



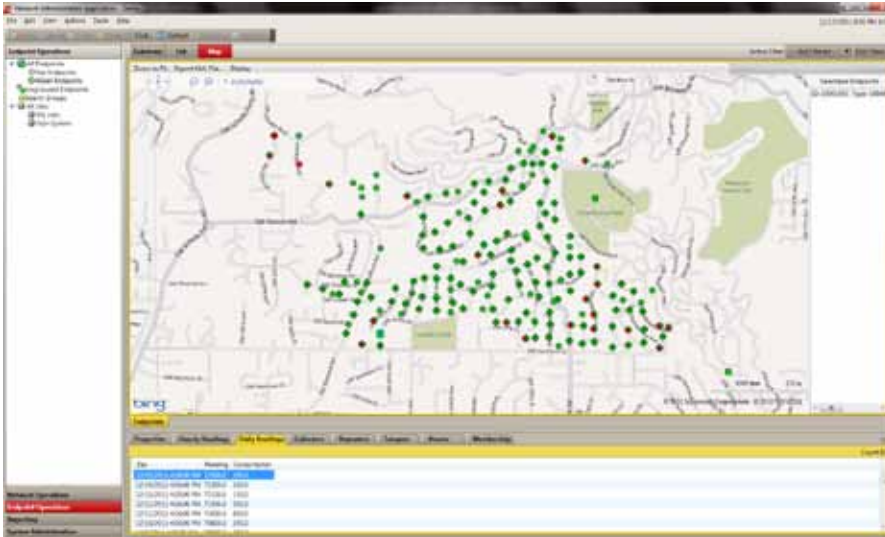
ChoiceConnect™ AMI Network Software

Comprehensive network data collection and system management

Itron's Network Software offers water providers the ability to transform their business through the analysis of meter data collected over the ChoiceConnect network. Network Software is a powerful tool that maximizes the fixed network system's performance and delivers granular data collected by the network into actionable intelligence that today's water providers require.

NETWORK SOFTWARE COMPONENTS

- » **Network Administrative Application (NAA)**
Administrative application that monitors the health of the entire fixed network system and exports defined reports.
- » **Network Performance Application (NPA)**
Web-based installation tool with long-term trending and analysis of fixed network performance.
- » **Network Web Application (NWA)**
Web-based window allows analysis capabilities of up to 400 days of collected data.



NETWORK PERFORMANCE APPLICATION

Long-term network performance data is provided via the web based NPA. NPA measures network performance during deployment activities to ensure proper read requirements are met. It also provides a comprehensive analysis of long term performance and health of the network using graphs, charts and mapping to articulate critical, device specific information for effective network management.

Features and Benefits

NPA is a deployment tool for use by Itron Professional Services staff during initial rollout of a fixed network system. NPA allows the Project Manager to input a baseline schedule of when ERTs should be installed according to the overall project schedule, and as these ERTs come on-line and are heard by the network. Their actual installation date is shown on a graph superimposed on the original baseline. Thus, NPA allows project managers the ability to track actual project progress against planned. Once deployment has been completed, the customer retains access to NPA.

NPA software provides additional value to customers over the life of the system by allowing customers to trend and analyze system performance beyond the 18 months that is available via the NAA diagnostic tools.

A principal benefit of NPA is to increase the read rate reliability of the network. This is done with the Adaptive Channel Planning. This feature resides in NPA and uses a variety of mathematical and statistical methodologies to detect when and/or if certain RF channels may be suffering degraded performance within the ISM band. Once pre-selected performance thresholds are crossed, Adaptive Channel Planning uses two-way communication (as described in NAA) to transmit a channel plan that blocks suspect channels from further use, therefore increasing overall read rate reliability. Should the suspect channel later be detected as available (hysteresis window is typically about one month), a new channel plan will be issued again via two-way making that channel once again available for use.

NETWORK ADMINISTRATIVE APPLICATION OVERVIEW

NAA runs automatic diagnostics on the current status of the ChoiceConnect fixed network and allows the system administrator to keep the system running smoothly. The application enables the utility to quickly assess the health of the fixed network by accessing reports on system conditions for ERT® communication modules and network collectors and repeaters. NAA also manages the network data collection, collecting consumption reads and time synchronized hourly interval reads for data logging and alarms, as well as data presentment and export options of the collected data.

Features and Benefits

NAA is a rich-client application designed primarily to collect and export consumption and event data and to allow the utility's system administrator to address and handle data processing exception and fault conditions as they are encountered.

NAA manages and executes:

» Network Status

- Visualization of collector, repeater and ERT location and status using integrated mapping technology
- Event notification capability for delivery of time critical system status information
- Over a dozen standard reports with capability to customize reports for specific utility needs including:
 - Leak Report
 - Tamper Report
 - Reverse Flow Report
 - Usage on Inactive Account
 - No Usage on Active Account
- ERT Properties
 - Monitor the status and operation of every ERT module in the network
 - See the hour-by-hour read rate of each ERT
 - Filter and search for a particular ERT, group or all ERTs that the system reads

» Data Collection Management

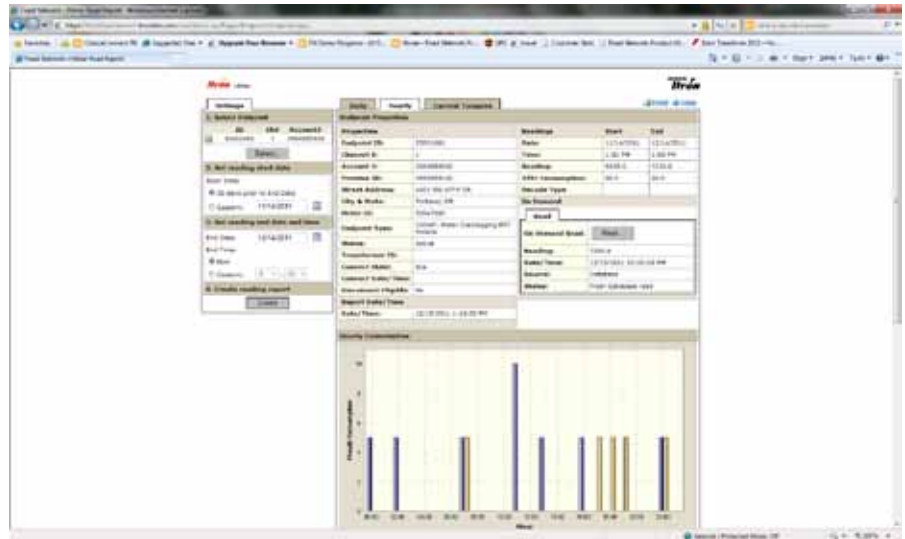
- Register and interval consumption data with 400-day storage
- Two-way communications to the ERT that enables:
 - On-Demand Consumption Read — to extract a specific read from a single ERT or from a specified group of ERTs
 - On-Demand Interval Data — to extract a specified range of historical interval data reads from a single ERT or specified group of ERTs
- ERT Readings
 - View readings for a specific ERT in the system
- ERT Tamper and Alarms
 - View tamper information for a specific ERT

NPA enables:

- » Ability to analyze network performance by route, region, city or other configurable group
- » Long-term network performance trending
- » Delivery of daily read and interval data statistics
- » Acquisition of meter read redundancy reports
- » Visualization of Cellular Control Unit's (CCU's), repeaters and communication modules (100W & 60W ERT modules) in map view
- » Scalable network expansion to support future needs

NPA provides utilities with a comprehensive set of CCU performance analysis that allows users to view:

- » **Collector Properties**
Review CCU configuration and change assigned WAN type and grouping.
- » **Communications**
The CCU Detail read-only tab displays the collector's current communication settings.
- » **Scan Schedule**
Show the scan schedule properties inherited from the configuration group the CCU is currently assigned to.
- » **ERT Type**
Summary view of the ERT type.
- » **ERT Type Exclusions**
Summary view of the ERT type exclusion properties inherited from the configuration group that the collector is currently assigned to.
- » **CCU Alarms**
Shows reported alarms for a specific time period.
- » **CCU Data Update Log**
Monitor communication status for the system devices as well as view communication statistics for the selected CCU over a specified time period.



NETWORK WEB APPLICATION

NWA allows you to quickly access and analyze up to 400 days of collected daily and hourly data in an easy-to-use web browser interface — without the necessity of loading and managing rich-client software and without the inconvenience of wading through numerous system administration functions simply to access consumption information for a selected account.

Features and Benefits

- » **Account Search**
Offers the ability to search on specific parameters including Account#, City, State, Zip, ERT ID, Meter ID, Premise ID, and Transformer ID. Wildcards are permissible.
- » **Daily Consumption Tab**
Once an account is selected, all associated properties information is displayed as well as the most current read date, time, and reading.
- » **Hourly Consumption Tab**
Clicking on the HOURLY tab presents all the same information as the DAILY tab, but the daily line graph changes to a bar chart showing hourly consumption for each of the 24 hours of the selected day.
- » **On-Demand Read**
In either the Daily or Hourly tab, there is a button labeled "ON DEMAND READ". This button when clicked delivers the same functionality as the "On-Demand Consumption Read" feature described in NAA.
- » **Current Tampers Tab**
By clicking on the current tampers tab all active tampers will show including cut cable and reverse-flow.

FEATURE SET

Fixed Network Software

Network Administration Application (NAA)

- » Endpoint Operations Domain
 - Summary Page
 - Active Endpoint Count
 - Endpoint List Page
 - Endpoint Properties Tab
 - Daily Readings Tab
 - Hourly Readings Tab
 - Collectors Tab
 - Repeaters Tab
 - Tamperers Tab
 - Alarms Tab
 - Membership Tab
- Collector/Repeater List Page
- Diagnostic Map Page
- System Status Summary Page
- » Operational Reports
 - Leak Report
 - Tamperers Report
 - Reverse Flow Report
 - Usage On Inactive Report
 - No Usage on Active Report
 - Endpoints Reporting Alarms Report
 - Collectors Reporting Alarms Report

Network Web Application (NWA)

- » Daily Consumption - Single Account (400 Day View)
- » Hourly Consumption - Single Account (24 Hour View)
- » Compare 400 days of data (i.e. Daily - same month, previous year)
- » On-Demand Read (Up To 40 Days)
- » On-Demand Read (Up To 40 Days)

Network Performance Application (NPA)

- » Measure network performance against baseline ERT installation schedule
- » Comprehensive performance analysis tool using graphs, charts, mapping



At Itron, we're dedicated to delivering end-to-end smart grid and smart distribution solutions to electric, gas and water utilities around the globe. Our company is the world's leading provider of smart metering, data collection and utility software systems, with over 8,000 utilities worldwide relying on our technology to optimize the delivery and use of energy and water.

To realize your smarter energy and water future, start here: www.itron.com

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