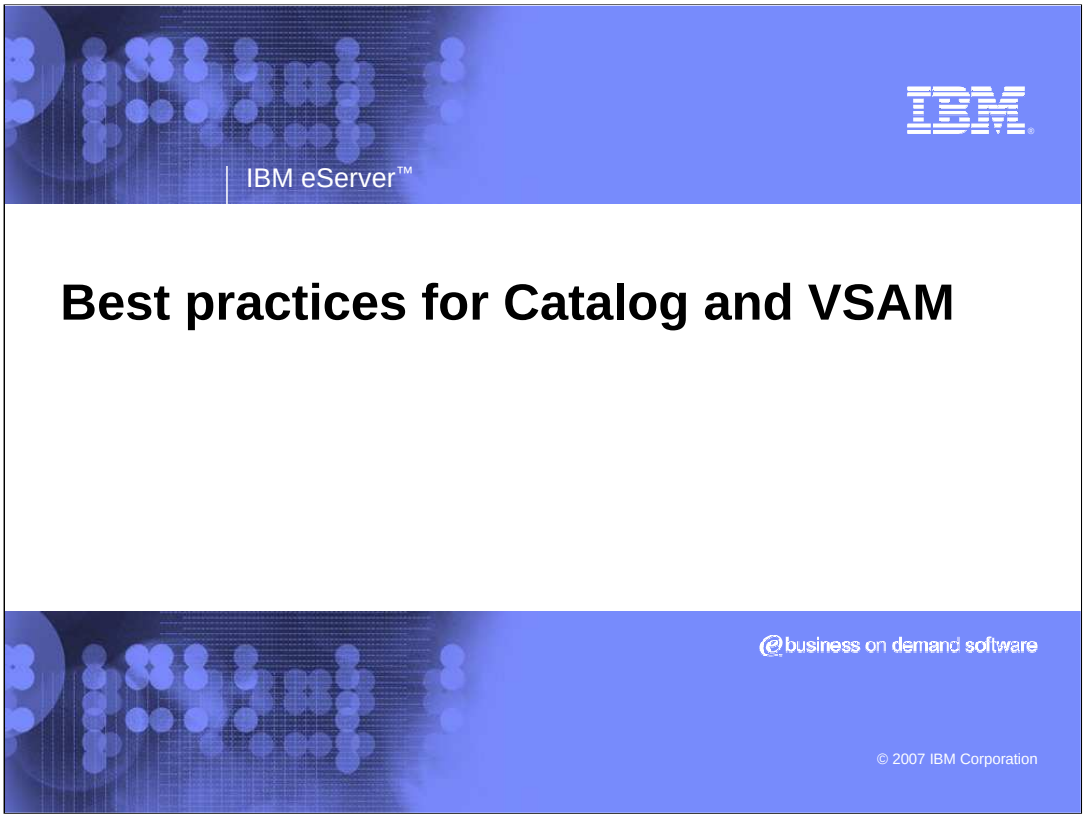
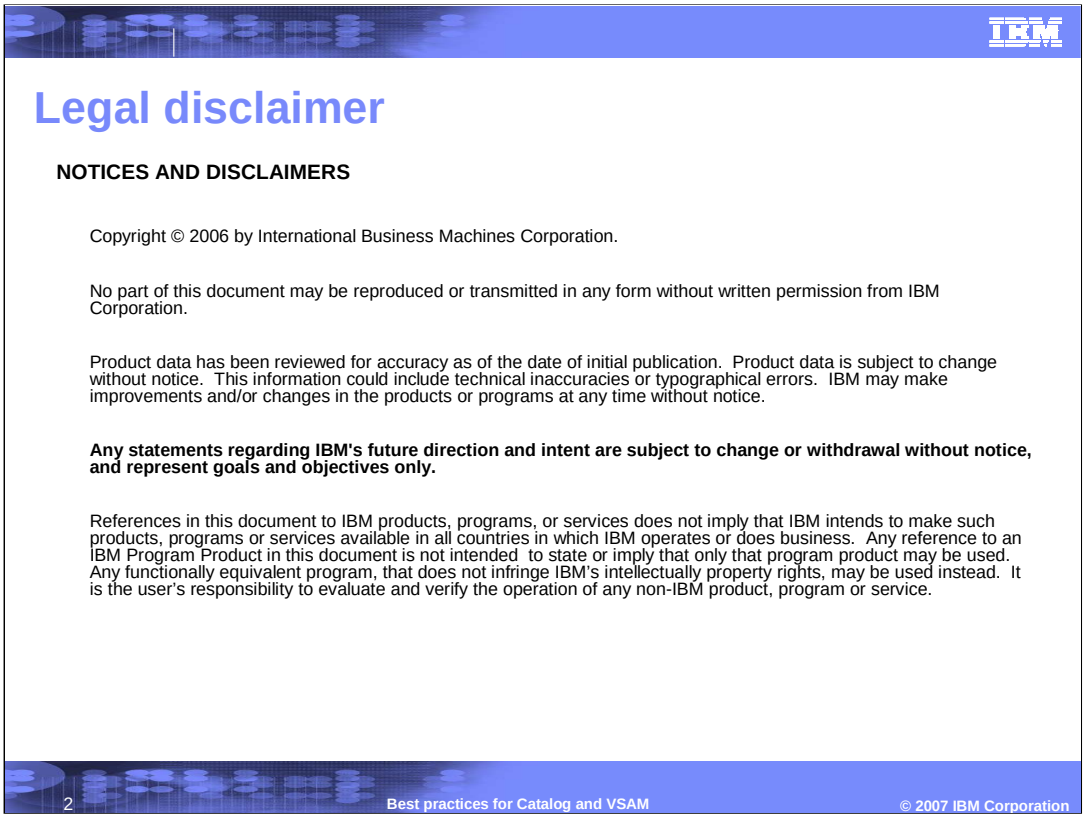
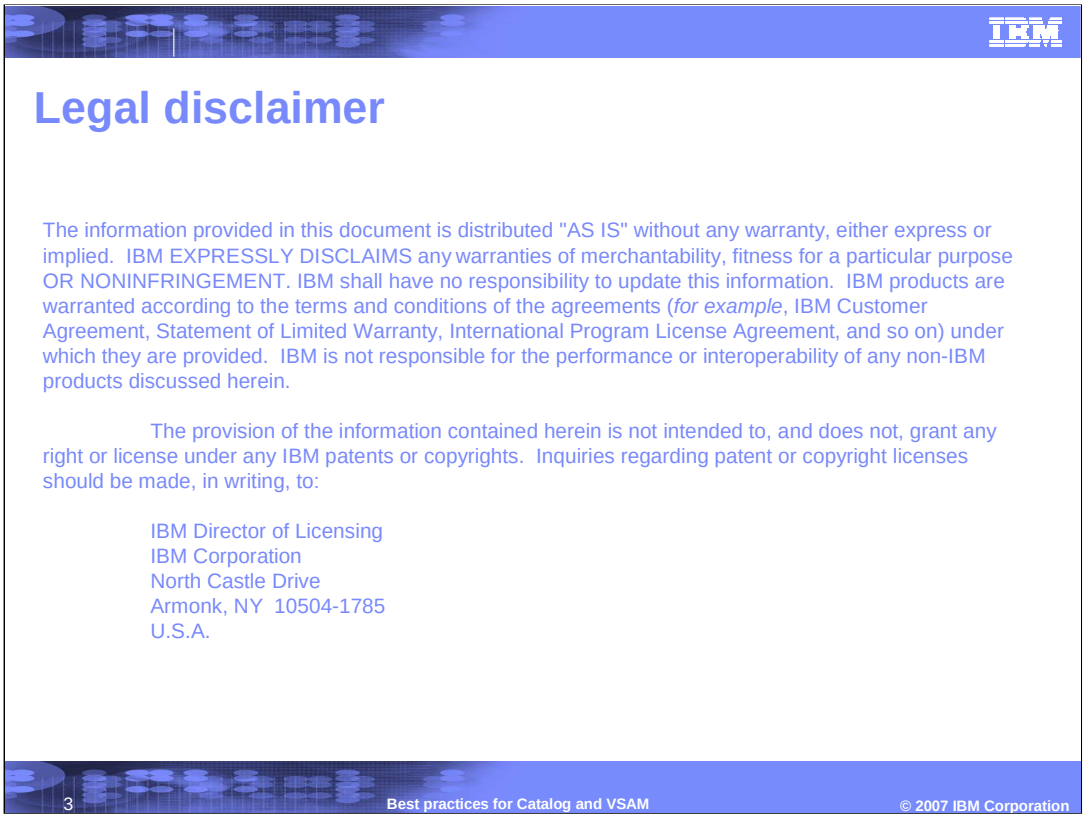


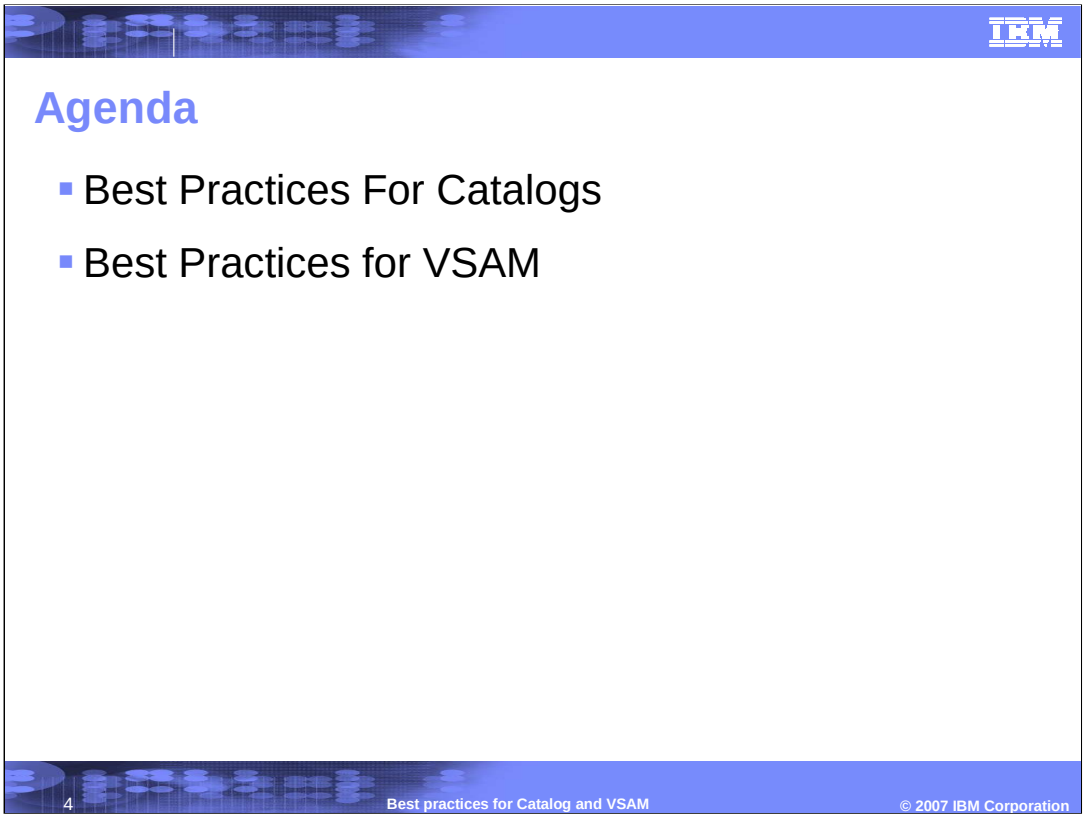
This is a presentation no the Best Practices for Catalog and VSAM



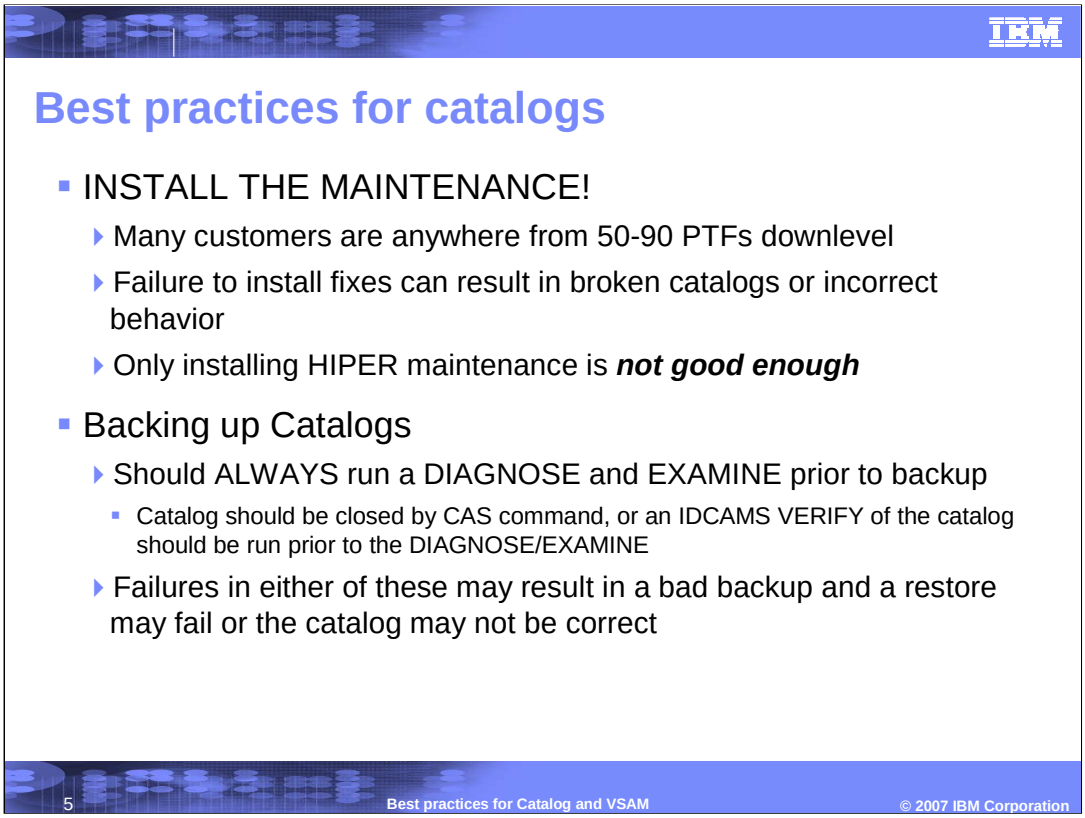
Please read the Legal Disclaimer



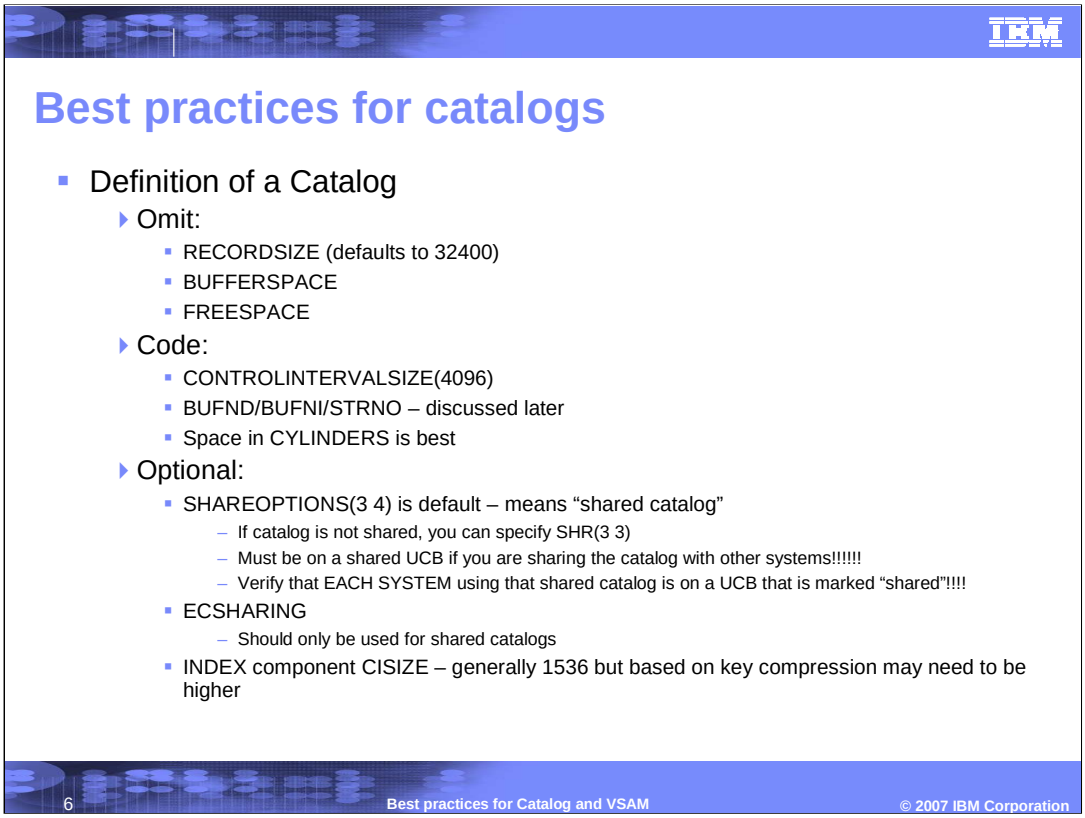
"AS IS" information



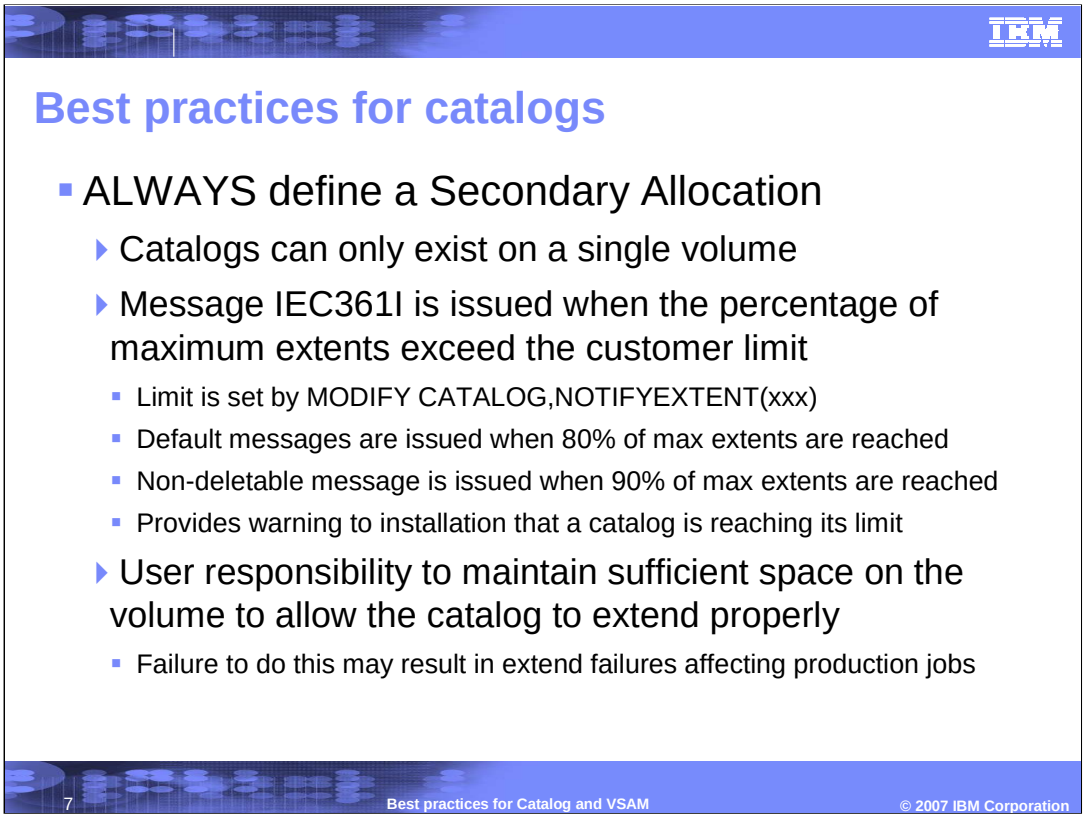
Catalogs and VSAM Best Practices will be discussed



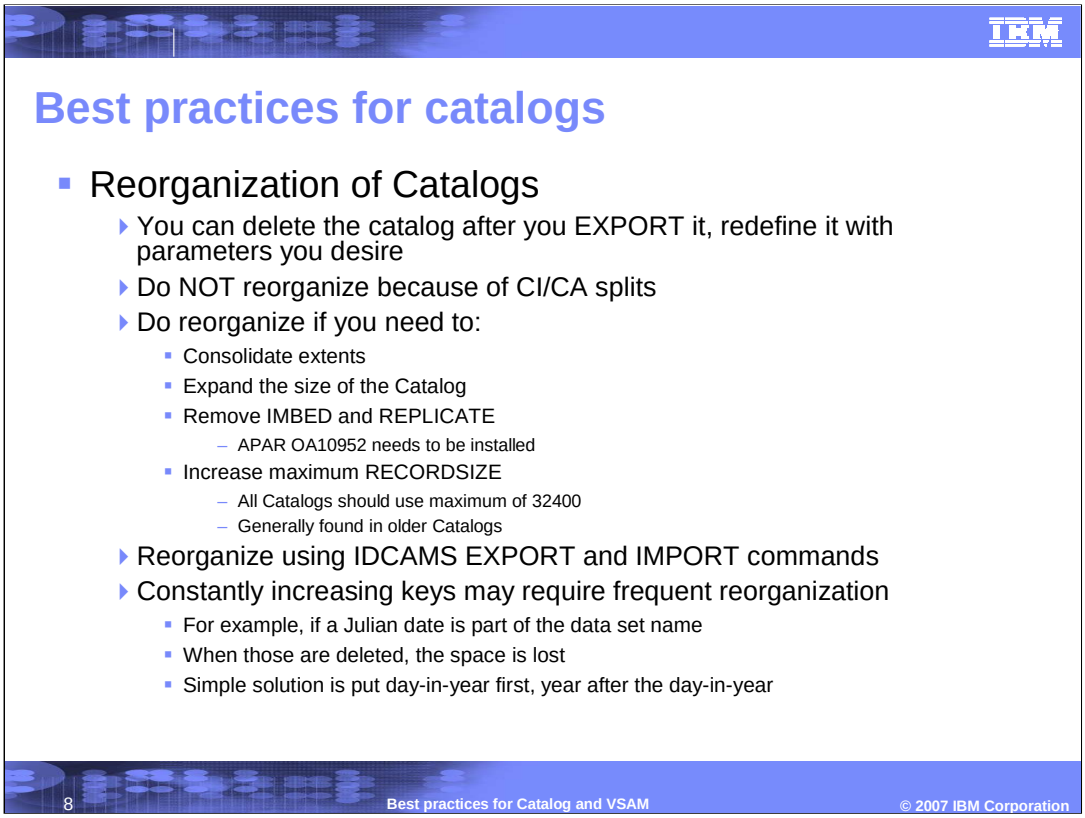
It is important that customers install maintenance and run a DIAGNOSE and EXAMINE prior to backup



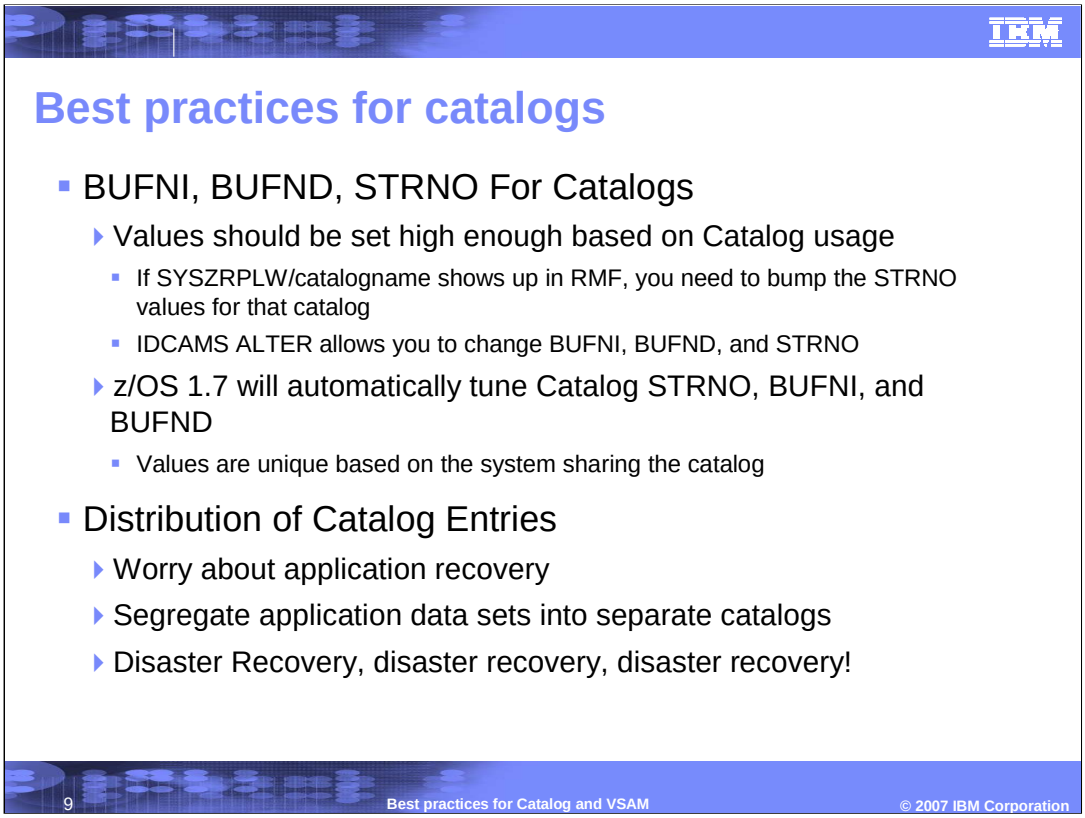
Catalog definition



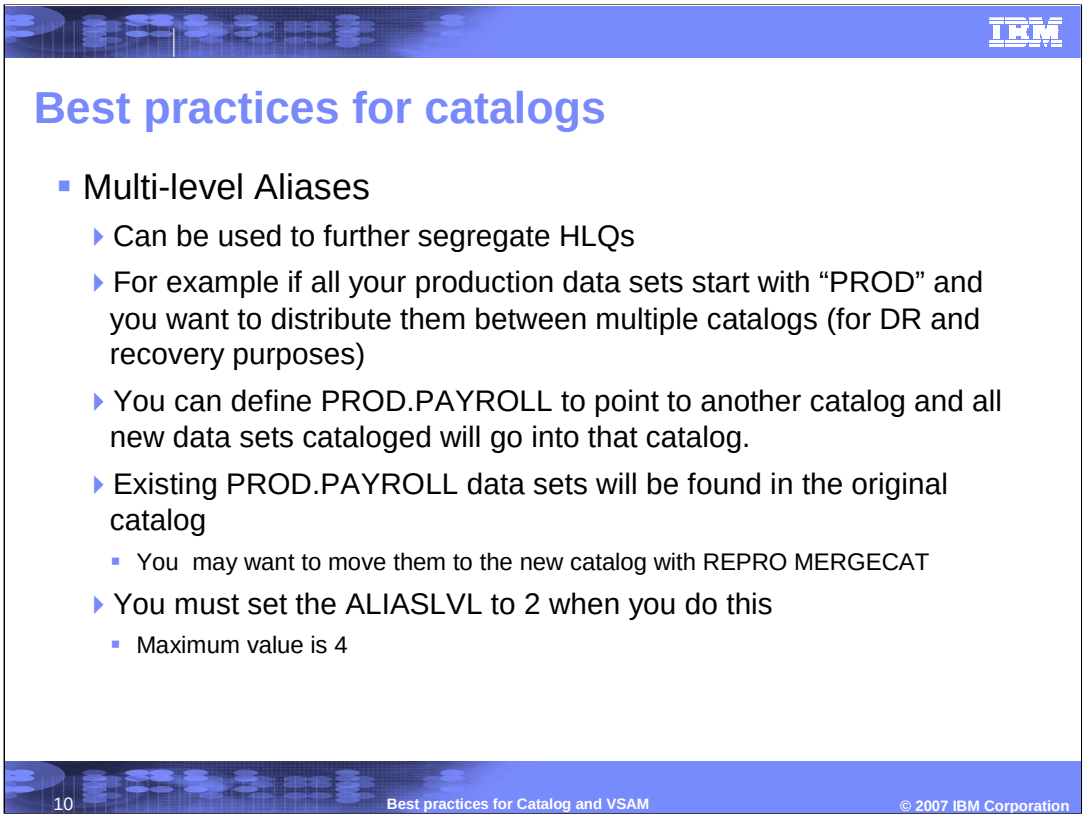
Secondary allocation definition



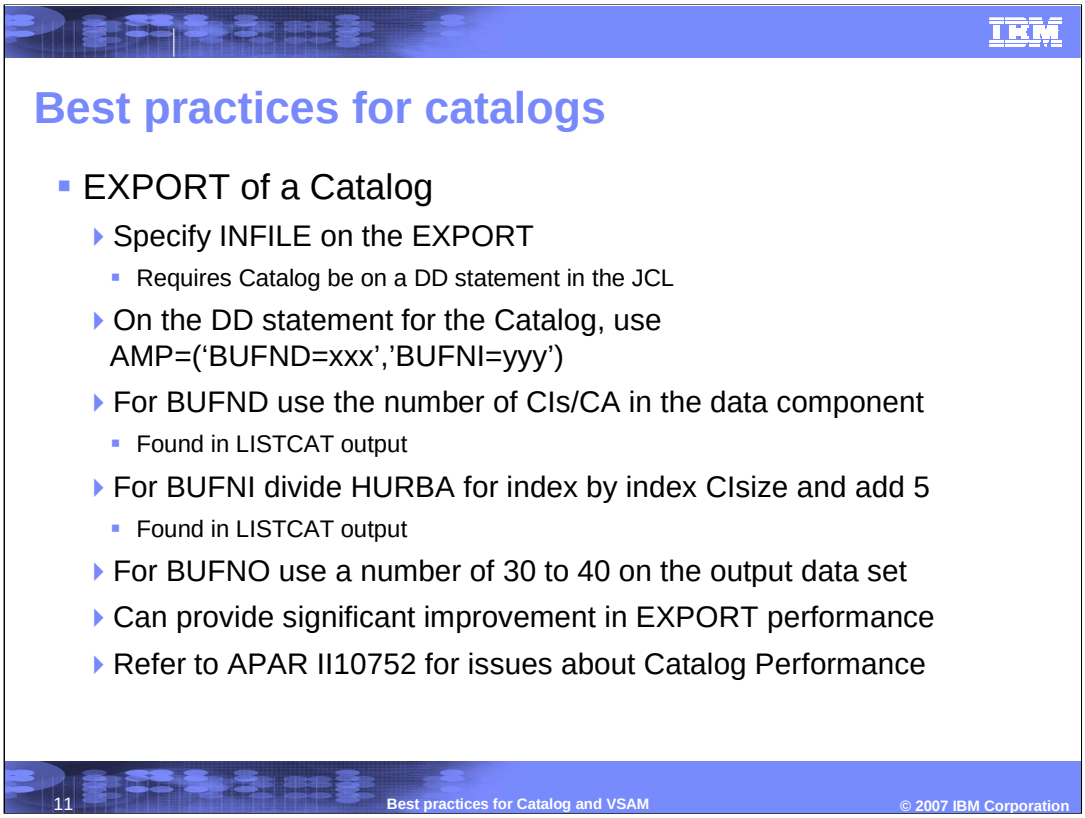
Catalog reorganization



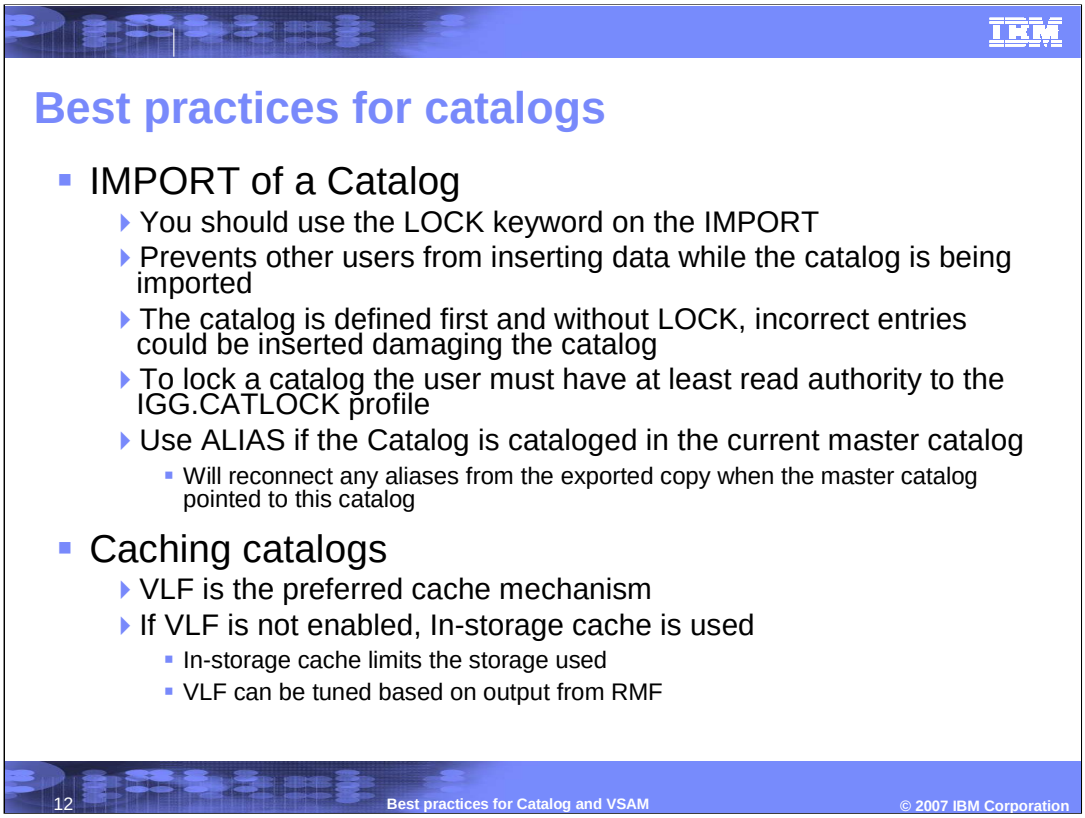
Catalog usage and application recovery



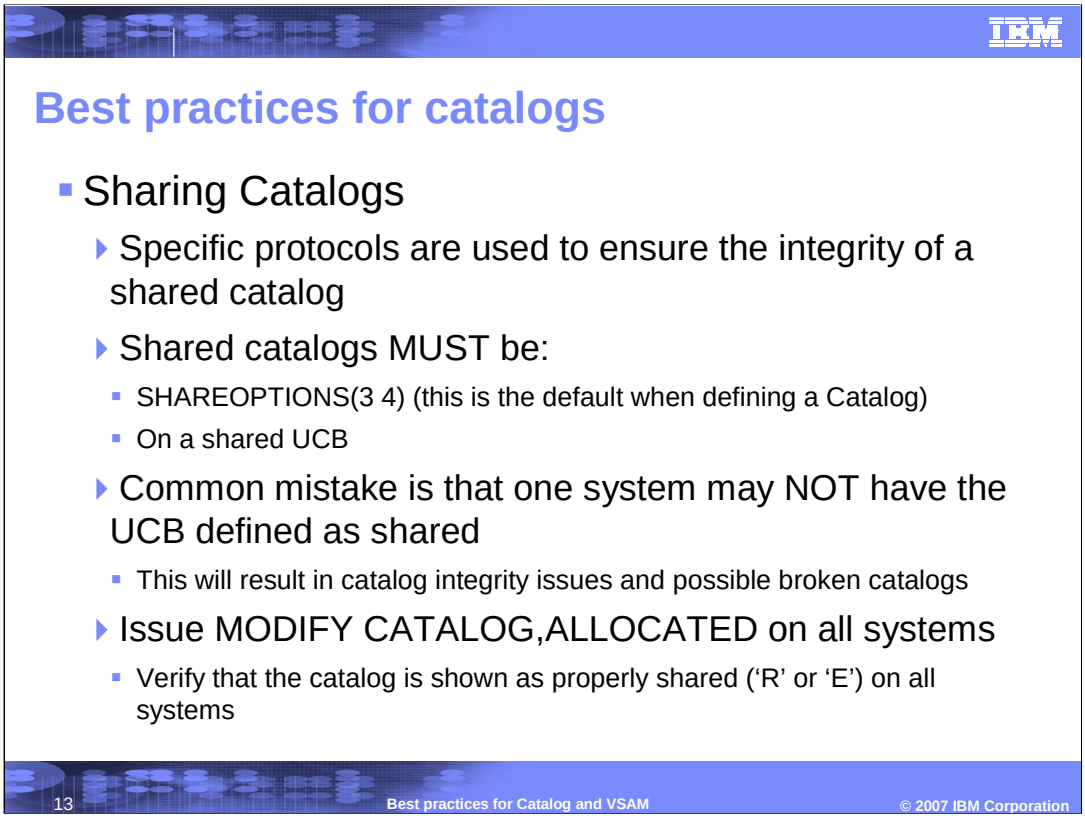
Usage of multi-level aliases



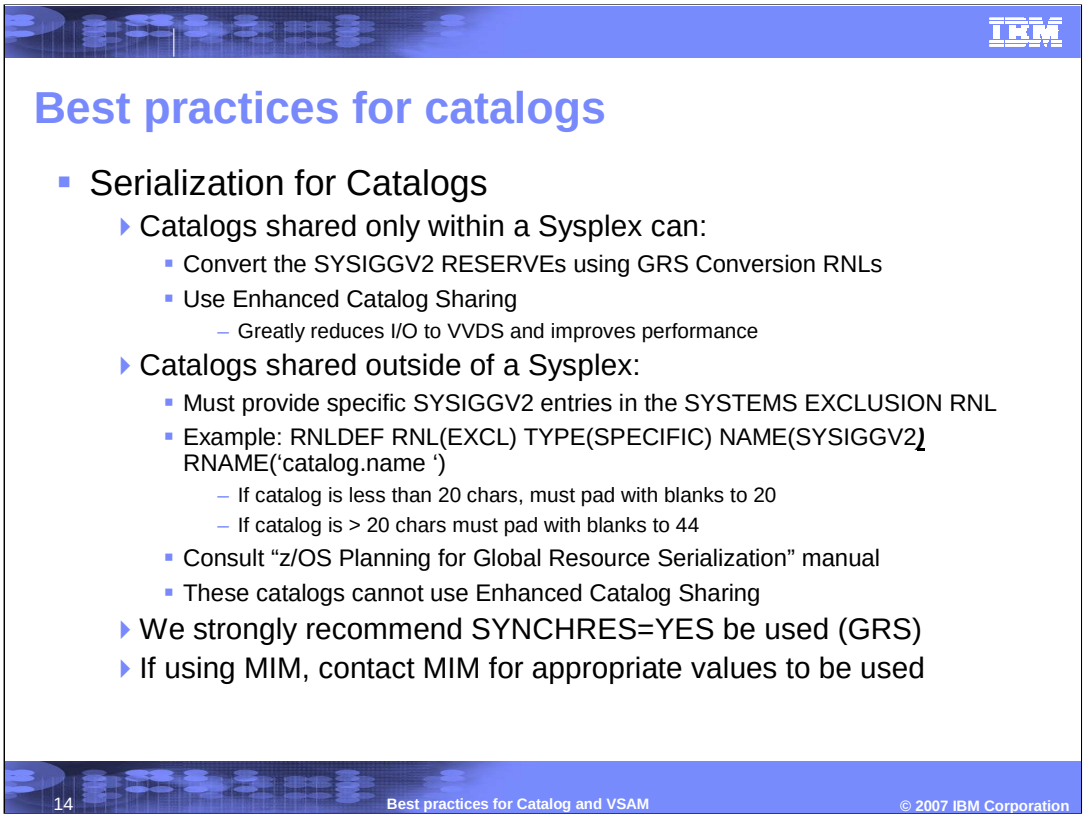
Catalog export



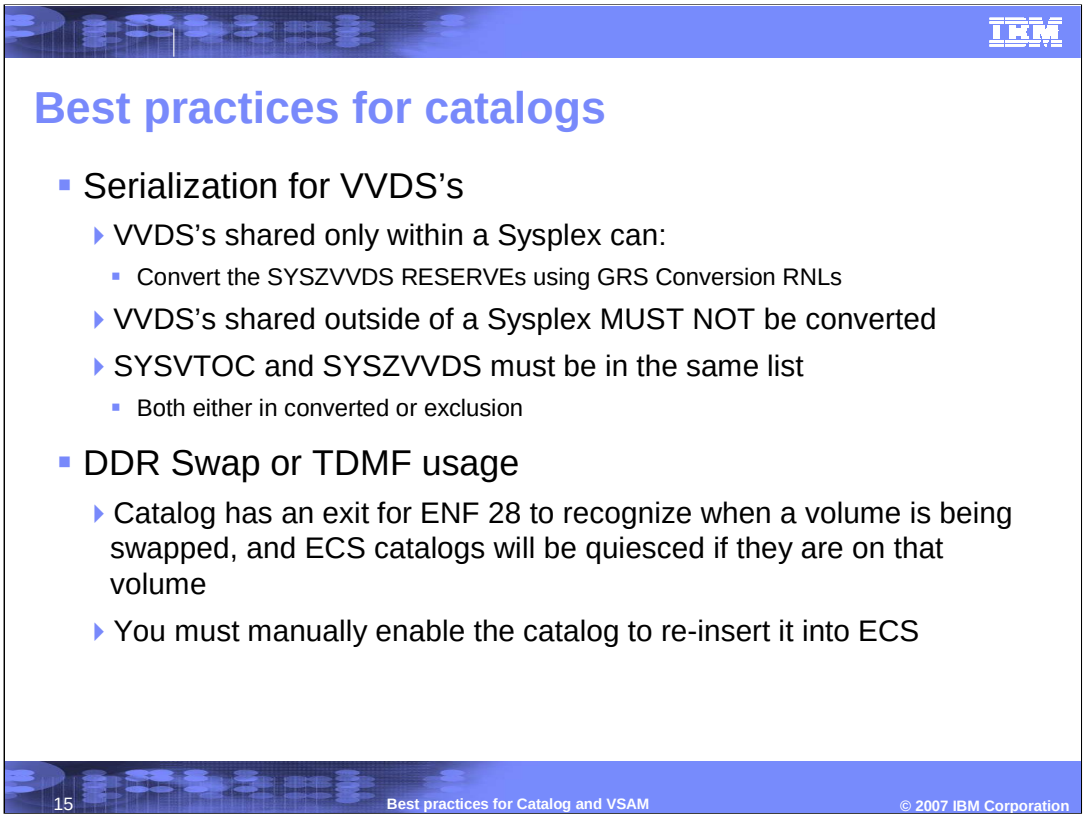
Catalog import and caching



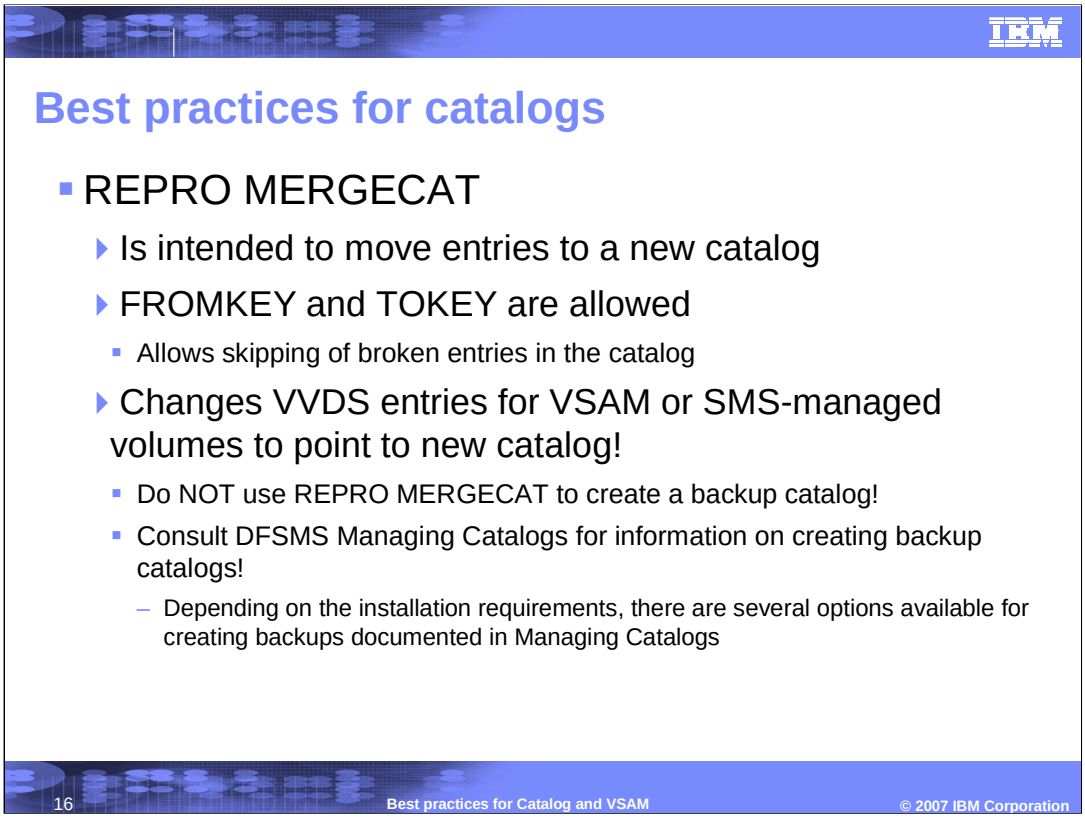
Shared Catalogs



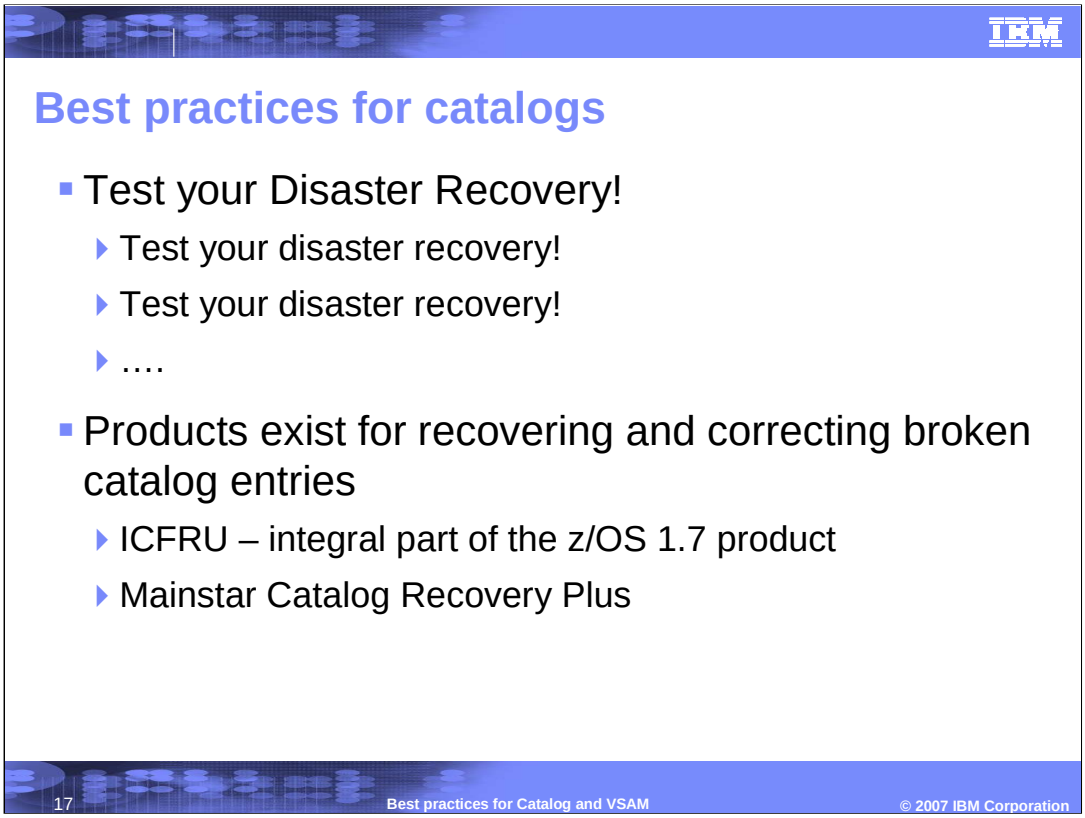
Catalog serialization



VVDS Serialization, DDR Swap or TDMF usage



Moving entries to a new catalog



Disaster recovery should be tested

Best practices for catalogs

- Catalog Statistics command added in z/OS 1.7
  - F CATALOG,REPORT,CATSTATS[(catalogname)]
  - F CATALOG,RESET,CATSTATS[(catalogname)]
  - Displays information about I/O activity, BUFNI, BUFND, and STRNO for each catalog
  - DOC APAR OA15323 describes these new commands

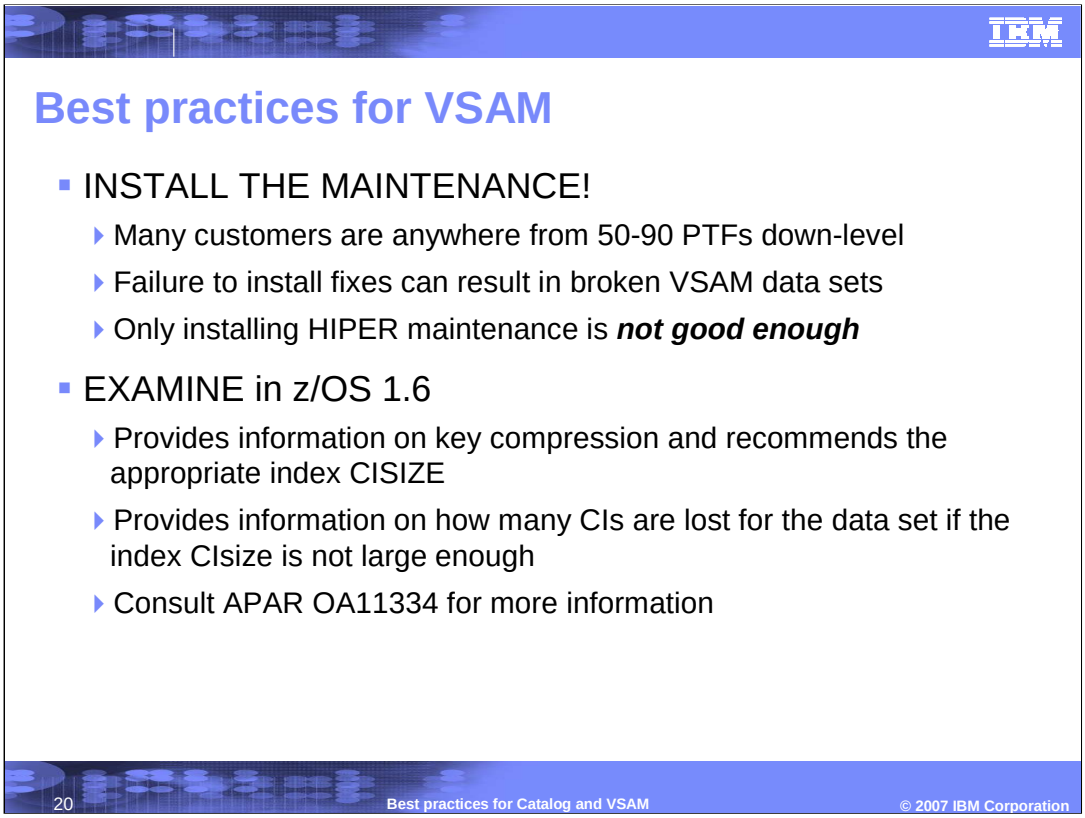
```
*CAS*************************************************************
*     ADDS  UPDATES     GETS   GETUPD  DELETES  BUFNI  BUFND STRNO *
*                                                                 *
* SYS1.ICFCAT.VNETWRK                                             *
*       0        0        1        0        0      1      2     2 *
* PPPACK.USERCAT                                                  *
*       0        0       12        0        0      1      2     2 *
* SYS1.MVSRES.MASTCAT                                             *
*       7        6    2,439        6        0      5      5     3 *
*CAS*************************************************************
```


Catalog Statistics command

Best practices for catalog

- Do not vary a volume offline on one system and reinitialize it or restore it
  - The other systems do NOT KNOW this has happened
  - Vary the volume offline on ALL systems
  - You must unallocate all volumes on that catalog
- Do not delete an alias for a Catalog from the Master Catalog while jobs are running
  - Extends of data sets will fail and the DSCB and Catalog entries will not match
- Do not delete the '.CATINDEX' component of a Catalog
- Do not IMPORT a catalog without the LOCK function

Things to avoid


IBM
Best practices for VSAM
INSTALL THE MAINTENANCE!
Many customers are anywhere from 50-90 PTFs down-level
Failure to install fixes can result in broken VSAM data sets
Only installing HIPER maintenance is ***not good enough***
EXAMINE in z/OS 1.6
Provides information on key compression and recommends the appropriate index CISIZE
Provides information on how many CIs are lost for the data set if the index CIsize is not large enough
Consult APAR OA11334 for more information
20
Best practices for Catalog and VSAM
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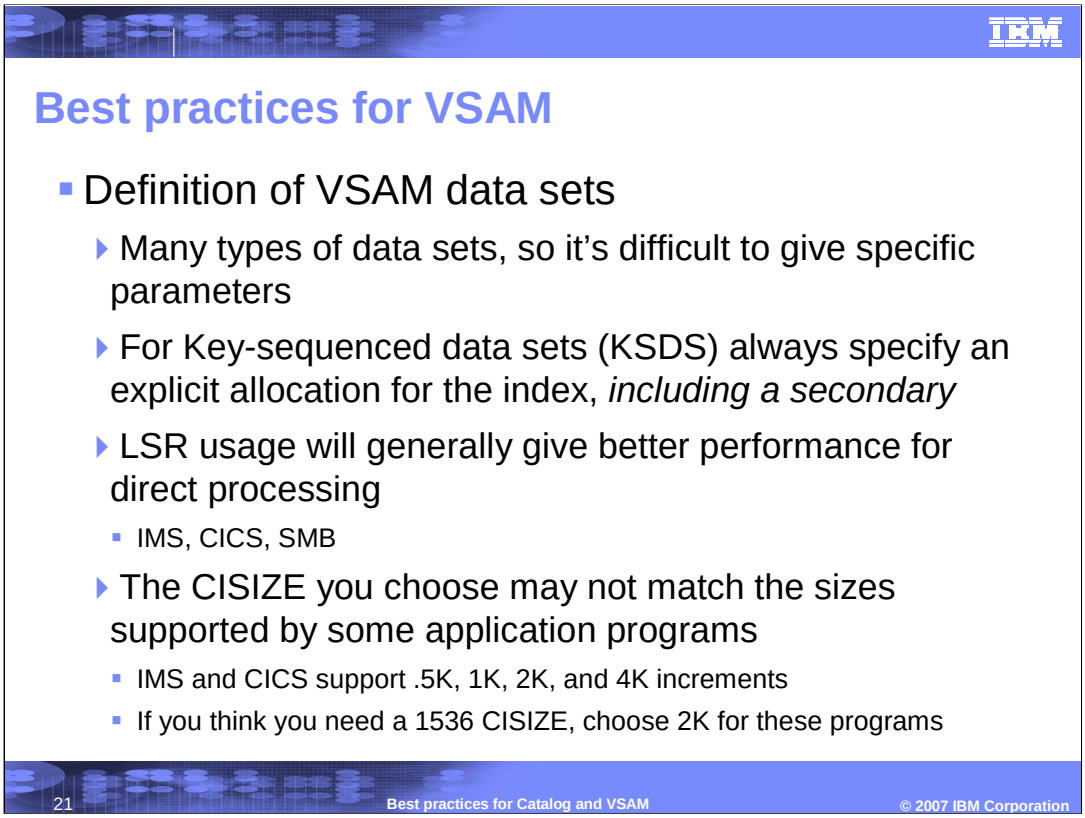
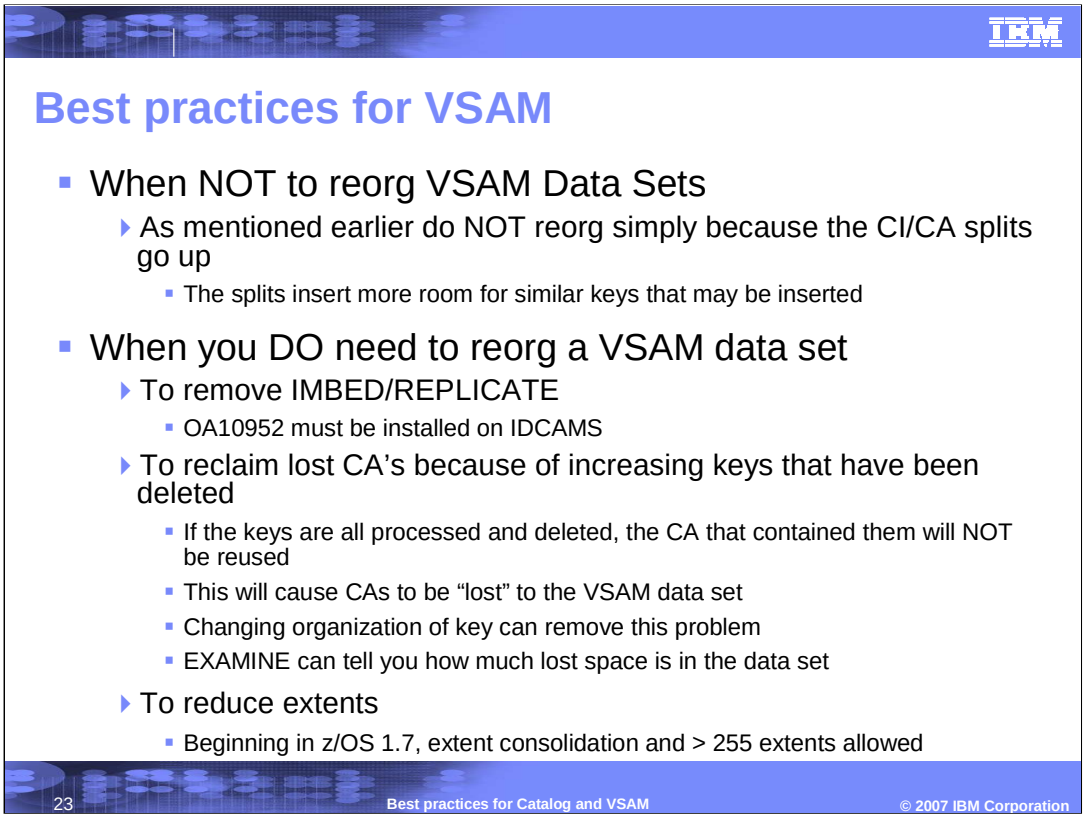
Must Dos



VSAM Dataset definition

Best practices for VSAM

- Enable the Index Trap!
  - V SMS,MONDS(IGWVSAM.BASE.INDEX.TRAP),ON
    - For normal VSAM
  - V SMS,MONDS(IGWVSAM.INDEX.TRAP),ON
    - For VSAM RLS
  - The index trap will prevent a broken index
    - Message IRM123E is issued for a VSAM hit
    - Message IRM124E is issued for a Catalog hit
    - Message IGW400I is issued for RLS and an ABEND0F4 is issued
  - APARs OA03570 (Base VSAM) and OW55096 (VSAM RLS) are required to be installed



Re-org VSAM dataset

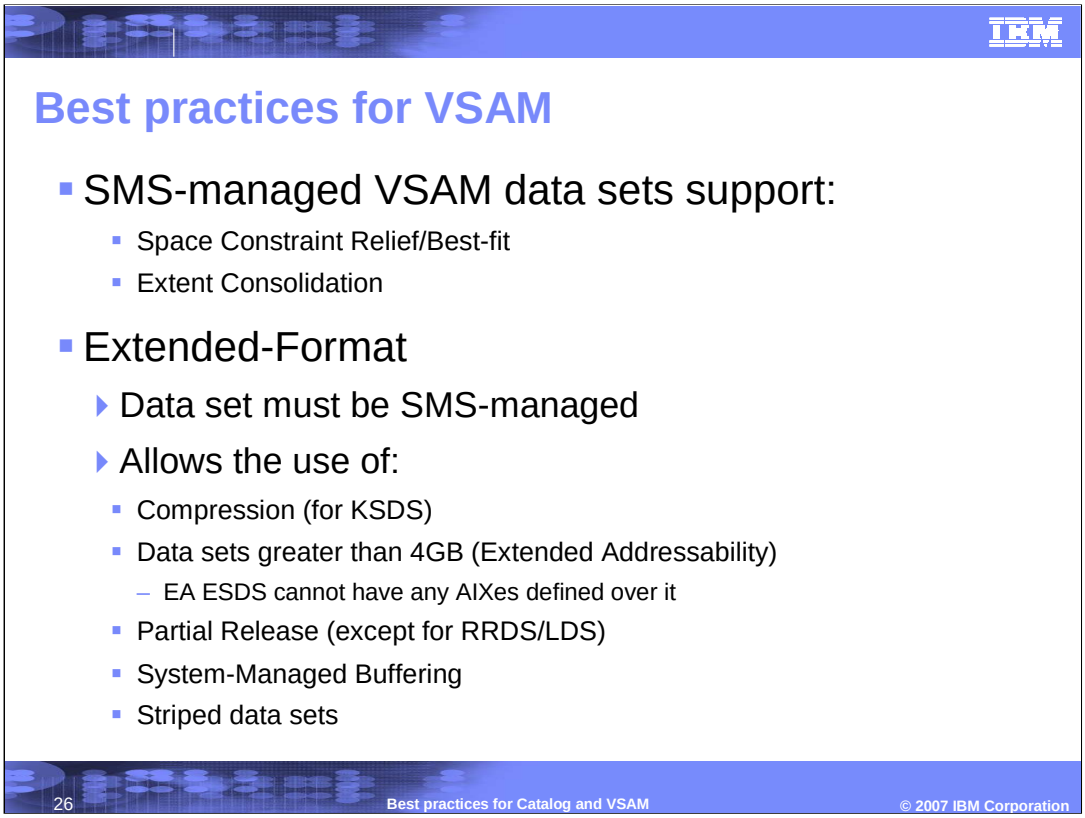
Best practices for VSAM

- Improving performance
  - Do not use small secondary amounts for KSDS or VRRDS
    - Extending is not a quick function
  - Use EXAMINE (z/OS 1.6) to determine the best index cisize
    - Reduces # of levels of index, and number of sequence set records
  - For sequential processing, larger CI sizes are better
  - For direct processing, smaller CI sizes are better
  - Striping allows direct processing to be spread across several volumes, and helps improve sequential processing
  - Increase STRNO, BUFNI, BUFND until you see no increase in performance
    - Or, use SMB (System-Managed Buffering)
    - VSAM Demystified has formulas for figuring out these values depending on what type of activity you are doing

Performance improvements

Best practices for VSAM

- Prevention of errors
  - Install maintenance!
  - Backup data sets, preceded by EXAMINE to verify contents
    - EXPORT/IMPORT will reorganize data sets when imported
  - Space constraint relief
    - SMS option allowing best-fit or reduction of space requested
    - If multiple volumes are specified, Best-fit allows those volumes to be allocated to satisfy the space
    - For a single volume, Space reduction allows the allocation to succeed using smaller space than originally requested
    - Both options remove the 5-extent limit
  - Attempt to close or quiesce the data set
    - ABENDs or system failure may break the data set
    - Run VERIFY and EXAMINE when these cases occur



VSAM datasets

Additional information

- Catalog:
  - z/OS DFSMS Managing Catalogs (SC26-7409)
  - z/OS DFSMS Access Method Services for Catalogs (SC26-7394)
- VSAM
  - VSAM Demystified (SG24-6105)
  - z/OS DFSMS Using Data Sets (SC26-7410)
- To search for Non-Defect Oriented Problems for both VSAM and Catalog:

  http://www.ibm.com/support/search.wss?rs=538&tc=SWJ30&dc=DB520+D800+D900+DA900+DA800+DA460+DB300+DB540+DB400&dtm

To get to Support for DFSMS to search for Non-Defect Oriented Problems for both VSAM and Catalog, click on the link shown here.

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