NexaSphere

Release Notes

Version: V2.0.2

Issue: V2.0.2

Nexavm Technologies AG

NEXAVM

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Highlights

NexaSphere 2.0.2 enhances security and trust, key management, virtual machine migration, storage registration, account permission management, and Guest OS compatibility. This release applies to environments that require stronger virtualization platform security, improved compliance support, or migration from VMware environments to NexaSphere.

- **Enterprise KMS Integration and Native Key Provider (NKP)**

  This release supports integration with mainstream KMS providers through the standard KMIP protocol and provides built-in native key management. You can select an external KMS or the built-in NKP based on your existing security infrastructure to support virtual machine disk encryption and key lifecycle management.

- **Virtual Machine Secure Boot and vTPM**

  Virtual machines can enable Secure Boot and virtual TPM devices that comply with TPM 2.0. These capabilities improve trust in the virtual machine boot process and runtime environment, and support virtual machine lifecycle operations such as clone, snapshot, migration, and high availability.

- **Migration Service 2.0**

  Migration Service 2.0 migrates virtual machines from VMware environments to NexaSphere. The tool supports agentless migration, resumable transfer, and pre-cutover validation, and applies to VMware replacement, data center migration, and heterogeneous virtualization platform consolidation.

New Features

Security

Enterprise KMS Integration

Enterprise KMS integration supports integration with mainstream KMS platforms, such as Thales, Entrust, and HashiCorp, through the standard KMIP protocol. With this capability, NexaSphere can reuse existing enterprise key management infrastructure and reduce the cost of deploying and maintaining additional security systems.

Key capabilities include:

- Supports mutual trust based on CA certificates between NexaSphere and KMS platforms.

- Supports TLS-based encrypted transmission to protect key distribution and management channels.
- Supports DEK and KEK layered protection to manage data encryption keys and key encryption keys separately.
- Supports key isolation by KMS account for multi-service or multi-tenant environments.
- Supports key rotation to meet periodic key update and security compliance requirements.

Use cases:

- Production environments where an enterprise KMS has already been deployed.
- Virtualization environments that require unified key lifecycle management.
- Industry scenarios with compliance requirements for data encryption, key isolation, and key rotation.

Native Key Provider (NKP)

Native Key Provider (NKP) is a built-in key management service. You can enable virtual machine disk encryption in NexaSphere without integrating with a third-party KMS.

Key capabilities include:

- Supports enabling key management services in the platform without relying on an external KMS.
- Supports DEK and KEK layered protection.
- Supports the AES-256 encryption algorithm.
- Supports NKP backup and restore to help recover key resources in disaster recovery scenarios .

Use cases:

- Private deployments where no external KMS has been deployed.
- Small and medium-sized environments that need to quickly enable virtual machine disk encryption.
- Scenarios that require built-in key management as a basic encryption capability or a supplemental key management option.

Virtual Machine Secure Boot and vTPM

Virtual Machine Secure Boot and virtual TPM (vTPM) improve trust in the virtual machine boot process and virtualized runtime environment. vTPM complies with TPM 2.0 and provides trusted computing capabilities for virtual machines without physical TPM hardware.

Key capabilities include:

- Supports Secure Boot to help prevent untrusted firmware, boot loaders, or drivers from loading during startup.
- Supports virtual TPM devices that comply with TPM 2.0.
- Supports lifecycle operations for vTPM virtual machines, such as clone, snapshot, migration, and high availability.
- Supports automatic vTPM reset when deploying vTPM virtual machines from clones or templates to reduce the risk of key conflicts.
- Supports Rekey operations to rotate vTPM-related keys.

Use cases:

- Operating systems that depend on TPM capabilities, such as Windows 11 and Windows Server 2022.
- Production environments that require trusted virtual machine startup and key protection.
- Scenarios such as finance and government where virtual machine security baselines are explicitly required.

Migration

Migration Service 2.0

Migration Service 2.0 migrates virtual machines from VMware environments to NexaSphere. The tool is included with NexaSphere and does not require a separate migration system.

Key capabilities include:

- **Agentless migration**: The migration process does not require agents on source virtual machines, which reduces impact on production systems.
- **Continuous data synchronization and final cutover**: Supports virtual machine data synchronization during migration and final cutover within a service window.
- **Resumable transfer**: Uses block-level data transfer and can resume after network interruption or instability, avoiding repeated migration of completed data blocks.
- **Pre-cutover validation**: Supports test cutover before the final cutover to validate the availability of migrated virtual machines and business systems.
- **Operating system compatibility**: Supports mainstream Windows and Linux operating systems, including China-developed operating systems such as Kylin, UOS, and Euler.

Use cases:

- VMware replacement and virtualization platform migration.
- Data center consolidation or cross-platform migration.
- Production environments that require multiple rounds of service validation before migration.

User Management

This release enhances account management and permission control to improve platform administration security.

- Supports two-factor authentication login for domain users based on one-time passwords.
- Adds the read-only administrator role for audit, inspection, and read-only access scenarios.
- Supports promoting regular users to administrators.
- Supports automatically transferring resources owned by a deleted user to an administrator to prevent unmanaged resources.

Installation and Deployment

This release enhances the installation and deployment process. You can install and deploy the platform through a TUI graphical interface, which reduces command-line deployment complexity.

Storage

Storage Registration and Virtual Machine Registration

Storage registration and virtual machine registration support resource management based on existing data and metadata. These capabilities apply to remote recovery, lightweight disaster recovery, and quick onboarding of existing resources.

Key capabilities include:

- **Storage registration**: Supports registering storage resources that already contain data so that the target environment can identify and use existing data.
- **Virtual machine registration**: Supports managing and starting virtual machines based on metadata, which applies to lightweight disaster recovery cutover and backup site recovery.
- **Storage type support**: Supports multiple storage types, such as NFS and SAN.

Use cases:

- Disaster recovery drills and backup site recovery.
- Cross-site data recovery.
- Quick onboarding of existing storage resources and virtual machine resources.

Enhancements

This release also includes the following enhancements to improve the usability of resource management, virtual machine creation, backup-based recovery, and snapshot operations.

- **Tag color configuration**

  You can select a tag color from a color palette when creating a tag. You can assign different colors based on resource type, service ownership, or operations scenarios to quickly distinguis h resources in resource lists and tag views.

- **System Disk expansion during template-based virtual machine creation**

  When creating a virtual machine from a template, you can adjust the System Disk capacity during creation. This enhancement applies to scenarios where virtual machines with different specifications must be created from a standard template, and reduces the steps required to expand the disk after creation.

- **Specified Data Disk storage location during backup-based virtual machine creation**

  When creating a virtual machine from a backup, you can specify a target storage location for each Data Disk. This enhancement helps restore different Data Disks to specified storage based on capacity, performance, or service isolation requirements.

- **Memory snapshots for compatible-mode virtual machines**

  Compatible-mode virtual machines support memory snapshots. After you create a snapshot that includes memory state, you can restore the running state of the virtual machine during rollback. This capability applies to upgrades, changes, and test validation.

- **Extended resource description length**

  The maximum length of a resource description is extended from 256 characters to 2000 characters. You can record more complete information about resource usage, service ownership, maintenance notes, or change background.

- **Migration Service Version Compatibility and Feature Optimization**

  This release integrates capabilities related to Migration Service version 122 and optimizes Migration Service features to improve compatibility between the migration tool and the NexaSphere platform.

- **HA Policy Toggle Operation Optimization**

  This release fixes an issue that might cause an error when you repeatedly enable and disable the HA Policy toggle. After the fix, HA Policy configuration is more stable.

Compatibility Notes

New Guest OS Support

This release expands the list of supported Guest OS versions to include multiple mainstream Linux distributions, enterprise Linux distributions, and China-developed operating system versions.

The newly supported Guest OS versions are listed in the following table:

Operating System	New Version
CentOS Stream	9
RHEL	10
Debian	13
Fedora	42
Kylin	11
Oracle Linux	8 / 9 / 10
Rocky Linux	8 / 9 / 10
AnolisOS	8
AlmaLinux	9 / 10