Integration of Event Driven Architecture (EDA) and Complex Event Processing (CEP) into geo-processing systems promise real time analysis of geo-sensor data. Geospatial analysis of data streams can be speed up by focusing on the use of events as analytical units. The use of events also avoids processing bottlenecks faced when aiming for analysing big datasets. This integration can fulfill the performance demands that geoprocessing engines require, which results in the production of relevant information for building smart geo-applications.

Smart cities demand geo-applications to provide three fundamental functionalities: awareness, detection of a phenomenon of interest, and take actions over the underlying infrastructure. Here, we summarize the major components of this undergoing research project.

**Awareness**
Sensor networks provide ‘awareness’ to a smart city. Sensor and geo-sensor networks are common infrastructures in today’s smart cities, and they can be used to monitor urban dynamics: energy consumption, human mobility, spread and concentration of pollutants, among many others.

**Detection**
Complex event detection provides principles that can overcome some of the characteristics of the big data problem: volume, velocity, and variety. But also, geoprocessing limitations: performance, interoperable platforms, data integration, and decoupled geo-applications.

**G-Events**
In the context of Event Driven Architecture and Complex Event Processing, an event is a notification of a change of state. Events allow to efficient processing of data streams by performing analysis only when a predefined set of conditions are met.

G-event is an occurrence of a state of change associated with a geographic location and real-world time. G-events adopt EDA and CEP principles and extend its use for the geo-processing world.

**Actions**
G-events allow to construct reactive geo-processing systems to create applications that consume sensor data, and which can focus on boosting smart city efficiency, productivity, and livability.

**GeoSMART CITY**
A geo-smart city is built over the existent communication infrastructures and relies on the internet of things. It provides mechanisms to facilitate the exploitation of sensor data by focussing on spatio-temporal processing and analysis of geographic properties of sensor networks.

Cities in which this is already applicable are Santander in Spain, and Eindhoven in The Netherlands. But also emerging smart cities will see value on leveraging decision making through event-powered geo-applications.

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