TPF Users Group Spring 2005

Norm State Pool Reallocation Design Concepts

Name : Michael Shershin

Venue : Database Subcommittee

AIM Enterprise Platform Software

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Requirements

- **Everything that current pool reallocation supports**
- **Additional capabilities**
  - ► No downtime for reallocation
  - ► Ability to add PSONs to an existing pool segment
  - ► Ability to add or delete a pool segment with PSONs in the middle of currently allocated PSONs
  - ► Ability to add a deactivated pool segment
  - ► Ability to move pool segments from one device type to another.
    - − Move pool segment from 4DPB to 4DPA
  - ► Ability to add a new pool section while in Norm

Example of Pool Segments

```
ZRECP DISPLAY POOLS SECTION-4D6B
BOF20017I 14.35.46 PDU      - POOLS RETURNED FOR SECTION  4D6B
  POOL     BASE/LAST ORD     LO/HI DON             TOTAL / RETURNED
--------  ----------------  ---------  ----------------------------
4D6 DEVB 00000000000131A0   0000080A                           480
         000000000001337F   0000080A                             0
4D6 DEVB 0000000000013380   0000080B                           480
         000000000001355F   0000080B                             0
4D6 DEVB 00000000006B6C0    0000080C                       1 200
         00000000006BB6F    0000080C                             0
4D6 DEVB 00000000006BB70    0000080D                       1 200
         00000000006C01F    0000080D                             0
```

1. Could increase PSONs in pool segment 13380 - 1355F
2. Could add pool segment with PSONs 50000 - 60000
3. Could deactivate pool segment 6B6C0 - 6BB6F
4. Could increase PSONs in pool segment 6BB70 - 6C01F
5. Could add pool segment with PSONs 70000 - 80000

# Directory Handling Approach

- **Build new directories in a new record type**
  - ► Example:
    - Current directories in #SONRI
    - New directories in #SONV1
- **Switch to new directory record type at Update time**
- **Use new directory record type until next reallocation**
- **To keep current directory record type and new directory record type synchronized status bits will be shadow copied**
  - ► When record in current directory record type is filed, equivalent record in new directory record type also filed
  - ► Starting at Reconfigure
  - ► Ending when Update switches record types

Sequence

1. FCTB load
2. Validate DASD format
3. Set control information
   - Directory record type
   - Short term control record type
   - PST record type
   - New directories created as all available or all in use
   - Directory ordinal to begin dispensing after reallocation
     - First / Next / New
4. Create new directories
5. Reconfigure new directories; status matches old directories
   - Start shadow copy of status bits from current to new directories
6. Update to use new directories
7. Online Continue / Online Abort of Update process
   - End shadow copy of status bits once new directories are in use

Directory Handling Sequence

#SONRI

copy | shadow copy
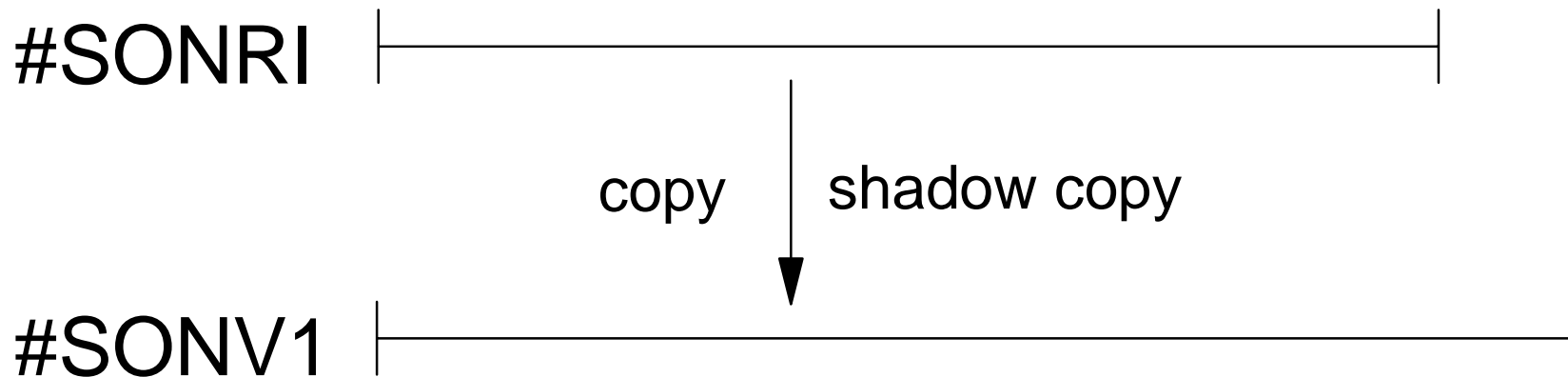
#SONV1

(1) #SONV1 allocated in FCTB load

(3) #SONV1 identified for directory use

(4) #SONV1 directories initialized during Create

(5) #SONRI status copied to #SONV1 during Reconfigure
   Start shadow copy during Reconfigure

(7) #SONV1 becomes current directories during Update
   End shadow copy when #SONV1 is in use

Abort Options

1. Abort stops reallocation during the following steps:
   - ► Create
   - ► Reconfigure
   - ► Update
     - – Cannot abort after Online Continue is requested
   - ► Must restart reallocation from the beginning
2. Online Abort does not allow Update process to continue
   - ► Can re-execute Update process following abort.

Fallback

- Only valid after Update has been allowed to continue
- Fallback is to previous record types as they were at the switch
  - ► Point in time fallback
- Requirements:
  - ► Complex outage
    - – No processor in complex can have GFS cycled up
  - ► Re-IPL required
  - ► Need to zero directories used after Update
    - – Enter series of commands
  - ► Run Reconcile
- Investigating tools to reduce need to Fallback
  - ► Validate DASD format before reallocation

Additional Restrictions

- Cannot cycle up pools in any processor when Update is in progress
    - ► Expect Update to take a few seconds to complete

- Targeted for z/TPF

Comments / Feedback

- Provide feedback by May 31, 2005
- Contact Michael Shershin
- e-mail   shershin@us.ibm.com

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