



# **Conduct change from Oracle to PostgreSQL**

PostgreSQL Conference Europe 2013

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# 1 Conduct change from Oracle to PostgreSQL



```
Thu Jan 20 11:39:52 2013
Errors in file /DATA/oracle/admin/
prod/udump/prod_ora_2131.trc:
ORA-00600: internal error code,
arguments: [ktfbtgex-7], [1015817],
[1024], [1015816], [], [], [], []
```

*Each argument has a specific meaning which can only be interpreted by an Oracle support analyst. The arguments may also change meaning from version to version therefore customers are not advised to memorize them.*

## 1.1 About



- » Author : Jean-Paul Argudo [jpa@dalibo.com](mailto:jpa@dalibo.com)
- » Company : [DALIBO](#)
- » Date : October 4th 2013
- » URL : [Dalibo Knowledge Base](#)

## 1.2 License



- Creative Common BY-NC-SA
- You are free
  - to Share
  - to Remix
- Under the following conditions
  - Attribution
  - Noncommercial
  - Share Alike

## 1.3 Agenda



### **Switching from Oracle to PostgreSQL**

- Why such a move?
- Mindshift
- A 5-step plan for success

## 1.4 Why such a move

### Money

- Have you ever been “audited”?
- Investment: `(CPU|Cores|Friend|not_Friend)_number × instances × [...] = lots of money`
- Support: 20% this amount, yearly



*Those boats are expensive !*

## 1.5 Why such a move

### Independence



- A much better reason
- No more vendor lock-in
- Your PostgreSQL expert has to be good: the PG professional offer is there now

## 1.6 Why such a move

### Government decisions: the French usecase

**Crisis: .gov guys have to save money and become free**



*Le Premier Ministre*  
5608/SG

Paris, le 19 septembre 2012

à

*Mesdames et Messieurs les ministres*

**Objet :** Orientations pour l'usage des logiciels libres dans l'administration

#### 6.2.2.3. MimBD

Domaine :

- ensemble des logiciels de base de données.

Missions spécifiques :

- favoriser la migration des bases propriétaires vers des bases libres, et en particulier PostgreSQL.

Read it [here!](#) (french)

## 1.7 Mindshift

### From Editor to Community



- No one editor accountable for everything
- Our community is composite (individuals, non-profit groups, and businesses) and no vendor to shout at
- No all-in-one solution. No CDs. No DVDs.
- But OTOH: lots (and lots) of ways to do things

## 1.8 Mindshift

### License costs to Service costs



- PostgreSQL may not be cheaper than Oracle
- ...at least not at first (ROI > year(s))
- License costs → Service costs
- Maintenance costs remains (Support subscription) based
  - on the numbers of postmasters you have or
  - on a certain amount of support tickets



## 1.9 Mindshift

### Technical caveats



- Oracle RAC? ⇒ [Postgres-XC: version 1.1](#)
- Materialized views? ⇒ [PostgreSQL 9.3: september 2013](#)
- Partitionned tables? ⇒ Still a lot of work to do there (despite [pg\\_partman](#) which helps)
- Oracle XA & others Oracle-only stuff ? ⇒ Still a lot of work to do ? Will do or not ?

## 1.10 Mindshift

### Innovation



- [PostGIS](#), long-time award winner for spatial databases ([IGN casestudy: Oct 2006!](#))
- Strong conformity with the standards (ANSI-SQL:2008 and 2011)
- State of the art features: JSON, PLV8, Window functions and CTEs, LATERAL, SQL-Med, Foreign Data Wrappers, etc.

## 1.11 Mindshift

### Again : Community !

Our community is almost 20 years-old (2016)

- You can meet a PostgreSQL (core)hacker really easily
- Tom still posts answers on `pgsql-novice`
- You'll never be alone
- [PostgreSQL Events](#) Everywhere !



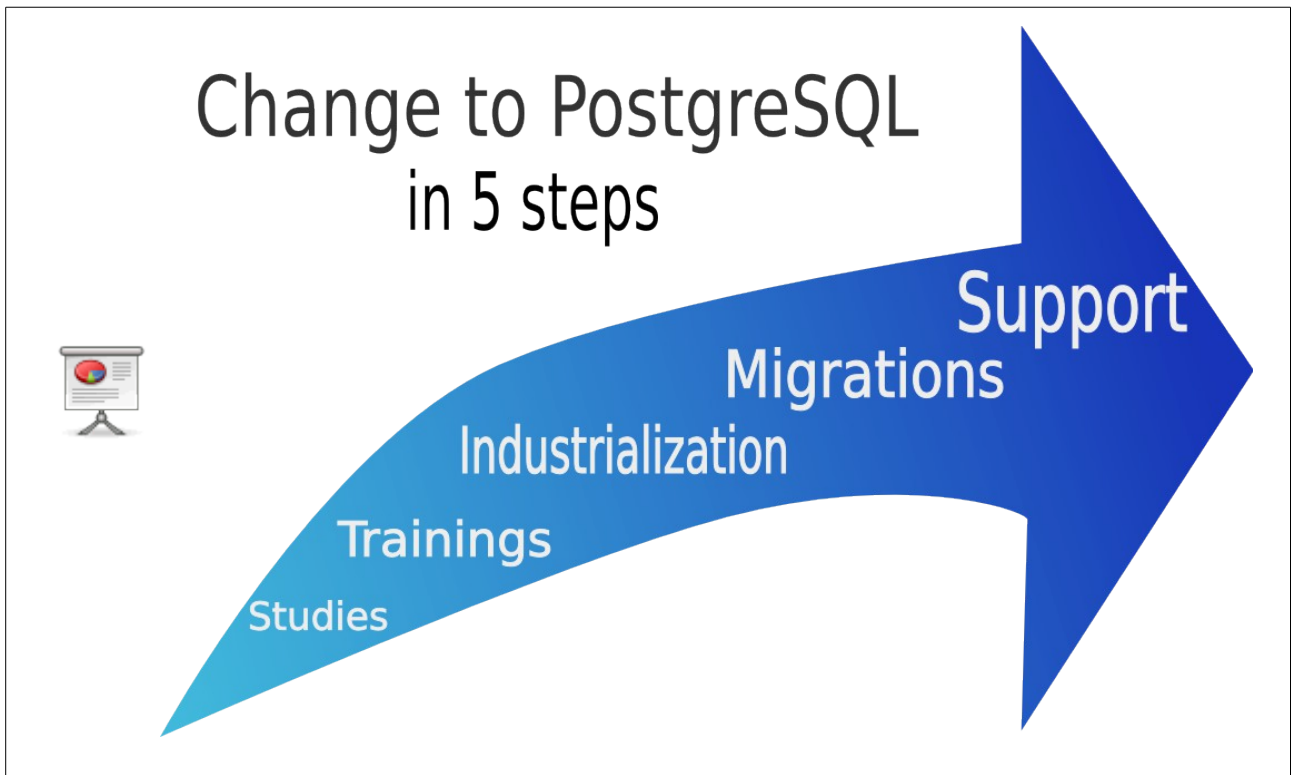
## 1.12 OK. Let's move! A company to help us ?

### Your choice

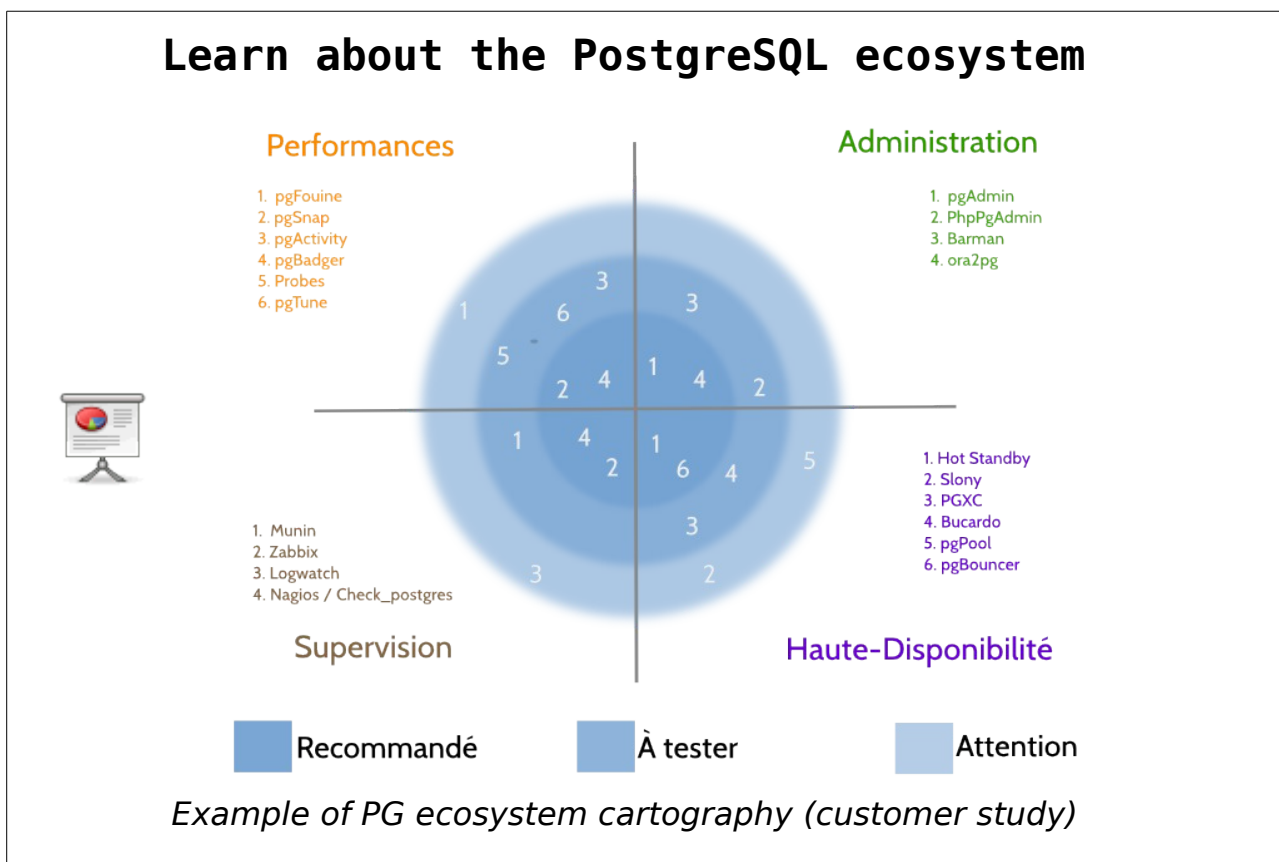


- my bet is that it's a must-have (ok I'm CEO)
- kickstart
- experience on such projects
- **Please** grab any of the PostgreSQL companies listed on <http://www.postgresql.org/about/sponsors/>
- guarantee of PostgreSQL skills
- those are *bridges* between businesses and community
- in case of a problem, they know how to report fast and efficiently

## 1.13 A 5-step plan for success



## 1.14 Step 1 : Studies





# 1.15 Step 1 : Studies

## Choose an application and make a POC

*Choose carefully the application to be taken as a POC*

## 1.16 Step 1 : Studies

**Make this POC a S.M.A.R.T. objective**



**S.M.A.R.T.**  
Specific  
Measurable  
Attainable  
Relevant  
Time-bound

## 1.17 Step 1 : Studies

### Tools



- [Ora2Pg](#) features among others:
  - Migration cost assessment of
    - a complete Oracle database (DDL and PL/SQL)
    - PL/SQL code from a file.
    - Oracle SQL queries stored in a file
  - Features sponsored by French Government [DGFIP](#)
  - ... and developed by Gilles Darold @ [Dalibo](#)
  - version 12 just released



## 1.18 Step 2 : Trainings

### Converting Oracle skills to PostgreSQL skills



- Your Oracle DBA(s) rox. PG and Oracle are **close**
- You can convert them to PostgreSQL in 1 or 2 weeks
- 1 week for all other profiles (devs, sysadmins, project managers, etc)

## 1.19 Step 2 : Trainings

### Training costs



- Variable from a company to another
- Dalibo's prices as an example:
  - \$ 300~600 / day / person: inter-company
  - \$ 1000~2000 / day: intra-company, 8 pers. max
- The bigger training plans, the lower prices

## 1.20 Step 2 : Trainings

### Hiring PostgreSQL skills instead?



- Beware of the **lack of PostgreSQL profiles**
- if you plan to hire a PG DBA mid-2014, start searching **now**
- Still no community-driven PostgreSQL certification
  - some **companies** does certification tough
- mid to long-term PG expert "on site" mission still possible

## 1.21 Step 3 : Industrialization

### Two methods to achieve it



- Build your own stack from scratch **based on your studies**
  - longer process but better results
- You can also *copycat* the existing Oracle stack
  - faster process but result's quality unsure

## 1.22 Step 3 : Industrialization

### Minimum stack

You should end with guidelines (guides, books, etc.) that covers at least:



- Installation and/or upgrades
- General Administration
- Coding
- Security
- Interoperability
- Migration

## 1.23 Step 4 : Migration

### Start gently



- the project has to be **R**elevant (remember SMART)
- don't try to migrate the biggest and/or hardest application first
- you should have written your “Migration guidelines” before migrating
  - be sure to update them each time you find a new problem/solution

## 1.24 Step 4 : Migration

### Helper tools



- [Ora2Pg](#) again...
- Quite magical but: *“Ora2Pg does its best to automatically convert your Oracle database to PostgreSQL but there's still manual work to do on some PL/SQL code ”*
- Example: “204.5 cost migration units means approximatively 3 man-days”
- Reality: “31154.8 cost migration units means approximatively 371 man-days”
  - In this case, solutions exists to migrate. But you have to think about ROI

## 1.25 Step 5 : Support

### Internal skills or external?

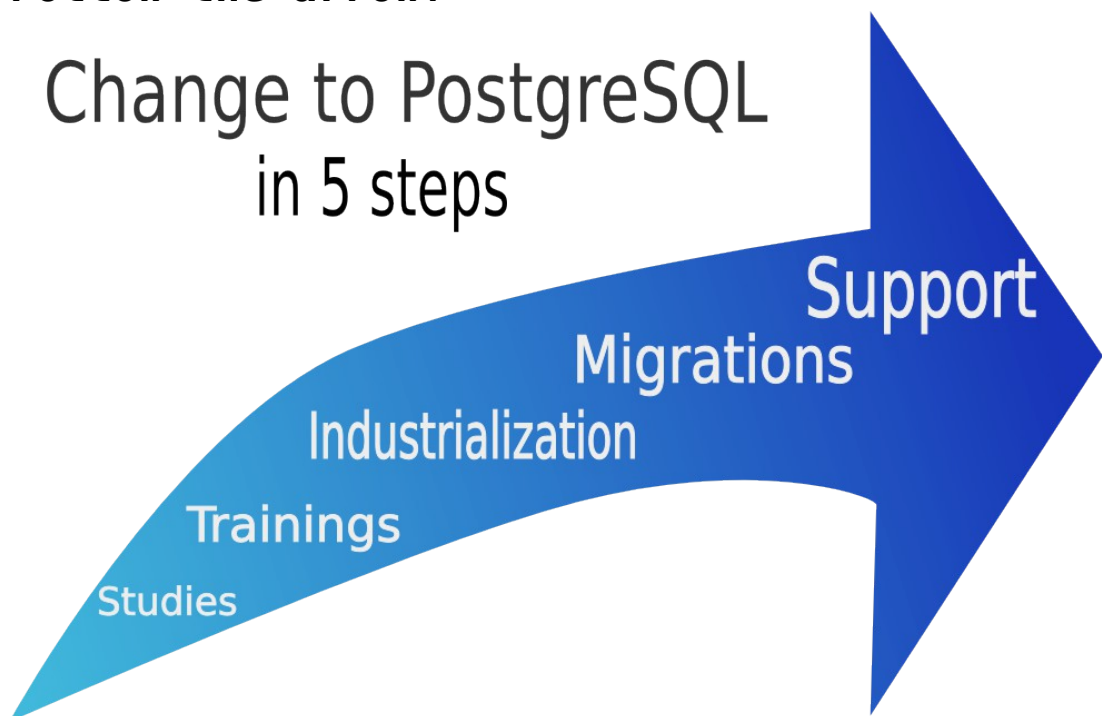


- Depending on your strategy, the offers exist
- From classic hotline ...
- ... to proactive services

## 1.26 A 5-step plan for success

Follow the arrow!

Change to PostgreSQL  
in 5 steps



## 1.27 Smaller Usecase

### Side application

Oracle standalone

200 GB / year (10 years online data)

300 tr/sec, 50 users

1 dev, 1 DBA



Studies: \$3K

Trainings: \$10K

Indus.: \$10K

Migration: \$10K

#### **Total costs**

Investment: \$33K

Support: \$5~15K / year

## 1.28 Bigger Usecase

### Main company application

- Oracle active dataguard
- 10 TB / year (5 years online data)
- 1800 tr/sec, 350 users
- 4 devs, 1 project manager
- 2 DBAs (junior and senior)



- Studies: \$15K
- Trainings: \$15K
- Industrialization: \$40K
- Migration: \$70K

### Total costs

- Investment: \$140K
- Support: \$20~50K / year

## 1.29 Questions ?



- This talk will become a “white paper” soon
- Look at [dalibo.org](http://dalibo.org)
- More questions?
  - e-mail: [jpa@dalibo.com](mailto:jpa@dalibo.com)
  - twitter: [@jpargudo](https://twitter.com/jpargudo)
- Please give your feedback on this talk at <http://2013.pgconf.eu/feedback>.

Thanks !