

Number 53, Summer 2008

By Ron Meyer, CEO, Versaterm

Why CAD to CAD Interfacing is Easier Today

Versaterm has been actively involved with information sharing and collaboration between public safety agencies for many years. Starting with the access and submission of records to NCIC and CPIC, through interconnection of customer RMS systems, building LEIP (now PIP, the Canadian national police information sharing facility) and interfacing to various other regional information sharing facilities (e.g., COPLINK), this has been a priority for the company. Such information sharing capability prevents criminals from "hiding" in an adjacent jurisdiction. However, the subject of this article is the sharing of information, resources and activity between regional emergency response agencies.

The main obstacle to such information and resource sharing has always been the number of unique and complex interfaces that would have to be defined, designed, built and tested to enable many such independent CAD systems to be accurately and safely interconnected (assumption being that the CAD systems would not all be from the same supplier). CAD systems today already have a number of interfaces (to E-911, state and national data bases, to RMS and MDC systems, to GIS, etc.). Developing a unique interface with another CAD computer system is usually complex and expensive.

Let's look at what is typically involved: First, the authorization for the interface has to be gained from the other party to the interface, as it will entail both work and cost to them and may have security implications. Then, time has to be spent with a technical resource of the other party to identify what options and challenges are involved, leading to the production of a specification detailing how the systems will be interconnected, what communications protocols will be used, what will be done by whom to design, build and test the interface (and how it will be tested and who will pay for that effort). Then the interface (often with implications on both parties) will be built and tested. Last, the aspects of on-going maintenance and support of the new custom interface will have to be arranged, again with recurring and possibly one-time cost implications.

Typically, such interfaces present one of the largest cost components and pose the highest risk faced by any software product implementation. And the number of interfaces required by modern public safety systems continues to increase. Happily, several recent technological advances make interfaces generally and sharing information and resources specifically much more affordable and predictable in the immediate future.

Most of the modern business systems today make extensive use of standards-based web services, XML data definitions and SOAP message protocol in their system architecture to facilitate interfaces between system components especially when they span jurisdictions and ownership; by standardizing the physical interconnection and information exchange protocol, this eliminates much of the technical complexity and risk associated with an interface. It also addresses security; interconnect issues such as firewalls and general network and LAN/WAN compatibility. That is partly why Versadex CAD7 was re-architected to build upon web services.

Such web services, being first and foremost internet compatible, provide a set of standard capabilities and compatible software tools from many suppliers for most computing environments that can be confidently used to build interfaces between distinct information processing systems. Think of these as the equivalent to standard 4'x8' panels and drywall, 8' studs and 4' fluorescent light fixtures in the building trade. It saves a lot of design time and cutting.

The best public safety software...

but don't just listen to us, listen to our clients - we do!

1



VERSATERM

2300 Carling Avenue Ottawa, Ontario, Canada K2B 7G1

PHONE: 613-820-0311 FAX: 613-596-5884

EMAIL: info@versaterm.com www.versaterm.com



XML is a transaction and data definition description language that can be easily read by programs to decipher the content of transactions from another system for subsequent processing. Various industries then use XML to define the transactions that occur within their specific industry to create their industry standard interconnect language. The grocery business started that trend 20+ years go (but pre-XML and pre-Internet). It is now commonly used between airlines, drug companies, importers and exporters, steel companies, etc.

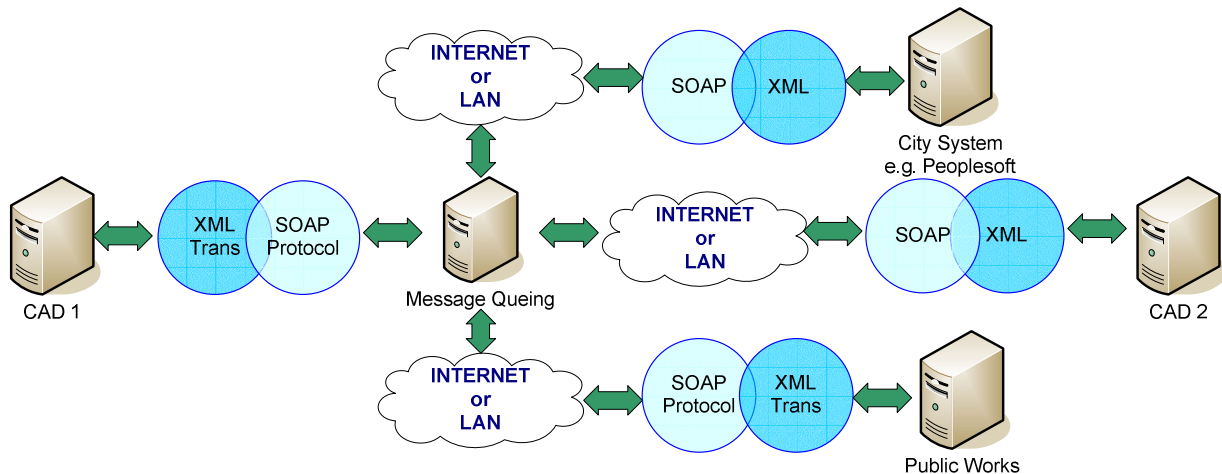
In the case of public safety systems, the National Information Exchange Model (NIEM) produced by the Global Justice Data Model (GJDM) has standardized a wide variety of public safety transactions and data field names including those possible between dispatch centers. These transactions too are presented in XML, the standard web oriented presentation method expected by web services. Having such a pre-defined interface "industry language" eliminates much of the interface definition work by reducing it to selecting the sub-set of transactions that each party will support and implement. It also means that the bulk of the testing can be done independently by each party since the new transactions can be parsed and checked visually to the defined standard XML transactions involved. That saves a lot of development time and eliminates significant risk with the interface.

Illustration of a modern web services based interface



Increasingly, as more and more independently run systems require information exchange with many more systems (such as city personnel and financial systems, fleet management systems, public works systems, etc.), a message queuing component can be introduced so that any one system only communicates with the core message queuing component, irrespective of how many other separate and distinct systems are actually being interfaced with. The message queuing component then handles the specific authentication, interaction, flow control, error handling, queuing, etc. involved with each unique interfaced system, insulating each interfaced system from the unique vagaries of the others. Versaterm first interacted with the IBM Websphere MQ Series message queuing component more than 5 years ago as that was required to interconnect with the updated CPIC. More recently, we have interfaced with an Enterprise Service Bus built by OnLine Business Systems using the SONICMQ message queuing product. Each system only has to support their own relevant transactions to the message bus which takes responsibility for interacting with the other involved unique systems using a routing language it supports.

Example of interfaces with message queuing component



*The best public safety software...
but don't just listen to us, listen to our clients - we do!*



Advantages: Each participating system is quite independent and needs only to work with and interface to the message bus; it avoids the myriad of meetings, multiple interface negotiation and documentation steps, repeated testing sessions that have to be arranged and scheduled with each of the other interfaced systems, etc. The independence provided by the message bus makes interfacing much more predictable, affordable and less risky. Similarly, on an on-going basis, each system is free to make changes and improvements to their systems without being concerned with crashing the interfaces, as long as they sustain their message bus interface or adjust it accordingly if necessary. We expect to see increasing use of message queuing products in the future, as interfacing requirements continue to expand.

We recognize that there are many suppliers of message queuing software; however, they will typically be quite similar, have stable well documented interfaces and pose limited effort or risk to adjust to a new message queuing product. We hope that this paper helps clarify why these new techniques have relevance to the Public Safety community.

*The best public safety software...
but don't just listen to us, listen to our clients - we do!*

3



VERSATERM

2300 Carling Avenue Ottawa, Ontario, Canada K2B 7G1

PHONE: 613-820-0311 FAX: 613-596-5884

EMAIL: info@versaterm.com www.versaterm.com

