

# Como garantir a qualidade dos serviços de uma IDE

Metodologias e ferramentas para garantir a qualidade dos serviços web geoespaciais de uma IDE

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The volume of spatial data collected keeps increasing rapidly with ever more powerful and more detailed ways for observing and simulating our environment and the human behaviour. Continuously available Spatial Data Infrastructures (SDIs) are required to create usable information from the vast amount of data by effectively querying and using it from a site possibly located on the other side of the world. A good SDI makes it possible to discover, filter, acquire and interact with spatial data required for a particular use case in a reliable, efficient and easy-to-use manner. A good example of this is the Infrastructure for Spatial Information in the European Community (INSPIRE), which legally mandates the EU member states to ensure that spatial data services and data sets are interoperable within the European Community.

Large scale Global and national SDIs are not the only technical environments, where up-to-date spatial data needs to be reliably available at all times. Spatial information is also a fundamental part of room, household, vehicle or office scale sensors and control networks taking an essential role in the Internet of Things (IoT). Quality of Service is very important in this kind of networking environments, where hardware and software components manufactured by different vendors need to establish ad hoc connections, discover the capabilities of each other and communicate mostly in an automated fashion.

The technical standards aiming at increased interoperability of spatial data, services, and applications created by OGC and INSPIRE form a solid base for well-functioning Spatial Data Infrastructures. However, the technical capabilities of the particular software and hardware components alone is not enough to guarantee a fully functional and reliable distributed spatial data infrastructure. Even the most interoperable and advanced SDI components can be configured and connected sub-optimally, making their use difficult, inefficient and unreliable as parts of an SDI. As within any computer system, the SDI components and the networks connecting them also occasionally suffer from technical failures, which temporarily renders them unusable or unreachable for all or some of the users. The field of Quality of Service deals with estimating, reporting and improving the experienced quality of communication between the components of distributed systems to inform users leveraging their capabilities to solve real-world problems.

To establish a reliable SDI, measuring, improving and communicating information about Quality of Service criteria is one of the key success factors. These criteria include availability, performance and capacity of the individual SDI components. Mature tools for measuring analysing the QoS of these do exist, but there is little to no support for a standardised way of communicating the expected QoS level of the services to the end users.

Methodologies and tools exhibited here aim to solve the issues above by:

- Testing the capacity of services by generating realistic loads, so that services meet capacity requirements like INSPIRE View and Download Services;
- Keeping track of uptime and identifying trends affecting service level and availability;
- Validating the service capabilities document against INSPIRE and OGC Standards;
- Establishing thresholds for indicators and setting up alerts and warnings.

## PALAVRAS-CHAVE

Jornadas, IDE, Portugal, España.

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