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Web Application Performance Testing

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Web application performance testing is an emerging and important field of software engineering. As web applications become more commonplace and complex, the need for performance testing will only increase.

This paper discusses common concepts, practices and tools that lie at the heart of web application performance testing. A pragmatic, hands-on approach is assumed where applicable; real-life examples of test tooling, execution and analysis are presented right next to the underpinning theory.

At the client-side, web application performance is primarily driven by the amount of data transmitted over the wire. At the server-side, selection of programming language and platform, implementation complexity and configuration are the primary contributors to web application performance.

Web application performance testing is an activity that requires delicate coordination between project stakeholders, developers, system administrators and testers in order to produce reliable and useful results. Proper test definition, execution, reporting and repeatable test results are of utmost importance.

Open-source performance analysis tools such as Apache JMeter, Firebug and YSlow can be used to realise effective web application performance tests. A sample case study using these tools is presented in this paper. The sample application was found to perform poorly even under the moderate load incurred by the sample tests.

Keywords: Web application, performance testing, HTTP, JMeter, Firebug, YSlow