ExpressCluster for Physical Security Applications
Security Continuity Challenges and Needs
Critical Security Application Services and Data

The Backbone of Physical Security Systems

Network Video

Access Control

Credential & ID Mgmt

Security Application

Ex: video enhanced (e.g. tailgating) access control

Ex: multi-factor and biometric authentication for access control

Ex: role-based custom alerts and notification

Alarm Monitoring

Global Alerts

Ex: mobile PDA/smartphone security monitoring
Critical Security Application & Data Outage Impact

Loss of Vital Security Visibility, Control and Automation

No Video Recording or Loss of Evidence

Network Video

No Emergency Lockdown or Policy Control

Access Control

No Integrated Intelligence or Services

No Badging or Role Policy Management

Credential & ID Mgmt

No Comprehensive Monitoring

Alarm Monitoring

No Mass Emergency Alerts or Notification

Global Alerts
Security System Outage Risks

Many Potential Causes of System Outage

Site Outage
*Ex: storm, WAN cable cut, sabotage*

Software Outage
*Ex: application crash, OS security patch update*

Hardware Outage
*Ex: disk controller failure, stolen video recorder/server in robbery*

Resource Outage
*Ex: out of disk space, network saturation due to virus*

Security Application

Database
Common Security System Continuity Challenges

Disparate Point Solutions and Slow Recovery

**Systems**
- Difficult and slow manual recovery of multiple systems

**Hardware**
- Idle standby hardware requires manual recovery and not easy to test or use for productive work

**Site**
- Recovery across sites requires extensive manual process

**Software**
- Point solutions require manual coordination with data recovery

**Data**
- Point solutions provide only recovery of limited data types
Critical Security System Continuity Needs

Comprehensive and Automated Recovery Solutions

Unified solution to address HW, SW, resource, and site failures

Extensible solution to automate fast recovery of all interdependent systems

Flexible and minimized resource requirements

Fast application, DB and OS service recovery

Common App Server, DB Server, OS, and HW support

Fast data content and access recovery with little or no data loss
NEC ExpressCluster Software Overview
ExpressCluster Overview

Application redundancy software for fully automated recovery of critical application systems from hardware, software and site failures to avoid serious business disruption and damage.

- Fast recovery of applications and data within minutes of hardware, software and site failures across local and remote locations to ensure business continuity.
- Unified simple-to-use web-based management for easy monitoring, configuration and testing.
- Low solution cost with support of industry standard hardware and network infrastructure and economical standard application, OS and virtualization software.
Core ExpressCluster Products for Security Systems

**ExpressCluster LAN**

- Local Redundancy
  - Low cost local high availability
  - Synch data mirroring
  - No shared storage required
  - Single IP network support

**ExpressCluster WAN**

- Remote Redundancy
  - Auto remote disaster recovery
  - Sync or async data mirroring
  - Low bandwidth and long distance WAN support
  - Multiple IP networks support
Minimize Unplanned Outages

Fast Automatic Recovery From HW, SW, and Site Failures

1) Primary Active

2) Primary Down

3) Primary Repaired

4) Primary Restored

Track Data Changes

Resync Only Data Changes

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Integrated Application and Data Recovery

Minimized Deployment and Operational Costs
Minimized OS/Application Total Cost of Ownership

Standard and Premium Edition OS/Application Support

ExpressCluster

STD App
STD OS
Primary
Standby

ENT App
ENT OS
Primary
Standby

Others

Management
ENT OS

ENT App
ENT OS

Up to 500% Higher OS/App Licensing Costs
1) Primary receives a “write” request from App
2) Primary writes data to disk and forwards write data to Standby.
3) Standby writes data to its own disk.
4) Standby sends the result to Primary.
5) Primary receives the result from Standby and returns the result of the “write” back App.
Quick and Easy System Recovery Testing

Granular Failure Simulation Simplifies System Testing

- “Verification Mode” in the management console
- Early discovery of misconfiguration and assurance of functional resources.

1. Select verification mode
2. Select dummy failure from monitor resource
3. Select server to use for dummy failure
4. Easily simulate failure
ExpressCluster Value Proposition

Comprehensive System Continuity Solutions

 Superior Performance
- Fast and automatic system recovery
- Real-time transactional data mirroring

 Superior Usability
- Unified management of all protected applications and data stores
- Transparent virtual server identity migration requires no client reconfiguration

 Superior Cost of Ownership
- Standard OS/applications support
- Low bandwidth network support
- Active/active configurations support
Sample Solutions
Local High Availability (HA) Solution

Transactional data mirroring ensures any data written to disk on active Server A is available on standby Server B.

Continuous application and resource monitoring ensures fast HW & SW failure detection and recovery to standby Server B.
Physical/Virtual High Availability (HA) Solution

Continuous application and resource monitoring ensures fast HW & SW failure detection and recovery to standby Server B.

Transactional data mirroring ensures any data written to disk on active Server A is available on standby Server B.

Server A (Physical)

Server B (Virtual)

ExpressCluster LAN

Public LAN

Cluster Interconnect

Security Application

Data

Hypervisor

VM

ExpressClusterX

vmware

Microsoft Hyper-V
Remote Disaster Recovery (DR) Solution

Continuous application and resource monitoring ensures fast fault detection and recovery to standby Server B

Real-time disk mirroring ensures any data written to disk on active Server A is available on standby Server B

ExpressCluster WAN
Most Comprehensive Redundancy Solutions

Fast and Automated Recovery from All Failures

- Integrated continuity management for critical systems
- Flexible deployment options for optimized resource utilization
- Standard OS, app, and DB, storage HW, and network support
- Continuous disk mirroring ensures maximum data protection
- Easy extensibility to accommodate recovery of multiple interdependent systems
- Fast recovery for packaged and custom application services and resources

Security Application

Database

- Fast and Automated Recovery from All Failures
Case Studies
Case Study (Local High Availability)

Large metropolitan railroad transportation company
- Over 7 million monthly ridership

Key Needs and Challenges
- Critical access control servers in locations without IT staff require fast automated recovery against HW & SW failures to avoid security lapse

Solution
- NEC ExpressCluster LAN
- General Purpose Intel Servers
- Security Mgmt System
US Government Agency SmartCard Access Control System

- Large space: 3.5 million square feet in New York
- Far reaching: 35 federal agencies
- High volume: 13,000 employees and contractors

Key Needs and Challenges

- The post-9/11 world requires enhanced access control security – fast disaster recovery is essential to ensure access control continuity
- Continuous monitoring and preservation of access event records are absolutely necessary for real-time and post-disaster analysis

Solution

- NEC ExpressCluster WAN
- 2-way Intel® Xeon® Servers
- Security Mgmt System
Case Study (Remote Disaster Recovery) 2/2

LAN (Primary Server) and LAN (Standby Server) are connected by a Corporate Network, 25 miles apart. The T1 WAN (1.5Mbps) provides a Cluster Interconnect for Synchronous Data Mirroring. Security Application is protected by EXPRESSCLUSTER, ensuring Automatic Recovery within 2 min. The Storage Array supports the data mirroring solution.
Summary

- Fast automated recovery from hardware, software and site failures in few minutes within same or different sites
- 99.99% availability for software and hardware
- Supports industry standard OS, applications, server, storage and networks
- Easily reuse existing equipment and infrastructure