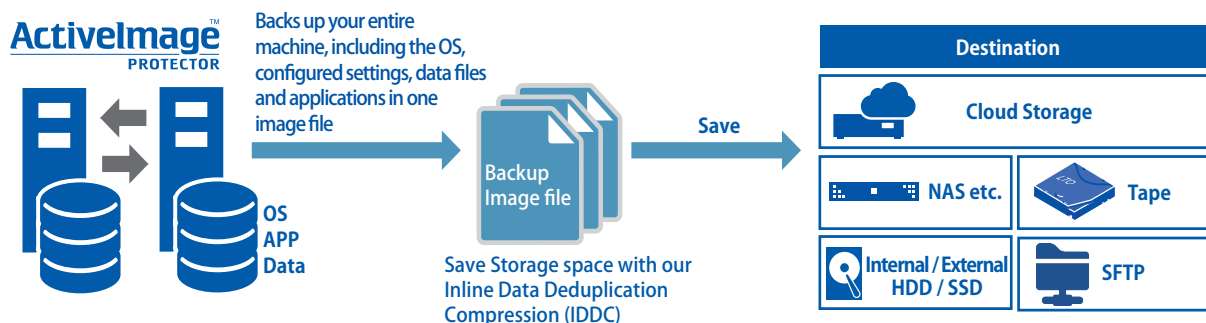


## What is ActiveImage Protector<sup>TM</sup> CLUSTERPRO ?

### A backup / recovery solution for NEC's CLUSTERPRO

ActiveImage Protector<sup>TM</sup> CLUSTERPRO is a backup / recovery solution for CLUSTERPRO, NEC's high availability clustering software. Provides fast and secure disk-imaging backup of CLUSTERPRO clustered servers' system and volumes (mirror volumes, shared volumes). In the event of a failure, enables you to perform fast system recovery in an environment with clustered volumes. Save your backups to any available storage location, including Cloud storage, LTO tapes suited for long-term storage and portable, etc., supporting a variety of system configuration and backup policies.



## Provides support for Disaster Countermeasures and Security Measures

ActiveImage Protector<sup>TM</sup>, a disaster recovery solution, is designed to provide "a fast and successful recovery", and is useful for disaster recovery. In the event of a hardware failure of backup source machine, ActiveImage Protector<sup>TM</sup> backup image can be restored to a different physical machine or a virtual machine. Or, a virtual machine can be booted from a backup image. Also, standby VM can be replicated and updated according to predefined schedule settings. When disaster strikes, the virtual standby replica can be immediately started for an instant switch-over. For its excellent operability, ActiveImage Protector<sup>TM</sup> provides support for reduction of the operating recovery time objectives (RTO) with minimum number of IT engineers, enabling to complete the operation.

## Delivers more powerful fault tolerant solution

### Enhanced fault tolerance

The combination of high availability clustering software CLUSTERPRO and ActiveImage Protector<sup>TM</sup> enables to provide more robust fault tolerant solution.

### Technical verification ensures trouble-free deployment

The supported CLUSTERPRO versions have been fully tested and verified in-house for trouble-free deployment. Also, User Guide for backup operation is included in the product for your reference with peace of mind.

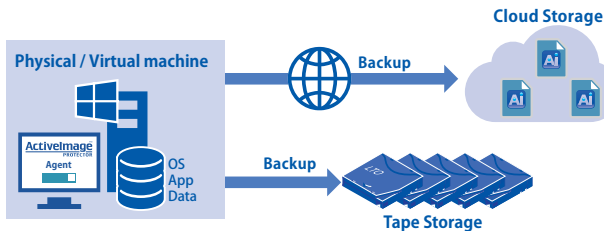
### Cost-effective Pricing

Cost-effective license is offered for ActiveImage Protector<sup>TM</sup> CLUSTERPRO to protect CLUSTERPRO HA clustering system configuration. Also, ActiveImage Protector<sup>TM</sup> plus CLUSTERPRO X, ActiveImage Protector<sup>TM</sup> bundled with CLUSTERPRO, is offered at a reasonable price.

## Main Features of ActiveImage Protector™

### A variety of Storage Media are supported

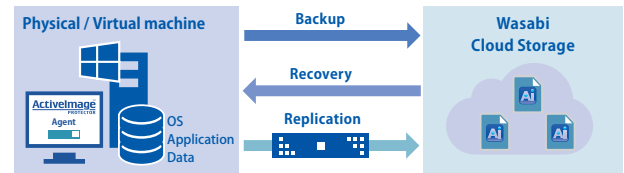
- Cloud storage, including Wasabi, Amazon S3, Azure Storage, etc
- LTO enabling offline storage
- Locally connected HDD, NAS, SFTP



### Cloud Storage Wasabi with object lock is supported

**New !**

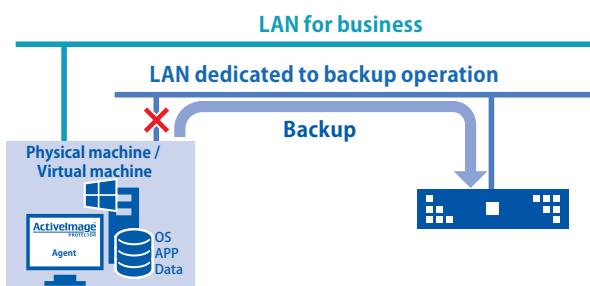
- A bucket enabled with object lock is supported as a storage destination
- The same features as provided for local NAS are supported
- Supported as offsite replication target



### Safely protect backup files

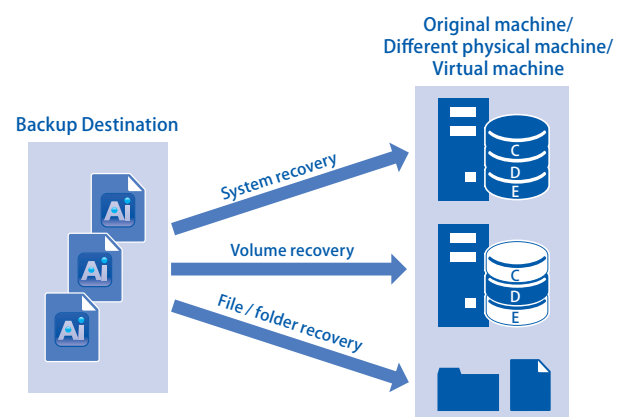
- Disconnect access to a backup storage drives after backups complete (Destination Isolation Option)
- Replicate backup files to remote site (Offsite Replication)
- Encryption of Backup Images

### Disconnects LAN upon completion of a backup task



### Flexible recovery as the situation demands

- Built-in wizards guide you through entire system recovery
- File / Folder Recovery enables granular point-in-time recovery of a volume, file or folder.
- Restore to a different physical / virtual machine as well as to the original physical machine.



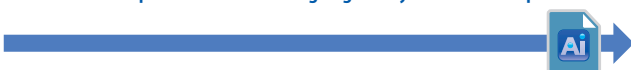
### Flexible Scheduled Backup

- Backup tasks can be automatically executed according to the one-time, weekly, monthly or on a specific day of a week
- Multiple schedules can be defined for individual backup tasks
- Back up multiple virtual machines in one image file

#### Back up on daily basis according to a weekly schedule

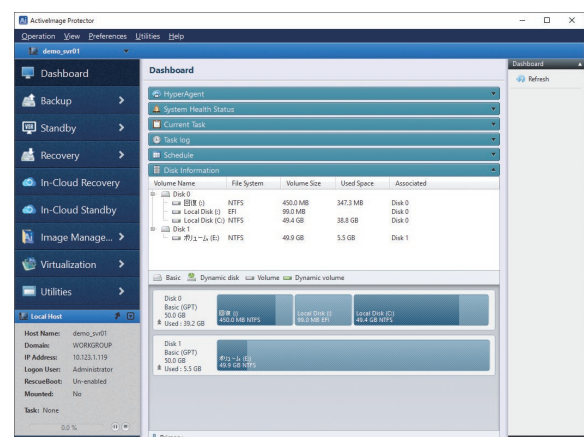


#### Full backup each month for an ongoing weekly schedule backup task



### GUI provides tools for efficient operations

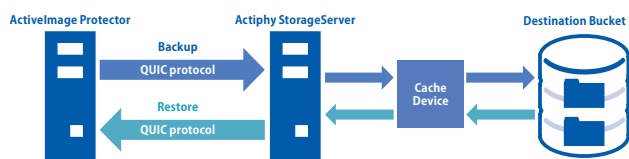
- GUI make the software operation more intuitive
- Wizard-driven interface guides you through backup / restore operation
- Remote console is provided to remotely manage clients



## Backup Features

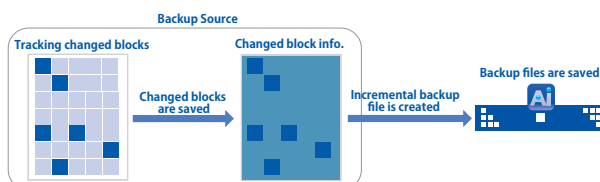
### Actiphy StorageServer™ New !

Actiphy StorageServer™ option enables to build secured backup storage for exclusive use with ActiveImage Protector™. Actiphy StorageServer™, as an independent destination storage for backup, protects the backup image files from the attack of a ransomware. The use of new QUIC protocol for data transmission enables to transfer data more safely with high reliability and ensures the security for the communication path. Actiphy StorageServer™ is engineered to take advantage of cache device in storage server, delivering faster data transfer speed than the destination storage device, that secures stable backup process and speed.



### New Tracking Driver New !

New Tracking Driver is provided to monitor disk I/O and tracking the changes made from the last backup. The changes are saved in an incremental backup file, saving backup process time. The use of the new Tracking Driver suppresses a slowdown of backup processing speed caused by the increasing number of incremental backup files. You can select change tracking mode not to use a tracking driver.



### Back up the entire system of live Server

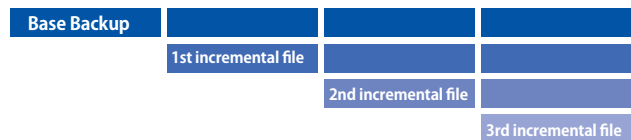
ActiveImage Protector™ quickly backs up the entire system of live CLUSTERPRO to include the OS, applications, and data files to a disk image. When disaster strikes, select a backup image to quickly restore for a full-state and prompt recovery. The built-in wizards guide you through every step to ensure recovery from the backup image file. Use the File or Folder Recovery option to restore a specific file or a folder from a backup image file.

### File Backup

ActiveImage Protector™ includes File / Folder Backup to back up granularly selected files and folders and provides File or Folder Exclusion configuration options and back up from a network shared folder.

### Incremental backup saves process time and storage demand

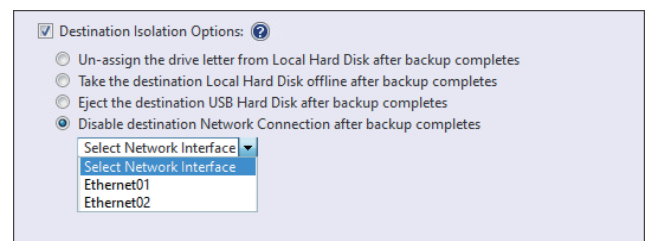
Incremental backup saves only the blocks that have changed since the previous backup, substantially saving process time and storage demand.



### Upon completion of backup task, protect the destination (Destination Isolation Option)

Our Imagelocate™ technology reduces potential malware or ransomware attacks to backup files by disconnecting access to backup storage drives over a network after backups complete. Four options are provided.

- Un-assign the drive letter from the local hard disk after completing the backup
- Take the destination local hard disk offline after completing the backup
- Eject the destination USB hard disk after completing the backup
- Disable the destination network connection after completing the backup

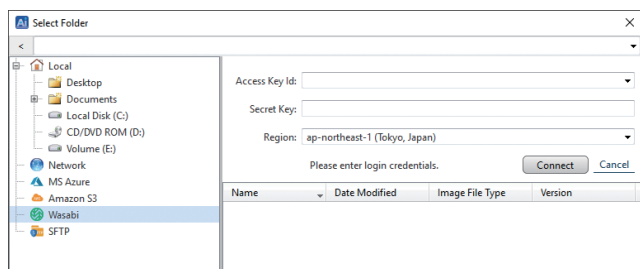


### A variety of Storage Media are supported

Save your backups to any available storage location, including local HDD, NAS, SFTP server, LTO tape, and cloud storage services (Wasabi, Amazon S3, Azure Storage, S3 compatible object storage), etc., using a variety of system configuration and backup policies.

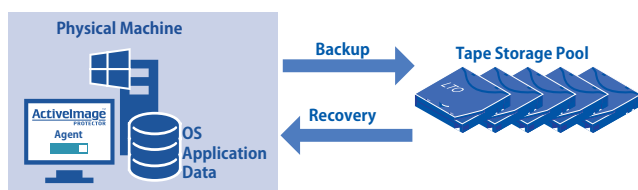
## Wasabi with object lock is supported **New !**

A bucket enabled with object lock in Wasabi Hot Cloud Storage is supported as a storage destination. Source backup images in Wasabi Hot Cloud Storage and NAS are supported for restore. Save your large volume backup data in cost-effective Wasabi Hot cloud storage to further secure your data by isolating the backups from a cyber attack.



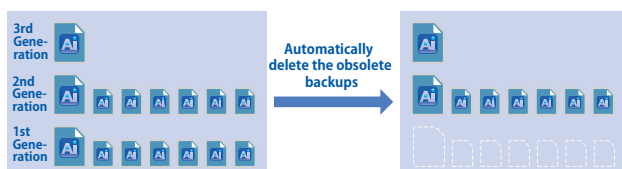
## LTO Tape Support suited for offline storage

The Tape Manager feature in this update provides enhanced operation of the tape pool and library. When backups are directed to LTO tape with insufficient available space, the LTO tape is replaced with another to continue backup operation. Should a disaster occur, a backup from the LTO tape is used to restore the system.



## Image Retention Policy

The Image Retention Policy feature can be configured to automatically delete the obsolete backup image set when the number of backup image sets reaches the preset limitation and reduces the storage requirements.



## Automatic backup at shutdown

ActiveImage Protector™ automatic backup when a machine is shut down or rebooted. When rebooting the system after a regularly scheduled system maintenance or in the event of an unexpected system shut down, a full baseline backup image is created before or after startup.

## Run scripts after scheduled backup

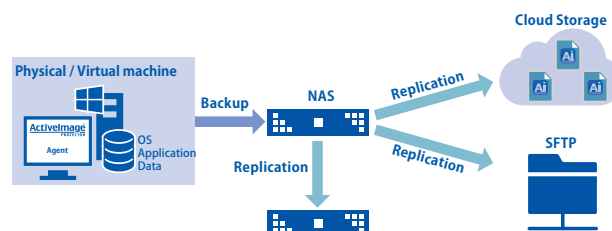
Scripts can be implemented to run before, after, or during the moment snapshots are taken or after the backup image has been created. An example would be to execute a user-specified script to purge database cache before taking a snapshot and then resume the database after taking a snapshot (before starting a backup task). Thereafter you can take a copy or edit the created backup file. Scripts can be implemented respectively for base and incremental backup tasks.

## Post-backup Process

Run Replication and Consolidation tasks upon completion of a backup or at a specified time.

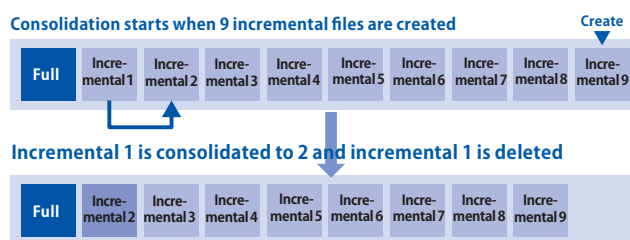
## Distributed Backup Storage (Offsite Replication)

Perform a post-backup Replication of your backup image files to an offsite storage share that includes local disk, network shared folder, FTP, FTPS, SFTP, WebDAV, Amazon S3, Azure Storage, Wasabi, OneDrive, Google Drive, Dropbox. Distribution of backup files increase the security level.



## Consolidation of Incremental Backup Files

Regularly scheduled recurring incremental backup tasks may result in an increase in the number of backup files and a decrease in the performance of backup and restore processes. The Consolidation feature consolidates an uninterrupted series of incremental backup image files to one file according to a predefined schedule. For example, if the consolidation settings are configured to retain 7 incremental backup files and when 9 incremental backup tasks complete, the 1st and the 2nd most obsolete incremental files are consolidated to one file. As a result, 7 incremental files remain.



## Restore Features

### Fast and full-state recovery from a backup file

In the event of a hard disk failure, ActiveImage Protector™ can quickly restore a backup to the original machine, a different on-premise physical server or a virtual machine, bypassing the time-consuming process of reinstalling the OS, applications, configuration settings, reapplication of drivers, and data recovery. The built-in wizards guide you through every step to ensure recovery from the backup image file reducing the IT engineers' workload.

### File Recovery

In the event of a system failure, you may only need specific files to restore in order to maintain continuity. The File Recovery feature optionally provides recovery of single files or folders from a backup image. All stream information and access rights of the individual files are inclusively restored.

### Enlarge or reduce target volumes or partitions during recovery

Only NTFS volumes may be restored to a volume in a size larger or smaller than the original source volume.

### RescueBoot

ActiveImage Protector™ includes RescueBoot. A feature when enabled, starts up the Actiphy Boot Environment in the event of emergency. The boot environment is booted directly from the internal disk, so that system administrator can restore the failed system without the use of external device.

### VNC on RescueBoot

A VNC viewer is now provided to remotely operate the RescueBoot boot environment. System administrators can now restore the failed system in RescueBoot via VNC instead of the local machine.

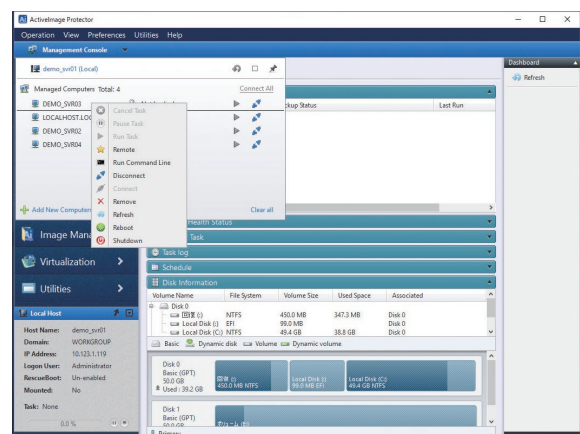
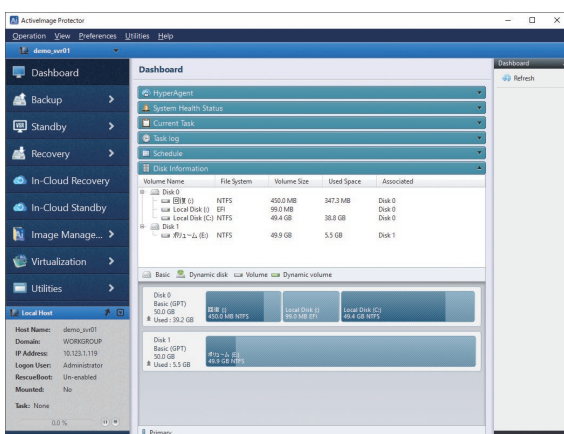
## Management Console

### GUI provides tools for efficient operations

ActiveImage Protector™'s GUI provides dashboard window, displays real time monitoring of the status of tasks, logs, schedules, and disk information. Backup and Restore wizards windows make the software operation more intuitive.

### Client management console

You can monitor the status of remote ActiveImage Protector™ agents over the network. Use the Client management console to monitor the status of backup tasks on multiple agents over network and schedule backup tasks.





## Management of Backup Files

### Image Explorer

Windows Explorer opens a backup file providing direct access to restore individual files or folders from a backup file.

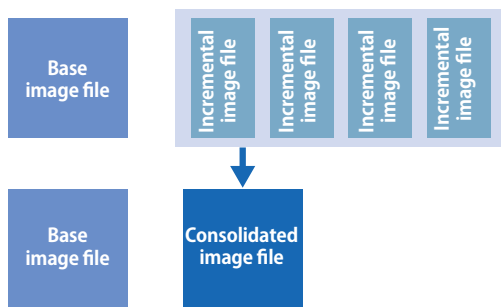
### Image Mount

ActiveImage Protector™ can quickly mount an image file as a drive, allowing the restore of any files or folders from the image file. When image file is mounted as a writable drive, the changes made on the drive will be saved as a differential file.

### Consolidate backup files

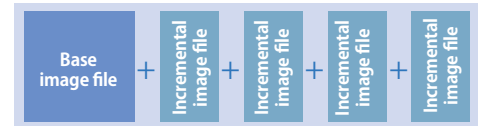
Regularly scheduled recurring incremental backup tasks create a growing and sometimes unmanageable number of incremental files. The Consolidation feature consolidates an uninterrupted series of incremental backup image files to a single file.

\* When running scheduled consolidation tasks, please configure the settings for Post-backup Consolidation.



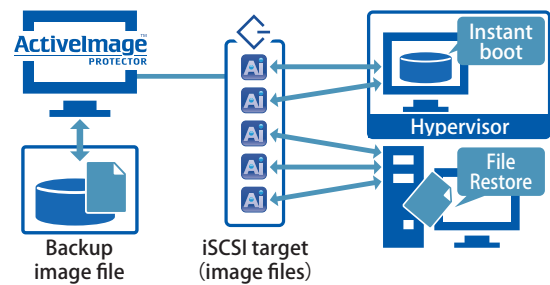
### Archive Backup Files

Use the archive feature to unify a full base image file and all associated incremental files into a single backup file.



### iSCSI Serves Backup Image Files as iSCSI Targets, Network File System server (Image Target Server)

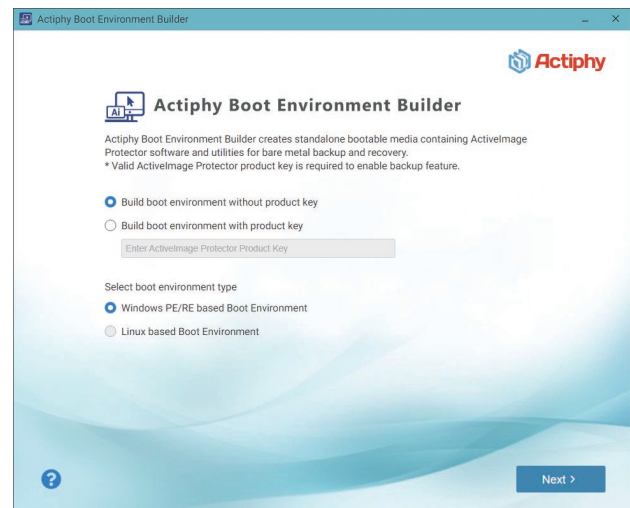
ActiveImage Protector™ now utilizes iSCSI or NFS server to serve backup images as iSCSI targets to any local or remote iSCSI initiator for mounting backup images as local disks, or as NFS server to access backup images as VMDK file from NFS client; not only providing a method to recover files and folders from a backup, but provides immediate booting of a backup image attached to a virtual machine on a VMware vSphere hypervisor.



## Free Add-on Tool

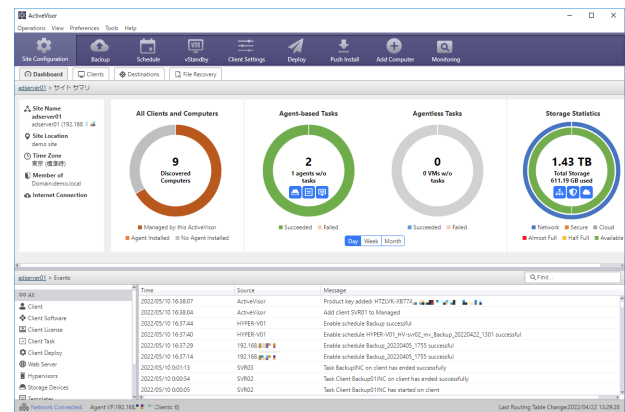
### Actiphy BE Builder (boot environment builder)

ActiveImage Protector™ comes with boot environment builder for building a Windows-based boot environment when restoring the system or performing cold backup. You can create a standard Windows RE (Recovery Environment) based boot environment without installing Windows ADK or Windows PE. The Boot Environment Builder automatically detects required drivers, so that you can select the required drivers to install in the media which reduces IT engineers' workload. USB memory / HDD / SSD hard disk, ISO image file and optical media are supported to build the boot environment. If your notebook PC does not come with an optical media drive, the use of bootable USB flash memory / HDD / SSD offers a system recovery option.



## ActiveVisor, add-on Centralized Management Console for ActiveImage Protector™

ActiveVisor™ provides a centralized management tool for ActiveImage Protector™ by monitoring networked client computers on which ActiveImage Protector™ agents are installed. Centralized management operation includes auto-discovery of managed computers, push-installing ActiveImage Protector™ agents, creating and deploying templates of backup tasks and configuration files, real-time monitoring of backup status, obtaining license information of ActiveImage Protector™ agents on managed computers, and remote operation of ActiveImage Protector™ agents.



## Others

### Command line execution support

Most of ActiveImage Protector™'s features can be used by specifying parameters for command line tool or with command file. ActiveImage Protector™'s CLI allows backups to be seamlessly administered by system management tools, if any, by using prepared script file.

### Monitor task log entries in Windows Event Log Viewer

Every task event is now recorded in the Windows event log to provide better integration into the Windows Management Interface for a more unified experience.

### Encryption of Backup Images

ActiveImage Protector™ can create password-protected and encrypted backup images and supports up to AES 256-bit encryption. Enabling the encryption for the backup image file ensures that the backup file cannot be compromised.

### Email Notification

Email notification can be sent (using SSL/TSL) to an email address of your choice. Notifications include successfully completed backups or backup failure. Email notification may be set to inform you of the summary of task execution and license status (expiration of the license period).

### Cold-Imaging backup for static Windows machines

Start up your computer from ActiveImage Protector™'s bootable media to create a backup image of a clean static system volume (immediately after installation of OS). Cold-imaging backup saving the point-in-time state of the failed system is convenient to examine the cause of the system failure.

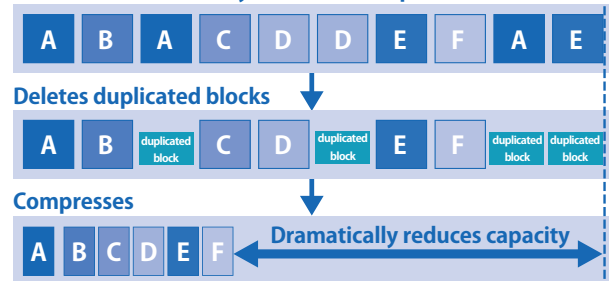
### Online backup ensuring consistency (Hot Imaging)

The hot-imaging backup is useful especially when backing up the system and the data frequently updated throughout the day and night on non-stop server. Create consistent backup of Windows VSS (Volume Shadow Service) aware server applications such as SQL Server, Exchange Server and Oracle.

### Save storage space with IDDC

Our Inline Data Deduplication Compression (IDDC) feature eliminates duplicate data while simultaneously compressing it, resulting in a significant reduction in backup storage requirements. Since backup using IDDC increases the CPU and memory usage, it is recommended to select Level 2 (Optimized) as this is the default level for IDDC.

#### Creates index for every block of backup stream

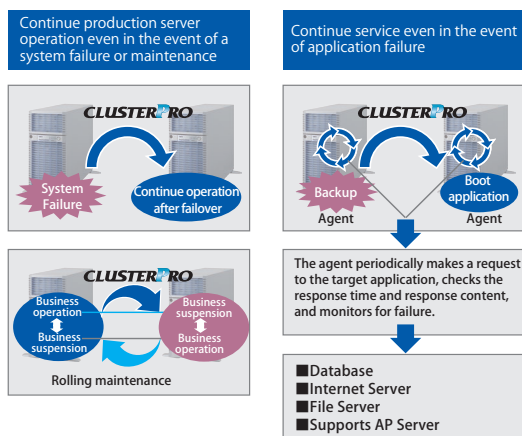


## ActiveImage Protector™ plus CLUSTERPRO X

ActiveImage Protector™ plus CLUSTERPRO X is a powerful fault tolerant solution, combining “CLUSTERPRO X”, NEC’s HA clustering software, and “ActiveImage Protector™ CLUSTERPRO”, system protection solution optimized for “CLUSTERPRO” and in-house developed by Actiphy.

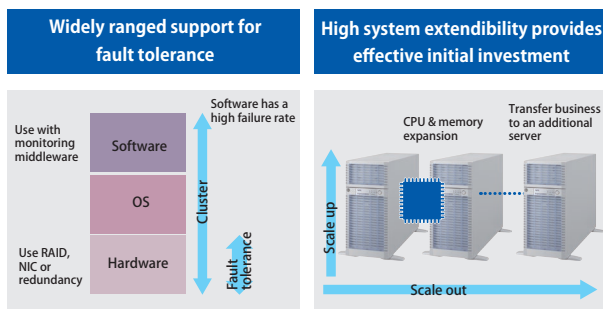
### Continue production server operation even in the event of a system or application failure

CLUSTERPRO detects hardware failure, OS failure, application failure and figures out whether the live production server can continue operation as well as business application and service operation. Also, CLUSTERPRO provides not only failover capabilities but is also effective for the system maintenance of the clustered volumes and server system. First, failover from main production server to the standby server, after maintenance, takes place. Then the maintenance of the main server is performed. As a result, server downtime for maintenance is minimized.



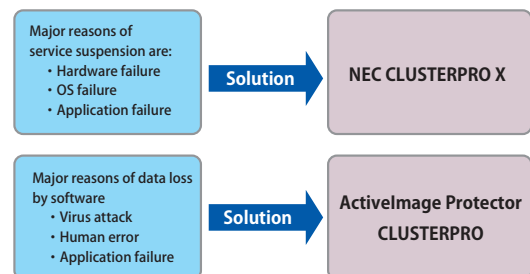
### Provides widely ranged support for fault tolerance and system extensibility

Application failures are regularly monitored and detected at service response. In the event abnormal state or a hang-up is detected, failover takes place to continue the production system operation. Standby system failure, as well as main system failure, can be detected before failover takes place. Also, as flexible server extension is supported along with increasing workload, initial investment is most effectively utilized.



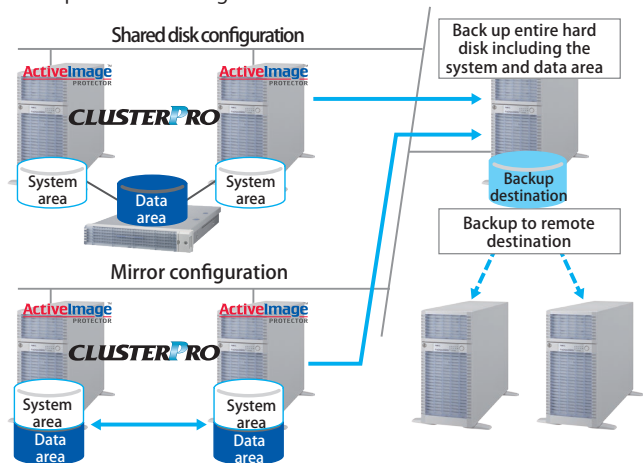
### Combination of two products provides powerful fault tolerance

In the event of system failure caused by hardware failure, OS failure, application failure, CLUSTERPRO enables failover to normal server for continual service operation. In the event of data corruption as a result of computer virus infection, data loss due to human error, system failure caused by unexpected disk failure, the system and data can be immediately restored from ActiveImage Protector™ backup image file. The combined use of NEC’s CLUSTERPRO X and ActiveImage Protector™ CLUSTERPRO provides enhanced fault tolerance in your server system environment.



### Imaging backup of live CLUSTERPRO server and fast, full-state recovery

Without stopping the live production server, ActiveImage Protector™ CLUSTERPRO enables sector-based backup of CLUSTERPRO clustering system and clustered volumes (mirror volumes, shared volumes) and instant recovery in the event of system failure. Also, built-in ImageCenter™ (add-on replication tool) replicates backup files to local and/or offsite locations to better protect them against disasters.



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