



*Post-trade made easy*

# Backup & Recovery @ Euroclear

GSE December the 13<sup>th</sup> 2016



*Post-trade made easy*

# About Euroclear

- Active in the financial transaction processing, Euroclear is the world's largest provider of domestic and cross-border settlement & related services for bonds, equity and funds.
- Our clients are banks and financial institutions, brokers, dealers from over 80 countries.

Without settlement system



With a settlement system





*Post-trade made easy*

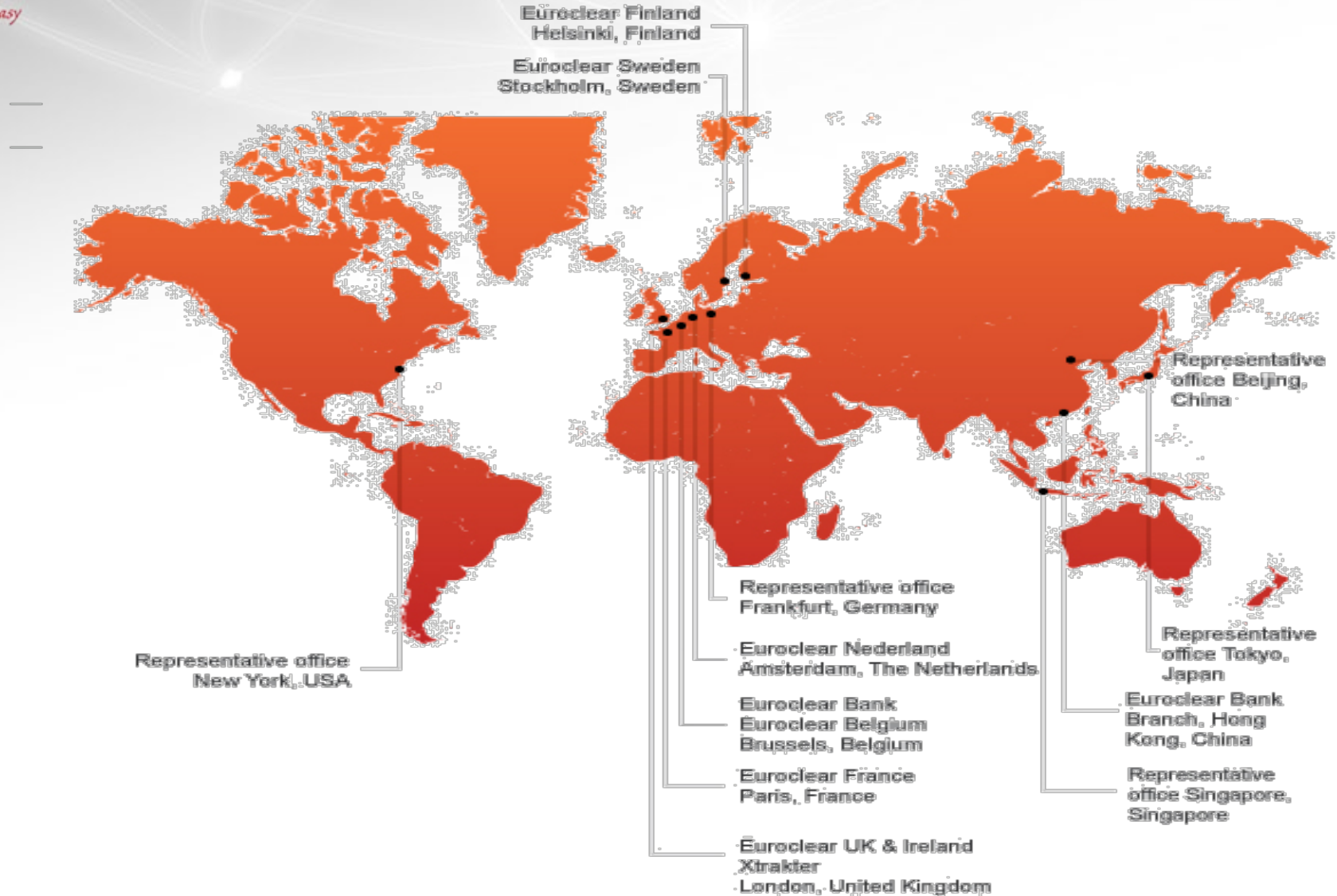
# Euroclear facts & figures

- Number of employees: 3600 worldwide
  - ▶ 2,500 in Belgium, and approximately 900 in IT
- Nationalities: 89
- Average age: 37
- Number of offices worldwide: 12
- Countries in which we have clients: 80
- Turnover: 675 trillions €
- Headquarters: Belgium
  - ▶ Main office in Brussels, a 2nd office in Braine L'Alleud



*Post-trade made easy*

# Our offices and hubs worldwide





*Post-trade made easy*

# We don't...

- ...use Flashcopy
- ...use BACKUP SYSTEM
- ...use Data Sharing
- ...use COPYTOCOPY
- ...use MERGECOPY



*Post-trade made easy*

# We do...

- ...take several ICs of business data
- ...perform a large number of LOADs
- ...store backups on VTAPE ( up two business days )



*Post-trade made easy*

# Catalog & Directory Backups





*Post-trade made easy*

# Business Data

- It depends...
- Prerequisite
  - ▶ The core back end subsystem is mainly batch:
    - LOAD LOG NO
  - ▶ UNLOAD-LOAD is used for archiving purpose
  - ▶ The DW is a sync replica of the core back up + daily tables:
    - LOAD LOG NO
    - The replication process does not require ICs
    - The daily, weekly and monthly tables require ICs





*Post-trade made easy*

# Business Data

- The DB2 Support team is not owner of the business data
- The AO and Production Integration Team are responsible of forecasting the recoverability of business data
- Pattern developed for: IC → LOAD → IC

...but...

- ICs scheduled every day for all the objects without recent IC ( more the 7 days )



*Post-trade made easy*

# Business Data

- ICs can be activity driven
- Every 2 hours:
  - ▶ REXX to find TBS (part) to IC

```
CASE
```

```
  WHEN (COPYUPDATEDPAGES * 100 / NACTIVE) > 50
```

```
    THEN 'FULL YES'
```

```
  WHEN (COPYUPDATEDPAGES * 100 / NACTIVE) > 0
```

```
    THEN 'FULL NO'
```

```
ELSE ''
```

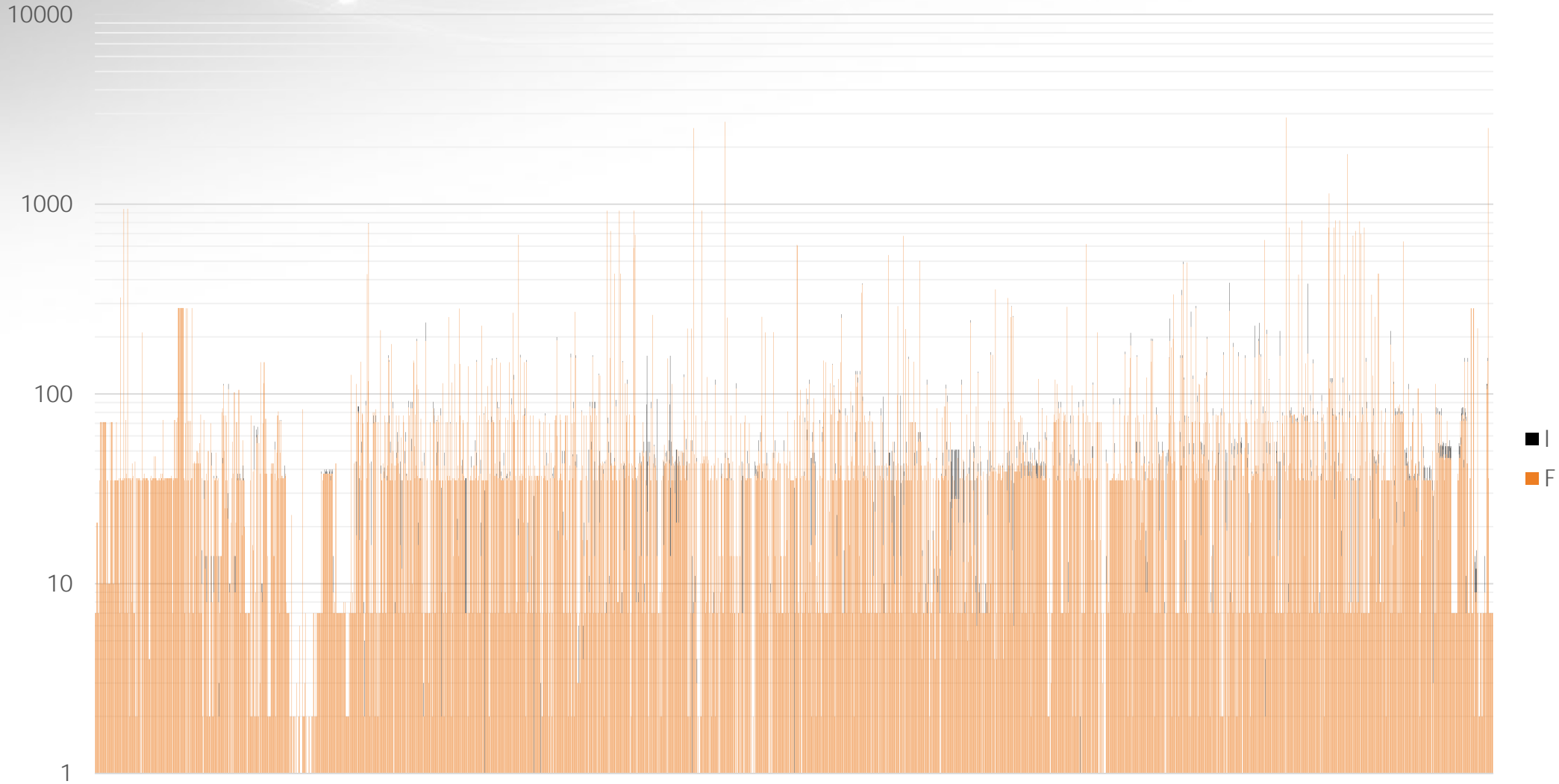
```
END AS CPY_TYPE
```

- Pay extra attention to TBS PBG
- In Core Subsystem: up to 29.000 IC(F)/week, 1000 IC(I)/week



*Post-trade made easy*

# Business Data – ICs in SYSCOPY





*Post-trade made easy*

# Why so many ICs?

- Minimize the Recovery time
- Feed the test environment
  - ▶ Automaton
    - DSN1COPY tool to refresh data older than 7 days
    - Matching naming convention
    - Tapes available across Production and Test env.
  
- Modify Recovery 45 Days



Post-trade made easy

# Recovery of Catalogue & Directory

- Option F
  - ▶ Set of jobs and panel to drive the recovery of the Catalogue & Directory

```
OPTION ==>
DB2 Subsystem ==> DBWC

_ Generate a REPORT RECOVERY JCL for the whole Catalog/Directory

Choose your Recovery mode: to Current point or to Logpoint
Recover to ==> CURRENT (CURRENT/LRSN) LRSN ==> _____
_ Generate a Recover SYSUTILX/DBD01 JCL

If the recovery of the SYSUTILX/DBD01 is not OK,
_ Generate an "Initialize" SYSUTILX JCL

_ Generate a Recover JCL for others Catalog/Directory Objects

_ Generate a JCL to Verify the Integrity of the Catalog/Directory

_ Generate a JCL to Perform an 'Image Copy' of the Catalog/Directory
```

Single Unit  
of  
Recovery



*Post-trade made easy*

# Recovery of Business Data

- DB2 Support does not own the business data
- We support the tool to do recovery (DB052)
  - ▶ Based on the JOB name
  - ▶ Automatically detects all the TBS involved in the recovery
  - ▶ Recover to Current, Last Copy, RBA
  - ▶ Builds the JCLs
- In the last 8 weeks only 1 recovery
  - ▶ Root cause: application data errors



*Post-trade made easy*

And now...





*Post-trade made easy*

## Our question...

- How long do you keep the archive logs?
  - How long do you keep the ICs?
  - Do you use Flashcopy and with which HW?
  - Do you use SYSTEM BACKUP/RESTORE?
  - How many RECOVERY do you have to perform? And why?
- 
- Prepare the same presentation for your office





*Post-trade made easy*