

Backup konsolidacija

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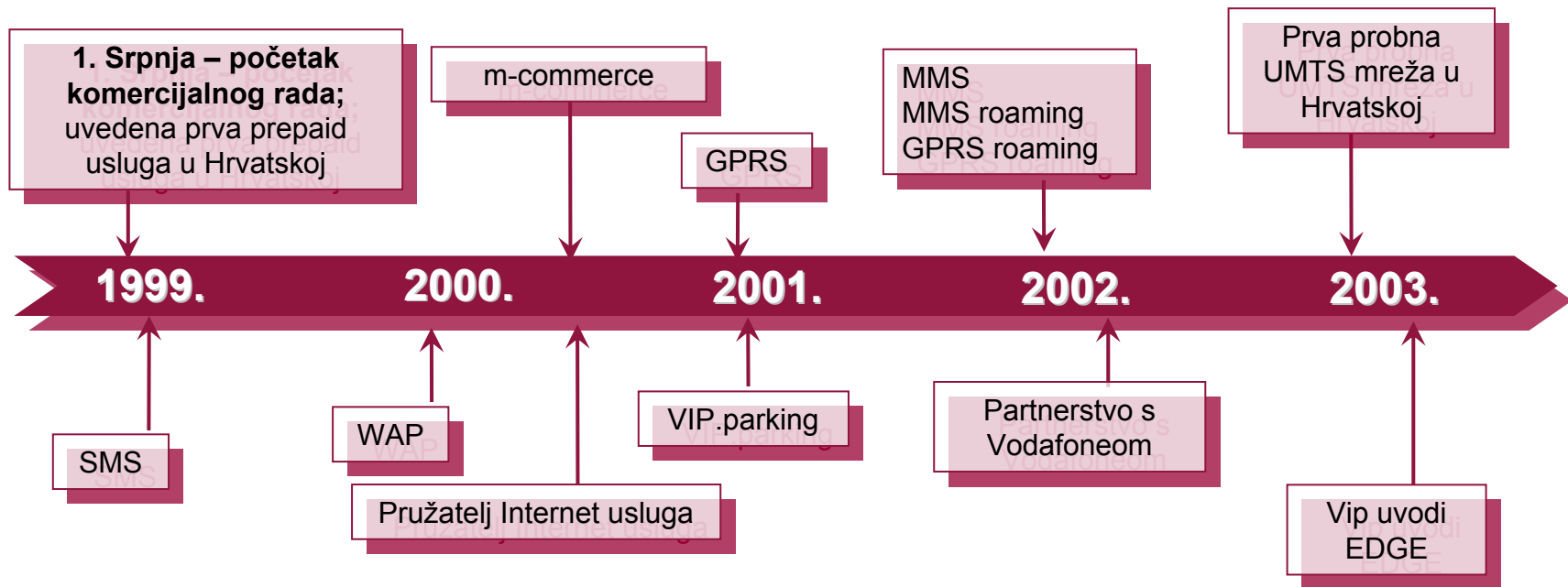
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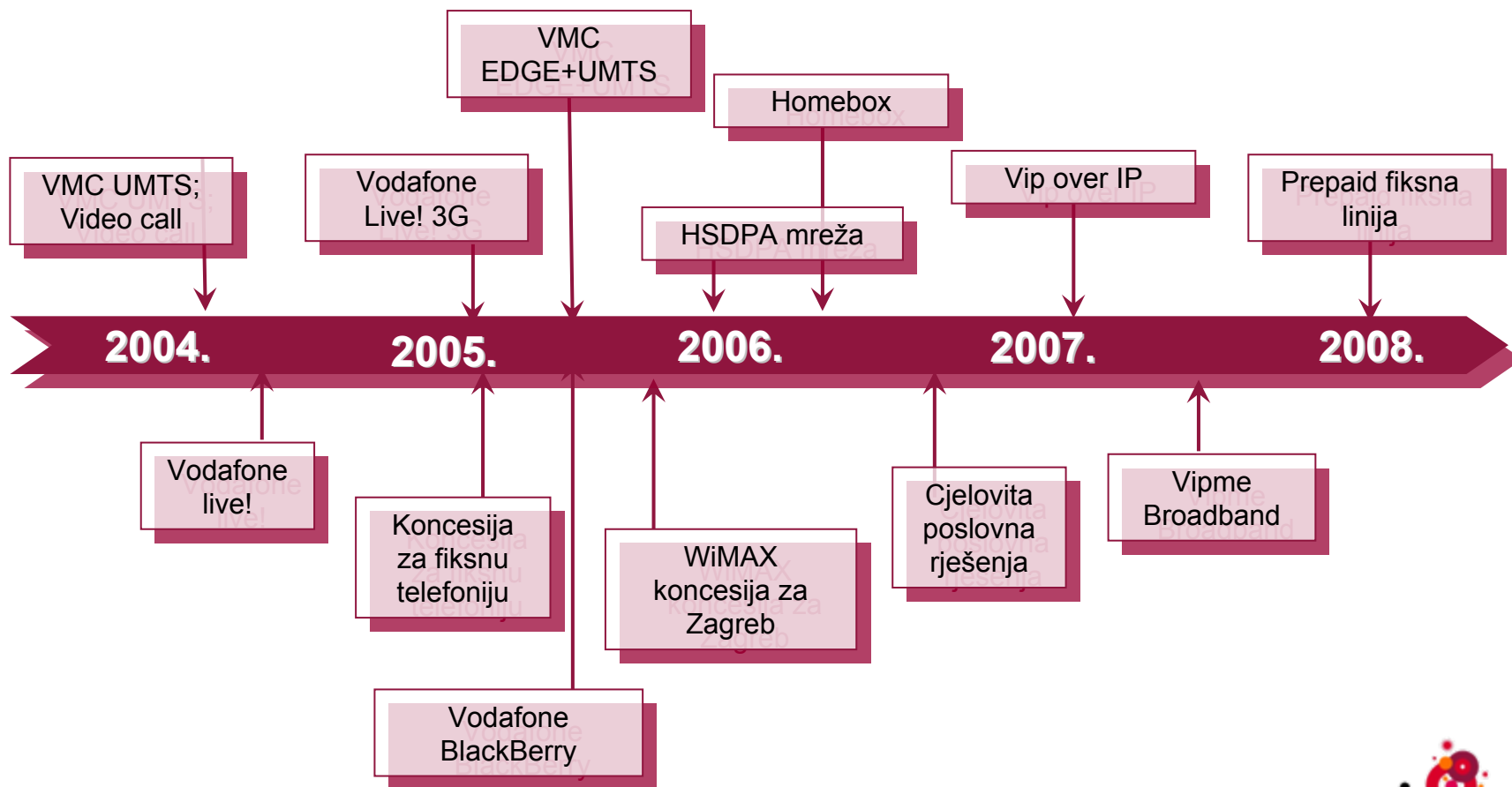
- > Početak komercijalnog rada (srpanj 1999.)
- > Vodeći inovator u Hrvatskoj
- > mobilkom austria je stopostotni vlasnik



Lider u inovacijama 1999-2003



Lider u inovacijama 2004-2008



SNT – vodeći povezivatelj sustava



- > **Dio Enterprise Systems odjela, slažemo infrastrukturna rješenja za IT podatkovna središta**
- > **Područja djelovanja:**
 - > IT objedinjavanje, virtualizacija, seljenje podataka
 - > Upravljanje životnim tijekom podataka: diskovni podsustavi, pohrana, obnova, oporavak, dugotrajna pohrana (arhiva)
 - > Nastavak poslovanja (BC), oporavak nakon ispada (DR), sigurnost podataka, ITIL, IDM
 - > Podatkovna središta: povezivanje i klasteriranje, nadzor i upravljanje sustavima

- > Jedan 4-čvorni klaster HPUX – projekt objedinjavanje Vipnet i S&T Hrvatska d.o.o. (preduvjet za ovaj projekt)
- > Dva 2-čvorna klastera AIX
- > Dva high-end diskovna podsustava (HP XP12000)
- > TSM sustav za pohranu
- > Više od 60 baza, od kojih neke po nekoliko TB
- > Pohrana na datotečnoj razini, vrlo sporo, značajno usporava produkciju
- > 3 različita načina pohrane
- > Nema jasne potvrde da je pohrana uspjela

Prije - nastavak



- > HP OpenView nadzorni sustav
- > Nema nadzora nad promjenama
- > Nema mogućnosti provjere pohranjenog
- > ...

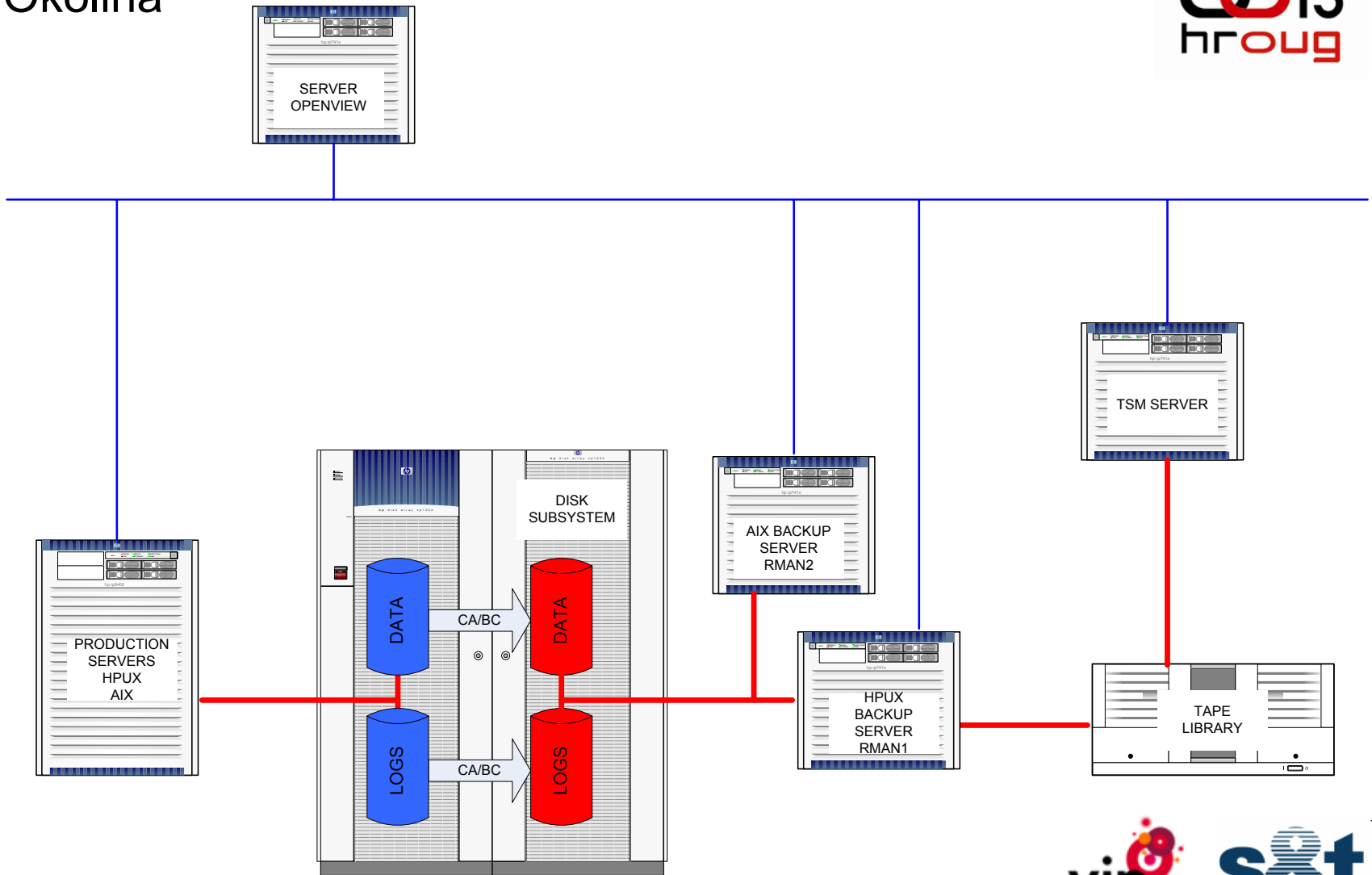


Ciljevi



- > Premjestiti backup s produkcije
- > Jednostavna provjera pohranjenih podataka
- > Izvještavanje o backupima
- > Alarmiranje u slučaju neuspjelog backupa
- > Dnevni izvještaji
- > Smanjenje broja backup licenci





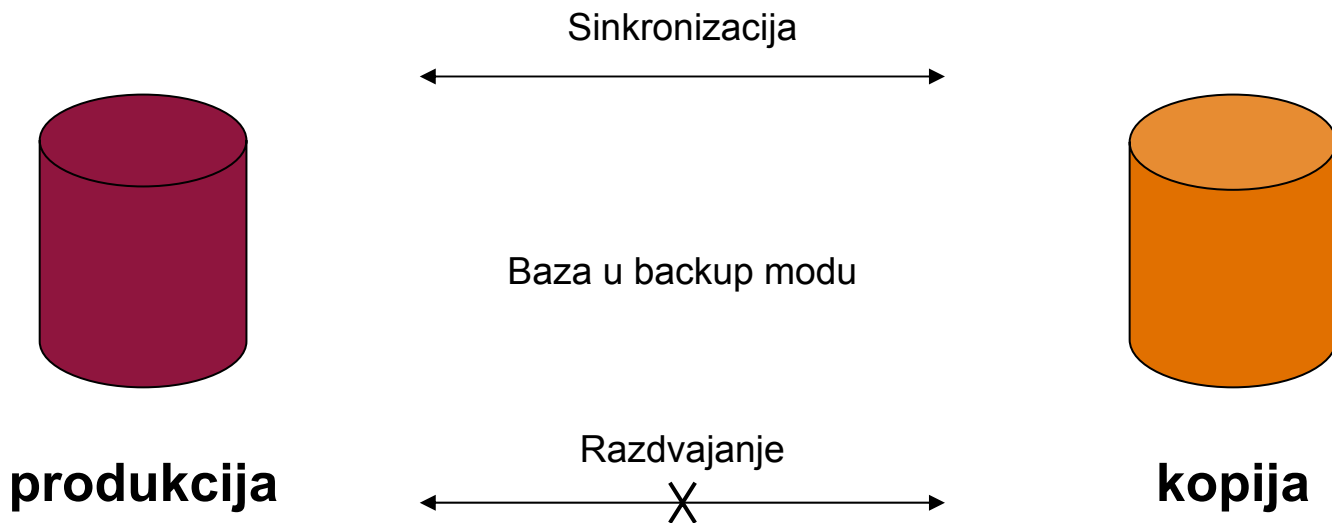
Tijek podataka pri potpunoj pohrani



- > **Potpuna pohrana (full backup):**
- > Odvojiti datotečne sustave na pohrambenom poslužitelju
- > Osvježiti podatke i logičke dnevnike (archive/og)
- > Tablične prostore staviti u pohrambeni način (begin backup) i napraviti dva *bcf*
- > Odvojiti podatke i logičke dnevnike – nekoliko sekundi
- > Tablične prostore vratiti u redovni način (end backup)
- > Spojiti datotečne sustave na pohrambenom poslužitelju
- > Produkcijaska baza osvježava RMAN katalog zadnjim stanjem



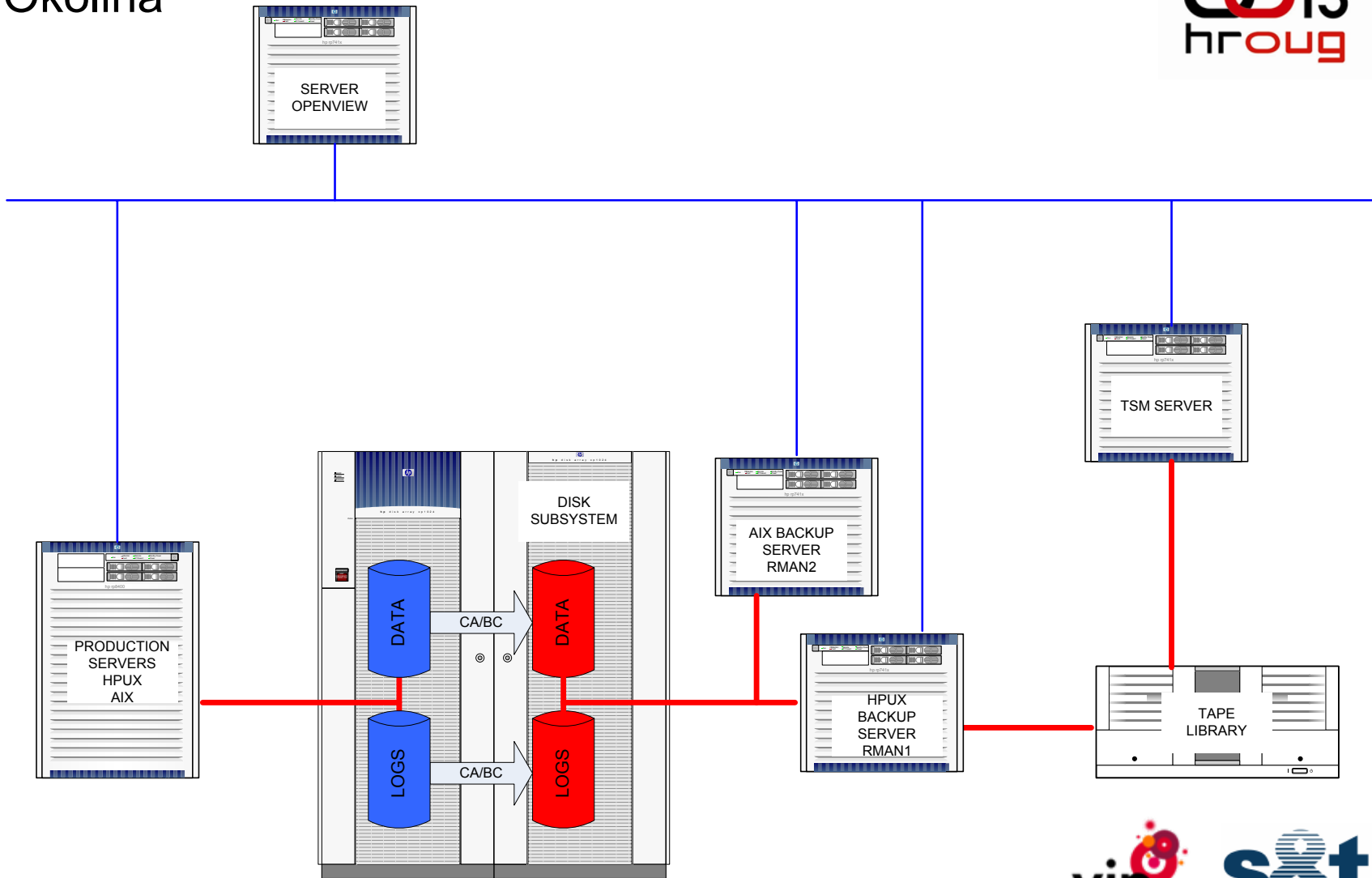
Novo backup rješenje



Pohrana na trake



- > Na pohrambenom poslužitelju **startup mount** koristeći jednu *bcf* izrađenu na produkciji
- > Spajanje na RMAN katalog, koji vjeruje da je to produkcijska baza
- > Full backup korištenjem druge *bcf* izrađene na produkciji
- > Spajanje na drugi RMAN katalog
- > Izrada skripti za obnovu/oporavak
- > Obavijest u HP OpenView i zaustavljanje baze
- > Slanje e-pisma administratorima (u tijelu poruke su i skripte za obnovu i oporavak – pogodne za copy-paste)



Tijek podataka – logički dnevnici (archivelog)



- > Logički dnevnici:
- > Odvajanje datotečnih sustava s logičkim dnevnicima na pohrambenom poslužitelju
- > Osvježavanje diskova s logičkim dnevnicima
- > Izmjena trenutnog logičkog dnevnika (log switch)
- > Odvajanje diskova s logičkim dnevnicima
- > Spajanje diskova na pohrambenom poslužitelju
- > Produkcijska baza osvježava RMAN katalog zadnjim stanjem i briše istekle logičke dnevnike



Tijek podataka – logički dnevnici (archivelog) nastavak



- > Na pohrambenom poslužitelju **startup mount** koristeći jednu *bcf* izrađenu na produkciji
- > Spajanje na RMAN katalog, koji vjeruje da je to produkcijska baza
- > Pohrana arhiviranih logičkih dnevnika korištenje druge *bcf* s produkcije
- > Spajanje na drugi RMAN katalog
- > Obavijest u HP OpenView i zaustavljanje baze
- > Slanje e-pisma administratorima



Provjera pohranjenog



- > Eto, imamo podatke na vrpcama - lijepo
- > Možemo li ih vratiti?
- > Možemo li zadovoljiti RPO, RTO, SLA i slične kratice?
- > Uzmete zadnje e-pismo od full backup, na dnu ćete naći pune putanje da skripti za restore/recovery, copy/paste na terminal (ne treba postavljati ORACLE_SID i druge postavke, sve je u skripti za dotičnu bazu)



Provjera mogućnosti obnove/oporavka

Pokretanje skripte



- > oracle@axpbckp:/home/oracle> /usr/local/restore/ASMPBOB/restore_and_recovery_until.ASMPBOB.sh
- > This is script for FULL RESTORE and RECOVERY until TIME for database ASMPBOB
- > You must be oracle to perform operation
- > **Would you like to start? <y|n> (y): y**
- > Continuing
- > 20080922-14:14:07: Let us startup database ASMPBOB in nomount state
- > SQL*Plus: Release 10.2.0.3.0 - Production on Mon Sep 22 14:14:09 2008
- > Copyright (c) 1982, 2006, Oracle. All Rights Reserved.
- > Connected to an idle instance.
- > ORACLE instance started.
- > Total System Global Area 520093696 bytes
- > Fixed Size 2074056 bytes
- > Variable Size 150997560 bytes
- > Database Buffers 360710144 bytes
- > Redo Buffers 6311936 bytes
- > Disconnected from Oracle Database 10g Enterprise Edition Release 10.2.0.3.0 - 64bit Production
- > With the Partitioning, OLAP and Data Mining options
- > 20080922-14:14:17: Database ASMPBOB started



Izbor kataloga



> Choose rman1 or rman2:

> rman2

> 20080922-14:14:20: Repository rman2 choosed

> connected to target database: ASMPBOB (not mounted)

> connected to recovery catalog database

> RMAN>

> List of Backups

> =====

> Key TY LV S Device Type Completion Time #Pieces #Copies Compressed Tag

> -----

>	134563419	B	0	A	SBT_TAPE	20.09.2008:23:25:56	1	1	NO	ASMPBOB_FULL_20080920-23:22
>	134563421	B	0	A	SBT_TAPE	20.09.2008:23:30:57	1	1	NO	ASMPBOB_FULL_20080920-23:22
>	134568600	B	A	A	SBT_TAPE	21.09.2008:00:00:03	1	1	NO	ASMPBOB_ARCH_20080920-23:59
>	134568601	B	F	A	SBT_TAPE	21.09.2008:00:00:26	1	1	NO	ASMPBOB_CTRL_20080920-23:59
>									
>	135169446	B	A	A	SBT_TAPE	22.09.2008:11:00:04	1	1	NO	ASMPBOB_ARCH_20080922-10:59
>	135169447	B	F	A	SBT_TAPE	22.09.2008:11:00:26	1	1	NO	ASMPBOB_CTRL_20080922-10:59

> RMAN>



Brisanje ORL



- > Recovery Manager complete.
- > **Would you like to delete OnlineRedoLogs? <y|n> (y):**
- > Continuing
- > This is list of ORLs /db/ASMPBOB/redoctl01/redo01_1.log /db/ASMPBOB/redoctl02/redo01_2.log /db/ASMPBOB/redoctl01/redo02_1.log /db/ASMPBOB/redoctl02/redo02_2.log /db/ASMPBOB/redoctl01/redo03_1.log /db/ASMPBOB/redoctl02/redo03_2.log /db/ASMPBOB/redoctl01/redo04_1.log /db/ASMPBOB/redoctl02/redo04_2.log
- > **Would you like to remove it? <y|n> (y):**
- > Continuing
- > **Please choose time in format DD.MM.YYYY:HH24:MI:SS 21.09.2008:10:00:00**
- > 20080922-14:15:16: **Your choice is 21.09.2008:10:00:00**
- > Recovery Manager: Release 10.2.0.3.0 - Production on Mon Sep 22 14:15:17 2008
- > connected to target database: ASMPBOB (not mounted)
- > connected to recovery catalog database



Restore - obnova



- > RMAN> run
- > 2> {
- > 3> allocate channel t1 type 'sbt_tape' parms
'ENV=(TDPO_OPTFILE=/usr/tivoli/tsm/client/oracle/bin64/ASMPBOB_tdpo.opt)';
- > 4> SET UNTIL TIME = '21.09.2008:10:00:00';
- > 5> restore controlfile to '/tmp/controlASMPBOB.ctrl';
- > 6> replicate controlfile from '/tmp/controlASMPBOB.ctrl';
- > 7> sql "alter database mount";
- > 8> restore database;
- > 9> recover database;
- > 10> release channel t1;
- > 11> }
- > 12>
- > allocated channel: t1



Control file - obnova



- > channel t1: sid=47 devtype=SBT_TAPE
- > channel t1: Data Protection for Oracle: version 5.4.1.0
- > executing command: SET until clause
- > Starting restore at 22.09.2008:14:15:19
- > channel t1: starting datafile backupset restore
- > channel t1: restoring control file
- > output filename=/tmp/controlASMPBOB.ctrl
- > channel t1: reading from backup piece CTRL_ASMPBOB.03jr4tdi_1_1
- > channel t1: restored backup piece 1
- > piece handle=CTRL_ASMPBOB.03jr4tdi_1_1 tag=ASMPBOB_CTRL_20080921-09:55
- > channel t1: restore complete, elapsed time: 00:01:28
- > **Finished restore at 22.09.2008:14:16:55**
- > **replicating control file**
- > input filename=/tmp/controlASMPBOB.ctrl
- > output filename=/db/ASMPBOB/redoctl01/control_start
- > **sql statement: alter database mount**
- > **Starting restore at 22.09.2008:14:17:11**
- > channel t1: starting datafile backupset restore
- > channel t1: specifying datafile(s) to restore from backup set



DATAFILES - obnova



- > restoring datafile 00004 to /db/ASMPBOB/dbase/dbf/indx01.dbf
- > restoring datafile 00005 to /db/ASMPBOB/dbase/dbf/large_data_01.dbf
- > restoring datafile 00008 to /db/ASMPBOB/dbase/dbf/small_index_01.dbf
- > restoring datafile 00009 to /db/ASMPBOB/dbase/dbf/tools01.dbf
- > restoring datafile 00010 to /db/ASMPBOB/dbase/dbf/users01.dbf
- > channel t1: reading from backup piece BACK_ASMPBOB.03jr3ocl_1_1
- > channel t1: restored backup piece 1
- > piece handle=BACK_ASMPBOB.03jr3ocl_1_1 tag=ASMPBOB_FULL_20080920-23:22
- > channel t1: restore complete, elapsed time: 00:01:53
- > channel t1: starting datafile backupset restore
- > channel t1: specifying datafile(s) to restore from backup set
- > restoring datafile 00001 to /db/ASMPBOB/dbase/dbf/system01.dbf
- > restoring datafile 00002 to /db/ASMPBOB/dbase/dbf/undotbs01.dbf
- > restoring datafile 00003 to /db/ASMPBOB/dbase/dbf/sysaux_01.dbf
- > restoring datafile 00006 to /db/ASMPBOB/dbase/dbf/large_index_01.dbf
- > restoring datafile 00007 to /db/ASMPBOB/dbase/dbf/small_data_01.dbf
- > channel t1: reading from backup piece BACK_ASMPBOB.04jr3ogd_1_1
- > channel t1: restored backup piece 1
- > piece handle=BACK_ASMPBOB.04jr3ogd_1_1 tag=ASMPBOB_FULL_20080920-23:22
- > channel t1: restore complete, elapsed time: 00:02:11
- > **Finished restore at 22.09.2008:14:21:33**



Recovery - oporavak



- > **Starting recover at 22.09.2008:14:21:49**
- > **starting media recovery**
- > channel t1: starting archive log restore to default destination
- > channel t1: restoring archive log
- > archive log thread=1 sequence=476
- > channel t1: restoring archive log
- > archive log thread=1 sequence=477
- > channel t1: reading from backup piece arch_1_ASMPBOB.2.02jr3qfr_1_1
- > channel t1: restored backup piece 1
- > piece handle=arch_1_ASMPBOB.2.02jr3qfr_1_1 tag=ASMPBOB_ARCH_20080920-23:59
- > channel t1: restore complete, elapsed time: 00:00:08
- > archive log filename=/db/ASMPBOB/arch/arch/ASMPBOB_1_476_650301694.arch thread=1 sequence=476
- > archive log filename=/db/ASMPBOB/arch/arch/ASMPBOB_1_477_650301694.arch thread=1 sequence=477
- >
- > channel t1: restore complete, elapsed time: 00:00:04
- > archive log filename=/db/ASMPBOB/arch/arch/ASMPBOB_1_480_650301694.arch thread=1 sequence=480
- > **media recovery complete, elapsed time: 00:00:02**
- > **Finished recover at 22.09.2008:14:22:52**
- > released channel: t1
- > Recovery Manager complete.



Završetak



- > **20080922-14:23:16: Restore and recovery ASMPBOB successfully finished from catalog rman2 until 21.09.2008:10:00:00**
- > Would you like to open database? <y|n> (y): n
- > canceling
- > **20080922-14:31:58: Script /usr/local/restore/ASMPBOB/restore_and_recovery_until.ASMPBOB.sh finished with no errors found**



Restore/recovery - sažetak



- > Skripta vas pita koji katalog želite koristiti, spaja vas na odabrani i pokazuje informacije koje ima
- > S obzirom na pokazene podatke, izaberite točku u vremenu u koju se želite vratiti
- > *Sit back and relax* dok vaš sustav radi restore/recovery



Što sad?



- > Ništa, idite na kavu, ručak, nazovite nekog koga niste dugo čuli
- > Ili... štogod
- > Skripta će odraditi sve ostalo umjesto vas, na kraju će obavijestiti nadzorni sustav i vama poslati obavijest da je restore/recovery uredno prošao
- > Više ne gubite vrijeme na složeni restore/recovery postupak, sad je sve automatizirano
- > Više nemate izgovor, ne stignem, nemam gdje provjeriti jesu li pohranjeni podaci ispravni



HP OpenView – nadzorni sustav



- > Izvještajni alat spaja se na HP OpenView bazu i radi dnevne, tjedne, mjesečne izvještaje
- > Imate nadzor – znate što se događa
- > Osoblje se više ne mora spajati i provjeravati je li backup prošao, dovoljno je pogledati izvještaje
- > Ako je nešto pošlo po zlu, otvara se incident



Prednosti novog backup rješenja



- > Skraćeno vrijeme backupa
- > Skraćeno vrijeme povrata podataka
- > Smanjeno opterećenje produkcije

.....



- > Backup client softver smo maknuli na slabije poslužitelje (TCO)
- > Sustavom se upravlja iz jednog središta
- > Imate odgovor na revizorska pitanja:
“You have backup, but can you restore?”
- > Povezali smo pohrambeni sustav s izvještavanjem
- > Ako bilo što pođe po zlu, postupak se prekida i otvara se incident

Hvala

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