STREAMS Resynchronization Scenarios and Tests
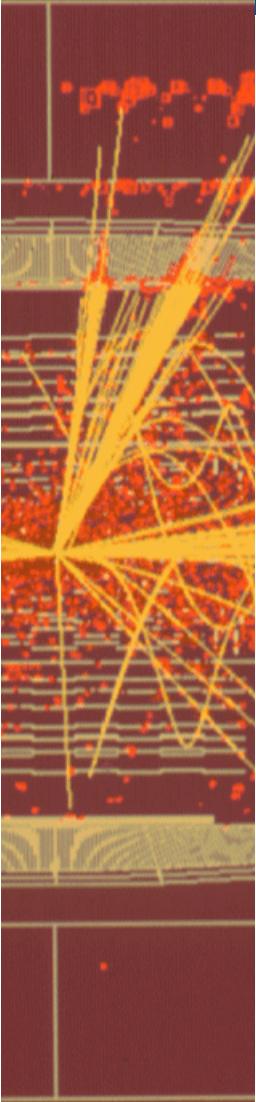
LCG 3D workshop @ CERN
September 2006

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B&R Streams Test

- Streams environment preparation:
  - Script written in python
  - Based on condition data
  - Insert only workload

B&R Streams Test

Recovery on destination (I)
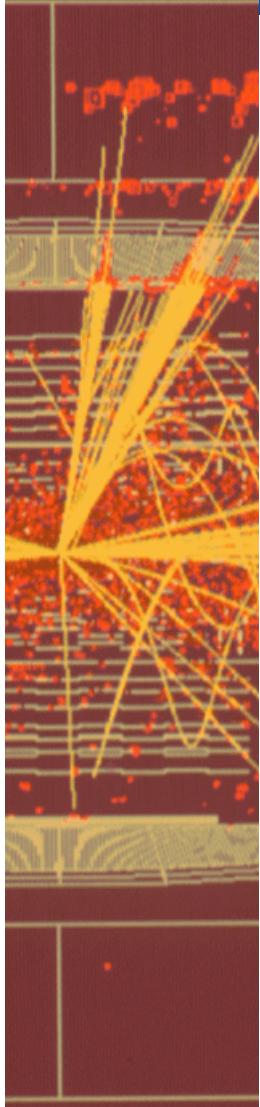
- Scenarios:
  - Point-in-time recovery on the destination database
  - Tier1 database crashes and all data are lost

```
# Dropped the table and recorded the time
SQL> SET TIME ON
09:40:12 SQL> DROP TABLE streams_throughput.apl10;
```

```
# Stopped the database
09:40:18 SQL> shutdown immediate;

# Connected to RMAN, recovery catalogue and target database
RMAN> RESTORE DATABASE UNTIL TIME "TO_DATE('30-AUG-2006 09:30','DD-MON-YYYY HH24:MI')";
RMAN> RECOVER DATABASE UNTIL TIME "TO_DATE('30-AUG-2006 09:30','DD-MON-YYYY HH24:MI')";

# Restart database to make sure OK
```
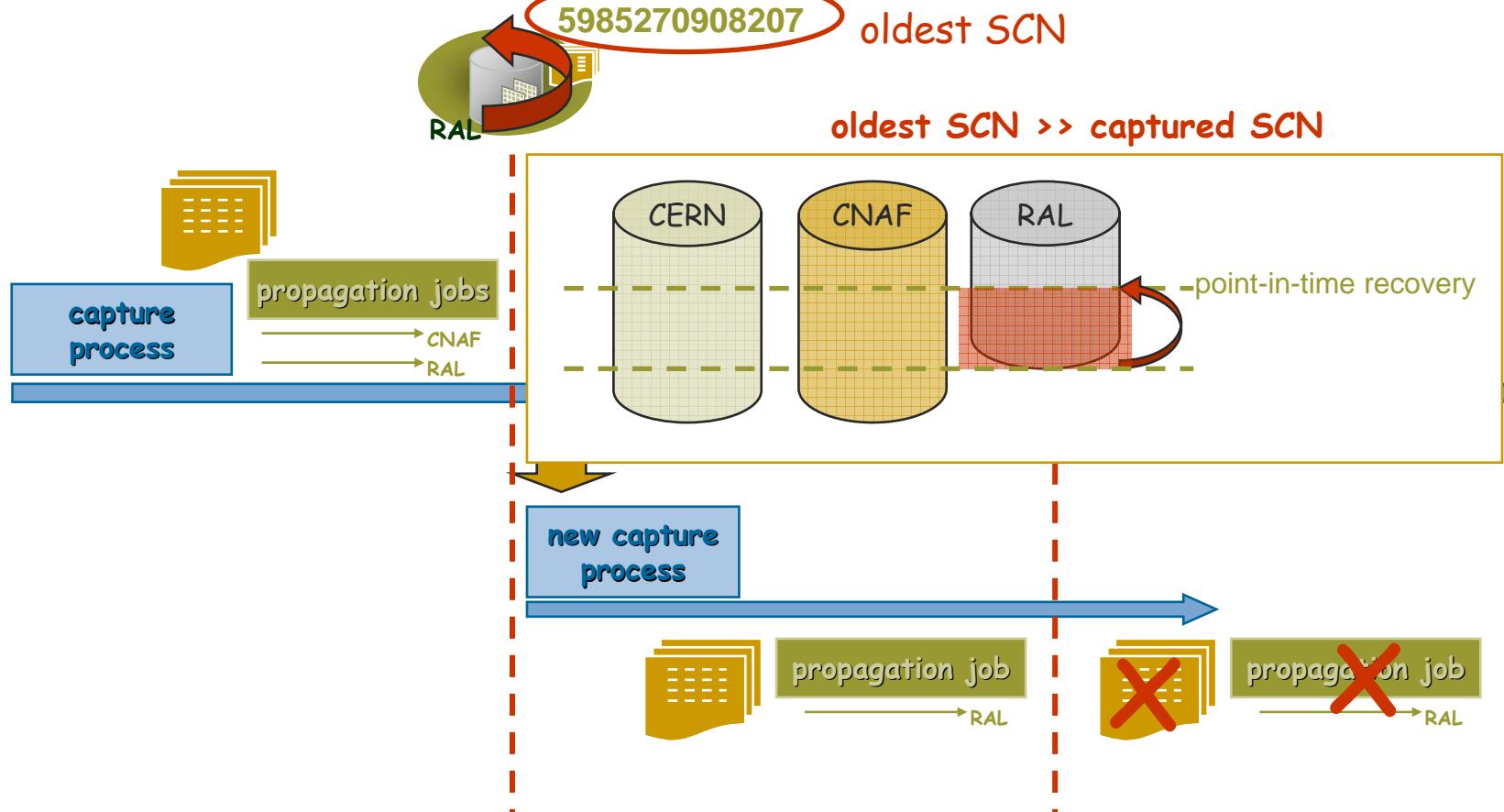
B&R Streams Test
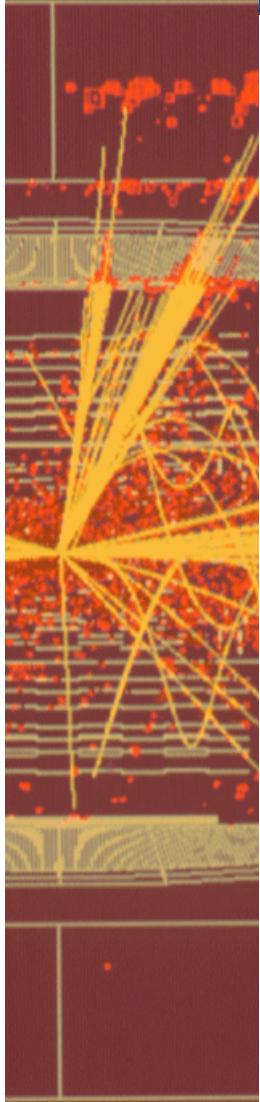
Recovery on destination (II)

select oldest_message_number from dba_apply_progress:

5985270908207 oldest SCN

RAL

oldest SCN >> captured SCN

CERN   CNAF   RAL

point-in-time recovery

capture process

propagation jobs

→ CNAF
→ RAL

new capture process

propagation job

→ RAL

propagation job

→ RAL

B&R Streams Test

Recovery on source (I)

■ Scenario:
  ○ Point-in-time recovery on the source database

```
# Dropped the table and recorded the time
SQL> SET TIME ON;
10:38:02 SQL>  drop table STREAMS_THROUGHPUT.test;

# New transactions
```
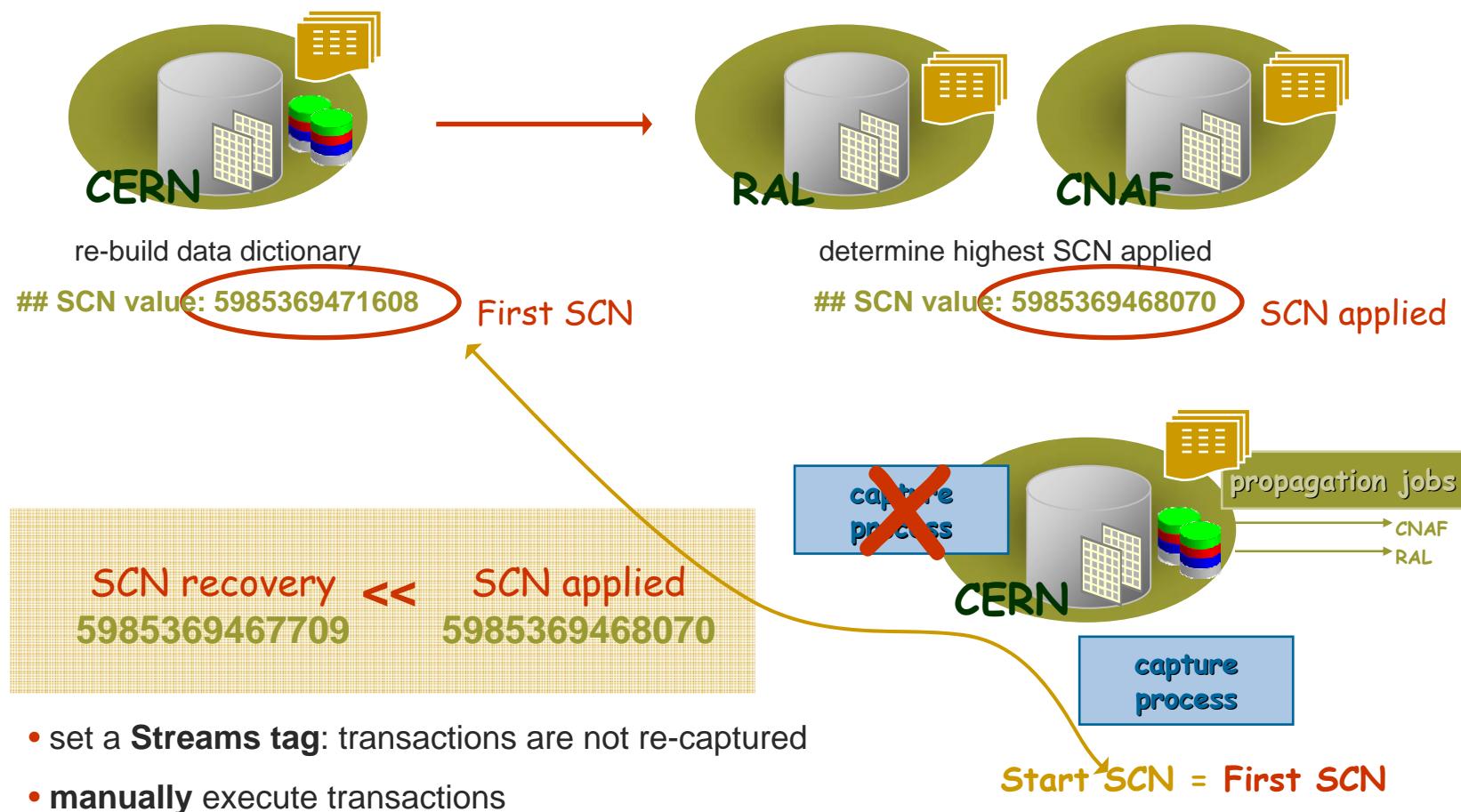
```
# Stopped the database

# Connected to RMAN, recovery catalogue and target database
RMAN> RESTORE DATABASE UNTIL TIME "TO_DATE('06-SEP-2006 10:37:55','DD-MON-YYYY HH24:MI:SS')";
RMAN> RECOVER DATABASE UNTIL TIME "TO_DATE('06-SEP-2006 10:37:55','DD-MON-YYYYHH24:MI:SS')";

## Incomplete Recovery applied until change 5985369467709        SCN recovery

# Restart database to make sure OK – restricted mode
```

B&R Streams Test

Recovery on source (II)

CERN

re-build data dictionary

SCN value: 5985369471608   First SCN

RAL   **CNAF**

determine highest SCN applied

SCN value: 5985369468070   SCN applied

propagation jobs

capture process

CNAF
RAL

CERN

capture process

SCN recovery   **<<**   SCN applied
5985369467709   **5985369468070**

Start SCN = First SCN

• set a **Streams tag**: transactions are not re-captured

• **manually** execute transactions

B&R Streams Test
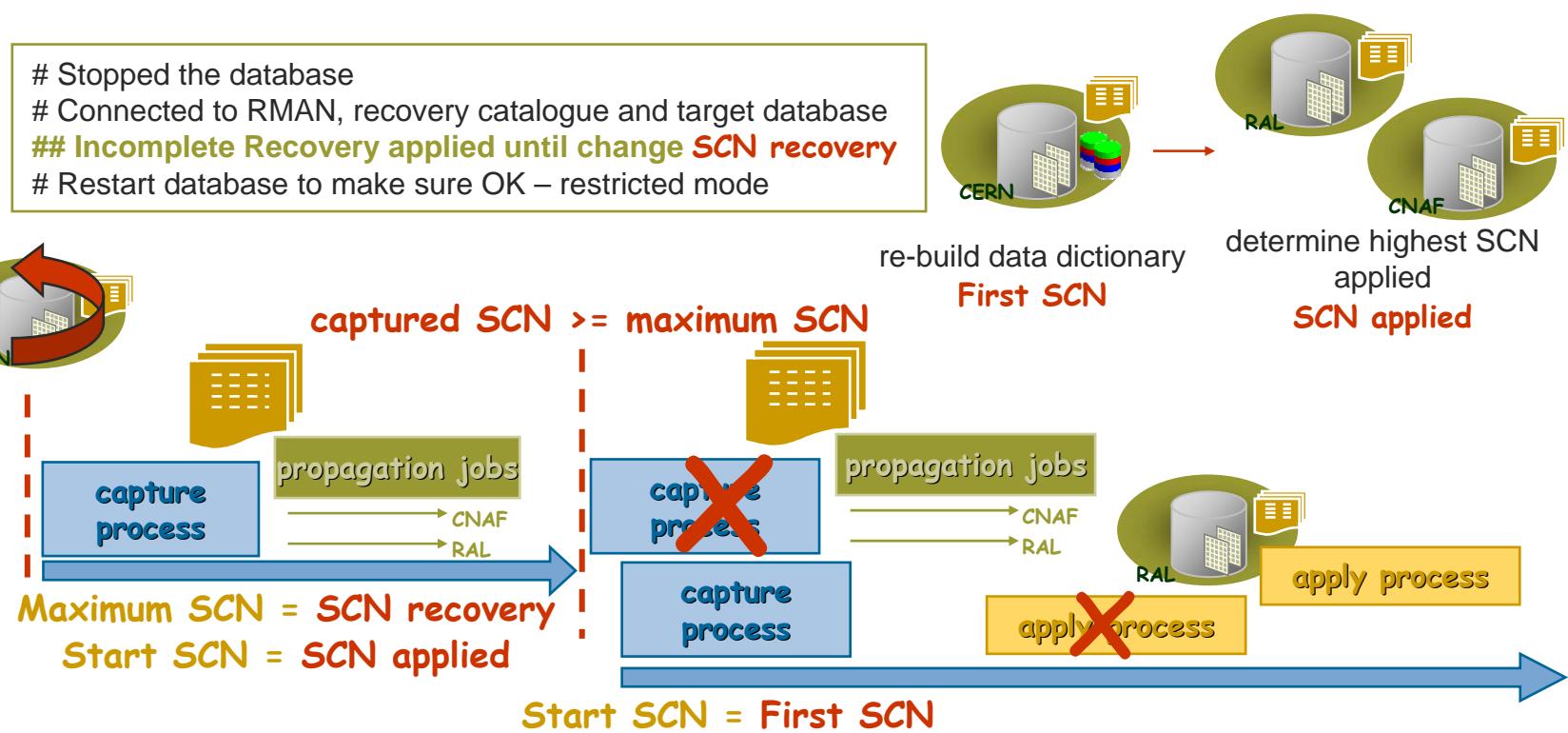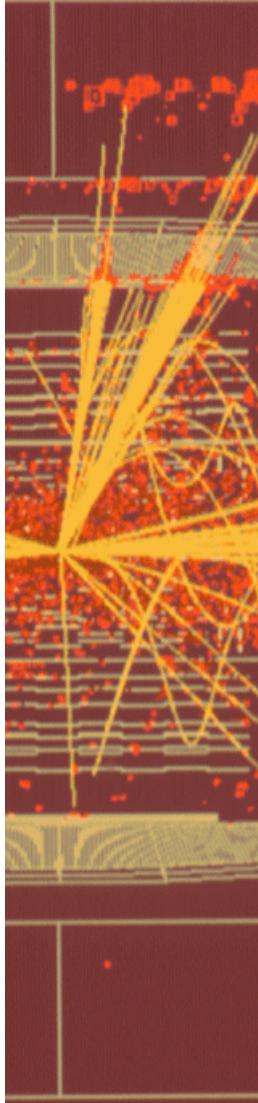
Recovery on source (III) - proposal

- Simulate SCN recovery >> SCN applied

```
# Stopped the database
# Connected to RMAN, recovery catalogue and target database
## Incomplete Recovery applied until change SCN recovery
# Restart database to make sure OK – restricted mode
```

re-build data dictionary
First SCN

determine highest SCN applied
SCN applied

captured SCN >= maximum SCN

capture process

propagation jobs
→ CNAF
→ RAL

Maximum SCN = SCN recovery
Start SCN = SCN applied

capture process ✗

propagation jobs
→ CNAF
→ RAL

capture process

apply process ✗

apply process

Start SCN = First SCN

B&R Streams Test
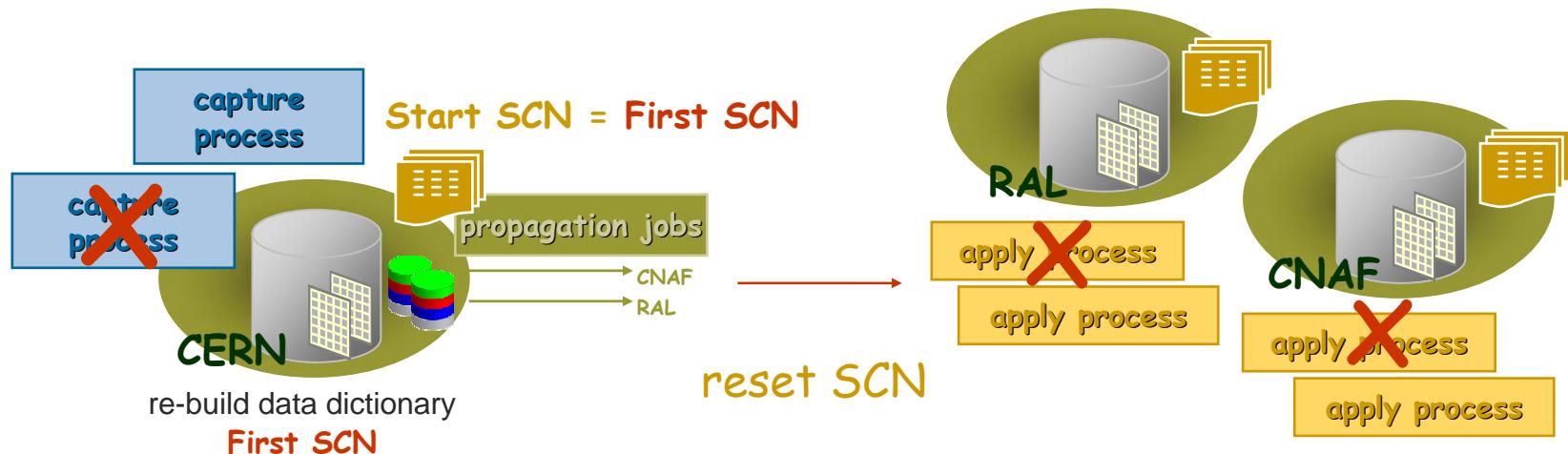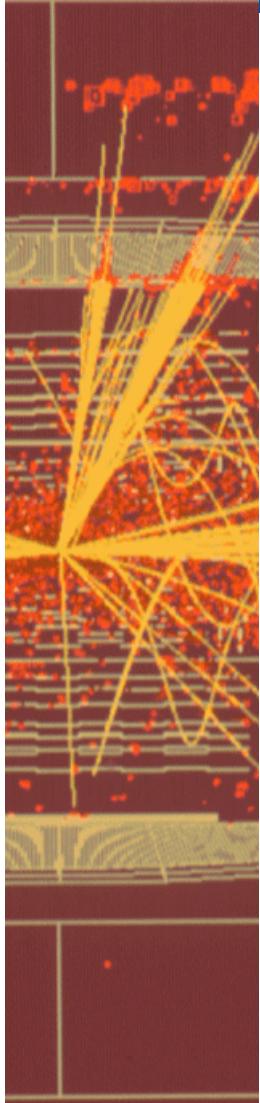
Recovery on source and destinations

- Scenario:
  - Point-in-time recovery on the source and on the destination databases

```
# Stopped the database
# Connected to RMAN, recovery catalogue and target database
## Incomplete Recovery applied until Point-in-Time
# Restart database to make sure OK
```


capture process

Start SCN = First SCN

~~capture process~~

propagation jobs

CNAF
RAL

CERN
re-build data dictionary
First SCN

RAL

apply ~~process~~

apply process

reset SCN

CNAF

apply ~~process~~

apply process

Questions & Answers

https://uimon.cern.ch/twiki/bin/view/PSSGroup/3DStreamsRecovery