Universität Basel

Publication

A Benchmark for Context Data Management in Mobile Applications

Other Publications (Forschungsberichte o. ä.)

Over the last few years, computational power, storage capacity, and sensing capabilities of mobile devices have significantly improved. As a consequence, they have undergone a rapid development from pure telecommunication devices to small and ubiquitous computing platforms. Most importantly, these devices are able to host context-aware applications, i.e., applications that are automatically adjusted to the current context of their user. This, in turn, requires sensing support on the device, the possibility to store context information, and to efficiently access this context information for the automated adaptation of applications. In this paper, we introduce a benchmark for context management in mobile context-aware applications. We present in detail the design and setup of the benchmark, based on an eHealth use case. The benchmark evaluation considers context queries on Android Nexus Oe cell phones and compares the performance of different settings including relational and object-oriented databases on the mobile device, and an RDF triple store on a stationary computer. The results show significant differences in the settings that have been evaluated and are thus valuable indicators for database selection and system design for mobile context-aware applications.