

Databases, SQL

Jaromir Talir • jaromir.talir@nic.cz • 01.06.2016



Agenda

- Database systems
- Access to database
 - SQL – Structured Query Language
- Database backup
- Database replication



Database

- The Heart of the registry software
- Permanent storage of all the data
- Usually decided by registry software vendor
 - Popular solution is PostgreSQL



Access to database

- Direct access to database is sometimes needed
 - Get more information that tools provide
 - Diagnostic of some events
 - Manual correction of mistakes
 - Changes not available by tools
- Must be done with caution!
- Knowledge of database schema is necessary



SQL

- **Structured Query Language**
- Standard way how to talk to database servers
 - Different vendors of database servers provide slightly modified versions of SQL
- Can be used to get information from database
- Two subset
 - Data Definition Language
 - Data Modification Language



SQL

- Data Definition Language
- CREATE TABLE domains (
 fqdn char(100),
 exdate date
);



SQL

- Data Modification Language
- INSERT INTO TABLE domains VALUES (
 'nic.cz',
 '2012-12-31'
);



SQL

- SELECT exdate
FROM domains
WHERE fqdn='nic.cz';



Database backup

- Prevention – unlucky events happens
 - HW failures
 - System errors
 - Unwanted changes
- Should be done automatically by some cron scripts
- Recovery procedures should be tested regularly



Database backup

- PostgreSQL provides more options
- Dumping – pg_dump, psql and pg_restore
- Continuous archiving
 - For large data databases
 - Similar process as replication
- Check PostgreSQL documentation



Database replication

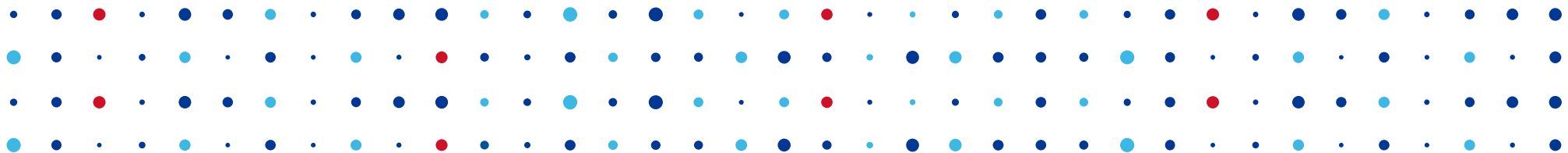
- High Availability(HA) concept means that failure of any component will not cause non-availability
- For database it means that there should be a second database server for case of failure of the first one
- Replication provides you with synchronized data in both locations



Database replication

- In PostgreSQL, replication is Master->Slave
 - Slave is read-only, cannot accept updates
- Several different options
 - Slony
 - Internal streaming replication





Thank You

Jaromir Talir • jaromir.talir@nic.cz

