

EXPRESSCLUSTER X 3.1

Feature Improvements

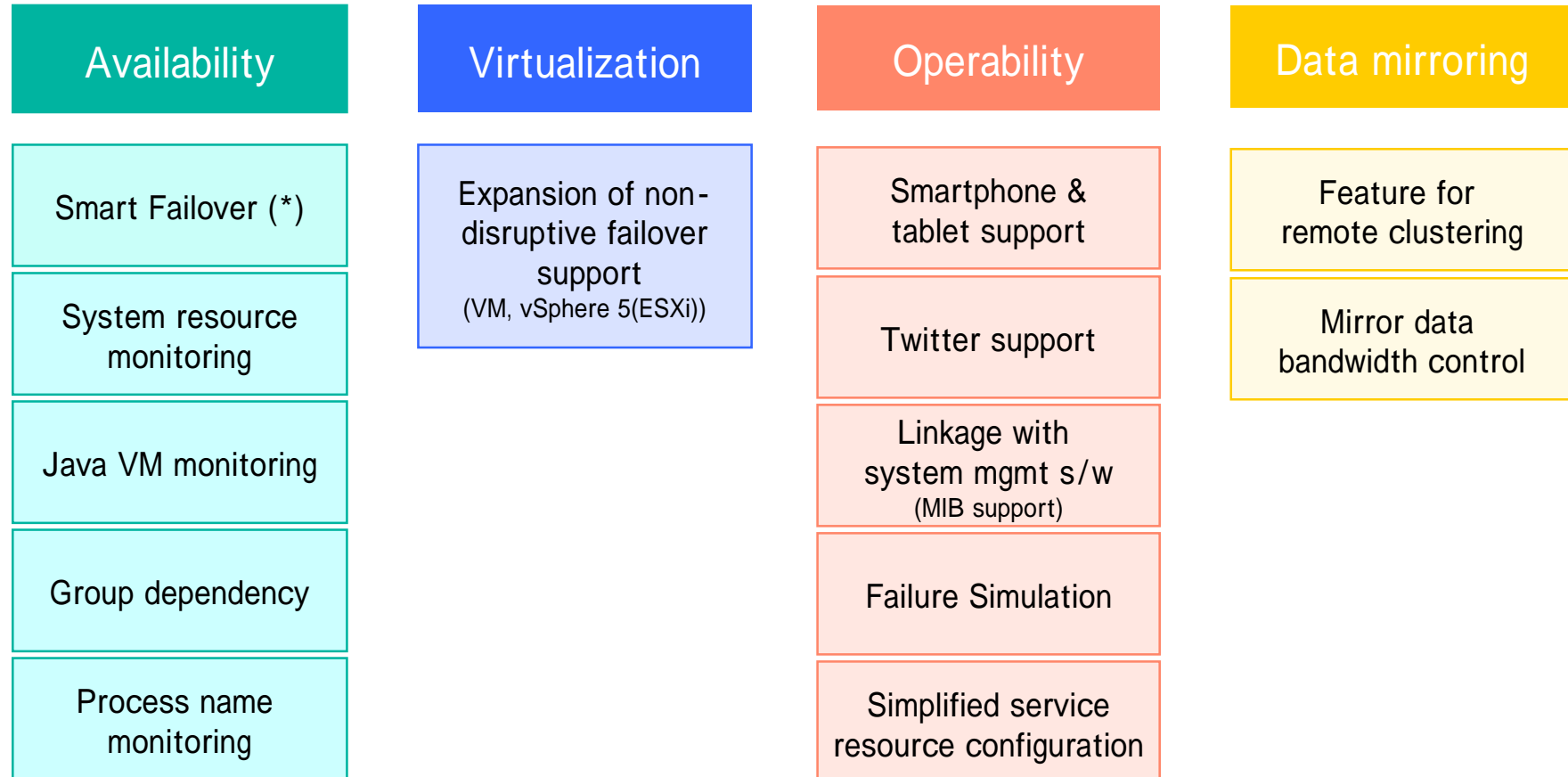
1st IT Software Division / IT Network Global Solutions Division

NEC Corporation

October 1, 2011



EXPRESSCLUSTER X 3.1 Enhancements



(*) What is “**Smart HA Cluster**”?

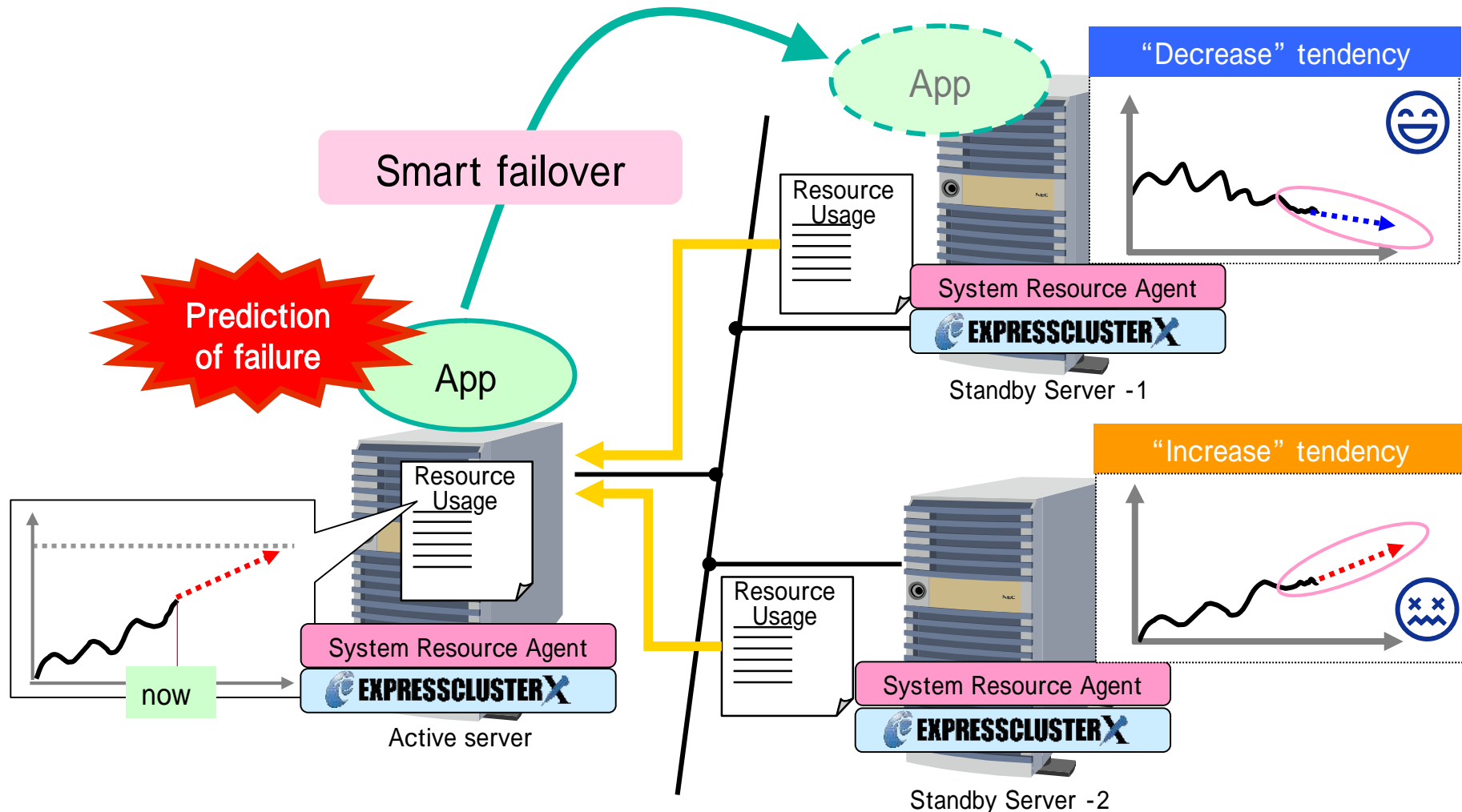
In addition to failover due to any failure, it enables failover based on predictive detection of failure which helps system to achieve higher reliability.

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

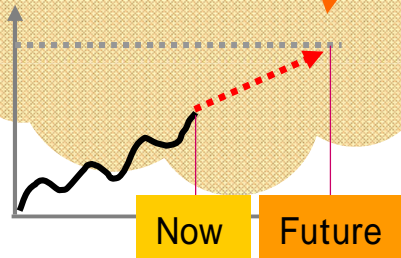
Monitors resource of each process
Alerts abnormal resource usage

Stores system resource information
Can be used for sizing or reporting

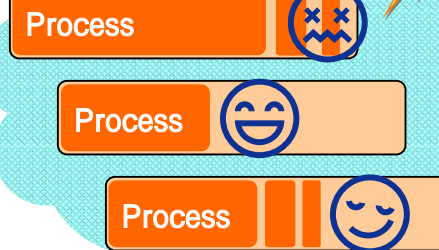
System resource

- CPU
- Memory
- etc

Predicts resource shortage near future



small Resource usage → Big Alert



Resource usage

System Resource Agent



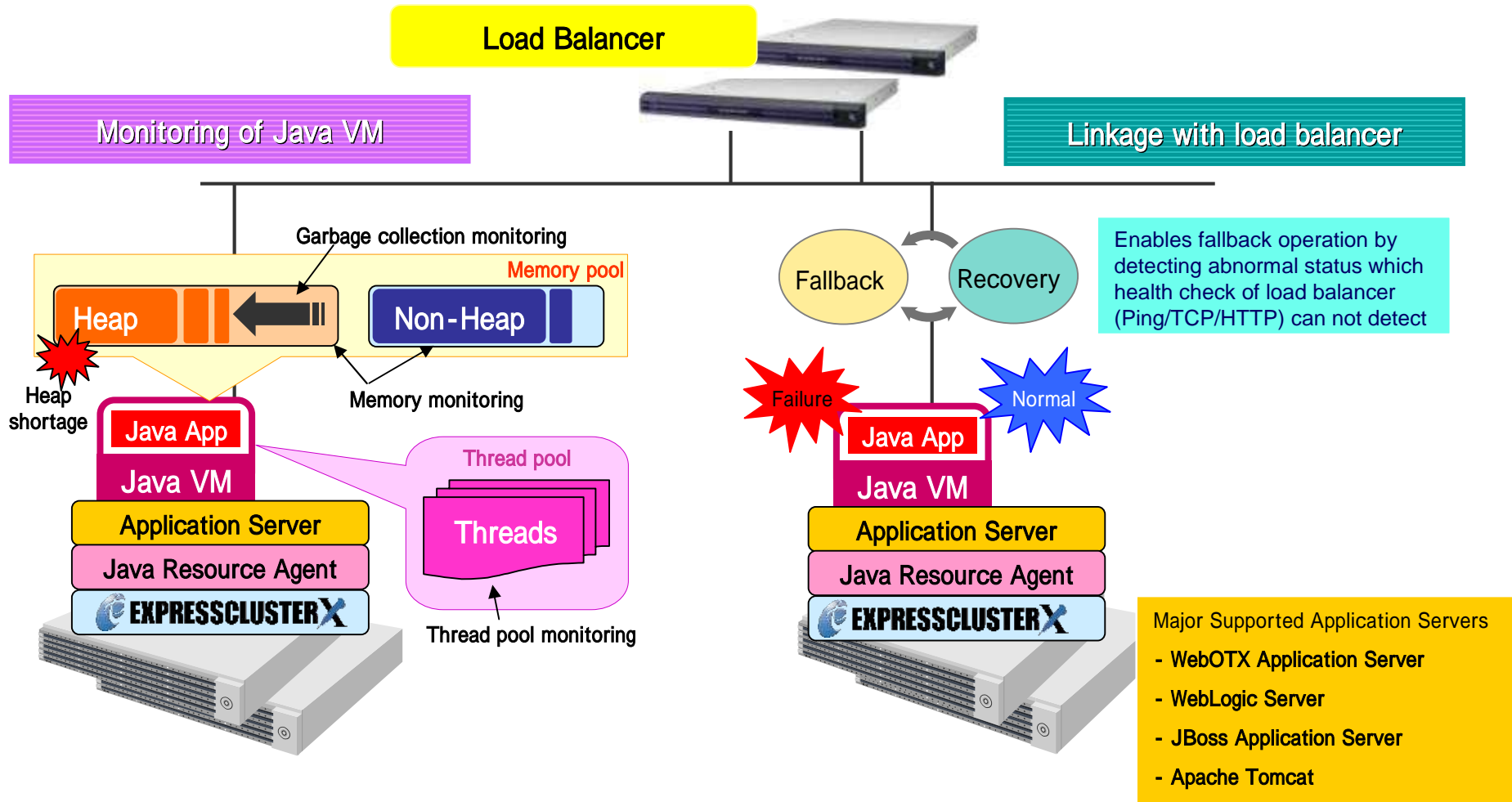
Resource usage

System Resource Agent



New monitoring option "Java Resource Agent"

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



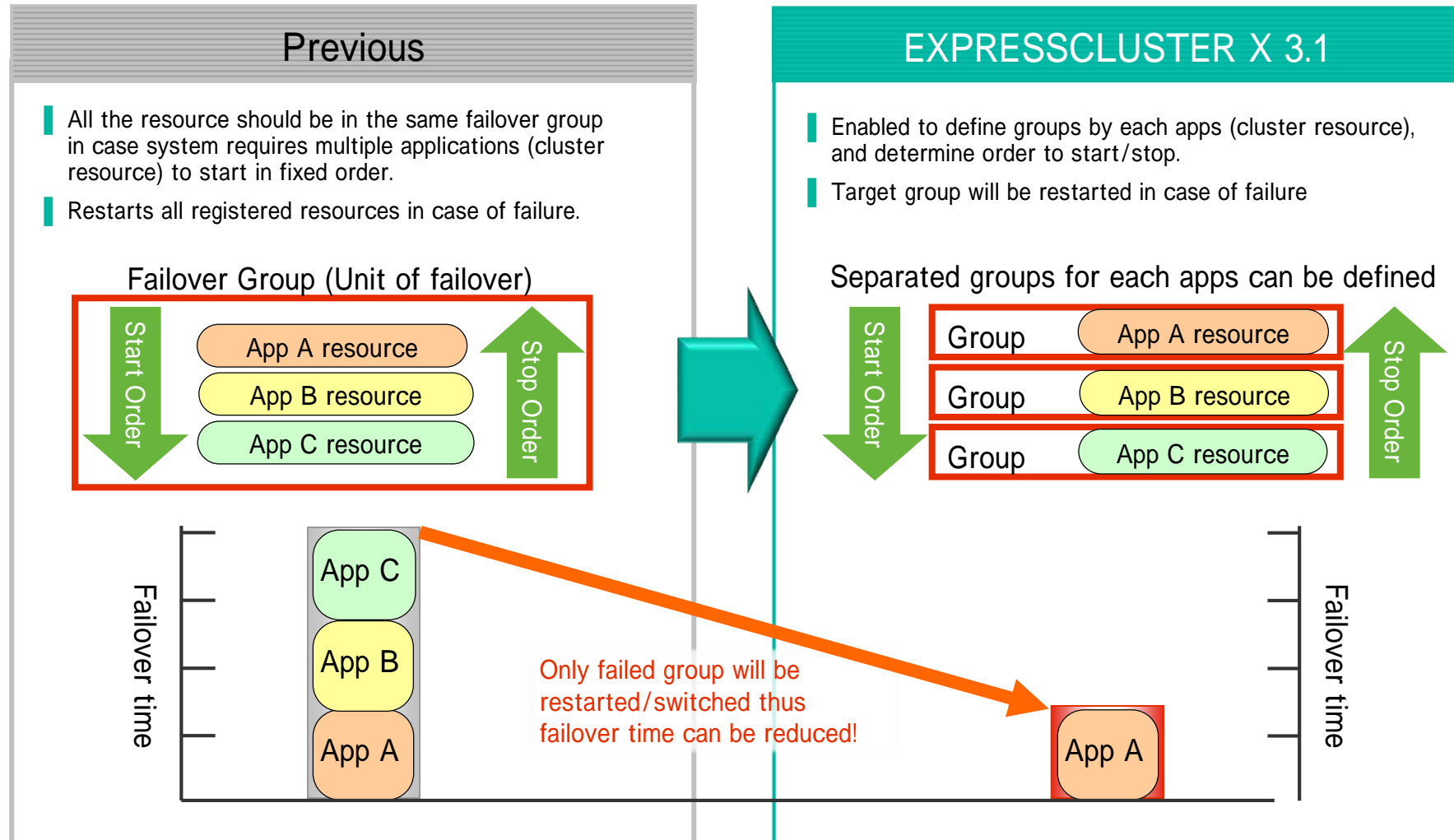
Group Dependency

Windows

Linux

Solaris

Shortened failover time by localizing the failover unit



Group Dependency

Windows

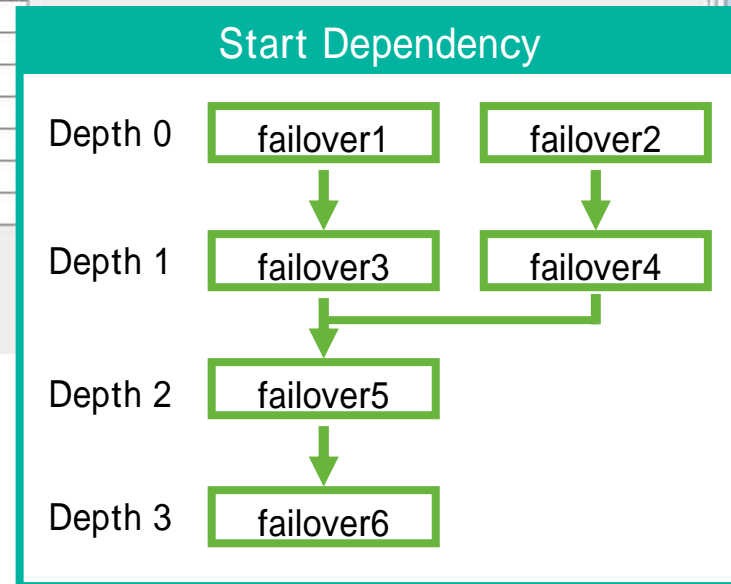
Linux

Solaris

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

The screenshot shows the Cluster Manager GUI in a Windows Internet Explorer browser window. The address bar shows the URL <http://192.168.91.20:29003/>. A green callout bubble with the text "Example of Dependency Setting" is overlaid on the browser window. The main content area displays a table with columns for "Group", "Start Dependency", and "Stop Dependency". The table lists six failover groups with their respective depths and dependencies. A tree view on the left shows the cluster structure, including servers and groups.

Group	Start Dependency	Stop Dependency
Depth 0	failover1	none
0	failover2	none
1	failover3	failover1
1	failover4	failover2
2	failover5	failover3
		failover4
3	failover6	failover5



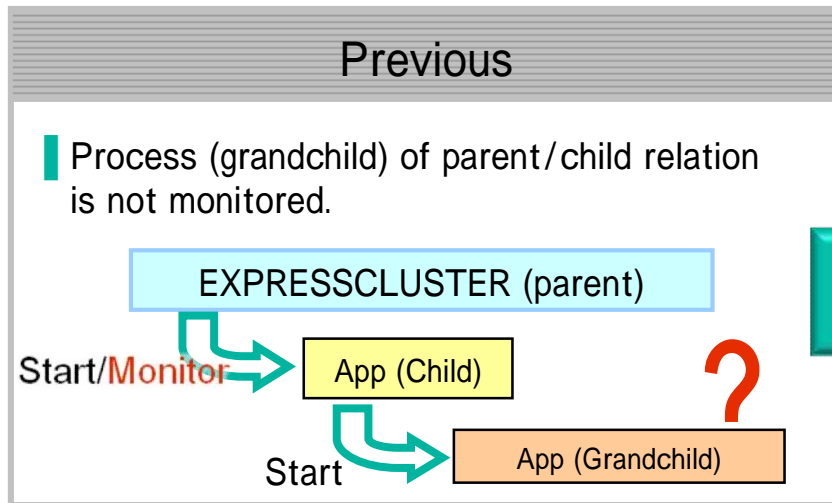
Process name monitoring

Windows

Linux

Solaris

Child/Grandchild process can now be monitored by EXPRESSCLUSTER



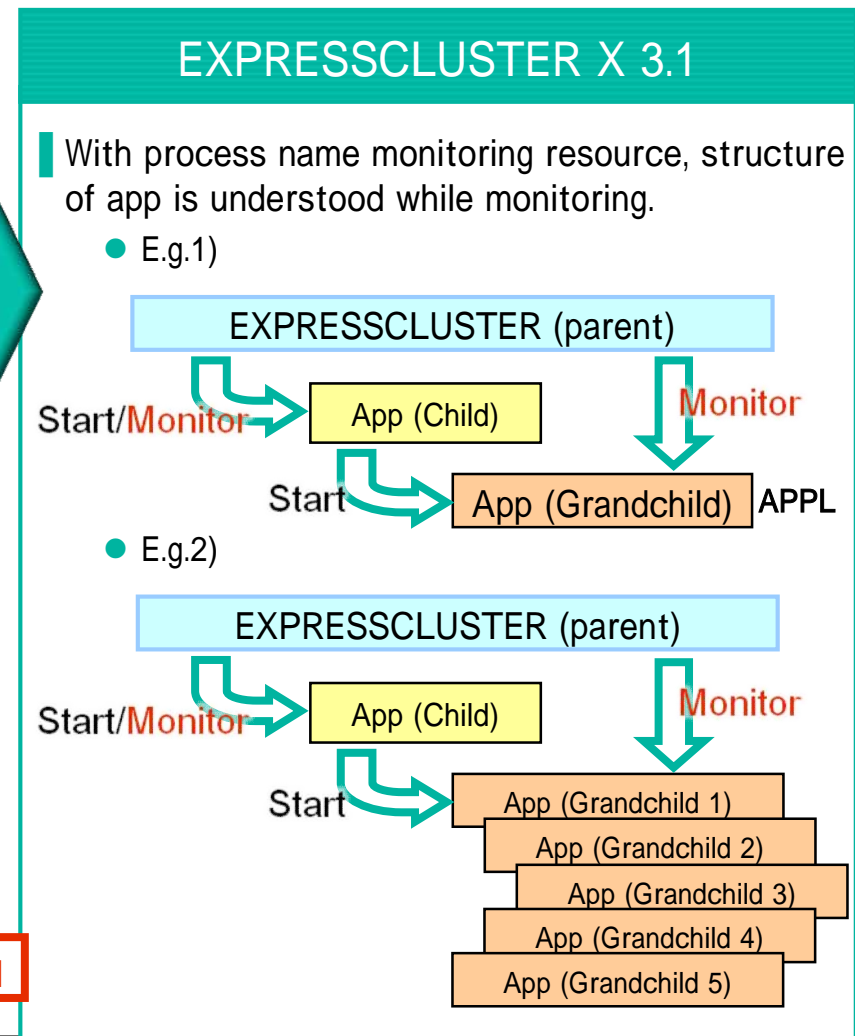
Setting of E.g.1

- Process name "APPL"

Setting of E.g.2

- Process name "APP*"

Wildcard "*" is supported

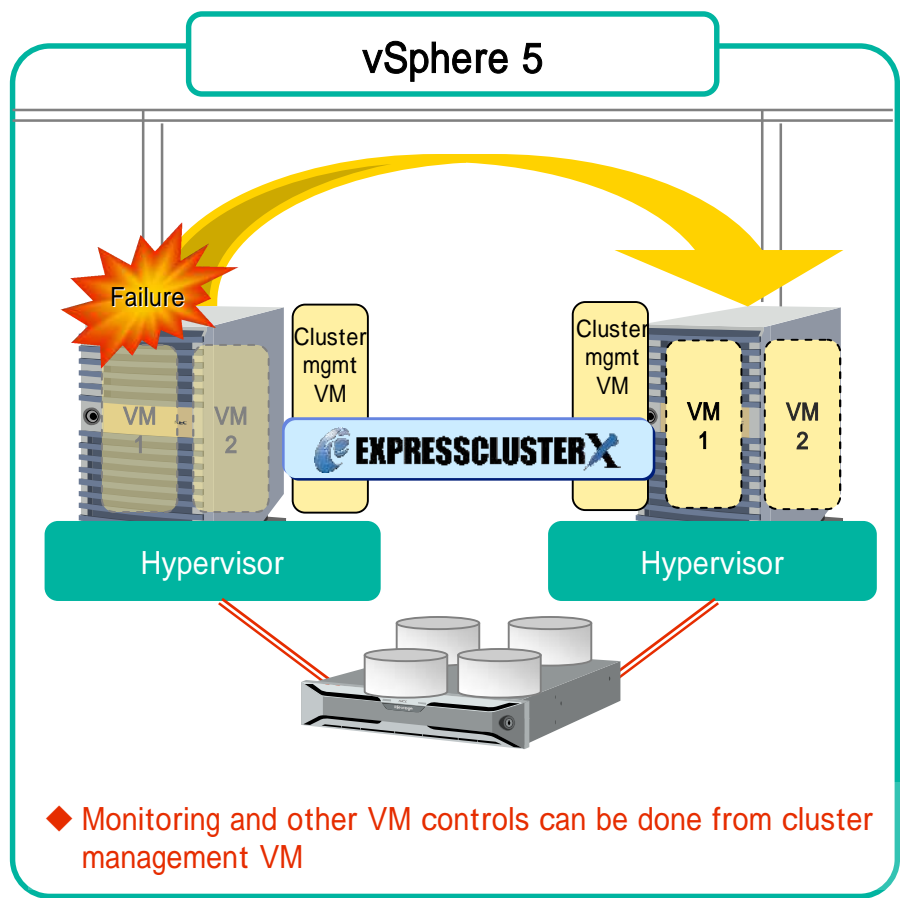
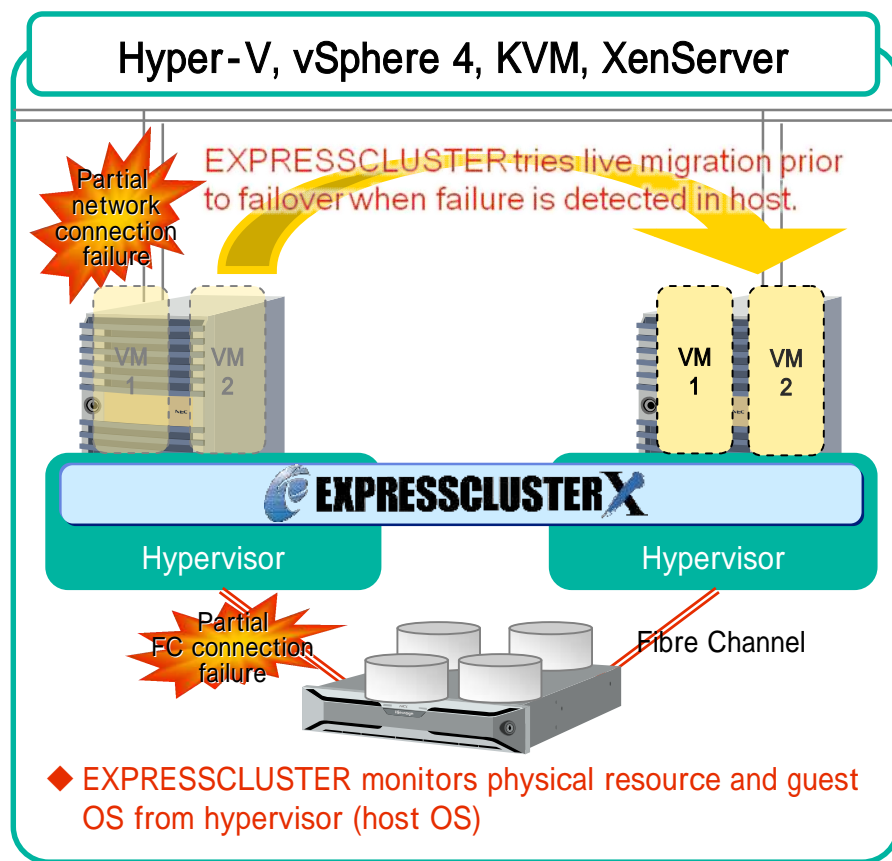


Improved Virtualization Support

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

Extended support for KVM (VMware, Hyper-V*, XenServer is already supported)

Even hypervisors without host OS (console OS) such as vSphere5 can be clustered



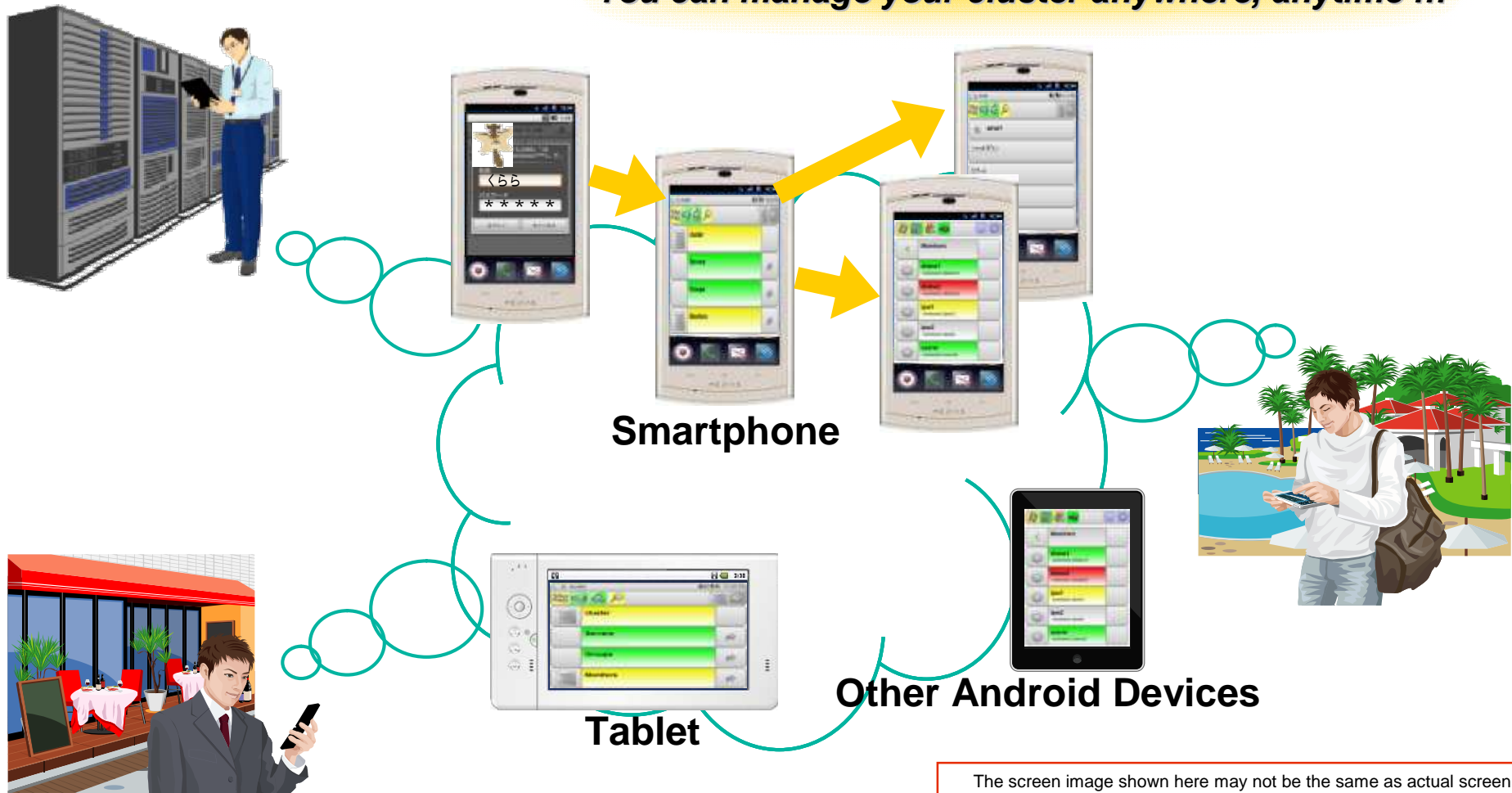
*In case of Hyper-V, EXPRESSCLUSTER tries Quick Migration

Smartphone & tablet support

- Windows
- Linux
- Solaris

Managing cluster systems from Android devices.

You can manage your cluster anywhere, anytime ...



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

Twitter support

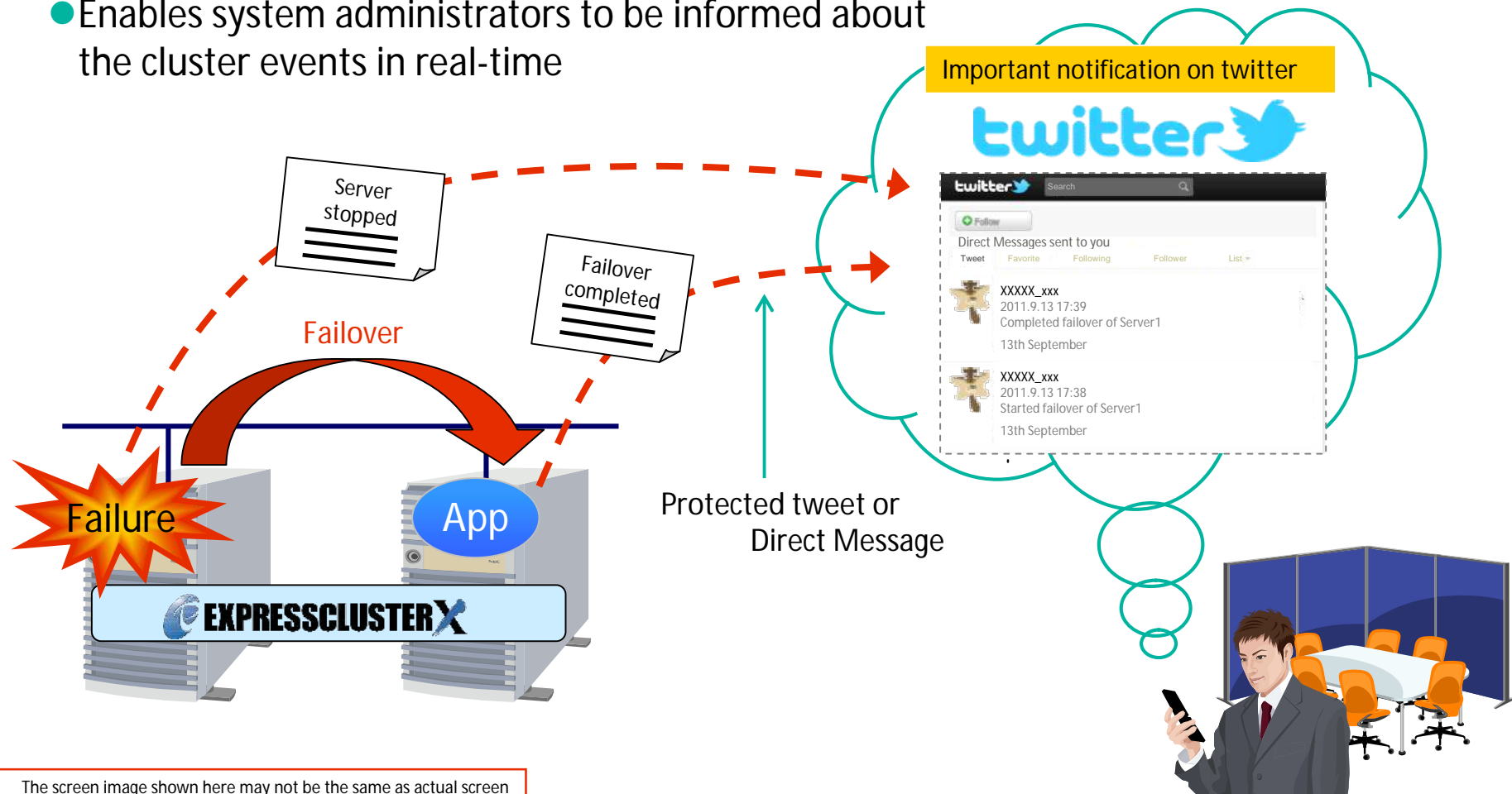
Windows

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



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

Linkage between system mgmt software (MIB support)

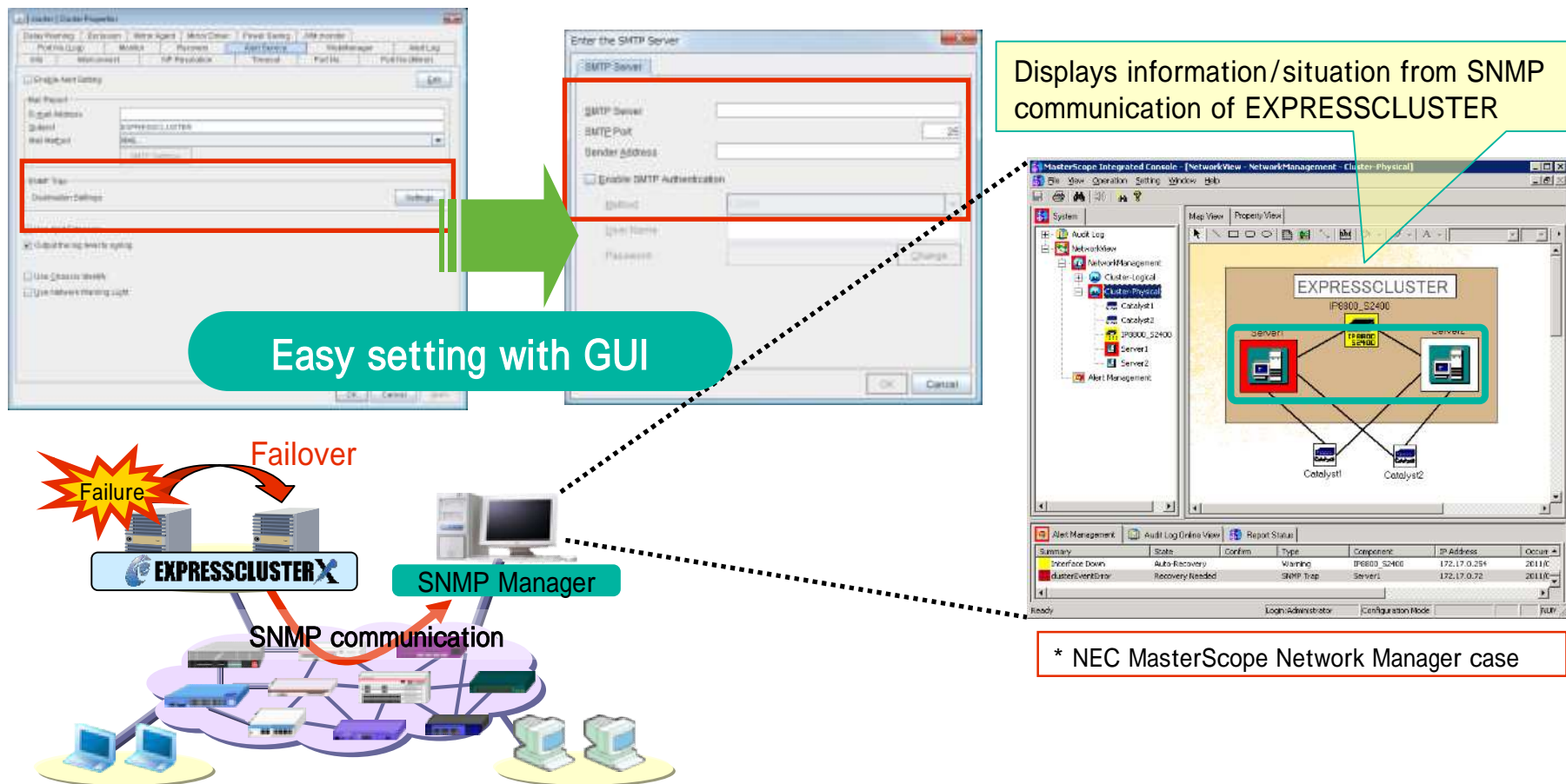
Windows

Linux

Solaris

SNMP Manager enables cluster management.

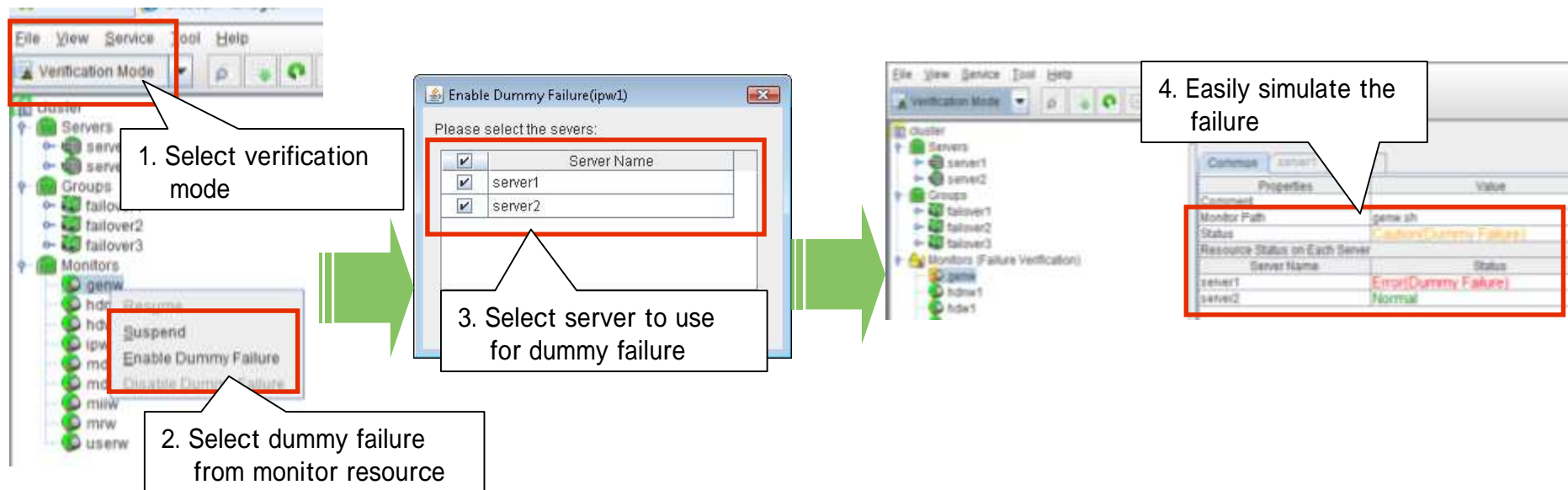
- Enables integrated management including network devices etc



Failure simulation from the management console

Enables failure simulation from management console for testing the failover scenario

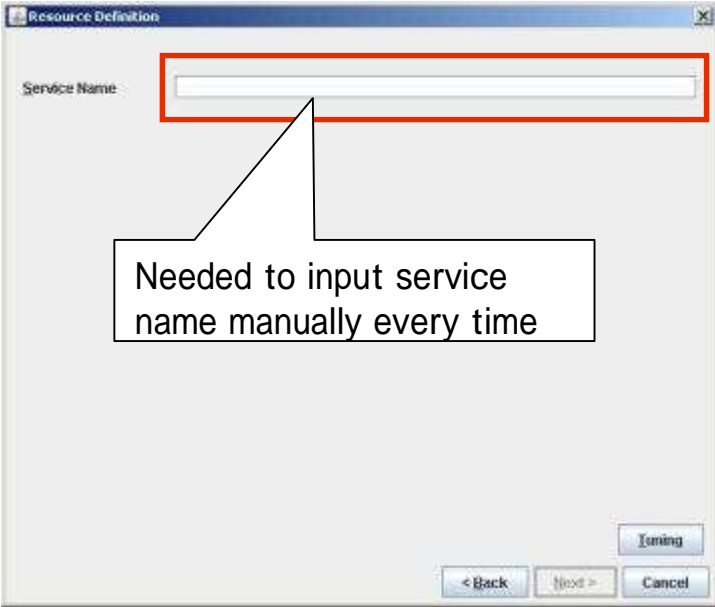
- “Verification Mode” is added to the management console
- Early discovery of mistakes in configuration, and confirms recovery of monitor resource.



Easy setting of service resource

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

Previous



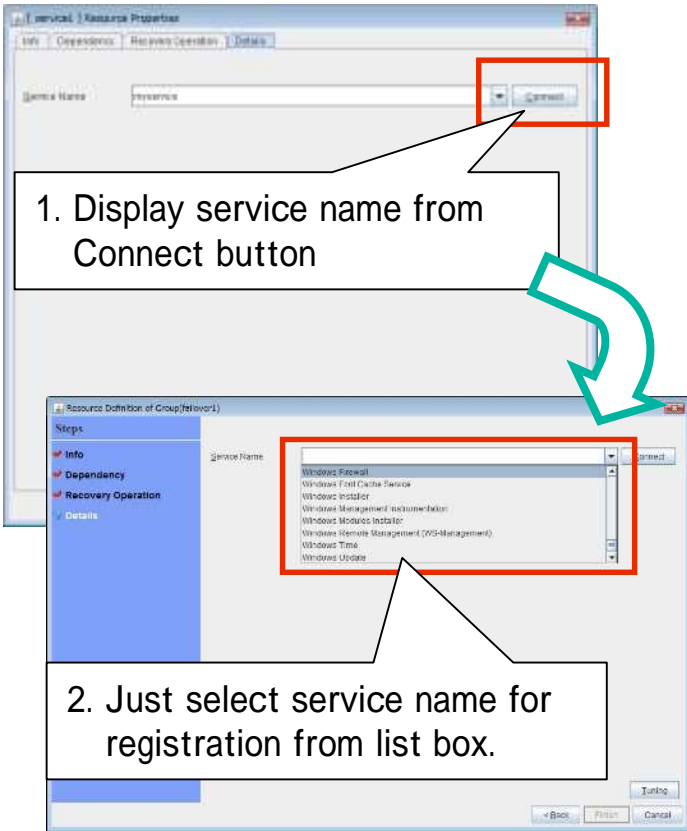
Service Name:

Needed to input service name manually every time

Buttons: < Back, Next >, Cancel, [Apply]

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

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1. Display service name from Connect button

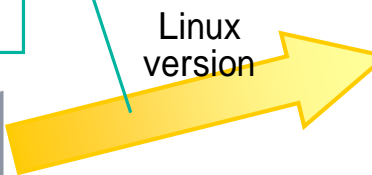
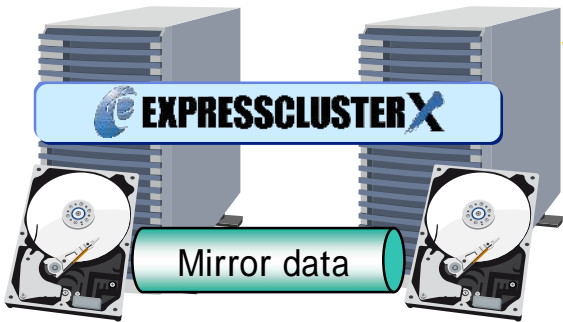
2. Just select service name for registration from list box.

Feature for remote cluster

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.

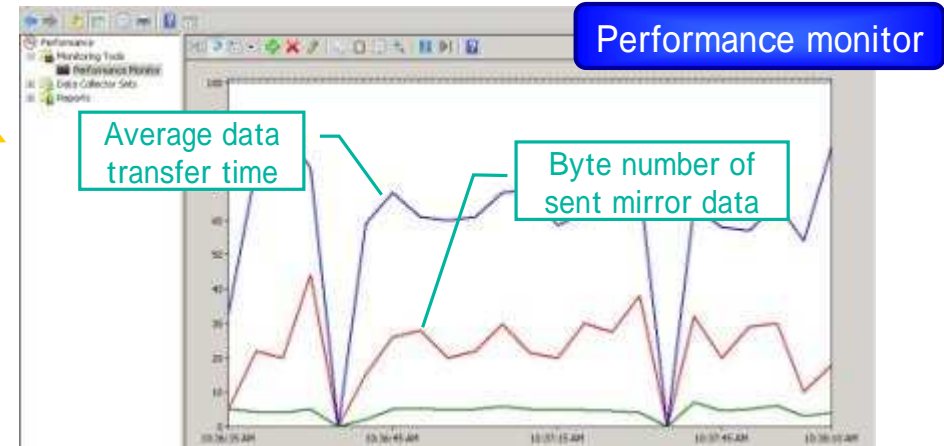


Command prompt

```
[root@RHEL6ul-x64 ~]# ctpmdstat --perf 10 md
md
---Write(MB)---  ---Read(MB)---  ---Send(MB)---  ---SyncTime(s)---  ---SyncDiff(MB)
Total Avg Total Avg Total Avg Max Cur Max Cur
164.70 16.47 171.75 17.17 160.77 16.07 0.58 0.02 4.82 None
171.48 17.14 167.87 16.78 175.89 17.58 0.12 0.00 2.50 0.05
175.82 17.58 179.36 17.93 180.23 18.02 0.17 0.00 4.99 None
205.37 20.53 98.99 9.89 210.85 21.08 0.00 0.00 0.00 0.00
56.49 5.64 None None 57.88 5.78 0.00 0.00 0.00 0.00
None None None None None None 0.00 0.00 0.00 0.00
```

Average data writing quantity (MB/s)

Average mirror communication quantity (MB/s)



Average data transfer time

Byte number of sent mirror data

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

Mirror data bandwidth control (Network Shaping)

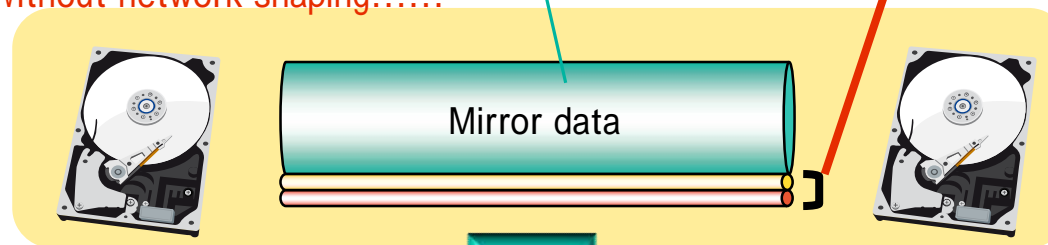
Enables to limit the available bandwidth for data mirroring

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

Network is occupied if data is big or network bandwidth is narrow.

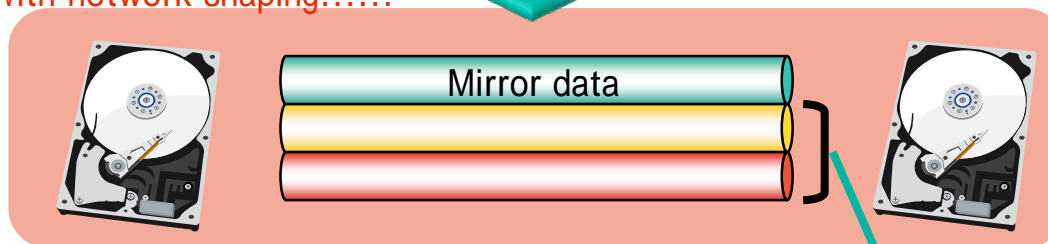
Impact to other communications

Without network shaping.....



Specify the available bandwidth for data mirroring

With network shaping.....



*Windows version has been supported from previous version

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



Empowered by Innovation

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