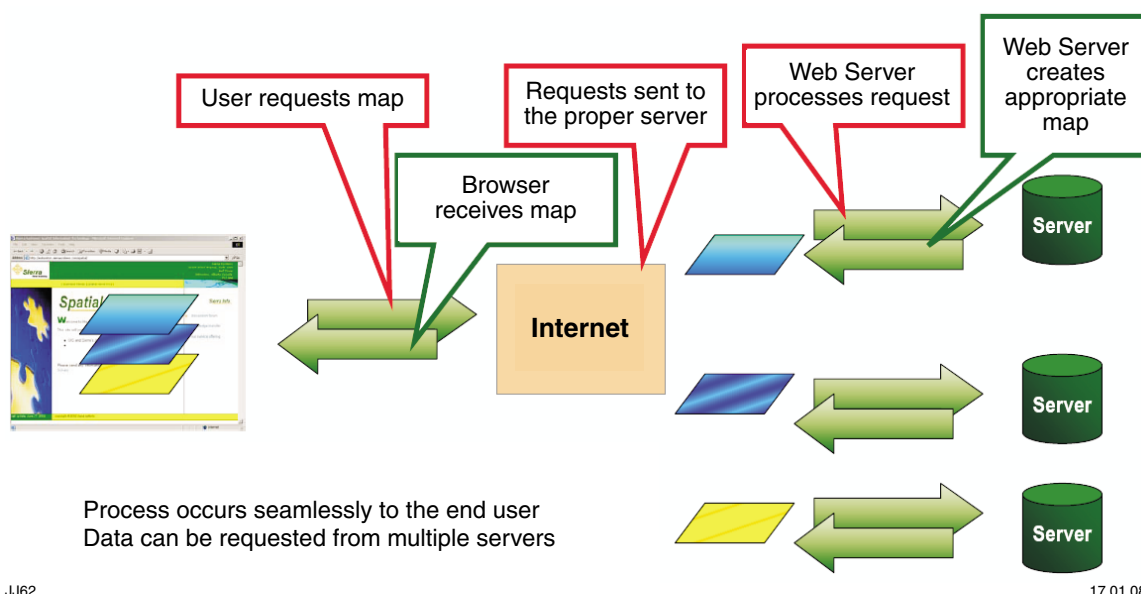# OGC Web Map Service

by

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The **Open Geospatial Consortium** (**OGC**) is an international voluntary consensus standards organization. In the OGC, more than 330 commercial, governmental, non-profit, and research organizations worldwide collaborate in an open consensus process, encouraging development and implementation of mutually beneficial, agreed standards for geospatial content and services, GIS data processing, and exchange.

An OGC **Web Map Service** (**WMS**) produces maps of spatially referenced data dynamically from geographic information, to an agreed international standard. This standard defines a 'map' to be a portrayal of geographic information as a digital image file suitable for display on a computer screen. The map is not the data itself. WMS-produced maps are generally rendered in a pictorial format such as PNG, GIF, or JPEG files, or occasionally as vector-based graphical elements in Scalable Vector Graphics (SVG) or Web Computer Graphics Metafile (WebCGM) formats.

The WMS International Standard defines three operations:
- returns service-level metadata;
- returns a map whose geographic and dimensional parameters are well-defined;
- returns information about particular features shown on a map (optional).

WMS operations can be invoked using a standard web browser by submitting requests in the form of Uniform Resource Locators (URLs). The content of such URLs depends on which operation is requested. In particular, when requesting a map the URL indicates what information is to be shown on the map, what portion of the earth is to be mapped, the desired coordinate reference system, and the output image width and height. When two or more maps are produced with the same geographic parameters and output size, the results can be accurately overlaid to produce a composite map. The use of image formats that support transparent backgrounds (e.g. GIF or

Figure 1. Flow diagram for OGC Web Map Service

PNG) allows underlying maps to be visible. Furthermore, individual maps can be requested from different servers. WMS thus enables the creation of a network of distributed map servers from which clients can build customized maps.

WMS is usually not invoked directly. More often, it is part of a client application that provides the user with interactive controls. This client application may or may not be web-based.

Geological Survey of Western Australia has successfully tested this new technology. A number of Web Map Services will be implemented in the immediate future for use by the public, and will focus on mineral exploration, geological mapping and related data, airborne geophysics, and petroleum exploration.