VmdkBkp Overview

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What is VmdkBkp?

- Online backup software
  for remote/local vmdk files
  in VMware vSphere environments.
  - Currently support vSphere version 4.

- Written in C++
- Uses VDDK Library by VMware

Backup Archive Files

- Dump/Rdiff
  - VMDK metadata and blocks archive without zero-blocks
  - Dump is full archive, Rdiff is reverse differential one
  - Dump + Rdiff = Previous dump
- Digest
  - MD5 digest data for all blocks of VMDK
  - Used to check equality of blocks, and validate corresponding dump/rdiff files

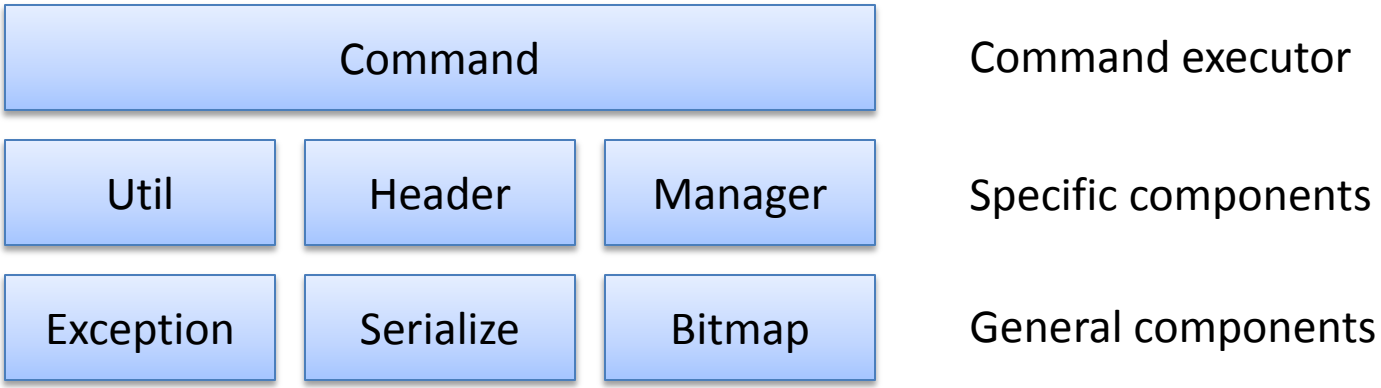
Supported Commands

- Dump
  - Execute full/differential/incremental dump
- Restore
  - Execute restore with dump/rdiff
- Check
  - Validate dump/rdiff with digest data
- Print
  - Print dump/rdiff/digest for human read
- Digest
  - Make digest from dump
- Merge
  - Make past dump from current dump and past rdiff(s)

How to Backup

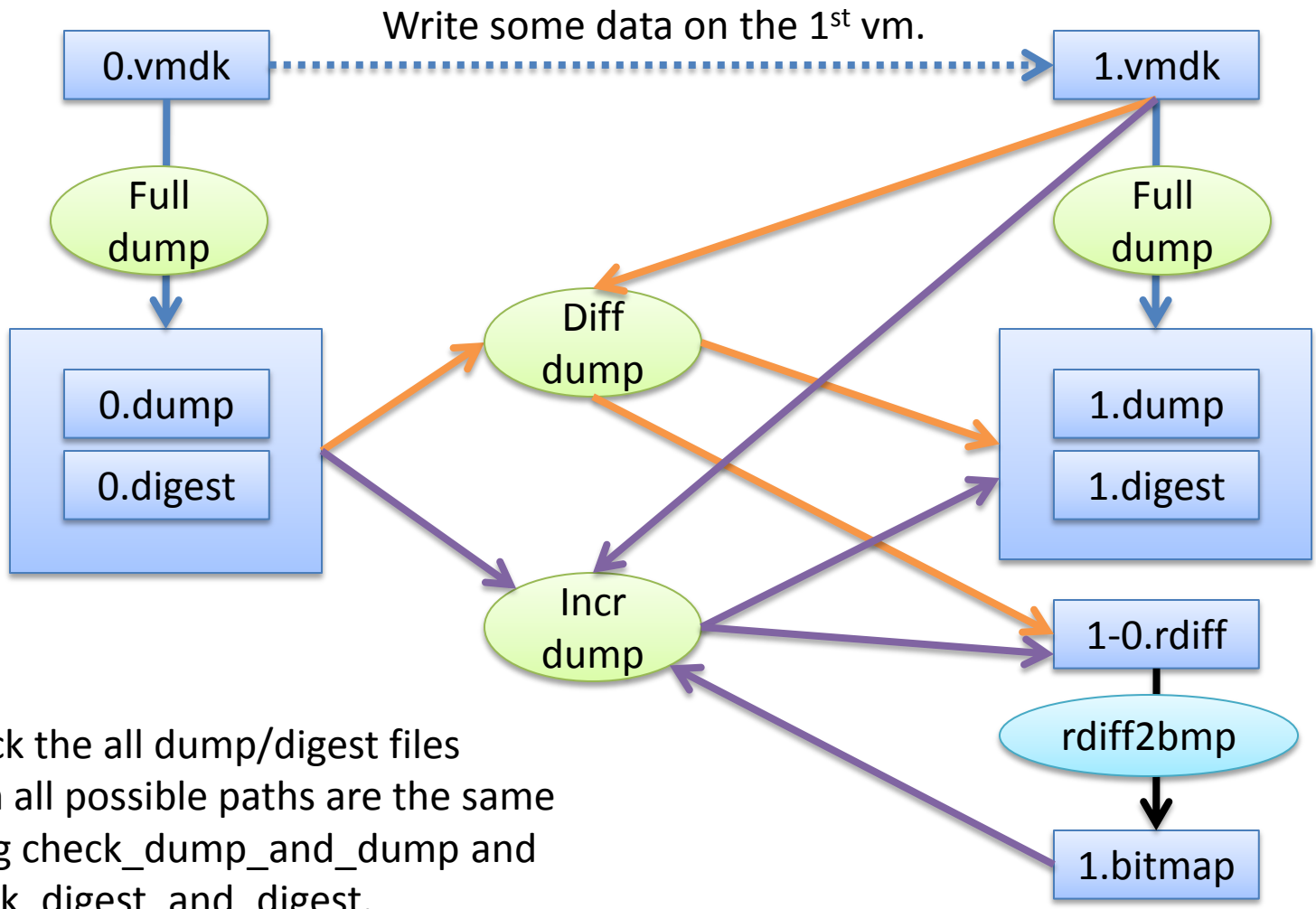
- Command line:
  - vmdkbkp dump [connect options] --mode [full/diff/incr]
    --vm [vm moref] --snapshot [snapshot moref]
    --remote [disk path]
    --dumpin [previous dump] --dumpout [current dump]
    --digestin [previous digest] --digestout [current digest]
    --bmpin [changed block bitmap]
    --rdiffout [current-previous rdiff]
- Inputs/Outputs:
  - Full: Just --dumpout and --digestout are required
  - Diff: All files except --bmpin are required
  - Incr: All files are required

Software Architecture



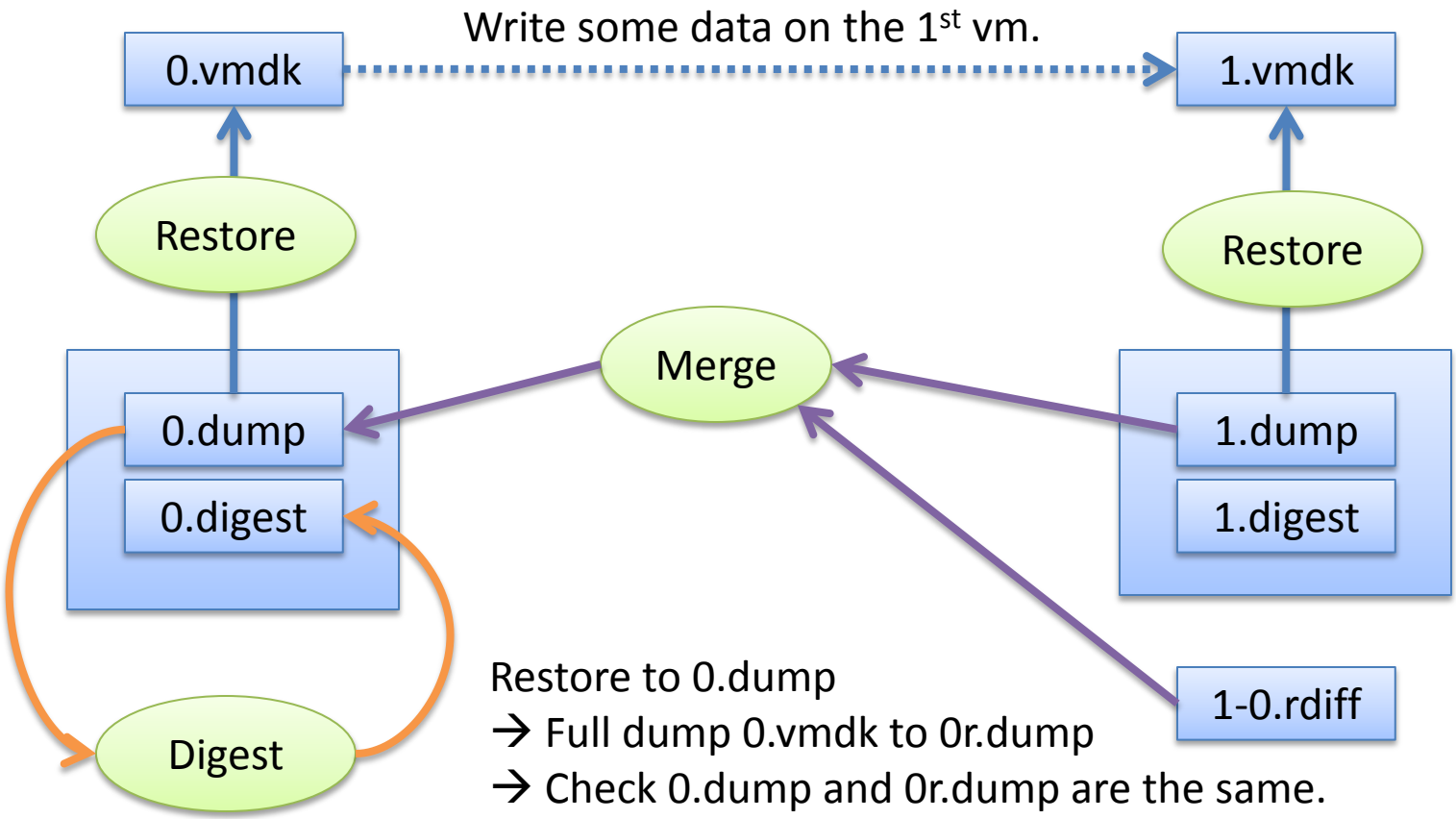
- Command
  - Parse command-line and execute it
- Util
  - Configuration, Time, etc.
- Header
  - Manage header/blocks of dump/rdiff/digest files
- Exception
  - Exceptions and related macros.
- Manager
  - Manage (1) VDDK connection, (2) vmdk file access, and (3) dump/rdiff/digest file access
- Serialize
  - StringMap/Integers data serializer
- Bitmap
  - Bitmap data serializer

Integration Test



Check the all dump/digest files from all possible paths are the same using check_dump_and_dump and check_digest_and_digest.

Integration Test –cont.



Restore to 0.dump
→ Full dump 0.vmdk to 0r.dump
→ Check 0.dump and 0r.dump are the same.

Merge 1.dump and 1-0.rdiff to 0m.dump
→ Digest 0m.dump to 0m.digest
→ Check 0.{dump,digest} and 0m.{dump.digest} are the same.