

ABSTRACT

Ubiquitous and pervasive applications are aware of the context of the used resources, regarding their availability and quality. This class of application can benefit from mechanisms to discover resources that meet their non-functional requirements and mechanisms to monitor the quality of those resources. We proposed architecture for two services that should be included in the supporting infrastructure used by the mentioned applications: a Context Service that provides access to context information; and a Discovery Service, which allows the dynamic discovery of resources, considering context constraints to be satisfied. These services rely on Resource Agents, which monitor the actual resources and sensors. A reference implementation was developed, providing the mentioned services as Web Services and implementing the Resource Agents using a simple design pattern. To evaluate these services were employed them as the infrastructure to design a fault tolerant system and a remote assisted living application. The performance of the services was also evaluated.

Keywords: Ubiquitous computing. Context-aware application. Discovery and monitoring services.