Continuous Integration Testing of Databases on CERN Infrastructure

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CERN openlab 2015 Summer Students

Lightning Talks
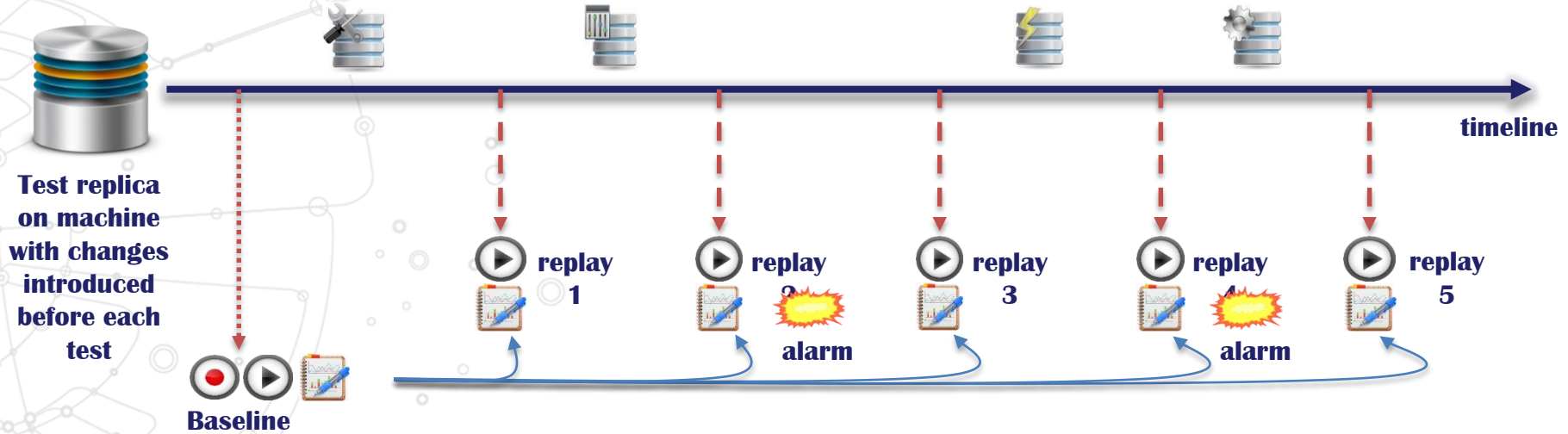
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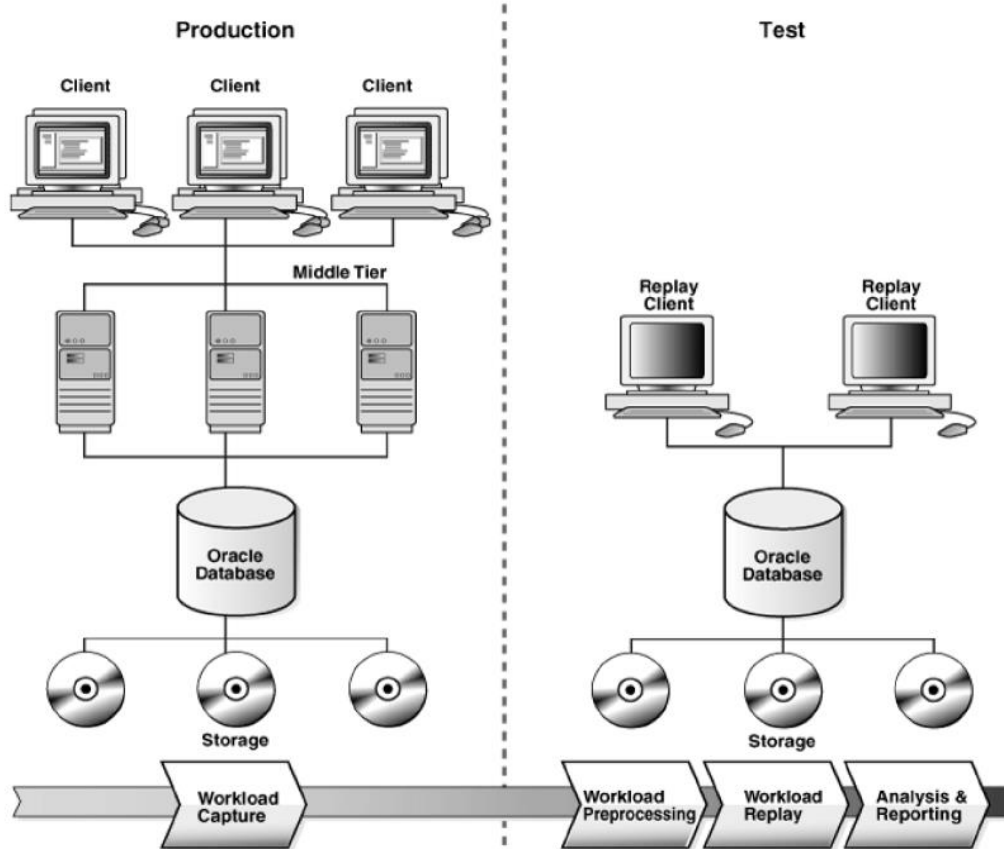Background image: Shutterstock

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Project plan

› **Create and develop automated testing environment in order to detect any problems introduced by**

- OS level changes, e.g. parameters, kernel, packages
- Database changes, e.g. parameters, versions, patches
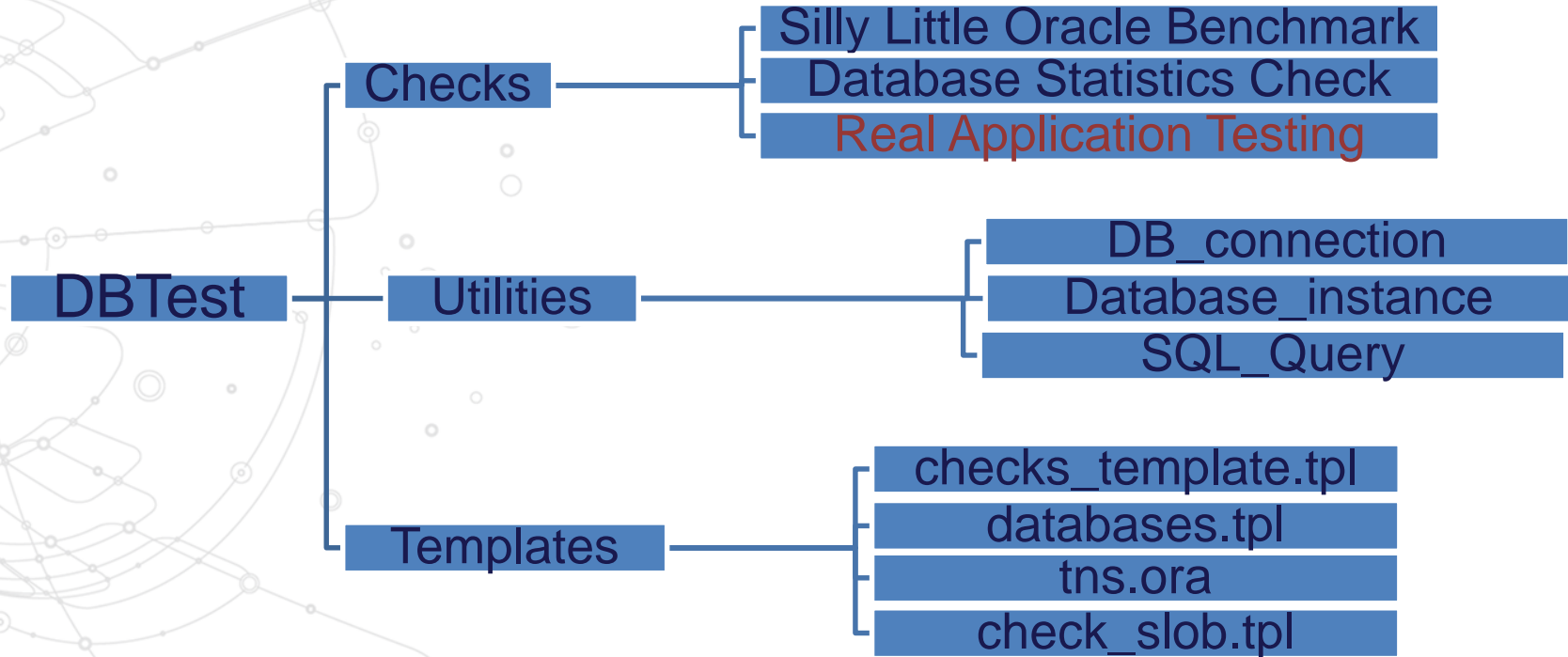
› **Using Oracle RAT and other tools**

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DBTest RAT module workflow

Test replica on machine with changes introduced before each test

timeline

Baseline

replay 1

replay 2
alarm

replay 3

replay 4
alarm

replay 5

- Regular replays compared with baseline
- Spot performance degradation and new errors

Real Application Testing

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DBTest Architecture

DBTest
- Checks
  - Silly Little Oracle Benchmark
  - Database Statistics Check
  - Real Application Testing
- Utilities
  - DB_connection
  - Database_instance
  - SQL_Query
- Templates
  - checks_template.tpl
  - databases.tpl
  - tns.ora
  - check_slob.tpl

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RAT module steps - REPLAY

› **Initialize all needed parameters and directories**

› **Clear all previous logs and outputs apart from baseline**

› **Determine no. of clients required; start them**

› **Start replay, wait and monitor…**

RAT module steps - REPORT

› **Generate individual replay reports**

› **Generate compare replay reports**

› **Parse the reports and logfiles to compare results with stored baseline**

› **Alert when thresholds crossed**

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End Result

The user just runs a single command!!

Future and Key lessons

› **If your challenges don't scare you, then they are not big enough**

› **With this my project, we can mitigate many risks associated with OS and database changes**