Translating Data Into Action to Improve Utility Operations

A WHITE PAPER BY NEPTUNE TECHNOLOGY GROUP INC.

MANAGE YOUR DATA

Today's water utilities are faced with ever-increasing pressures – on their water supply, their efficiency, their workforce, their infrastructure, and their bottom line. However, even if the needs felt by utilities are common, your utility's solution must be tailored to meet your needs. It must improve your customer service and your customers' experience. Whatever path you choose, the answer begins with data.

Utilities now have access to myriads of data. But it's crucial to make all that data work for you, and not the other way around – with automatic meter reading (AMR) and advanced metering infrastructure (AMI) systems that empower your utility to not just simplify data collection, but also to go beyond basic meter reading and billing, analyzing data at the source and turning it into actionable information for every department.

An absolute must is an absolute encoder register, preferably one that can analyze detailed usage data at the meter in monthly, daily, or hourly intervals. Even better is an absolute encoder that flags leaks, backflow, and days of no flow. When this data is logged by the hour and transmitted to an intelligent host software application, your utility can graph individual account consumption history and consumption anomalies. Tracking usage patterns through data logging while receiving alerts helps identify and resolve your customers' water-related issues quickly and easily. With simplified access to consumption information as well as possible leaks, you can proactively inform customers of high water consumption to head off high bill complaints, reduce delinquent payments, and eliminate write-offs.

Your host software application plays a crucial role in creating a smart water network across your utility. By streamlining data collection, simplifying operations, and enabling more proactive response time, your host application can allow your utility to do more with less, providing the flexibility to reallocate staff to different departments or adapt to changes in your workforce over time.

Using host software analytics, you can create key performance indicators (KPIs) of system and asset conditions, and view them geographically on a dashboard screen via GIS maps. If the application is equipped with a customizable reporting engine, you can readily modify existing reports or generate new ones for specific functions, then schedule them to run whenever you need them.

Plus you can do even more – for instance, balance water produced against water consumed. Analyze customer usage profile data to resolve disputes as well as support water conservation initiatives. Compare water consumption among similar groups of accounts for District Metered Area (DMA) analysis. Making sense of the data makes it possible to manage Non-Revenue Water and transform customer service.

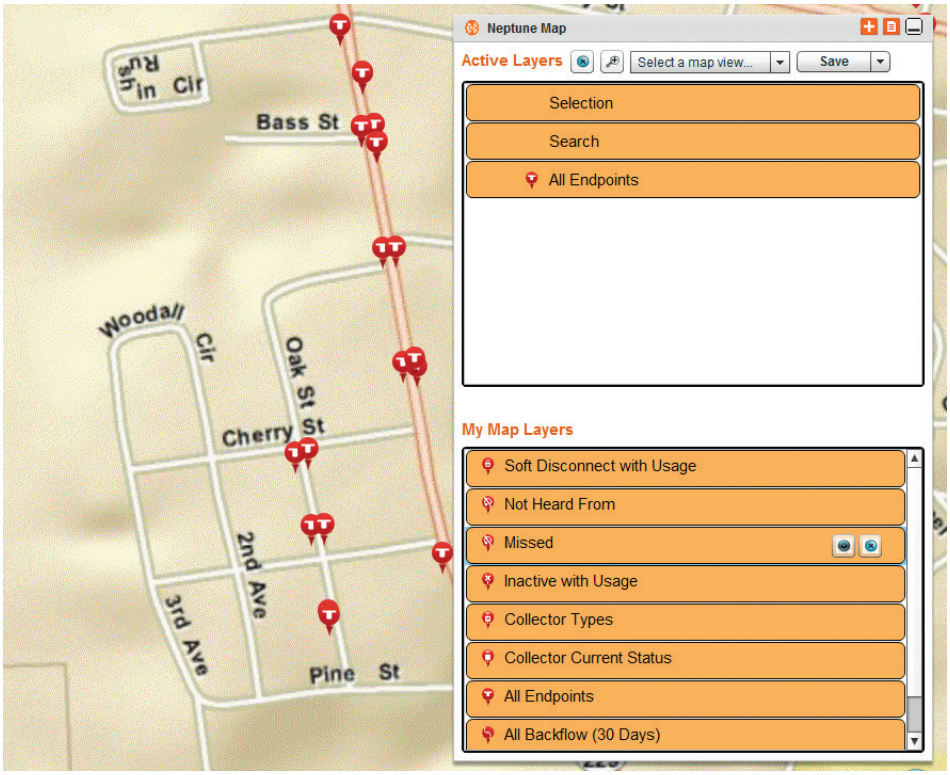
OPTIMIZE YOUR UTILITY OPERATIONS

When it comes to managing operations and resources more effectively, your utility must do the most with existing resources – whether budgets, physical infrastructure, workforce, metering hardware, information systems, and of course, water itself. And all the while, your customers expect increased transparency and accountability.

Automating and streamlining processes goes a long way towards these goals, helping improve system monitoring, boost asset performance, and help your workforce be more efficient in their jobs, saving your utility time and money. It also gives you and your customers confidence in your metering and their bills, as automation reduces human error (such as transposed reads), while reducing or eliminating estimated meter readings.

As part of an automated system, advanced host software enables you to monitor and assess the condition and performance of your utility's assets, helping to maintain and enhance them over the long term at the lowest possible life cycle cost.

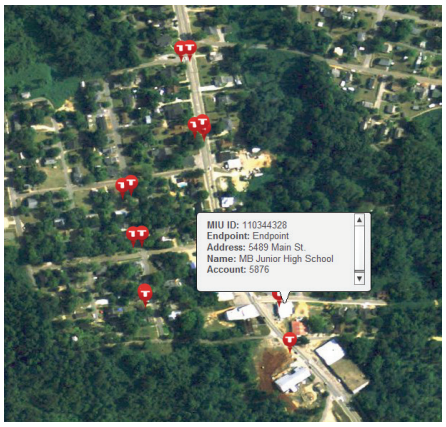
Through automatic priority alarms for leaks and backflow, your utility personnel can be emailed warnings



to help prevent customers' high bills as well as main breaks and contamination events. You can also collect data from water quality monitoring sensors that support contamination warnings, addressing sanitary and/or combined sewer overflow (SSO/CSO) concerns by transmitting critical overflow conditions before they occur.

When you augment smart host software with a cloud-based analytics application, you can store and access years' worth of daily and hourly metering data, thousands of times the information you'd get through quarterly or monthly reading. Analyze this vast amount of data to make better decisions in the short term as well as identify historic trends for better budgeting and planning.

You can take district metering analysis further to see how to lower water treatment costs, pumping expenses, and other operating costs while generating additional revenue. Analyze daily water budgets to help your customer service team



Intelligent host software with GIS mapping allows water utilities to more proactively zero in on possible leaks, backflows, and other system conditions.

educate customers about how they use water. Configure and share water usage graphs and reports, as well as alerts for leaks, consumption beyond predetermined levels, and unintended usage. Or have your customers take more control of their own consumption, by providing the option of self-service web presentment so that they can monitor and manage their own usage, and possibly adjust their consumption behavior.

CONNECT AS A SMART WATER NETWORK

As part of a smart water network, your AMR or AMI system can't operate in a vacuum. Management, maintenance, customer service, water quality, and your other utility departments all need fast, easy access to information for your utility to run smoothly. To make it simple, today's AMR/AMI software can support interoperable, enterprise-level, real-time data sharing (via web service APIs) to other utility software applications across departments, leveraging the knowledge of your personnel.

Knowledge is the power that drives a water utility's operational efficiency. A real-time, predictive application at the enterprise level allows your utility to turn AMI, GIS, customer information system (CIS), supervisory control and data acquisition (SCADA), hydraulic modeling, water quality, pressure management, and other data into information they can use immediately. Now field personnel – and those they communicate with back at the office – can assimilate the right information and the right resources in the right place at the right time. Multiple sensors across the network feeding data into intelligent, analytical, interoperable software help identify which valves need turning off when, what work crews are already in the area to avoid another truck roll, and even likely outcomes of actions in the field.

By sharing timely, critical data, you can reduce operational expenditures across your utility, you can reduce bad debt costs, and improve long-term planning to better manage future capital costs.

Leveraging historical metering data to provide predictive analytics enables your utility to invest capital dollars where they'll have the greatest positive impact on infrastructure. At the same time, you'll be saving money, as fully-hosted, cloud-based applications of this type can also significantly reduce your infrastructure costs as well as your need for training or IT resources.

PROTECT YOUR ASSETS

Ideally, the data solutions that meet your utility's individual needs should work with the existing assets you already have in place. The system you choose today to provide mobile AMR for monthly reading should still allow you at some future date to implement fixed network AMI with detailed hourly readings and alerts – any time you're ready. Likewise, adding host software and more advanced analytics applications should be just as easy.

With today's migratable technology, your utility can pick and choose components within a common system for walk-by, mobile, or fixed network data collection. And within a unified software platform, each component works together with others to perform as a harmonious system. With an AMR or AMI system such as the Neptune® R900® System, when gathering data, there's no need to change "modes". Your utility can read rural routes via mobile or crowded city blocks via fixed network, without site visits, remote programming, or any type of reconfiguration of the MIU.

Which of the system's features your utility chooses to deploy, as well as when, are purely business decisions, with no technology barrier as your needs change. Even if your utility is only using walk-by or mobile reading methods now, the right system can allow you to migrate to mobile or even fixed network meter reading in the future, all using the same endpoints in the field. You can adopt new, advanced technologies without stranding assets, maintaining backward compatibility while enabling forward innovation – at your own pace. That's data that works for you.

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*For technology that works for you, learn more about the Neptune R900 System at **neptunetg.com** and connect to what's next in water.*

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