

Building a Performance Competence Center

Testing for performance at Rabobank

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Agenda

- Why performance testing
- What is performance testing
- Reasons for building a performance center
- Setting up a performance center
 - Tool selection
 - What kind of services to offer
 - How to embed a performance center in the organization
 - What kind of roles can be identified
 - Important points to keep in mind



Why performance testing

- Performance of applications is becoming more important:
 - Requirements (the famous 5 second rule for web applications)
 - SLA's
- Stability of applications is getting more important (7x24 uptime, no maintainance windows)
- In the Rabobank vision of the future Internet will become more important. This means more direct interaction between our applications and our (many) customors. Performance and stability are key succes factors



What is performance testing

- Testing conducted to evaluate the compliance of a system or component with specified performance requirements [IEEE90]
 - At Rabobank we see testing for the stability of software as something that is closely related to performance testing. This for 2 reasons:
 - Memory leaks etc only show when running with multiple users over a longer period
 - Instability of software occurs under load





What is performance testing



Simulation

In simulation virtual users are created. These users act the same as normal users (based on test-usecases) making it easy to predict hard- and software behavior.

- + Find all types of problems
- + Easy to interpret results
- + Can also be used to test stability
- Tests can only be executed on production like environments (sizing)
- The process takes longer

Sample products: QA Load, HP Loadrunner, Borland Silk Performer





Modeling

Making a mathematical model of an environment (software + hardware). Changing the parameters of the model allows you to give estimates of other parameters (for example response time or CPU load)

- + No need for expensive test environments
- + Fast results
- + What If .. Scenario's
- Hard to find certain types of software problems
- Hard to make a model of a new application
- Harder to interpret results (math knowledge needed)
- Cannot be used to determine stability of applications

Sample products: BMC Perform and Predict, Hyperformix



Reasons for building a Performance Center



Why building a performance center

- Performance testing is different from other test types and needs specialists
- Combine those specialists to offer a broader range of services (for example: Network performance, independent troubleshoots etc)
- Performance is very important in realizing the Rabobank vision of the future customer-bank communication



Credentials

- Rabobank has a Performance Competence Center for over 9 years
- We currently have 18 people working at the Performance Competence Center all working full time on performance (testing and troubleshooting)
- We test the performance of important applications such as internet banking and our Siebel system



Setting up a performance center

And the choices Rabobank made



Embedding it in the Organization

Performance testing costs both time and money and that at a time projects are often short on both (the end of the project). A "in place" process ensures that (performance) testing is not the first to be skipped.

The following steps were taken at Rabobank to make sure there will be good performance tests:

- Testing (and also performance testing) is a separate organization with it's own line management
- A clear test process (START = Standaard Test Aanpak Rabobank volgens TMAP®) that also has performance testing incorporated
- More and more projects have SMART performance requirements that need to be tested



Tool selection

- Modeling vs. Simulation
 - My opinion: If you have the test environment pick simulation, it is easier and finds more potential problems
 - Performance Competence Center tests both performance and stability
 - Rabobank has very mature test environments (OTAP, where A is production like)
 - Based on these 2 points Rabobank made a choice for Simulation
- What tool (we switched to this 4 years ago, other tools might have improved on there weak points)
 - We picked HP Loadrunner
 - Reason 1: Good support for other then web protocols (for example SAP)
 - Reason 2: Good set of add on tools (BAC, Diagnostics)
 - Reason 3: Largest customor base so further development is ensured
- Other tools we use
 - Network measurements: Compuware Application Vantage, Wireshark
 - Extra analysis: HP Diagnostics



What kind of services to offer

Loadtest (test with 100% load or peak load) ٠

Answers the following questions:

- Will the application honor the SLA or Performance requirements?
- What will the response time be when x users are working with the application?
- Breaktest (destructive test trying to find limits) ٠

Answers the following questions:

- How many users before the application breaks the SLA?
- What is the first bottleneck / How does the system break ?
- Soaktest (test over a long duration 16+ hours)

Answers the following questions:

- Does the application have memory leaks ?
- Does the application remain stable over a long time ?
 Are there logfiles or counters that overflow ?



Roles

- <u>Testmanager:</u> Overall coordination of all testing including performance testing
- <u>Performance consultant</u>: Coordinates performance test (as test coordinator), design the performance test strategy, give projects and programmes advice on performance in the broadest sense (examples: Help setting up performance requirements, check architecture)
- <u>Performance engineer:</u> Scripting, Test execution, Test analysis, Reporting



Loadrunner Output





Important points to consider

- Performance testing needs help from the test managers to "convince" project managers. They can do this by pointing out SLA's and performance requirements
- Performance testing is expensive. Tooling is just the beginning, the most important and expensive part of performance testing are the test environments
- Garbage in is garbage out. Good input (usecases, requirements, amounts of users) are crucial for good results
- After a failed test a good follow up is needed: This can be in structured tuning tests but a good alternative is HP Diagnostics



Questions ?

(Can always mail questions: j.j.bakker@rn.rabobank.nl)