



EE → SE1 Oracle RDBMS

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Foto: Siobhan Bickerdike

Agenda

- **Wieso auf SE1 umsteigen?**
 - 86% Sparen über 5 Jahre
 - Gibt es hier versteckte Kosten?

- **Brauchen meine Applikationen wirklich EE?**
 - Wie kann ich das herausfinden?

- **Wie kann ich migrieren?**
 - Wie komme ich hin?

- **Was muss ich sonst ändern?**
 - extra Tools nötig...

- **Fazit**

Anders betrachten...

■ Statt mehr EE Lizenzen kaufen

- 3PT Juli 2013
- Alle DBs virtualisieren
- 5 x 10.2
- 15 x 11.2
- Unterlizenziert
- Vielleicht SE1?



Foto: Siobhan Bickerdike

Wieso EE → SE1 migrieren?

- SE1 Lizenzen muss ich kaufen
- Aber, minus Supportkosten Unterschied über 5 Jahre!

		Rabatt	Support 22%	Support Kosten pro Jahr	Ersparnis in 1te Jahr
# Oracle Server	20	20%	Listpreis		
# CPUs	2				
# Cores	8				
Core Factor	0,5				
EE CPU	34.200 €	0,2	7.524 €	1.203.840 €	1.167.091 €
SE1 CPU	4.176 €	0,2	919 €	36.749 €	
EE Licence	4.377.600 €				
SE1 Licence	133.632 €				

<http://www.oracle.com/us/corporate/pricing/technology-price-list-070617.pdf>
0,72 Euro = 1 dollar

Versteckte Kosten?

■ Hardware tauschen?

- Max 4 Sockets SE
- Max 2 Sockets SE1
- Chance ergreifen, Migration auf Virtuell Maschinen?

■ Ganze Umgebung betrachten

- Backup / Recovery Skripte ändern
- Monitoring
- *Performanz* Tools?
- 8PT

Brauche ich wirklich EE?

■ Options (24)

- HA, OLAP, RAT
- Partitioning
- Komprimierung
- Sicherheit
- Spatial
- Multitenant
- In-Memory
- ...

```
[oracle@deffbslor03 licence]$  
./licence_software.sh  
detect oracle version  
List Oracle software options installed:  
-----  
Context Management Text = ON  
Oracle Label Security = OFF  
Oracle Database Vault = OFF  
Oracle OLAP = OFF  
Oracle Partitioning = OFF  
Oracle Data Mining = OFF  
Oracle Real Application Testing = OFF  
Oracle Real Application Cluster = OFF  
Oracle ASM = OFF  
[oracle@deffbslor03 licence]$
```

<http://www.oracle.com/us/products/database/enterprise-edition/comparisons/index.html>

<http://www.oracle.com/us/products/database/options/overview/index.html>

MOS Notes 1069015.1, 942406.1, 948061.1, 942406.1



Brauche ich wirklich EE?

■ Wie?

- Hersteller
- Entwickler
- Skripte

■ Features

- Parallel
- TTS
- MV
- VPD
- Table compression
- Bitmap Index
- B/R langsamer



Benutze ich wirklich EE?

Option/Management Pack	Used	DBID	DB Name	DB Version
Host Name	ReportGen Time			
Active Data Guard sles11prim	NO 2014-05-07 14:11:14	1348741218	ORCL	12.1.0.1.0
Advanced Compression sles11prim	NO 2014-05-07 14:11:14	1348741218	ORCL	12.1.0.1.0
Advanced Security sles11prim	NO 2014-05-07 14:11:14	1348741218	ORCL	12.1.0.1.0
Change Management Pack sles11prim	NO 2014-05-07 14:11:14	1348741218	ORCL	12.1.0.1.0
Configuration Management Pack for Oracle Database sles11prim	NO 2014-05-07 14:11:14	1348741218	ORCL	12.1.0.1.0
Data Masking Pack sles11prim	NO 2014-05-07 14:11:14	1348741218	ORCL	12.1.0.1.0

MOS DOC ID 1309070.1

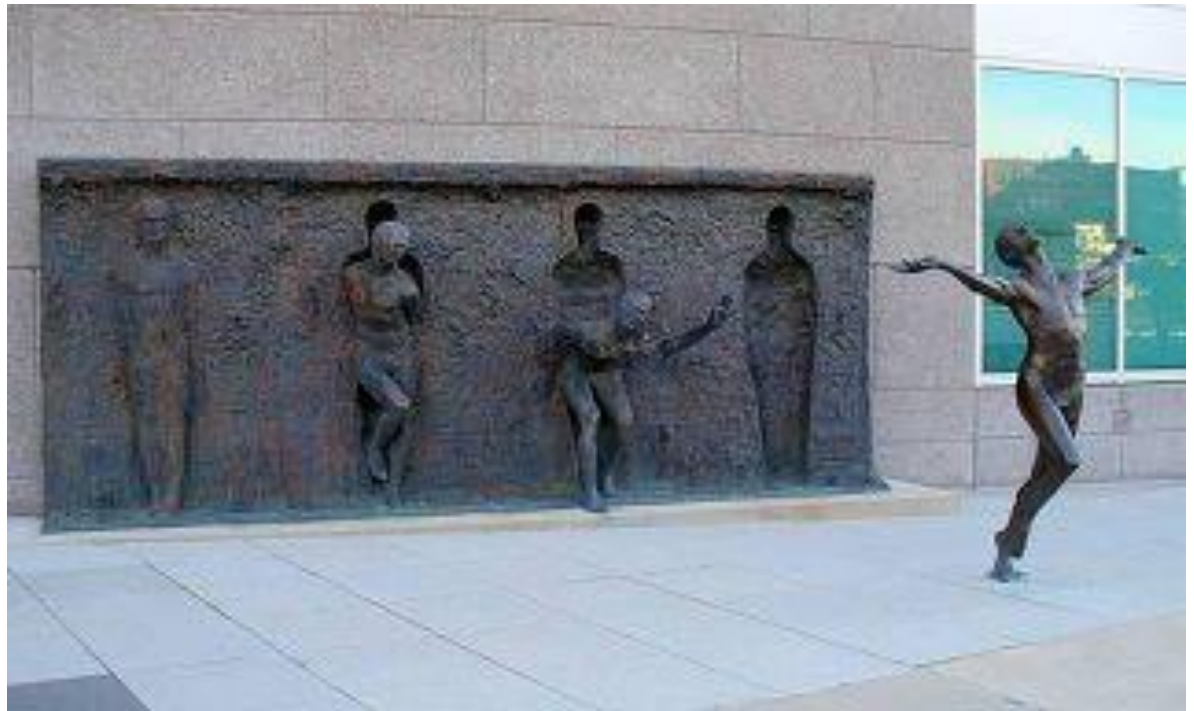
Wie kann ich migrieren?

■ Supported

- Exp/imp
- Expdp/impdp
- Impdp dblink

■ Impdp dblink

■ Expdp (Long)



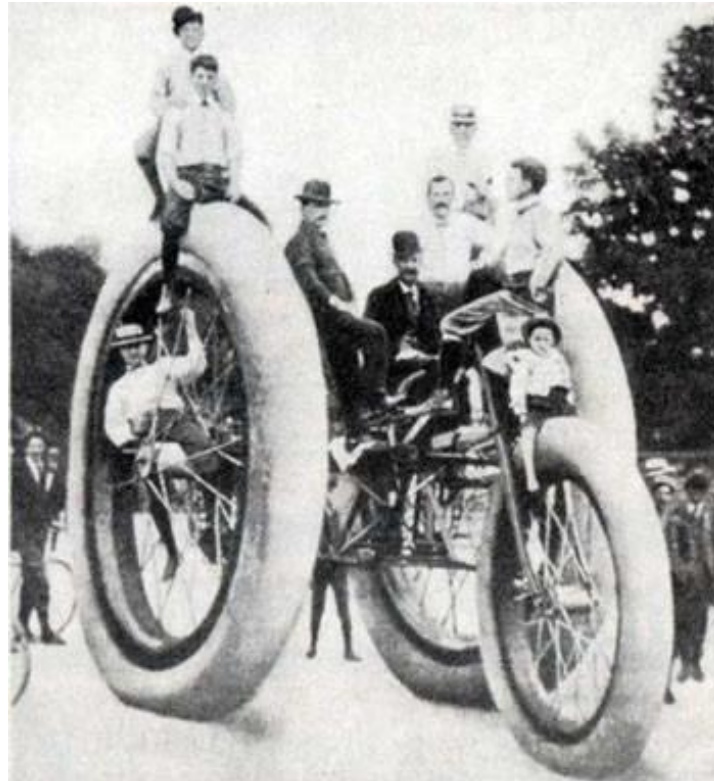
Wie komme ich hin?

■ Auf dem alten Server

- User anlegen
 - Für DB Link
- Andere DB Links?
- Character set
- Longs?
 - Expdp if Longs

■ Neuen Server

- Virtuuell
- Gleiche CS
- Testmigration
- Listener Port Änderung für Go-Live



Wie komme ich hin?

- **Auf dem neuen Server**
 - DB Link anlegen, prüfen
 - Welche Schemata?
 - Erstellen
 - Roles, Grants
 - Tablespaces
 - Profiles
 - Directories
 - Benutzer
 - OPS Benutzer
 - Public Synonyms
 - User grants
 - Import über DB Link
 - Recompile
 - Import prüfen



Welche Benutzer?

```
LIST_OF_USERS=('ANONYMOUS','APEX_030200','APEX_040200','APEX_LISTENER','APPQOSSYS','CTXSYS','DBSNMP','DIP','DMSYS','EXFSYS','FLOWS_FILES','LACYEXT','MDDATA','MDSYS','MIGRATE_USER','MGMT_VIEW','PERFSTAT','OLAPSYS','ORACLE_OCM','ORDDATA','ORDPLUGINS','ORDSYS','ORDDATA','OUTLN','OWBSYS','OWBSYS_AUDIT','PUBLIC','SCOTT','SI_INFORMTN_SCHEMA','STDBY','SYS','SYSMAN','SYSTEM','TSMSYS','WMSYS','XDB','XS$NULL')
```

```
select listagg(username, ',') within group (order by username)
from dba_users@migrate_dblink
where username not like 'OPS$%'
and username not in ${LIST_OF_USERS}
and username in (select distinct owner from dba_objects@migrate_dblink)
and account_status = 'OPEN'
order by 1;
```

10.2 kein listagg →

<http://www.oracle-base.com/articles/misc/string-aggregation-techniques.php>

Benutzer Passwort?

```
select 'create user ' || name || ' identified by values ' || chr(39) || spare4 || ';' || password || chr(39) ||';'
from sys.user\$_@migrate_dblink
where type# = 1
and password is not null and spare4 is not null
and name not like 'OPS$%'
and name not in ${LIST_OF_USERS}
union
select 'create user ' || name || ' identified by values ' || chr(39) || password || chr(39) ||';'
from sys.user\$_@migrate_dblink
where type# = 1
and password is not null and spare4 is null
and name not like 'OPS$%'
and name not in ${LIST_OF_USERS}
union
select 'create user ' || name || ' identified by values ' || chr(39) || spare4 || chr(39) ||';'
from sys.user\$_@migrate_dblink
where type# = 1
and password is null and spare4 is not null
and name not like 'OPS$%'
and name not in ${LIST_OF_USERS}
order by 1;
```



Tablespace erstellen

```
if my_rownum > 1 then
```

```
    -- db_string:='alter tablespace ' || chr(34) || my_tablespace_name || chr(34) || ' add datafile size ' ||  
my_bytes || ';';
```

```
    db_string:='alter tablespace ' || chr(34) || my_tablespace_name || chr(34) || ' add datafile ' || chr(39) ||  
replace(replace(my_file_name, '/un03/oradata/${ORACLE_OLD_SID}', '/u03/oradata/${ORACLE_SID}'),  
'/un01/oradata/${ORACLE_OLD_SID}', '/u03/oradata/${ORACLE_SID}') || chr(39) || ' size ' || my_bytes || ';';
```

```
    dbms_output.put_line(db_string);
```

```
else
```

```
    select count(*) into my_count from dba_data_files where tablespace_name=my_tablespace_name;
```

```
    if my_count > 0 then
```

```
        db_string:='commit';
```

```
        dbms_output.put_line(db_string);
```

```
        db_string:='drop tablespace ' || chr(34) || my_tablespace_name || chr(34) || ' including contents and  
datafiles cascade constraints;';
```

```
        dbms_output.put_line(db_string);
```

```
    end if;
```

```
db_string:='create tablespace ' || chr(34) || my_tablespace_name || chr(34) || ' datafile ' || chr(39) ||  
replace(replace(my_file_name, '/un03/oradata/${ORACLE_OLD_SID}', '/u03/oradata/${ORACLE_SID}'),  
'/un01/oradata/${ORACLE_OLD_SID}', '/u03/oradata/${ORACLE_SID}') || chr(39) || ' size ' || my_bytes || ';';
```

```
    dbms_output.put_line(db_string);
```

```
end if;
```

Impdp DB-Link

```
# added VERSION=LATEST to the impdp to avoid error ORA-39021
```

```
# necessary when compatible on source is e.g. 11.2.0.3.5 (with last PSU number filled in)
```

```
impdp "/ as sysdba"
```

```
DIRECTORY=${THE_DATAPUMP_DIR}
```

```
logfile=importdp_${ORACLE_SID}.log
```

```
NETWORK_LINK=migrate_dblink
```

```
SCHEMAS=${TESTIT} VERSION=LATEST | tee -a
```

```
$LOG_OUTPUT
```


Impdp (expdp – Long)

```
# added VERSION=LATEST to the impdp to avoid error ORA-39021
```

```
# necessary when compatible on source is e.g. 11.2.0.3.5 (with last PSU number filled in)
```

```
impdp "/ as sysdba"
```

```
DIRECTORY=${THE_DATAPUMP_DIR}
```

```
dumpfile=${DUMPY_FILE}
```

```
logfile=LOG_DIR:importdp_${ORACLE_SID}.log
```

```
job_name=Import_${ORACLE_SID}_xx parallel=1
```

```
SCHEMAS=${TESTIT} | tee -a $LOG_OUTPUT
```

Was muss ich sonst ändern?

■ Backup / Recovery

- langsamer
- Incremental (EE)

■ Monitoring

- EMCC
- Nagios

■ Performanz

- Kein AWR, alternativ?



Fazit

■ **Positiv**

- Kosten senken
- Oracle Audit...

■ **Negativ**

- Entwicklungskosten-> alternative Lösungen VPD
- Extra Kosten-> EE & SE1 Lizenzen & Support sind zeitweise gleichzeitig nötig
- Auswirkung-> Performance Maintenance Window
- Monitoring-> durch Oracle Enterprise Manager eingeschränkt
- Performanz

Fragen



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