IBM Water Management Center

Integrated and proactive management of a precious resource

Highlights

- Enhance situational awareness of interconnected water systems

- Improve operational insights with advanced analytics

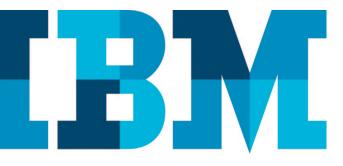- Improve crisis management of water related incidents

Today's water management challenges are becoming more complex and interconnected. Increased stress on water resources, driven by climate change and increased variability, increased demand, and water quality degradation have consequences across all aspects of economic development. Water resource managers from local to global levels of government are finding new ways to cope with these changes, adapt to greater uncertainties and manage systemic risk.

Limited water resources are considered to be one of the most significant challenges facing societies and governments in the 21st century. Cooperative and competitive relationships exist among stakeholders and local governing bodies that all must work together to ensure success in meeting sustainable development goals. To address the multi-faceted nature of water management, many regions are introducing an integrated approach to water resources management at the regional and basin level to address challenges such as:

- Providing adequate water supply in times of drought
- Preventing floods through storm water management
- Balancing the water needs of agriculture and urban environments
- Ensuring the health and quality of watersheds and hydroelectric power generation

Managers and decision-makers in all sectors of water management require new and more integrated information. This information, combined with advanced decision-support capabilities, can help them to adapt to uncertainty, extreme weather, climate changes, threats to water quality, failing infrastructure and increasing demands on limited resources. The IBM® Water Management Center solution for water resource management facilitates the flow of information across organizational boundaries, providing a unified view of water management operations. Managers can better handle incidents, balance water supply and demand, manage water quality, improve flood control, maintain critical infrastructure and drive multi-stakeholder collaboration.

Enhance situational awareness

Gaining visibility and reliable operational intelligence across water operations to proactively identify and mitigate operational issues is challenging and time-consuming. Having accurate information and insights into current conditions and future states is important to operators and planners, but difficult to achieve due to the ever-increasing volumes of data and a multitude of isolated decision support systems.

The Water Management Center is a ready-to-deploy solution that gives water authorities a 360-degree operational view of historical, current, and possible future performance by integrating data from internal and external data sources. The collected data is aggregated, analyzed and visualized geospatially to provide a real-time common operating picture of the state and stability of the water resources and infrastructure being monitored. The solution offers insights from almost any type of structured and unstructured data, including:

- Real-time and near-real-time operations from SCADA, meters and sensors
- Historical data from asset management systems and data warehouses

- Geospatial information from geographic information systems (GIS)
- Enterprise data from financial systems
- External data sources such as weather, video, traffic and social media

This common operating picture provides a comprehensive, multi-layered, role-based view of the overall water situation geospatially in real time. Users can see the big picture and drill down into the supporting details. They can quickly locate, integrate and access system data, and track, manage, and share information about water assets, resources and events.

Deploy advanced analytics for early warnings

Analytics technology helps clients harness the explosion of data coming from a growing number of resources, including data collected from utility meter readings and sensors. Increasingly, water resource management planners and engineers are recognizing that advanced analytics are essential to the delivery of high-value, decision-oriented features such as forecasting, prediction, simulation and optimization.

As sensors placed throughout the infrastructure and natural water systems feed data to analytic tools and algorithms, water agencies can discover patterns and trends in their structured and unstructured data. Through real-time tracking and reporting of conditions, waste and potential problems are exposed and can even be predicted. Working together, water resource management organizations can then use those insights to predict the outcomes of future events and interactions. With advanced analytics, water organizations can adjust plans and strategies to minimize potential risks, such as a water quality issue, asset failure or a pending flood event, so they can make the best decisions ahead of time.

The situational awareness foundation of the Water Management Center solution creates a platform for deploying advanced analytic applications rapidly across operations such as:

- Intelligent video analytics to help secure critical water infrastructure
- Predictive asset optimization to support preventative maintenance
- Correlation of operational parameters to predict trouble spots in water sourcing, water delivery and wastewater collection
- High-resolution weather forecasting to pinpoint potential areas of flooding

These specialized analytics from IBM offer an extra layer of insight, which can help reduce water-related incidents. For example, imagine the savings from heading off a burst water main, clogged street drain or hazardous sewage overflow. And imagine addressing leaks in the drinking water system, which waste so much of our precious, irreplaceable water. Fixing leaky pipes can save currency, water and lives.

Improve crisis management

When water-related emergencies occur, the same IBM Water Management Center system used for resource management and daily decision-making can be used to help managers react rapidly in a coordinated manner. Whether it's a natural disaster such as a flood, a man-made incident such as a hazardous materials spill in major water body, or an infrastructure incident like a failed pump or loss of an important SCADA system, situational data needs be disseminated quickly to all stakeholders across the water management network. With shared contextual awareness about the situation, water resource managers can allocate resources and integrate actions to mitigate the impact of the event.

By analyzing the collected data across water resource agencies for anomalies and generating alerts when thresholds are met, the Water Management Center solution provides early warnings that enable authorities to act quickly and coordinate response to mitigate negative consequences. For example, with advance notice of potential flooding due to rising river levels, defensive measures can be put in place. Combined with advanced geospatial views and event processing, the solution helps streamline collaboration and facilitate cross-agency coordination by providing:

- A single, common operating picture shared by all stakeholders
- Event correlation
- Automated workflows and standard operating procedures
- Real-time instant messaging
- Support for mobile devices

Deployment-ready integrated solution

The Water Management Center solution can improve system operations and satisfy citizen needs by applying technology to more efficiently use resources and interact with the natural environment. The open architecture of the IBM Water Management Center system provides the foundation for achieving cross-domain synergies with other agencies. The deployment-ready package speeds configuration, training and the development of standard procedures. The result helps maximize the value of your existing infrastructure investments while simultaneously helping to minimize the total cost of ownership of the system.

"Water use has been growing at more than twice the rate of population increase in the last century."

—UN-Water[1]

Why IBM?

Cities everywhere are reinventing themselves to better integrate across functions and collaborate with new partners to create and nurture the strong, differentiating identities that attract new citizens and businesses. Successful reinvention requires improved water management and increased network capacity to enable continued growth.

For more than 100 years, IBM has been designing and integrating systems that solve business problems. This experience has resulted in one of the world's most powerful analytics portfolios, with a range of deployment options that include cloud SaaS, on premises, and shared. When combined with the deep expertise derived from helping thousands of cities deliver real outcomes, it comes as no surprise that Navigant Research ranks IBM as the number one smarter city supplier.[2]

For more information

To learn more about the IBM Water Management Center solution, please contact your IBM representative or IBM Business Partner, or see **ibm.com**/smartercities

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[1] http://www.unwater.org/statistics/statistics-detail/fr/c/211811/

[2] Woods, Eric and Gartner, John. 3Q 2013. "Navigant Research Leaderboard Report: Smart City Suppliers." Navigant Research.

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