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hrvatska udruga oracle korisnika

Oracle DB 11gR2 - što je novo?

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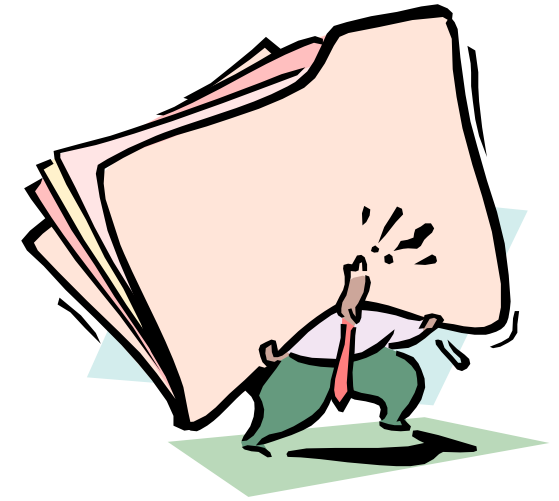
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Challenges of Managing Data Explosion

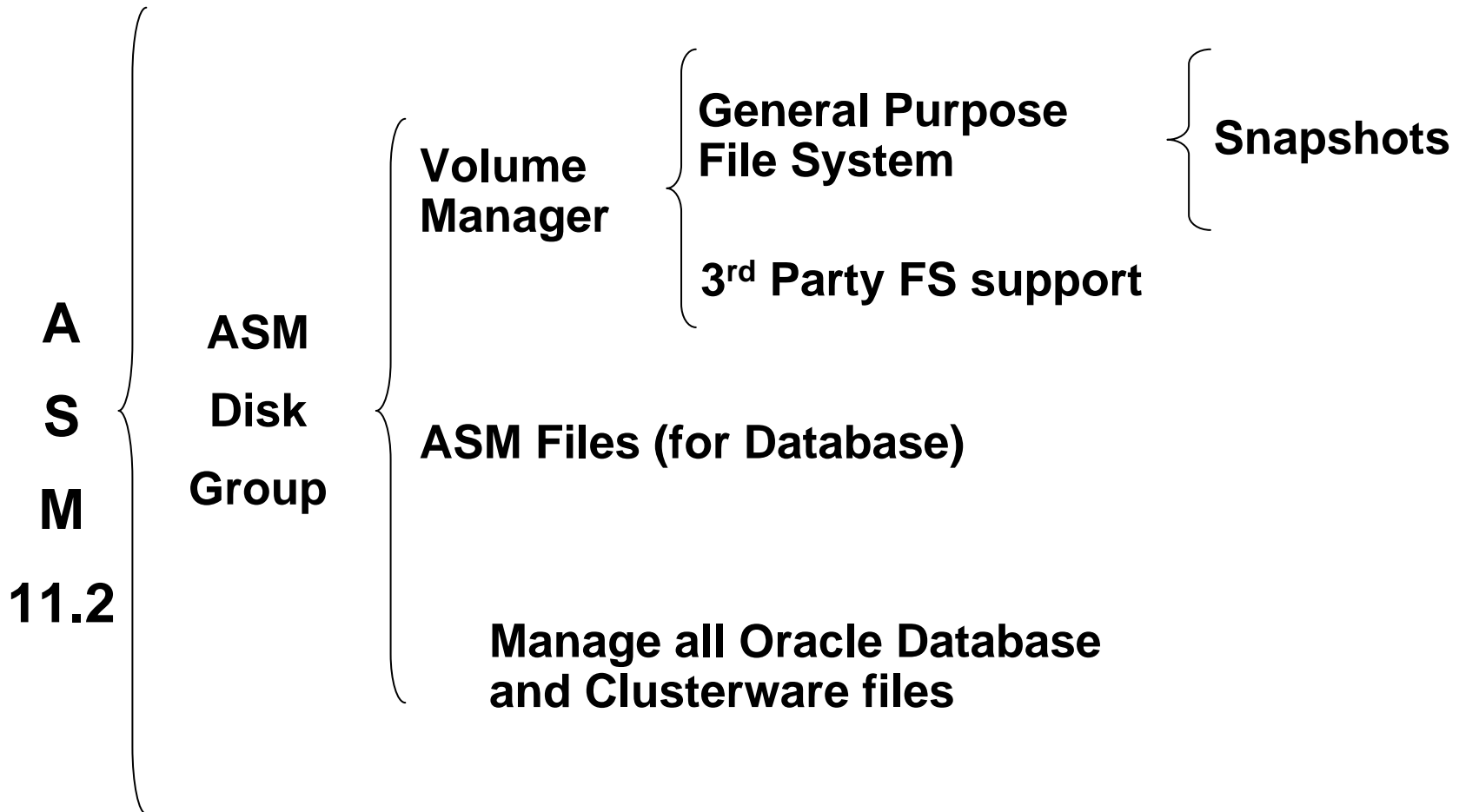
- Integrating storage and file management tools to create a solution
 - Lack of a single solution for ALL data
 - Lack of simple and automated tools to reduce complexity
 - Reducing software layers
- Complexity of managing performance
 - Eliminating hot spots
- Multi-vendor support logistics and finger pointing
- Reducing Storage Total Cost of Ownership



Value Proposition

- Reduced complexity thru automation
 - No I/O tuning, reshuffling data files
- Simplified solution stack
 - No finger pointing, 3rd party LVM/FS
- Increases utilization and database and application uptime
 - No down-time for storage provisioning or migration
 - Managing storage pool vs. islands
- Single vendor cross-platform integrated solution
 - Bundled and tested as one solution
 - Same cross platform tools to install, configure and manage
- Free

Extending ASM to Support ALL Files



ASM Dynamic Volume Manager (ADVMM)

Dynamic Volume Manager and Dynamic Volumes



- A new cluster (and single host) volume management service for both Oracle and general volume applications on Linux, Windows, and UNIX platforms
- Loadable kernel driver
- ‘Dynamic Volume’ is a new ASM file type – ‘asmvol’
 - Example: +DATA/dga/vol1
 - Leverage the full set of ASM features
 - Managed using SQL, ASMCMD, EM
- An OS device file is created automatically when a dynamic volume is created
 - Linux: /dev/asm/dga/vol1
 - Windows: asm_dga_vol1

Creating an ASM Dynamic Volume

```
$ sqlplus / as sysasm
SQL> ALTER DISKGROUP data ADD VOLUME volume1 SIZE 500M;

$ asmcmd
ASMCMD> volcreate -d DATA -s 100M volume2

$ ASMCMD> volinfo -a
```


Dynamic Volume SQL*PLUS

Command Examples

- SQL> ALTER DISKGROUP DGROUPA ADD VOLUME vol1 SIZE 10G;
RESIZE VOLUME vol1 SIZE 15G;
DROP VOLUME vol1;
ENABLE VOLUME asmvol1;
- SQL> ALTER DISKGROUP ALL DISABLE VOLUME ALL;
- SQL> ALTER DISKGROUP DGROUPA MODIFY VOLUME asmvol1
USAGE 'acfs';

Extending ASMCMD for Dynamic Volumes

- `asmcmd volcreate dname volname -s size [-r redundancy]
 [-w stripe_width] [-c stripe_columns]
 [-p [hot|cold]] [-i [hot|cold]]`
- `asmcmd volresize dname volname -s newsize [-f]`
- `asmcmd voldelete dname volname`
- `asmcmd volenable [-d dname] [-d dname -n volname]`
- `asmcmd voldisable [-d dname] [-d dname -n volname]`
- `asmcmd volset dname volname [-u usage_message] | [-m
 mount_path [-p [hot|cold]] [-i [hot|cold]]`
- `asmcmd volinfo [-d dname] [-n volname]`

Managing ADVM Dynamic Volumes

Oracle Enterprise Manager (SYSMAN) - Disk Group: DEMO - Microsoft Internet Explorer

Address: http://stacg39.us.oracle.com:1820/em/console/database/osm/diskGroup?type=osm_instance&target=%2BASM_stacg39.us.oracle.com&oname=DEMO&event=vol

ORACLE Enterprise Manager 10g Database Control

Automatic Storage Management: +ASM_stacg39.us.oracle.com > Logged in As SYS / SYSASM

Disk Group: DEMO

General Performance Templates Files Access Control **Volumes**

Create Enable All Disable All

ASM volumes are typically formatted with Oracle File Systems, which you can use to store non-database files such as executables, Oracle trace files and alert logs, application configuration files, and so on.

Enable Disable Resize Create Oracle File System View Delete

Select All Select None

Select	Volume	Volume Device	State	Usage	Mount Point	Size (GB)	Disk Group Allocated Space (GB)	Redundancy
<input type="checkbox"/>	DEMO_VOL	/dev/asm/demo/demo_vol	ENABLED	OFS	/ofs_mp/mp_dir1	0.25	0.5	Mirrored
<input type="checkbox"/>	HQ_VOL	/dev/asm/demo/hq_vol	ENABLED	Unknown		0.25	0.75	High
<input type="checkbox"/>	NEDC_VOL	/dev/asm/demo/nedc_vol	ENABLED	OFS	/ofs_mp/mp_dir3	0.25	0.25	Unprotected
<input type="checkbox"/>	SALES_VOL	/dev/asm/demo/sales_vol	ENABLED	OFS	/ofs_mp/mp_dir2	0.25	0.75	High

General Performance Templates Files Access Control Volumes

Database | Setup | Preferences | Help | Logout

Trusted sites

ASM Cluster File System (ACFS)

Managing non-Oracle Database
General Purpose files

What is ASM Cluster File System (ACFS)

- General purpose scalable file system
 - Journaling, extent based
 - Single node and cluster
 - POSIX, X/OPEN file system solution for UNIX/Linux
 - Windows file system solution for Windows platforms
- Accessible through NAS protocols (NFS, CIFS)
- Leverages ASM technology for volume mgt
- Integrated with Oracle Clusterware for cluster support
- Multi OS platform (Linux and Windows at initial release)
- Integrated with Oracle system mgt tools
 - Oracle installation and configuration
 - Enterprise Manager and ASM Storage mgt tools
 - Native OS File System Management tools

Managing the ACFS File System is Simple

1. Native Linux, UNIX, and Windows OS file system commands and extensions
2. *acfsutil* platform independent commands
3. ASM Configuration Assistant (ASMCA)
4. Enterprise Manager

Linux-Unix File System APIs

- Standard POSIX and X/OPEN file system APIs and Commands
- access, ar, cat, chattr, chgrp, chmod, chown, cksum, compress, cp, cpio, dd, df, diff, dir, dirname, du, file, find, **fsck**, fuser, grep, gunzip, gzip, link, ln, lockfile, ls, mkdir, mkfifo, **mkfs**, mknod, mktemp, more, **mount**, mv, od, pwd, rcp, rename, rm, rmdir, size, stat, string, sync, tail, tar, unlink, **unmount**, ...

Windows File System APIs

- Windows file management APIs and Commands:
- Assoc, Attrib, Chdir, **acfschkdisk**,
Comp, Copy, Dir, Expand, Fc, Find, Findstr,
Flattemp, **acfsformat**, Freedisk, Mkdir, More,
acfsmountvol, **acfsdismount**, Move,
OpenFiles, Rcp, Rmdir, Replace, Tree, Type,
Xcopy, Process Explorer, ...

ACFS Platform Independent Commands

**New ACFS commands for Linux/Unix and Windows
(not natively supported)**

Command	Function
acfsutil info	Display new ACFS file and file system features (ACFS, snapshots, registry, size) and information
acfsutil snapshot	Create and display ACFS snapshots
acfsutil registry	Register an ACFS file system with the ACFS mount registry (i.e. cluster-wide fstab)
acfsutil rmfs	Remove an ACFS file system
acfsutil size	Resize an ACFS file system
acfsutil tune	View or modify ACFS tune-ables

Leveraging ASM Mirroring and Striping

Files in /usr1 FS are mirrored
leveraging ASM Dynamic Volume
Mirroring

Dynamic Volumes mirroring
attribute is user selectable

- 2-way mirror
- 3-way mirror
- No ASM mirror

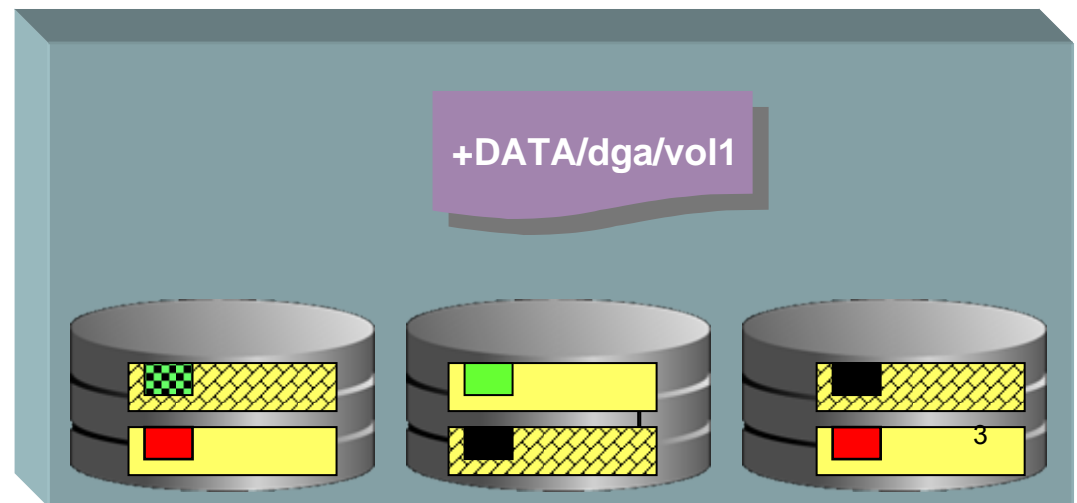
ACFS File System: /usr1

ACFS file A  Mirrored 

ACFS file B  Mirrored 

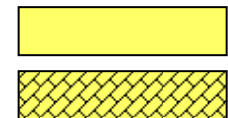
Linux: /dev/asm/dgb/vol1

Win: \\.\asm_dgname_volname



Primary ASM File Extent

Secondary ASM file Extents



ACFS File System Snapshot Data Service

ACFS Read-Only Snapshots

- Dynamic, fast, space efficient, “point in time” copies of ASM file system files
 - captures ASM FS file block/extent updates
- An enabler for:
 - On-line backups
 - On-line, disk-based, file backup model using snapshots and individual file recoveries
- Up to 64 snapshot images per ASM file system
 - Policy based snapshots:
 - Schedule snapshots on an interval basis: every 5 seconds, every 30 minutes, daily, ... with recycling (using EM)
- ACFS CLIs support creation and removal of snapshots
- ACFS Snapshot functions integrated with EM

ACFS Snapshot Command Examples

- Create an ACFS snapshots
 - Syntax: `acfsutil snap create snap_name mountp`
- Delete ACFS snapshot
 - `acfsutil snap delete snap_name mountp`
- **V\$ASM_ACFSSNAPSHOTS**
 - ***FS_NAME*** - *The ACFS mount point*
 - ***DEVICE_NAME*** – *The device name*
 - ***SNAPSHOT_NAME*** – *Snapshot Name which is a valid directory name*
 - ***SPACE_USED_GB*** – *Space used by the snapshot in GB*
 - ***CREATION_TIME*** – *The time at which the snapshot was created*

Managing ACFS using EM - Snapshots

Automatic Storage Management: +ASM_stacd31.us.oracle.com > Oracle File System >

Logged in As SYS / SYSASM

Oracle File System: /mp_dir/test_on_mp1

General

Snapshots

Summary

A snapshot is a space efficient point-in-time copy of the file system. It can be used as a backup source to recover accidentally deleted or modified files, or for data mining and report applications.

Total Number of Snapshots **3**

Last Snapshot Creation Time **Jun 10, 2008 12:51:28 PM PDT**

Total File System Free Space (GB) **0.1869**

Snapshots

Search

To narrow down the search results or to search for a specific snapshot, enter a search string in the Snapshot name field and click Search. To display all the OFS snapshots for the selected OFS filesystem, clear the search field and click Search.

Name

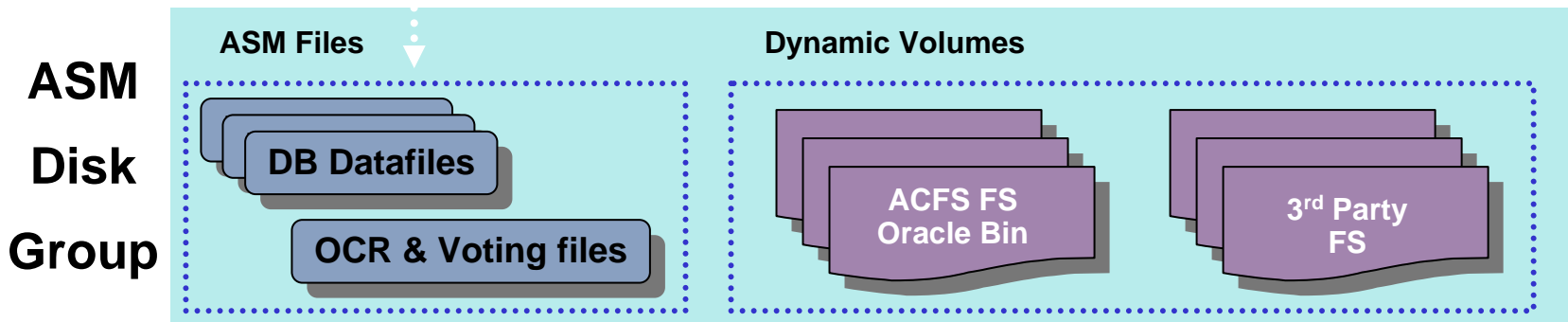
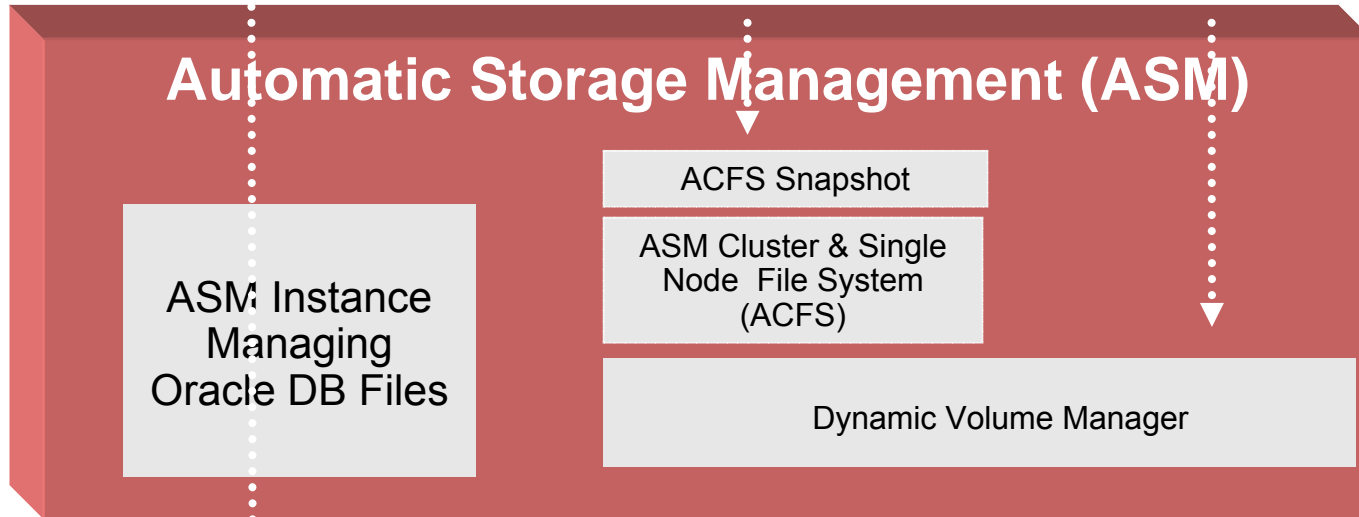
TIP To return exact or case-sensitive matches, double quote the search strings. You can use the wildcard symbol (% , *) in a double-quoted string.

Select All | Select None

Select	Name	Creation Time
<input type="checkbox"/>	snapshot_20080609_112805	Jun 9, 2008 11:28:14 AM PDT
<input type="checkbox"/>	snapshot_20080610_125103	Jun 10, 2008 12:51:18 PM PDT
<input type="checkbox"/>	snapshot_20080610_125124	Jun 10, 2008 12:51:28 PM PDT

In Summary...

Extending ASM to Manage ALL Data



One Integrated Solution for ALL Data

Simple

Low Cost

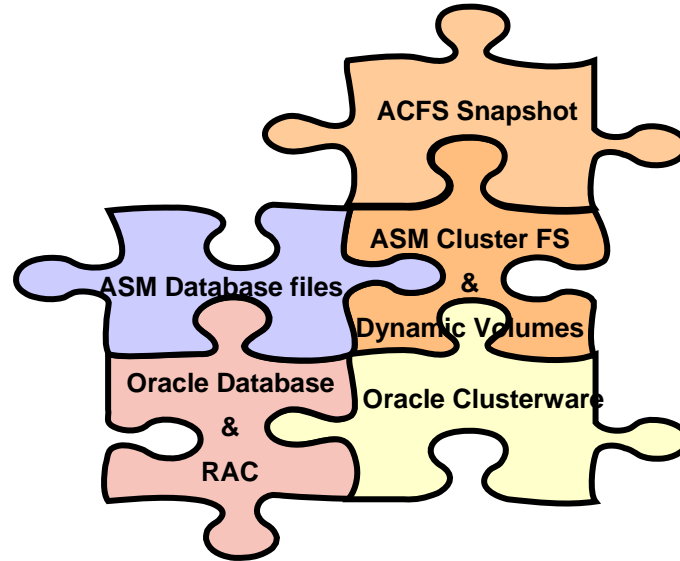
High Performance

Always On-Line

Scalable

Optimal Utilization

Un-structured Data
Structured Data



Cross Platform
Linux, Windows, Solaris,
HP-UX, AIX

- One Management Interface
- One Install and Configure
- One Clusterware Framework
- One Vendor for Support

ORACLE[®]
DATABASE **11^g**

Oracle ASM Cluster File System (demo)

Q&A

