Publication date : 05/14/2024

Course : PostgreSQL, high availability

Practical course - 3d - 21h00 - Ref. PGH
Price : 2040 CHF E.T.

3,9 / 5

This course provides PostgreSQL administrators with an understanding of high availability mechanisms and an overview of existing solutions. It teaches them how to implement an operational solution with PostgreSQL, detailing the different types of replication and load balancing.

Teaching objectives

At the end of the training, the participant will be able to:

- Implement physical replication between instances
- Reinforce replication in conjunction with physical backups
- Modify replication topology
- Implement logical replication between databases
- Controlling load distribution
- Create and test failure scenarios

Intended audience

Database administrators and system administrators.

Prerequisites

Good knowledge of PostGreSQL administration or knowledge equivalent to that acquired in the course "PostgreSQL, administration" (ref. PGA). Basic knowledge of Linux administration

Course schedule

PARTICIPANTS

Database administrators and system administrators.

PREREQUISITES

Good knowledge of PostGreSQL administration or knowledge equivalent to that acquired in the course "PostgreSQL, administration" (ref. PGA). Basic knowledge of Linux administration

TRAINER QUALIFICATIONS

The experts leading the training are specialists in the covered subjects. They have been approved by our instructional teams for both their professional knowledge and their teaching ability, for each course they teach. They have at least five to ten years of experience in their field and hold (or have held) decision-making positions in companies.

ASSESSMENT TERMS

The trainer evaluates each participant's academic progress throughout the training using multiple choice, scenarios, hands-on work and more.
Participants also complete a placement test before and after the course to measure the skills they've developed.

1 Introduction and reminders

- Backup modes: physical, logical.
- PostgreSQL transaction logs: WALs.
- Physical backup.
- Archivage continu.
- Restore an instance - PITR.
- Tools: pg_basebackup, pg_receivewal.

Hands-on work
Hot backup and partial restoration.

2 Physical replication

- Creation of a physical backup server.
- Replication configuration.
- Synchronous/asynchronous replication.
- Replication slots.
- Replication monitoring.
- Controlled tilt.
- Failover and backup server promotion.

Hands-on work
Implementing replication. Manipulating configuration parameters.

3 Logical replication

- Differences from physical replication.
- PUBLISH/SUBSCRIBE model.
- Slots de réplication logique.
- Integrated logical replication.

Hands-on work
Setting up logical replication.

4 Load balancing and failover

- Installation and configuration of a load balancing tool.
- Test with pgbench.
- Recovery procedure.

Hands-on work
Configuration, testing and failure scenarios.

5 The session manager: pgbouncer

- Installation of pgbouncer.
- Pool and session configuration.
- Gestion de la sécurité.
- Implementation.
- Cas d'utilisation.

Hands-on work
Implementation of a load balancing solution with pgbouncer.

TEACHING AIDS AND TECHNICAL RESOURCES

• The main teaching aids and instructional methods used in the training are audiovisual aids, documentation and course material, hands-on application exercises and corrected exercises for practical training courses, case studies and coverage of real cases for training seminars.
• At the end of each course or seminar, ORSYS provides participants with a course evaluation questionnaire that is analysed by our instructional teams.
• A check-in sheet for each half-day of attendance is provided at the end of the training, along with a course completion certificate if the trainee attended the entire session.

TERMS AND DEADLINES

Registration must be completed 24 hours before the start of the training.

ACCESSIBILITY FOR PEOPLE WITH DISABILITIES

Do you need special accessibility accommodations? Contact Mrs. Fosse, Disability Manager, at psh-accueil@orsys.fr to review your request and its feasibility.

6 Automatic switchover: the Patroni case

- Concepts, DCS, raft protocol.
- Mise en place de pgBackRest.
- Installation and configuration of the first Patroni node.
- Set up the other Patroni nodes.
- Application access point: pgbouncer or haproxy.
- Controlled tilt.
- Bascule sur incident.

Hands-on work
Restore test and automatic Patroni/haproxy switchover on scenarios.

Dates and locations

REMOTE CLASS
2026 : 11 Mar., 15 June, 28 Sep., 23 Nov.