



PPRC Manager/FlashCopy Manager Update and Demonstration

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Agenda

- PPRC Manager and FlashCopy Manager - Introduction
- Prerequisites
- Design Objectives
- Applications
 - ▶ PPRC Manager
 - ▶ FlashCopy Manager
- Advanced applications
- Live demonstration
- References
- Questions

PPRC Manager and FlashCopy Manager Introduction

- PPRC Manager FlashCopy Manager are two IBM software products that are designed to allow the user to exploit the underlying IBM technology without requiring a understanding of the details involved in using the technology.
 - ▶ z/OS based
 - ▶ ISPF based for configuration processes
 - ▶ Operates on full volumes

- There are two parts to the use of PPRC or and Flash Copy technology
 - ▶ Defining the Configuration and building JOBS – ISPF panel based functions
 - ▶ Manipulating the configuration – Batch JOB based functions

- Batch JOB based manipulations allow the user to execute the operations individually or to imbed the JOBS into a more complex business application

- Scope of applications – single DS8100 thru very large configurations

PPRC Manager and FlashCopy Manager Prerequisites

- z/OS 1.7(and up) with ISPF
- REXX library or the REXX alternate Run Time library
 - ▶ The REXX Alternate Run Time Library is included with z/OS 1.9
- Appropriate microcode licenses for the IBM Storage subsystem hardware
 - ▶ IBM 1750, IBM 2105-F20, IBM 2105-800 or IBM 2107
- Both products are priced
 - ▶ One time charge(site license)
 - ▶ Subscription and Support option is available
- Can be ordered via Shopzseries
 - ▶ Catalog reference information
 - Package type: z/OS –CBPDO or ServerPac
 - Group: MVS –Miscellaneous/Other
 - ▶ PPRC Manager - 5635-PPM
 - ▶ FlashCopy Manager – 5635-FCN
- Publications
 - ▶ PPRC Manager
 - User's Guide and Reference – G325-2633
 - Program Directory – GI11-2905
- z/OS 1.7(and up) with ISPF
 - ▶ FlashCopy Manager
 - User's Guide and Reference – G325-26-32
 - Program Directory – GI11-2904

Design Objectives

- Use technologies that systems programmers and storage administrators use daily (ISPF, ISMF etc.).
- Use a Batch Job based methodology to allow the manipulation tasks to be easily integrated into a more complex business solution job stream.
- Minimize the level of understanding of the details of the underlying PPRC or FlashCopy process for both configuration development and manipulation of the environment.
- For FlashCopy, eliminate SYSGEN dependencies & duplicate label problems with IPLs.

Applications – PPRC Manager

Sample Business applications:

- Migrate from older technology to newer technology
- Migrate data to new data center(old to old or old to newer technology)
- Create a consistent Point in Time Copy of all the data on production SYSPLEXes for transfer to tape for DR – Boeing
- Create a synchronous PPRC DR environment for DR purposes
Seven z/OS SYSPLEXes and a VM Plex, about 100TB of production data
- Create an Extended distance PPRC environment for Disaster recovery purposes

Applications – FlashCopy Manager

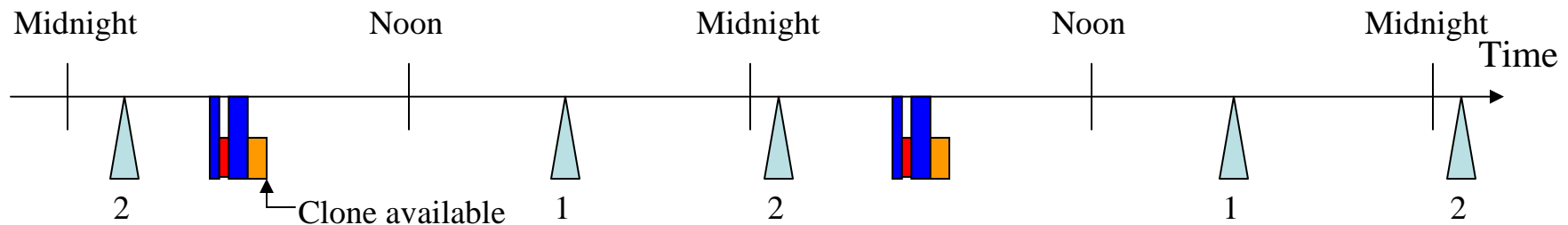
Sample Business applications:

- Create a consistent copy of production data that will be transferred to tape for Disaster Recovery use.
- Create a consistent copy of production Database data for improved recovery from software database corruption.
- Create a consistent copy of production Database data for use in application development/Quality Assurance testing...Medco.

FlashCopy Manager at Medco



Objective: Clone 3 very large DB2 environments to be used with a catalog shared with production (Jobs are CA-7 managed)



Batch FlashCopy configure Jobs

1. Check for valid configuration at end of work day
2. Configure to pick up last minute changes to storage pool



Complex job stream

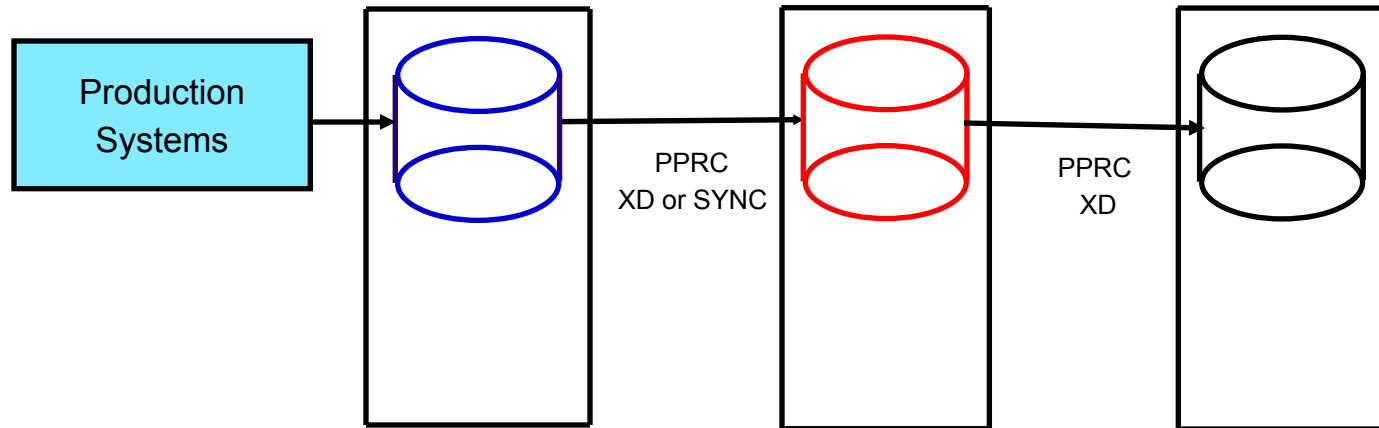
1. Rocket/Mainstar MS/VCR
2. FlashCopy Manager – FC Establish(15 seconds)
(9,168 relationships, 34.2TB, 9 ESS800s + DS8300)
3. Mainstar MS/VCR
4. DB2 Recovery processing

7/28/2010

Advanced applications

- **Cascading PPRC**
- **PPRC followed by FlashCopy**
- **FlashCopy with PPRC**
- **FlashCopy followed by PPRC**
- **FlashCopy followed by PPRC followed by FlashCopy**
- **Global Mirror**

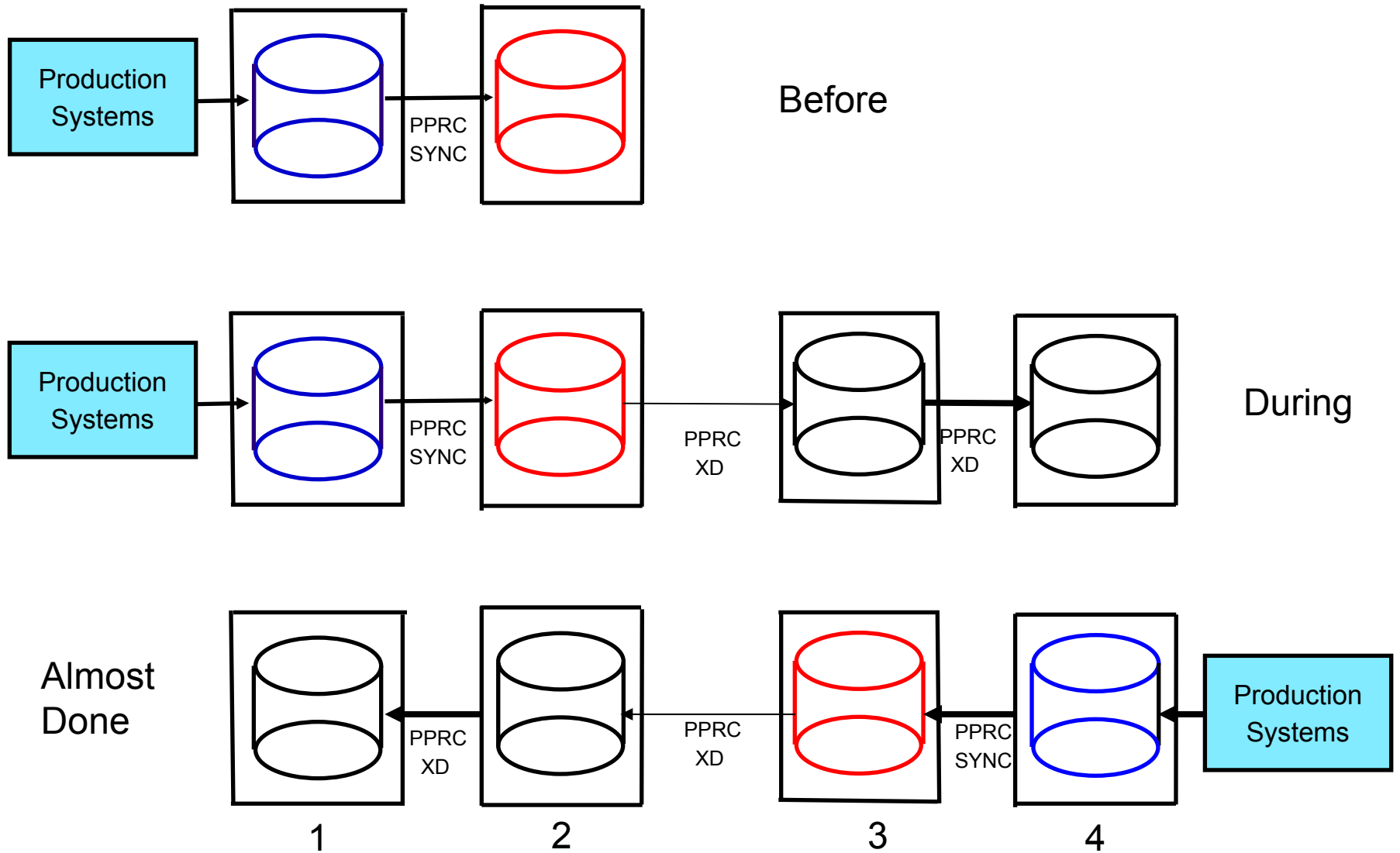
Cascading PPRC



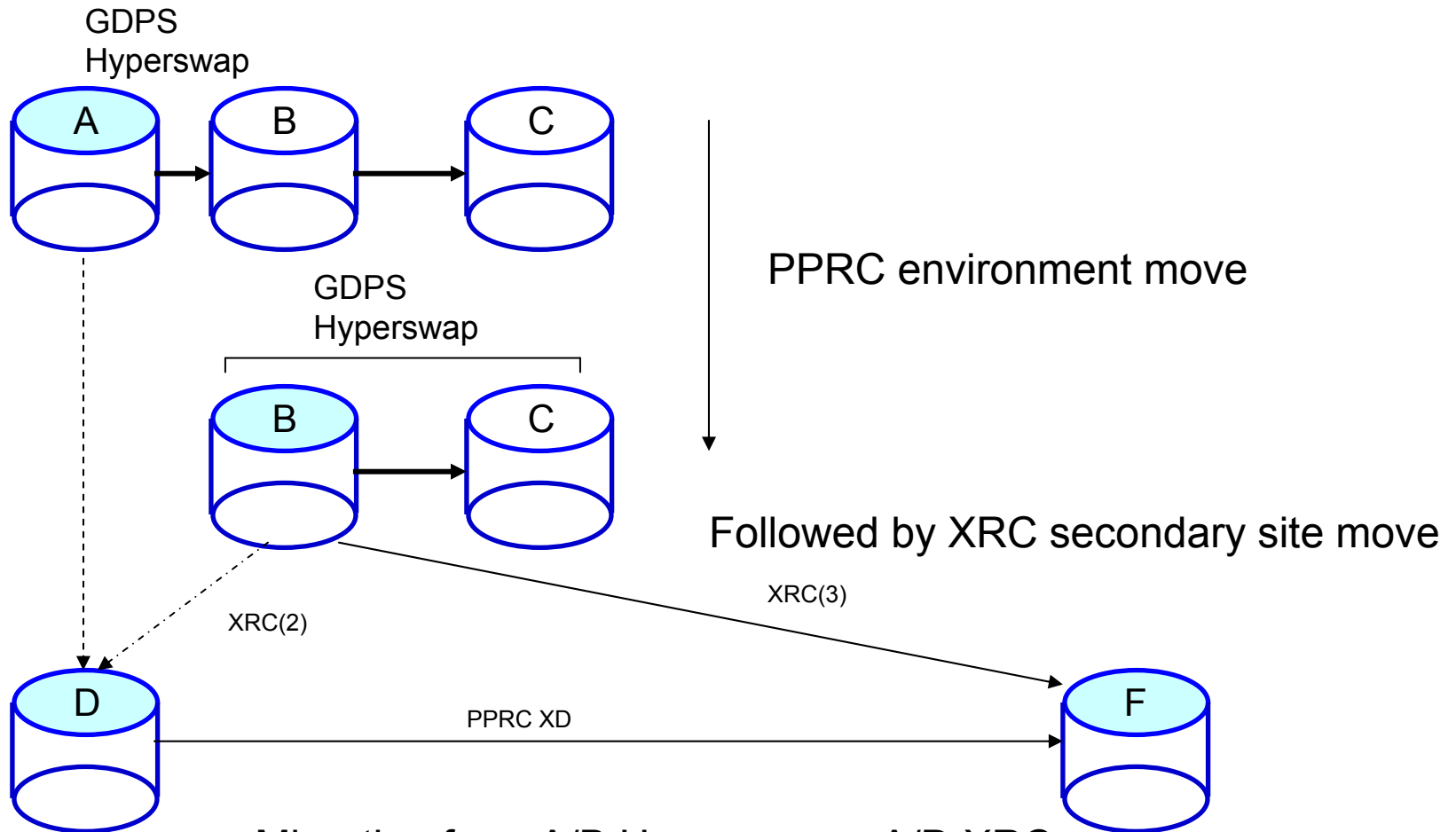
Applications

- Data Center Migrations PPRC-XD to PPRC-XD
- Technology Migrations PPRC-Sync to PPRC-XD
ESS800 -> DS8300 -> DS8300
- Create common test environment for multiple production environments
 - First PPRC pair is PPRC Sync for DR application
 - Second PPRC pair creates copy of production data in common test center or is used for PIT disk to tape

Paired data center Migration(4 sites)

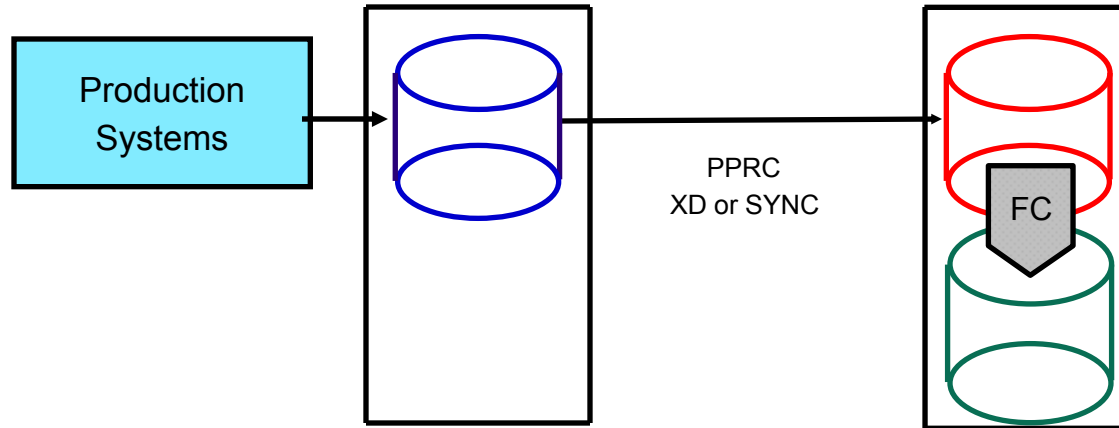


Multiple moves



Migration from A/B Hyperswap + A/D XRC
To B/C Hyperswap + B/F XRC

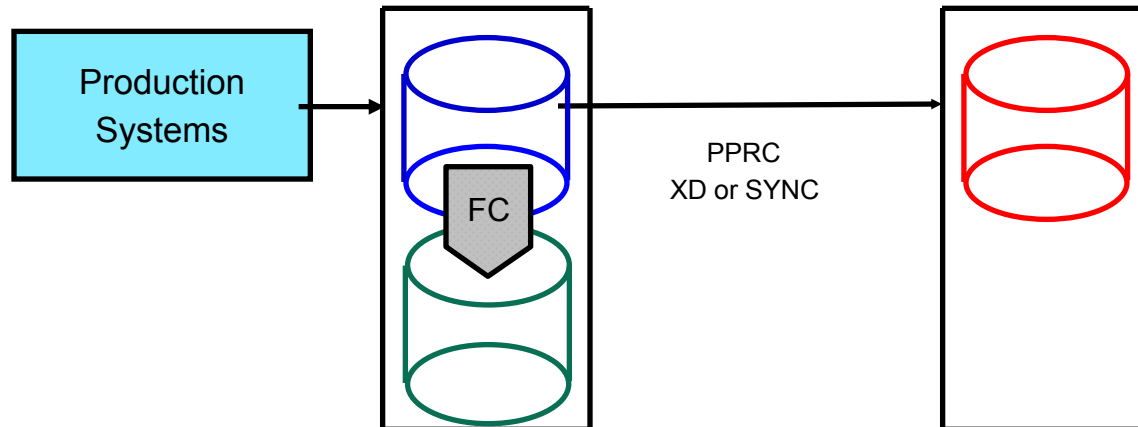
PPRC followed by FlashCopy



Applications

- Data Center Migration
 - PPRC-XD to PPRC-sync, FlashCopy and then back to PPRC-XD
 - Final production switch is to the FlashCopy targets
- Consistent copy of data for Disk to tape based DR process
 - PPRC sync required for Point in Time FlashCopy
- FlashCopy targets used for application testing
- Obtain Point in time copies of DB2 data from GDPS Metro Mirror secondaries

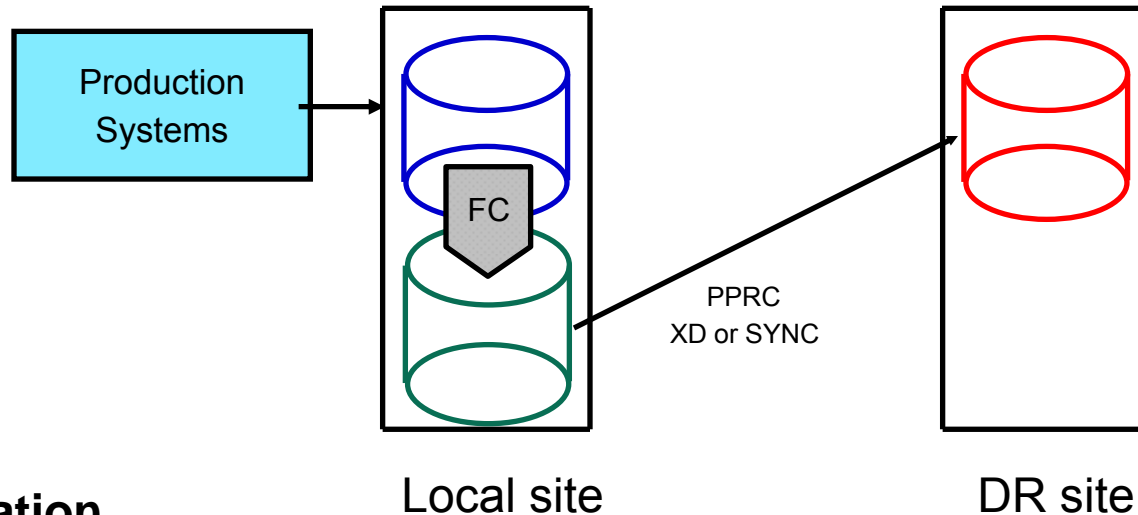
FlashCopy with PPRC



Application

- PPRC for Disaster Recovery - AND
- FlashCopy target data available for local recovery from software data corruption

FlashCopy followed by PPRC



Application

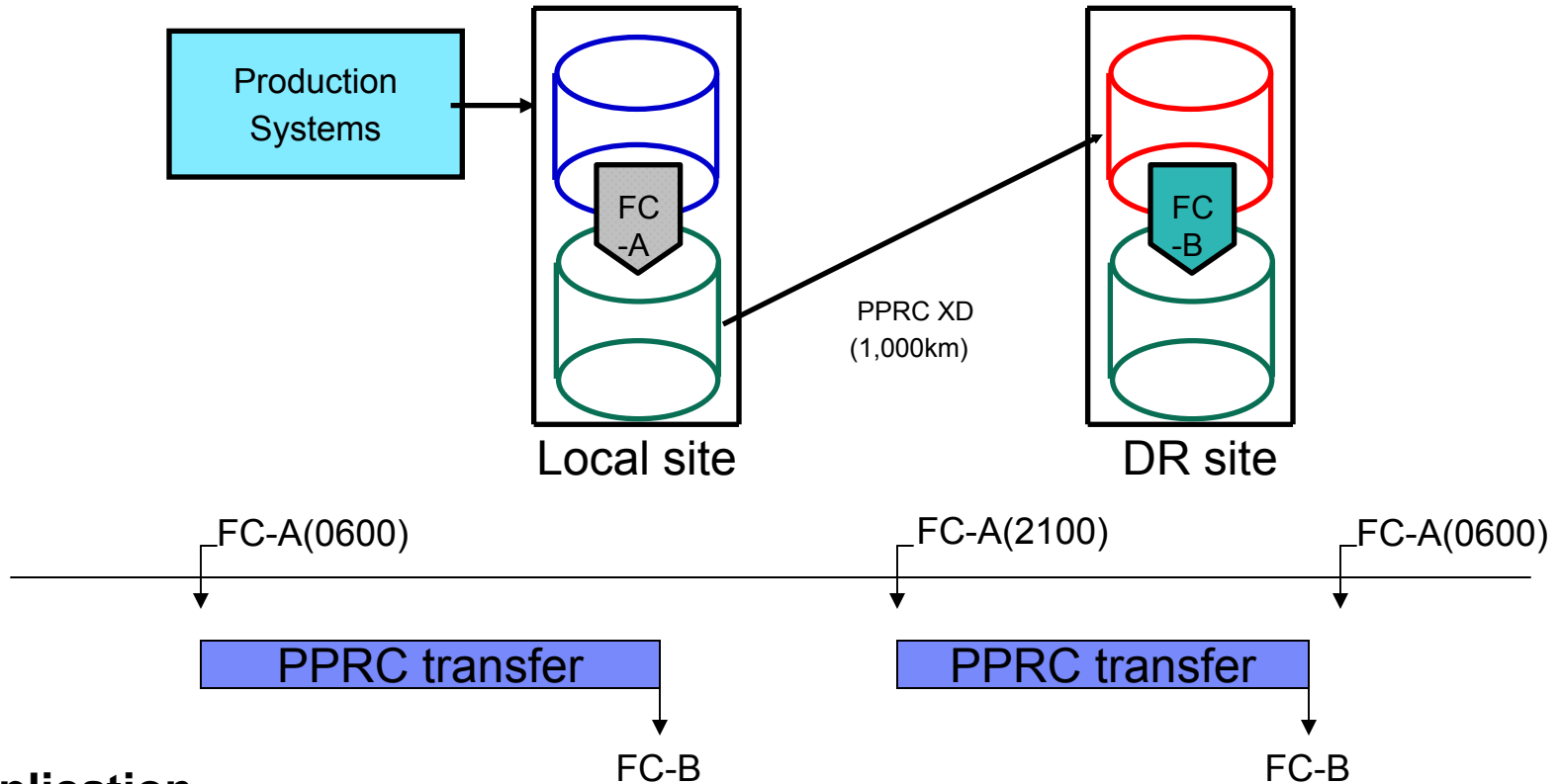
- Create a set of FlashCopy volumes with data spaced 24 hours apart
 - 20 January, FC production to volume set A, PPRC A to DR set 1
 - 21 January, FC production to volume set B, PPRC B to DR set 2
 - 22 January, FC production to volume set C, PPRC C to DR set 3
 - 23 January, FC production to volume set A, PPRC A to DR set 4

Net:

3 copies for local recovery from database corruption

3+ copies of data at DR site

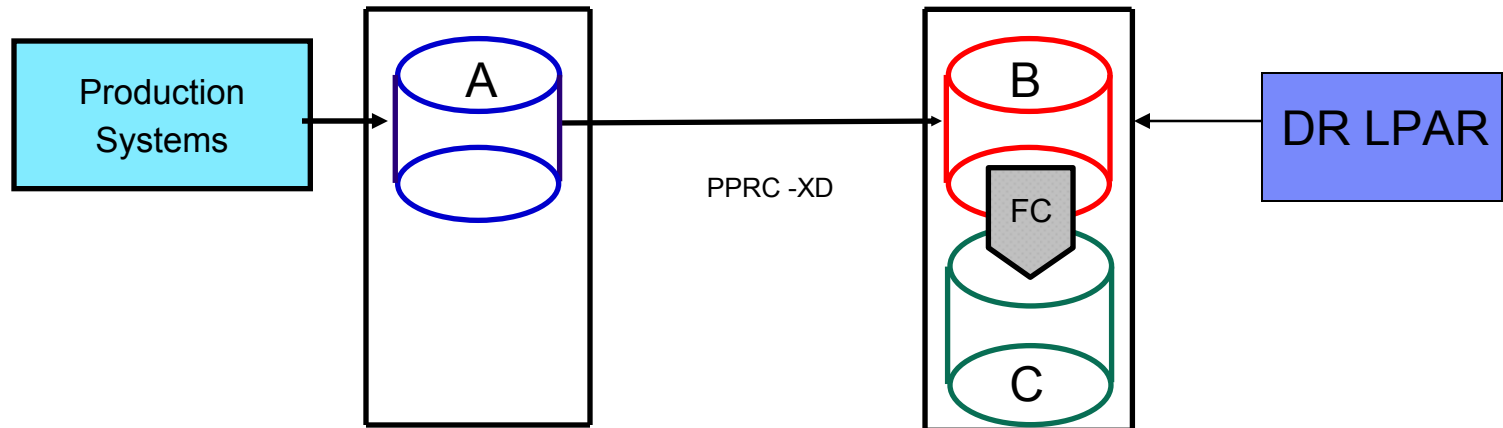
FlashCopy followed by PPRC followed by Flash Copy



Application

- Create a local set of FlashCopy data twice per day with copies at the DR site

Global Mirror



GM – From Production

1. PPRC-XD normally(A->B)
2. Incremental FlashCopy(B->C)
3. Activate Global Mirror

A@DEFSES
B@PSESS
C@SACOPY

4. Deactivate Global Mirror

E@TACOPY
F@DPSESS
G@CLSESS

GM – From DR

Global Mirror Recovery actions(run 4 jobs)

1. Failover(XF@1OVER)
(B becomes a suspended PPRC primary)
2. Analysis/Revert/Commit(GM\$1FREC)
3. Fast Revert Restore(GM\$2FRR)
4. FlashCopy(GM\$3FEST)

IPL from B volumes

Live demonstration

Summary

- PPRC Manager and FlashCopy Manager have both proven to be easy to use with minimum education about the underlying technology
- The use of batch JOBS has enabled customers to easily embed both PPRC and FlashCopy technology into more complex business solutions which execute on a scheduled basis.
- Use of functional JOBS has enabled the implementation of complex business solutions....customer selected the JOBS and combines and sequences them with JOBS they have created to execute the required business process.

Questions?

References

- Introduction to FlashCopy Manager for z/OS. IBM Storage and Networking Symposium, New Orleans, LA, USA. July 25-29, 2005
- SHARE : Session 3084 Medco Clones DB2 Environments Using IBM FlashCopy and Mainstar's VCR. Boston, MA, USA. August 22, 2005
- IBM System Storage FlashCopy Manager and PPRC Manager Overview. IBM Redpaper - REDP4065-01