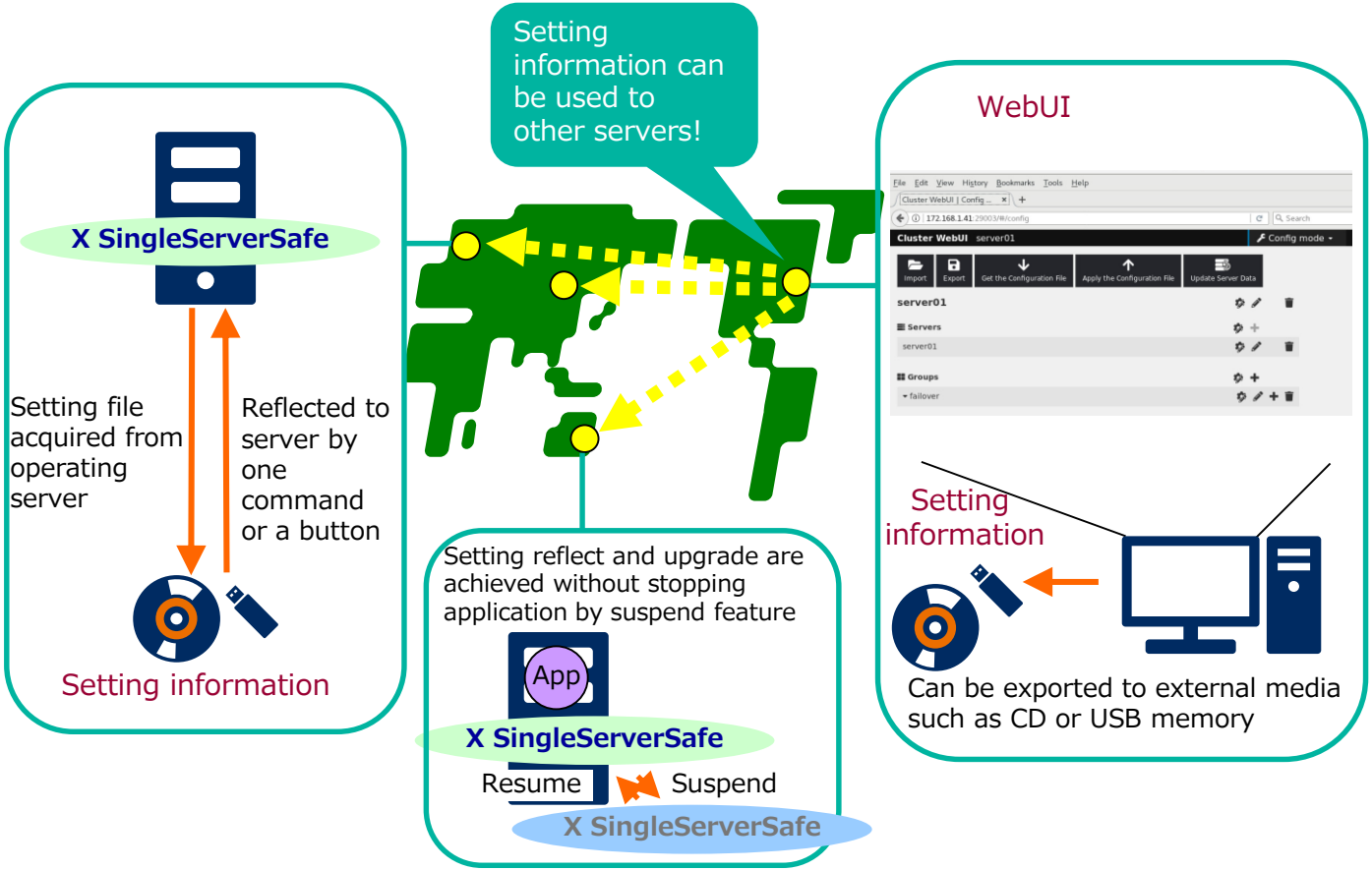
Off-line creation of setting information can be applied to other servers



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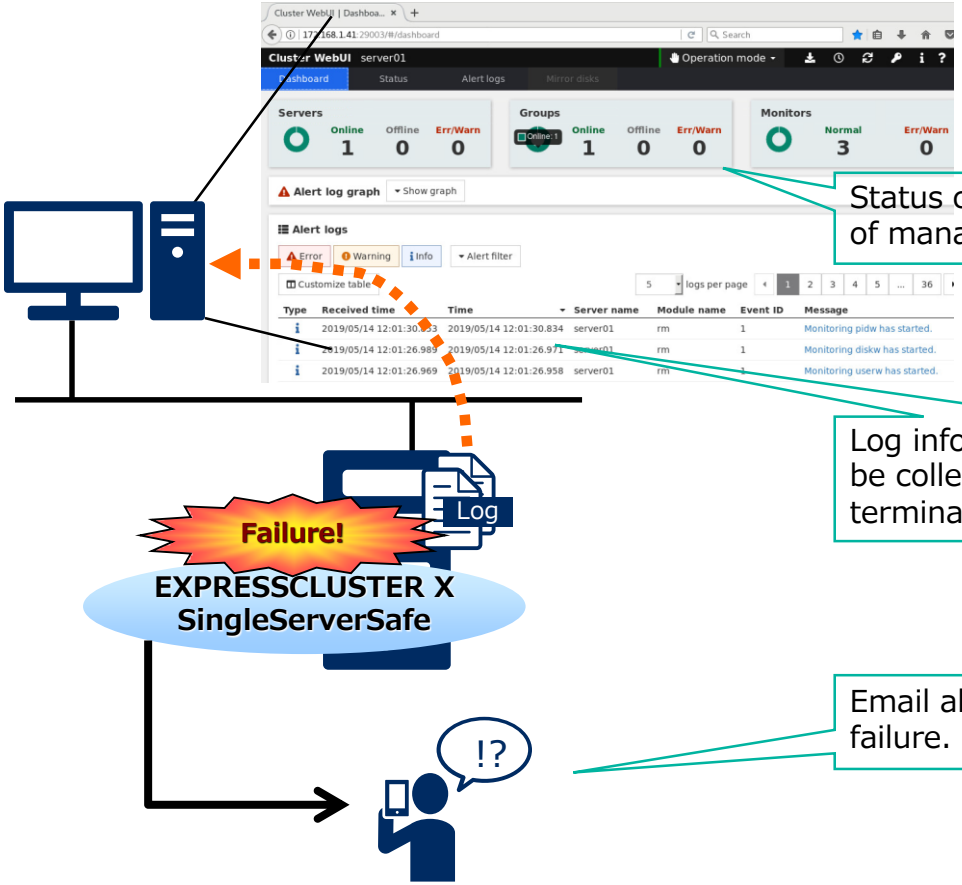
Alert and support in case of failure



Status can be checked with view of management terminal.

Log information of all servers can be collected from management terminal in one click.

Email alert can be done in case of failure.

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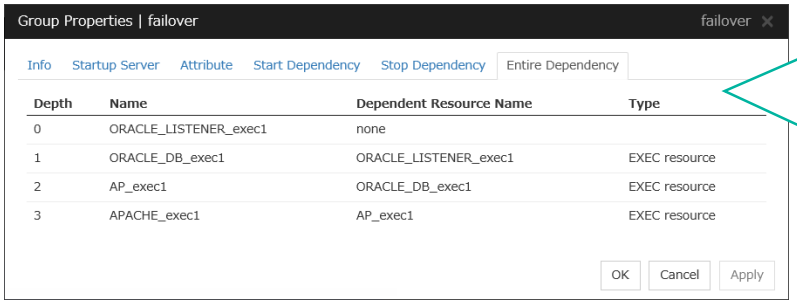
3. Features in Operation (Screen, Usability)

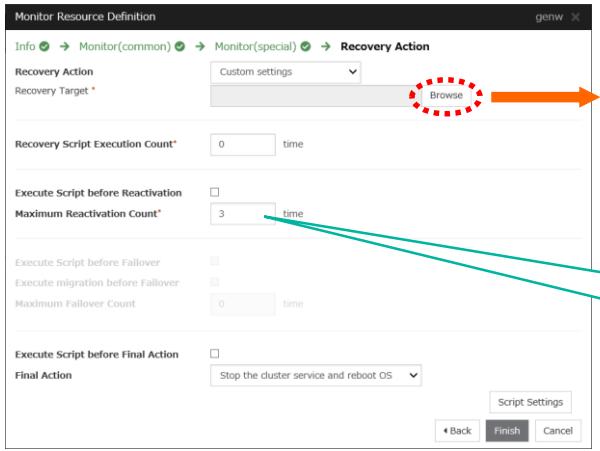
Features in operation

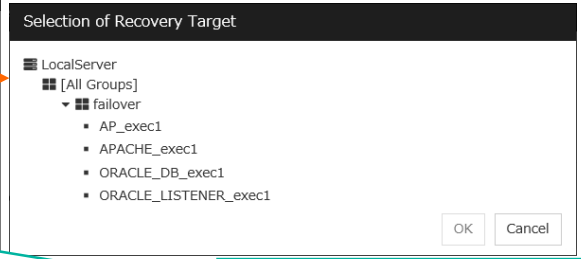
Start / stop order and recovery process from abnormal status can be set up.



Makes system groups in operation unit, and set up procedure of start /stop

Enables setting from operation point of view unlike start procedure of OS service manager (Windows) or init script(Linux).





Sets up restart in resource unit, group unit, or server unit, as a recovery procedure from abnormal situation.

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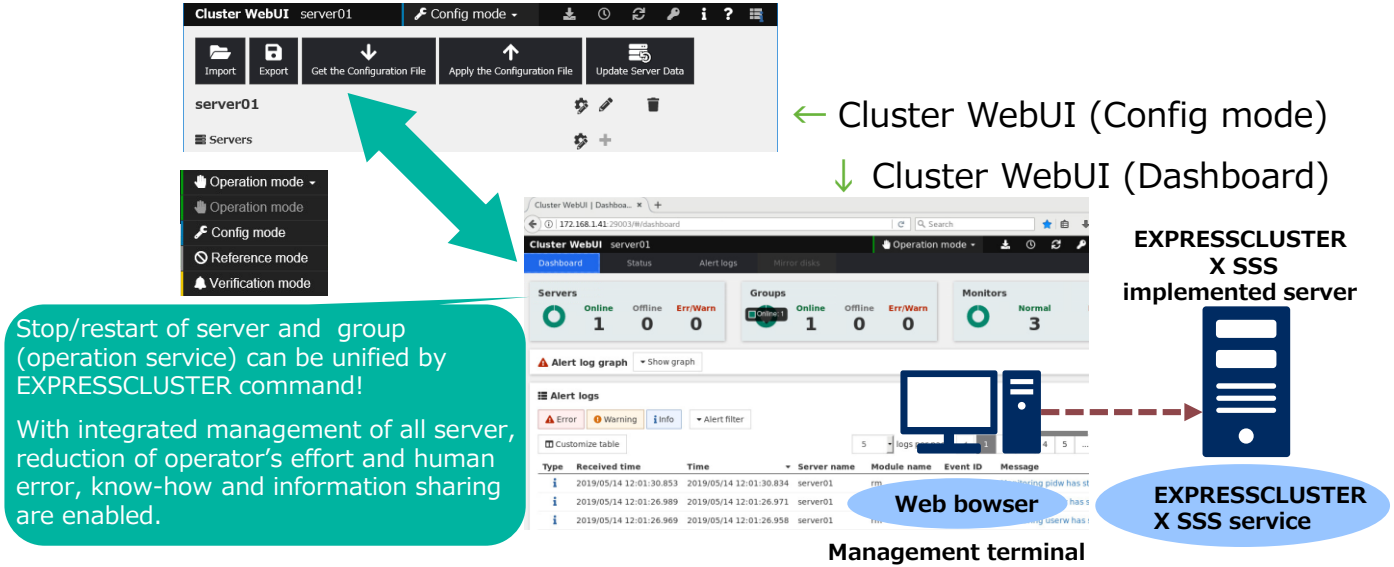
Operating procedure

- Same GUI as one for EXPRESSCLUSTER X can be used for environment configuration
- Server status monitoring, start / stop of operation group, and log collection can be done from Cluster WebUI, as well as CLI.



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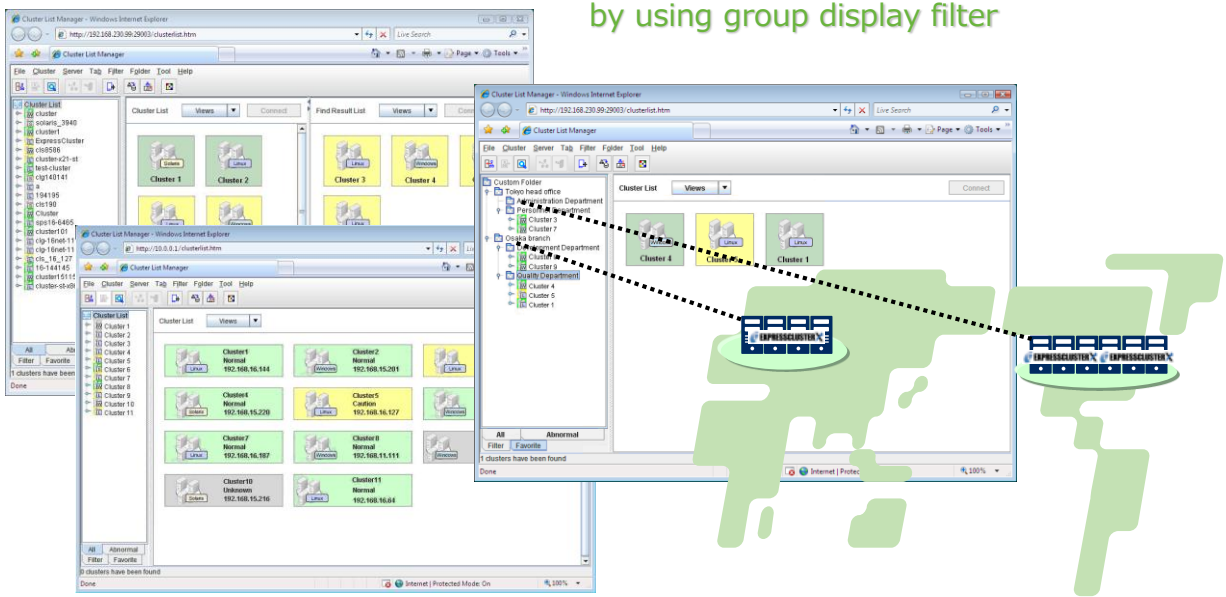
Simple view of server status with integrated Manager

- Enables to refer to clustering configuration status of both EXPRESSCLUSTER X and SingleServerSafe in the same LAN.
- Enables to run several WebManager separately

Rapid search of node by search filter

Selected cluster display in business application unit by using group display filter



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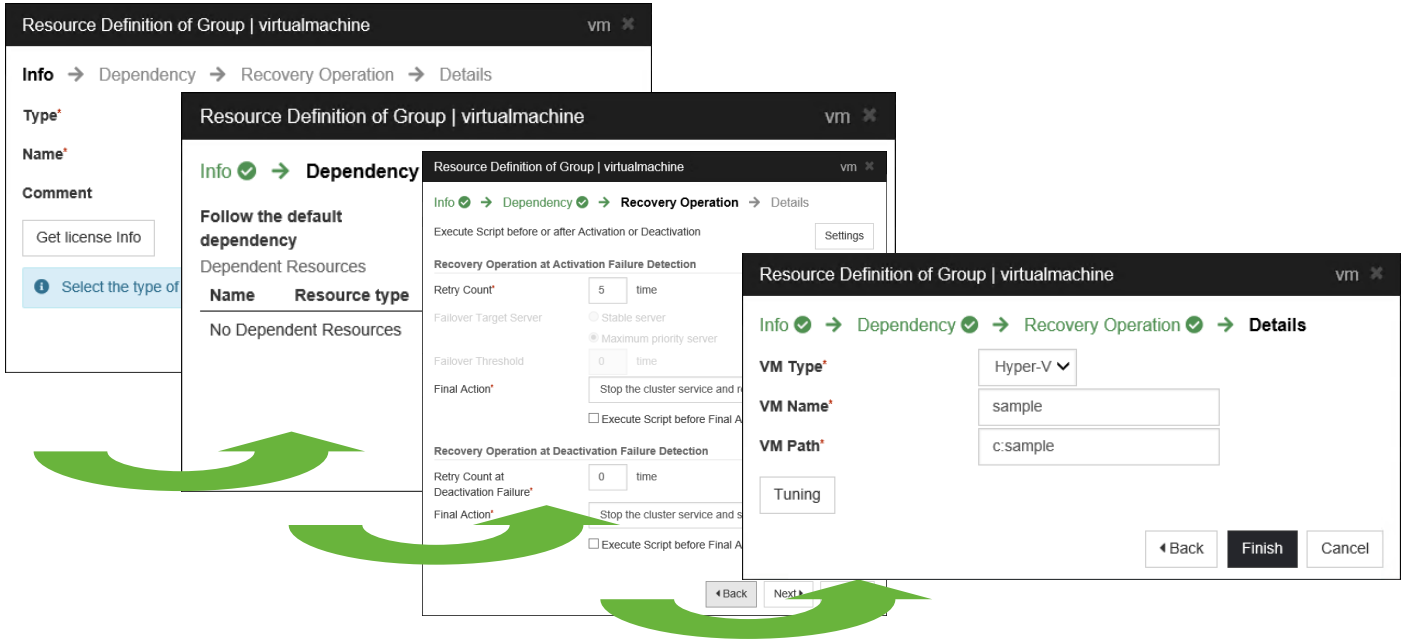
Easy implementation for virtualization environment

Easy setting of start / stop / monitoring of virtual machine

- Only needs to input required items to GUI wizard format



Enables integration of virtual machine to one platform with HA feature

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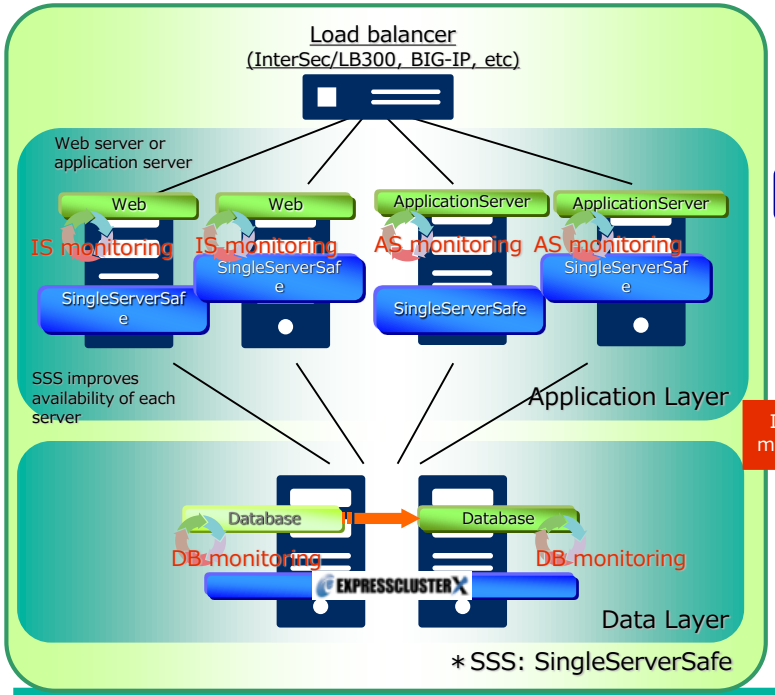
4. Usage Scene

Solution to improve reliability for Web 3 layer system

Enables integrated management of system under load balancer using SingleServerSafe

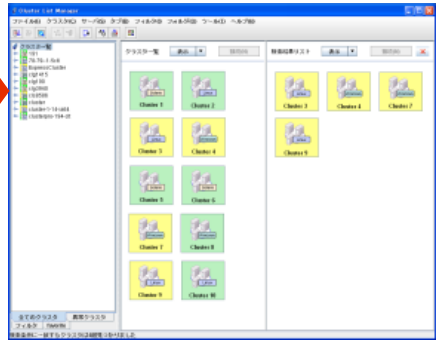


Improves availability of whole system by deploying EXPRESSCLUSTER X SSS in web server / app server under load balancer and deploying EXPRESSCLUSTER X to DB server.

Integrated management of whole system

With EXPRESSCLUSTER X integrated manager, enables to manage whole system configured for different purpose and on heterogeneous OS.

Integrated management



Achieves higher availability and usability of whole system

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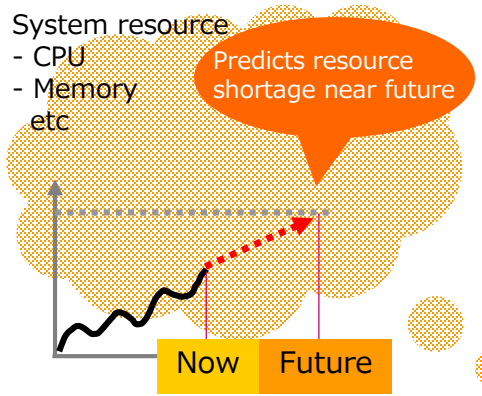
“System Resource Agent” usage situation

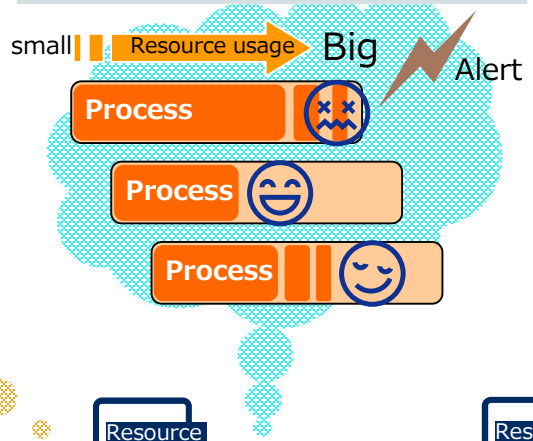
Realize stable operation by avoiding system resource failure

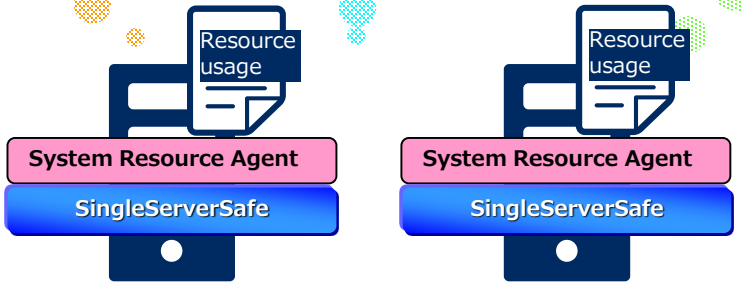
Monitors whole system resource
Prevents trouble in advance

Monitors resource of each process
Alerts abnormal resource usage

Stores system resource information
Can be used for sizing or reporting







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Thank You

EXPRESSCLUSTER X

An Integrated High Availability and Disaster Recovery Solution

For more product information & request for trial license,
visit >> https://www.nec.com/en/global/prod/expresscluster/

For more information, feel free to contact us - info@expresscluster.jp.nec.com

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