16949: z/OS Sysprogs: User Experiences Moving a Data Center

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#SHAREorg

SHARE is an independent volunteer-run information technology association that provides **education**, professional **networking** and industry **influence**.

SHARE in Seattle 2015

Whats this all about

- "Pressure Can Break Pipes or Create Diamonds"

  Feb of 2014 we got the directive

- "Migrate 99% of the Salt Lake City Data Center by December 31st, 2014"

- Salt Lake City Data Center
  - 25 Years Old
  - Originally built as a Warehouse – many inherent operational challenges
  - Wood frame construction; EOL Roof would have required significant investment
  - More than a Million/per year in other maintenance costs

Project Background

Details		
Number of Applications Impacted	274 (41.58%) Prod	385 (58.42%) Non-Prod
Application Criticality	50 (7.59%) Business Criticality 1 or 2	609 (92.41%) Business Criticality 3, 4, 5
Total Devices Impacted	461 (23%) Prod	1543 (77%) Non-Prod
Virtual Devices Impacted	122 (8.8%) Prod	1265 (91.2%) Non-Prod
Physical Devices Impacted	339 (54.94%) Prod	278 (45.06%) Non-Prod
Devices by Type	617 (30.79%) Physical	1387 (69.21%) Virtual

Now to the Mainframe

- Developed a 2 Phase Migration Strategy as Hardware was due to change

Phase 1 Storage Migration

- EMC VMAX 20K → EMC VMAX 40K
- IBM 3495 Library + B10 VTS → EMC DLM & Data Domain

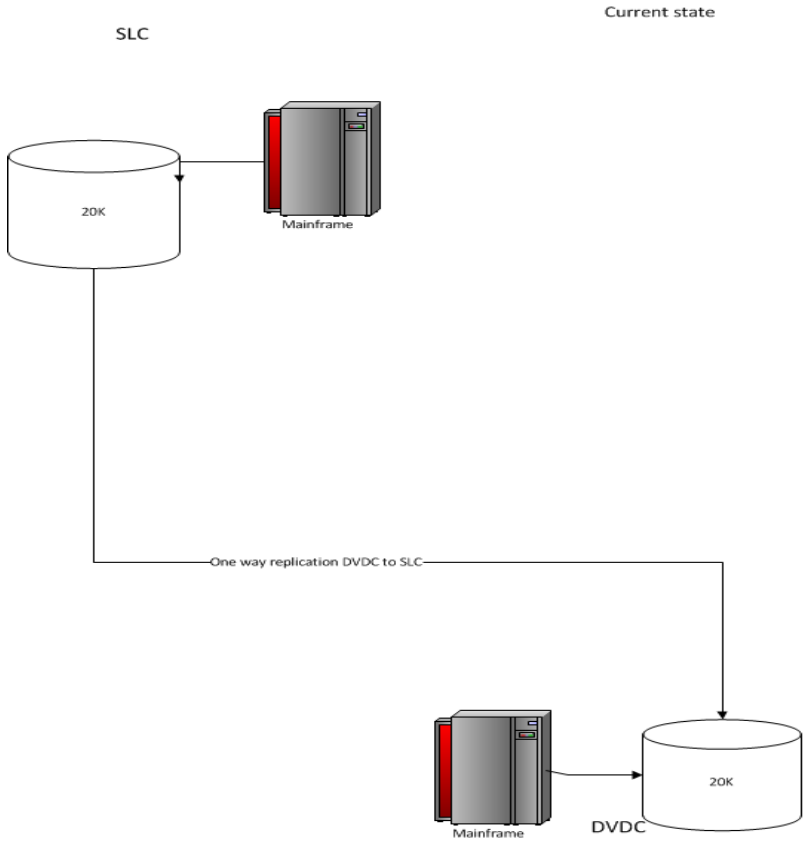
Phase 2 Mainframe Migration

Z114BC → z114BC

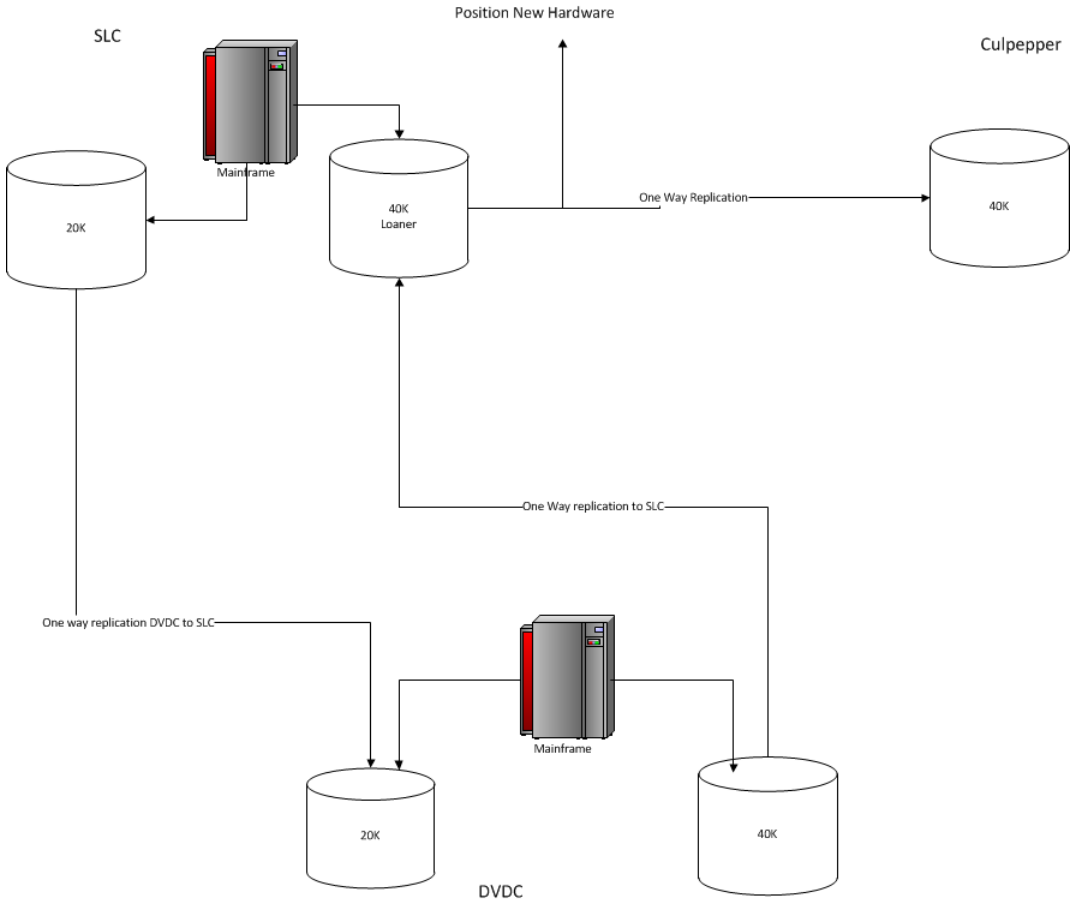
z196 → z196

SLC Mainframe Storage Strategy

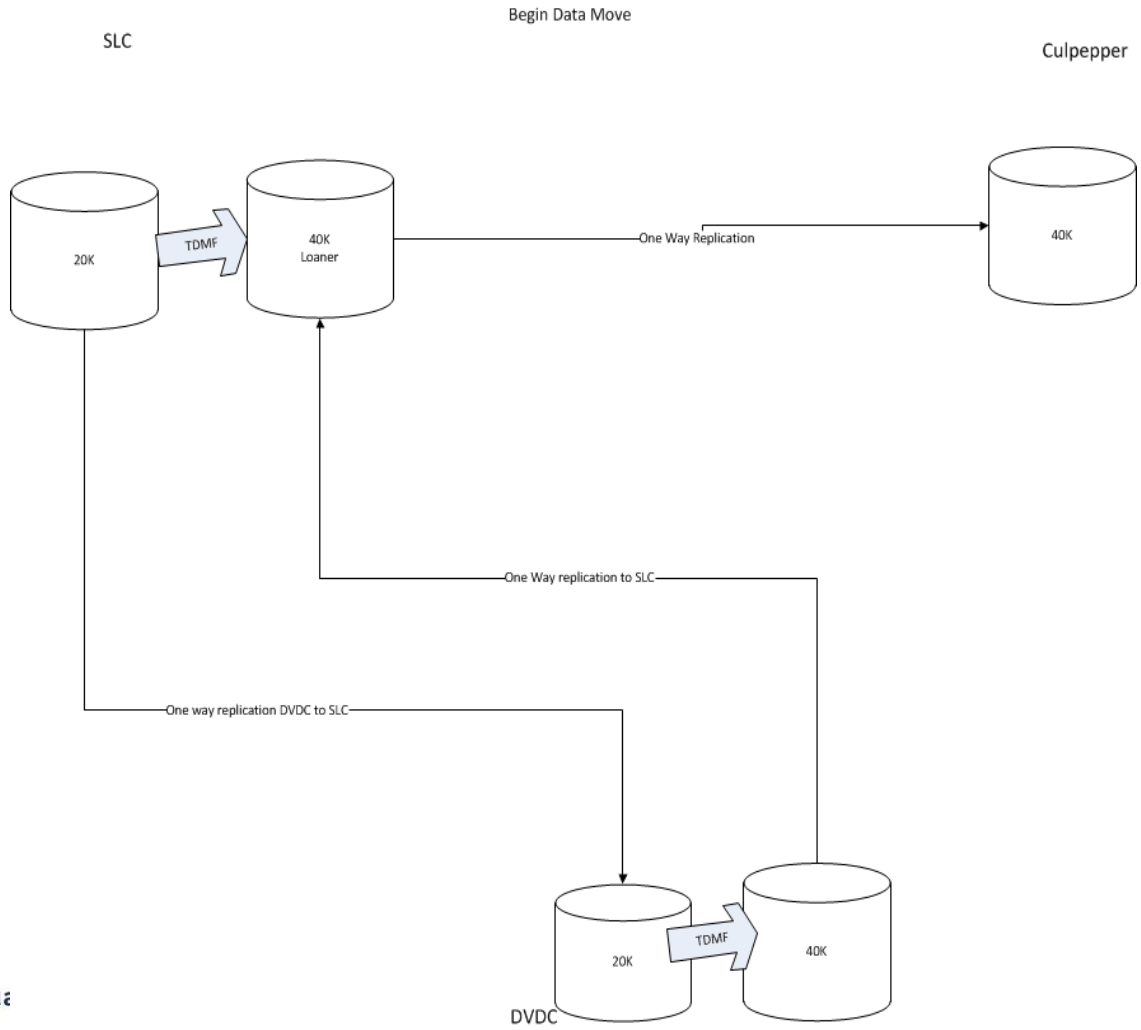
Initial State



SLC Mainframe Storage Strategy

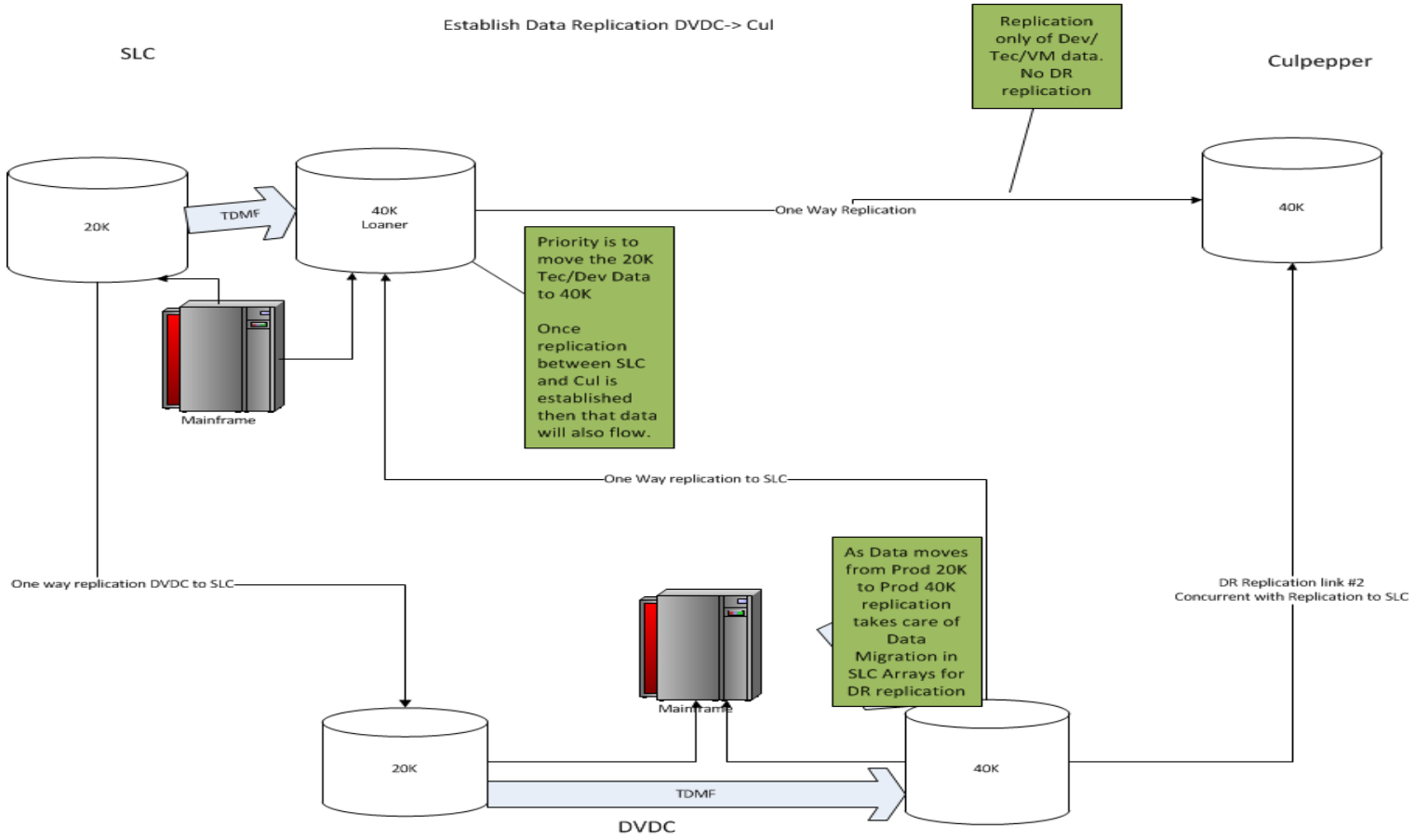


SLC Mainframe Storage Strategy



SLC Mainframe Storage Strategy

Establish Data Replication



Mainframe Hardware Configuration

Culpepper Data Center

Asset Swap Boxes

Ficon Director Brocade

Ficon Director Brocade

EMC VMAX

DLM Virtual Tape

Salt Lake City Data Center

Master Console

z/114

z/196

Coupling Facility

Sandbox Development D/R

6064 Ficon Director Brocade

6064 Ficon Director Brocade

EMC VMAX

DLM Virtual Tape

Tape Library (Tape Drives And VTS)

Setup and Prep

- Hardware Arrived 7 days prior to 1st Cutover
- Staff on site 5 days prior to cutover
- I/O Gen built and replicated (Loaded from USB in HMC)
- CF Definitions for New site done in Policy at Old site
- Hardware Validation done using D/R LPARS & ZZSA

  Predefined IP Config also in place from Old site

Now for the Complications

- In building the New site it was decided to build new Network design
- New Network hardware was part of this new design
- Network configurations could not be copied
- Lead time for circuit drops was almost never correct

Can we guess what my primary Lesson Learned is going to be ?

Cutover

- VM Lpar cutover during week as no Prod load

- Sandbox Sysplex 1st Weekend – Shutdown, Allow replication to complete, break mirror, IPL
  - No issues reported.

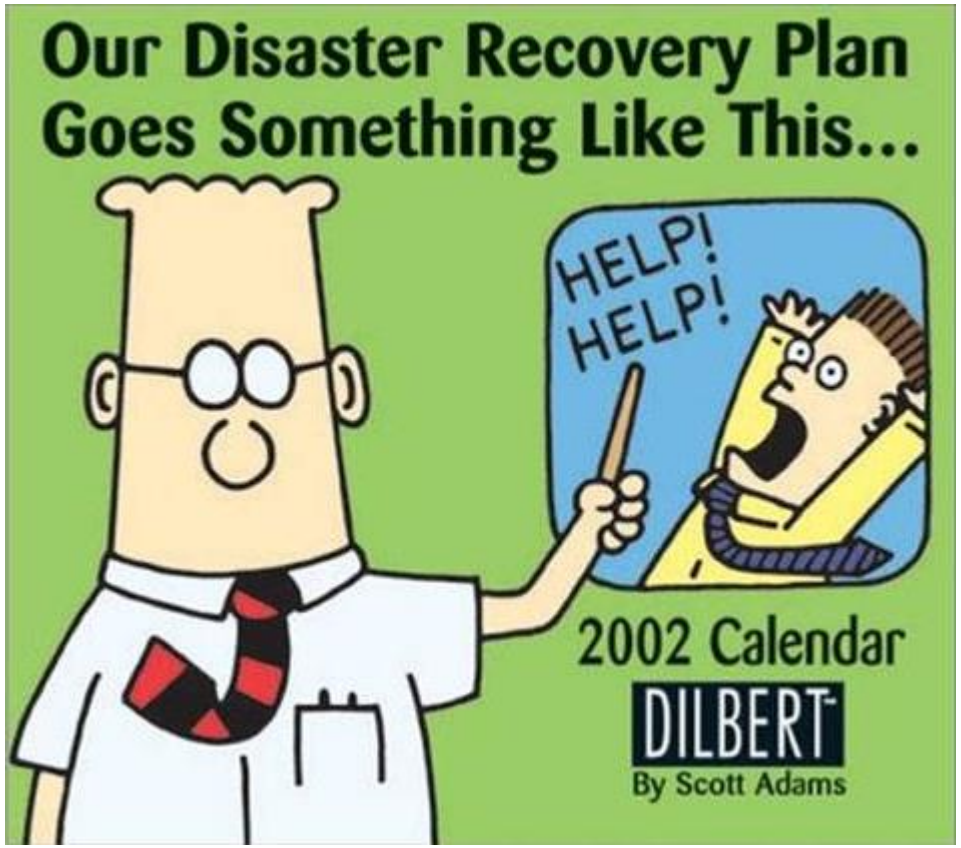
- Development Sysplex the next weekend following
  - Issues related to DNS entries in DMZ
  - Further issues related to Firewalls & OSPF

Fallout

- We continued to struggle with both Network Performance and connectivity.
- Network team worked hard with their Vendors to resolve including onsite and remote connections from off shore
- As the issues only impacted Development no backout was required.

Lessons Learned – Project Wide

- Minimize Technology Changes
- Need to have a very mature definition of scope and a strong methodology to approve and track changes
- Automation needs to be an early priority
- There is only One Scope
- Need a strong Communication Plan
- Need to improve turnover
- Pre-work needs more focus and validation
- Minimize Technology Changes !


Our Disaster Recovery Plan Goes Something Like This...
HELP!
HELP!
2002 Calendar
DILBERT
By Scott Adams

Questions ?