Oracle 12c ACFS and Flex ASM

Advanced File System Technology for All

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December 2014

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Agenda

- Grid Infrastructure as a Prerequisite
- ASM Review
- Introducing "Flex ASM"
- Demonstration
- ASM instance failure in cluster
- Introducing "ASM Clustered File System" (ACFS)
- Demonstration
- Creating devices, mount file systems
- ACFS replication

Oracle Grid Infrastructure

- Oracle cluster management software
- Network management
- Volume management
- Process Management
  - Failure detection and Auto Restart
  - HA for Oracle and non-Oracle Services
- Required for
  - RAC, ASM / ACFS & Auto Restart
- License free
- http://www.oracle.com/technetwork/database/enterprise-edition/downloads/database12c-linux-download-2240591.html

The Demo Environment

- Five virtual boxes
  - Four hub nodes (iron1/2/3/4)
  - Plus one node as a DNS and DHCP server
- Full GPnP installation of a Flex Cluster
- One policy managed database
  - A server pool with two active members
  - Where are the instances? Let GI decide
- GI places resources, relocating in failure

ASM vs File System

- ASM is mature technology
- Potential $ savings
- All the usual file system features
    - Striping
    - Mirroring
    - Journaling
- But also astronomical performance
- Notable Issues:
    - No cluster capability
    - Single point of failure

12c Flex ASM

- "n" servers in the cluster run ASM
- Extent maps served over a TCP network
- Auto client failover to surviving instance
- Controllable ASM instance cardinality
  - Default: three instances
  - GI allocates based on load
- Fixes the last remaining ASM problems
  - Single point of failure
  - Required resources on every database node

ACFS

- ASM Clustered file system
- In many ways, a file system like any other (EXT3)
- POSIX and Windows compliant
- Has some nice features
  - Clusterable (obviously)
  - Snapshots
  - Replication
  - Encryption

ACFS (cont.)

- ACFS is free
    - Support has strings
    - Must use with "another" Oracle product
- Requires Grid Infrastructure
    - (also free)
- See "Cloud FS" in the Oracle Store
    - https://shop.oracle.com/pls/ostore/f?p=dstore:product:9474516311096::NO:RP%2C6:P6_LPI%2CP6_PPI:114181397110901859686929

When Is ACFS Useful?

- Database related files
  - The Oracle home
  - bfile LOBs
  - Data Pump dumps, external tables
- File systems used by applications
  - Mail servers
  - Apache web listeners
  - MySQL databases
- Anything that needs replication to a DR site
- Files where encryption is needed

To Conclude

- FlexASM
  - Removes the last issues with ASM
  - A major driver for the 12c upgrade
- ACFS
  - A powerful alternative file system technology
  - Use for database and non-database storage
  - Amazing value for the money
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