

# WELCOME

Oracle 11gR2@Windows  
Almost Maximum Availability

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28th Sep 2011

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# About me ..

- Consultant at Trivadis, Düsseldorf
- Working with Oracle since 1998
  - Development
  - Support
  - Database Administration
- Working at Trivadis since 2010
- Focus
  - Oracle HA
  - Oracle Enterprise Manager
  - Oracle@Windows
  - Cloud Computing



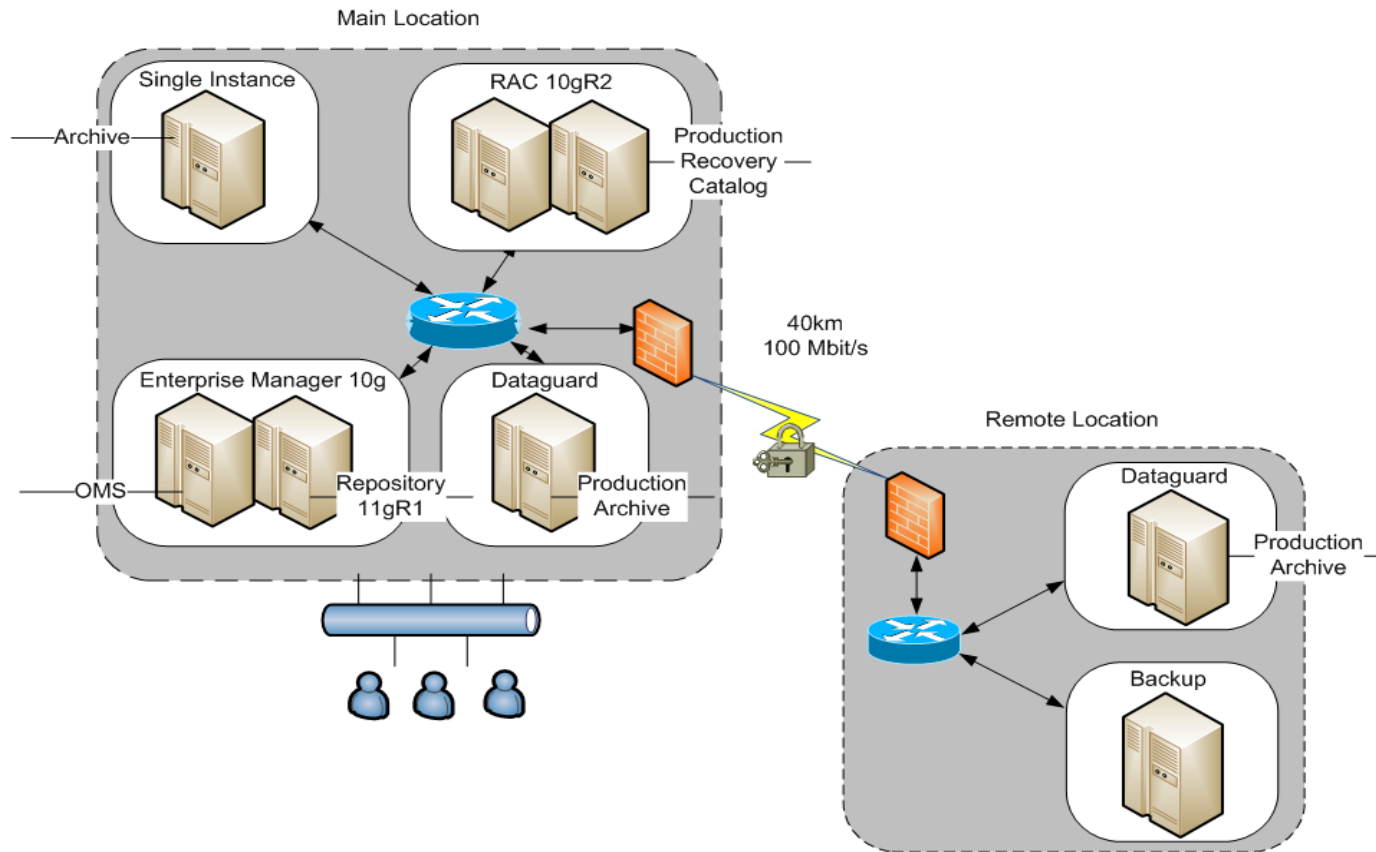
# AGENDA

1. Overview
  - Situation
  - Goal
2. 1<sup>st</sup> Try
3. New Plan
4. Setup
5. Conclusion

# Overview: Situation

- Windows 2003 IA64
- RAC 10gR2 (10.2.0.3)
- Physical Standby on main location
- Physical Standby on remote location (40km)
- Oracle Enterprise Manager 10g (2xVM Windows 32/64Bit)
- Recovery Catalog on RAC
- 2x DB instances Production/Archive (30GB/200GB)

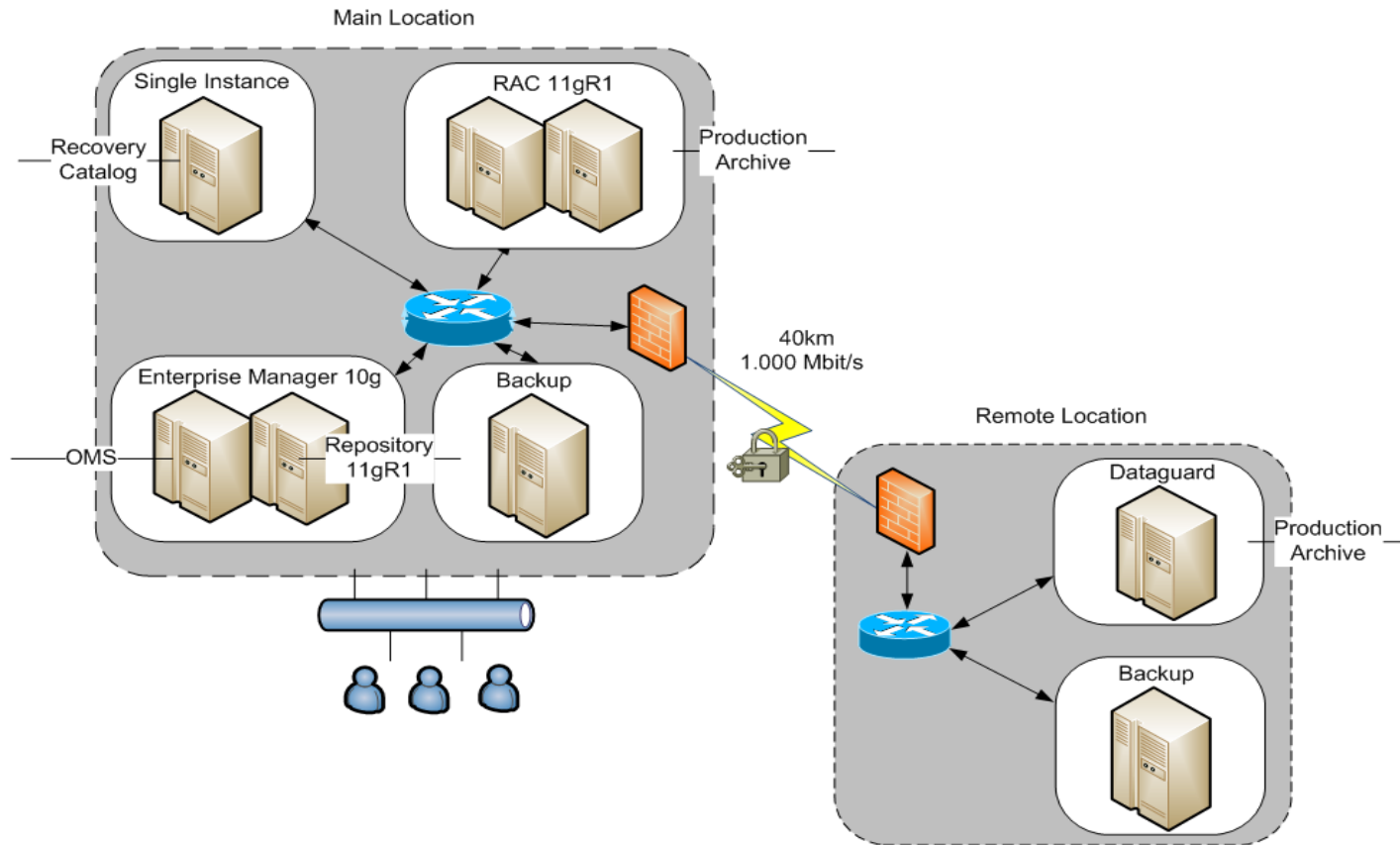
# Overview: Situation



# Overview: Goal

- Migration 11gR1 Windows 2008 R2 x86-64
- RAC 11gR1 (11.1.0.7)
- Physical Standby on remote destination (40km)
- Oracle Enterprise Manager 10g (2xVM Windows 32/64Bit)
- Dedicated Recovery Catalog

# Overview: Goal



# AGENDA

1. Overview
2. 1<sup>st</sup> Try
  - Extended disk partitions & UEFI
  - Windows 2008 R2 & Clusterware 11.1.0.7
3. New Plan
4. Setup
5. Conclusion



# 1st Try: Extended disk partitions & UEFI

- Bug within Windows 2008 R2
- Extended disk partitions will be recognize as UEFI partitions
  - <http://support.microsoft.com/kb/982929/en-US>
  - <http://support.microsoft.com/kb/2223832/>
- Patch must be installed before installing the OS
- ASM must be installed on extended disk partitions

# 1st Try: Windows 2008 R2 & Clusterware 11.1.0.7

- Bug caused ONS to die every 16 hours
- RDBMS 11.1.0.7 is certified
- Clusterware 11.1.0.7 is not certified with Windows 2008 R2!
  - Database 11g Release 2 Certification Highlights (Doc ID 1065024.1)
  - Statement of Direction: Oracle Database 11g Release 2 - Microsoft Windows 7 and Windows Server 2008 R2 [ID 867040.1]

# AGENDA

1. Overview
2. 1<sup>st</sup> Try
3. **New Plan**
  - Upgrade to Oracle 11gR2?
  - Downgrade to Win 2008?
  - New Goal
4. Setup
5. Conclusion

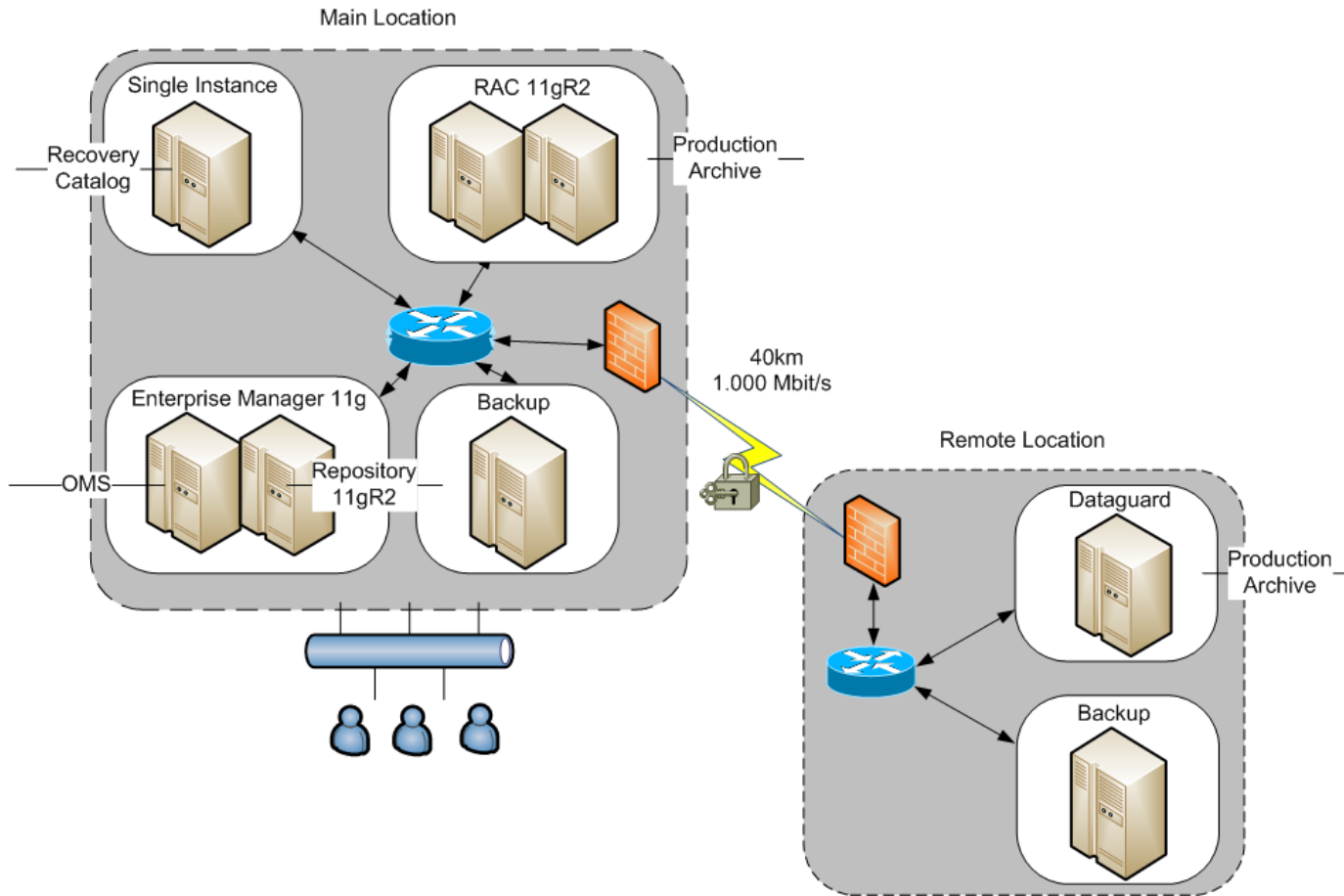
# New plan: Upgrade to Oracle 11gR2?

- +Latest technology and features
- +Long period of support
- 1<sup>st</sup> Release (bugs?!)
- Not much knowledge in all organisations
- No experiences with configuration and stability

# New plan: Downgrade to Win 2008?

- +stable software release Oracle & Windows
- +Good knowledge and experience with 11.1.0.7
- System must run 5 years (support roadmap?)

# New plan: New Goal



# AGENDA

1. Overview
2. 1<sup>st</sup> Try
3. New Plan
4. Setup
  - Enterprise Manager
  - OS
  - Grid Infrastructure
  - Dataguard
  - IPv6
5. Conclusion

# Setup: Enterprise Manager

- EM must be upgraded to Version 11g
- Weblogic Server Version 10.3.2 is mandatory
- Check EM Repository Backup!
- Check OMS Backup!
- Apply all Patches to EM



# Setup: Lesson learned - Enterprise Manager

- ASM disk in VMware will be having trouble with snapshots
- Never trust backups you did not do on your one!
- Check Snapshot Space (VMware)
- How to recover and open the database if the archivelog required for recovery is either missing, lost or corrupted? [ID 465478.1]

# Setup: OS: Oracle User

- Oracle user must be local admin
- Oracle user should be a domain user
- User Account Control = "Elevate without prompting (tasks requesting elevation will automatically run as elevated without prompting the administrator)"

# Setup: OS: Local Policy Setting

- Act as Part of the Operation System
- Back up files and directories
- Log on as a Service
- Log on as a batch job
- Manage auditing and security log
- Restore files and directories

# Setup: OS: Settings

- Disable Screen Saver
- Adjust for best Performance
- Region & Language: English
- Disable Windows Firewall
- Allow Remote and RPC connections
- Disable/Check Scalable Networking Pack
- Stop Service: Distributed Transaction Coordinator (MSDTC)
- Disable energie saving mode

# Setup: OS: Environment

- Registry (HKLM\software\oracle\...)
  - Will be set within Windows services
- OS Advanced Settings -> System Environment
  - Unsupported
  - Do not use within Oracle DB Products
- OS Advanced Setting -> User Environment
  - If you really think it is a good idea?
- CMD Shell
  - System and User Environment will be set to your shell
  - BasEnv will be a good choice to handle your Environment
- Do not start or stop Oracle processes with CLI!
  - Use crsctl/srvctl and net start/stop

# Setup: OS: Registry 1/3

- Media Sense

```
HKLM\System\CurrentControlSet\Services\Tcpip\Parameters  
DisableDHCPMediaSense = 1
```

- SNP (Scalable Networking Pack) check if it is required

```
HKLM\SYSTEM\CurrentControlSet\Services\Tcpip\Parameters  
DisableTaskOffload = 1  
EnableTCPChimney = 0  
EnableTCPA = 0  
EnableRSS = 0
```

# Setup: OS: Registry 2/3

- TCP Tuning

```
HKLM\SYSTEM\CurrentControlSet\Services\Tcpip\Parameters\  
Interfaces\  
TcpAckFrequency = 1  
TcpNoDelay = 1
```

Be careful!

Others would be happy to receive network resources as well.

# Setup: OS: Registry 3/3

- NTP Time Service

```
HKLM\SYSTEM\CurrentControlSet\Services\W32Time\Config  
MaxNegPhaseCorrection = 0
```

```
cmd> w32tm /config /update
```



# Setup: OS: Cluster Filesystem

- ACFS is not supported with 11.2.0.1
- OCFS does not work, no write permission to %WINDOWS%/system32
- ACFS is the preferred Cluster Filesystem?!
- ACFS is supported within 11.2.0.2

# Setup: OS: ASM disks

- ASM disks must be on extended partitions
- Setup with diskpart
- Disks for a diskgroup should be of the same size
- Drop volume labels
- Stamp disks with ASMTTOOLG (GI\_HOME/bin)

# Setup: OS: ASM diskpart

- Creating extended logical partitions

```
C:\>diskpart
List disk
Select disk 1
Create part ext
Create part log
```

- Dropping volume labels

```
C:\>diskpart
List volume
Select volume 1
Remove
```

# Setup: Grid Infrastructure: ORACLE\_HOME

- Every Node: 1x ORACLE\_HOME for GRID\_IF and ASM
- Every Node: 1x ORACLE\_HOME for RDBMS
- GRID\_IF\_HOME must not be in ORACLE\_BASE

# Setup: Grid Infrastructure: Config

- SCAN just works with 11.2 Clients
- SQLNET.AUTHENTICATION\_SERVICES= (NTS) is mandatory
- Cluster resource name (ora.sid.db) must be equal DB\_UNIQUE\_NAME

```
crsctl status resource ora.sid.db -p  
NAME=ora.sid.db  
TYPE=ora.database.type  
DB_UNIQUE_NAME=sid_side1
```

```
crsctl status resource ora.sid_side1.db -p  
NAME=ora.sid_side1.db  
TYPE=ora.database.type  
DB_UNIQUE_NAME=sid_side1
```

# Setup: Grid Infrastructure: If Setup Fails

- Check shared disk access
- Check DNS
- Check IP and Subnet addresses (typos)
- OCR and Voting disks must be min. 3GB in size
- Disable Management Information Base Network Interface Cards in OS (problem with setting up GI)

# Setup: Grid Infrastructure: Known Problems

- Reboot of both nodes will cause duplicated IP error (ARP CACHE) (fixed within 11.2.0.2)
- BUG in Patch Bundle 4-13 DBCA, ASMCA and Cluvfy will not work (fixed within 11.2.0.2)
- Check Resource Name = DB\_UNIQUE\_NAME

# Setup: Dataguard 1/2

- Setting up DG with EM11g is easy and works (6x "Next")
- Make use of Oracle Restart (DG Side)
- Check config with dgmgrl
- DGConnectIdentifier Bug max. 16 Char
- LISTENER and TNSNAMES configuration must be checked



# Setup: Dataguard 2/2

- Set Windows SID service to manual

```
Oradim -edit ... -startmode m
```

- Beware of accidentally activating Active Standby Database

```
Alter database open;
```

- Set "startmode" in CW and OR resources

## Setup: IPv6 1/4

- IPv6 is not supported within RAC!

But check yourself:

```
cmd>ping localhost
Pinging racserver1 [::1] with 32 bytes of data:
Reply from ::1: time<1ms
Reply from ::1: time<1ms
Reply from ::1: time<1ms
Reply from ::1: time<1ms
```

Ups!

## Setup: IPv6 2/4

Once again:

```
Cmd>ping racserver1
Pinging racserver1 [fe80::51f0:4057:54b7:2687%13] with
32 bytes of data:
Reply from fe80::51f0:4057:54b7:2687%13: time<1ms
Reply from fe80::51f0:4057:54b7:2687%13: time<1ms
Reply from fe80::51f0:4057:54b7:2687%13: time<1ms
Reply from fe80::51f0:4057:54b7:2687%13: time<1ms
```

I have to go...

## Setup: IPv6 3/4

- Oracle required: Disable IPv6
- Microsoft required: Do not disable IPv6!

Now we are in trouble!

# Setup: IPv6 4/4

- Set IPv4 prefix policies

```
HKLMA\SYSTEM\CurrentControlSet\Services\Tcpip6\Parameters  
DisabledComponents = 0x20
```

- How to disable certain Internet Protocol version 6 (IPv6) components in Windows Vista, Windows 7, and Windows Server 2008
  - <http://support.microsoft.com/kb/929852>

This is not validated by Oracle (yet) but works for me!

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  - Pro & Cons
  - Project Status
  - Help

# Conclusion: Pros & Cons

- +Windows is better as expected for some time now
- +DG management with EM11g works fine
- +HA on Windows is possible
- first version of 11g Release 2 Database, a lot of bugs
- Less documentation and experience in community
- Environment management with Windows is not easy
- More and more complex technology and setup
- Virus scanner and Oracle are not good friends

# Conclusion: Project Status

- Setup is on duty for a year now
- no serious incident(s)



# Conclusion: Help

- Life-Safer
  - TVD-BasEnv
    - Flexible Environment Handling
    - <http://www.trivadis.com/produkte/datenbank-tools/tvd-basenvtm.html>
  - DD for Windows
    - <http://www.chrysocome.net/dd>
- References & Support
  - RAC Assurance Support Team: RAC and Oracle Clusterware Starter Kit and Best Practices (Generic) [ID 810394.1]
  - Feel free to ask!

# THANK YOU.

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