Contribution ID : 79

Re-inventing Spatial Data Management

Friday 15 Sep 2006 at 11:30 (00h30')

The most time consuming, and poorly managed part of any GIS system is still the management and maintenance of core data sets. This takes valuable time and money away from analysis activities, reducing the overall productivity of the endeavor. The MIT Urban Information Systems group is taking a fresh look at the way spatial data is distributed, updated and shared by developing a middle tier of services on top of the traditional relational database that explicitly separates end-user modifications from a core, shared data set.

This enables us to imagine systems where different user communities can use the same core data set, but create different visions of the "truth" by making local modifications, without breaking the sharing mechanism. If desired, these modifications can be shared with others, in whole or in part, and new data sets can be built upon those changes. All this is very "cheap" to implement, as the system never breaks the ability for the original data set to be synchronized with its source.

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This architecture not only allows the core data set to be updated without affecting third-party changes, but also opens up new possibilities for fine-grained control of those modifications. Now we can imagine systems where different user communities can use the same core data set, but create different visions of the "truth" by making local modifications, without breaking the sharing mechanism. If desired, these modifications can be shared with others, in whole or in part, and new data sets can be built upon those changes. All this is very "cheap" to implement, as the system never breaks the ability for the original data set to be synchronized with its source.
The system is being licensed under an open source license, and is built upon PostGIS,

MapServer and PHP.

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Session classification : Session 9 : Open Geodata and data sharing

Track classification : --not yet classified--

Type : Technical Conference