

Evaluating the Performance of an IMS/NGN Deployment

Dirk Thißen, Juan Miguel Espinosa Carlin, and René Herpertz

{thissen, espinosa, herpertz}@nets.rwth-aachen.de

For dealing with the challenge of offering better services than the ones offered by their IT counterparts, telecom operators developed the IP Multimedia Subsystem (IMS) as an overlay architecture to enable the delivery of rich multimedia services to end users, making use of the already available telecommunications infrastructure, and offering standardized signaling for provisioning services deployed in heterogeneous platforms.

Because it is envisioned that the IMS will experience a considerable growth in the years to come, it is important to verify that the involved resources conforming an IMS deployment deliver the desired performance when the system is operating under stress conditions. From this perspective, performance benchmarking and performance testing are related to the quality of a system.

With the aim of evaluating the performance of the core components of an IMS network, the ETSI developed the IMS/NGN Performance Benchmark Specification, consisting of guidelines for applying a set of tests to determine how the system behaves when its load is increased. This benchmarking standard makes the benchmarking results comparable, which is an important step in taking decisions regarding the deployment of IMS systems.

With the goal of gaining knowledge in the field of performance testing, this paper presents a performance evaluation based on the mentioned specification, using well-known open source software reference implementations and state-of-the-art analyzing tools for collecting the related measurements; the ultimate goal of the performed benchmark was to find the Design Objective Capacity of the deployed testbed.

Regarding the implementation, most of the found configuration issues were related to the components of the testbed, and it was found that the HSS implementation, due to the programming language in which it is implemented, represents an important failure point for the whole system.

Future work in the area includes the use of the benchmark for evaluating more complex scenarios including roaming and services based on extensions like SIMPLE. Moreover, the presented tools can be further used to generate Presence and Instant Messaging traffic based on SIP with the aim of injecting it into an event-based service provisioning framework.