Spatial Cloud Computing (SC2)
A New Paradigm for the Enterprise GIS

By Hugh Williams and Darko Poletto, O.L.I.P.

An "Enterprise GIS" provides GIS capabilities and integrated data across the overall IT / IS framework – bringing spatial capabilities to the entire organization, and enabling users to leverage the power inherent in the *geography* of their data.

Implementing an enterprise GIS can be transformational to the organization. New, improved workflows emerge as people have better access to and understanding of their data. However, the COST and EFFORT of an enterprise GIS can be too prohibitive for many organizations to even consider the benefits downstream.

An Analogy: Electrical Grid to Digital Grid

About 120 years ago, factories generated their own electricity. There was no Ontario Hydro or wires on poles along the road to bring power to where it was needed. When the wires came, the electrical grid made it possible for companies to hook up, locate anywhere, and eliminate the expense and overhead of generating their own electricity. That changed the landscape!

In an analogous way, *cloud computing* gives organizations the option to hook up to the *digital grid* (the Internet) for their software, hardware and networking services. Services now offered by a new cadre of "digital utilities" are giving organizations dynamically scalable computing resources *as a service* over the Internet. This means organizations do not have to make the large investments in software applications development and the underlying computing infrastructure. And, that translates into cost savings, eliminates "place" as a barrier to corporate information management, and enables innovation and growth without adding internal capacity and complexity.

Spatial Cloud Computing – a New "Enterprise GIS"

Spatial Cloud Computing (SC2) adds geography. SC2 provides dynamically scalable geographic information technology, spatial data, and geo-applications as a service. It's on-demand geo-intelligence for corporations; enabling them to access their corporate information resources by leveraging

the power of geography without needing to invest in spatial data, specialized skills, and software.

Readers of this magazine already know why "geography" is important, and how "leveraging the power of geography" means that **90% of all business data** can now be map-enabled, thereby significantly improving:

- **Communications** and building understanding.
- **Integration** of disparate business data, especially data that would otherwise have NO other connection.
- The ability to see spatial **patterns and relationships** that words and numbers cannot easily describe.

An Enterprise GIS through *spatial cloud computing* also provides:

Cost Avoidance:
An enterprise GIS can require a large investment in time, people, software, hardware, data, and ongoing maintenance when done in-house. With spatial cloud computing, the up-front and operating costs are significantly reduced.

Spatial Data:
For most organizations, the spatial map base is a significant barrier to implementing an enterprise GIS. SC2 provides foundation data like roads, administrative mapping and imagery as part of the core service, and provides the ability for the client to create and add their unique business map layers such as client locations and areas of interest.

People:
An SC2 solution can remove the need for specific in-house GIS capability. For organizations that already have GIS staff they can turn their attention to more complex tasks and services.

Technology Infrastructure:
Computing hardware, networking, and GIS software are part of the service – reducing or eliminating the need for these technologies in-house.

What's Next
Barriers to the implementation of cloud computing solutions remain largely in the understanding of solution availability and trust in their effectiveness and security. Even so, cloud computing is rapidly growing in acceptance and usage. As a result, we can expect *spatial* cloud computing will not be far behind in the adoption trend.

Specifically, spatial cloud computing will become more prevalent in the next few years as vendors develop service-based GIS solutions; and, as organizations new to GIS or those with enterprise GIS implementations look for different models of software and data acquisition and deployment.

For surveyors, this means that there will be an ever-growing use of land-based information products and services; however, the vehicles for their delivery and accessibility will change.

SKE Inc. and Spatial Cloud Computing
SKE's SC2 solution is called "GeoPortal". GeoPortal is the result of many years working in partnership with key clients like the Ontario Realty Corp. (ORC). The ORC's "Ontario GeoPortal" is providing cost-effective enterprise GIS services to several ministries and agencies in the Ontario provincial government to support their varied business needs including facility management, property management, infrastructure management, environmental management, communications, and aboriginal consultation.

Our own externally hosted "GeoPortal Service" is available to any organization to geo-enable their business information. It's Enterprise GIS that you "plug into and use". The following diagram shows one architecture configuration in which we host the spatial component while the business information system data remain in the organization's computing environment and dynamically come together through GeoPortal. Although we can also host the business data, this configuration is particularly suitable for organizations that prefer to keep their business data managed internally.

SC² GeoPortal Architecture
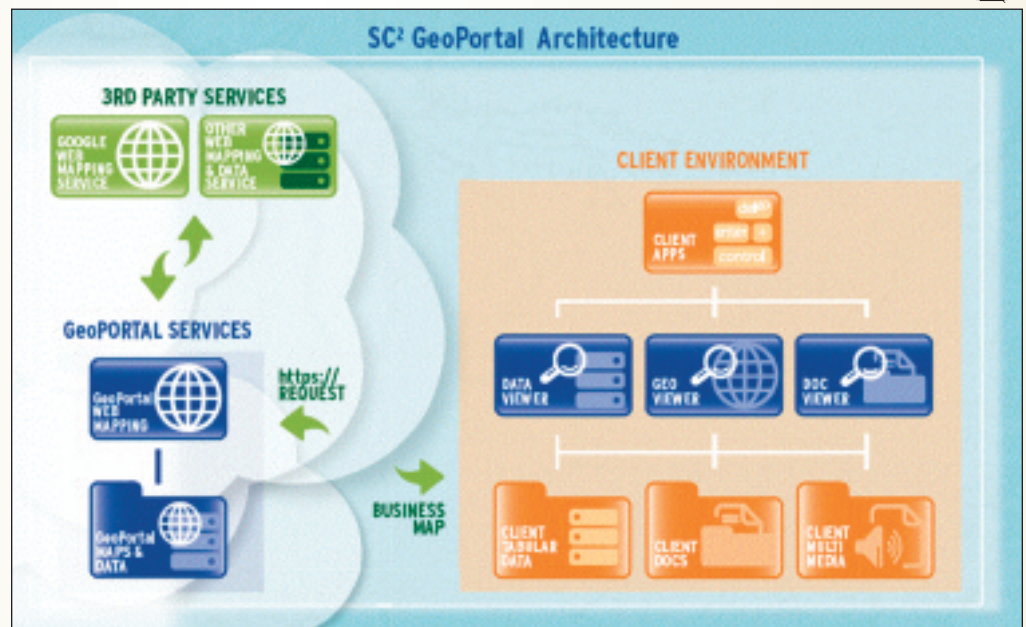
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If you are interested in finding out more, please contact us or join the Spatial Cloud Computing discussion group on the "LinkedIn" web site (www.linkedin.com).