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A Roaming-enabled SDI (rSDI): Balancing interests, opportunities, investments and risks

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Abstract

After the introduction of the OGC WMS specification in 2000, the number of up and running WMS increased on a daily basis. However, it is still unsure what shape the final SDI will take. Will it have a central entry point? Will the SDI have a hierarchical or a peer-to-peer structure? If charges and access control will apply, will a user need a single account within the network or will he need a separate account for each instance? Users and customers expect their SDI applications to be supplied with top quality spatial information within a large coverage. On the other hand, an SDI application developer will only invest in value-added SDI applications, if both his market and the number of early adopters within it are large enough. Therefore, a roaming mechanism, which shares coverage and automatically provides the best available spatial information beyond that of a single provider, is needed to bridge user's expectations and providers' abilities. Another infrastructure facing a similar situation was that of *mobile telecommunications*. The investment required to achieve the critical mass of coverage was immense, as were the risks of failure (Jenkins 2004). Aware of the need for larger coverage, the small number of early adaptors in each market, and the large investments involved, the CEOs agreed to apply the *roaming concept*. Competing providers started to set up roaming agreements to enable visiting users from other providers to share coverage and therefore reduce the level of investment in the critical starting phase. In spite of the technical connectivity and the transparency of the common infrastructure, the market presence of independent providers remained untouched. The business model still contains sufficient leeway for competition. The provider market structure is peer-to-peer, without a hierarchy. Private and former public providers have the same start-up opportunities.
The approach is structured in four chapters. In the first chapter, the relationships between the **provider and end user** are modelled. Existing or upcoming business models for data and service providers are analysed to identify the typical business model. The model describes business roles and business processes. The second chapter models the **provider to provider** relationship. Because this is a B2B relationship, certain factors, such as trust, can vary. Moreover, the types of licensing will vary within the value chain. The third chapter introduces the **roaming** concept. The technical workflow shifts to a foreign gateway, in which the foreign network provider takes on a new role and transfers the incoming request to the home network provider to check the accounts. If sufficient, the foreign provider will serve the customer. The last chapter comprises **deployment** examples for business networks. In many cases, a single organisation supplies multiple providers. These organisations may be not visible to customers, to avoid conflicts of interests. It seems that joint trust and billing centres

could reduce operative costs, if the market is initially small. A full peer-to-peer deployment should always be possible, to avoid any non-dissolvable dependencies between competing providers. Also, virtual providers may be part of an rSDI.