Cloud-based Cost-Efficient Application and Service Provisioning in Virtualized Wireless Sensor Networks

Mots clés :

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Résumé du projet de recherche (Langue 1)

Wireless Sensor Networks (WSNs) are becoming ubiquitous and are used in diverse applications domains. They are the cornerstones of the emerging Internet-of-Things (IoT) paradigm. Traditional deployments of WSNs are domain-specific, with applications usually embedded in the WSN, precluding the re-use of the infrastructure by other applications. This can lead to redundant deployments. Now with the advent of IoT, this approach is less and less viable. A potential solution lies in the sharing of a same WSN by multiple applications and services, even including applications and services that were not envisioned at the WSN deployment time. This will allow resource- and cost-efficiency. Two major development have led to this potential solution. One is the advancements in hardware and software in WSN domain. As WSNs' nodes are becoming more and more powerful, it is getting more and more pertinent to research how multiple applications could share the very same WSN deployments. The second development is the Cloud Computing paradigm that promotes resource- and cost-efficiency by applying the virtualization concept to the available physical resources. As an enabler technology, virtualization can decouple WSN infrastructure from the applications running on the infrastructure. This thesis focuses on the cloud-based cost-efficient application and service provisioning in virtualized WSNs.