oVirt

# Shared storage management in the virtualization world

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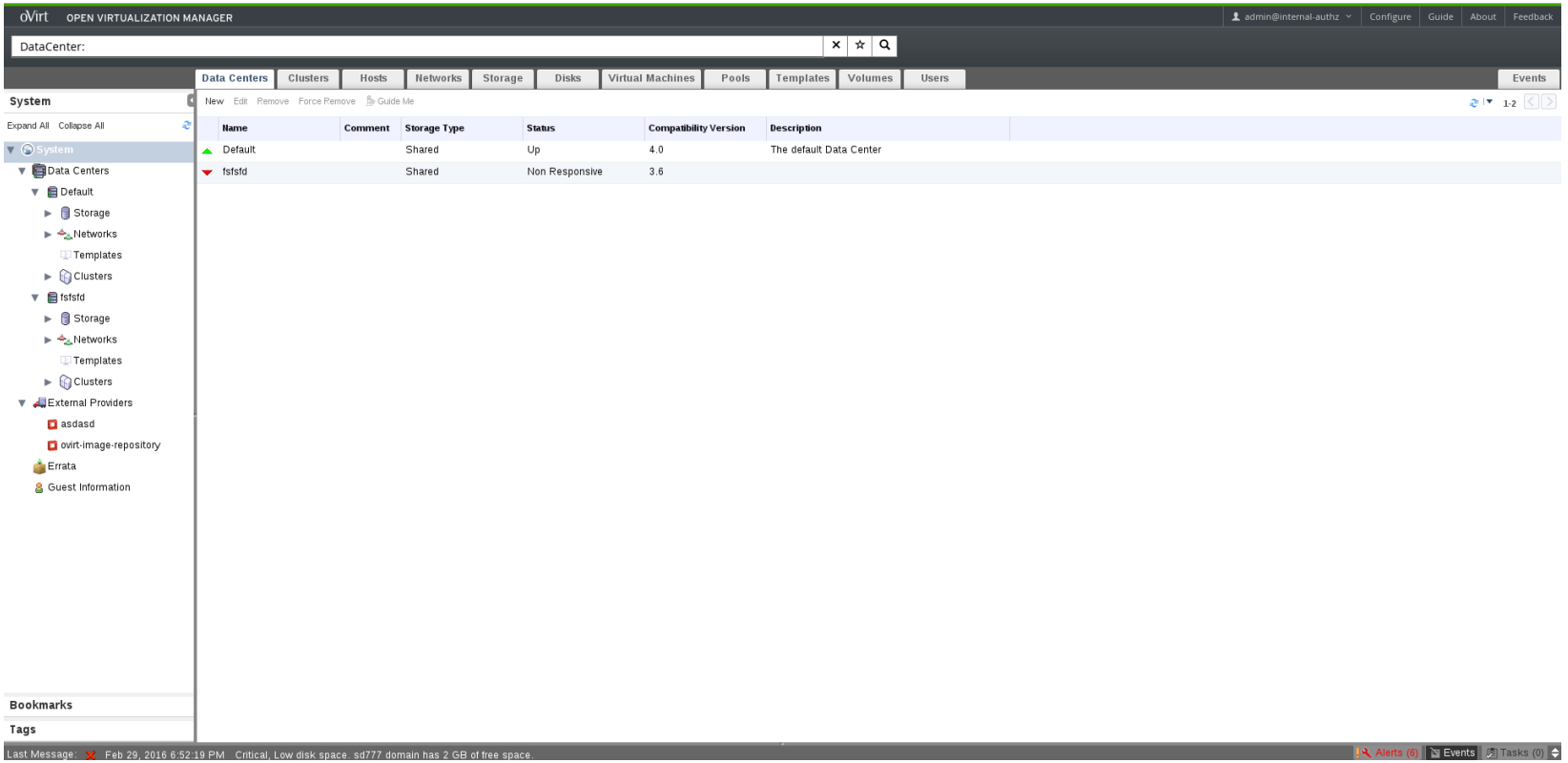
# Agenda

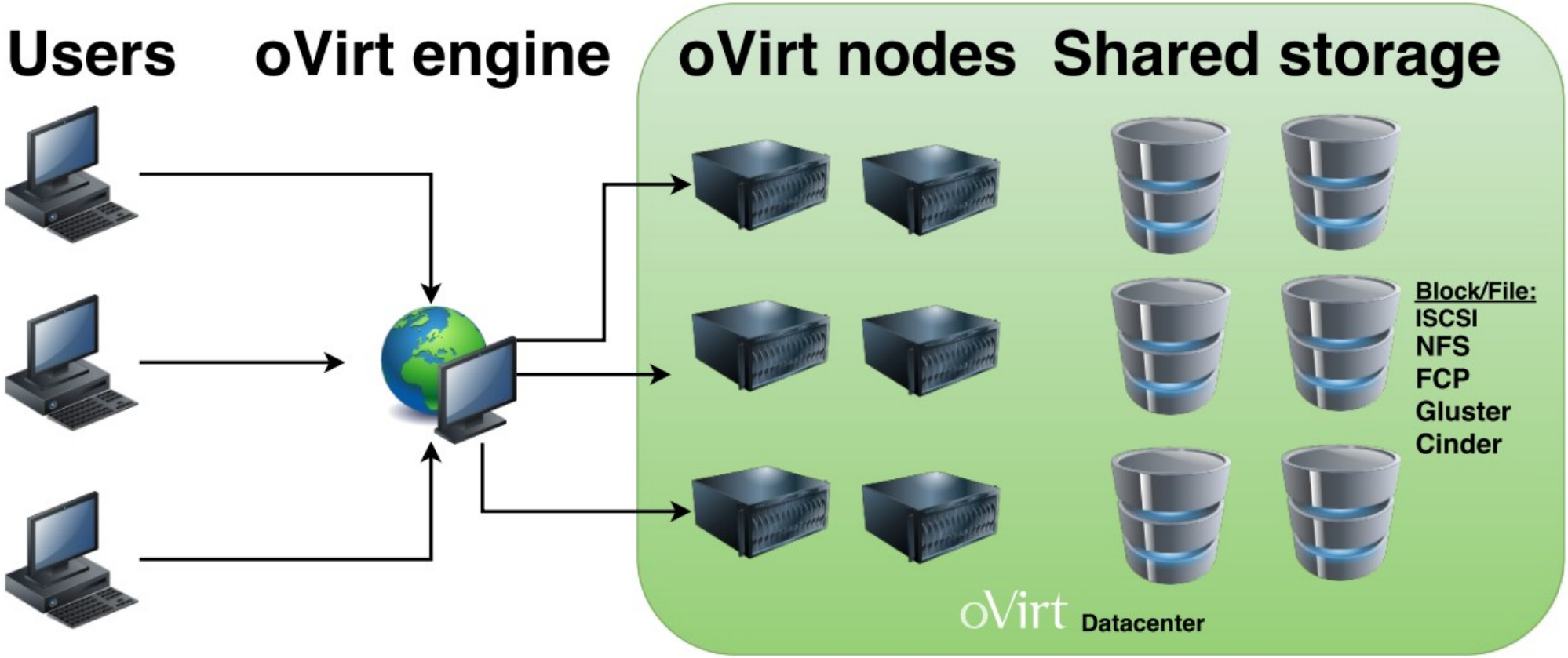
- oVirt introduction
- oVirt basic storage concepts
- Shared storage management
- Q&A

# What is oVirt?

- Virtualization management application
- Manages nodes, storage and network resources
- Deploys, runs and monitors virtual machines

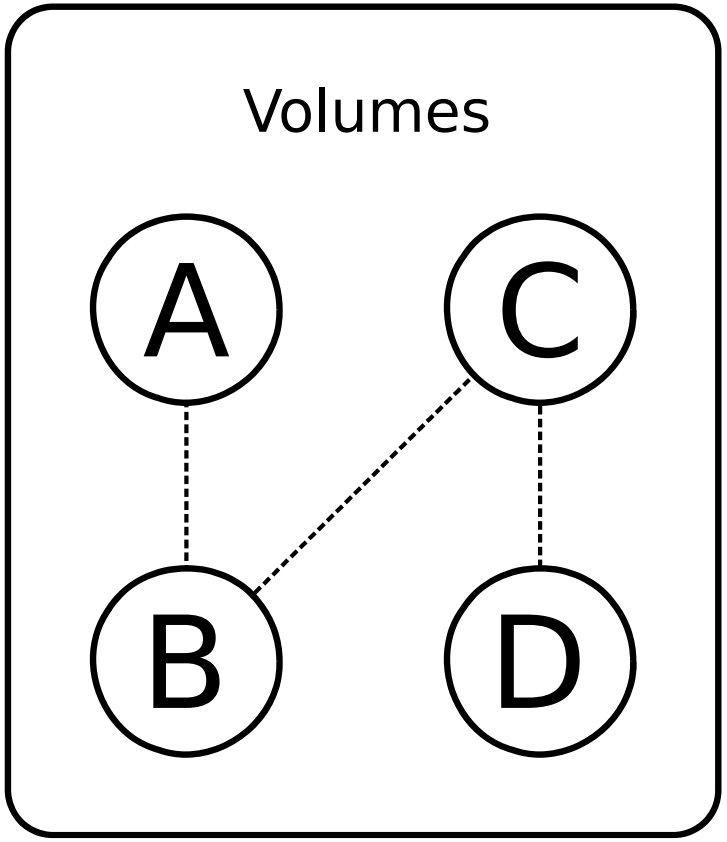


# oVirt architecture

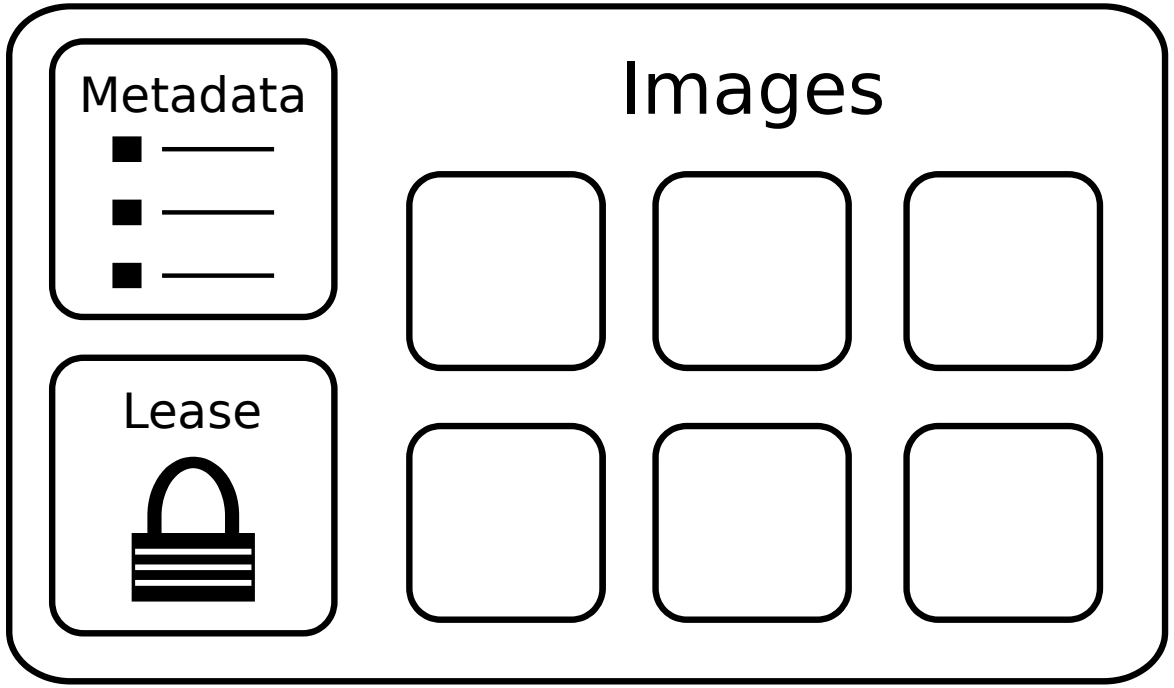


# oVirt storage concepts

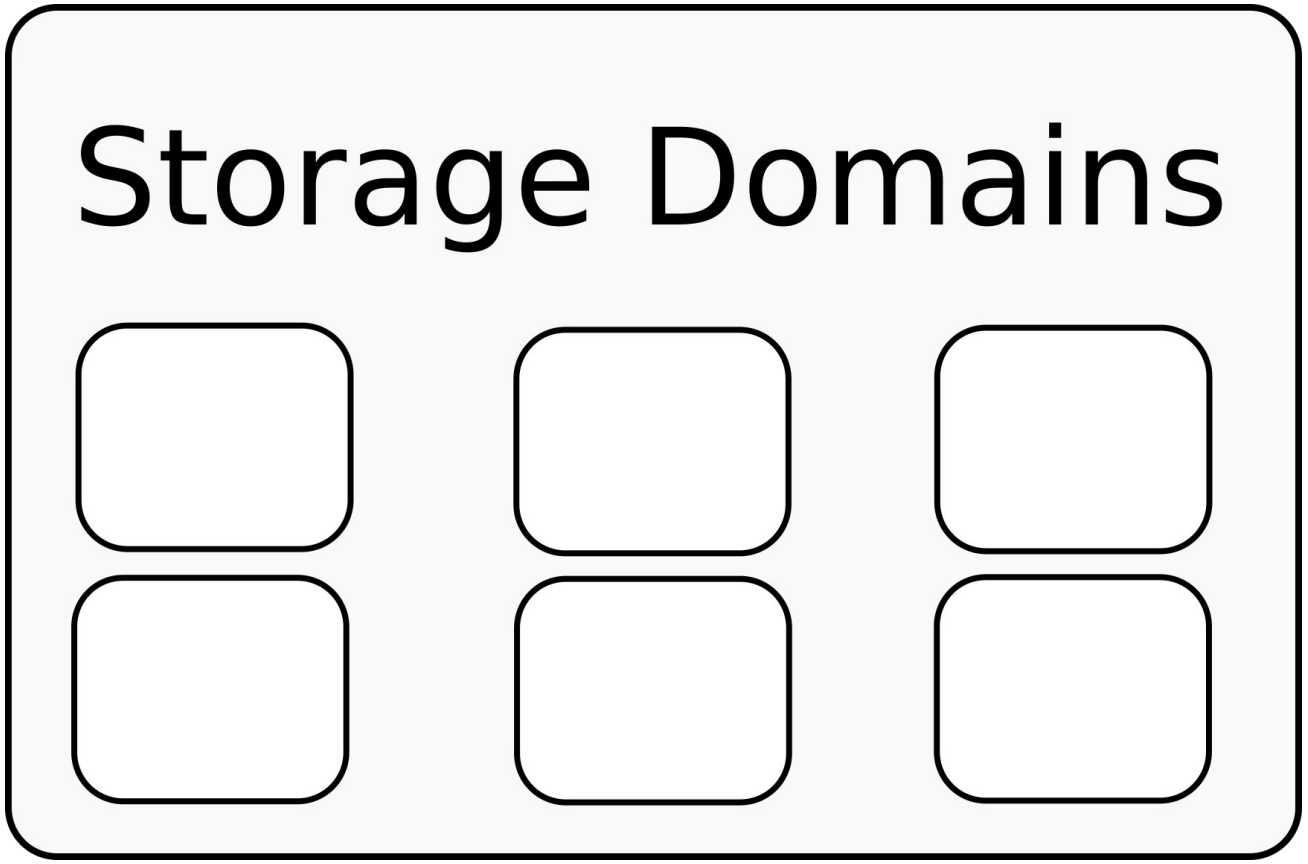
# oVirt Images



# oVirt Storage Domain



# oVirt Storage Pool



# oVirt Shared Storage Management

# Why do we need management?

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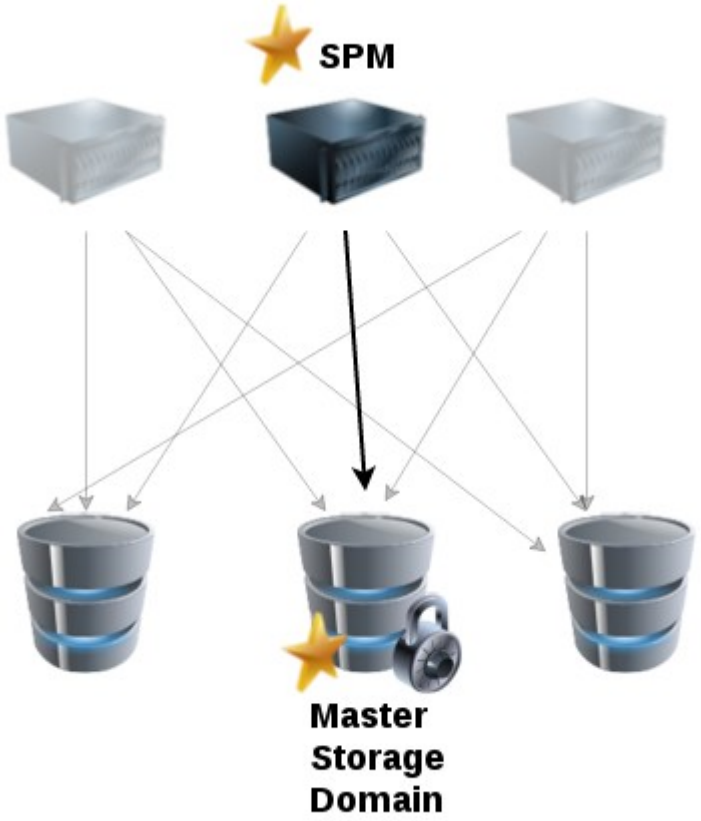
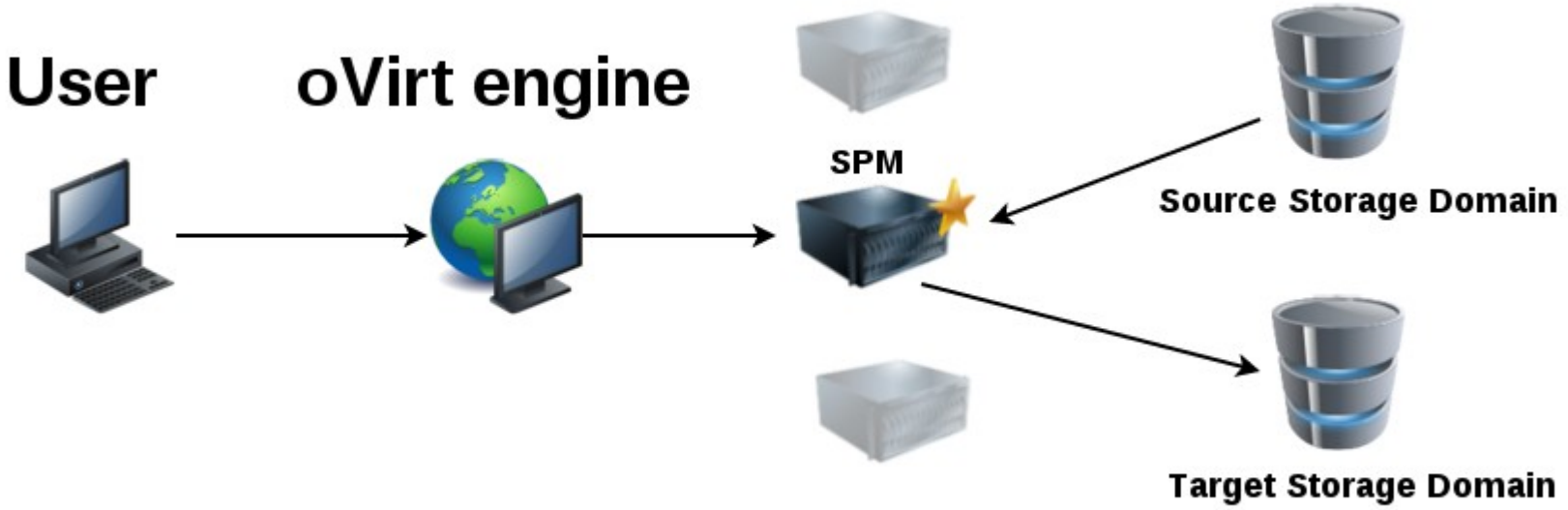
- Data protection
- Performance

# Storage Pool Manager

# 1 – Storage Pool Manager Architecture



# Flow Example – Move Disk




- SPM creates target image (all volumes)
- SPM copies data
- SPM deletes the source image

# Storage Pool Manager

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- Performs all shared storage operations
- Holds lock on the master storage domain
- SPOF
- Easy to manage

# Storage Domain Management

# 2 – Storage Domain Manager Architecture

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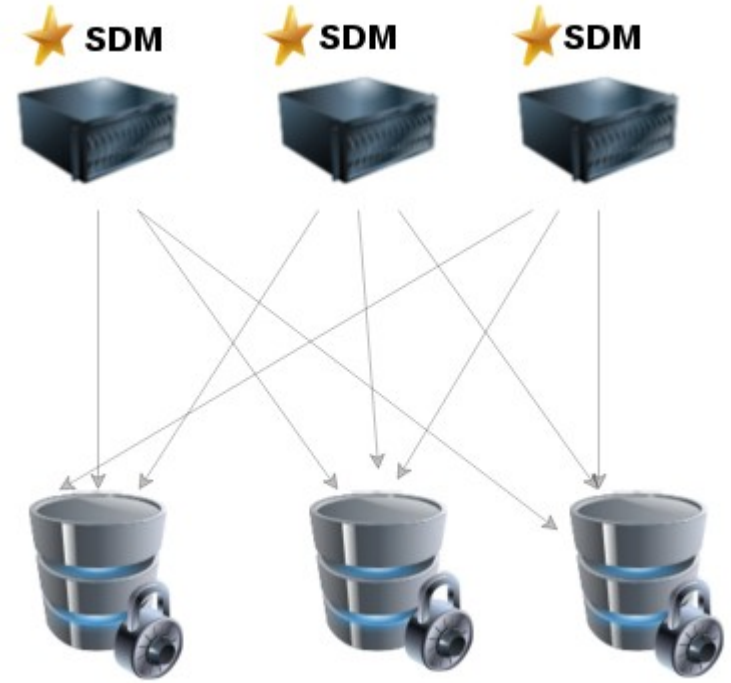
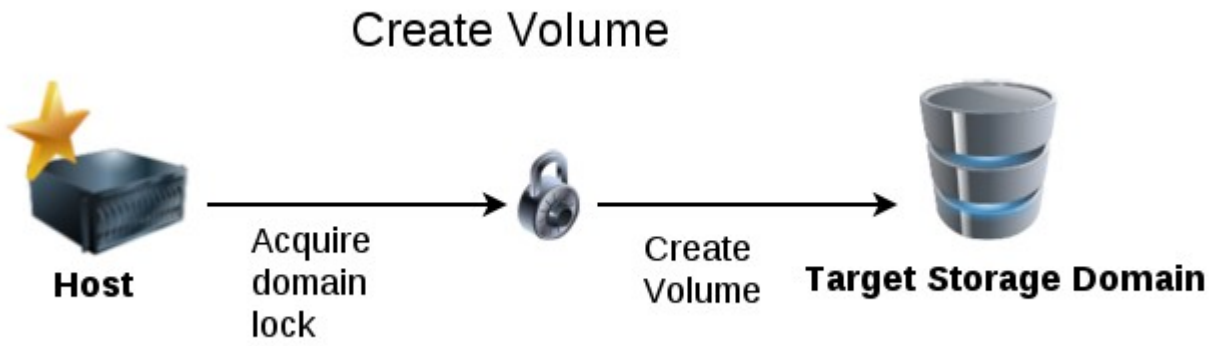


# Locking

- For consistency and preventing corruption
- Engine level locking
- Storage domain metadata lock (SANLock)
- Volume level lock (SANLock)
- Example: volume creation



# SDM – Data operations

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- Long operations
- Involve lots of I/O
- Can be executed by any host in the cluster
- Doesn't the Storage Domain metadata lock
- Example: Data copy between volumes

# SDM – Metadata operations

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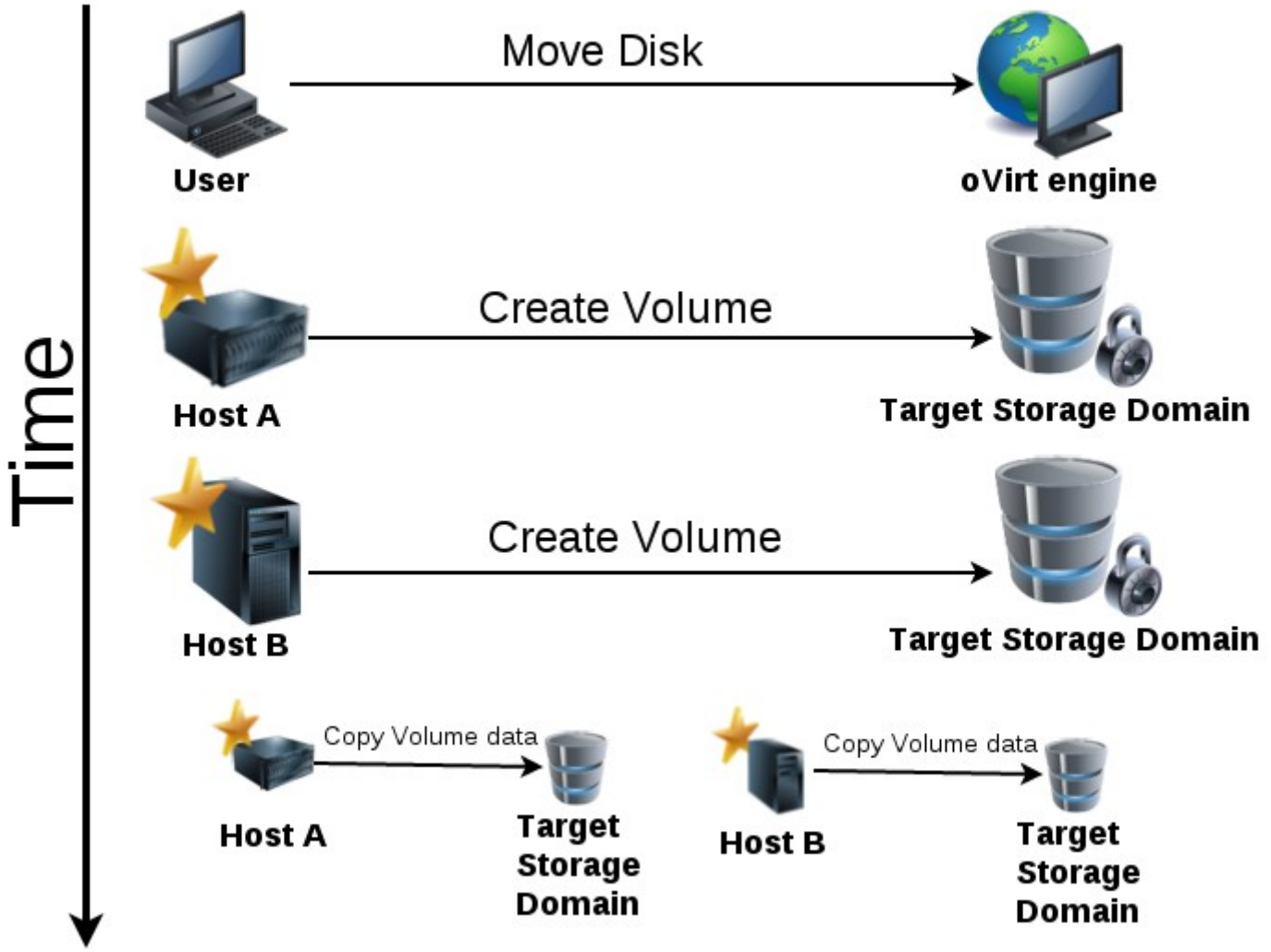
- Short operations
- Creation/Update/Deletion of oVirt storage objects
- Can be executed by any host in the cluster
- Requires the Storage domain metadata lock
- Example: Volume creation

# Flow Example – Move Disk



# Storage transactions

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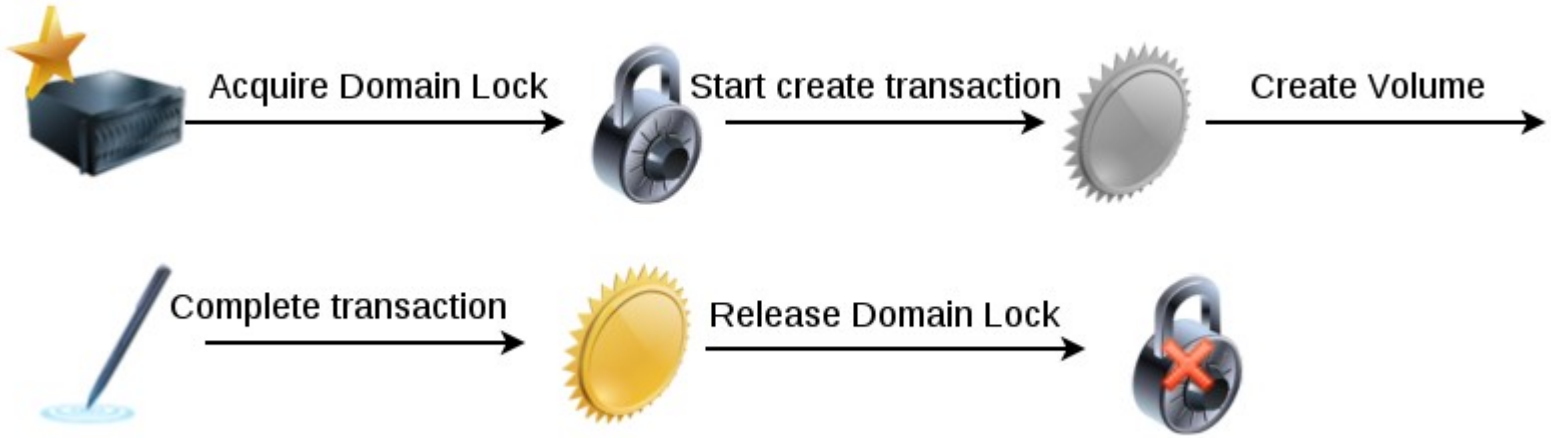
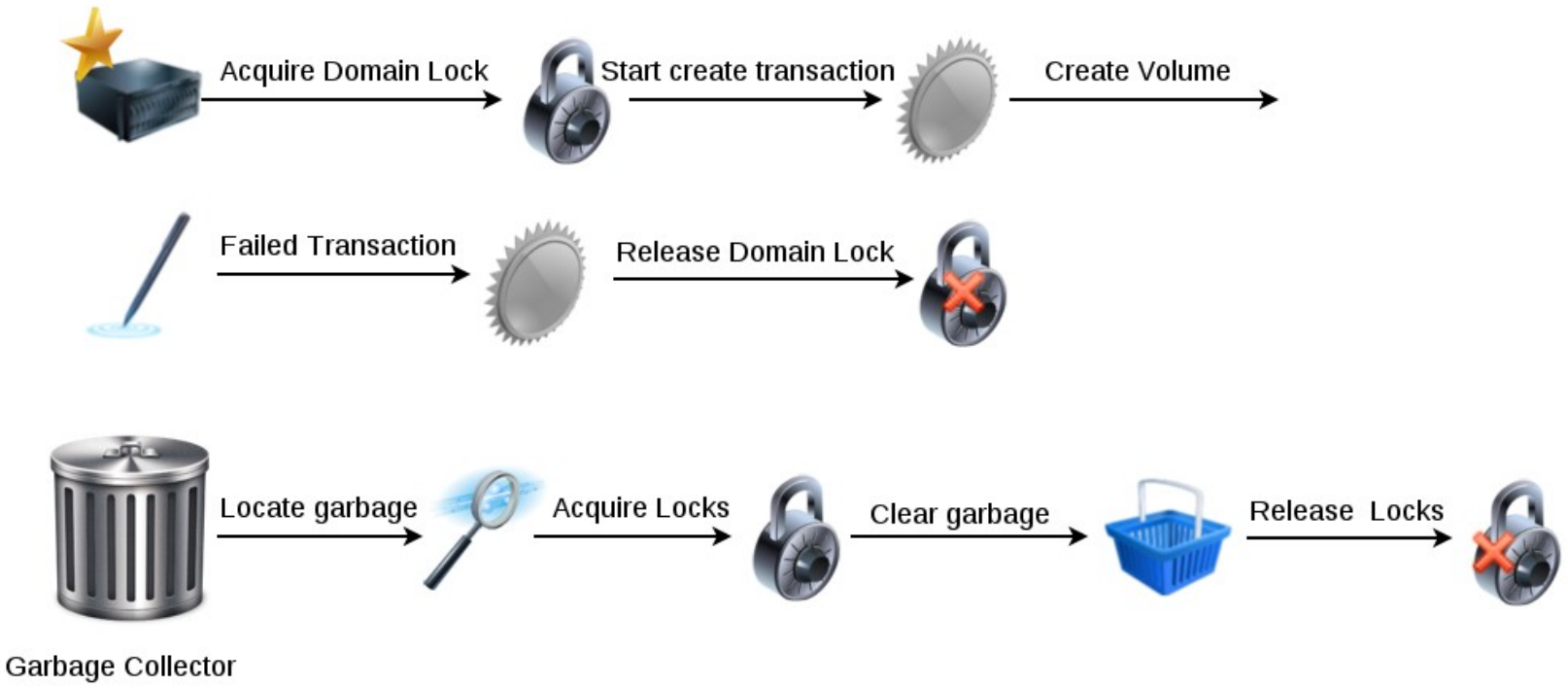
- Used for metadata operations
- A transaction is opened with a marker operation
- A transaction is committed by converting the marker
- The domain lock is acquired during the transaction



# Garbage Collection

- Runs periodically on an arbitrary host
- Identifies candidates by finding markers
- Acquires necessary locks for the candidate
- Cleans garbage associated with the marker



# Storage Domain Management

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- Operations can be performed by any host
- Separation of metadata and data operations
- Load balancing between the hosts
- No SPOF

# Wrap Up

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- What is oVirt?
- oVirt storage concepts
- SPM management
- SDM management

# Questions?

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# THANK YOU !

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