# vers le PetaByte
## avec PostgreSQL

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PostgreSQL Major Contributor

- pgloader, prefix, skytools, debian, ...
- CREATE EXTENSION
- CREATE EVENT TRIGGER
- *Bi-Directional Réplication*
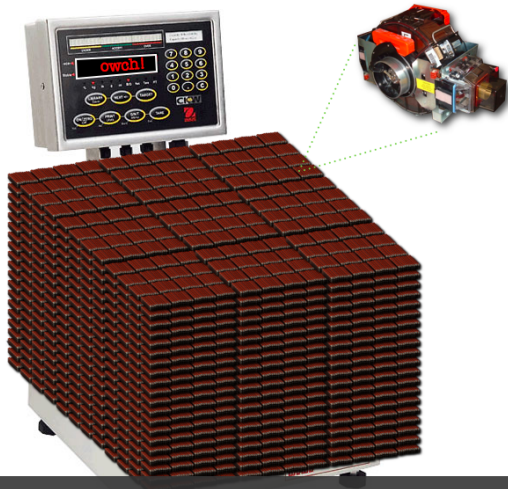- *Partitionnement*

# C'est quoi un *PetaByte*?

**Beaucoup** de données

1 PB =

- 1 024 **TB**
- 1 048 576 **GB**
- 1 073 741 824 **MB**
- 1 099 511 627 776 **KB**
- 1 125 899 906 842 624 **Bytes**

One Petabyte of one Gigabyte IBM 3380 (from 1980)
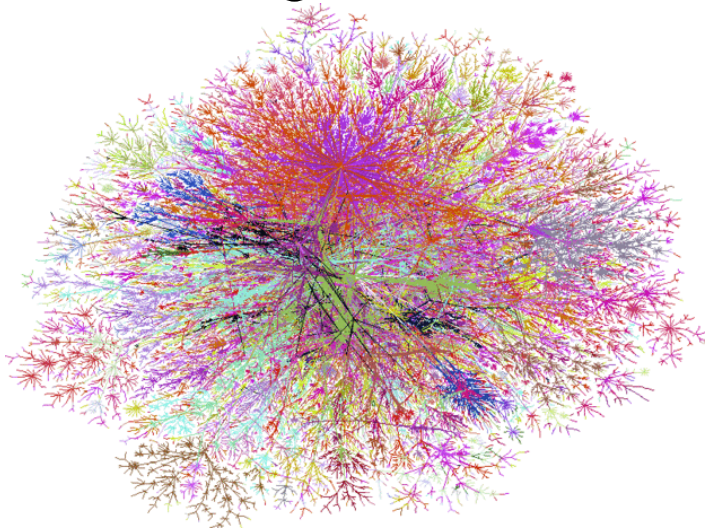One million drives, weighs 250,000 Tonnes
Costs $40,000,000,000

One Petabyte of 2TB Western Digital Drives
500 drives, weighs 365KG
Costs $125,000

# Big Data?

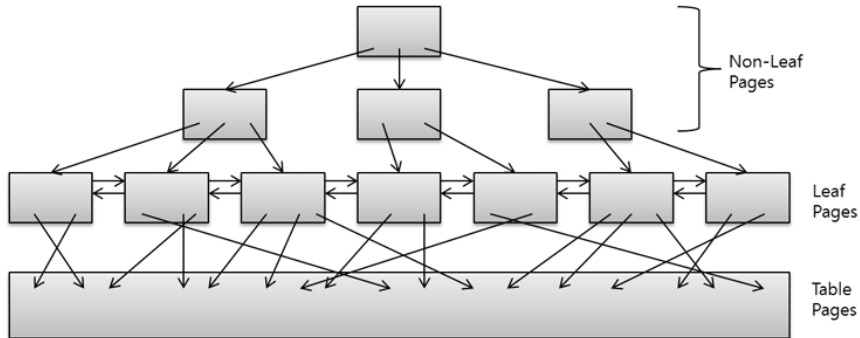# Maintenance et Volumes des bases de données

*The Horizontal Struggle*

- 0.1 GB schema, backup: seconds
- 1 GB schema: seconds, backup: minutes (a few)
- 10 GB schema: depends, backup: minutes (many)
- 100 GB schema, backup: hours
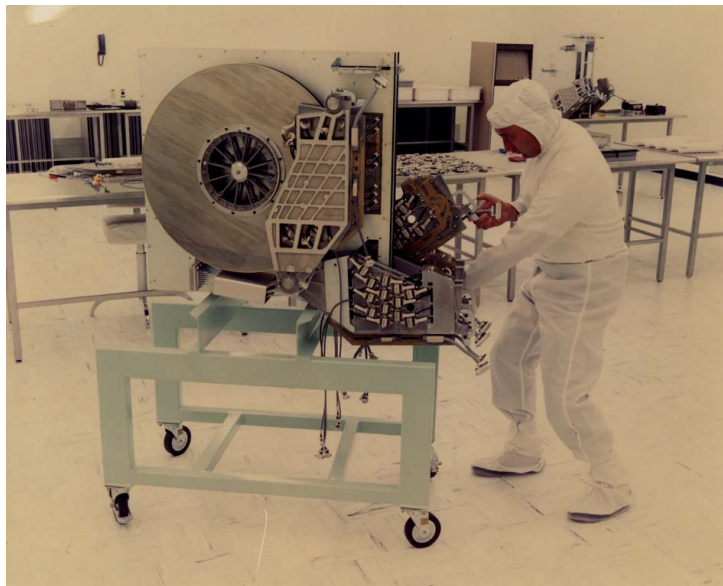- 1 TB schema: difficult, backup: days
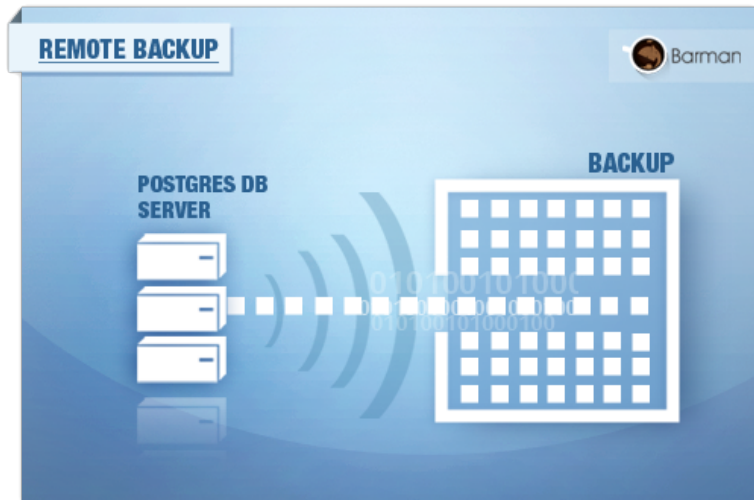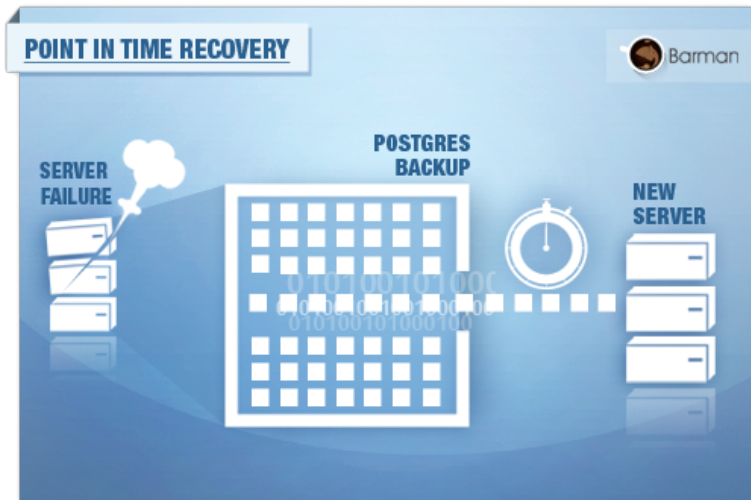
# VACUUM, AUTO VACUUM

# INDEXES



Non-Leaf Pages

Leaf Pages

Table Pages

# CHECKPOINT

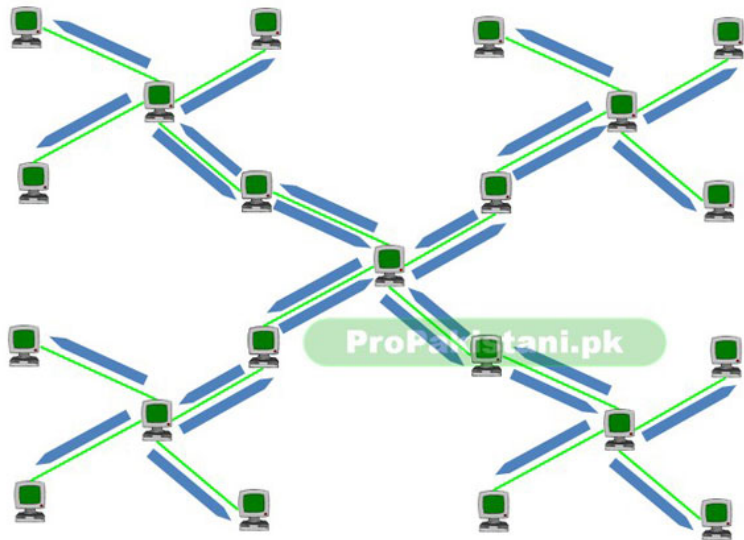# Sauvegardes, pg_dump, basebackup
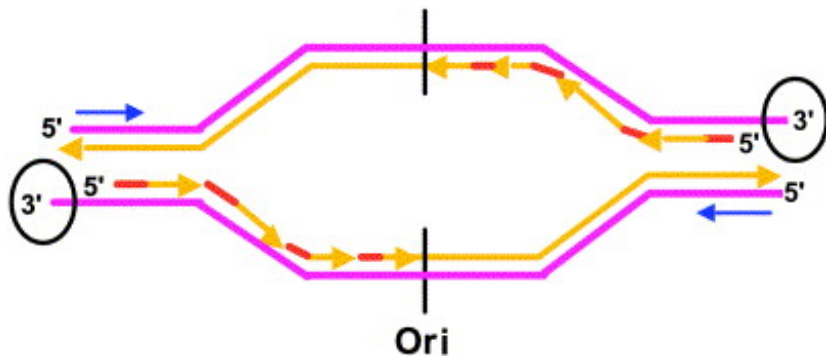
# Archivage, PITR

# Replication

# Développements en cours



- CHECKSUM
- COPY FREEZE
- work_mem

- REINDEX CONCURRENTLY
- VACUUM FREEZE, XID EPOCH
- work_mem > 1 GB

# Architectures distribuées

# Outils pour Architectures Distribuées

**Bi Directional Replication**



- *Read/Write* Foreign Data Wrappers
- PL/Proxy

# Conclusion