COMVERSE UNIVERSITY

SDP Preventive Maintenance

Lesson Objectives

By the end of this lesson you will be able to monitor:

- UPA basic settings and configuration monitoring
- IBM platform and environment settings
- Cluster settings
- EMC storage
- Rating performance
- UPA

Agenda

- **Basic Settings and Configuration**
- IBM Platform and Environment
- Cluster Settings
- EMC Storage
- Rating Performance
- UPA

Important Note

Please note that all checks should be performed on all SDP instances in the system.

For example:

Checking Oracle Environment:

=> sdp1a: env|grep ORACLE

```
ORACLE_BASE=/oracle/product
ORACLE_HST_SID=hist
ORACLE_SID=main
ORACLE_HOME=/oracle/product/10.2.0
```

=> sdp1b: env|grep ORACLE

```
ORACLE_BASE=/oracle/product
ORACLE_HST_SID=hist
ORACLE_SID=main
ORACLE_HOME=/oracle/product/10.2.0
```

Basic SDP Data

- Check the hostname.

  => sdp1a: hostname

```
sdp1
```

- Verify that the machine is an IBM model.

  => sdp1a: uname -M

```
IBM,8203-E4A
```

Verify Database Connectivity

Verify that Database_RG is nonconcurrent and online on the sdp1.

=> sdp1a [SDP_IBM:MACHINE_MODEL:ibm]: clRGinfo -s|grep Database_RG

```
Database_RG:ONLINE:sdp1:non-concurrent:OFAN:FNPN:NFB:ignore::: : :::
Database_RG:OFFLINE:sdp2:non-concurrent:OFAN:FNPN:NFB:ignore::: : :::
```

UPA Info (1)

Check the installed UPA packages.

=> sdp1a: cat $JBOSS_HOME/conf/version.properties| grep -v '^#'

```
base.package=4.0.1.0
command.package=4.0.1.0
configuration.package=4.0.1.0
inventory.package=4.0.1.0
job.package=4.0.1.0
monitor.package=4.0.1.0
process.package=4.0.1.0
rules.package=4.0.1.0
sysaudit.package=4.0.1.0
workflow.package=4.0.1.0
```

UPA Info (2)

Check the installed UPA version.

=> sdp1a: mshell secadmin/****** version**

```
COMMAND :

NodeClass NodeName       NodeInstance      Platform       OS Version
OS Model    OS Arch   App Version  TC     Build Count         Build Date
SDP       MAIN1          172.17.107.132    AIX            6.1
E4A         ppc       4.0.1         1.0.0  1                   06/14/2011
01:32
```

Rating Listener Instances

Verify listener instances. All instances should be READY.

=> sdp1a [SDP_IBM_Cluster:CLUSTER_STATUS:online]: lsnrctl status|grep -i instance|grep -v EXTPROC

SDP Configuration (1)

Check the specified deployment mode (should be 3 for Converged).

=> sdp1a [SDP_RATING:RATING_INSTANCE:main]: echo "set heading off\nset line 256\nset feedback off\n select INT_VALUE from system_parameters where parameter_name='DEPLOYMENT_MODE';"|sqlplus -S cbs_owner/******@main1**

```
1
```

SDP Configuration (2)

Check that this is an RT SDP.

=> sdp1a [SDP_IBM_Cluster:CLUSTER_STATUS:online]: echo 'set heading off\nset line 256\nset feedback off\n select name from v$database;'|sqlplus -S cbs_owner/******@main**

```
MAIN1
```

EMC Hosts

- Validate that the following IPs are defined: emc1, emc2

  => sdp1a: grep emc /etc/hosts| grep -v ^#

```
172.17.108.84 DAEOS-2A emc1
172.17.108.85 DAEOS-2B emc2
```

- Verify the agent revision, SW revision and memory.

  => sdp1a: navicli -h emc1 getagent

```
Agent Rev:              6.28.21 (0.39)
Name:                   K10
Desc:
Node:                   A-CKM00095002059
Physical Node:          K10
Signature:              2728159
Peer Signature:         2728206
Revision:               4.28.0.5.707
SCSI Id:                0
Model:                  CX4-120
Model Type:             Rackmount
Prom Rev:               4.60.00
SP Memory:              3040
Serial No:              CKM00095002059
```

NGScore Version

Check the NGScore version.

=> sdp1a: cat /etc/BaseOS_version

```
NextGen SDP NGSCORE V3.0                DISK#1          (Tue Feb  8
11:42:37 EST 2011)
NextGen SDP NGSCORE_ORA V3.0    ORACLE_11G_DVD#1        (Tue Feb  8
15:08:42 EST 2011)
NextGen SDP NGSCORE_ORA V3.0    ORACLE_10G_DVD#1        (Tue Jul 12
20:29:12 UTC 2011)
```

Tape Device Control Path

Verify that the control path is listed.

=> sdp1a: lsdev | grep rmt

```
rmt0            Available 06-08-00-10,0 IBM 3580 Ultrium Tape Drive
```

Site and SDP Definitions

Check that the /etc/motd file has Site and SDP definitions.

=> sdp1a: cat /etc/motd

```
*******************************************************************************
*
*  Welcome to AIX Version 6.1!
*
*
*  Please see the README file in /usr/lpp/bos for information pertinent to
*
*  this release of the AIX Operating System.
*
*                        Site: site                          *
*                              SDP1A
*
*******************************************************************************
```

Oracle Environment

Check Oracle's environment.

=> sdp1a: env|grep ORACLE

```
ORACLE_BASE=/oracle/product
ORACLE_HST_SID=hist
ORACLE_SID=main
ORACLE_HOME=/oracle/product/10.2.0
```

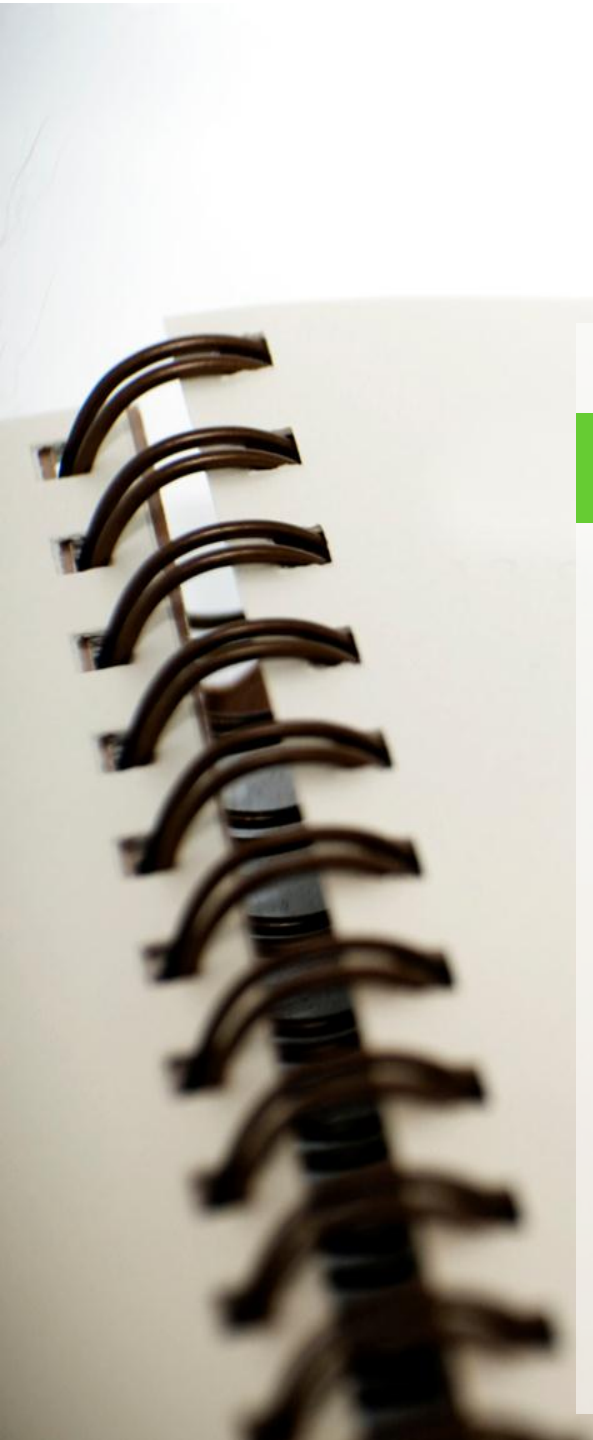
NGScore

Check which packages are installed on the nodes.

=> sdp1a: rpm -qa|grep -Ei 'CMV|RTB|CBS|comverse'|sort -n

```
CBS_AMP-3.5.50.0-1.0.0_5.0.0_1
CBS_DBC_TKS-3.5.50.0-0.0.0_9.0.0_1
CBS_DataExtract-3.5.50.0-0.0.0_10.0.0_1
CBS_PERL_AIX-587-build03.4
CBS_RATING_BATCH-3.5.50.0-1.10.0_4.1.0_1
CBS_RCS-3.5.50.0-1.10.0_5.0.0_1
CBS_RCS_DEP_LIBS-3.5.50.0-1.10.0_5.0.0_1
CBS_RCS_Rating-3.5.50.0-0.0.0_10.0.0_1
CBS_RCS_SERVER-3.5.50.0-1.10.0_5.0.0_1
CBS_RECHARGE-3.5.50.0-1.10.0_4.1.0_1
CBS_SDP-3.5.50.0-1.10.0_5.0.0_1
Comverse_CLU_Mon-1.3-1.1
Comverse_Cluster_PHA-1.0-1.2
Comverse_EMC_Upg-2.0-1.1
Comverse_NGSCORE_Upg-1.3-1.7
Comverse_Tape_Backup-3.0-1.2
```

Agenda



- Basic Settings and Configuration
- **IBM Platform and Environment**
- Cluster Settings
- EMC Storage
- Rating Performance
- UPA

System Attributes

- Verify attributes – autorestart, ent_capacity, fwversion, maxuproc, modelname, realmem

  => sdp1a: lsattr -l sys0 -E

- Verify the network parameters – Check that both nodes have equal values.

  => sdp1a: no -a|grep -v thewall

  => sdp1b: no -a|grep -v thewall

- Check the root prompt (should be like **PS1=SITEID-SDPID:hostname:$PWD#** or **PS1=SDPHWID-LPARNAME:hostname:$PWD** for DR site)
- **=> sdp1a: env|grep PS1; grep PS1 .profile**

```
PS1=Comcel_Haiti-SDP1:sdp1:$PWD#
export PS1=Comcel_Haiti-SDP1:`/usr/bin/uname -n`':$PWD# '
```

Local Host Connectivity

Verify that the ping succeeds with no loss of packets.

=> sdp1a: ping -c 20 -f localhost

```
PING loopback: (127.0.0.1): 56 data bytes
. . . . . .
----loopback PING Statistics----
20 packets transmitted, 20 packets received, 0% packet loss
round-trip min/avg/max = 0/0/0 ms
```

Firmware Level

Check the system firmware level – the following Firmware levels are acceptable: 235_185, 240_219, 240_284, 240_320. The system should be booted from the Temporary side, that is, P=240_219, T=240_284.

=> sdp1a: lsmcode -c|awk 'END{if(x[1]!=x[2])print "fw_mismatch"}{x[NR]=$8}';lsmcode -c

```
The current permanent system firmware image is EL340_101
The current temporary system firmware image is EL340_101
The system is currently booted from the temporary firmware image.
```

NTP Configuration (1)

- Verify the correct server Ips – verify that peer on sdp1 is sdp2_cross and peer on sdp2 is sdp1_cross

  => sdp1a: grep -vE "#|peer" /etc/ntp.conf;grep -i "peer" /etc/ntp.conf

```
broadcastclient
driftfile /etc/ntp.drift
tracefile /etc/ntp.trace
server  172.17.108.6    version 3
server  172.17.108.7    version 3
peer    sdp2_cross      version 3
```

- **=> sdp1b: grep -vE "#|peer" /etc/ntp.conf;grep -i "peer" /etc/ntp.conf**

```
broadcastclient
driftfile /etc/ntp.drift
tracefile /etc/ntp.trace
server  172.17.108.6    version 3
server  172.17.108.7    version 3
peer    sdp1_cross      version 3
```

NTP Configuration (2)

Extract the NTP configuration.

=> sdp1a: ntpq -p

```
remote           refid      st t when poll reach   delay   offset    disp
==============================================================================
*upm1            10.50.1.6        2 u  365 1024  377     0.31   -1.696
0.38
+ntpsrv2         10.50.1.6        2 u  612 1024  377     0.64   -1.927
0.43
+sdp2_cross      upm1             3 u  361  512  166     0.02   -1.090
7.51
```

Time-Zone Verification

Ensure that the nodes have identical TZ and date outputs.

=> sdp1a: grep TZ /etc/environment| grep -v '^#';date +"%a %b %d %H:%M %Z %Y"

```
TZ=UTC5
Wed Aug 31 17:00 UTC 2011
```

=> sdp1b: grep TZ /etc/environment| grep -v '^#';date +"%a %b %d %H:%M %Z %Y"

```
TZ=UTC5
Wed Aug 31 17:00 UTC 2011
```

Node Packages

Verify that the correct packages are installed.

=> sdp1a: lslpp -L| grep -i hacmp

```
cluster.license              5.5.0.0    C     F    HACMP Electronic License
  cluster.msg.En_US.cspoc    5.5.0.0    C     F    HACMP CSPOC Messages -
U.S.
  rsct.basic.hacmp           3.1.0.0    C     F    RSCT Basic Function
(HACMP/ES
  rsct.compat.basic.hacmp    3.1.0.1    C     F    RSCT Event Management
Basic
                                                   Function (HACMP/ES
Support)
  rsct.compat.clients.hacmp  3.1.0.0    C     F    RSCT Event Management
Client
                                                   Function (HACMP/ES
Support)
```

Volume Usage

Verify that the volume usage is at least less than 80%.

=> sdp1b: df -g

```
Filesystem    GB blocks      Free %Used    Iused %Iused Mounted on
/dev/hd4           3.00      2.67   12%     5439     1% /
/dev/hd2           7.00      3.86   45%    60241     7% /usr
/dev/hd9var        7.00      4.98   29%      826     1% /var
/dev/hd3           3.00      2.98    1%      171     1% /tmp
/dev/fwdump        1.00      1.00    1%        4     1%
/var/adm/ras/platform
/dev/hd1           0.25      0.25    1%       33     1% /home
/proc                 -         -    -         -     -  /proc
/dev/hd10opt       1.00      0.90   11%     4034     2% /opt
/dev/livedump      0.25      0.25    1%        5     1%
/var/adm/ras/livedump
/dev/oravol       20.00      9.19   55%    59467     3% /oracle
/dev/oradumpvol    3.00      3.00    1%       16     1% /oradump
```

Swap Disk Space

Verify the swap usage.

=> sdp1a: lsps -a

```
Page Space       Physical Volume   Volume Group Size %Used Active   Auto
Type Chksum
hd6              hdisk0            rootvg       32768MB     7   yes    yes
lv     0
```

Network Routes (1)

Verify that the required routes are defined (persistent). Refer to the site NDD, Network diagram and IP planning information to ensure the configurations are correct. It is important to ensure that the same amount of routes is defined in both nodes.

=> sdp1a: lsattr -El inet0|grep ^route|wc -l;lsattr -El inet0

```
4
authm          65536
Authentication Methods                True
bootup_option no
Use BSD-style Network Configuration True
gateway
Gateway                               True
hostname       sdp1
Host Name                             True
rout6
IPv6 Route                            True
route          net,-hopcount,0,-netmask,255.255.255.0,,,,,-
static,192.168.4.0,172.17.108.65  Route                                 True
route          net,-hopcount,0,-netmask,255.255.255.0,,,,,-
static,10.201.0.0,172.17.108.65   Route                                 True
route          net,-hopcount,0,,0,172.17.107.129
Route                                 True
route          net,-hopcount,0,-netmask,255.255.255.0,,,,,-
static,192.168.40.0,172.17.108.65 Route                                 True
```

Network Routes (2)

- Verify the correct routing, that is, default gateway.
- Perform manual tests to check that all networks are reachable.

  => sdp1a: netstat -nr

Network Interfaces

- Verify the Network Output Statistics, collisions and errors.

  high_error [critical] occurs when one of interfaces has 1% or higher error ratio.

  => sdp1b: netstat -ni|grep en|awk 'BEGIN{f=0}END{if(f==1)print "HighErrorPacketsRatio"}{if($6*100/$5>=1||$8*100/$7>=1)f=1}';netstat -ni

```
HighErrorPacketsRatio
Name  Mtu   Network     Address            Ipkts Ierrs    Opkts Oerrs  Coll
en9   1500  link#2      0.14.5e.e8.3a.88 104682371     0 63412543     5     0
en9   1500  11.11.11    11.11.11.2       104682371     0 63412543     5     0
en9   1500  172.17.107. 172.17.107.133   104682371     0 63412543     5     0
en8   1500  link#3      0.21.5e.79.d5.a0 10305317     0 18296371 7788546     0
en8   1500  10.134.238  10.134.238.2     10305317     0 18296371 7788546     0
en10  1500  link#4      0.21.5e.79.d5.a1 323937780     0 34101946     0     0
en10  1500  172.17.108. 172.17.108.70    323937780     0 34101946     0     0
lo0   16896 link#1                       101062724     0 101062701     0     0
lo0   16896 127         127.0.0.1        101062724     0 101062701     0     0
lo0   16896 ::1%1                       101062724     0 101062701     0     0
```

Etherchannel Configuration (1)

Verify the Etherchannel configuration.

=> sdp1a: cat /usr/ngscore/config/etherchannel.cfg|grep -v '^#'|grep 8203-E4A

```
8203-E4A          Cross    ent8    ent0,ent2          NONE     en8
8203-E4A          Hsbn     ent9    ent4               ent5     en9
8203-E4A          Admin    ent10    ent1               ent3     en10
```

Etherchannel Configuration (2)

Active channel should be primary channel, Operating Mode should be Backup Mode, Link Status Up, 1000Mbps FD

=> sdp1b: entstat -d ent9 | grep -E 'Active|Operating|ETHERNET|Link|Backup|Speed|Selected'

```
ETHERNET STATISTICS (ent9) :
Active channel: primary channel
Operating mode: Network interface backup mode
ETHERNET STATISTICS (ent4) :
Link Status : Up
Media Speed Selected: Auto negotiation
Media Speed Running: 1000 Mbps Full Duplex
Backup adapter - ent5:
ETHERNET STATISTICS (ent5) :
Link Status : Up
Media Speed Selected: Auto negotiation
Media Speed Running: 1000 Mbps Full Duplex
```

Error Logs

- Check the Console Log for errors.

  => sdp1a: alog -t console -o | tail -100

- Check the system error log – check for any active events.

  => sdp1a: errpt -D|head -50

  Use **errpt -a -j EVENT_ID** for details **or errclear -j ErrorId 0** for deleting old critical errors.

Local /dev Files

Ensure that there is no local file(s) in /dev.

=> sdp1a: ls -lrt /dev|grep '^-'

Oracle rhosts File

Check that .rhosts file has -rw-r--r-- permissions and owned by oracle8:dba

=> sdp1a: cd;ls -l .rhosts

```
-rw-r--r--   1 oracle8  dba          207 Jul 12 19:51 .rhosts
```

Check the content of .rhosts file.

=> sdp1a: cd;cat .rhosts

```
sdp1 root
sdp2 root
sdp1_admin root
sdp2_admin root
sdp1_cross root
sdp2_cross root
sdp root
sdp oracle8
sdp1 oracle8
sdp2 oracle8
sdp1_admin oracle8
sdp2_admin oracle8
sdp1_cross oracle8
sdp2_cross oracle8
```

Processor Status

Verify all the processors are installed and available.

Compare between SDP1 and SDP2.

=> sdp1a: lsdev -C -lproc*

```
proc0 Available 00-00 Processor
proc2 Available 00-02 Processor
proc4 Available 00-04 Processor
proc6 Available 00-06 Processor
```

=> sdp1b: lsdev -C -lproc*

```
proc0 Available 00-00 Processor
proc2 Available 00-02 Processor
proc4 Available 00-04 Processor
proc6 Available 00-06 Processor
```

Check the processor clock speed.

(Should be 46XX or 42XX)

=> sdp1a: prtconf -s

```
Processor Clock Speed: 4204 MHz
```

Memory Installation

Verify the installed memory.

=> sdp1a: bootinfo -r

```
32374784
```

Memory DIMM

Check the DIMM size (DIMM should have same size and amount to the total memory)

=> sdp1a: lscfg -vp |grep -E 'DIMM|Size'

```
Memory DIMM:
        Size.......................4096
      Memory DIMM:
        Size.......................4096
      Memory DIMM:
        Size.......................4096
      Memory DIMM:
        Size.......................4096
      Memory DIMM:
        Size.......................4096
      Memory DIMM:
        Size.......................4096
      Memory DIMM:
        Size.......................4096
      Memory DIMM:
        Size.......................4096
```

Agenda

- Basic Settings and Configuration
- IBM Platform and Environment
- **Cluster Settings**
- EMC Storage
- Rating Performance
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Cluster Configuration (1)

- Verify all interfaces are up and that sdp1 is reported online from both SDPs.

  => sdp1a: cldump

  => sdp1b: cldump

- Verify that both nodes (sdp1, sdp2) are listed, 3 networks (ADMIN, CROSS, HSBN), 1 Resource (Database_RG), and IP Addresses.

  => sdp1a: cltopinfo;echo "\n\n\n";cldisp

  (execution time: 12 sec)

Cluster Configuration (2)

- Verify the listed applications.

  => sdp1a: cllsappmon -t user

```
sdp_ora_ccdb
sdp_ora_hist
sdp_ora_lsnr
sdp_ora_main
sdp_ora_nmon
sdp_ora_pcat
sdp_ora_pgsp
```

- Validate that the following IPs are defined – sdp1, sdp2, sdp1_admin, sdp2_admin, sdp1_cross, sdp2_cross

  => sdp1a: grep -i sdp /etc/hosts |grep -v '^#'|awk '{print $1" "$2" "$3}'|sort

Cluster Interfaces

Verify that the correct IPs, netmasks, and that all adapters are listed.

=> sdp1a: ifconfig -a

```
en8: flags=1e080863,c0
        inet 10.134.238.1 netmask 0xffffff00 broadcast 10.134.238.255
         tcp_sendspace 131072 tcp_recvspace 65536 rfc1323 0
en9: flags=5e080863,c0
        inet 11.11.11.1 netmask 0xffffffc0 broadcast 11.11.11.63
        inet 172.17.107.132 netmask 0xffffffc0 broadcast 172.17.107.191
        inet 172.17.107.134 netmask 0xffffffc0 broadcast 172.17.107.191
         tcp_sendspace 131072 tcp_recvspace 65536 rfc1323 0
en10: flags=1e080863,c0
        inet 172.17.108.69 netmask 0xffffffc0 broadcast 172.17.108.127
        inet 172.17.108.71 netmask 0xffffffc0 broadcast 172.17.108.127
         tcp_sendspace 131072 tcp_recvspace 65536 rfc1323 0
lo0: flags=e08084b,c0
        inet 127.0.0.1 netmask 0xff000000 broadcast 127.255.255.255
        inet6 ::1%1/0
         tcp_sendspace 131072 tcp_recvspace 131072 rfc1323 1
```

Cluster Verification

Verify that no errors are reported. Warnings can be ignored

sdp1a: clconfig -v -rt -V normal

(execution time: 47 sec.)

Cluster Connectivity (1)

- Verify that the ping succeeds with no loss of packets.

  => sdp1a: ping -c 20 -f sdp1

```
PING sdp1: (11.11.11.1): 56 data bytes
. . . . . .
----sdp1 PING Statistics----
20 packets transmitted, 20 packets received, 0% packet loss
round-trip min/avg/max = 0/0/0 ms
```

=> sdp1a [SDP_IBM_Cluster:CLUSTER_STATUS:sdp2_exist]: ping -c 20 -f sdp2

```
PING sdp2: (11.11.11.2): 56 data bytes
. . . . . .
----sdp2 PING Statistics----
20 packets transmitted, 20 packets received, 0% packet loss
round-trip min/avg/max = 0/0/0 ms
```

Cluster Connectivity (2)

- Verify that the persistent ping succeeds with no loss of packets.

  => sdp1a [SDP_IBM_Cluster:CLUSTER_HOSTS:sdp2_persistent]: ping -c 20 -f sdp2_persistent

```
PING sdp2_persistent: (172.17.107.133): 56 data bytes
. . . . . .
----sdp2_persistent PING Statistics----
20 packets transmitted, 20 packets received, 0% packet loss
round-trip min/avg/max = 0/0/0 ms
```

- Verify that the cross ping succeeds with no loss of packets

  => sdp1a [SDP_IBM_Cluster:CLUSTER_HOSTS:sdp1_cross]: ping -c 20 -f sdp1_cross

```
PING sdp1_cross: (10.134.238.1): 56 data bytes
. . . . . .
----sdp1_cross PING Statistics----
20 packets transmitted, 20 packets received, 0% packet loss
round-trip min/avg/max = 0/0/0 ms
```

Cluster Connectivity (3)

- Verify that the admin ping succeeds with no loss of packets.

  => sdp1a
  [SDP_IBM_Cluster:CLUSTER_HOSTS:sdp1_admin]: ping -c 20 -f sdp1_admin

```
PING sdp1_admin: (172.17.108.69): 56 data bytes
. . . . . .
----sdp1_admin PING Statistics----
20 packets transmitted, 20 packets received, 0% packet loss
round-trip min/avg/max = 0/0/0 ms
```

- Verify that the admin persistent ping succeeds with no loss of packets.

  => sdp1a
  [SDP_IBM_Cluster:CLUSTER_HOSTS:sdp2_admin_persistent]: N/A

Cluster Volumes

- Verify that each LV is in state open/syncd:

  => sdp1a [SDP_IBM_Cluster:CLUSTER_STATUS:online]: lsvg logvg; lsvg -l logvg

  => sdp1a [SDP_IBM_Cluster:CLUSTER_STATUS:online]: lsvg bkpvg; lsvg -l bkpvg; ls -lrt /dev/bkpvol

  => sdp1a [SDP_IBM_Cluster:CLUSTER_STATUS:online]: lsvg oravg; lsvg -l oravg; ls -lrt /dev/ora8vol

Oracle Offline Node

- Verify that the /oracle/oracle8 directory is empty. Permission of file "." should be drwx--x—x.

  => sdp1b [SDP_IBM_Cluster:CLUSTER_STATUS:offline]: ls -altR /oracle/oracle8

```
total 0
drwxrwxr-x    2 root     system          256 Feb 09 2011   .
drwxr-xr-x    7 oracle8  dba             256 Feb 09 2011   ..
```

- Verify that the /backup_vol directory is empty. Permission of file "." should be drwx--x—x.

  => sdp1b [SDP_IBM_Cluster:CLUSTER_STATUS:offline]: ls -altR /backup_vol

NGScore (1)

Check the installed NGScore 2.X cluster packages.

=> sdp1a
[SDP_NGSCORE_3:NGSCORE_VERSION:score_3]: dsh -n sdp1,sdp2 rpm -qa|grep -i clu

```
sdp1: Comverse_Cluster_PHA-1.0-1.2
sdp1: Comverse_CLU_Mon-1.3-1.1
sdp2: Comverse_Cluster_PHA-1.0-1.2
sdp2: Comverse_CLU_Mon-1.3-1.1
```

NGScore (2)

Verify both nodes contain the entries for HACMP: hacmp6000, harc

=> sdp1a: cat /etc/inittab|grep cluster

```
harc:2:wait:/usr/es/sbin/cluster/etc/harc.net # HACMP for AIX network startup
hacmp:2:once:/usr/es/sbin/cluster/etc/rc.init >/dev/console 2>&1
hacmp6000:2:wait:/usr/es/sbin/cluster/etc/rc.cluster -boot -i -b -A  # Bring
up Cluster
```

=> sdp1b: cat /etc/inittab|grep cluster

```
harc:2:wait:/usr/es/sbin/cluster/etc/harc.net # HACMP for AIX network startup
hacmp:2:once:/usr/es/sbin/cluster/etc/rc.init >/dev/console 2>&1
hacmp6000:2:wait:/usr/es/sbin/cluster/etc/rc.cluster -boot -i -b -A  # Bring
up Cluster
```

Agenda

- Basic Settings and Configuration
- IBM Platform and Environment
- Cluster Settings
- **EMC Storage**
- Rating Performance
- UPA

EMC Agent Status

Verify the agent revision, SW revision and memory.

=> sdp1a: navicli -h emc2 getagent

```
Agent Rev:          6.28.21 (0.39)
Name:               K10
Desc:
Node:               B-CKM00095002059
Physical Node:      K10
Signature:          2728206
Peer Signature:     2728159
Revision:           4.28.0.5.707
SCSI Id:            0
Model:              CX4-120
Model Type:         Rackmount
Prom Rev:           4.60.00
SP Memory:          3040
Serial No:          CKM00095002059
SP Identifier:      B
Cabinet:            SPE5
```

INITTAB

Verify that both nodes contain the entries for EMC: naviagent, rcemcpower

=> sdp1a: grep -E 'emc|naviagent' /etc/inittab

```
naviagent:2:wait:/etc/rc.agent > /dev/console 2>&1
rcemcpower:2:wait:/etc/rc.emcpower set_ipldevice > /dev/console 2>&1
rcxcrypt:2:wait:/etc/rc.emcp_xcryptd xcrypt_rc >/dev/null 2>&1
```

=> sdp1b: grep -E 'emc|naviagent' /etc/inittab

```
naviagent:2:wait:/etc/rc.agent > /dev/console 2>&1
rcemcpower:2:wait:/etc/rc.emcpower set_ipldevice > /dev/console 2>&1
rcxcrypt:2:wait:/etc/rc.emcp_xcryptd xcrypt_rc >/dev/null 2>&1
```

EMC Packages

Verify that the correct packages are installed.

=> sdp1a: lslpp -L| grep -iE 'emc|navi'

```
EMC.CLARiiON.aix.rte        5.3.0.3    C     F    EMC CLARiiON AIX Support
  EMC.CLARiiON.fcp.rte        5.3.0.3    C     F    EMC CLARiiON FCP Support
  EMC.CLARiiON.ha.rte         5.3.0.3    C     F    EMC CLARiiON HA Concurrent
  EMCpower.base               5.3.0.1    C     F    PowerPath Base Driver and
  EMCpower.consistency_grp    5.3.0.1    C     F    PowerPath Consistency Group
  EMCpower.encryption         5.3.0.1    C     F    PowerPath Encryption with
RSA
  EMCpower.migration_enabler
  EMCpower.mpx                5.3.0.1    C     F    PowerPath Multi_Pathing
  NAVIAGENT                 6.28.10.3    C     F    Navisphere Disk Array
  NAVICLI                   6.28.10.3    C     F    Navisphere Disk Array
  devices.common.IBM.modemcfg.data
                                                    and configuration of EMC
and
  Comverse_EMC_Upg            2.0-1.1    C     R    RPM wrapper for
installation
                                                    and configuration of EMC
```

EMC Connectivity

- Verify that the ping succeeds with no loss of packets.
  => sdp1a: ping -c 20 -f emc1

```
PING DAEOS-2A: (172.17.108.84): 56 data bytes
. . . . . .
----DAEOS-2A PING Statistics----
20 packets transmitted, 20 packets received, 0% packet loss
round-trip min/avg/max = 0/0/0 ms
```

- Verify that no LUN is reported dirty.
  => sdp1a: navicli -h emc1 luncache -list

Hardware Status (1)

- Check the power supplies (vsc), storage processors (sp), fans and battery backup units (sps) and fiber cards (lcc).

  => sdp1a: navicli -h emc1 getcrus

- Check the information related to HBA (initiator) ports.

  => sdp1a: navicli -h emc1 port -list -hba

- Check the amount of fscsi adapters – this step used as refer for POWERPATH_PATHS verification.

  => sdp1a: lsdev|grep fscsi|wc -l;lsdev|grep fscsi

```
2
fscsi0          Available 03-00-02      FC SCSI I/O Controller Protocol Device
fscsi1          Available 05-00-02      FC SCSI I/O Controller Protocol Device
```

Hardware Status (2)

Verify disk capacity.

=> sdp1a: navicli -h emc1 getdisk -capacity -state

EMC Volume Group Verification

Check that volume groups (rootvg, arcvg, logvg, bkpvg, datavg, oravg, workvg) are listed.

=> sdp1a: lsvg

```
rootvg
Hbkpvg
Hdatavg
arcvg
bkpvg
datavg
logvg
oravg
sdp1vg
sdp2vg
workvg
```

Domain and User Information

- Check the specified domain attributes.

  => sdp1a [SDP_EMC:EMC_NAVISECCLI:domain]: naviseccli -scope 0 -user root -password ****** -h emc1 domain -list**

```
Node:                    SDP1
IP Address:              172.17.108.85
Name:                    DAEOS2-B
Port:                    80
Secure Port:             443
IP Address:              172.17.108.84 (Master)
Name:                    DAEOS2-A
Port:                    80
Secure Port:             443
```

- Check the specified security user.

  => sdp1a [SDP_EMC:EMC_NAVISECCLI:security]: naviseccli -scope 0 -user root -password ****** -h emc1 security -list**

```
Username:   root
Role:       administrator
Scope:      global
```

Event Log

Check the last events in the EMC log.

=> sdp1a: navicli -h emc1 getlog -100

EMC Cache State

Verify the cache state (all enabled) and size – read cache should be 50.

=> sdp1a: navicli -h emc1 getcache

EMC Firmware

Verify the installation of Navisphere Manager, AccessLogix, FLARE-Operating-Environment

```
=> sdp1a: naviseccli -scope 0 -user root -password ******** -h emc1 ndu -list
```

PowerPath Paths

Verify that both adapters are listed.

=> sdp1a: powermt display

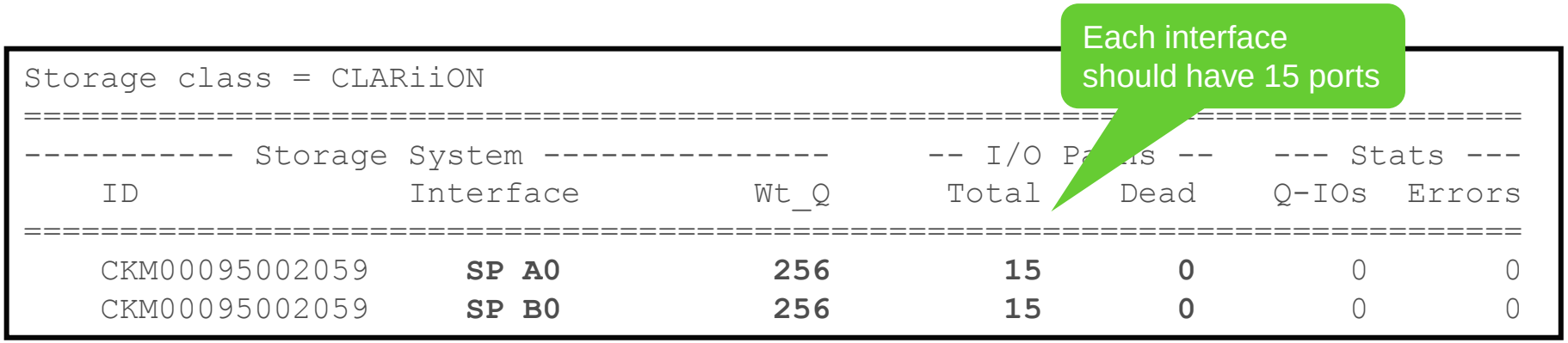
```
Symmetrix logical device count=0
CLARiiON logical device count=15
Hitachi logical device count=0
Invista logical device count=0
HP xp logical device count=0
Ess logical device count=0
HP HSx logical device count=0
============================================================================
----- Host Bus Adapters ---------  ------ I/O Paths -----  ------ Stats ------
###  HW Path                       Summary   Total   Dead  IO/Sec Q-IOs Errors
============================================================================
   0 fscsi1                        optimal      15      0       -     0      0
   1 fscsi0                        optimal      15      0       -     0      0
```

Number of I/O paths should be 15.

PowerPath Ports

Verify the interface ports.

=> sdp1a: powermt display ports




```
Storage class = CLARiiON
================================================================================
---------- Storage System --------------     -- I/O Paths --    --- Stats ---
    ID              Interface          Wt_Q      Total     Dead    Q-IOs  Errors
================================================================================
    CKM00095002059     SP A0           256         15        0        0       0
    CKM00095002059     SP B0           256         15        0        0       0
```

PowerPath Disks

Check that oravg, workvg, bkpvg, arcvg, logvg, datavg exist and are concurrent.

=> sdp1a: lspv | grep power

hdiskpower0	**00c143f54ac8b80d**	**arcvg**	**concurrent**
hdiskpower1	**00c143f54ac15e42**	**logvg**	**concurrent**
hdiskpower2	00c143f54ac64eec	logvg	concurrent
hdiskpower3	**00c143f54abfee73**	**bkpvg**	**concurrent**
hdiskpower4	00c143f54ac398f6	Hdatavg	concurrent
hdiskpower5	00c143f54ac87342	Hdatavg	concurrent
hdiskpower6	00c143f54abe61cd	Hbkpvg	concurrent
hdiskpower7	**00c143f54acb9eea**	**oravg**	**concurrent**
hdiskpower8	00c143f54ac1bd93	sdp1vg	
hdiskpower9	**00c143f54acb0eb3**	**datavg**	**concurrent**
hdiskpower10	00c143f54abe5bf4	Hdatavg	concurrent
hdiskpower11	00c143f54ac38cd6	Hdatavg	concurrent
hdiskpower12	00c143f54ac5c2e1	bkpvg	concurrent
hdiskpower13	**00c143f54acc2c31**	**workvg**	**concurrent**
hdiskpower14	00c143f54ac6e099	sdp2vg	

Agenda

- Basic Settings and Configuration
- IBM Platform and Environment
- Cluster Settings
- EMC Storage
- **Rating Performance**
- UPA

Important Note

- Please note that the commands in the following diagrams use the MAIN database as an example.

- The commands should be modified as per the specific database being checked.

Listener Processes

- Verify that the Listener process is running on the active node.

  => sdp1a [SDP_IBM_Cluster:CLUSTER_STATUS:online]:
  ps -ef | grep -i tnslsnr| grep -v grep

```
oracle8 36897160        1   0   Jul 14      - 26:25
/oracle/product/10.2.0/bin/tnslsnr listener_sdp1 -inherit
```

- Verify that the Listener process is not running on the standby node.

  => sdp1b [SDP_IBM_Cluster:CLUSTER_STATUS:offline]:
  ps -ef | grep -i tnslsnr| grep -v grep

Database Definitions

- Check the history DB name.

  => sdp1a [SDP_IBM_Cluster:CLUSTER_STATUS:online]: echo 'set heading off\nset line 256\nset feedback off\n select name from v$database;'|sqlplus -S cbs_owner/******@main**

```
MAIN1
```

- Check that the table local_server_id is filled in correctly.

  => sdp1a [SDP_IBM_Cluster:CLUSTER_STATUS:online]: echo 'set heading off\nset line 256\nset feedback off\n select * from local_server_id;'|sqlplus -S cbs_owner/******@main**

```
9 172.17.107.132                main1                           main1
```

Time Zone Verification

- Verify that the Time Zone is correct.

  => sdp1a [SDP_IBM_Cluster:CLUSTER_STATUS:online]: echo 'set heading off\nset line 256\nset feedback off\n select DBTIMEZONE from dual;'|sqlplus -S cbs_owner/******@main**

```
-05:00
```

Database Configuration (1)

- Verify that no invalid objects are present.

  => sdp1a [SDP_IBM_Cluster:CLUSTER_STATUS:online]: echo "set heading off\nset line 256\nset feedback off\n select object_name,object_type from user_objects where status='INVALID';"|sqlplus -S cbs_owner/******@main**

- Verify that all data files are **ONLINE**.

  => sdp1a [SDP_IBM_Cluster:CLUSTER_STATUS:online]: echo 'set heading off\nset line 256\nset feedback off\n column file_name format a40\n select file_name, status, online_status, tablespace_name, bytes from dba_data_files order by file_name;'|sqlplus -S system/******@main**

Database Configuration (2)

- Verify that no disabled constraints are present.

  => sdp1a [SDP_IBM_Cluster:CLUSTER_STATUS:online]: echo "set heading off\nset line 256\nset feedback off\n select constraint_name,table_name from user_constraints where status not like 'ENABLED';"|sqlplus -S cbs_owner/******@main**

- Verify the DB parameters.

  => sdp1a [SDP_IBM_Cluster:CLUSTER_STATUS:online]: echo 'set heading off\nset line 256\nset feedback off\n show parameter;'|sqlplus -S system/******@main**

- Verify the DB environment parameters.

  => sdp1a [SDP_IBM_Cluster:CLUSTER_STATUS:online]: cat /staging/billing/envSetting.env|grep -v '^#'

Critical Database Parameters (1)

- Check that the Rating packages are installed on both nodes.

  => sdp1a [SDP_IBM_Cluster:CLUSTER_STATUS:online]: dsh -n sdp1,sdp2 rpm -qa|grep -iE 'CLU_Mon|RATING|CBS'

  => sdp1b [SDP_IBM_Cluster:CLUSTER_STATUS:online]: N/A

- Verify the following are listed – sdp_ora

  => sdp1a: cllsserv|grep sdp_ora

```
sdp_ora       /opt/sdpmon/scripts/sdp_ora_start
/opt/sdpmon/scripts/sdp_ora_stop
sdp_ora_env   /usr/bin/true                          /usr/bin/true
```

Critical Database Parameters (2)

Verify the following are listed:

- sdp_ora_hist
- sdp_ora_lsnr
- sdp_ora_main
- sdp_ora_nmon
- sdp_ora_pgsp

=> sdp1a: cllsappmon -t user

```
sdp_ora_ccdb
sdp_ora_hist
sdp_ora_lsnr
sdp_ora_main
sdp_ora_nmon
sdp_ora_pcat
sdp_ora_pgsp
```

Volume Groups

Verify each LV is in state open/syncd:

=> sdp1a [SDP_IBM_Cluster:CLUSTER_STATUS:online]:
lsvg Hbkpvg; lsvg -l Hbkpvg; ls -lrt /dev/Hbkpvol

=> sdp1a [SDP_IBM_Cluster:CLUSTER_STATUS:online]:
lsvg workvg; lsvg -l workvg; ls -lrt /dev/workvol

=> sdp1a [SDP_IBM_Cluster:CLUSTER_STATUS:online]:
lsvg datavg; lsvg -l datavg

Database Usage

Check tablespace usage.

```
=> sdp1a [SDP_IBM_Cluster:CLUSTER_STATUS:online]:
echo 'set heading off\nset line 256\nset feedback off\nset
heading on\n SELECT d.tablespace_name
"Tablespace",ROUND(d.usedsz/1024/1024,0) "Size MB",
ROUND(d.maxsz/1024/1024,0) "Max Size
MB",ROUND((d.usedsz-f.freesz)/1024/1024,0) "Used
MB",ROUND(100*(d.usedsz-f.freesz)/d.maxsz,2) "Used %"
FROM (SELECT tablespace_name,
SUM(DECODE(maxbytes,0,bytes,maxbytes)) maxsz,
SUM(bytes) usedsz FROM dba_data_files GROUP BY
tablespace_name) d,(SELECT tablespace_name, SUM(bytes)
freesz FROM dba_free_space GROUP BY tablespace_name) f
WHERE d.tablespace_name = f.tablespace_name (+) ORDER
BY 5 DESC;'|sqlplus -S system/********@main| grep -v UNDO
```

Database Backup

Verify the last backup level0 status.

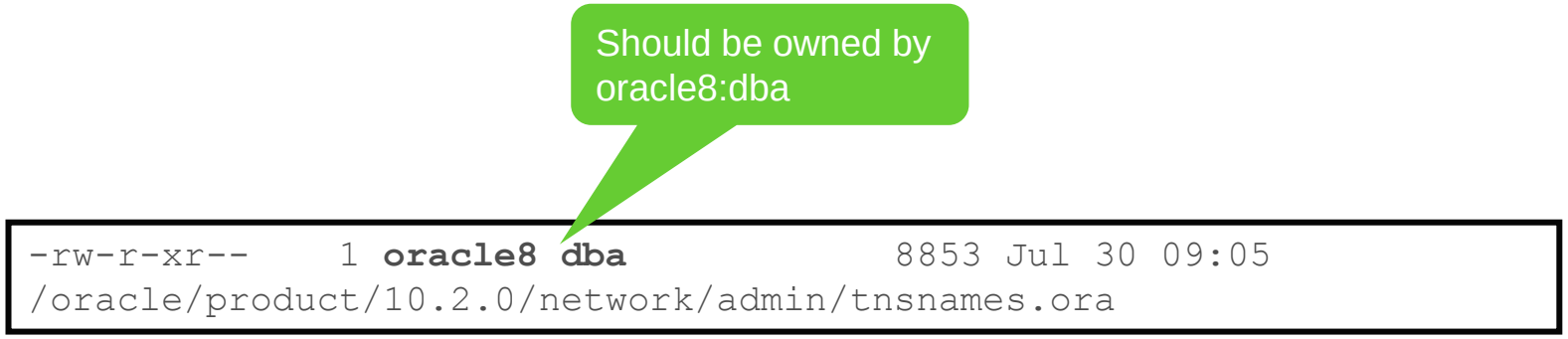
=> sdp1a
[SDP_IBM_Cluster:CLUSTER_STATUS:online]: cat /backup_vol/current/main/backup2tape/backup_l0.status

```
2011-08-31
BACKUP_STARTED=2011-08-31 00:01:18
BACKUP_COMPLETED=2011-08-31 00:05:48
RESTORE_TIMESTAMP=2011-08-31 00:04:23
STATUS=0
```

TNSNames Settings (1)

- Check tnsnames file settings.

  => sdp1a: ls -lrt $ORACLE_HOME/network/admin/tnsnames.ora



- Check tnsnames file content.

  => sdp1a: cat $ORACLE_HOME/network/admin/tnsnames.ora|grep -v '^#'

TNSNames Settings (2)

Verify that tnsping to the specified database succeeds.

=> sdp1a [SDP_IBM_Cluster:CLUSTER_STATUS:online]: tnsping main1

```
TNS Ping Utility for IBM/AIX RISC System/6000: Version 10.2.0.5.0 -
Production on 31-AUG-2011 17:03:27

Copyright (c) 1997,  2010, Oracle.  All rights reserved.

Used parameter files:

Used TNSNAMES adapter to resolve the alias
Attempting to contact (DESCRIPTION= (ADDRESS_LIST=
(ADDRESS=(PROTOCOL=TCP)(HOST=sdp1)(PORT=1521))
(ADDRESS=(PROTOCOL=TCP)(HOST=sdp2)(PORT=1521)))
(CONNECT_DATA=(SERVICE_NAME=main)))
OK (0 msec)
```

Real-Time Processes

Verify that rcs_batch was executed today.

=> sdp1a [SDP_IBM_Cluster:CLUSTER_STATUS:online]: find /staging/billing/data/log -name ure_batch* -mtime -1 -exec ls -l {} \;

```
-rw-rw-r--    1 cbsuser  users       3572247 Aug 31 00:12
/staging/billing/data/log/ure_batch_rcb010.log_20110831001122
-rw-rw-r--    1 cbsuser  users      10485753 Aug 31 00:12
/staging/billing/data/log/ure_batch_rcb010.log_20110831001122.1
-rw-rw-r--    1 cbsuser  users      10485746 Aug 31 00:11
/staging/billing/data/log/ure_batch_rcb010.log_20110831001122.2
-rw-rw-r--    1 cbsuser  users      10485731 Aug 31 00:11
/staging/billing/data/log/ure_batch_rcb010.log_20110831001122.3
-rw-rw-r--    1 cbsuser  users      10485754 Aug 31 00:11
/staging/billing/data/log/ure_batch_rcb010.log_20110831001122.4
-rw-rw-r--    1 cbsuser  users         14607 Aug 31 00:11
/staging/billing/data/log/ure_batch_rcb011.log_20110831001122
```

Agenda

- Basic Settings and Configuration
- IBM Platform and Environment
- Cluster Settings
- EMC Storage
- Rating Performance
- **UPA**

UPA Configuration (1)

- Check the UPA Maintenance Mode.
  => sdp1a: mshell secadmin/****** maintenance_mode**

```
COMMAND :
Site name NodeClass NodeName        NodeInstance       Message
Voila     SDP       MAIN1           172.17.107.132     Maintenance Mode
is disabled
```

Should be disabled

- Verify that inttab contains the msa_agent entry.
  => sdp1a: cat /etc/inittab|grep msa_agent

```
msa_agent:2:wait:/usr/local/jboss/bin/agent start
```

UPA Configuration (2)

- Validate that the IP for sdp/sdp_db/sdp_app is defined.
  => sdp1a: grep -i sdp /etc/hosts |grep -v '^#'

- Verify that the agent is running on the node.
  => sdp1a: mshell secadmin/****** status**

- Verify monitors are enabled and that there is no blackout.
  => sdp1a: mshell secadmin/****** list_monitors**

- Verify if any core files are generated.
  => sdp1a: find $JBOSS_HOME -name 'core*'|grep -v jar

UPA Configuration (3)

- Verify the clu_rg_info.pl command output.

  => sdp1a: /usr/ngscore/tools/clu_rg_info.pl

```
Database_RG::ONLINE::sdp,172.17.107.134;sdp1_persistent,172.17.107.13
2;sdp2_persistent,172.17.107.133:sdp_admin,172.17.108.71;,;,
```

Database_RG should exist

- Check the UPA application's properties.

  => sdp1a: cat $JBOSS_HOME/conf/application.properties $JBOSS_HOME/conf/envsetting.properties| grep -v '^#'

UPA Configuration (4)

Verify the defined UPA parameters.

=> sdp1a: grep wrapper.java.additional $JBOSS_HOME/conf/wrapper.conf| grep -v '^#'

Active Events on UPA

Check the active events.

=> sdp1a: mshell secadmin/****** list_active_events**

Critical event detected, please take care.

Major event detected, please take care.

```
COMMAND :

SiteID          NodeClass           NodeName       EventID
Severity  Instance                      TimeStamp              Escalated
Acknowledged
voila           SDP                 MAIN1          FTP_SEND_10.201.0.9
WARNING   *.GZ                          03:10:01 08/31/2011   no              no
voila           SDP                 MAIN1          ALERT_JOB_TAPE_BACKUP
CRITICAL  TAPE_BACKU                    00:22:14 08/31/2011   no              no
voila           SDP                 MAIN1          ALERT_JOB_DWH_ALARMS
MAJOR     DWH_ALARMS                    18:00:01 08/30/2011   no              no
voila           SDP                 MAIN1          ALERT_FS_ORACLE
MAJOR     ORACLE                        17:03:03 08/30/2011   no              no
voila           SDP                 MAIN1          ALERT_MON_TABLESPACE
CRITICAL  PCAT:ADM_DEFLT_DAT            15:10:40 08/30/2011   no              no
voila           SDP                 MAIN1          ALERT_JOB_CHECK_SLAVE_REG
MAJOR     CHECK_SLAVE_REG               14:30:01 08/30/2011   no              no
```

UPA Jobs and Processes (1)

- Verify that the defined jobs and tasks are enabled and that there is no blackout.

  => sdp1b [SDP_IBM_Cluster:CLUSTER_STATUS:offline]: mshell secadmin/****** list_jobs**

- Verify that the jobs and tasks are enabled on the ONLINE node.

  => sdp1a [SDP_IBM_Cluster:CLUSTER_STATUS:online]: mshell secadmin/****** list_jobs**

- Verify that workflows are enabled on the ONLINE node.

  => sdp1a [SDP_IBM_Cluster:CLUSTER_STATUS:online]: mshell secadmin/****** list_workflows**

UPA Jobs and Processes (2)

Verify that the processes are enabled and running on the node.

=> sdp1a [SDP_IBM_Cluster:CLUSTER_STATUS:online]:
mshell secadmin/****** list_processes**

```
COMMAND :
Process Listing

SiteID          NodeClass  NodeName        NodeInstance       Group         Name
Pid       State    Status        Type              ModuleName        StartTime
Valid              ServerID

VOILA           sdp        main1           172.17.107.134     application
sdsagent             27787316  ENABLED  running       non-instrumented  --
13:45:53 08/30/2011  VALID                 --

VOILA           sdp        main1           172.17.107.134     application
tsprcs01_0           41615794  --       running       instrumented-continuous
TSPRCS         --                    --                  0

VOILA           sdp        main1           172.17.107.134     application
rcs01_9              11927834  --       running       instrumented-continuous
RCS            --                    --                  9
```

UPA Connectivity

Verify that tnsping to the specified database succeeds.

=> sdp1a [SDP_UPA_3_RT:UPA_APPLICATION:serverdef]: tnsping main1

```
TNS Ping Utility for IBM/AIX RISC System/6000: Version 10.2.0.5.0 - Production
on 31-AUG-2011 17:03:51

Copyright (c) 1997,  2010, Oracle.  All rights reserved.

Used parameter files:


Used TNSNAMES adapter to resolve the alias
Attempting to contact (DESCRIPTION= (ADDRESS_LIST=
(ADDRESS=(PROTOCOL=TCP)(HOST=sdp1)(PORT=1521))
(ADDRESS=(PROTOCOL=TCP)(HOST=sdp2)(PORT=1521)))
(CONNECT_DATA=(SERVICE_NAME=main)))
OK (0 msec)
```

Summary

This lesson has covered monitoring of:

- UPA basic settings and configuration
- IBM platform and environment settings
- Cluster settings
- EMC storage
- Rating performance
- UPA

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