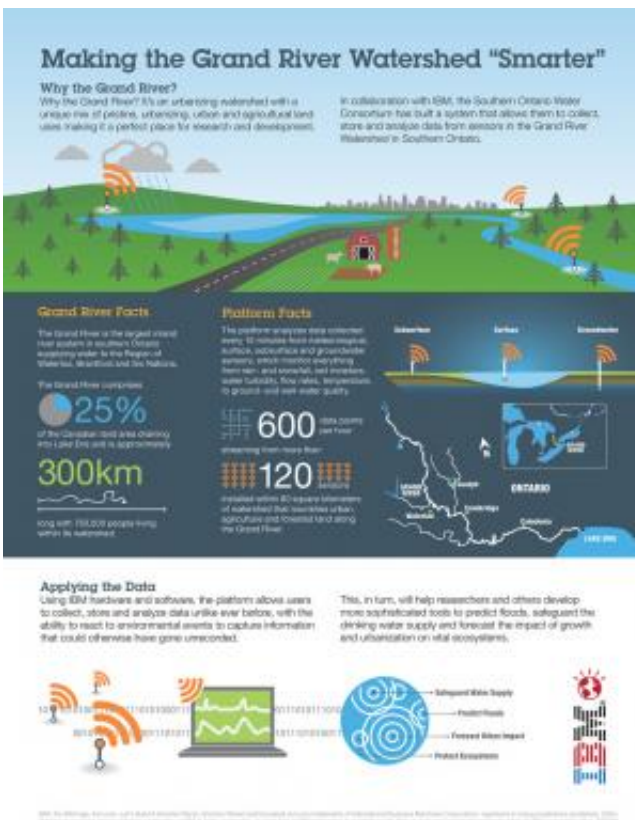


IBM collaboration harnesses power of big data to help manage complex watersheds

June 17 2014, by Leslie Plant



A new data integration platform for watershed management built by the Southern Ontario Water Consortium (SOWC) in collaboration with IBM is helping researchers, urban planners and others develop more sophisticated tools to predict floods, safeguard the drinking water supply

and forecast the impact of growth and urbanization on vital ecosystems.

This first-in-Canada platform assimilates 600 data points per hour, streaming from more than 120 sensors installed within 80 square kilometers of [watershed](#) that nourishes urban, agriculture and forested land along the Grand River, the largest inland river system in southern Ontario.

The Grand River, a mix of pristine, urbanizing and urban areas, offers an ideal environment for research and development. It comprises 25 per cent of the Canadian land area draining into Lake Erie, and its basin is home to more than 750,000 people providing the water supply for the Region of Waterloo, Brantford and Six Nations.

The new platform analyzes data collected every 15 minutes from meteorological, surface, subsurface and groundwater sensors, which monitor everything from rain- and snowfall, soil moisture, water turbidity, flow rates, temperature, to ground- and well-water quality.

Traditionally, watershed research has been limited by the inability to collect, transmit and store massive amounts of data collected from monitoring sites, merge information to evaluate trends, and capture sporadic events that could be crucial in understanding a watershed. Because of advances in both hardware and software, users of the data integration platform are able to gather the information needed to analyze and interpret a watershed unlike ever before.

"The opportunities enabled by highly-instrumented, data-centric smart watersheds will not only improve understanding of watershed management challenges, but will allow the development of new tools for monitoring and incorporating real-time data into decision-making" said Brenda Lucas, Executive Director of SOWC, a watershed scale platform for research, development, testing and demonstration of water

technologies and services.

"This is an application of smart technologies to offer a rare, perhaps unprecedented understanding of the influence of urbanization and associated land use management in watersheds under various degrees of development," said Dan Fortin, president of IBM Canada Ltd.

"Our e.RIS web-based enterprise reporting tool helps our clients manage and understand the data they have that comes from various sources," said Tim Sutherns, President of Eramosa Engineering Inc., a client focused engineering consulting firm specializing in SCADA, electrical, IT, data solutions, and asset management. "Through a demonstration project, the new data integration platform provides real-time environmental data from SOWC allowing us to test and demonstrate new applications of this technology, ultimately providing additional information to our clients for more informed decision making."

The technology backbone behind the platform includes IBM's Intelligent Water software, and IBM contributed consulting expertise as well as a cloud infrastructure designed specifically for high performance computing applications such as weather and climate modeling.

An important feature of the platform is the fact that information communicated by the sensors can be interpreted in real time, allowing rapid responses to environmental events, or 'triggers'. This improves on traditional passive monitoring which can miss important watershed behavior triggered by intense, short-lived environmental events. The system will automatically alert users to the onset of an event such as a heavy downpour in one area of the watershed. This allows sensors elsewhere in the network to be triggered to increase the rate at which they collect data, facilitating a new paradigm in intelligent watershed monitoring.

The platform is now available to a variety of stakeholders including academics, provincial and municipal administrators and individuals or companies looking to develop, test or demonstrate new systems or technologies. It provides access to real-time data streams, and the ability to both create custom applications and expand on existing functionality through add-on features. The platform also provides public Web-access to anyone interested in simply viewing the data being captured.

Provided by IBM

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