Empowered by Innovation NEC

EXPRESSCLUSTER X 3.1
Feature Improvements

1st IT Software Division / IT Network Global Solutions Division
NEC Corporation

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EXPRESSCLUSTER X 3.1 Enhancements

Availability	Virtualization	Operability	Data mirroring
Smart Failover (*)	Expansion of non-disruptive failover support (VM, vSphere 5(ESXi))	Smartphone & tablet support	Feature for remote clustering
System resource monitoring		Twitter support	Mirror data bandwidth control
Java VM monitoring		Linkage with system mgmt s/w (MIB support)	
Group dependency		Failure Simulation	
Process name monitoring		Simplified service resource configuration	

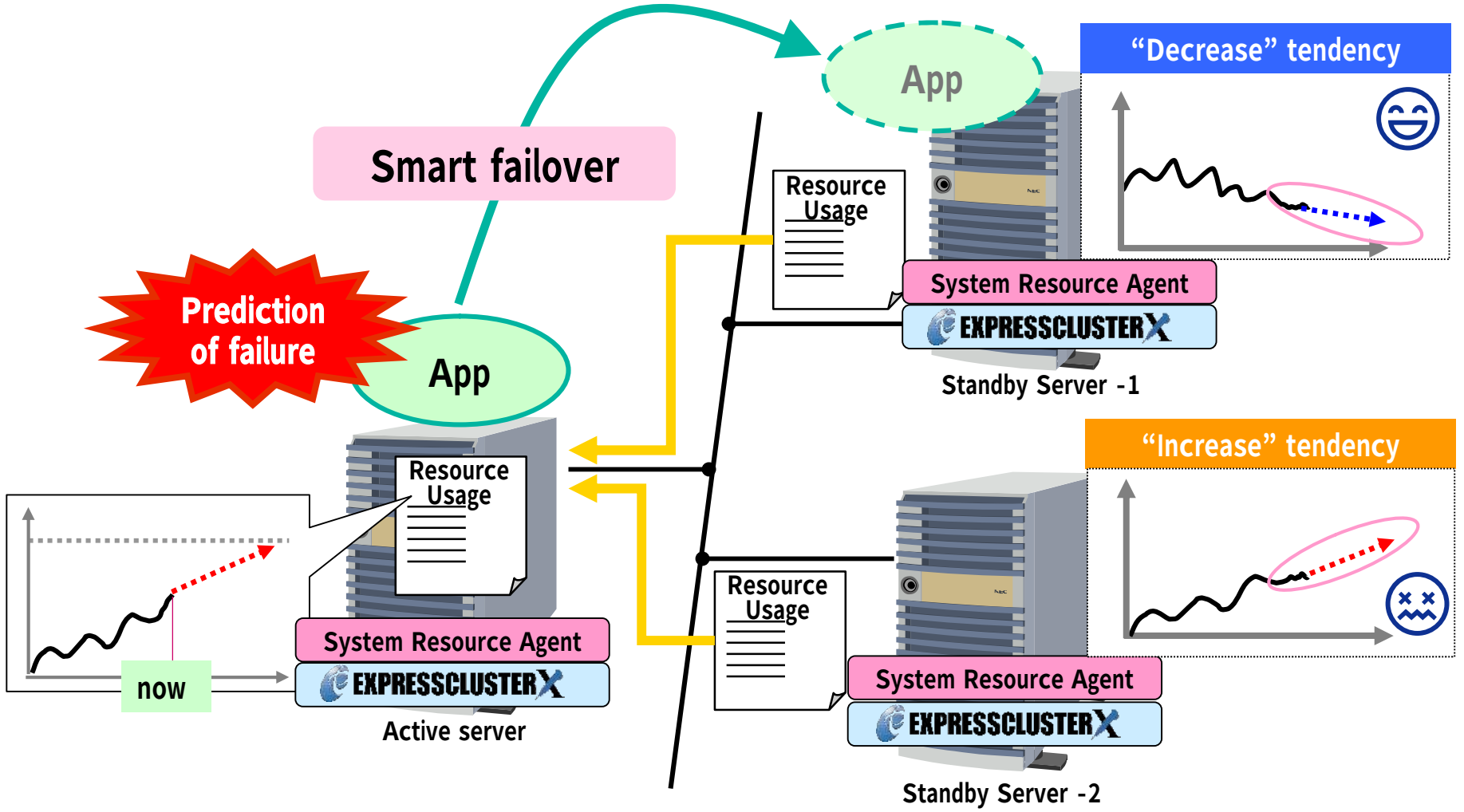
(*) **What is "Smart HA Cluster"?**

In addition to failover due to any failure, it enables failover based on predictive detection of failure which helps system to achieve higher reliability.

Smart Failover

Windows
Linux

Predicts failure and automatically judges appropriate server to failover by collecting/analyzing system resource usage



New monitoring option "System Resource Agent"

Windows
Linux

Realize stable operation by avoiding system resource failure

Monitors whole system resource
Prevents trouble in advance

System resource
- CPU
- Memory
etc

Predicts resource shortage near future

Now
Future

Monitors resource of each process
Alerts abnormal resource usage

small
Resource usage
Big
Alert

Process
Process
Process

Stores system resource information
Can be used for sizing or reporting

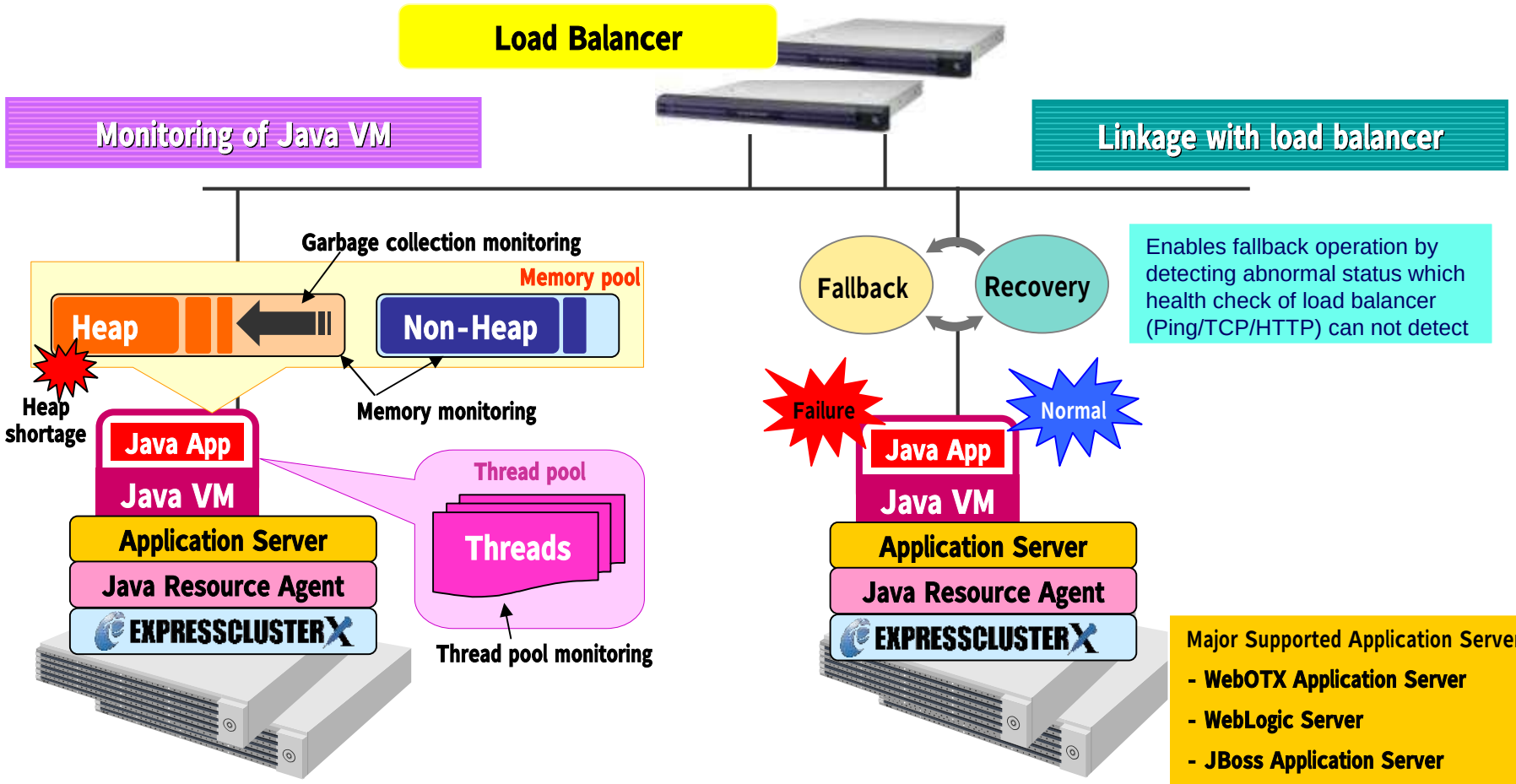
Resource usage
System Resource Agent
EXPRESSCLUSTER X

Resource usage
System Resource Agent
EXPRESSCLUSTER X

New monitoring option "Java Resource Agent"

Windows
Linux

Improves availability of application server by monitoring of Java virtual machine.



Enables fallback operation by detecting abnormal status which health check of load balancer (Ping/TCP/HTTP) can not detect

Major Supported Application Servers

- **WebOTX Application Server**
- **WebLogic Server**
- **JBoss Application Server**
- **Apache Tomcat**

Group Dependency

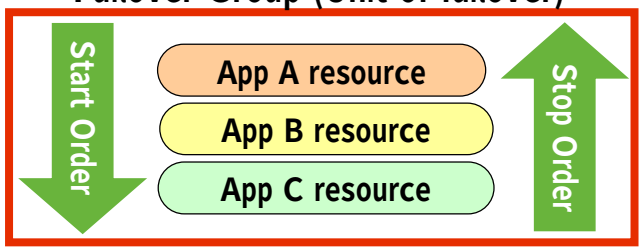
Windows
Linux
Solaris

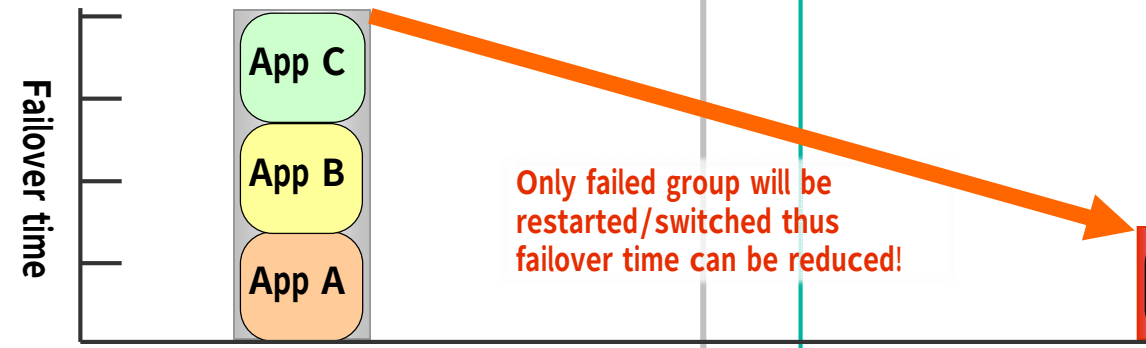
Shortened failover time by localizing the failover unit

Previous

- All the resource should be in the same failover group in case system requires multiple applications (cluster resource) to start in fixed order.
- Restarts all registered resources in case of failure.

Failover Group (Unit of failover)





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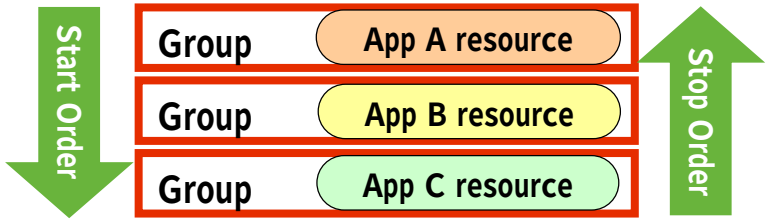
- Enabled to define groups by each apps (cluster resource), and determine order to start/stop.
- Target group will be restarted in case of failure

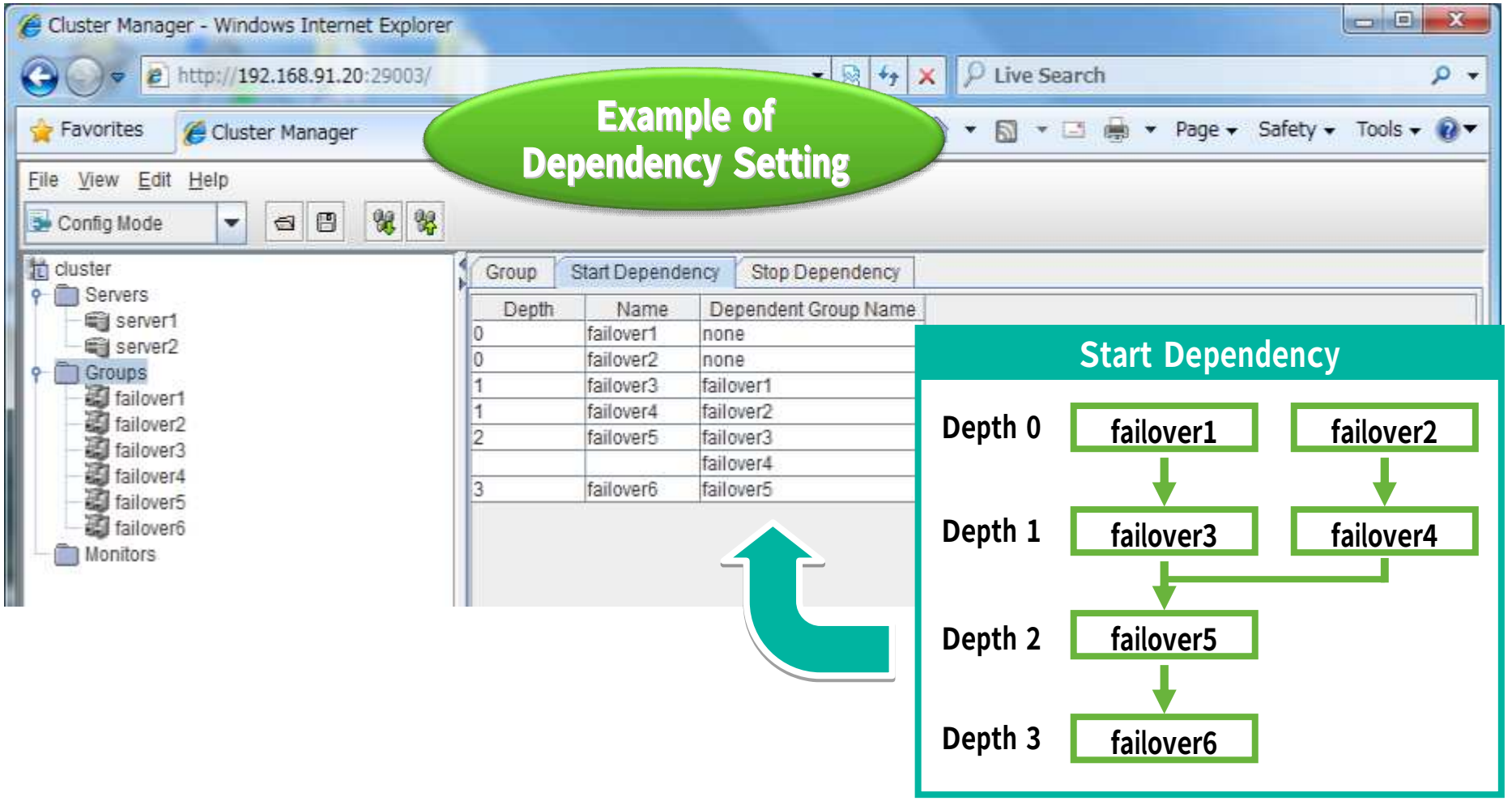
Separated groups for each apps can be defined



Group Dependency

Windows
Linux
Solaris

Group start/stop can be configured from GUI while being able to view the current settings at a glance



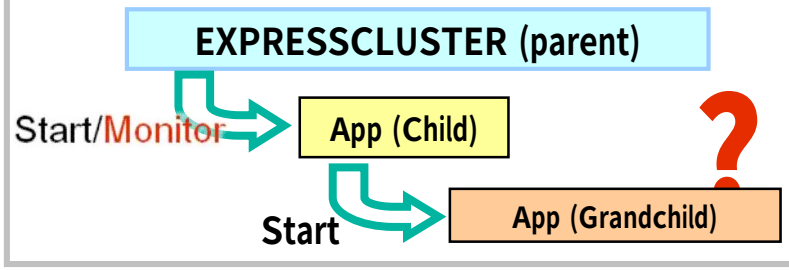
Process name monitoring

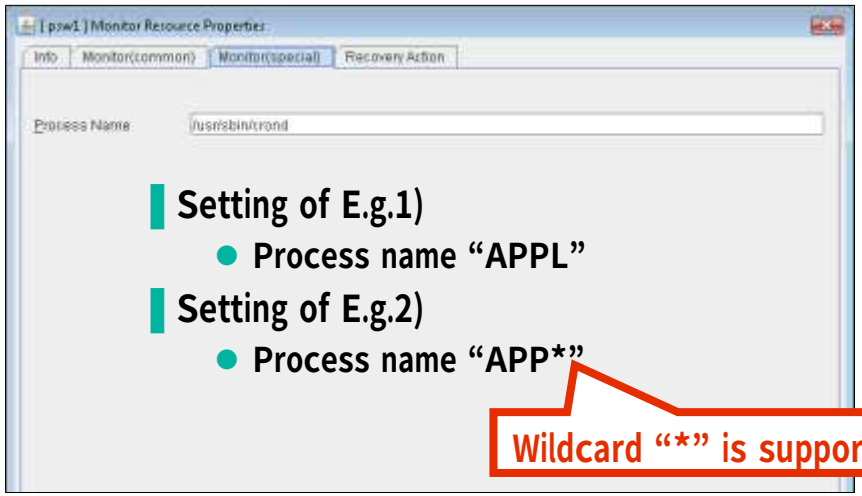
Windows
Linux
Solaris

Child/Grandchild process can now be monitored by EXPRESSCLUSTER

Previous

- Process (grandchild) of parent/child relation is not monitored.





- Setting of E.g.1)
  - Process name “APPL”
- Setting of E.g.2)
  - Process name “APP*”

Wildcard “*” is supported

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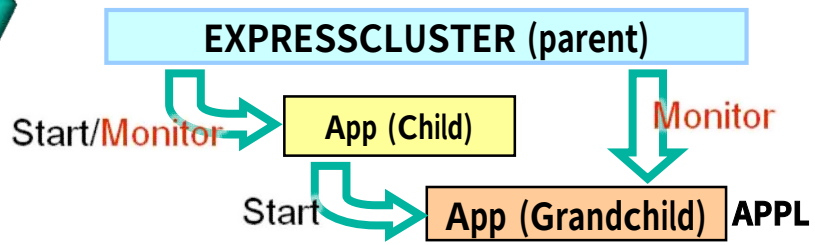
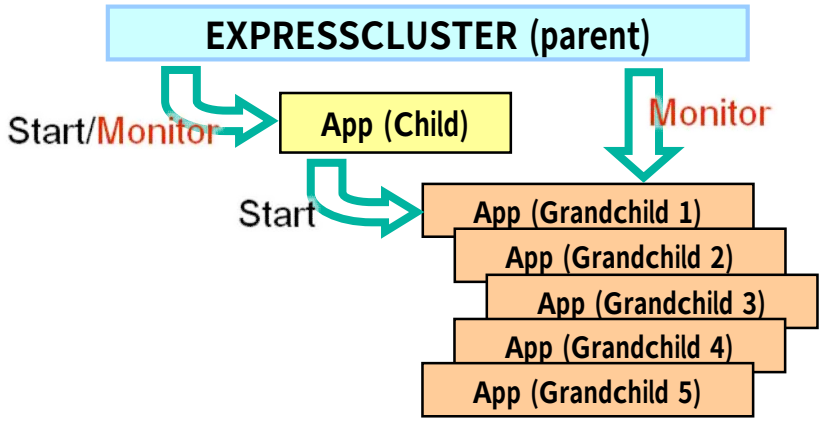
- With process name monitoring resource, structure of app is understood while monitoring.
  - E.g.1)



  - E.g.2)

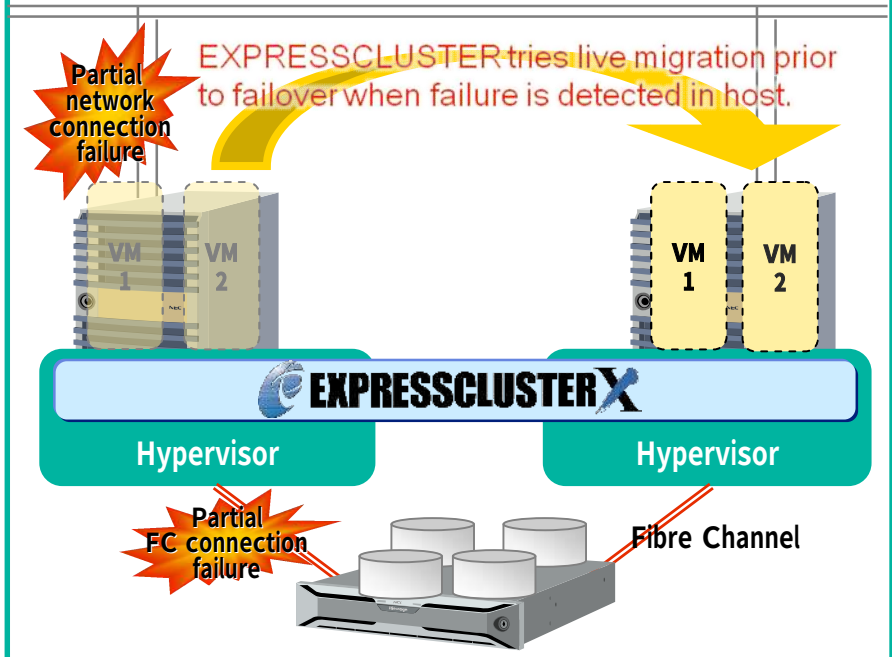


Improved Virtualization Support

Extended support of live migration feature (non-disruption failover)

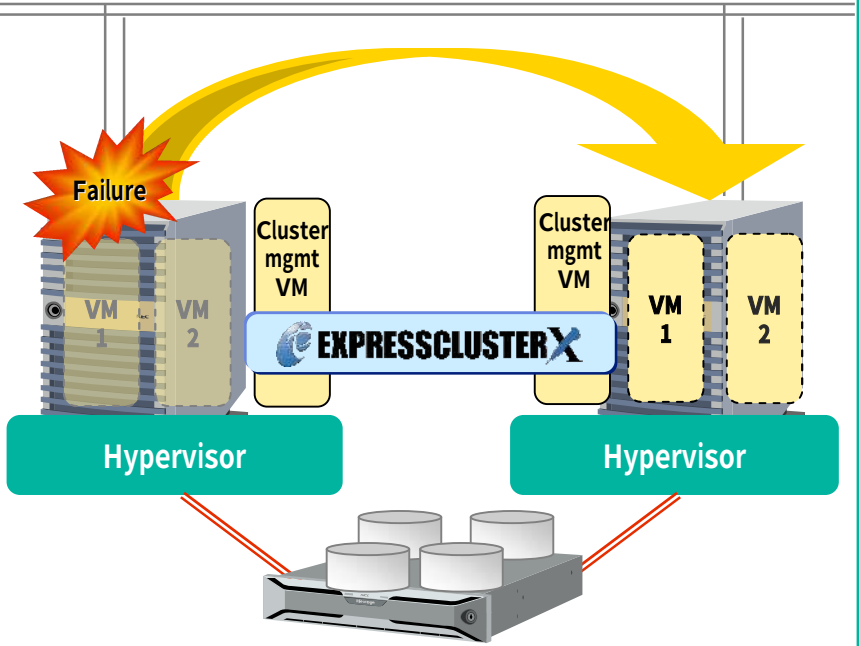
① **Extended support for KVM** (VMware, Hyper-V*, XenServer is already supported)
② **Even hypervisors without host OS (console OS) such as vSphere5 can be clustered**

Hyper-V, vSphere 4, KVM, XenServer



◆ EXPRESSCLUSTER monitors physical resource and guest OS from hypervisor (host OS)

vSphere 5



◆ Monitoring and other VM controls can be done from cluster management VM

*In case of Hyper-V, EXPRESSCLUSTER tries Quick Migration

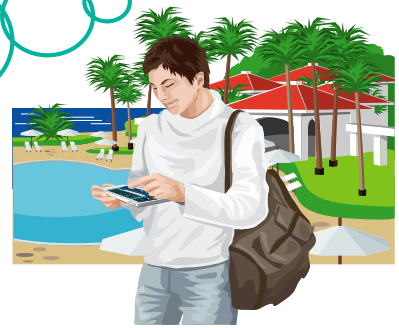
Smartphone & tablet support

Windows
Linux
Solaris

Managing cluster systems from Android devices.

You can manage your cluster anywhere, anytime …

Smartphone



Tablet

Other Android Devices

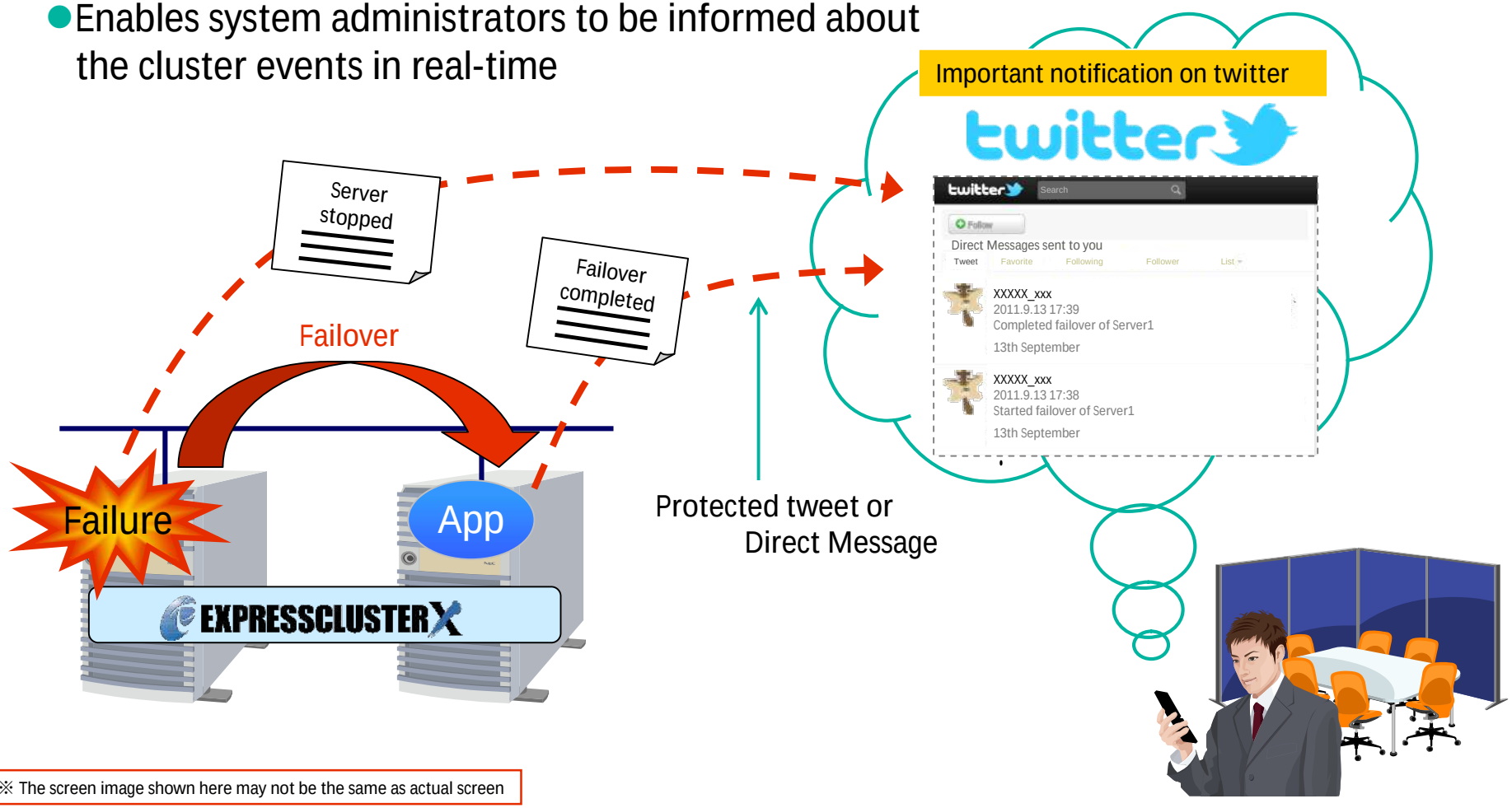
※ The screen image shown here may not be the same as actual screen

Twitter support

Windows
Linux
Solaris

Tweets server condition in case of any failure occurrence on the server

- Enables system administrators to be informed about the cluster events in real-time



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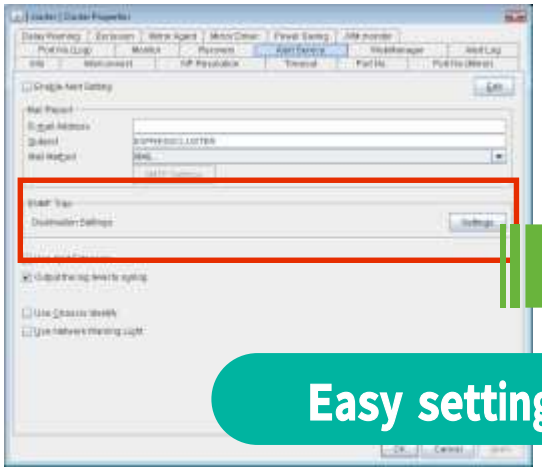
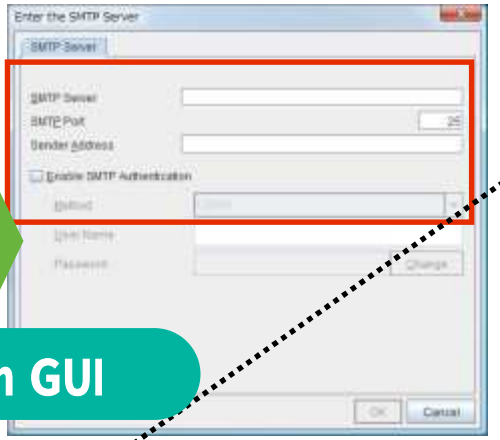
Linkage between system mgmt software (MIB support)

Windows
Linux
Solaris

SNMP Manager enables cluster management.

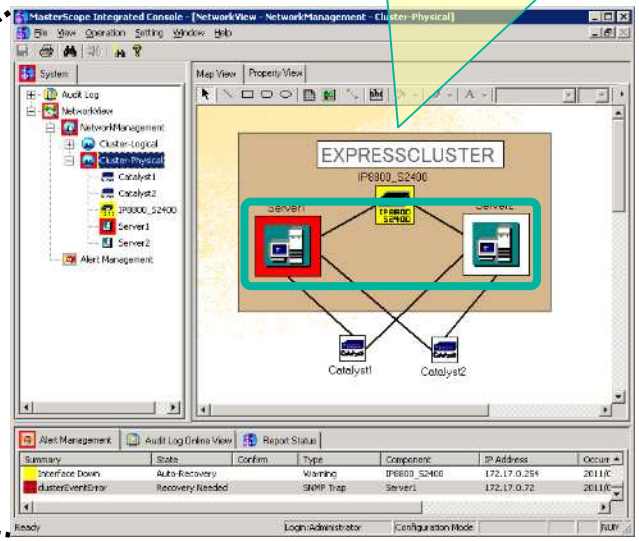
- **Enables integrated management including network devices etc**

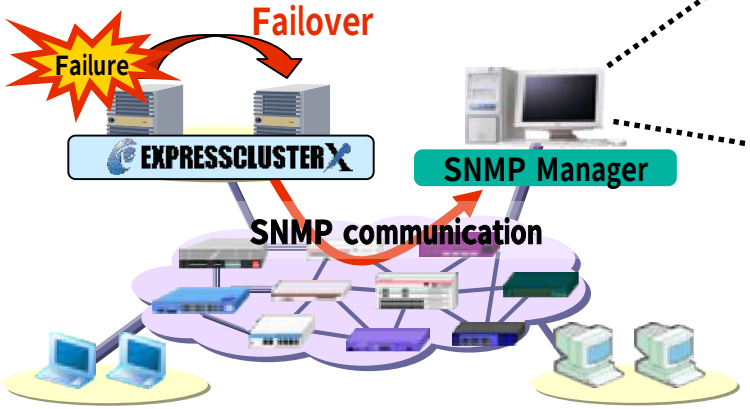




Easy setting with GUI

Displays information/situation from SNMP communication of EXPRESSCLUSTER





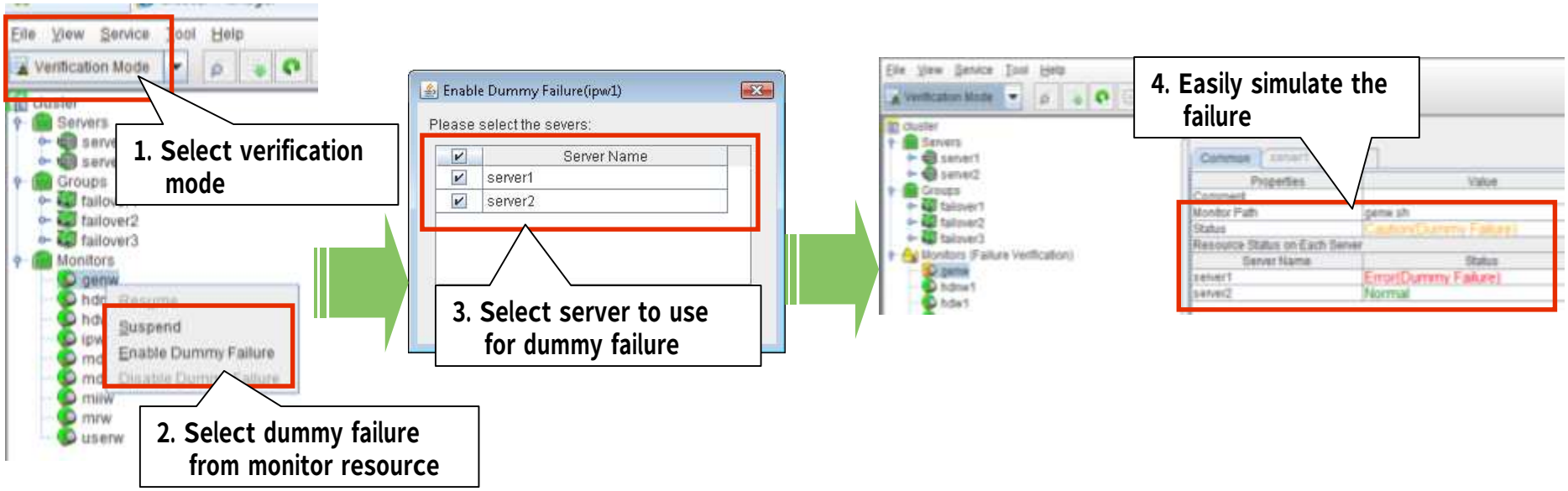
*** NEC MasterScope Network Manager case**

Failure simulation from the management console

Windows
Linux
Solaris

Enables failure simulation from management console for testing the failover scenario

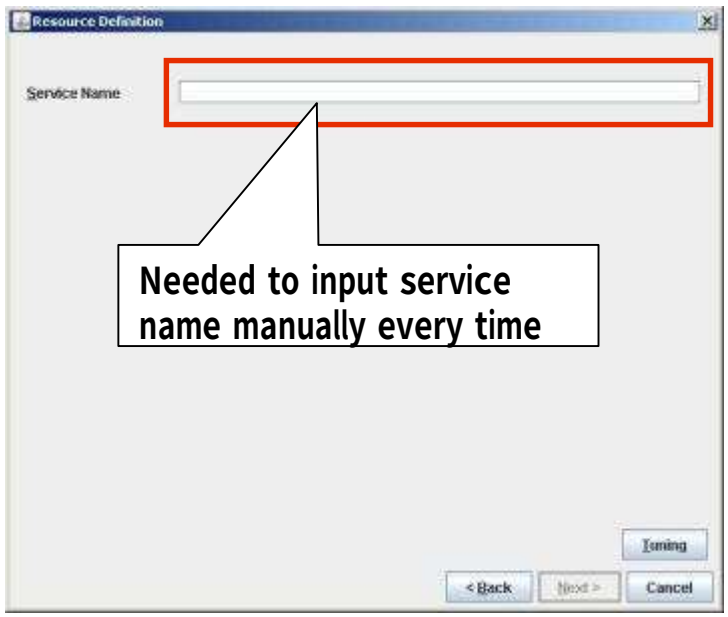
- **"Verification Mode" is added to the management console**
- **Early discovery of mistakes in configuration, and confirms recovery of monitor resource.**



Easy setting of service resource

Automatically obtains the service name managed in service management console of Windows OS

Previous



Service name to be registered in service resource should be specified manually where human mistake is likely to occur.

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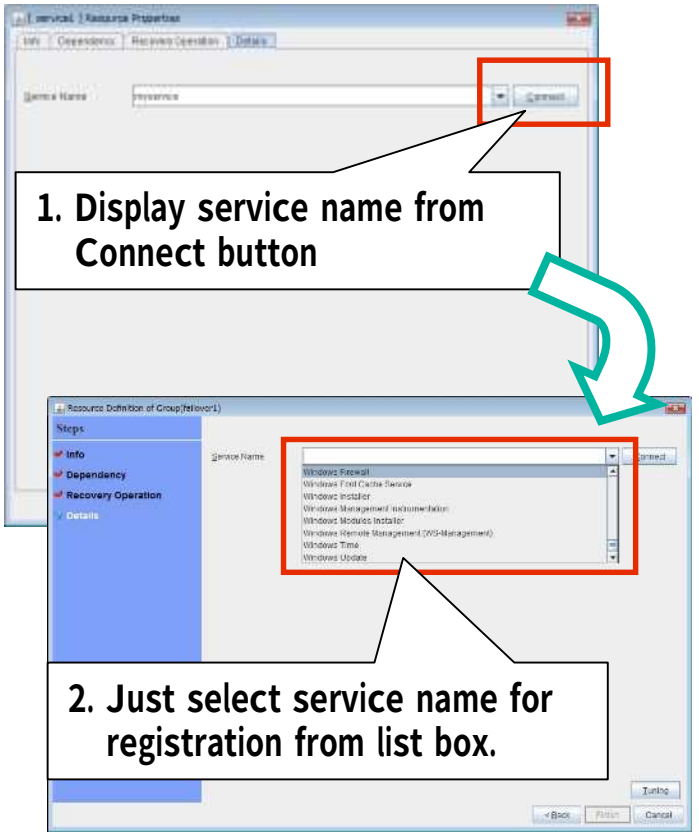


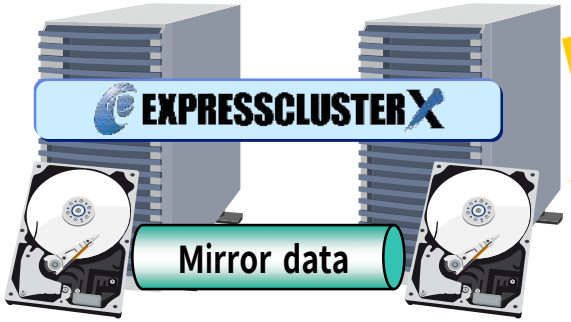
Feature for remote cluster

Windows
Linux

Throughput/status of data mirroring can be monitored in real time.

- By periodic information collection, problems such as performance degradation which was earlier difficult to detect can be recognized.
- Amount of data mirrored among servers can be visualized.

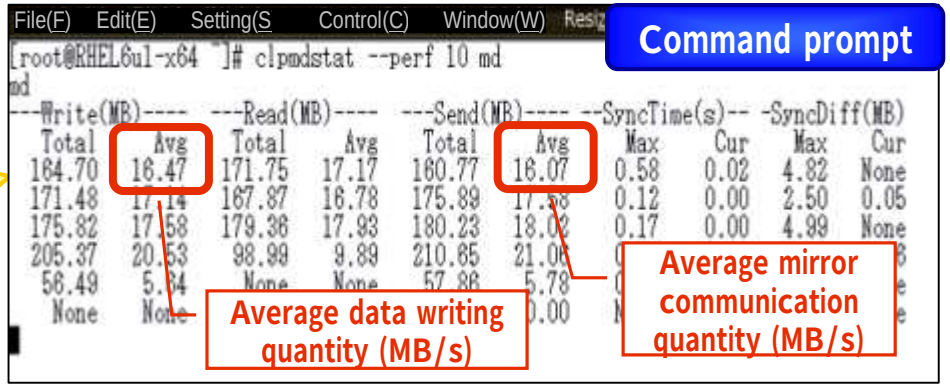
By executing command, such as average throughput for certain period can be viewed.



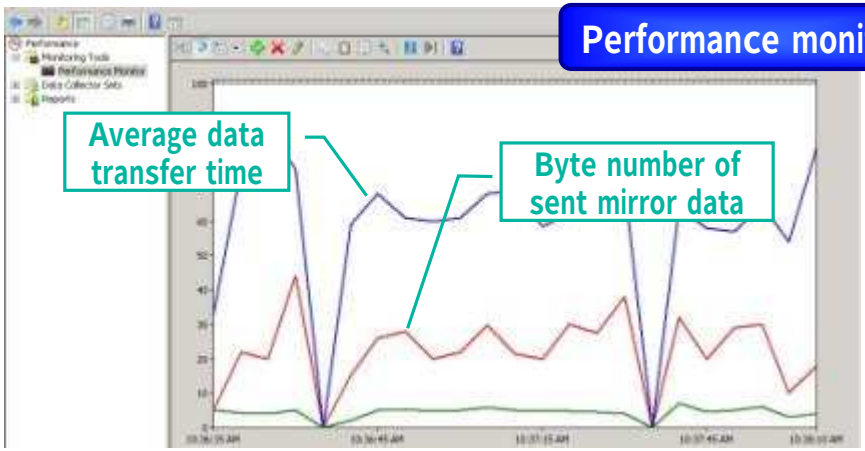
Linux version

Windows version

Command prompt



Performance monitor



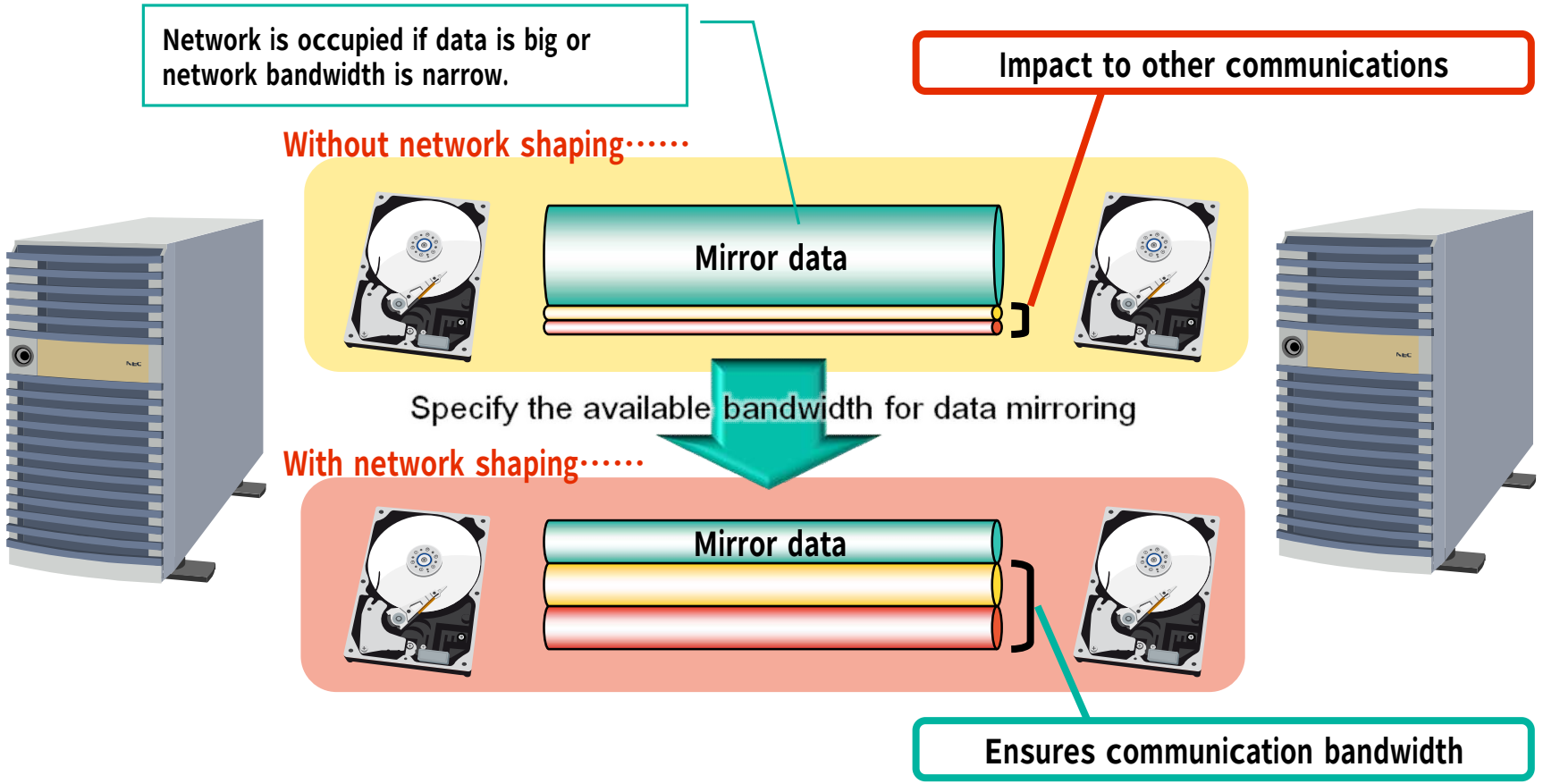
Statistic information will be recorded in the logs, and output can be taken as CSV files.

Mirror data bandwidth control (Network Shaping)

Windows
Linux

Enables to limit the available bandwidth for data mirroring

- Bandwidth for data mirroring can be configured depending on network environment
- Even without dedicated line for mirroring, the impact can be minimized



*Windows version has been supported from previous version

NEC Group Vision 2017

To be a leading global company leveraging the power of innovation to realize an information society friendly to humans and the earth

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