



Putting out fires

by Richard Bray

IT tools help with disaster management

IN AUGUST 2003, residents of Kelowna, British Columbia faced a 'Niagara Falls of flame,' as fire-fighters and emergency crews raced to contain a raging forest fire that threatened to overrun the city. In the end, no lives were lost but 238 homes were engulfed in the blaze. The district's emergency crews were left shaken and looking for better ways to manage the inevitable future outbreaks.

At the 17th World Conference on Disaster Management last summer in Toronto, Kelowna officials announced their participation in a pilot disaster management software project, JEPRS (joint emergency planning and response system), which is a collaboration between Infusion Development of Toronto, Catalyst Capabilities of Perth, Ontario, a disaster management consultancy, and Microsoft.

The whole idea behind JEPRS, said Catalyst's Andrew Zdunich, is to help disaster

managers do their jobs better. With a solid military background in emergency management planning, Zdunich knows how EOCs (emergency operations centres) work. "Typically everything winds up on a white board," he said. "JPERS essentially replaces that functionality." Working within the familiar Windows interface, managers can plot and manage all the information that comes into the EOC, placing it on maps, backing it up with descriptive information, and 'publishing' it via the Internet to wherever it's needed.

As much as possible, Zdunich said, JEPRS has stayed with tried and tested standards in the disaster management field. For example, like many tools and organizations, the software uses standard forms designed by the state of California for its own disaster managers; the communications standard is the universally recognized Internet protocol (IP); and, the program modules themselves are solidly based on Microsoft technology. As

Zdunich explained, "In most of the places that we've been to, at least 99 percent of the EOCs that I have visited – and I know there are variations all over the place – there is some use of Microsoft somewhere." As Microsoft Canada director Craig Sisson said, "The beauty of our platform and our solution is that it is built on standard, off-the-shelf Microsoft technology, certainly current technology and later generations of technology but nevertheless standard off-the-shelf Microsoft technology."

The software is designed so that most people can use it with five minutes of training, pointing and clicking with the familiar mouse to access and input information. The map is the JEPRS centerpiece, providing disaster managers with situational awareness, decision support and an automatic audit trail. The system can pull map data in from a wide range of systems including Microsoft's Virtual Earth.

"We are already working with another Microsoft partner, Guardian Mobility, that is integrated into Virtual Earth and allows us real time GPS tracking of the assets," Zdunich said. (See sidebar – Guardian Angel)

Craig Sisson described Kelowna as an ideal place for a pilot project – a mid-range municipality that has experienced enormous crisis management situations. Andrew Zdunich said, "Kelowna has, I think, one of the most advanced EOC concepts in the country, and it's well practiced."

The push to talk

When terrorists toppled the twin World Trade Center buildings in New York City on September 11, 2001, radio communications became a shambles, as dozens of public safety, law enforcement and rescue organizations tried to coordinate their efforts. Their radios used different channels and conflicting technologies. For years, in Canada as well

JEPRS JOINT EMERGENCY PLANNING & RESPONSE SYSTEM
WELCOME TO THE EVOLUTION OF DISASTER MANAGEMENT

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JEPRS
Joint Emergency Planning and Response System

JEPRS QUICK FACTS

- + Real-time alerts, notifications and communication
- + Operational even in environments with volatile internet connectivity
- + Integrates with existing Forms Management Systems
- + Web Client makes information available to outside personnel on a need to know basis
- + Available Customizations include:
 - Real-time access via mobile devices
 - Hosted subscription service

Infusion
Catalyst
CAPABILITIES INTERNATIONAL
Microsoft

as the United States, first responders have been 'solving' the challenge of incompatible radio systems by creating crude work-arounds.

Typically, supervisors from different services simply swap radio handsets to monitor each other's networks. A number of vendors have taken up the challenge and offer solutions, including the giant Cisco Corp. The company's General Manager of Safety and

We're going to take our emergency operations to another level. Kerry Klonteig, Assistant Fire Chief, Kelowna

Security Systems, Shmuel Shaffer, said many smaller agencies don't have big budgets and already have a big investment in existing equipment, so there is a tremendous opportunity for interoperability solutions. In Cisco's case, the solution is IPICS, or Cisco IP Interoperability and Collaboration System, a package of products that bring wired and cellular telephones, voice over Internet protocol, email, pagers, computers and radios all under common control.

"The IP network is at the centre of our solution," Shaffer said, because it allows for geographical and visual data, as well as

other services, instead of simply voice communication. "The door for innovation is really opening, once you attach to the IP network."

The IP network also opens the door to competition because innovative companies can develop products to fixed standards. "Look at the cost of push-to-talk," Shaffer said. "The handheld device today costs a few thousand dollars, and look at the new generation of handheld devices kids are using,

and the functionality they have. All of a sudden you're getting ten times the functionality for one-tenth the price." Cisco is betting its widely installed telecommunications base will give it an edge in emergency communications.

Valley Associates of Orleans, Ontario offers another bundle of solutions, the RAVIN™ system. Valley's Michael Klein says the package has brought interoperability to the US Forestry Service, across more than 35 National Forests with 500 sites in 9 states. "They manage all the communication for the wild land fire-fighters and so if you have a wild

land firefighter on the ground in Washington State, and he's from Oregon, and an aircraft is coming out of Idaho, they can talk from the ground to the aircraft seamlessly." The system allows an operator at a computer console to patch voice networks together quickly and easily.

Company president Mike Martin said, "The interested clients are concerned with national security issues so we are dealing with agencies at that level and they're the people that are sort of at the top of the pyramid. That's where the focus is. DND, Canada Coast Guard, border security people, RCMP – these are the kind of people who are looking at the technology now."

Pointing to potential applications at the Canada-US border, he listed, "Canada Border Service Agency, US Border Patrol, you've got the RCMP, Quebec provincial police, Montreal police, all sorts of people under all sorts of jurisdictional control. There's where you would have it."

Although the system is currently drawing most interest from national organizations, it is clearly affordable for provincial and municipal institutions with interoperability requirements. "When you sell a scalable sys-



tem, you go from \$35,000 to \$40,000 up to whatever it needs to be, but you only pay for what you need," Michael Klein said.

Ottawa-based Prolity Corp. offers the self-contained, ruggedized rapidly deployable command centre (RDCC) for portable command and communications. Prolity President Paul de Grandpré said, "We know intuitively the buyers are probably large single agencies like a fire department or a police department, as sort of the lowest size end of the spectrum up through cities, city emergency management offices, all the way to provincial EMO and comparable agencies. We've had a fair bit of interest up to and including provincial

agencies in Alberta and Ontario, in particular so far, and then you get into the much larger organizations, like DND."

The Department of National Defence is using some of the RDCC technology at training bases, to link radios and telephones in large networks with hundreds of users at once and the main hardware unit is in service with almost 100 first responder organizations and government agencies across the United States. De Grandpré said the RDCC is, "...the bar none, simplest, most effective, bomb-proof, 'pull it out of the chassis, run it off AA batteries in the dark' product for radio integration."

Guardian angel

The JEPERS system is only as timely as the information it gets, so GPS tracking technology from Canadian company Guardian Mobility is an obvious extension. In fact, as Guardian president Jean Carr pointed out, its satellite tracking devices are already in use with fire crews in British Columbia, across Canada and in the United States.

"British Columbia is reputed in the industry among forest fire fighters as leading thinkers and adopters of technology and a lot of people do what BC does because they can be several years ahead of everybody else," Carr said. "They are very well equipped with our equipment. They are very well equipped, period. They are an important

the use of contracted aircraft for the taxpayer. "Now with our tracking device, they can optimize the deployment and use of contracted aircraft with more certainty; from their control centers, they always know aircraft location, approve flight missions, they see when aircraft take off, when they land, what mission they are on, and pay the bill accordingly," Carr said.

How much money? "It is very hard to quantify," he said. "It also depends on who you speak to, but it typically ranges from between one and five percent savings, but it can be a lot higher. And those are the direct expenditures; in addition, there are lower property damage costs due to more effective asset deployment, which cannot be quantified."

When it comes to procurement, knowledge is power.

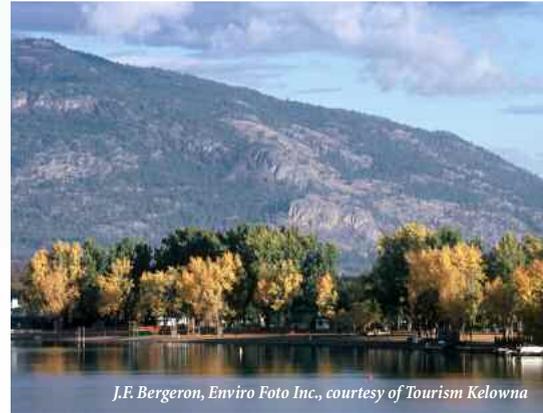
customer for us and there is sort of a ripple effect across the country."

Carr said forest fire agencies have quickly adopted Guardian's tracking devices, both for people as well as equipment like trucks, bulldozers and containers. "Lo and behold, one day they also put it on an airplane. The cost payback of putting it on the aircraft was absolutely black and white simply because aircraft cost \$2,000 or 3,000 an hour to operate, so if they save fifteen minutes a day, after a week, they have our device paid for."

When it comes to procurement, knowledge is power. Carr works with one government aviation fleet manager who challenged himself to get the full benefit from

Carr said that apart from the forest fire area, there is no identifiable emergency preparedness market in this country. "The bottom line is, Canada doesn't have emergencies except forest fires. I contrast that with the Americans who suffer hurricanes and summer tornadoes. We think we know exactly who the buyers are for disaster relief in various organizations in the US. Here, except for forest fires, there doesn't appear to be a single central authority or buyer for emergency response," Carr said.

With a growing emphasis on emergency preparedness at the federal level, a new and growing range of emergency management products, and partners like Microsoft and others, that situation could change.



J.F. Bergeron, Enviro Foto Inc., courtesy of Tourism Kelowna

He said some of the pitfalls purchasers and potential purchasers of interoperability and emergency management solutions can encounter include: "...too big, too heavy, not flexible enough, not deployable' and if you are going to have a mission critical system, you want to make sure it works under difficult conditions not under ideal conditions. You get a lot of agencies that are looking for IP based solutions but what they are really buying is IP infrastructure for day to day use."

Practice makes perfect

Meanwhile, in Kelowna, the JEPERS system is finding its way into daily use. As assistant fire chief Kerry Klonteig said, "We're doing event planning and implementing the JEPERS system, so we can get all the stakeholders in the emergency operations centre together, bring them in and plan the event, because basically that is our job, to make sure that if something does go sideways when an event goes on, that we are ready, and up and rolling."

The Kelowna Fire Department, which has the lead for emergency management in the region, can now effectively run a 24-hour emergency operations centre on one computer, monitoring its own activities and bringing in other emergency services as needed.

"We're going to take our emergency operations to another level," Klonteig said. "In 2003, obviously we were fortunate in one sense, even though 238 homes burned. Everybody was safe, but now the expectation for us is even that much higher, and adding the JEPERS solution to our program is going to make it that much better." ■■■

Richard Bray is an Ottawa-based freelance writer and editor specializing in the IT sector. He has been published in magazines and newspapers in Australia, the US and Canada. Before freelancing, he worked as a producer, reporter and senior writer for CBC in Toronto.