

# SvMotion optimization

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# SVMotionPhase - today

- SVMPhase\_Null
- SVMPhase\_DiskSetup
- SVMPhase\_DiskCreate / SVMPhase\_DiskLoad
- SVMPhase\_FileCreate / SVMPhase\_FileLoad
- **SVMPhase\_Stun** – Disk close, VM files (not closed) install mirror
- **SVMPhase\_Unstun** – Disk open & install mirror, per disk file install mirror
- SVMPhase\_DiskCopy
- SVMPhase\_CopyDirtyInfo
- **SVMPhase\_CopyDirtyData** – Disk close/open during stun/unstun. Disk open for ddb entry, cid copy and close for switchover.
- SVMPhase\_DiskCopyDone
- SVMPhase\_Complete
- SVMPhase\_Cleanup

# SVMotionPhase - future

- SVMPhase\_Null
- SVMPhase\_DiskSetup
- SVMPhase\_DiskCreate / SVMPhase\_DiskLoad
- SVMPhase\_FileCreate / SVMPhase\_FileLoad
- **SVMPhase\_Stun** – VM files install mirror
- **SVMPhase\_Unstun** – Install mirror for disk and per disk file
- SVMPhase\_DiskCopy
- SVMPhase\_CopyDirtyInfo
- **SVMPhase\_CopyDirtyData** – Copy ddb entry, cid and close for switchover.
- SVMPhase\_DiskCopyDone
- SVMPhase\_Complete
- SVMPhase\_Cleanup

# Mirror nodes for Disks - today

- SVMotionStun()
  - SVMotionPollstunCB
    - SVMotionStunCB (via Checkpoint\_Stun)
      - Disk\_CloseAll()
- SVMotionUnstun()
  - SVMotionPollUnstunCB
    - SVMotionUnstunCB (via Checkpoint\_Unstun)
    - Install mirror node during disk open

# Mirror nodes for Disks - future

- SVMotionStun()
  - SVMotionPollstunCB
    - SVMotionStunCB (via Checkpoint\_Stun)
- SVMotionUnstun() → Install mirror node
  - SVMotionPollUnstunCB
    - SVMotionUnstunCB (via Checkpoint\_Unstun)
- Need stun to install mirror because cannot handle outstanding IO during mirror installation.
- Checkpoint\_Stun destroys underlying VSCSI node

# Other objects having mirror node

- Nvram & namespaceMgr file
- Swapfile – handled by kernel
- CBT file
- Sidecar file
- Digest disk – Own VSCSI dev, no dependency
- Vflash file

# Mirror nodes for per VM files

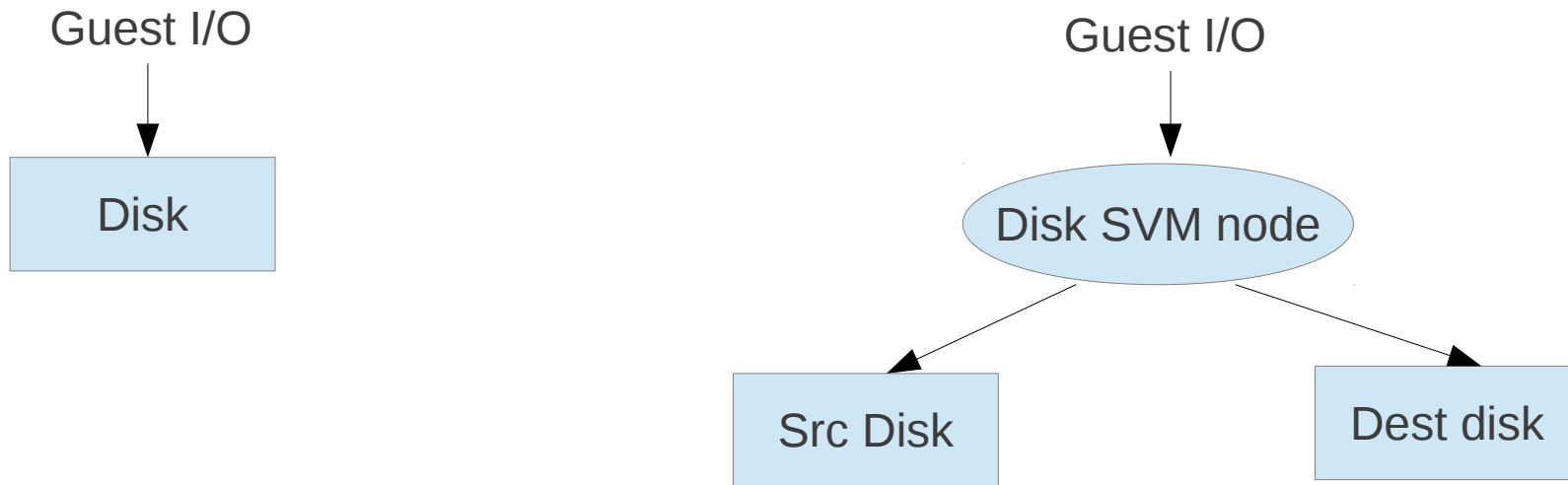
- Nvram, namespaceMgr
- fileCopyOpsTable[i].stun() called after VM completely stunned.
- Files are independent of disk state, so mirror installation unaffected.
- No optimization by avoiding close of these files.

# Mirror nodes for per disk files

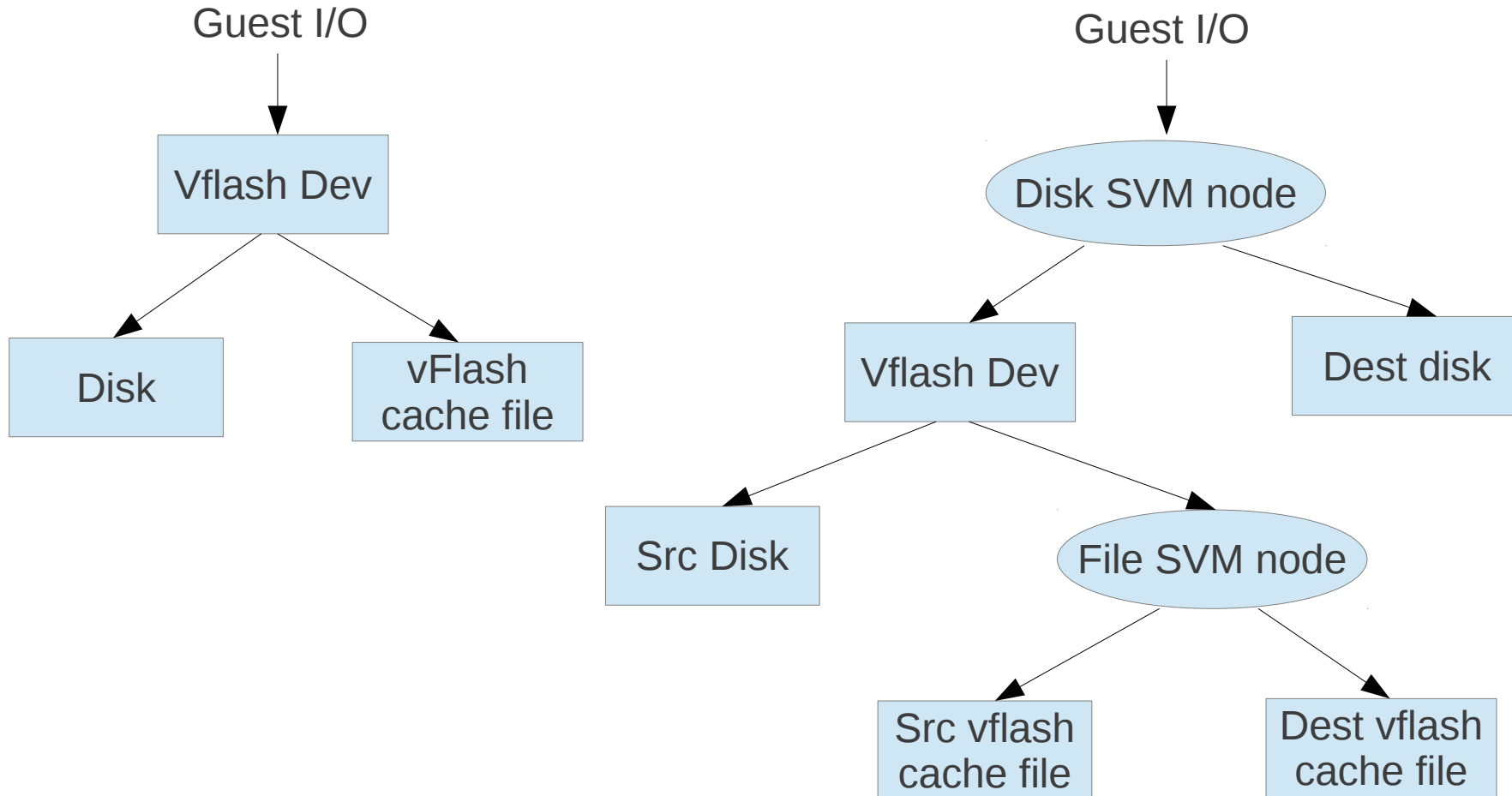
- CBT, sidecar and vFlashCache
- `fileCopyOpsTable[i].diskOpen()` called after mirror installed on related disk.
- Keeping the same behavior.
- But vFC is different.



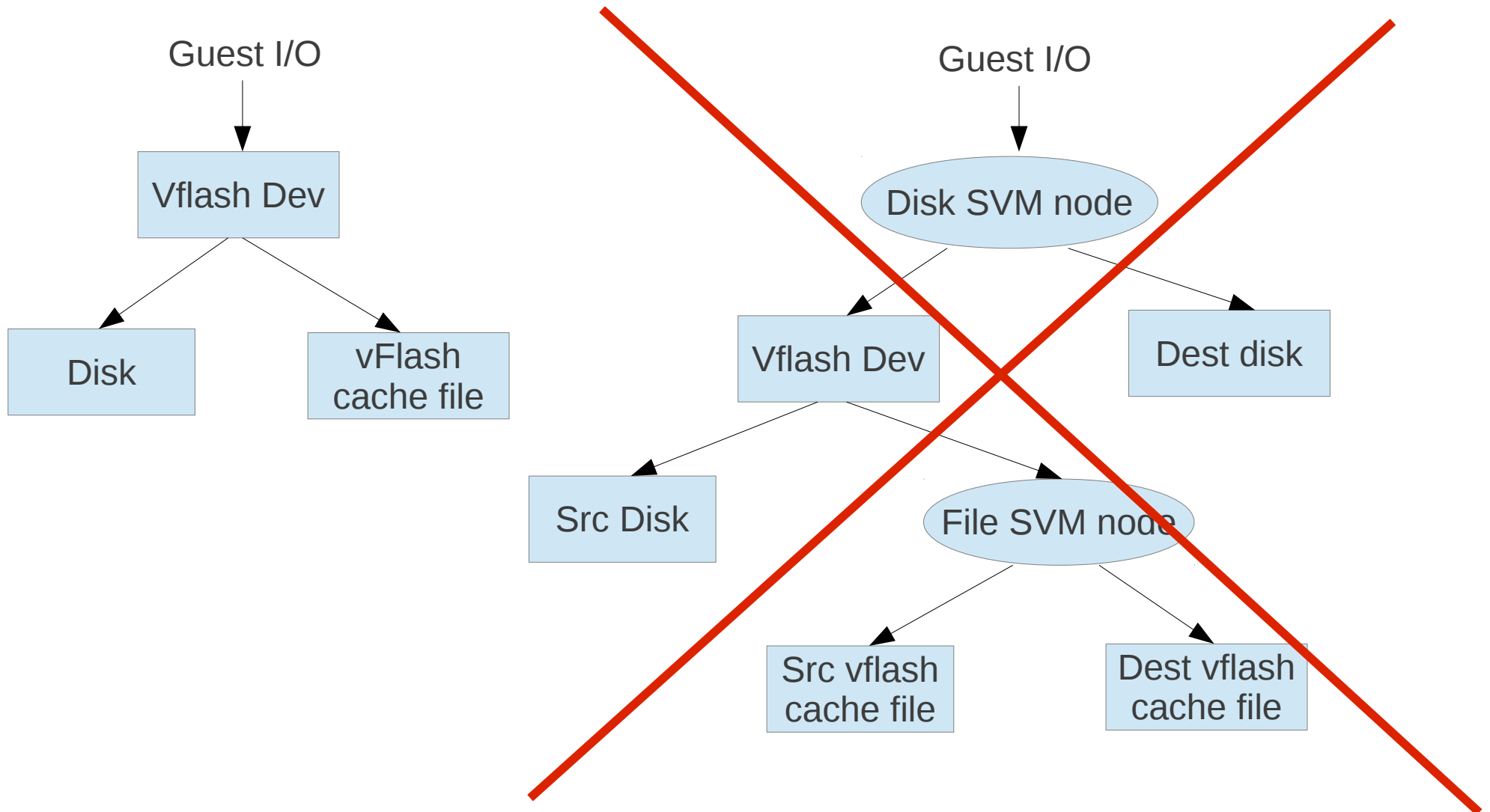
# Mirror nodes for Disk



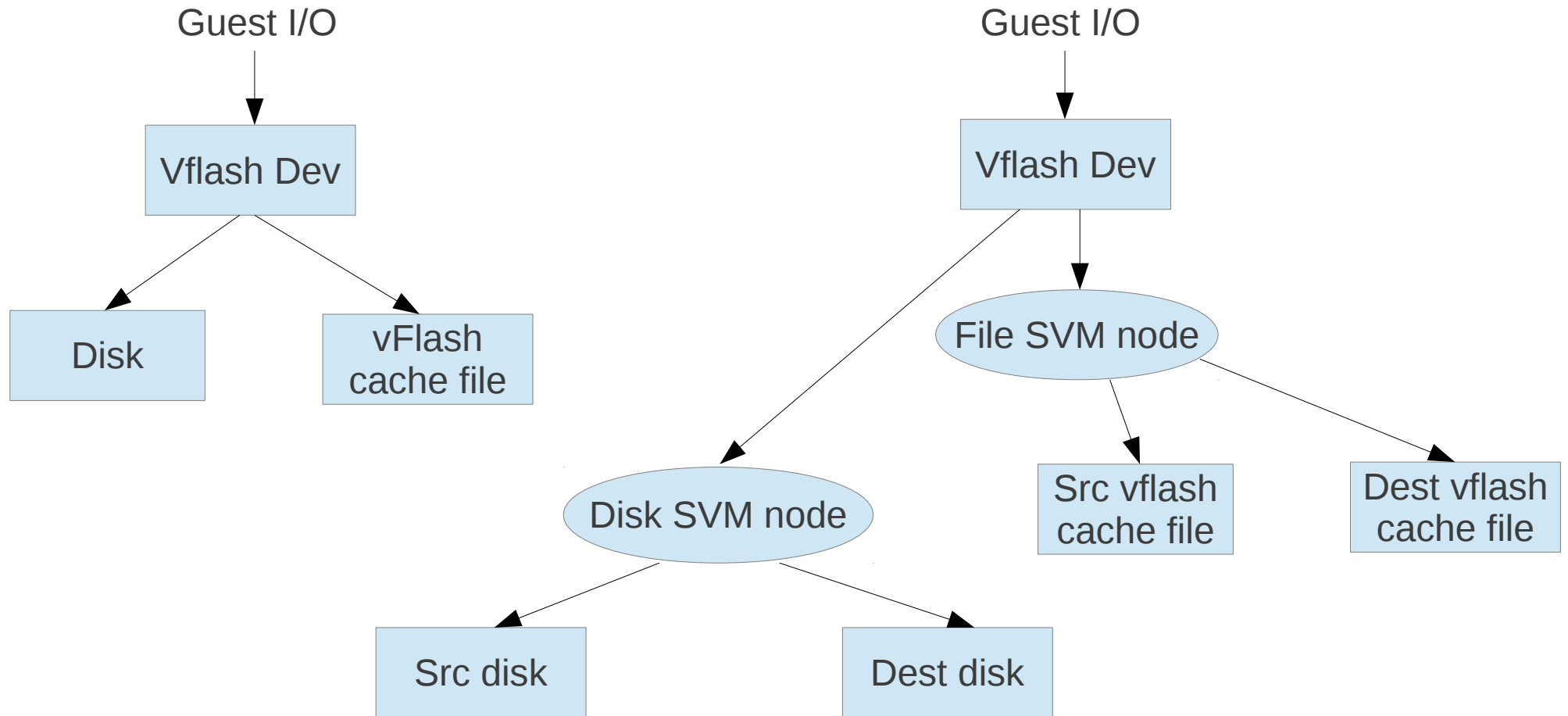
# Mirror nodes for vFlashCache file



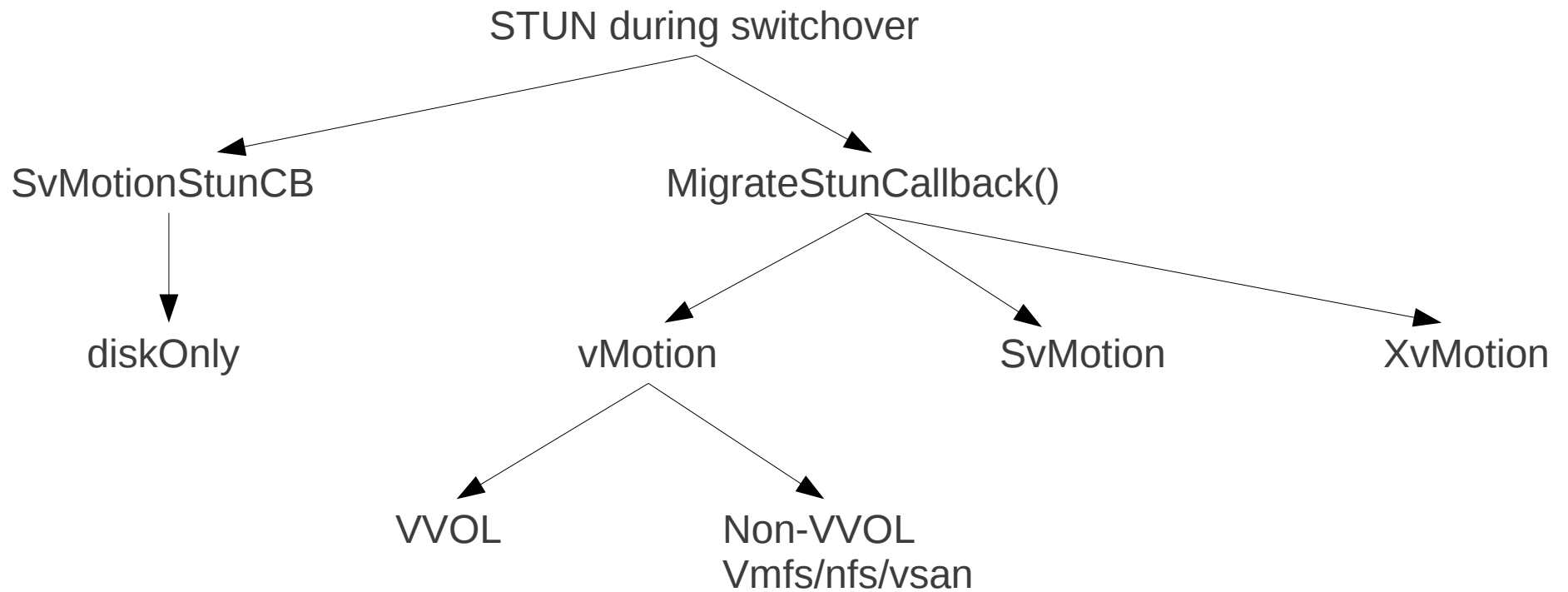
# Mirror nodes for vFlashCache file



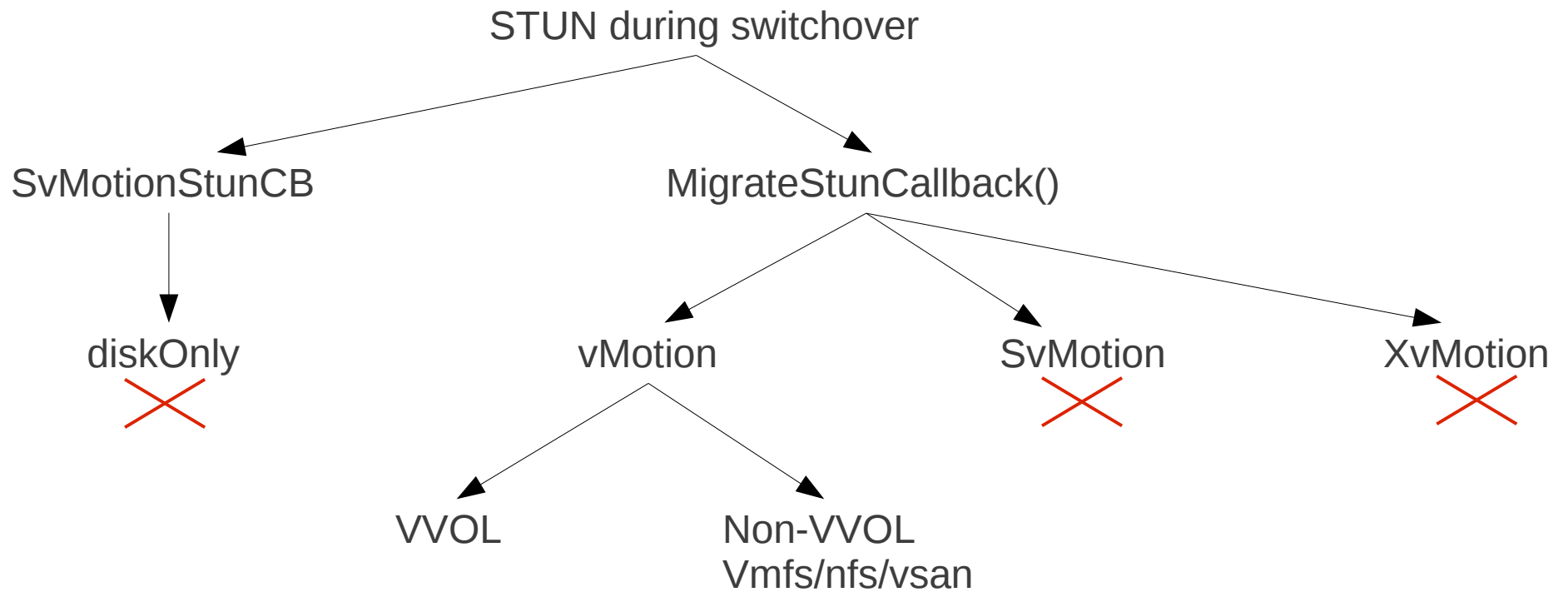
# Mirror nodes for vFlashCache file



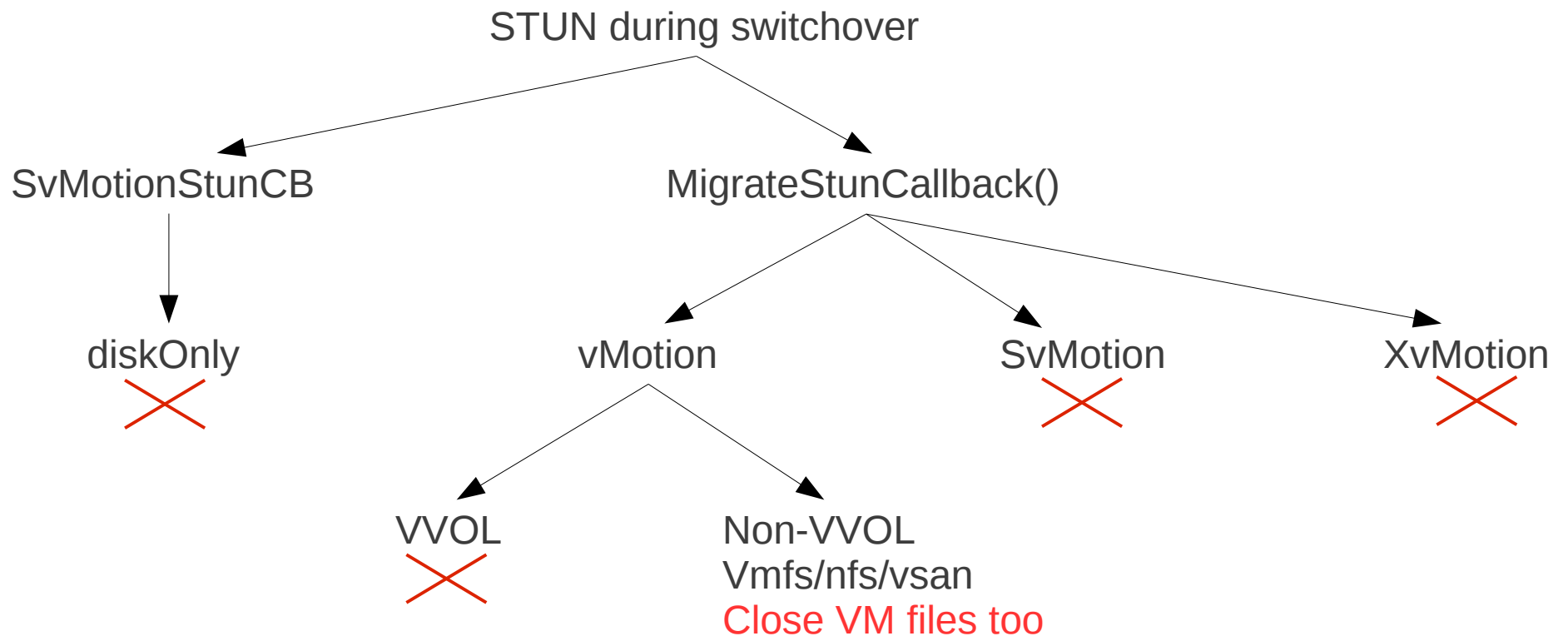
# Disk close during Stun



# Disk close during Stun



# Disk close during Stun



# Copy dirty blocks

- SVMotionDiskCopyDirtyBlocks()
  - DiskOnly
  - SvMotion/XvMotion
- Open source disk, copy ddb entry and close disk.
- Close destination disk