

Towards Quality-aware Composition of Geo-services

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SUMMARY

Geographic information services (geo-services) are gaining prominence as a framework for providing on-demand access to geographic information and value-added services. Loosely-coupled, modular and interoperable geo-services are discovered and chained on-demand to deliver geographic information and realize value-added services. In conventional approaches, chaining is accomplished considering only functional capabilities of geo-services. However, more valuable and effective service-chains can be realized by considering both functional and quality of service (QoS) capabilities. The latter type of chaining is called quality-aware service chaining. In quality-aware service chaining, disparate services are discovered and composed based on both their functional and QoS capabilities and subsequently executed in such a way as to provide services that comply with user requirements. Clearly, quality-aware composition of geo-services requires an effective QoS provisioning infrastructure in geo-service architectures to facilitate quality-aware chaining of geo-services. Frameworks have been defined that can be used to design, develop, and deploy effective QoS provisioning infrastructures for geo-service chaining. This paper expounds on QoS specification and QoS mapping, which are fundamental QoS provisioning functions, in the context of a QoS provisioning framework. The orthophoto service is used as a vehicle to derive QoS requirements and integrate the framework with service-oriented geo-processing. The technique of translation tables is used to realize QoS specification and mapping across architectural levels.