

Spatial Information

VPAC, a leading, independent Advanced Computing R&D service provider, is a not for profit registered research agency established in 2000 by a consortium of Victorian Universities.

At VPAC, we provide expert services, training and support in High Performance Computing (HPC) as well as professional R&D services in the application of Advanced Computing in the fields of Engineering, Geophysics, Health, Life Sciences, Spatial Information and Grid Computing.

Our aim is to help Australian researchers utilise Advanced Computing to create innovations that will place Australia at the forefront of scientific research and development.

Spatial Information @ VPAC

The Spatial Information (SI) industry is a high growth business sector. The increasing availability of large volumes of government and private sector spatial information, coupled with the ready availability of low cost SI workstations have led to a significant uptake of the technology by a wider range of users than the traditional specialist scientific user base.

Despite the advances in desktop computer systems, the size and complexity of SI datasets and algorithms frequently exceed the capacity of the typical SI workstation. VPAC has proven expertise in profiling and migrating spatial information processes to the Advanced Computing environment, and optimising process algorithms to best leverage Advanced Computing architecture.

In addition to Resource Intensive Applications Development, VPAC has leading expertise in the developing industry trend of web delivered Real-time Applications, which allow users to access live information streams and key processing capabilities regardless of their location.

VPAC maintains expertise in application development with both commercial software packages and Open Source Software to ensure that fit for purpose solutions are developed with the most cost effective software platform.

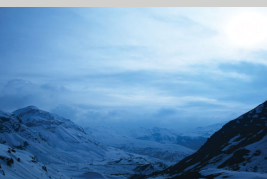
Capabilities

- Resource Intensive Applications Development
- Real-time Applications Development
- Open Source Software

Clients

VPAC has provided Advanced Computing solutions to:

- Country Fire Authority
- Deakin University School of Life & Environmental Sciences
- Falls Creek Ski Lifts
- Intellimatics
- Life Saving Victoria
- The Department of Justice
- The Office of the Emergency Commissioner
- Victorian Government Department of Primary Industries
- Victoria Police – Water Police
- Department of Sustainability and Environment (DSE)



Resource Intensive Applications Development

Many Spatial Information (SI) problems are encountered due to bottlenecks in the process pipeline, and are typically caused by one or more of the following:

- Hardware Architecture limitations
- Numerically intensive algorithms
- Insufficient memory
- Slow I/O performance
- Slow network performance

VPAC has significant expertise in the profiling of SI problems to identify the root cause of poor performance, and in the subsequent design of an optimised solution.

Real-time Applications Development

Real-Time applications, as their name suggests, allow for interaction with “live” information and processing algorithms performed on the fly. These applications are typically used in decision support, and as such need to be robust in their functionality due to the dependence of critical decision making on the application.

Real-Time applications are comparatively new to the SI community, with much industry focus in recent years having been on “post event” information analysis.

In many scenarios, minimising the elapsed time from event to decision is critical. VPAC has, therefore, strategically invested in ensuring best practice capabilities in this area. VPAC leverages on expertise gained in real time manufacturing systems and visual simulation.

SI Standards

VPAC supports the adoption of open standards to facilitate data interoperability between applications. By adopting the Open Geospatial Consortium’s (OGC) Web Map Service (WMS) VPAC was able to deliver a customised web based storage solution for large SI data sets. Compliance to the WMS standard allowed the solution to make stored data accessible through not only its own user interface, but also that of many 3rd party applications.

Open Source Spatial Information Software

A mature community exists in the development of Open Source Software for Spatial Information. VPAC maintains active development capabilities within these software systems. This offers benefits to the end user in leveraging a “no cost” application base, where development investment is directed wholly to delivering the end solution rather than in purchasing often expensive software platforms on which to base the application.

Software

VPAC has successfully integrated the following pieces of software into several SI solutions;

- NCARG
- GDAL
- OpenLayers
- PostGIS
- Quantum GIS
- Google Maps

Contact

For further information regarding VPAC’s Advanced Computing solutions for the Spatial Information sector, please email spatial@vpac.org or phone +61 3 9925 4645. To view VPAC’s Spatial Information case studies, visit www.vpac.org.

