Energy-efficient Web Service Invocation on Mobile Devices: The Influence of Compression and Parsing

Reference:

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Abstract:

In recent years, there has been a rapid growth in the number of smartphone applications, many of which rely on Web services as key building blocks. Unfortunately, the use of such applications and services requires substantial amounts of energy, which is specifically problematic in the context of battery-constrained mobile devices. In this paper, we examine the potential for energy-efficient mobile service consumption through fine-grained experiments. Our results indicate that energy savings of up to 21.5% may be achieved through the sophisticated use of compression, while the choice of an appropriate parsing strategy may yield savings of up to 53.4%. The results of our work facilitate the development of more energy-efficient, service-based mobile applications.