SNAP® is a Rapid Application Development Platform for Command and Control

SNAP® is a rapid application development (RAD) environment for the construction of command and control applications. SNAP® anticipates the common requirements of command and control systems. As a consequence, there is far less work to be done using SNAP® than there is using C++ or Java. Applications which normally take several years to implement with conventional approaches can be built with small teams in six months or less. You may think of SNAP® as a spreadsheet for building command and control applications.

What is Command and Control?

A command and control system allows decision making *teams* to maintain awareness of near real time situation, and take actions based on that awareness. A command and control system application requires the maintenance of an in-memory *common operating picture* containing large numbers of objects changing in near real time. This common operating picture results from fusing data from a variety of external systems, with automated assessment of its meaning. Aspects of this common operating picture are viewed by a decision making team in a control center via rich graphical interfaces.

SNAP® is a Model Driven Architecture for Command and Control

Executable UML is a new technology that implements the Object Management Group Model Driven Architecture Initiative http://www.omg.org/mda. The advantage of Executable UML is that an application developer can focus on key aspects of the application domain, while deferring implementation details. Unlike code generation technology, SNAP® directly executes the model and the execution of the model may be inspected with an interactive debugger.

SNAP® is Proven

Representative SNAP® command and control applications in use today include: Telecommunications Network Management, Computer Room Management, Gas Pipeline Management, Metropolitan Transportation Fleet Management, Power Grid Management, Wireless Network Provisioning, High Speed Rail Management, Distributed War Gaming, and Air Traffic Control.

SNAP® is Valuable When Development Time is the Problem

SNAP® is not a silver bullet. You can do anything that SNAP® does by combining other off the shelf products. That method will simply take you longer. SNAP® saves you the time and effort by having worked out the thorny integration, performance, and reliability issues. What SNAP® offers is an alternative for when development time is of the essence.

SNAP® Is Designed for the Real World

SNAP® is designed for the real world. It is an open system which can be extended and easily optimized. It has outstanding performance and reliability. It can run on just about any desired platform. Finally, if you are an experienced C++ or Java programmer, it is a SNAP® to learn.

Open Extensible Architecture

SNAP® promotes a "knowledge based approach" to building a solution. What does this mean? It means that the creators of SNAP® recognized that it would never be completely sufficient for any given set of requirements. SNAP® was designed to be open and extensible. One analyzes the problem, sees where the tool meets the requirements, and where it does not. Then one extends the tool with reusable facilities. Then one solves the problem. Both the creators of the tool and the users of the tool can do this.

High Performance

SNAP® applications exhibit extremely high performance. Unlike Java, and similar to C#, SNAP® implements most of its functionality in compiled C++ libraries and merely uses the virtual machine to glue together libraries. But, unlike C#, SNAP® is portable. It is easy to optimize the performance of any aspect of the system by simply dropping down to C from the SNAP® language. Unlike J2EE applications, which have trouble with large cache sizes, SNAP® can cache well over 100,000 objects in memory with no appreciable performance penalty.

High Reliability

SNAP® is more reliable than Microsoft or J2EE. Applications have been know to run for years without a restart. The Sun license agreement prohibits the use of Java for mission critical applications such as Air Traffic Control. SNAP® has been used in Air Traffic Control, and other mission critical applications for years!

Portable

SNAP® is portable: SNAP® runs on most Unix, Linux, and Windows platform. In theory, Java applications run anywhere. In reality, production applications depend on features of specific application servers (WebSphere, Weblogic, etc.) and are not portable. Similarly, SNAP® applications are dependent on the SNAP® "application server". Thus, SNAP® is no less portable than Java - and Java is no more portable than SNAP®.

Easy to Learn

SNAP® is easy to learn: most experienced object oriented C++ or Java developers can learn it in a week and be comfortable in a month. The core language is very similar to Java. API level programming is done in C or C++. The product is to hide complexity from the developer. Conversely, when required the developer can drop down to any required level of detail.