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May 21, 2020

Create a Smart Utility Network Using Existing Infrastructure

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Webinar Moderator

Connor Larson

Sales Associate

American Water Works Association

Connor Larson is the Sales Associate to the Midwest and Western U.S. territories in the Sales Department at AWWA. He has been with AWWA for almost 4 years, corresponding and building relationships with the members, advertisers, exhibitors and sponsors. Connor has a BS in Advertising from Northern Arizona University.

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Agenda

- Advanced Metering Overview
  - Automated Meter Reading (AMR)
  - Advanced Metering Infrastructure (AMI)

- Current market trends

- Benefits of technology advancements

- A case study of customer transition from AMR to AMI using two technology providers
  - Creating a Smart Utility Network using existing infrastructure

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Advanced Metering Overview

- AMR
  - First introduced late 1980s-early 1990s
  - Catalysts for use
    - Inside sets-no access to meters
    - Meter reading costs
    - Cost of operating vehicles
    - High labor costs
    - Safety and security of employees
  - Industry adopters
    - Gas – high adopters
    - Electric
    - Water
- Primary benefits of AMR was access to meters and monthly meter reading
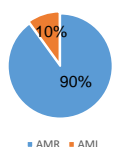
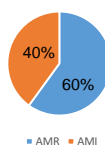7

Advanced Metering Overview

- AMI
- First introduced late 1990
- Catalysts for use
  - More frequent reads- hourly
  - Two way communications
  - Improved accuracy and availability of billing and consumption data
  - Reduction in costs, no truck rolls
  - Safety and security of employees
- Primary goal of technology was consumption and billing data but applications/uses continuing to increase and improve the ROI
- 7.33 million radios shipped to water market in 2019*

AMR versus AMI Deployments 2000
10%
90%
■ AMR ■ AMI

AMR versus AMI Deployments 2019
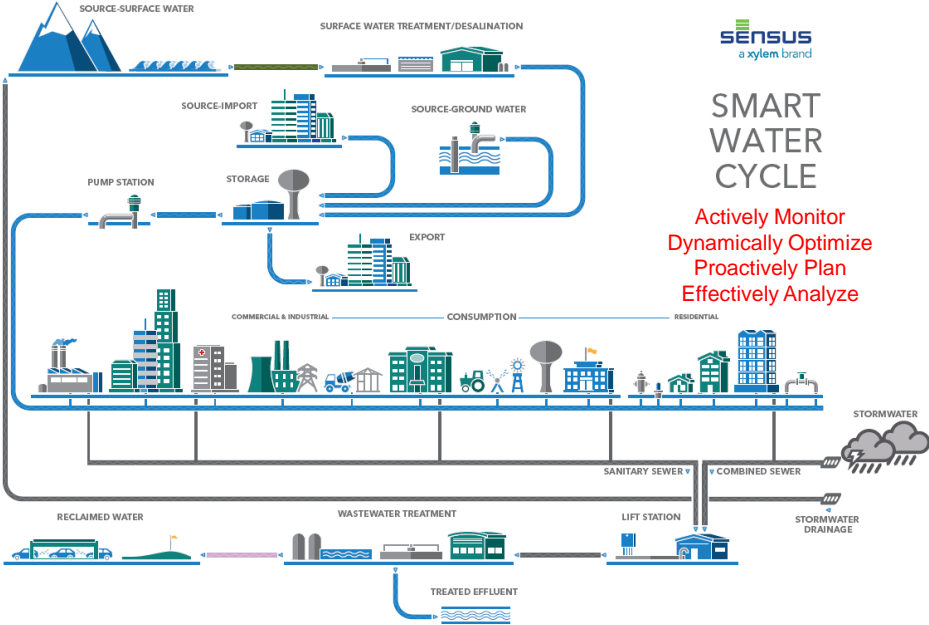40%
60%
■ AMR ■ AMI

*Source: H Scott 2019 Q2 Report

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Migrateable Technology

- Radio technology began to change and adapted reflect AMI trends
- Early ~2000 vendors began to offer a migrateable radio solution
- This provided customers the following features and benefits:
- Allowed utilities to address basic meter reading needs immediately
- Future proof their technology solution
  - AMI all at once
  - Slow migration from AMR to AMI as budgets allow
  - Deploy mixed solution
  - AMI and AMR solutions based on needs
  - Strategically place AMI solutions as needed – more data – quicker
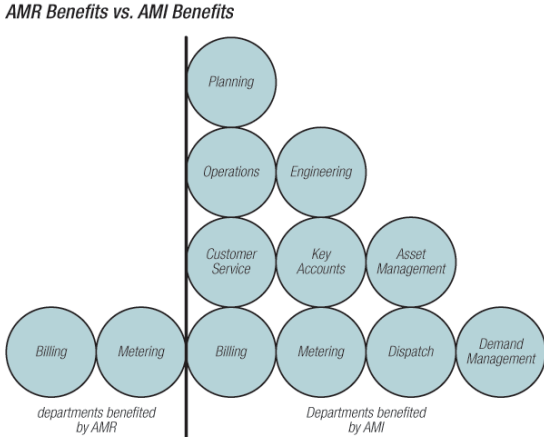 - Tactical solutions – hard to access

FlexNet™

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The Entire Water Cycle – Maximizing AMI Technology

SMART
WATER
CYCLE

Actively Monitor
Dynamically Optimize
Proactively Plan
Effectively Analyze

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AMR to AMI - Benefits

Who benefits between AMR and AMI?

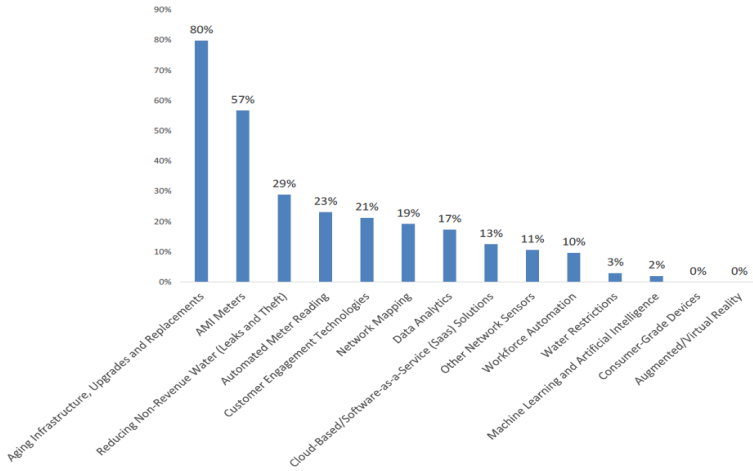*AMR Benefits vs. AMI Benefits*

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Current Market Trends

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Market Trends

TOP 3 TECH SPENDING AREAS

2019 Smart Water Outlook
www.512cmg.com | smartgridsummits.com

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Market Trends

AMI STATUS

When Will AMI Meters Reach a Majority of Your Customers?

What is the Status of Your AMI Project?

2019 Smart Water Outlook
www.512cmg.com | smartgridsummits.com

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Market Trends

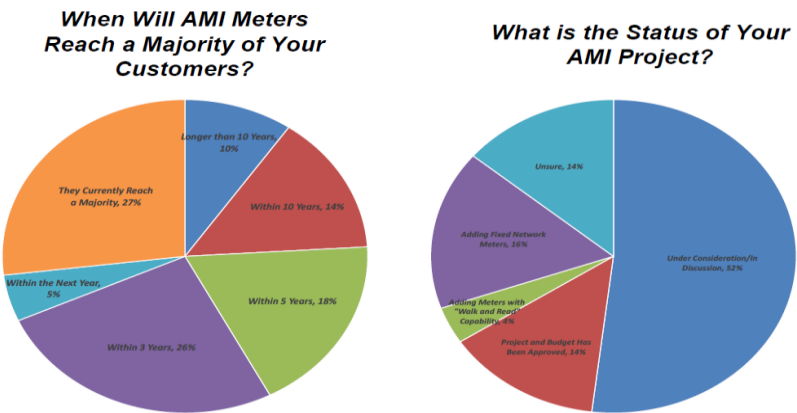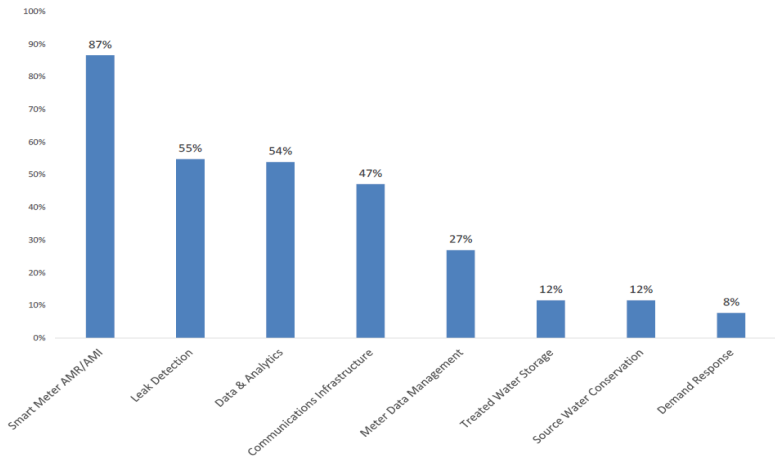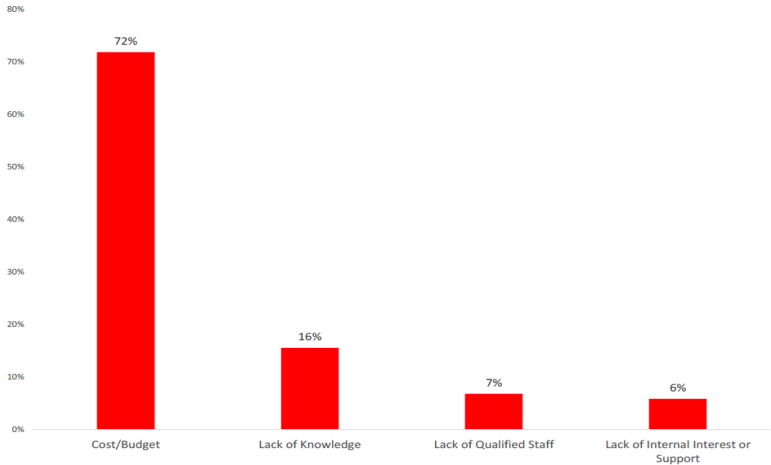### MOST IMPORTANT SMART WATER BENEFITS

2019 Smart Water Outlook
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Market Trends

TOP SMART WATER CONCERNS

2019 Smart Water Outlook
www.512cmg.com | smartgridsummits.com

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Case Study
Eagle Mountain, UT

Creating a Smart Utility Network Leveraging Existing
Infrastructure

AMR to AMI Migration utilizing FlexNet EasyLink

Eagle Mountain
City Hall

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Eagle Mountain, UT

- N. Central Utah - ~30 miles south of Salt Lake City
- Population – 27,773
  - +55% growth since 2010
  - Projected to grow to ~120k by 2040
- Median Income: $68,000
- Median age: 19.2 years
- Unemployment rate: 2.7%
- Pros:
  - Attractive setting
  - Educated population
  - Future job growth
- Cons:
  - Rising cost of living
  - Some air quality issues
  - Growth and sprawl

Eagle Mountain, UT

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Eagle Mountain, UT

- ~9000 water services
- ~85 new services per month
- ~1000 annually
- Implemented AMR drive by solution in 2010

PLUS:

Lowest cost platform
- Phased deployment
- Use existing meters
- "Bang for your buck" approach

Excellent "first step"

MINUS:

Doesn't automate entire process

Overall speed of collection

Distance

More expensive life cycle cost compared to fixed base AMI

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Eagle Mountain, UT

Fast paced population growth and large urban sprawl made AMI very attractive

Improves customer service
- Daily reads
- Water consumption monitoring
- Office-based final reads
- More detailed customer account information

Reduced operating expenses
- Lower meter reading expenses (personnel, gas, vehicle, insurance, etc.)
- Lower maintenance cost
- Dramatic labor reduction – to do more important projects!

Security
- Customer information
- Customer and employee safety

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Eagle Mountain Technology Review

- Technology acceptance criteria
  - Smart meter compatibility
  - Large installed base
  - Migratable drive-by/fixed base platform
  - Leak detection
  - Expandability
- Challenges
  - Budget constraints
  - Existing assets (Itron ERTS)
  - Moving to new technology platform while utilizing existing assets
  - Finding a vendor that can integrate into a single platform
  - Customer did not want to operate two different systems
  - Re-training field operators and office personnel on new platform

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System Requirements

- Administrators desired a simple transition
- Time and effort were an important factor
- Administrators did not want a major change in their process
- It was important to get their buy in to the overall process and ease of use

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System Requirements

- Meter Readers wanted single reader for read both technologies
- Easy to assemble and disassemble HW
- Ease of operations
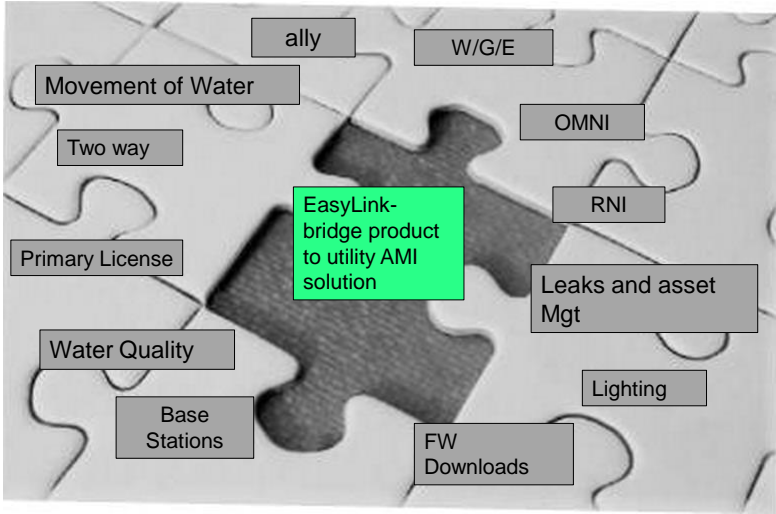- Mapping feature
- Configurable icons
- Alerts

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FlexNet EasyLink Solution

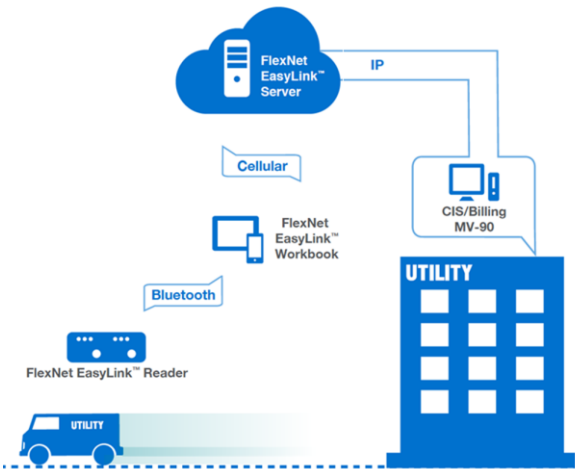

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FlexNet-EasyLink

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EasyLink Solution

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EasyLink Reader and WorkBook Software

EasyLink Reader

- Portable based radio device
- Reads SmartPoints and ERTS simultaneously
- Operates using 12-volt DC power

EasyLink WorkBook Software

- GPS based mapping
- Map information: meter data, street names and additional data
- On screen instant reading verification
- Alarm alerts
- Route statistics
- Real time data transfer
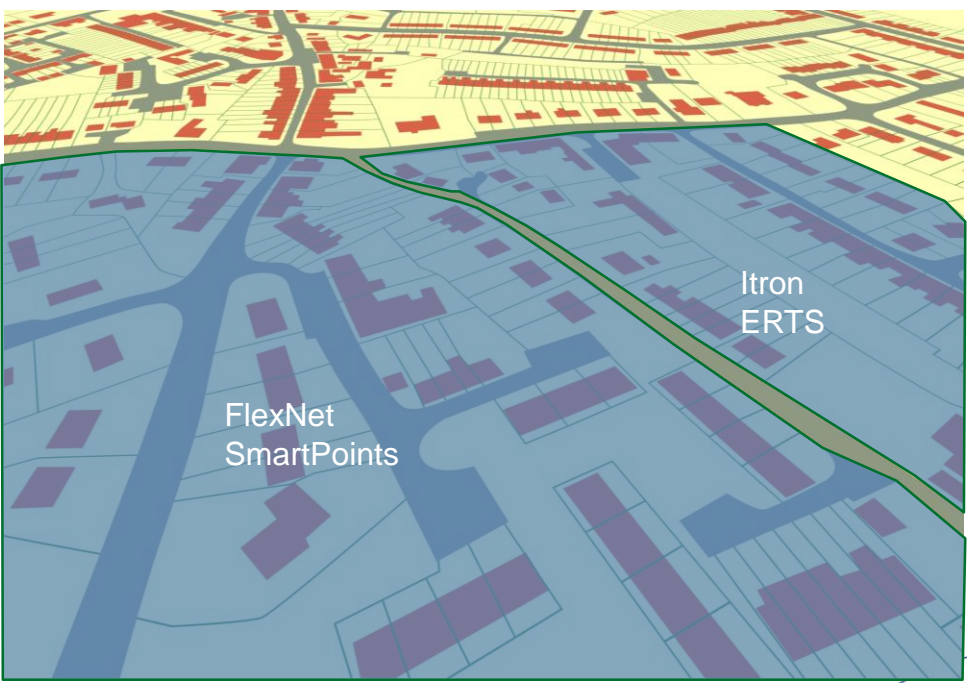
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WorkSpace Software

- Browser based application
- Configurable management reports and summaries
- Three years of stored data
- Time stamped meter reads
- Wireless backhaul from WorkBook to WorkSpace
  - Real time data transfer from field operations to back end office
  - Real time data transfer from back end office to field operations
- Management reports include:
  - High/Low exception
  - Zero consumption
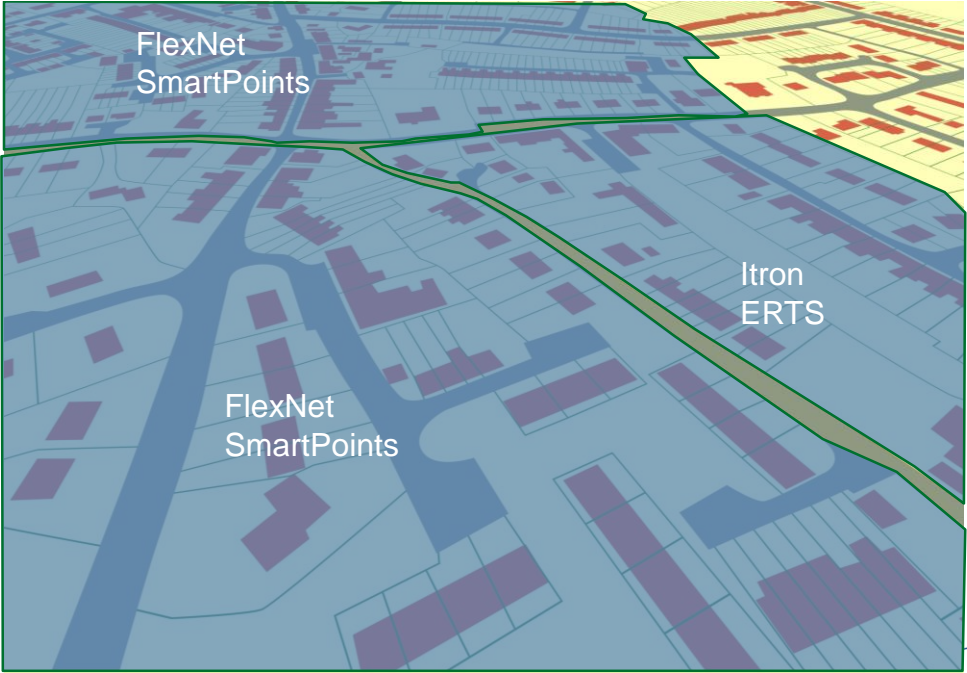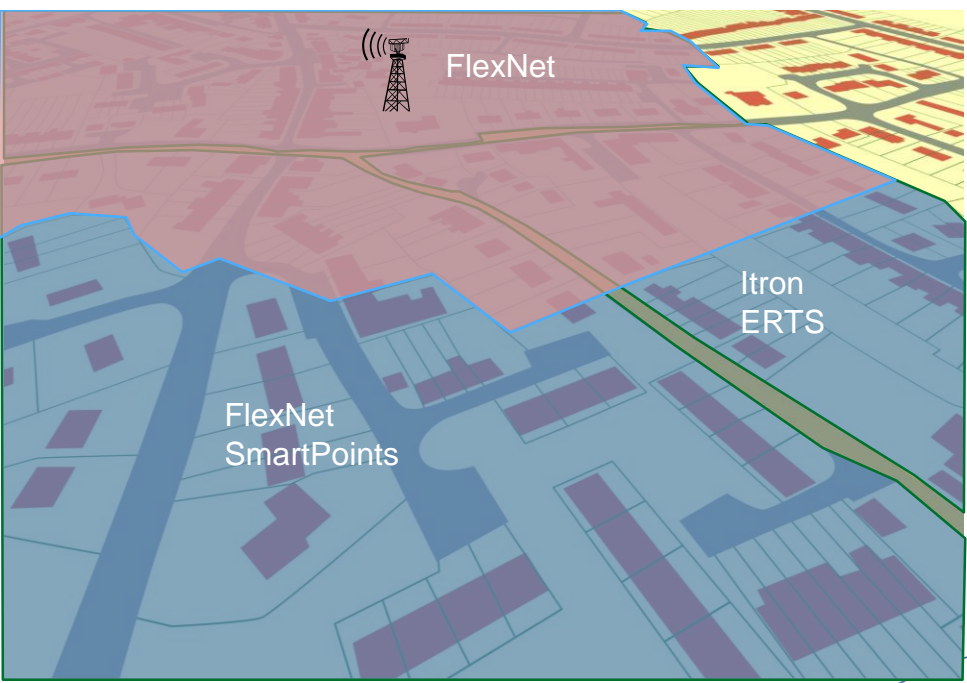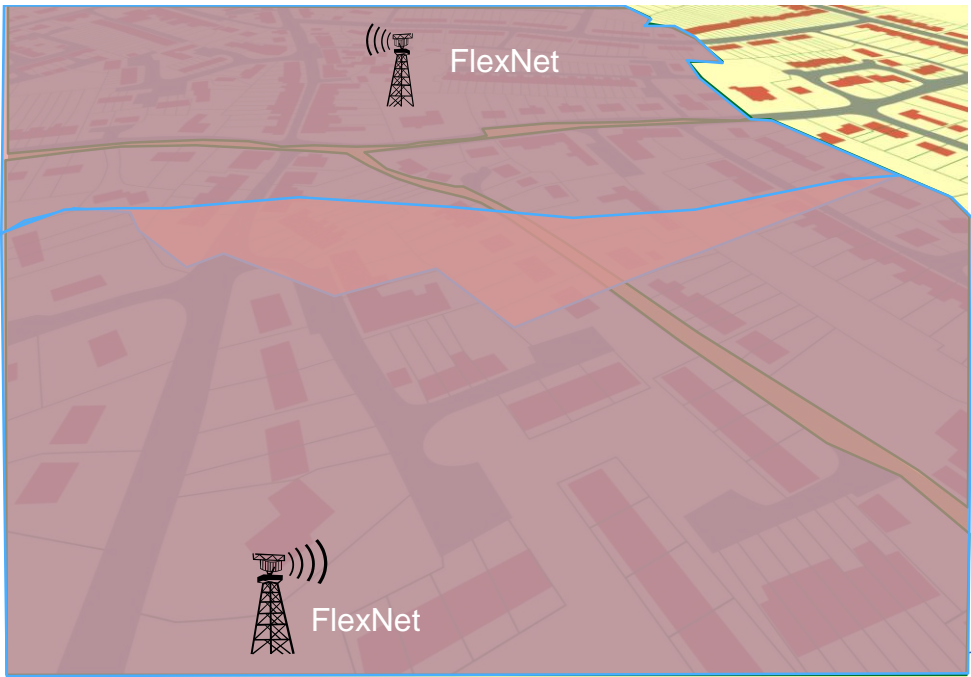 - Unread meters by cycle

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Itron
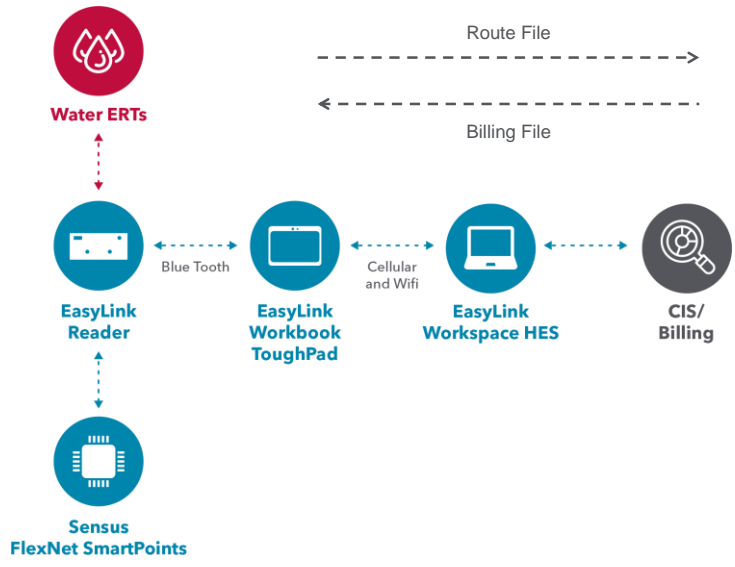ERTS

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Itron
ERTS

FlexNet
SmartPoints

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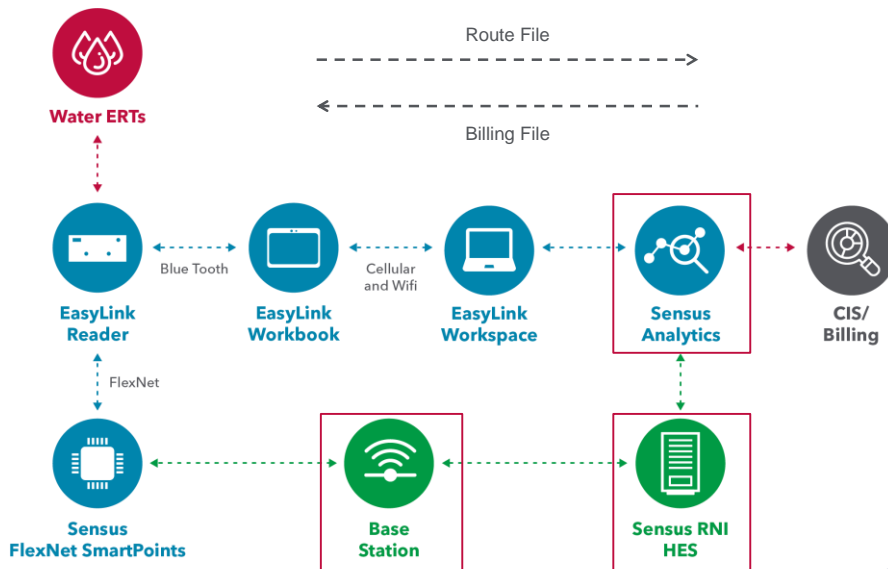
EasyLink Drive By Solution

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EasyLink Integration – AMI Migration Solution

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Eagle Mountain EasyLink Benefits

- Existing assets (ERTs) remained operational
- No stranded assets
- Single reader allowed utility to maintain one operating system
- No need for dual readers
- Operations budget actually decreased as time to read was reduced
- Process for administrators improved
- Server based solution improved
  - Time to process bills
  - Assign routes quicker
  - Routine and timing was important
  - Did not want to disrupt current processes or add time to process
- Existing capital expenditures remained neutral
  - Did not require approval from council

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Eagle Mountain EasyLink Benefits

- **15/5 warranty – meters and SmartPoints**
- Low capital investment
- Technology allowed for easy migration to fixed base platform
  - Planning their migration allowed them to budget over time
- Single vendor provided meter and radio components
  - Significant investment in current installed base
- EasyLink offers gateway to AMI solution that offers:
  - FlexNet – drive-by to fixed base
  - Back end software
  - Metrology
  - Lighting
  - Smart Gateway
  - ally
- Sensus offered new opportunity to build new vendor relationship/partnership with low risk and high industry adoption rate

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Eagle Mountain's Feedback

- "To get data in a fast and accurate manner means the world to us"

- "A process that used to take two technicians two days can now be done with just one technician in the same amount of time"

- "We are hoping that with a little more fine-tuning we can get that down to one technician collecting the meters in a single day"

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Review

- Both AMR and AMI provide key benefits to utilities

- Understanding
  - Where you are
  - Where you want to go
  - How you are going to get there- factors into decision to move to AMI platform

- Leveraging your installed platform eases the transition

- Planning is key to successful deployment

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Questions

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Presenter Biography Information

Tom Galuska is Senior Product Manager for Water AMR/AMI for Sensus (parent company Xylem). He is responsible for new product initiatives and legacy product support for water communication products. Tom holds a business administration degree and an MBA from Robert Morris University.

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