

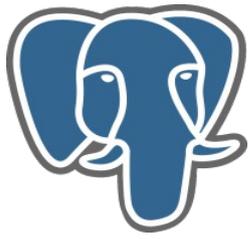
PostgreSQL

Asegurando nuestros datos

PGDay Latinoamericano 2011
La Habana, Cuba

Rafael Martinez Guerrero

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r.m.guerrero@usit.uio.no



PostgreSQL

Integridad

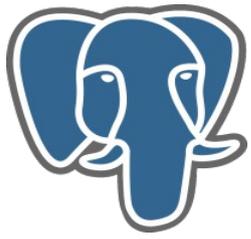
Disponibilidad

Durabilidad

Accesibilidad



“La seguridad total de nuestro sistema dependerá del punto más débil del mismo”



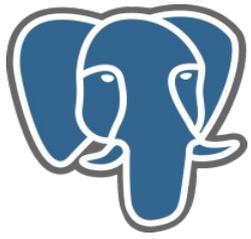
PostgreSQL





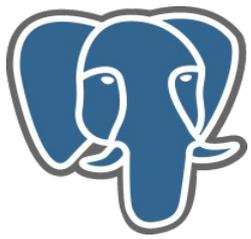
PostgreSQL



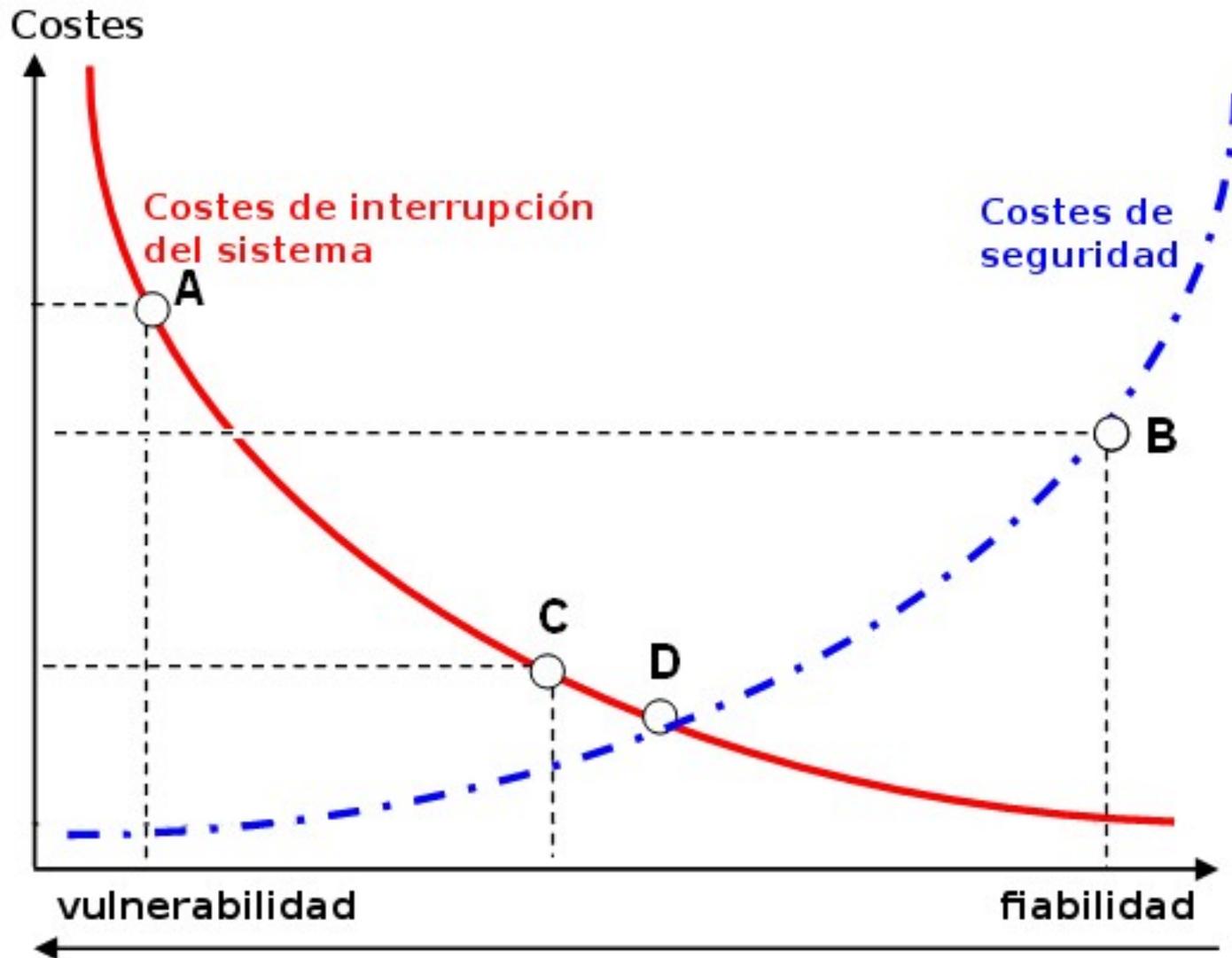


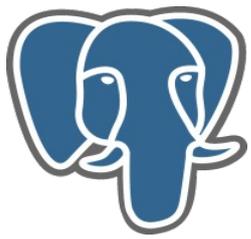
PostgreSQL

“Debemos encontrar un punto de equilibrio entre los costes de interrupción del sistema y los costes por medidas de seguridad”

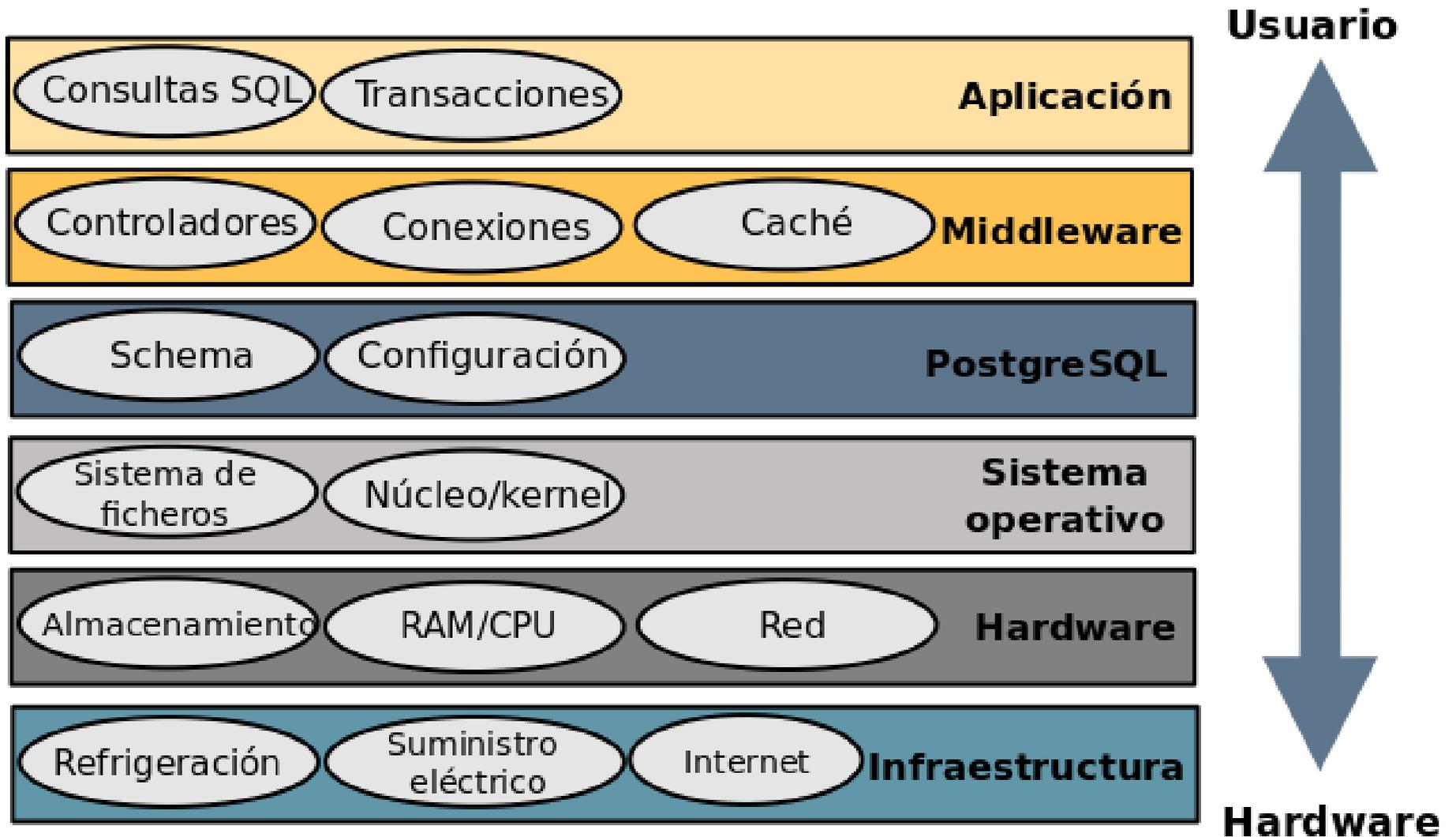


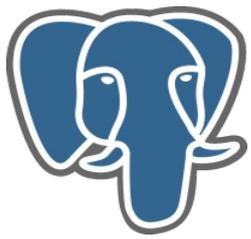
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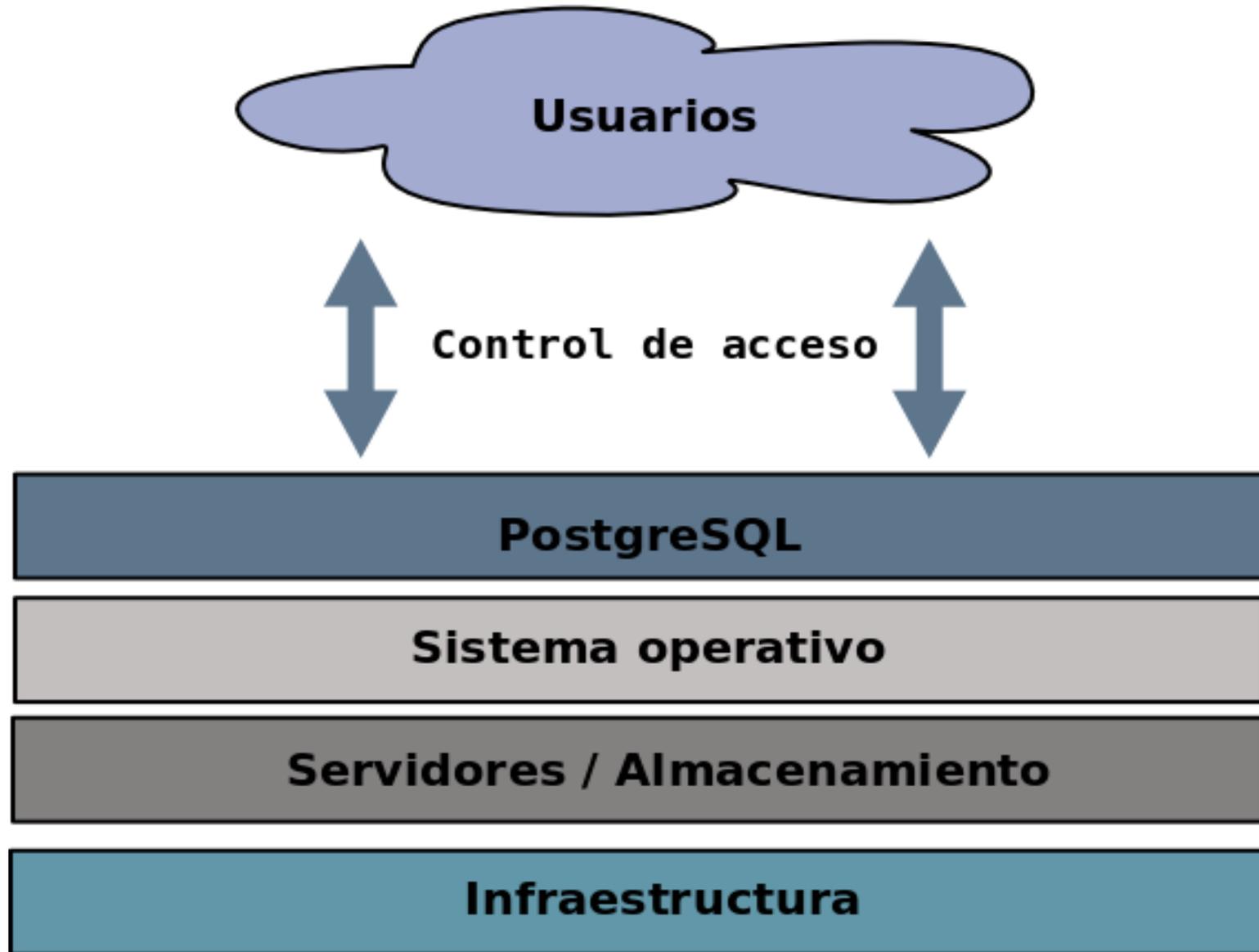


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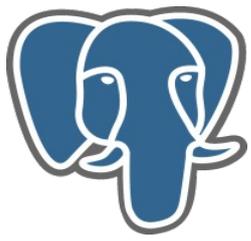


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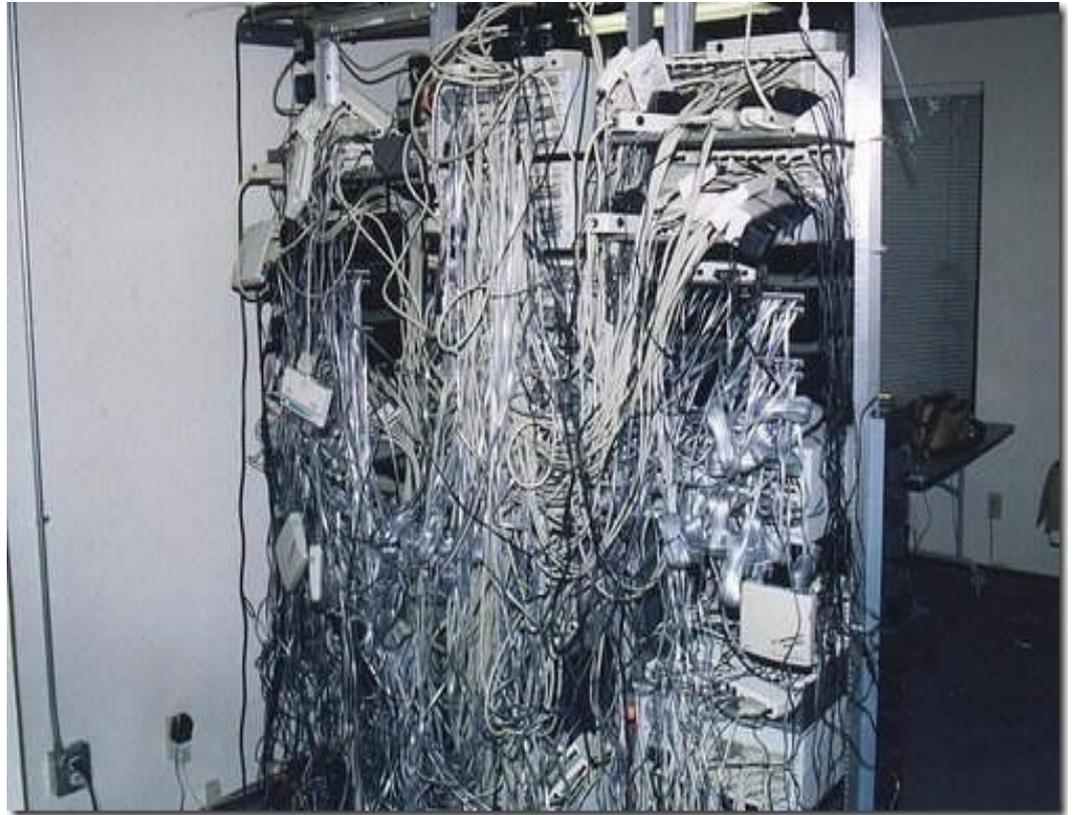


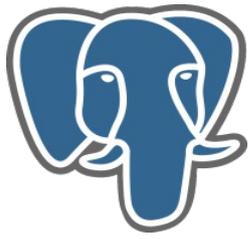


Infraestructura

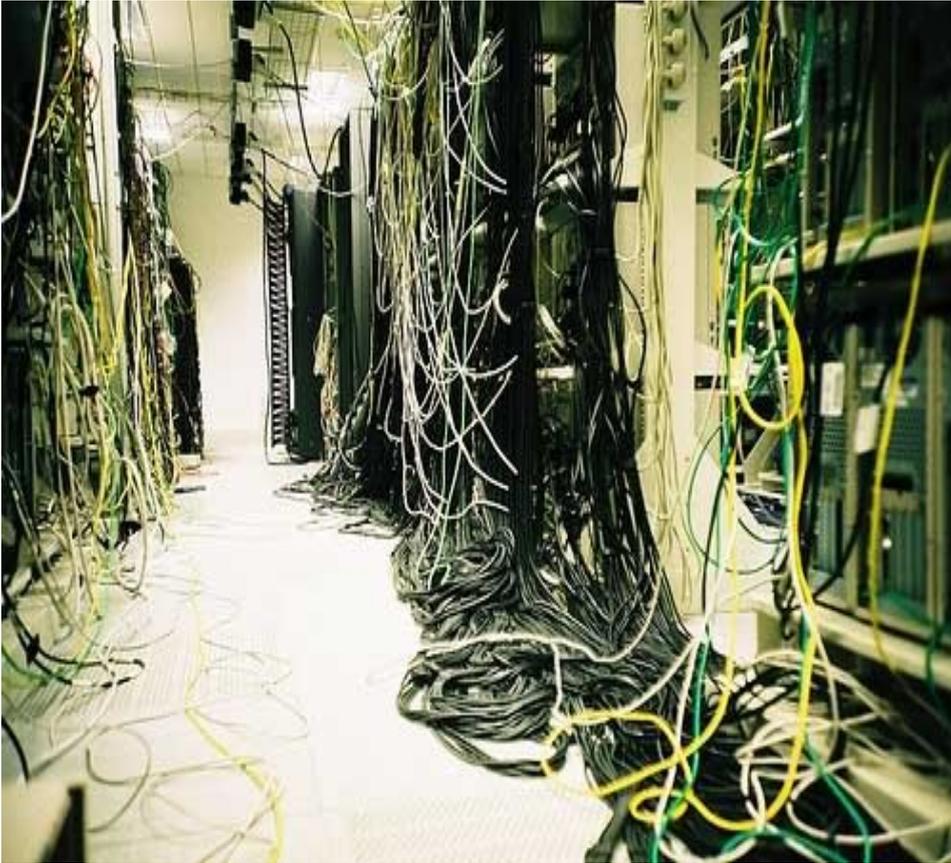


PostgreSQL



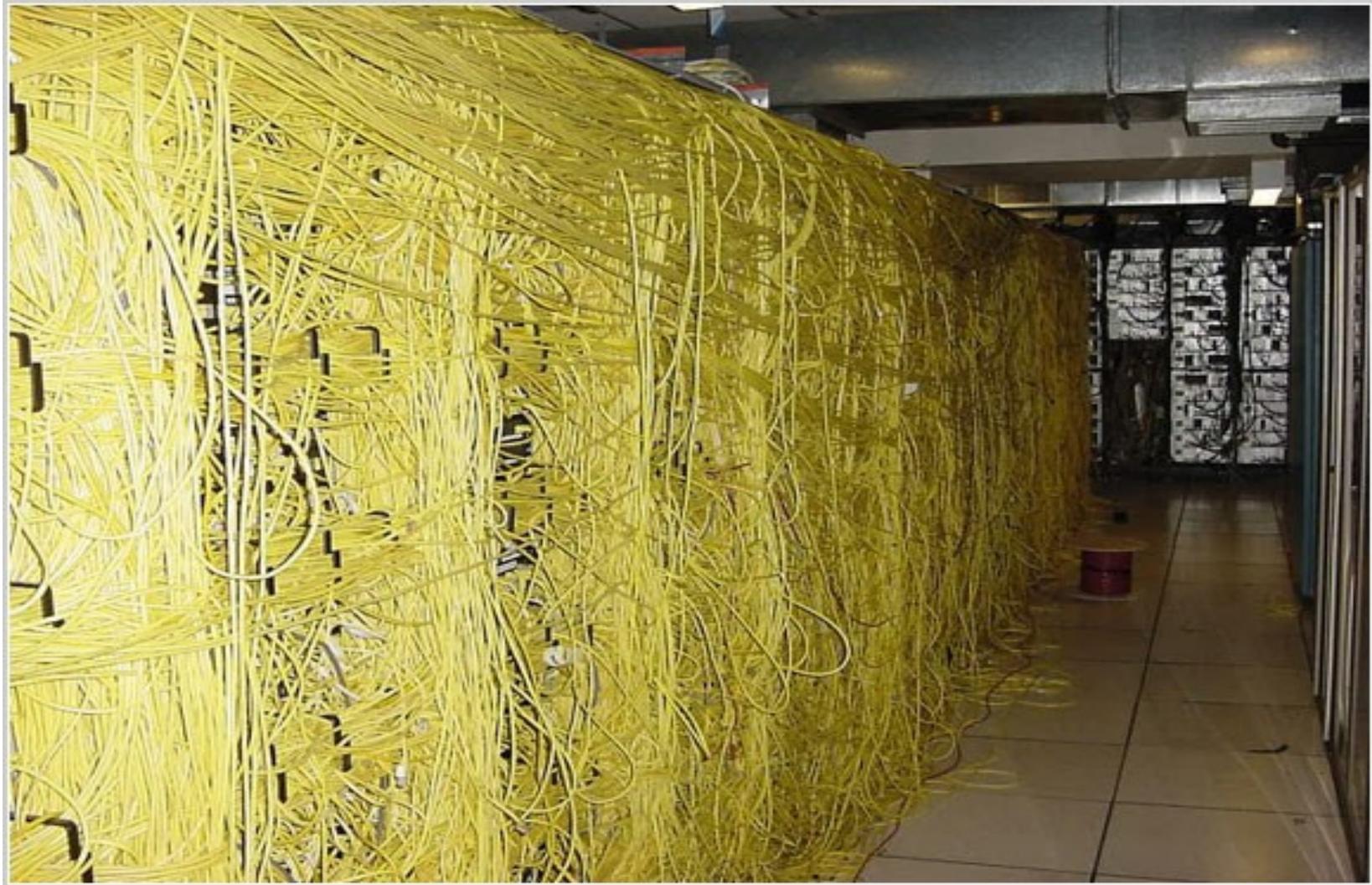


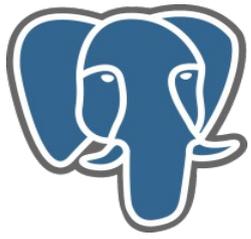
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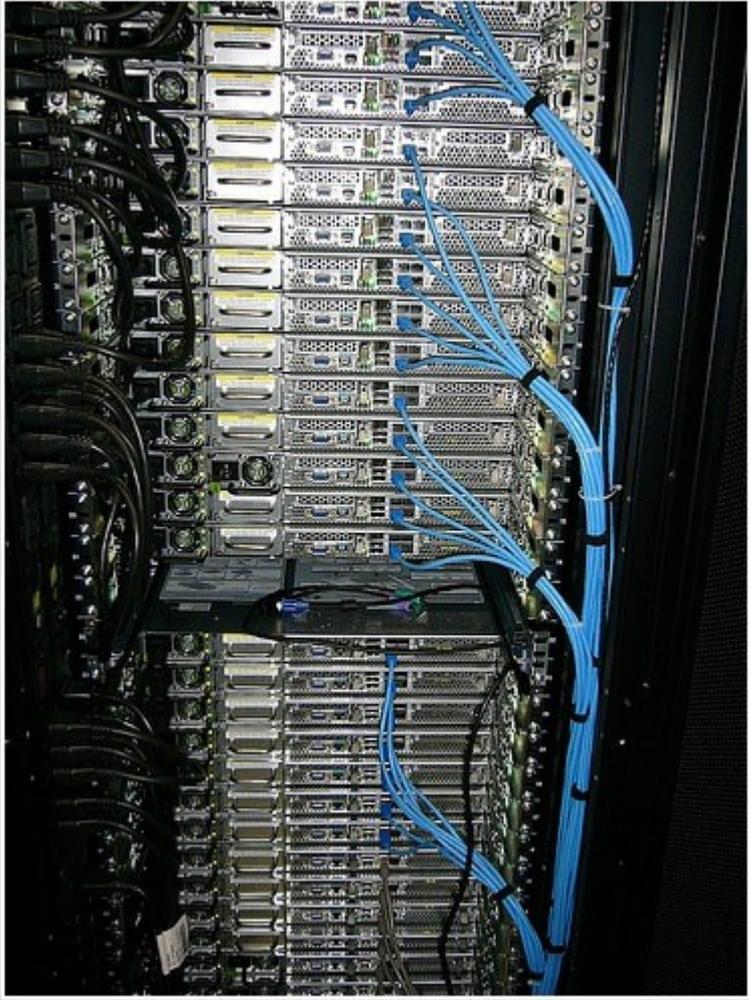


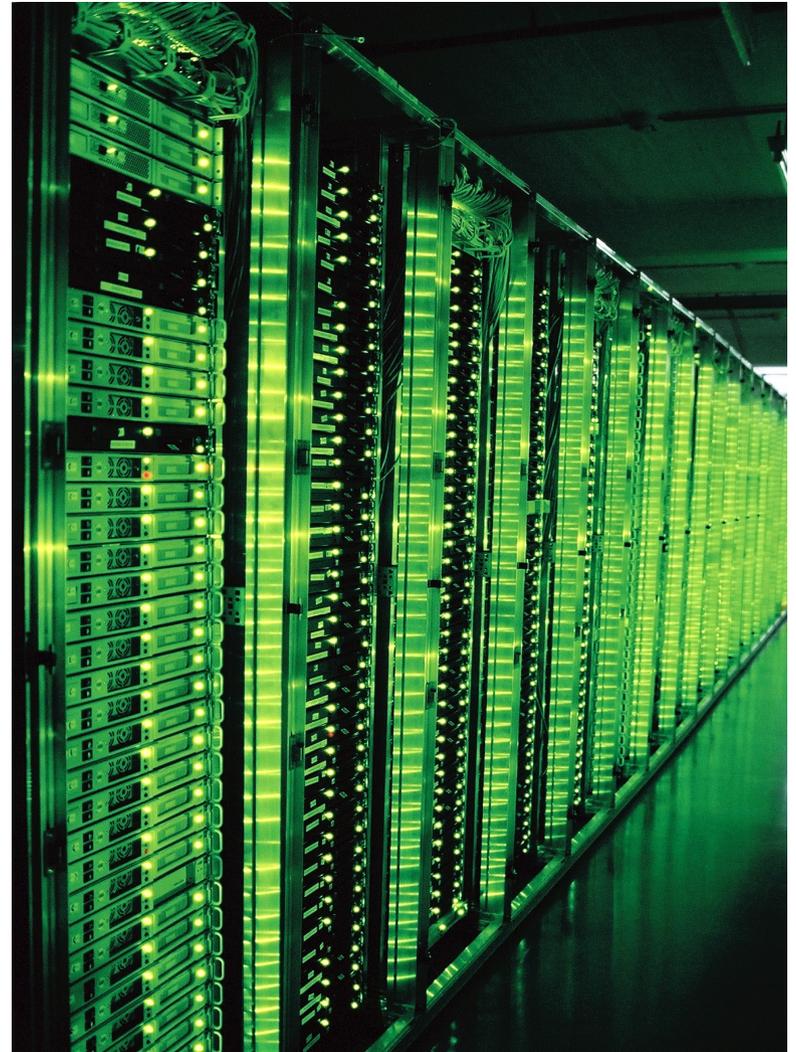
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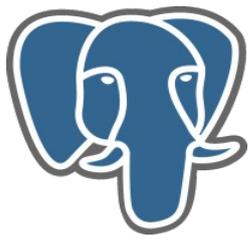




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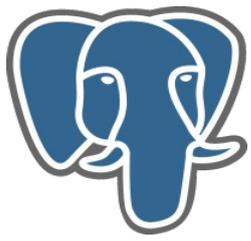




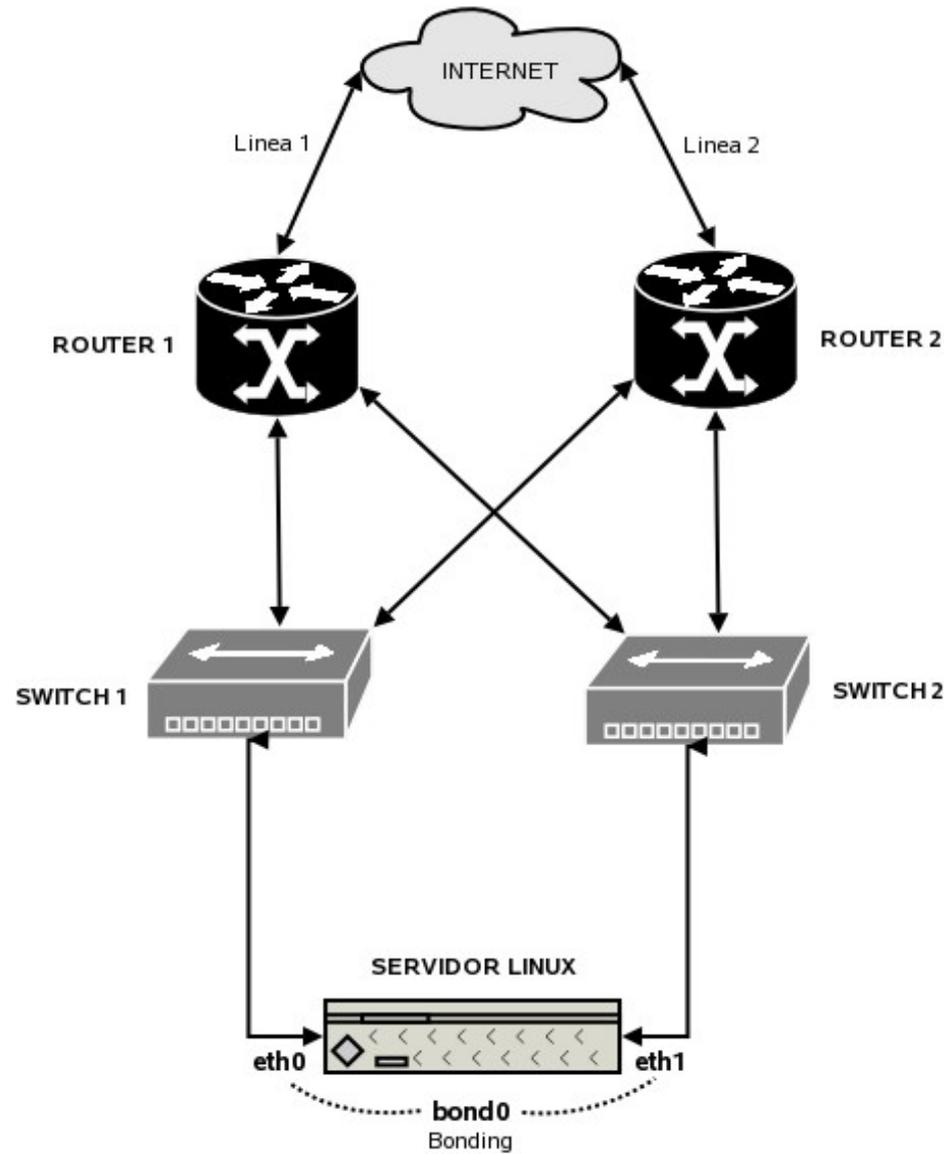


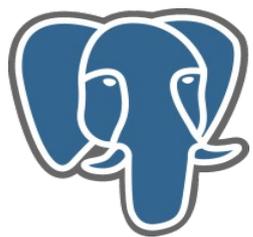
PostgreSQL





PostgreSQL



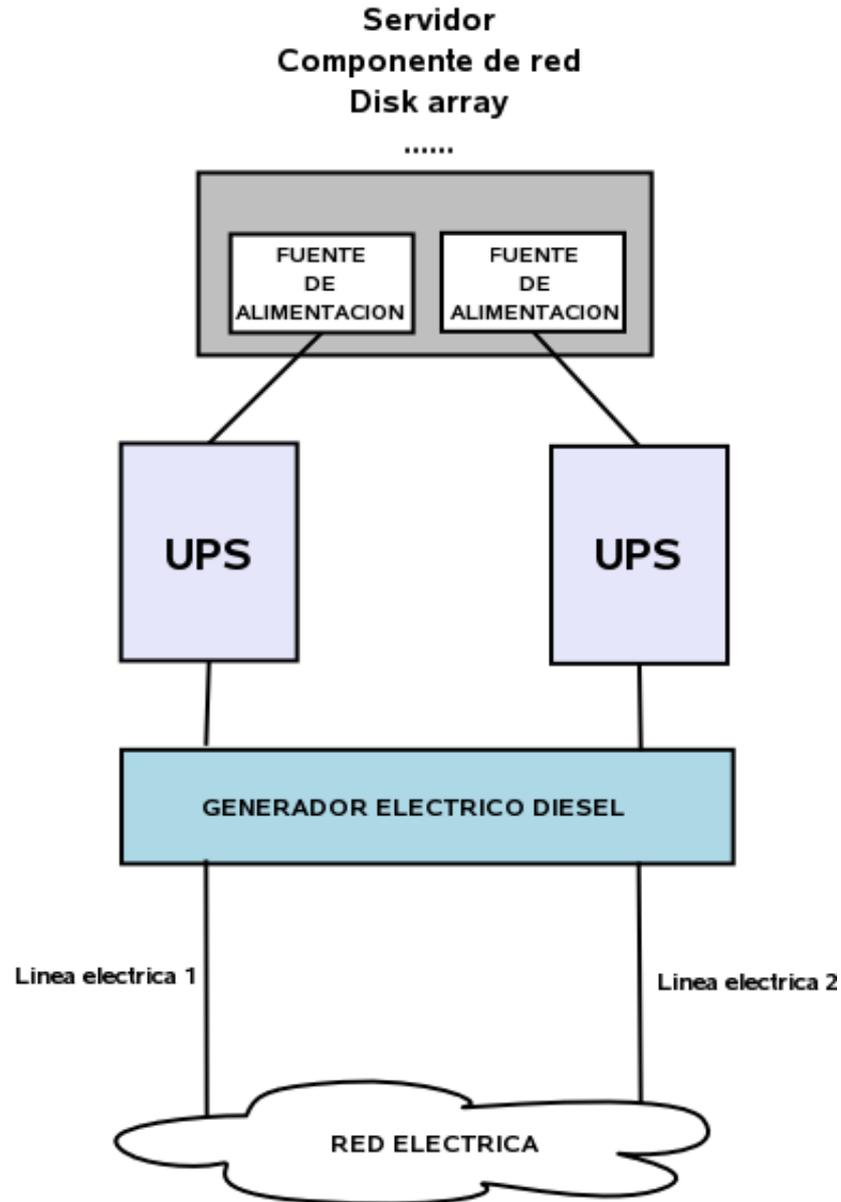


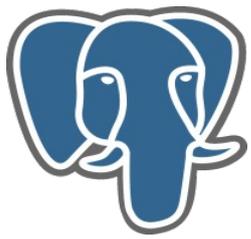
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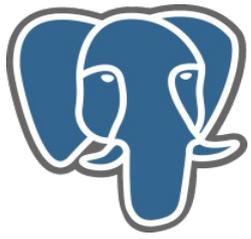
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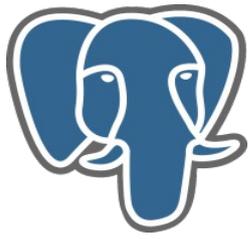
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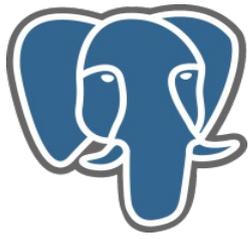
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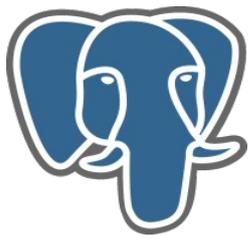
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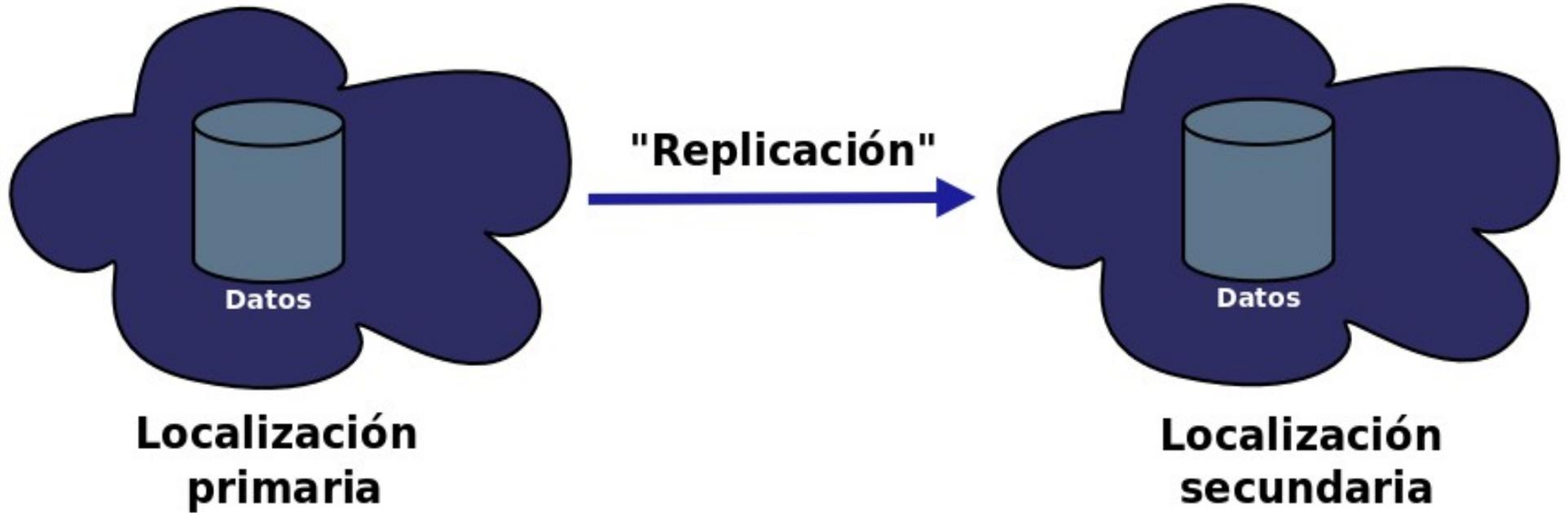


PostgreSQL





PostgreSQL

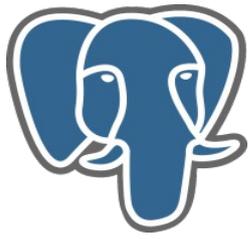




- Organización de la sala de servidores
- Cableado organizado
- Redundancia de la infraestructura de redes
- Redundancia de la red eléctrica, UPS
- Refrigeración adecuada
- Sensores de temperatura, incendios, humedad.
- Localización secundaria

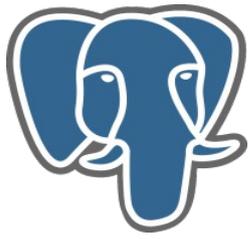


Servidores / Almacenamiento



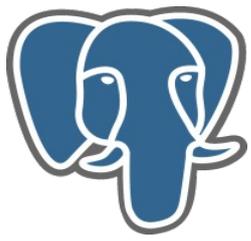
PostgreSQL



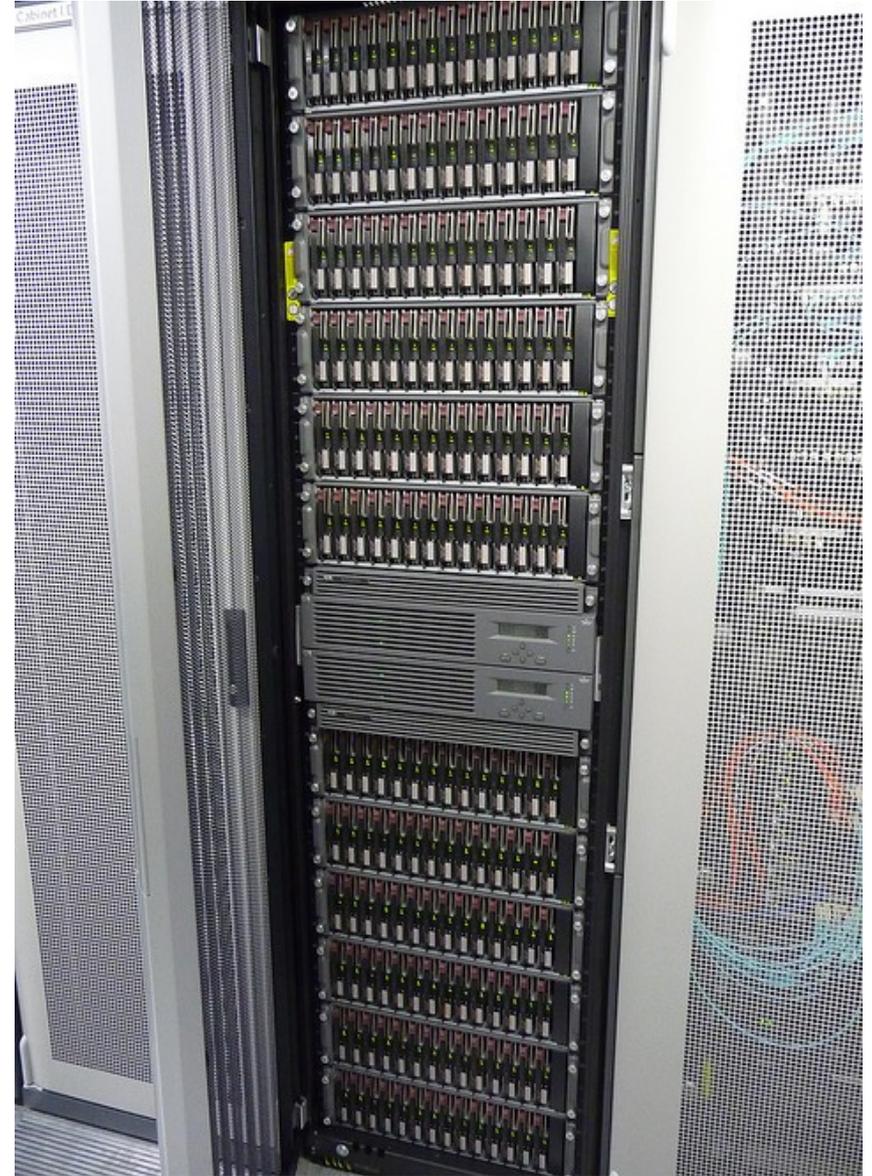


PostgreSQL





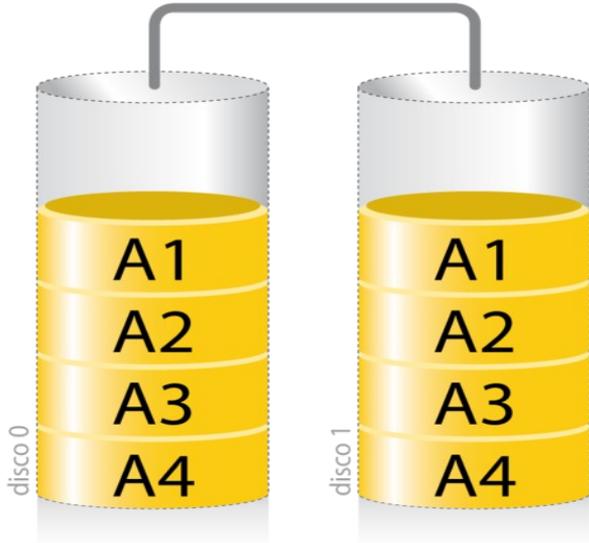
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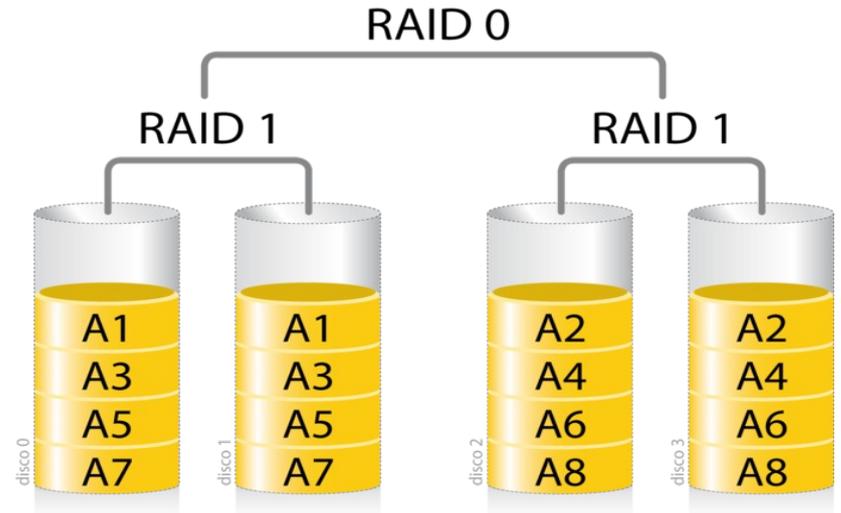


PostgreSQL

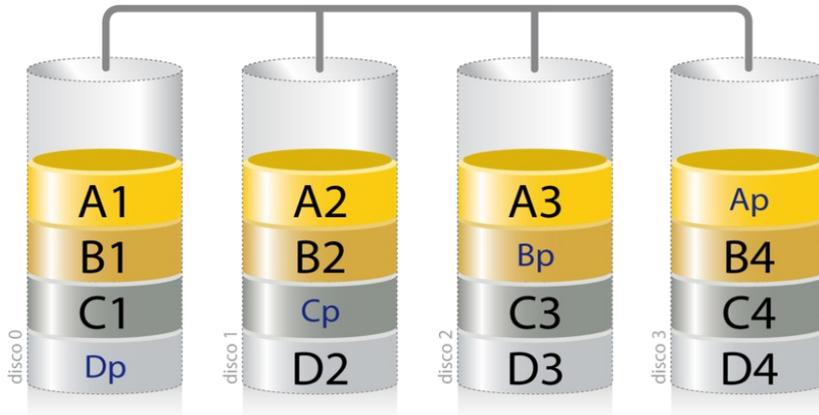
RAID 1



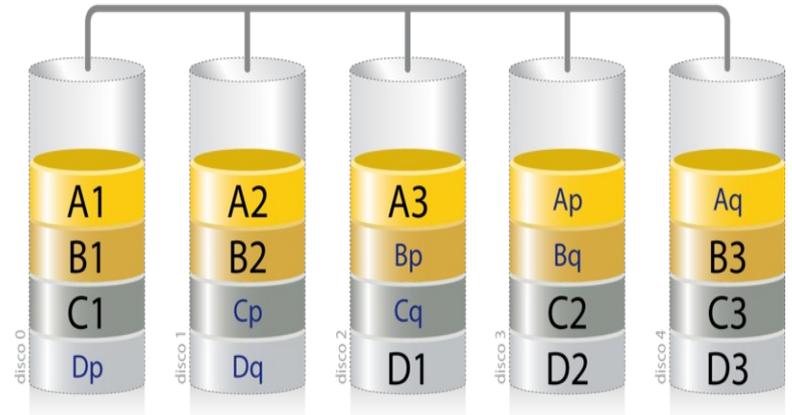
RAID 10



RAID 5

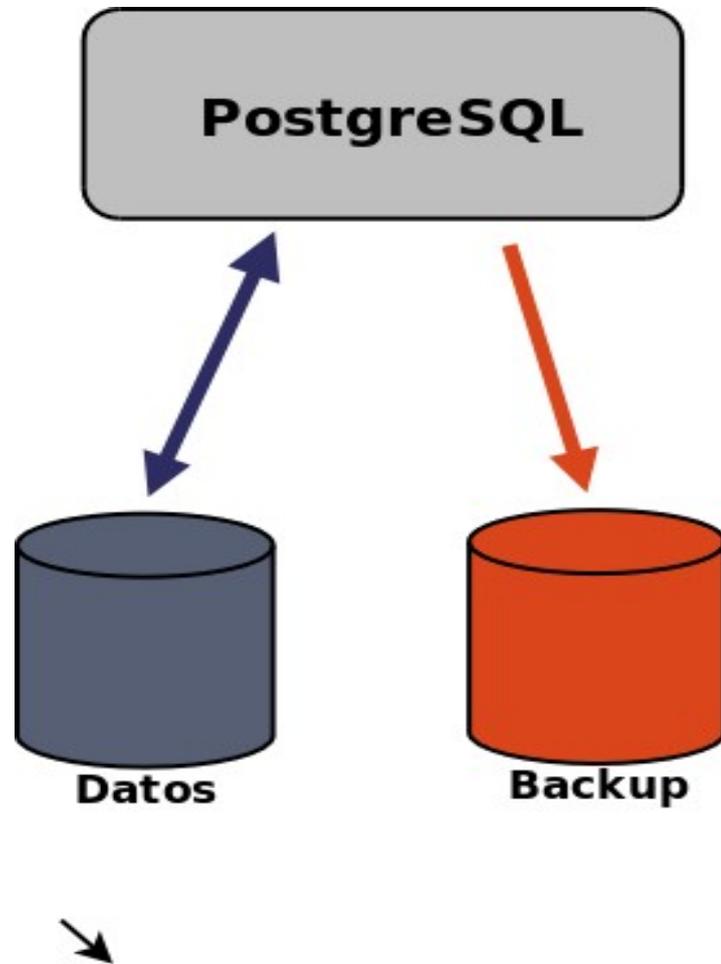


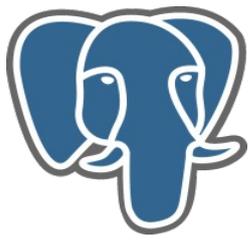
RAID 6





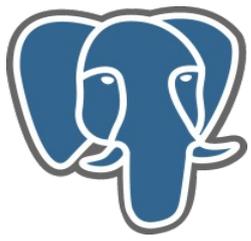
PostgreSQL



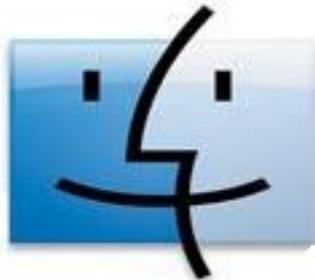
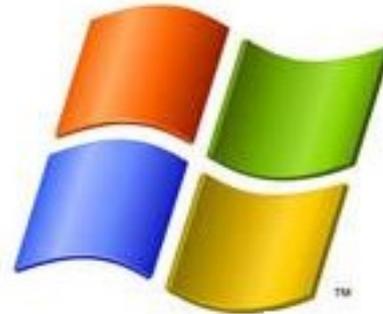
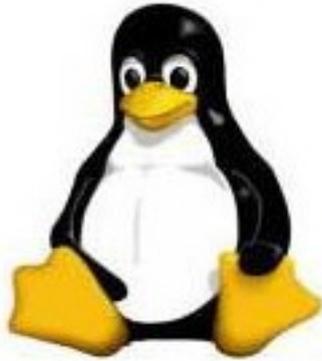


PostgreSQL



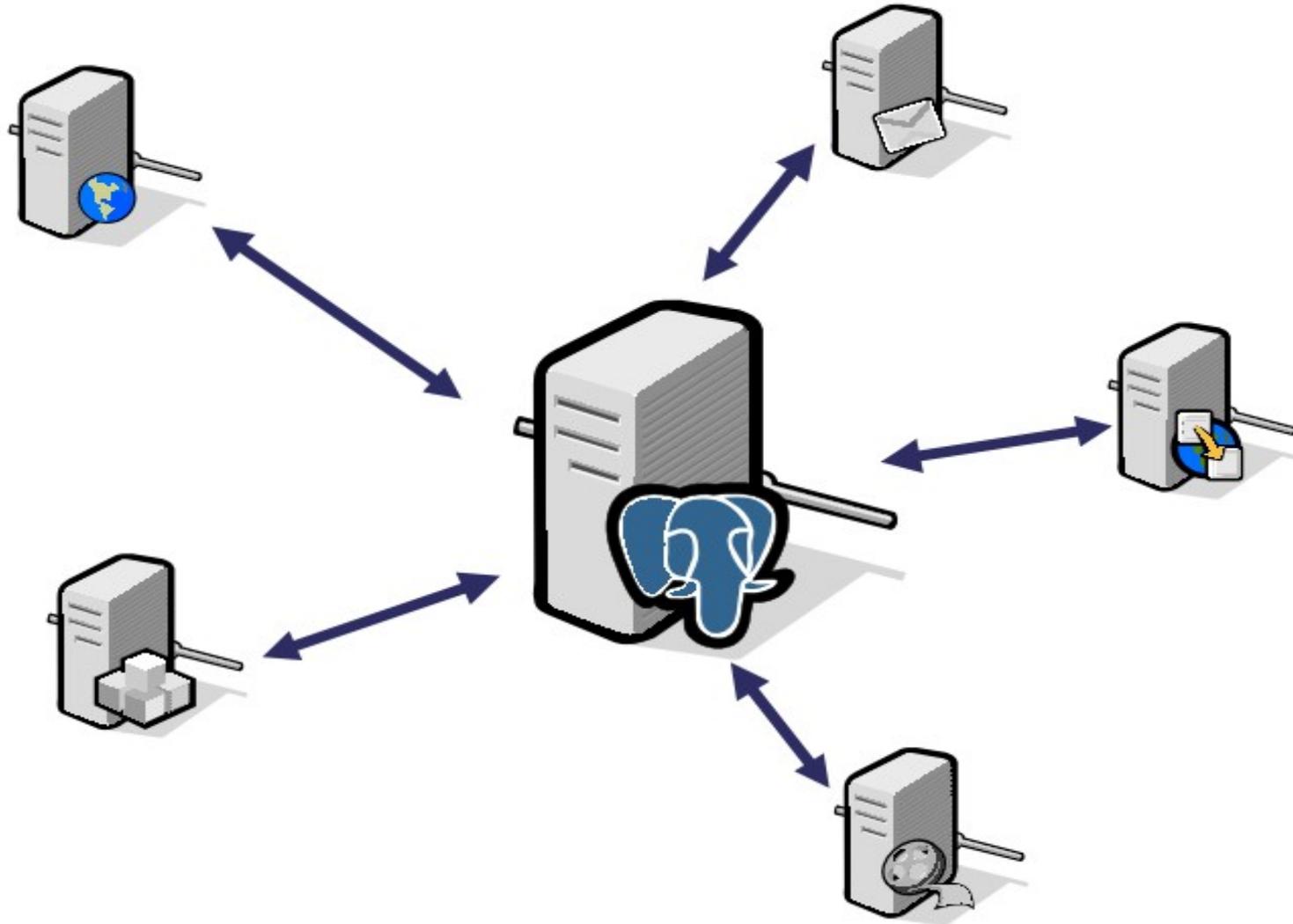


PostgreSQL



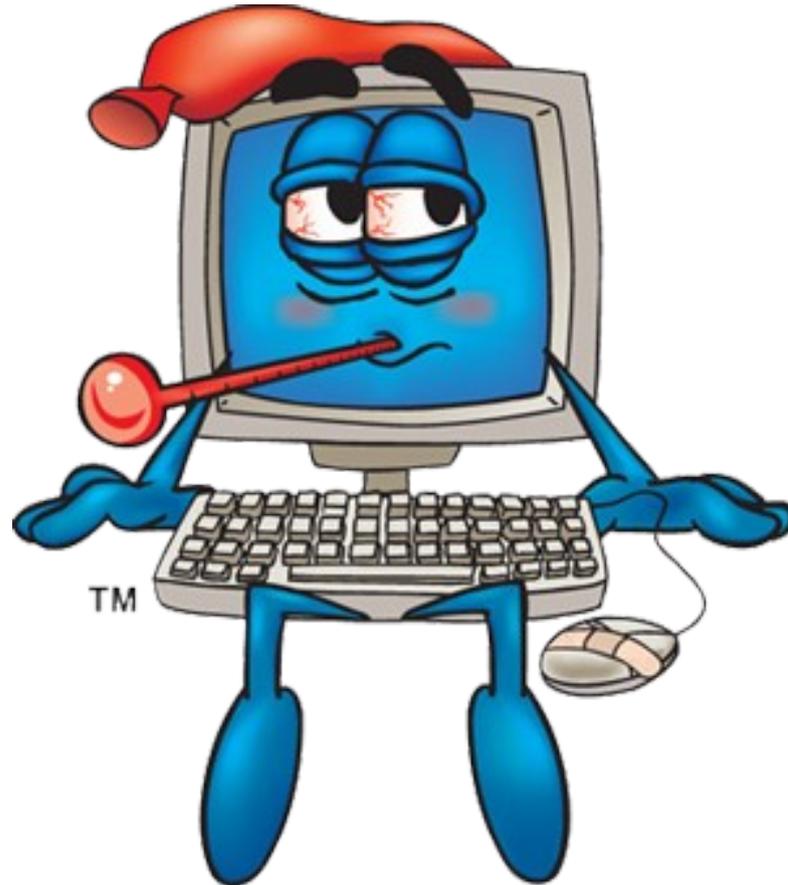


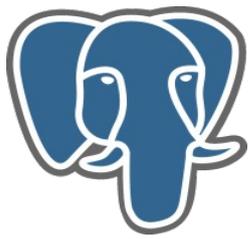
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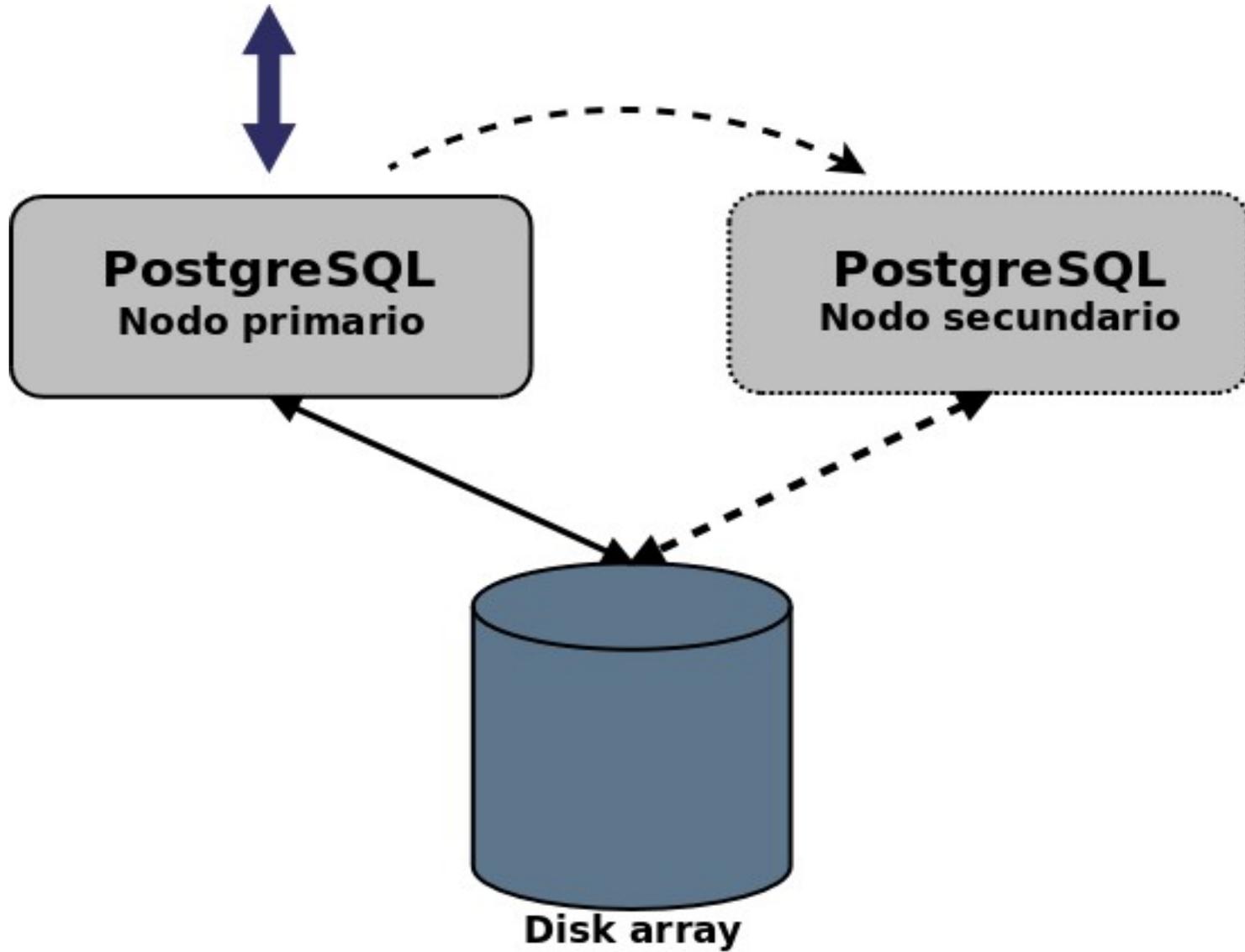


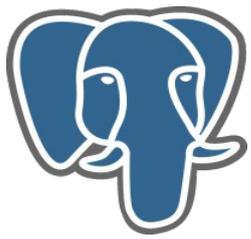
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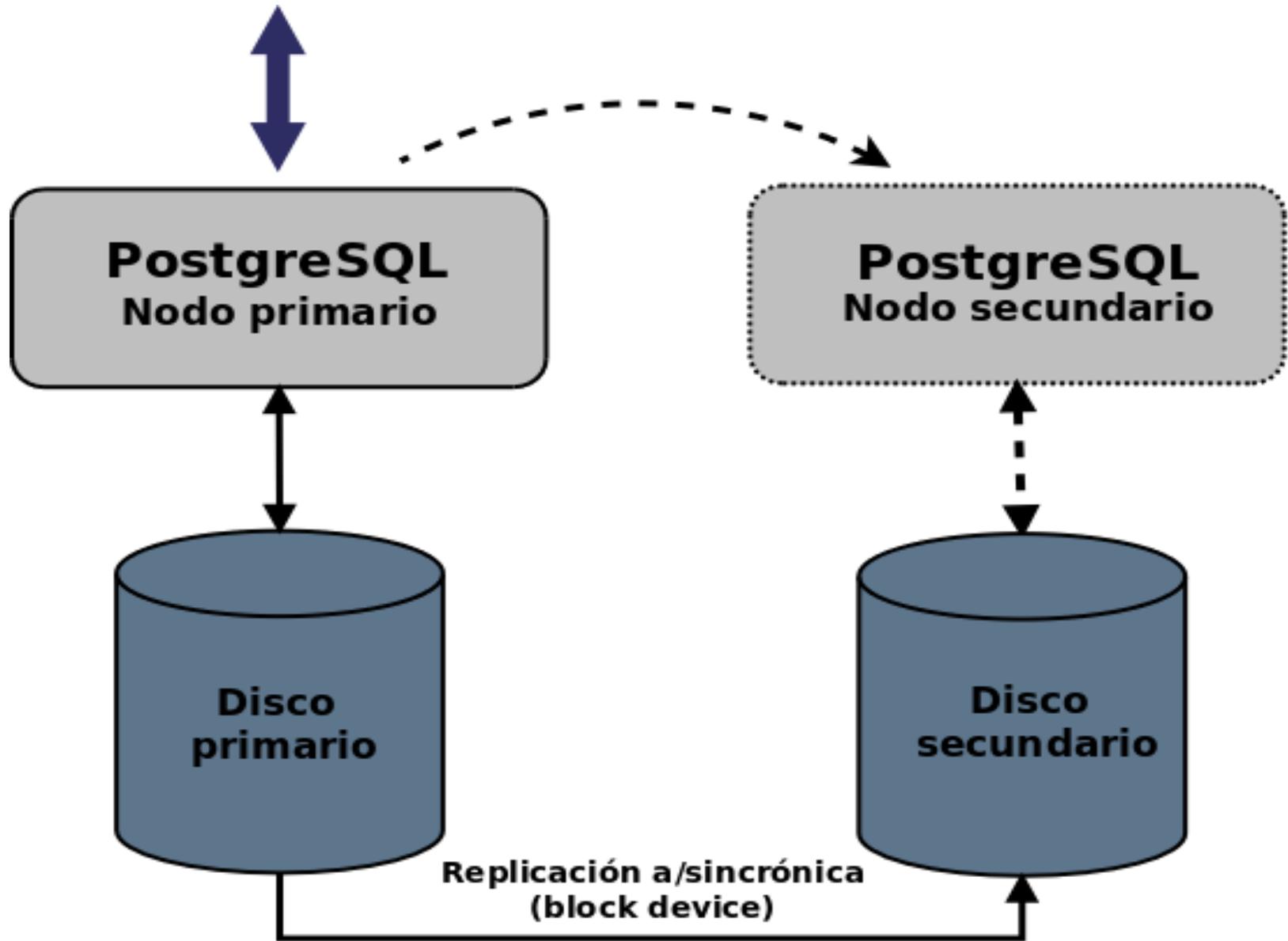


PostgreSQL



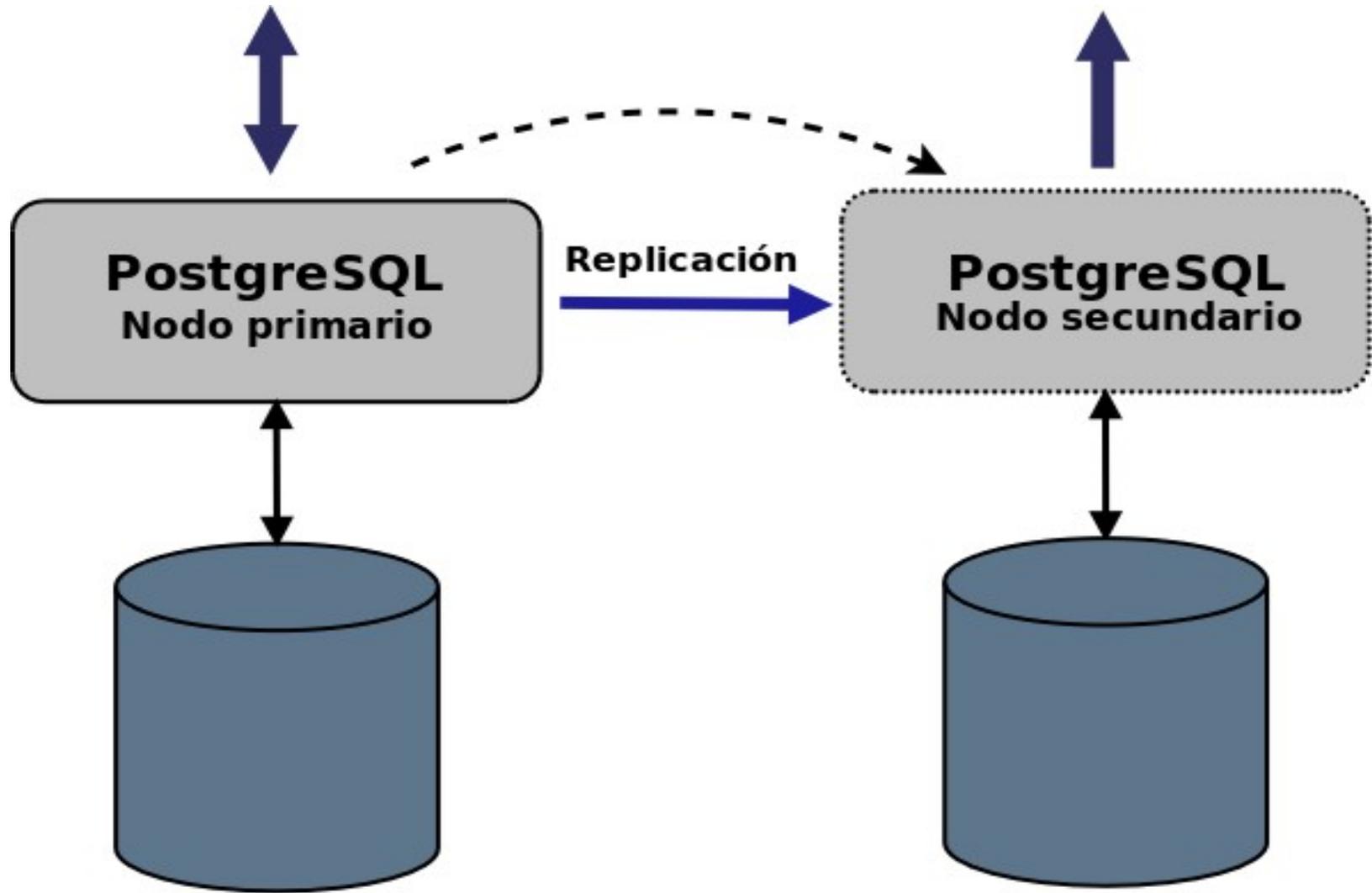


PostgreSQL





PostgreSQL

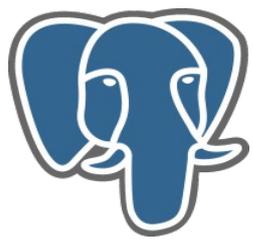




- Redundancia en el sistema de almacenamiento
- Datos y backup en diferentes sistemas de almacenamiento
- Memorias ECC
- Mantener el sistema operativo actualizado
- No tener activados servicios innecesarios
- Servidores PostgreSQL dedicados
- Servidores en espera (standby / hot-standby)

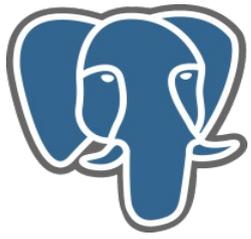


Control de acceso



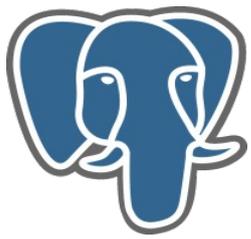
PostgreSQL



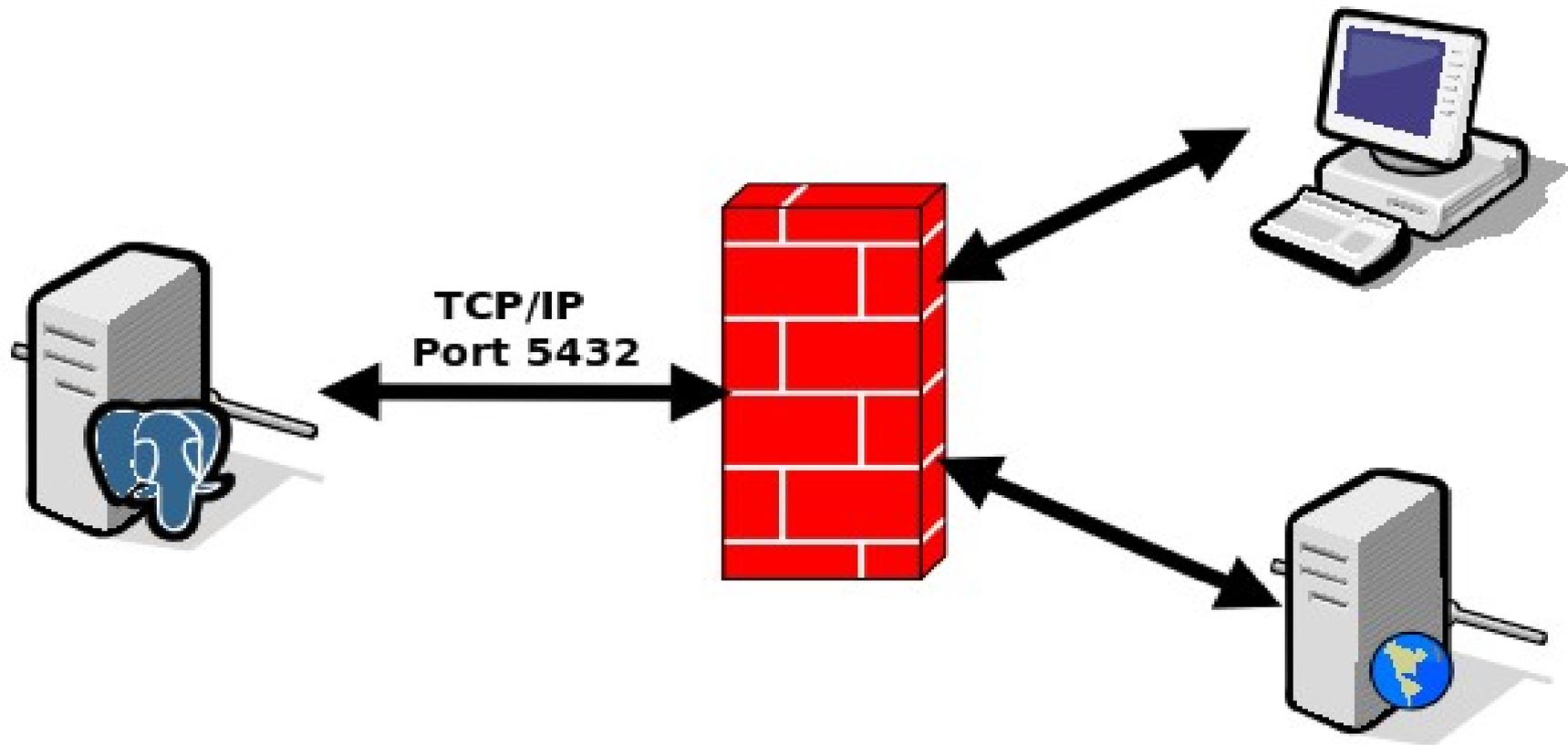


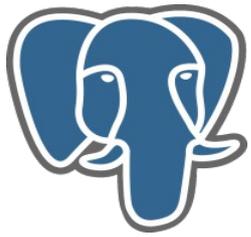
PostgreSQL





PostgreSQL





PostgreSQL

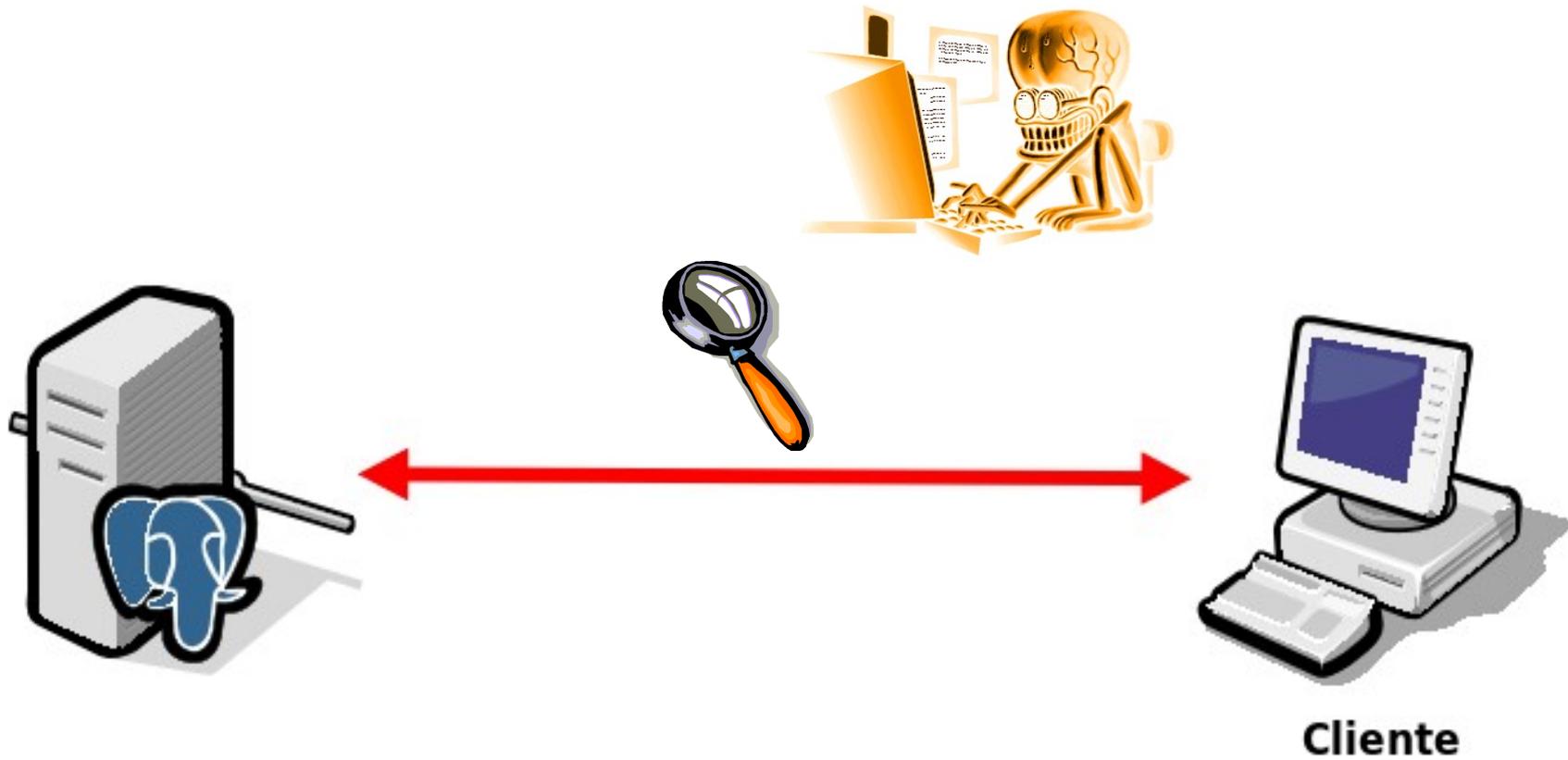
pg_hba.conf

```
local      database  user  auth-method  [auth-options]

host       database  user  CIDR-address  auth-method  [auth-options]
hostssl   database  user  CIDR-address  auth-method  [auth-options]
hostnoss1  database  user  CIDR-address  auth-method  [auth-options]

host       database  user  IP-address  IP-mask  auth-method  [auth-options]
hostssl   database  user  IP-address  IP-mask  auth-method  [auth-options]
hostnoss1  database  user  IP-address  IP-mask  auth-method  [auth-options]
```

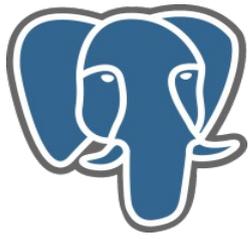
NoSSL





postgresql.conf

```
ssl = on
```



PostgreSQL

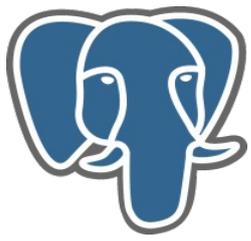
\$pgdata

```
server.crt  
server.key
```



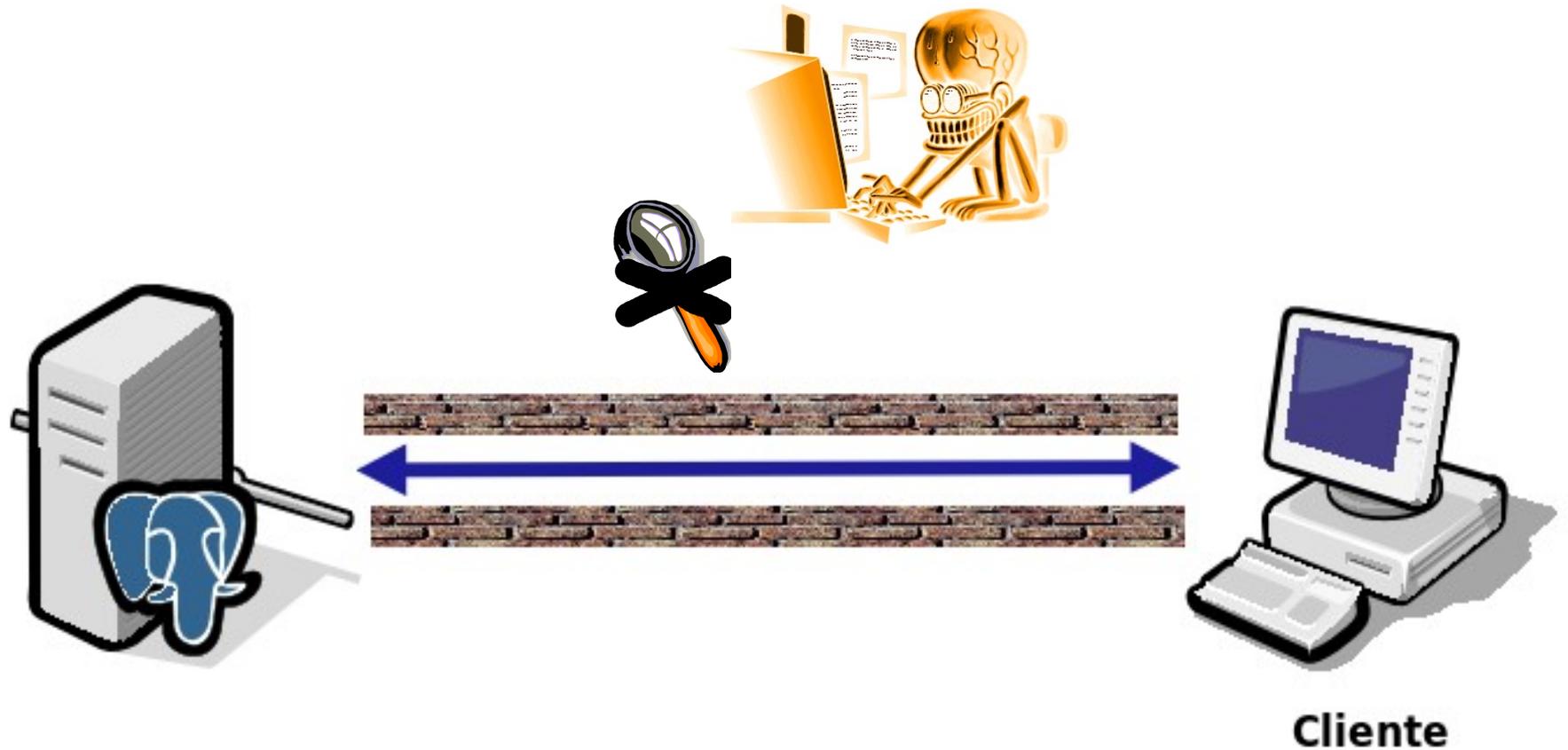
pg_hba.conf

hostssl

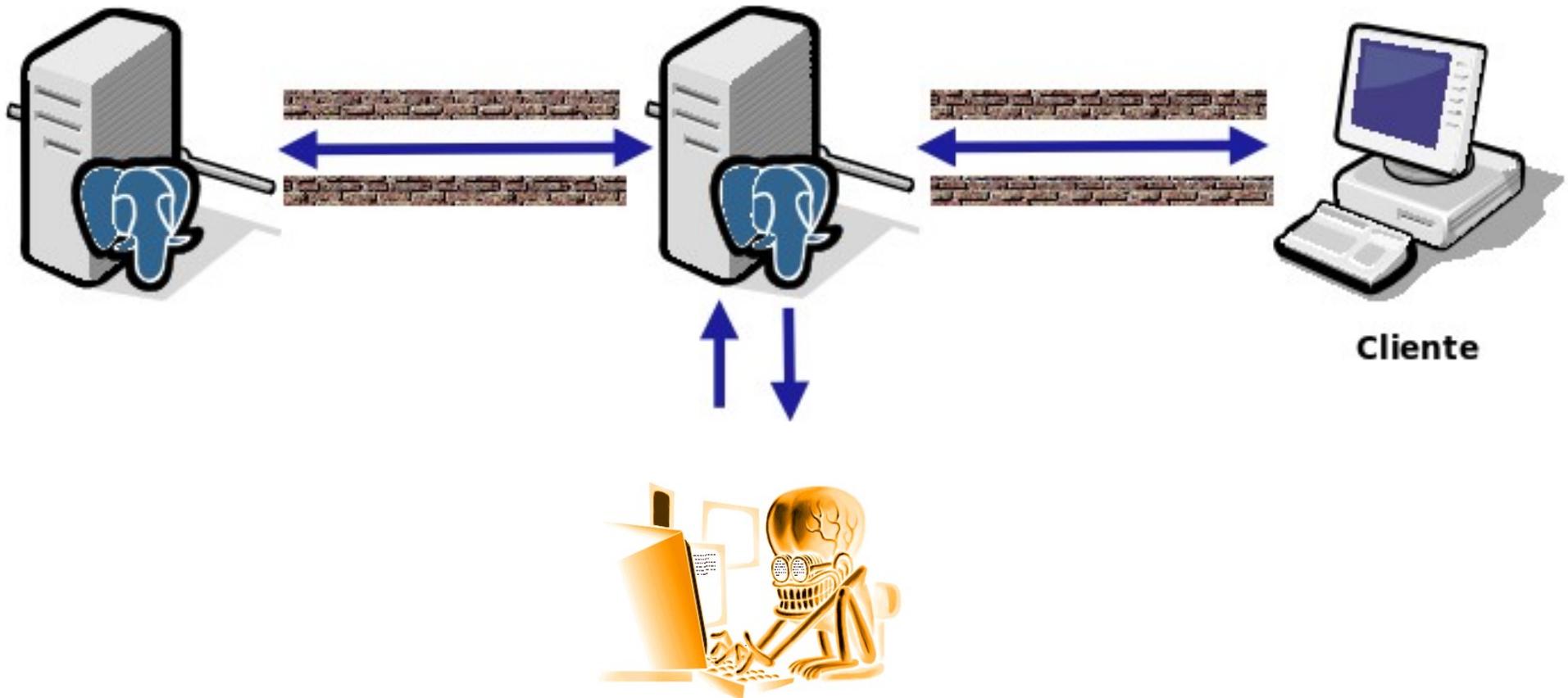


PostgreSQL

SSL

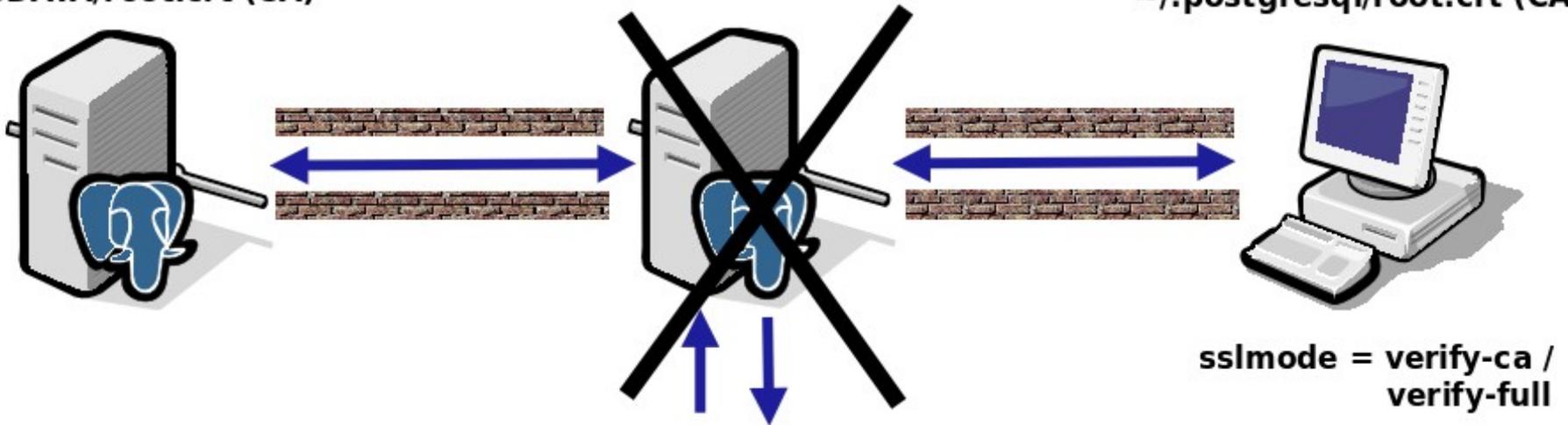


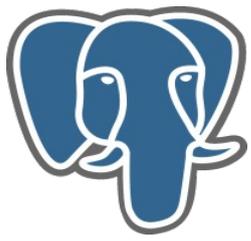
Ataque “Man-in-the-middle”



`$PGDATA/server.crt`
`$PGDATA/server.key`
`$PGDATA/root.crt (CA)`

`~/.postgresql/postgresql.crt`
`~/.postgresql/postgresql.key`
`~/.postgresql/root.crt (CA)`





PostgreSQL



Backup



- Acceso al servidor restringido a administradores
- Acceso restringido a la red / puerto 5432
- Cifrado del tráfico de red
- Uso de certificados en los clientes
- Acceso restringido a las copias de seguridad

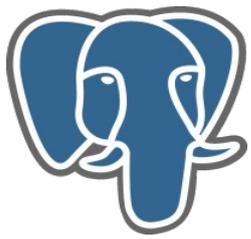


Fallos de los usuarios

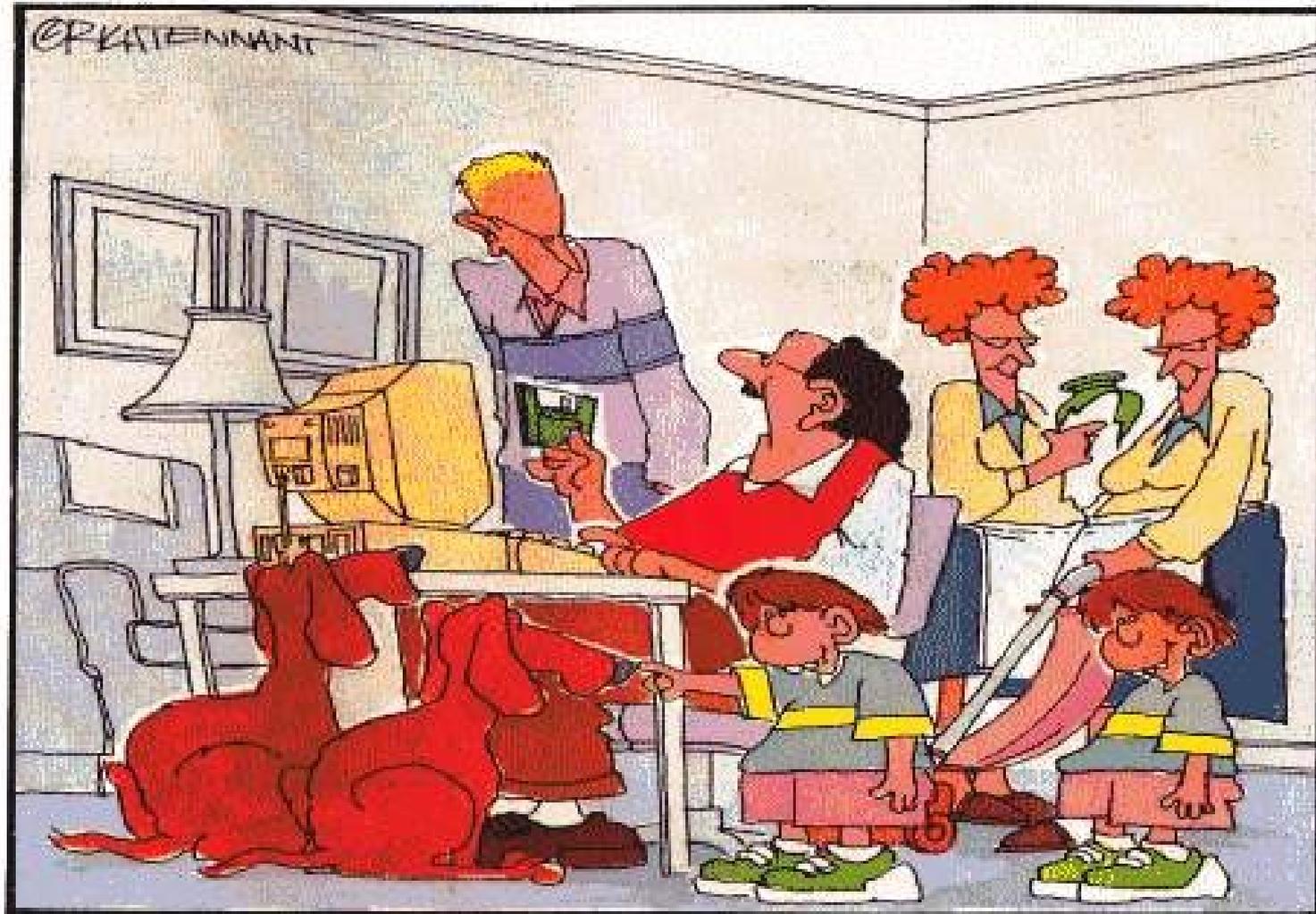


PostgreSQL

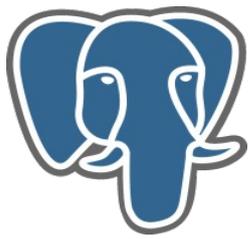




PostgreSQL

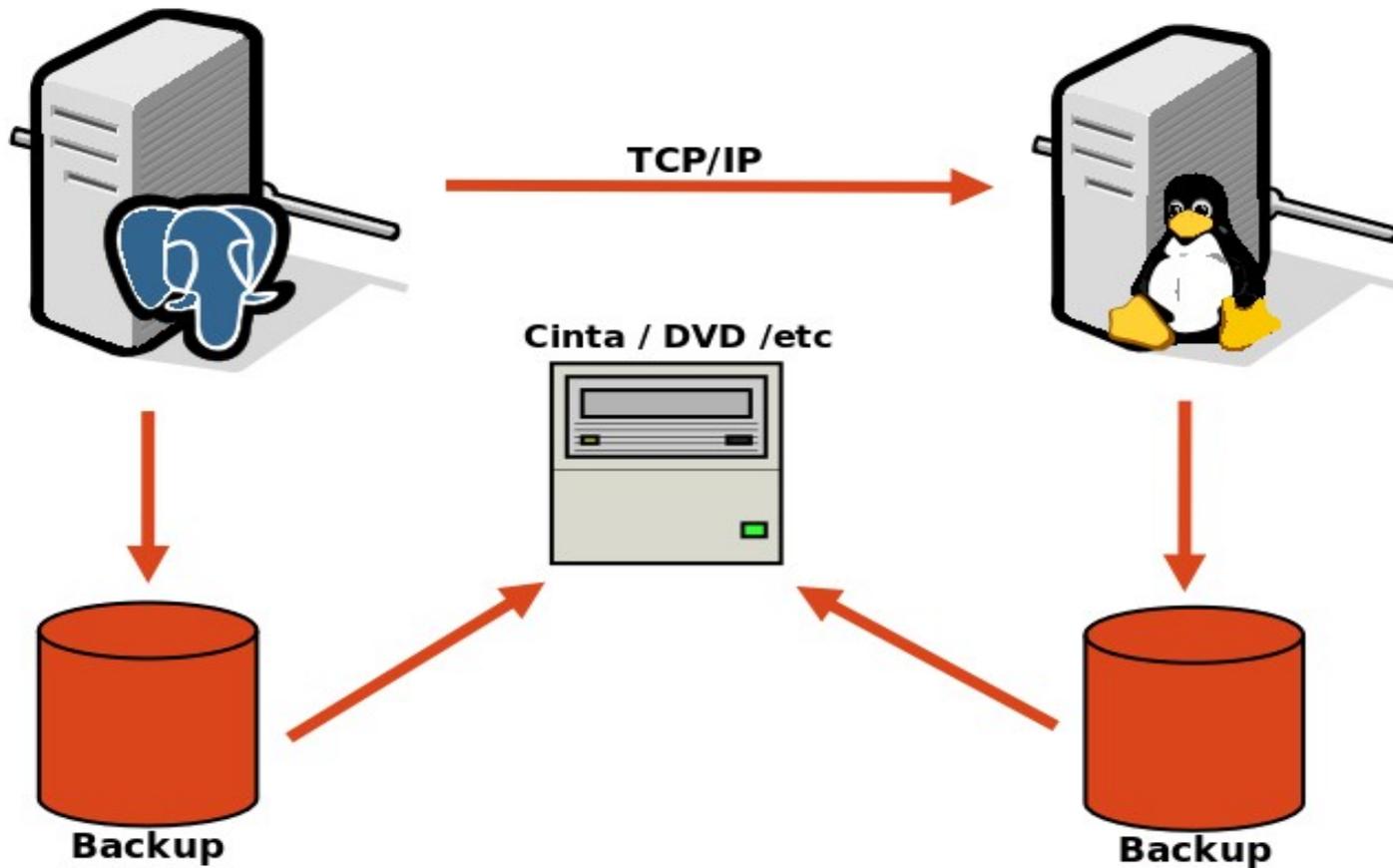


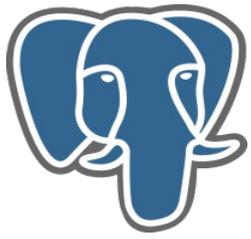
"I ALWAYS BACK UP EVERYTHING."



PostgreSQL

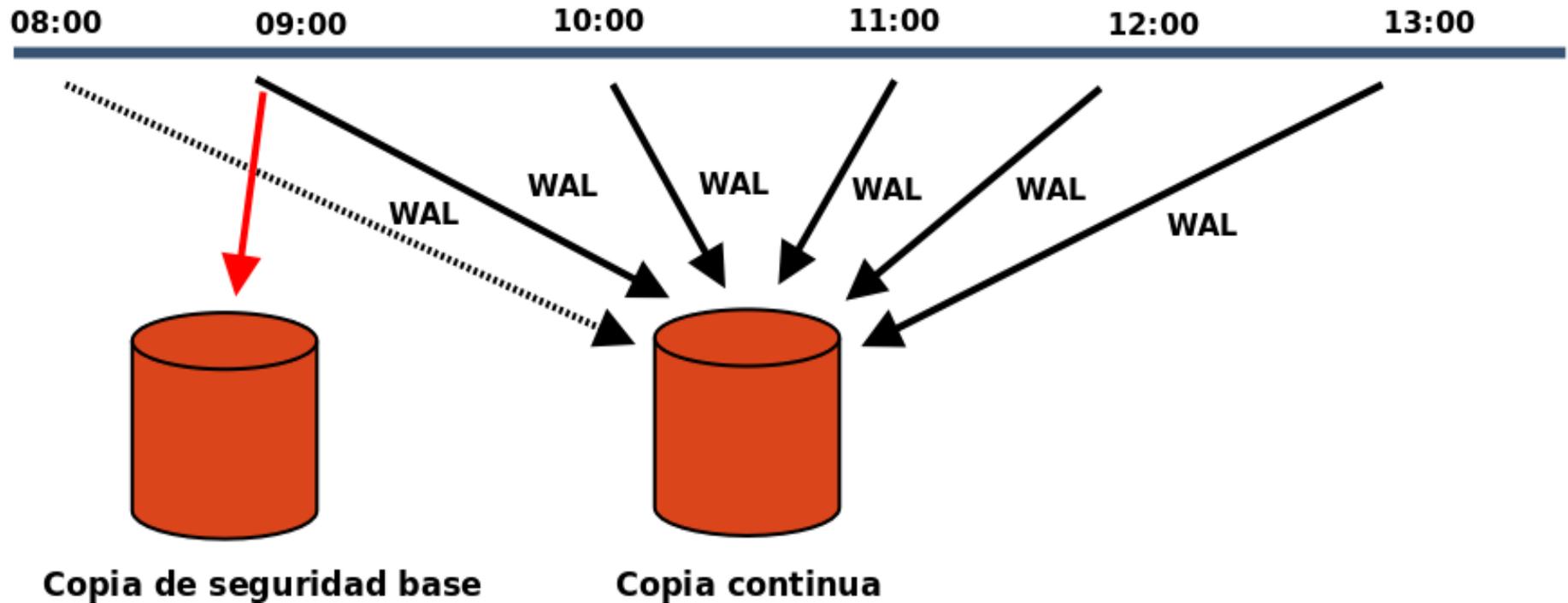
pg_dump / pg_dumpall





PostgreSQL

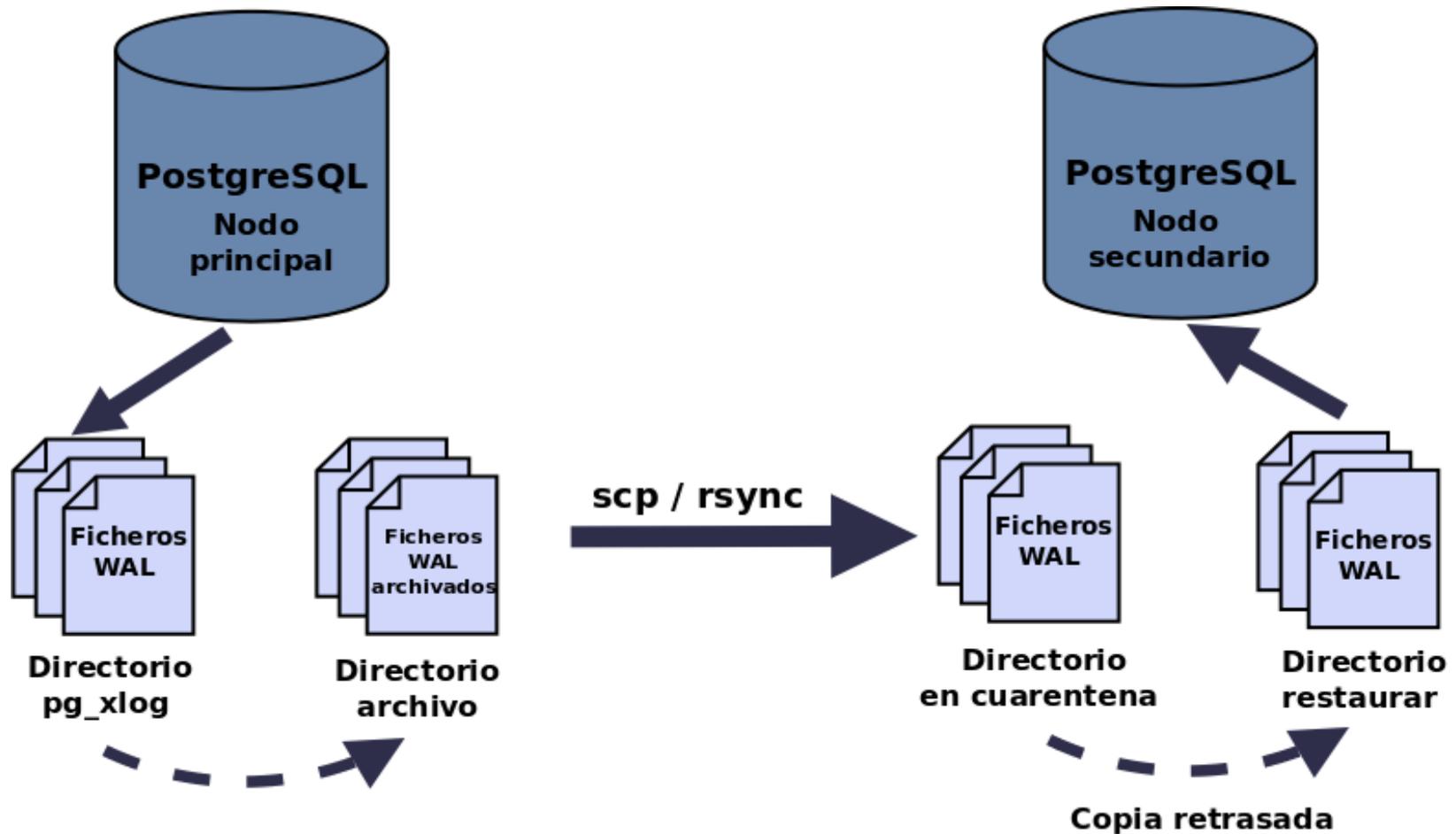
Point-In-Time-Recovery





PostgreSQL

Replicación con retardo

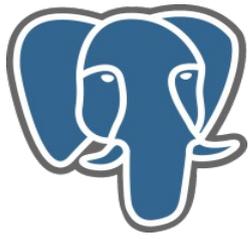




- Accesos justos y necesarios
- Buena política de copias de seguridad
- pg_dump / pg_dumpall
- PITR
- Replicación retrasada

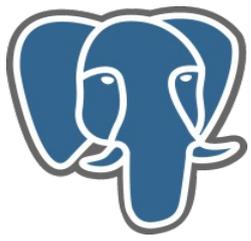


Tareas de administración



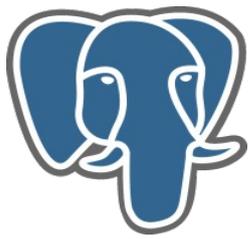
PostgreSQL



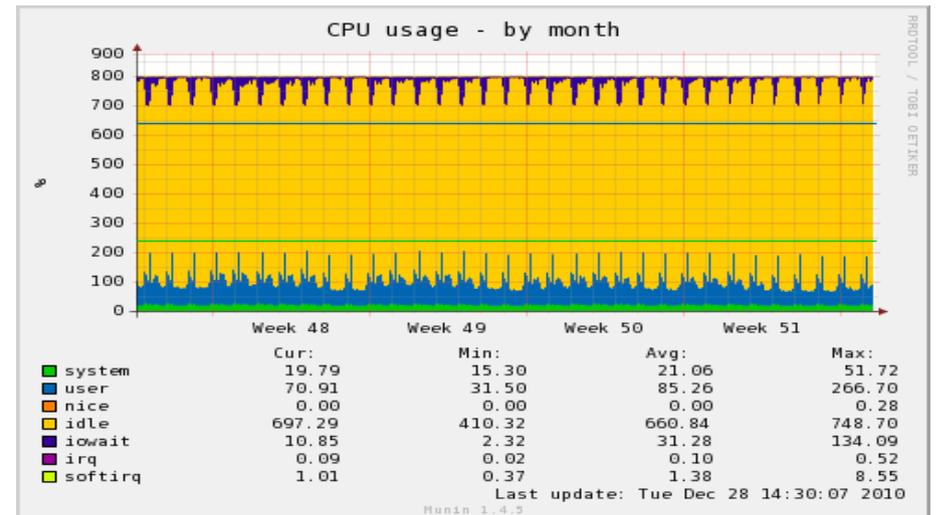
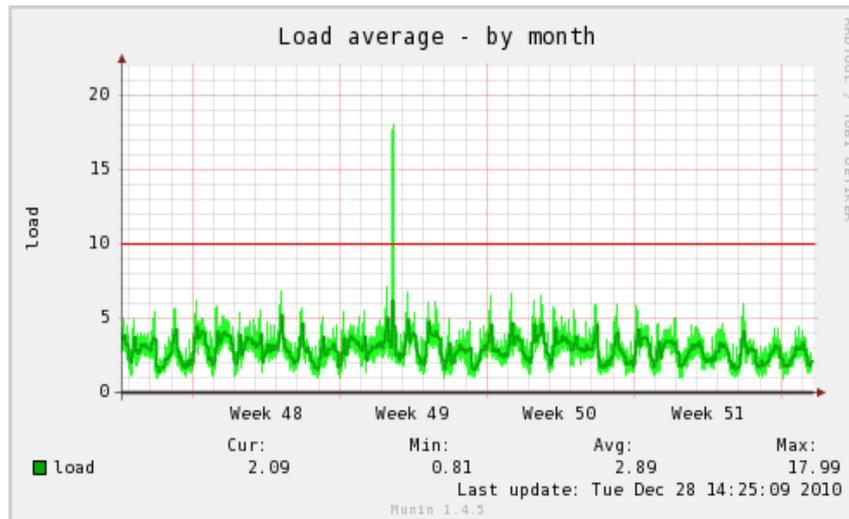
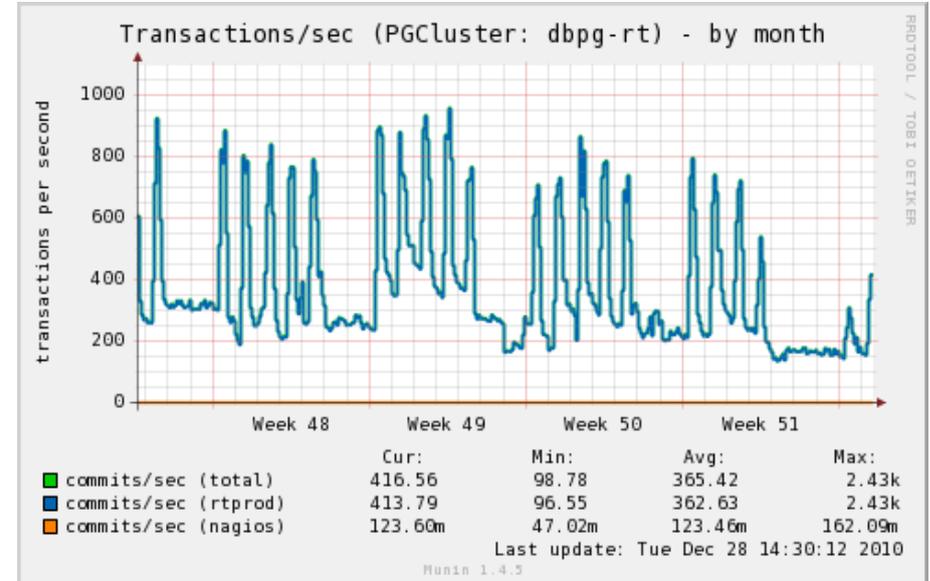
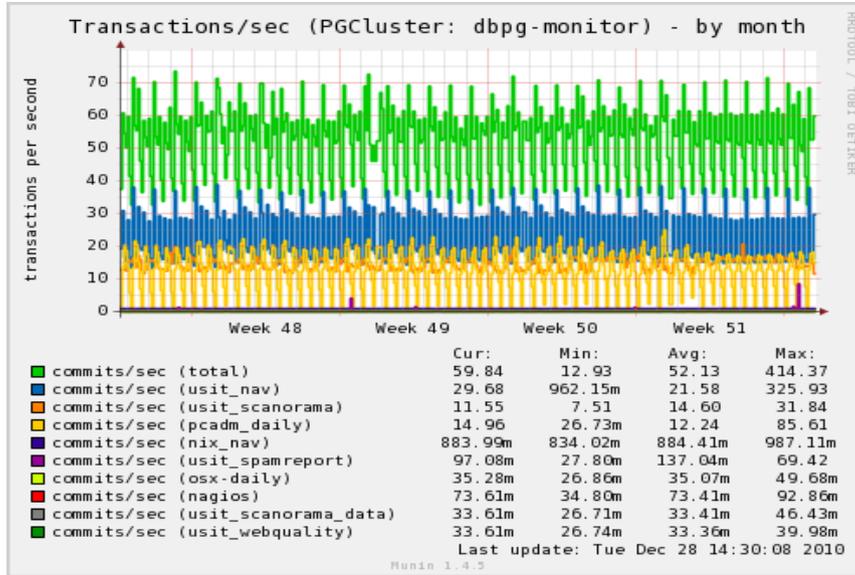


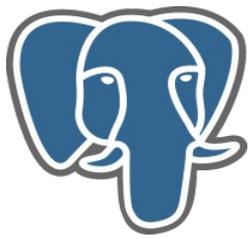
PostgreSQL





PostgreSQL





PostgreSQL

Current Status

- Tactical Overview
- Map
- Hosts
- Services
- Host Groups
- Service Groups
- Problems
- Reports
- System
- General

Current Network Status
Last Updated: Fri Jan 15 12:13:56 EST 2010
Updated every 90 seconds
Nagios® Core™ 3.2.0 - www.nagios.org
Logged in as *mwall*

Host Status Totals
Up: 19, Down: 3, Unreachable: 0, Pending: 9

Service Status Totals
Ok: 180, Warning: 0, Unknown: 4, Critical: 13, Pending: 0

Service Status Details For All

Host	Service	Status	Last Check	Duration
backup0	cpu	CRITICAL	2010-01-15 12:13:23	5d 22h 59m 23s
	disks	CRITICAL	2010-01-15 12:09:05	5d 22h 58m 14s
	load	CRITICAL	2010-01-15 12:09:48	5d 22h 59m 40s
	mem	CRITICAL	2010-01-15 12:10:37	5d 22h 55m 57s
	net	CRITICAL	2010-01-15 12:11:19	5d 22h 58m 57s
	ntp	CRITICAL	2010-01-15 12:12:00	5d 22h 56m 18s
	ping	CRITICAL	2010-01-15 12:12:44	5d 22h 59m 10s
	proc	CRITICAL	2010-01-15 12:13:23	5d 22h 59m 32s
	ssh	CRITICAL	2010-01-15 12:09:07	5d 22h 55m 39s
	swap	CRITICAL	2010-01-15 12:09:51	5d 22h 59m 23s
	ups-charge	UNKNOWN	2010-01-15 12:10:37	5d 22h 56m 31s
	ups-load	UNKNOWN	2010-01-15 12:11:19	5d 22h 58m 40s
	ups-temp	UNKNOWN	2010-01-15 12:12:00	5d 22h 57m 12s
	ups-time	UNKNOWN	2010-01-15 12:12:50	5d 22h 59m 32s
uptime	CRITICAL	2010-01-15 12:13:29	5d 22h 55m 16s	
users	CRITICAL	2010-01-15 12:09:08	5d 22h 55m 16s	
backup1	cpu	OK	2010-01-15 12:09:51	9d 11h 48m 49s
	disks	OK	2010-01-15 12:10:37	9d 11h 44m 41s
	load	OK	2010-01-15 12:11:19	9d 10h 6m 22s
	mem	OK	2010-01-15 12:12:08	9d 11h 48m 6s
	net	OK	2010-01-15 12:12:50	6d 10h 22m 20s
	ntp	OK	2010-01-15 12:13:29	9d 11h 40m 42s
	proc	OK	2010-01-15 12:09:08	9d 11h 37m 30s
	swap	OK	2010-01-15 12:09:51	9d 9h 44m 8s
	ups-charge	OK	2010-01-15 12:10:40	9d 9h 50m 14s
	ups-load	OK	2010-01-15 12:11:26	5d 23h 34m 53s
ups-temp	OK	2010-01-15 12:12:08	8d 17h 29m 8s	
ups-time	OK	2010-01-15 12:12:50	9d 9h 52m 36s	

Nagiosgraph
Data for host **backup1**, service **load** as of Fri Jan 15 12:12:28 2010

Daily (Jan 14 03:00 to Jan 15 12:00)

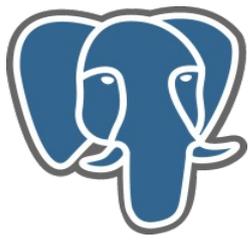
avg1min	Max: 1.86	Avg: 205.84m	Min: 0.00	Cur: 79.47m
avg5min	Max: 1.73	Avg: 204.00m	Min: 0.00	Cur: 47.37m
avg15min	Max: 1.49	Avg: 198.96m	Min: 0.00	Cur: 30.00m

Weekly (Jan 6 to Jan 15)

avg1min	Max: 1.85	Avg: 177.13m	Min: 0.00
avg5min	Max: 1.79	Avg: 175.30m	Min: 0.00
avg15min	Max: 1.54	Avg: 166.51m	Min: 0.00

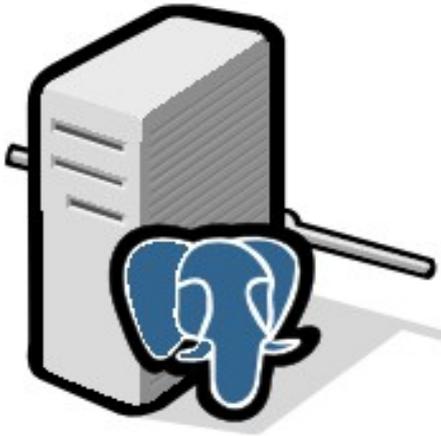
Monthly (Dec 11 to Jan 15)

avg1min	Max: 1.01	Avg: 176.87m	Min: 0.00
avg5min	Max: 1.07	Avg: 174.20m	Min: 0.00
avg15min	Max: 0.87	Avg: 166.51m	Min: 0.00



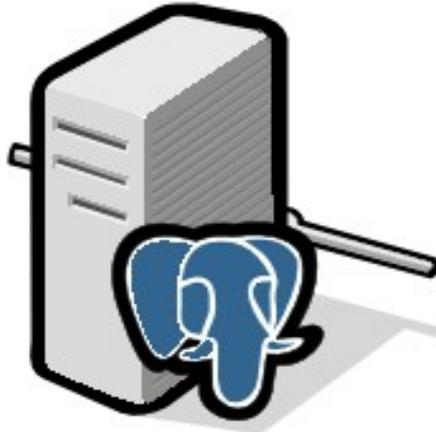
PostgreSQL

Desarrollo



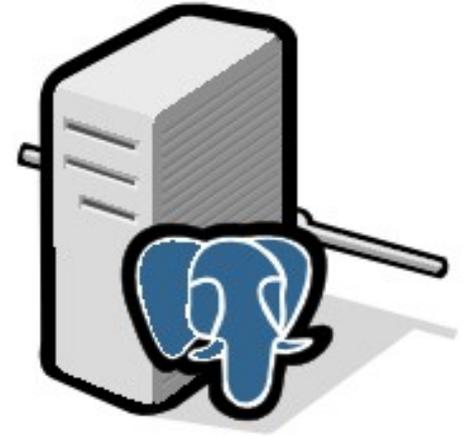
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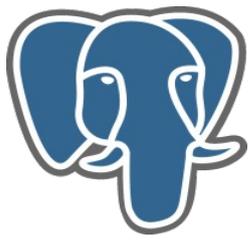
Test



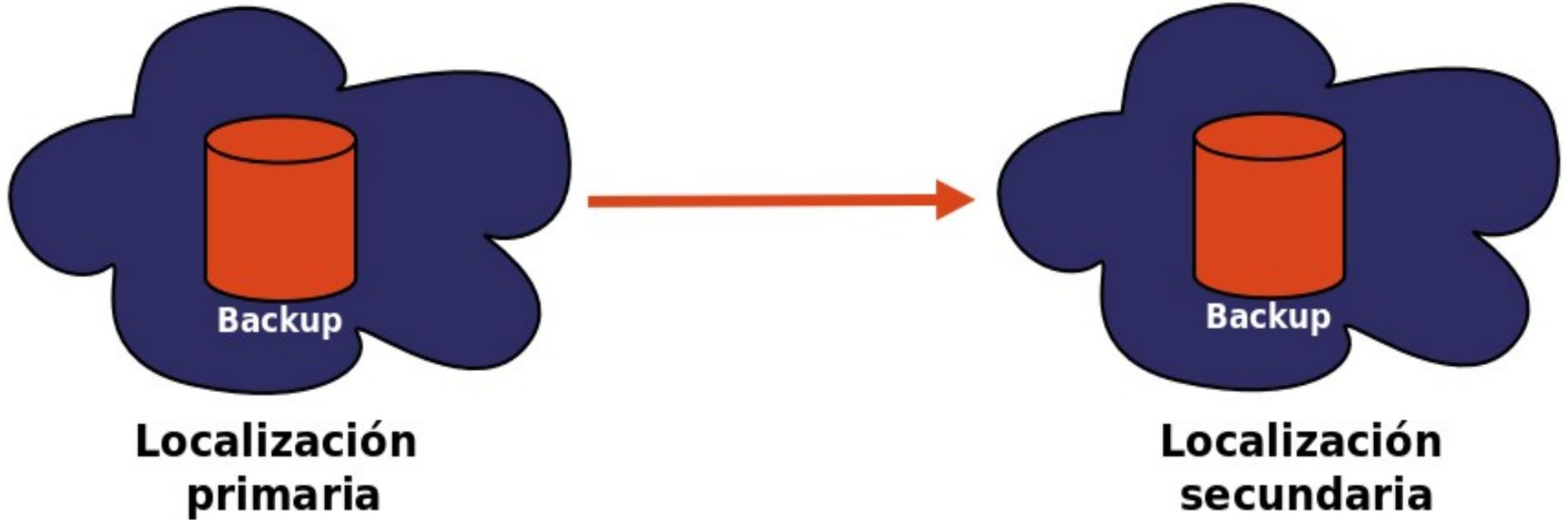
!=

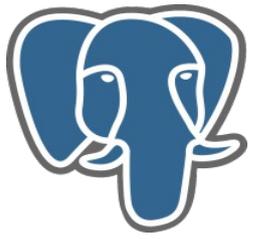
Producción





PostgreSQL





PostgreSQL





- Procedimientos claros y comprobados
- Documentación
- Registro de cambios
- Monitorización y estadísticas
- División clara entre producción, test y desarrollo
- Copias de seguridad externas
- Plan de emergencia



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