EXPRESSCLUSTER X Product Introduction (for Cloud)
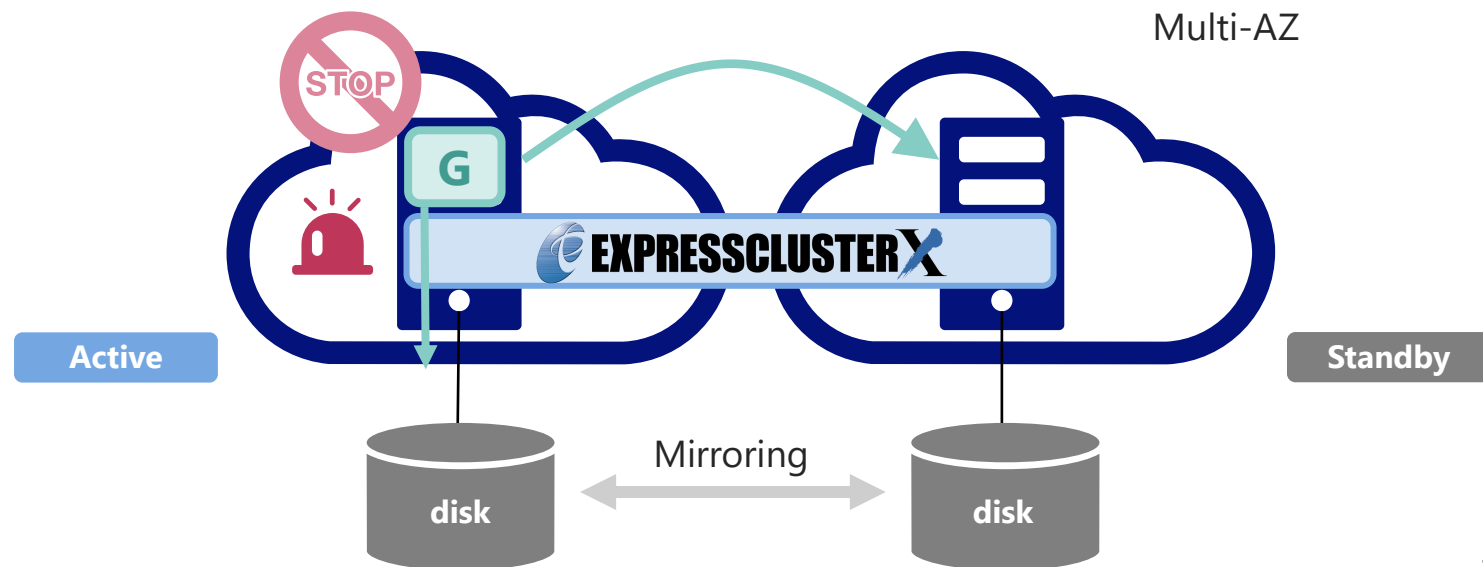
April 2025

NEC

Technology Service and Software Department

(EXPRESSCLUSTER)

Why is EXPRESSCLUSTER Chosen for Cloud System?

◆ Cloud utilization is on the increase in recent business.

◆ Redundancy is becoming more important in terms of the challenges for cloud utilization such as:

- ■ Applying cloud service SLA (Service Level Agreement)
- ■ Measures against planned outage
- ■ Measures against disaster and terrorism

◆ EXPRESSCLUSTER supports many cloud services.
  Furthermore, it has superiority in cost performance and ease of migration.

Multi-AZ

STOP

G

EXPRESSCLUSTER X

Active

Standby

Mirroring

disk

disk

G Failover Group

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Advantages of EXPRESSCLUSTER

Listed bellows are the characteristics of Cloud-based EXPRESSCLUSTER:

1. Business continuity at the time of failure

2. Business continuity at the time of disaster

3. Supporting to cloud service SLA (To satisfy the redundancy requirement)

4. Backup operation utilizing cloud & virtualization environment
   - Shorten the operation downtime while collecting backup

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Advantage 1. Business Continuity at the Time of Failure

Detect system failures to failover the business operation.

◆ Single Configuration

Failure

Failure

- Operation stops until the failure is fixed
- Loss of business opportunities
- Loss of trust as a business

◆ EXPRESSCLUSTER Configuration

Failover

Failure

EXPRESSCLUSTER X

Access to the same IP address
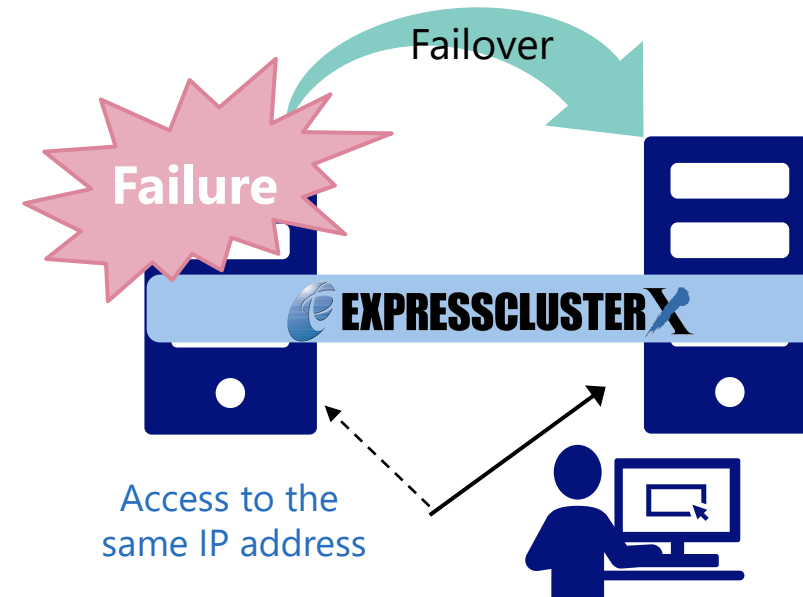
- Business continues with another server*
- Minimized loss of business opportunities
- More peace of mind in doing business

*:Takes over IP address, but connected session is once disrupted

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Advantage 2. Business Continuity at the Time of Disaster

Continuous business at the time of disasters, such as earthquake, flooding, fire, power outage etc.

◆ Set a backup site on a remote location to reduce the risk of business interruption along with a disaster.

◆ Protect both application and data, taking them over to the backup site.

Failover

Mirroring

disk

disk

Active

Standby

Site A

Site B

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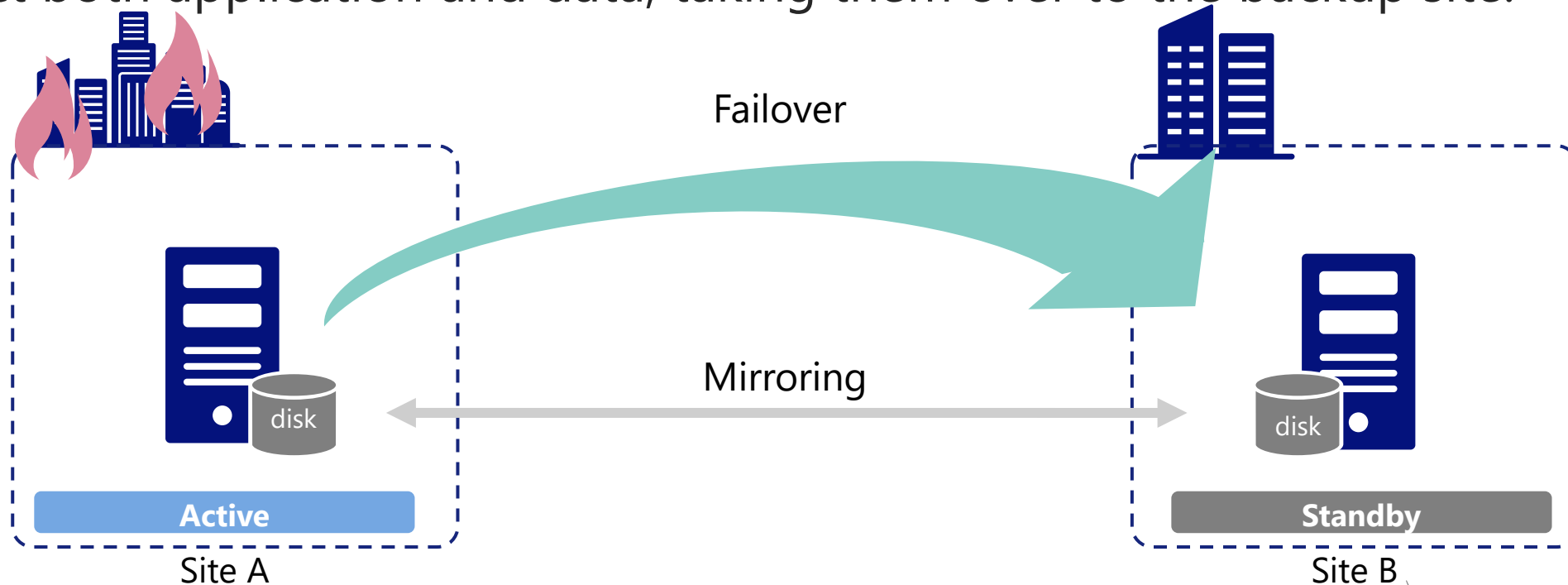
Advantage 3. Supporting SLA(*)

◆ Cloud service feature must offer a very high service level
   (e.g. 99.99% for availability)

◆ In major cloud services, redundancy is required as an SLA condition

▼AWS

https://aws.amazon.com/compute/sla/?nc1=h_ls

- "Unavailable" and "Unavailability" mean:
  - For the Instance-Level SLA, your Single EC2 Instance has no external connectivity.
  - For the Region-Level SLA applicable to Amazon EC2, when all of your running instances deployed in two or more AZs in the same AWS region (or, if there is only one AZ in the AWS region, that AZ and an AZ in another AWS region) concurrently have no external connectivity.

(Condition for downtime calculation)
For the Region-Level SLA applicable to Amazon EC2, when all of your running instances deployed in two or more AZs in the same AWS region (or, if there is only one AZ in the AWS region, that AZ and an AZ in another AWS region) concurrently have no external connectivity.

▼Azure

https://azure.microsoft.com/en-us/support/legal/sla/virtual-machines/v1_9/

"**Maximum Available Minutes**" is the total accumulated minutes during an Applicable Period that have two or more instances deployed across two or more Availability Zones in the same region. Maximum Available Minutes is measured from when at least two Virtual Machines across two Availability Zones in the same region have both been started resultant from action initiated by Customer to the time Customer has initiated an action that would result in stopping or deleting the Virtual Machines.

"Maximum Available Minutes" is the total accumulated minutes during an Applicable Period that have two or more instances deployed across two or more Availability Zones in the same region.
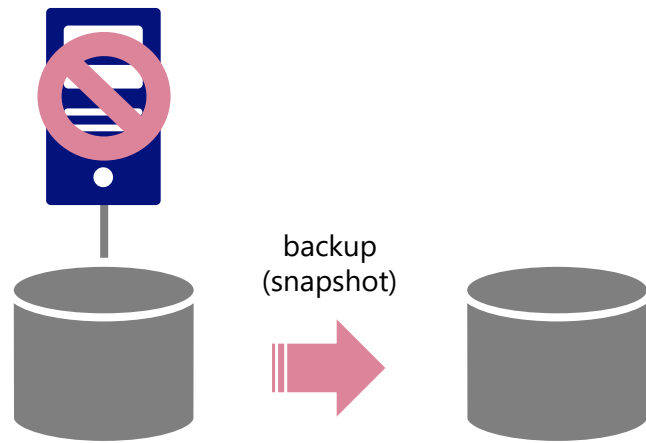
(*) SLA (Service Level Agreement):
   The achievement levels for content, scope and quality of cloud services presented by cloud vendors.

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Advantage 4. Backup operation on Cloud & Virtualization environment

It is possible to reduce downtime period when backup operation

◆ Single Configuration

backup
(snapshot)

Business stops during backup

- Virtual disk snapshot function makes it easy to collect backup images.
- However, during backup, business stops since the disk is inaccessible.
- As the disk size or amount of difference data increase, the time period that users.

◆ EXPRESSCLUSTER Configuration

Accessible during backup

Accessible while mirroring function is stopped.
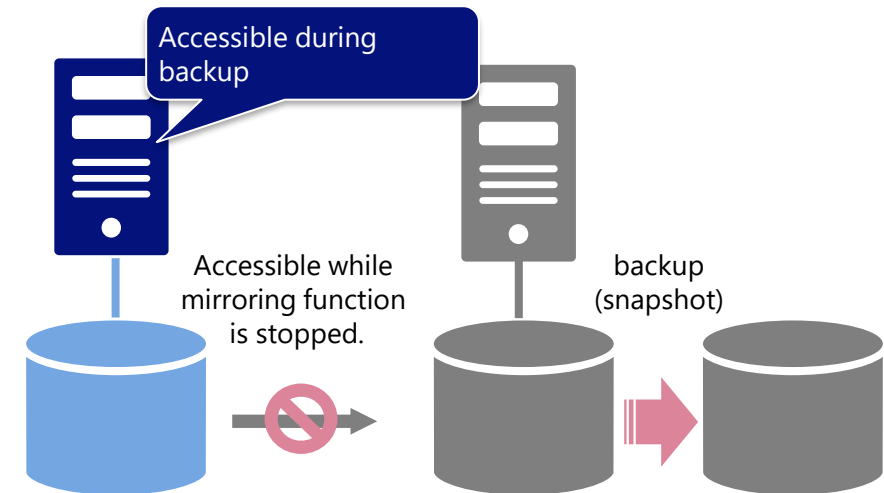
backup
(snapshot)

Business continues during backup

- Resume operations immediately after stopping mirroring
- Keep downtime to a minimum regardless of disk size or amount of difference data
- The differential that occurred during backup is transferred asynchronously by EXPRESSCLUSTER after the backup is completed.

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What are Your Thoughts About Cloud Utilization?

◆ Soon after start thinking about Cloud utilization, people often realize that system redundancy must be considered very carefully for Cloud environment, equal to or even more than for the most on-premise environment.

◆ Many customers have to struggle with the various issues and problems that eventually found though the research about the redundancy method in Cloud environment.

> **Can we use the cluster software used in the existing on-premise environment for the system on the Cloud too? Well, it should be fine… with the "Cloud"… which is very popular now…**

> **Is another redundancy system needed when the Cloud provides the duplication service?**

What can we do for successful Cloud utilization? → To the Next Page

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3 Values of Using EXPRESSCLUSTER on Cloud

◆ **There are few HA cluster software that can support public cloud. EXPRESSCLUSTER officially supports the operation on the Cloud.**
It is possible to create HA cluster configuration without shared disk because data can be shared by the data mirroring function.

◆ **PaaS from cloud vendor often have differences in functions and performance, therefore it may need modification and re-evaluation to integrate with applications.**
EXPRESSCLUSTER can save the cost of application remodeling and re-evaluation since the existing on-premise environment can be lifted as it is onto the Cloud.

◆ **All applications that compatible with HA cluster can be configured for redundancy.**
The cost for applications can be reduced by not using the redundancy function of the application.

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Cloud Resource [*]

Configure for Public Cloud with user-friendly GUI.

◆ Configurations for items which often require the knowledge about API for Public Cloud, such as virtual IP switching function, are completed only with inputting requested values.

◆ Compatible with Amazon Web Services(AWS), Microsoft Azure, Google Cloud and Oracle Cloud.
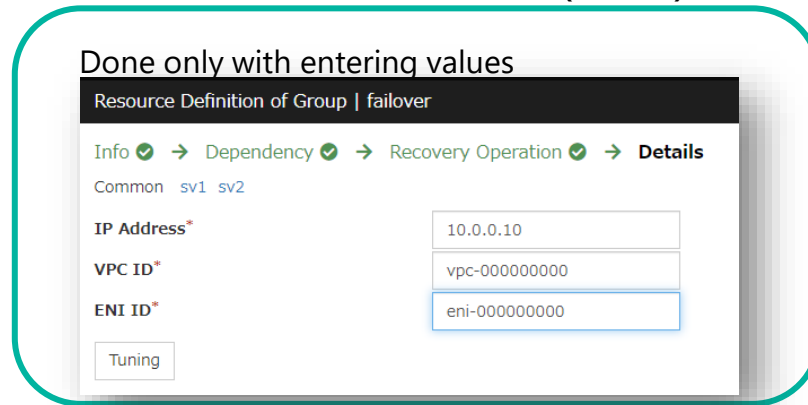
(*) "Cloud Resource" is a generic name for group resource and monitoring resource used when installing EXPRESSCLUSTER X on the Public Cloud.
Names of the resources are as below:
"AWS Elastic IP resource", "AWS virtual IP resource", "AWS secondary ip resources", "AWS DNS resource", "AWS Elastic IP monitoring resource", "AWS virtual IP monitoring resource", "AWS secondary ip monitor resources", "AWS DNS monitoring resource", "AWS AZ monitoring resource",
"Azure Probe port resource", "Azure DNS resource", "Azure Probe port monitoring resource", "Azure Load balance monitoring resource", "Azure DNS monitoring resource",
"Google Cloud virtual IP resource", "Google Cloud DNS resource", "Google Cloud virtual IP monitoring resource", "Google Cloud Load balance monitoring resource",
"Oracle Cloud virtual IP resource", "Oracle Cloud DNS resources", "Oracle Cloud virtual IP monitoring resource", "Oracle Cloud DNS monitor resources", "Oracle Cloud Load balance monitoring resource"
"LB Probe port resource", « LB Probe port monitoring resource"

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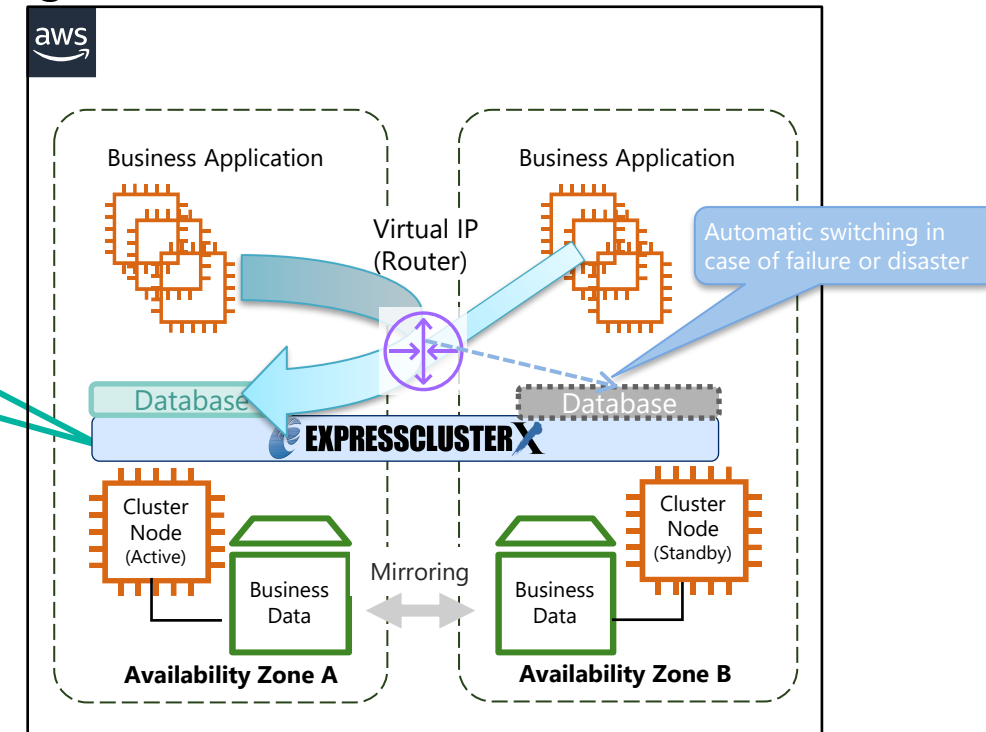
Cloud Services Evaluated for EXPRESSCLUSTER X

EXPRESSCLUSTER supported for various Cloud Services (IaaS):

EXPRESSCLUSTER **X**

Amazon Web Services   Microsoft Azure
Google Cloud   Oracle Cloud

Setup Guide: https://www.nec.com/expresscluster/en/doc/guide.html
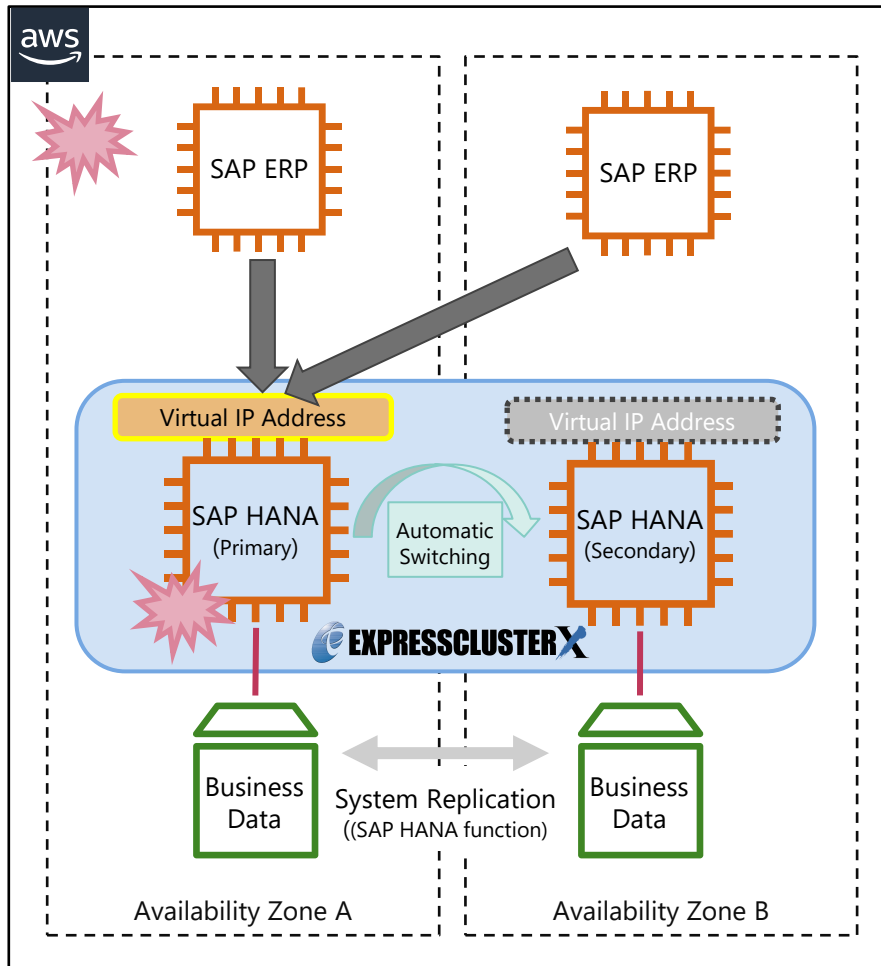Official Blog: https://www.nec.com/expresscluster/en/blog/index.html

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High Availability Solution for SAP HANA

Achieve high availability for mission-critical system on AWS

◆ Automatic failover when a failure occurs

- Monitor SAP HANA from both HW/SW sides to execute automatic failover with a failure detected.
  (Manual operation is required with HA function of SAP)
- Continuous business by automatic failover of virtual IP address.

◆ Continue operation when a disaster occurs

- Redundant configuration across the AWS Availability Zones enables disaster recovery.

◆ Simple configuration

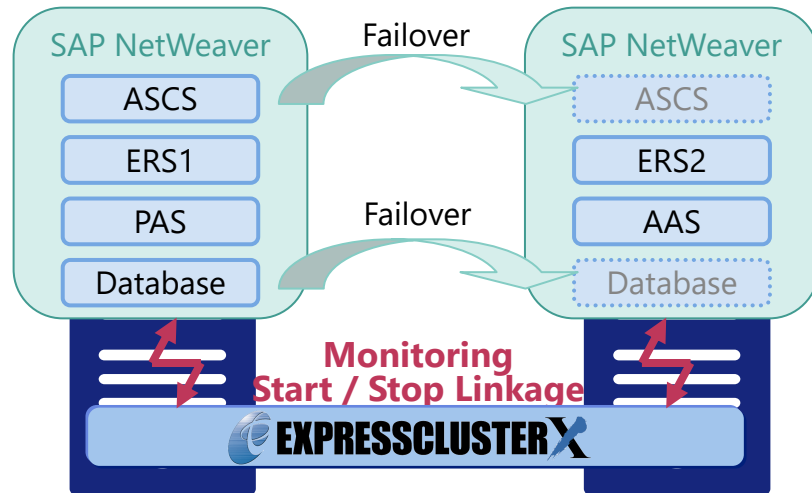- Provides the documents and integration scripts that contain detailed settings of EXPRESSCLUSTER X. (*)

(*) included in EXPRESSCLUSTER X 5.1 for SAP NetWeaver / SAP HANA

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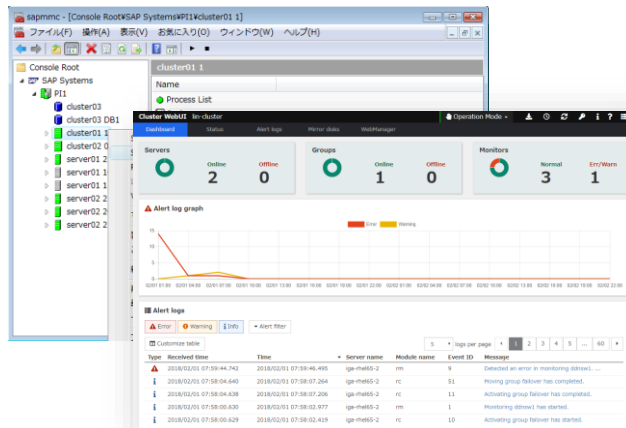
Dedicated Products for SAP Application Platform

SAP ERP Redundancy with "EXPRESSCLUSTER X for SAP NetWeaver / SAP HANA"

SAP® Certified
Integration with SAP S/4HANA®

◆ SAP certificated [*1]

◆ Simple Configuration:
  Pack all the modules required for SAP NetWeaver integration.

◆ Seamless：
  Manipulate clustered SAP NetWeaver from
  SAP management Console (MMC)

(*1) SAP HA Interface Certification：
 The certification system for the programs which has the interface
 of SAP NetWeaver and HA cluster software defined by SAP.

<Abbreviation of the name of the components of SAP NetWeaver>
 ASCS ... ABAP SAP Central Services
 ERS   ... Enqueue Replication Server
 PAS   ... Primary Application Server
 AAS   ... Additional Application Server
(*2) Linux supports only shared disk cluster

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Trial Version / SW Configuration Guide

◆ Trial version allows to use all functions of EXPRESSCLUSTER X for 2 months.

◆ Documents are available on Web site to support the EXPRESSCLUSTER configuration on various platforms, such as Cloud / HCI / Virtualization, and duplication of evaluated applications.

Trial version

Software configuration guide

Failover

Mirroring

EXPRESSCLUSTER X trial version
https://www.nec.com/expresscluster/en/trial/evaluation.html

EXPRESSCLUSTER X Setup Guides
https://www.nec.com/expresscluster/en/doc/guide.html

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EXPRESSCLUSTER X Product System

	Product	Overview
Product Media	EXPRESSCLUSTER X Media	Installation Media containing program binaries. Windows/Linux version. Japanese/English version
Main Product	EXPRESSCLUSTER X for VM	Main product. Virtual machine dedicated license.
Optional Product	EXPRESSCLUSTER X Replicator	Required option when using mirroring function: Includes fast resynchronization function (FastSync®technology). Supports multi-node configuration consisting of multiple active systems. Supports remote clusters. Also provides upgrade license from Replicator to Replicator DR.
	EXPRESSCLUSTER X Replicator DR	Required option when using mirroring between shared disks: Supports remote clusters. Replicator upward compatible product.
	EXPRESSCLUSTER X Database Agent EXPRESSCLUSTER X Internet Server Agent EXPRESSCLUSTER X File Server Agent [1] EXPRESSCLUSTER X Application Server Agent	Regular access to main application; Detection function for abnormal response or hang-ups. [1]: Linux only
	EXPRESSCLUSTER X Java Resource Agent EXPRESSCLUSTER X System Resource Agent	Detection Function for JavaVM or Java application resources, monitor the use of system resources, lack of resources.
	EXPRESSCLUSTER X Alert Service	Email notification when failure occurs. The server condition can be notified by a network warning light. Windows can display alert balloon in task tray.
Dedicated Product	EXPRESSCLUSTER X for SAP NetWeaver / SAP HANA	SAP NetWeaver clustering dedicated product.
	EXPRESSCLUSTER X for Claris FileMaker Server	Claris FileMaker Server clustering dedicated product.

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EXPRESSCLUSTER X License

A) Cluster counting method

Product	Description
EXPRESSCLUSTER X Media	Media. One required for each cluster.

B) Server counting method

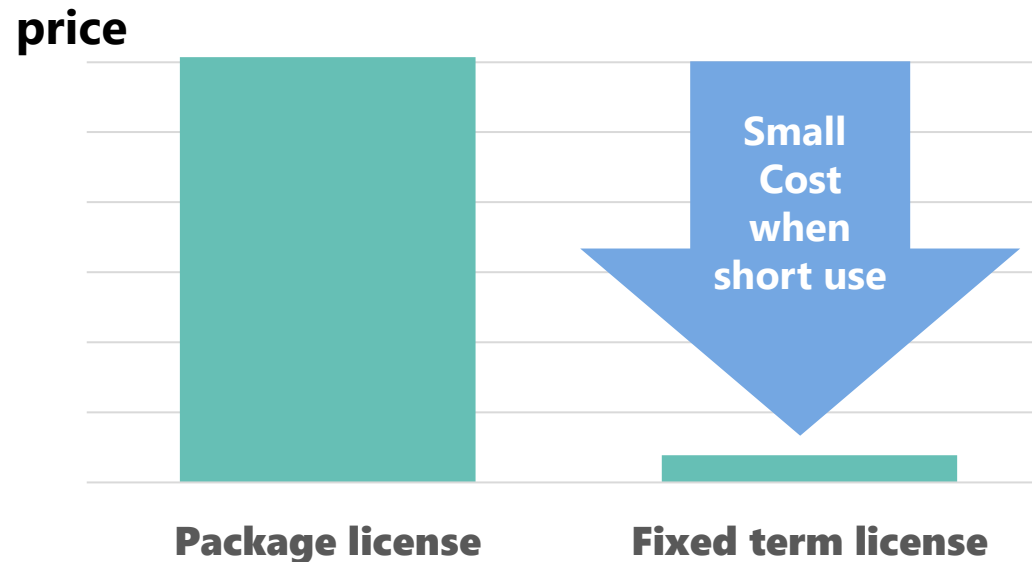| Product	Description
EXPRESSCLUSTER X for VM	Medium Product. Virtual machine dedicated license. Media is required separately.
EXPRESSCLUSTER X Replicator EXPRESSCLUSTER X Replicator DR EXPRESSCLUSTER X Database Agent EXPRESSCLUSTER X Internet Server Agent EXPRESSCLUSTER X File Server Agent EXPRESSCLUSTER X Application Server Agent EXPRESSCLUSTER X Java Resource Agent EXPRESSCLUSTER X System Resource Agent EXPRESSCLUSTER X Alert Service	Optional Product. **As many licenses as the number of servers is required (licenses for standby servers also required).** *** To configure a mirror disk type, Replicator must be purchased.** *** To configure a hybrid disk type, Replicator DR must be purchased.**
EXPRESSCLUSTER X for SAP NetWeaver / SAP HANA	Product dedicated to SAP NetWeaver, SAP HANA clustering.
EXPRESSCLUSTER X for Claris FileMaker Server	Product dedicated to Claris FileMaker Server clustering.

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EXPRESSCLUSTER X Fixed Term License

Best choice cloud users who want to use only for a short-time period

◆ Perfect for short-term use or if you need PP support during evaluation

- Available on a monthly basis
- Only distributed via the Internet
- Bundled with PP support (standard maintenance / extended maintenance)

price

Small Cost when short use

Package license   **Fixed term license**

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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/expresscluster/

For more information, feel free to contact us –
https://www.nec.com/expresscluster/en/contact.html

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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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