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IBM plunges into the 'smart grid for water'

by Martin LaMonica

Even as billions of dollars are being spent around the world to modernize the electricity grid, the systems to delivery fresh water are also in desperate need of a 21st century upgrade.

IBM is developing a portfolio of IT-related **water management** technologies, a business that it estimates can total $20 billion within five years. At a water conference next week, IBM and Intel will be forming a working group to study how information and technology can be used to improve water management, according to IBM.

The goal is to sketch out the technical architecture required to more efficiently use fresh water, only one percent of the available water on Earth.

Water systems even in developed countries like the U.S. are notoriously outdated, with faulty pipes--some of them still made of wood--result in 25 percent to 45 percent lost water. That means high-tech approaches, such as using sensors to gauge water quality, are a tough sell to cash-strapped municipalities, most of which are more concerned with maintaining the basic infrastructure.

IBM is betting, though, that fresh water will have more value attached to it from the public, governments, and corporations.

"The hard truth is that most of the countries in the developing world are outgrowing the amount of water that is available to them," said Peter Williams, the chief technology officer of IBM's Big Green Innovations program, who representing IBM at a conference organized by the **Water Innovations Alliance** industry association next week. "Certainly, it's the case that water is the great sleeping crisis and it is most definitely starting to wake up."

IBM **launched Big Green Innovations two and a half years ago** to capitalize on constraints in **energy generation**, **carbon emissions**, **energy in the data center**, and **water**. For the past 18 months, IBM has focused more of its attention on water, said Williams, who characterized the business as "incredibly nascent."

Reservoirs of data

Upgrading the water utility infrastructure is analogous to the many **smart-grid technologies** now being tested to make the grid run more efficiently and use more renewable energy.

Gathering and processing information on the status of delivery allows water agencies to better manage their operations. For example, if a water authority can use meters or sensors to locate problems, such as leaks or sewage overflows, they can cut their maintenance costs, Williams explained.

IBM has already had a number of water-related deals. In a partnership with the Nature Conservancy, it's gathering data on various environmental factors to measure the **health of river ecosystems**. In the Netherlands, IBM is involved in the design of levies to understand potential breaking points.

In these cases, IBM is building the software and networks to handle incoming data from sensors and to provide tools to let people analyze the information. It's also testing smart water meters that would provide more accurate consumption data and alert customer if there's a problem, such as a leak. It's also looking at new sensors being developed to track the level of pathogens or chemical contaminants that come from use of pharmaceuticals.

Big Blue's Maximo "asset management" software is used by many water utilities to keep track and maintain their equipment of pumps, plants, and filtration equipment.

Still, water utilities are a generally low-tech bunch when it comes to IT. Most water authority executives don't consider technology options beyond basic SCADA control systems, Williams said. "They are where (electricity) utilities were five or 10 years ago," he said.

Corporate risk

IBM is pushing into water because the trends on water point to the need for greater conservation for social and economic reasons.

In poor countries, billions of people don't have regular access to clean water. Meanwhile, high-profile droughts in Australia and the western U.S. served by the Colorado River are causing severe financial problems for different industries, notably agriculture.

The high energy cost of delivering water helps makes the economic case for better monitoring and data analysis. In the U.S., between 3 percent and 4 percent of the entire electricity output is used to pump water. In California, it's almost 20 percent. Meanwhile, low water levels in rivers and reservoirs forced the shut down of nuclear reactors in France a few years ago.

Industries that rely on water, such as semiconductors, agriculture, or beverages, are susceptible to disruptions of supply. There's also "reputational risk" when consumers perceive that businesses are profligate with water, Williams said.

"It's something like greenhouse gases. Ten years ago in this country, few people were talking about them but now they are," he said. "The same will happen with water."

Martin LaMonica is a senior writer for CNET's Green Tech blog. He started at CNET News in 2002, covering IT and Web development. Before that, he was executive editor at IT publication *InfoWorld*. E-mail Martin.

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