FIRSTNET™
Built with AT&T

FirstNet and the Alaska Plan

Today's Presenters

State of Alaska

John Rockwell
9-1-1 Coordinator, Alaska Department of Public Safety
m: 907-269-2037
e: john.rockwell@alaska.gov

AT&T

Paul Braunstein
AT&T Solutions Consultant
FirstNet Program
m: 503-913-7565
e: pb8016@att.com

AT&T

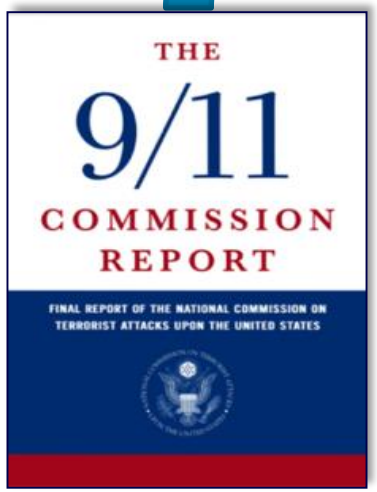
Jawad Tareen
Smart Cities Business Development Lead
m: 949-351-4384
e: jt788k@att.com

Implementing the Vision

FIRSTNET™ Built with AT&T

Public Law 112-96

"The First Responder Network Authority shall hold the single public safety wireless license and take all actions necessary to ensure the building, deployment, and operation of the nationwide public safety broadband network"



Associations Supporting D-Block Reallocation

- National Governors Association
- National Association of Counties
- National League of Cities
- United States Conference of Mayors
- Council of State Governments
- International City/County Managers Association
- National Conference of State Legislatures
- International Association of Chiefs of Police
- International Association of Fire Chiefs
- National Sheriffs' Association
- Major Cities Chiefs Association
- Metropolitan Fire Chiefs Association
- Major County Sheriffs' Association
- Association of Public-Safety Communications Officials
- National Emergency Management Association
- International Association of Emergency Managers
- Police Executive Research Forum
- National Criminal Justice Association
- National Association of Police Organizations
- National Volunteer Fire Council
- National Troopers' Coalition
- National Organization of Black Law Enforcement Executives
- Association of Air Medical Services
- Advocates for Emergency Medical Services
- Emergency Nurses Association
- National Association of Emergency Medical Services Physicians
- National Association of Emergency Medical Technicians
- National Association of State Emergency Medical Service Officials
- National Emergency Medical Services Management Association
- American Probation and Parole Association
- National Association of Regional Councils

THE LAW

Feb. 22nd, 2012

FirstNet becomes law
Public Law 112-96

Mission

FIRSTNET™
Built with AT&T

FirstNet was created by Congress to fulfill one mission:

"To provide emergency responders with the first nationwide, high-speed, broadband network dedicated to public safety."

The Alaska Action Plan

FIRSTNET™
Built with AT&T

Governor Walker Approves Buildout Plan for First Responder Network:

Governor Bill Walker signed a letter of intent to allow the First Responder Network Authority (FirstNet) to proceed with the deployment of the Nationwide Public Safety Broadband Network in Alaska.

“The plan will bring a secure wireless broadband network to the public safety community that will help Alaska’s first responders save lives. **Opting in** to FirstNet is an important step to ensure that Alaska’s first responders can communicate when seconds can mean the difference between life and death,” said Governor Bill Walker. “Putting this technology in the hands of our public safety personnel brings us closer to building a safer Alaska.”

Governor Walker's "Safer Alaska" Public Safety Action Plan

FIRSTNET™ Built with AT&T

Executive Summary of the Alaska State Plan

FirstNet™

The Power of FirstNet is here for Alaska

Congress established FirstNet with a mission to build, operate, and maintain the first high-speed, nationwide wireless broadband network dedicated to public safety. FirstNet will provide and maintain a single, interoperable platform that consistently satisfies the demanding communications needs of your public safety community, and that fulfills one of the last recommendations of the 9/11 Commission. This network has been a top priority for first responders and public safety agencies in Alaska and throughout the country, and has been designed based on their specific, expressed needs.

FirstNet and AT&T are prepared to deploy, operate, maintain, and improve the FirstNet network in Alaska, and will assume all responsibility and costs. The FirstNet network is starting from AT&T's existing footprint in Alaska. Over the past three years, AT&T has invested more than **$150 million** dollars in its Alaska network infrastructure – upgrading the system **over 68** times to include new cell sites, addition of wireless and wired network capacity and new broadband network connections. Also, AT&T supports **approximately 475** jobs in your state. With an Opt-In decision, Alaska would incur no risk, responsibility, or cost for deploying, operating, or upgrading the new, dedicated FirstNet network in your state.

The Alaska State Plan demonstrates how the FirstNet network satisfies the priorities identified by the Alaska public safety community, rapidly provides access to mission-critical public safety features across the entire AT&T commercial Long-Term Evolution (LTE) network, delivers extensive population and geographic coverage, offers a robust set of aggressively-priced devices and rate plans, and is supported by FirstNet-dedicated customer sales and service channels. The FirstNet network can quickly be made available to the Alaska public safety community once the Governor Opts-In, and will continuously expand and improve to meet the needs of Alaska's first responders.

This Alaska State Plan provides the details and specifications about FirstNet, the FirstNet network, the Products, Features and Services that will be available, and Governor Walker's required Decision.

FirstNet entered into a public-private partnership with AT&T to rapidly deliver the high-speed, highly secure, and reliable broadband network public safety requires

FirstNet together with AT&T, and its team of industry leaders, are ready to deploy public safety's network and deliver prioritized and preemptive service to first responders as efficiently and effectively as possible. AT&T has a track record of deploying mission-critical networks for public safety, spanning more than 140 years. AT&T has committed to delivering the industry-leading, next-generation communications products and services that Alaska first responders require, supported by dedicated sales and customer service teams.

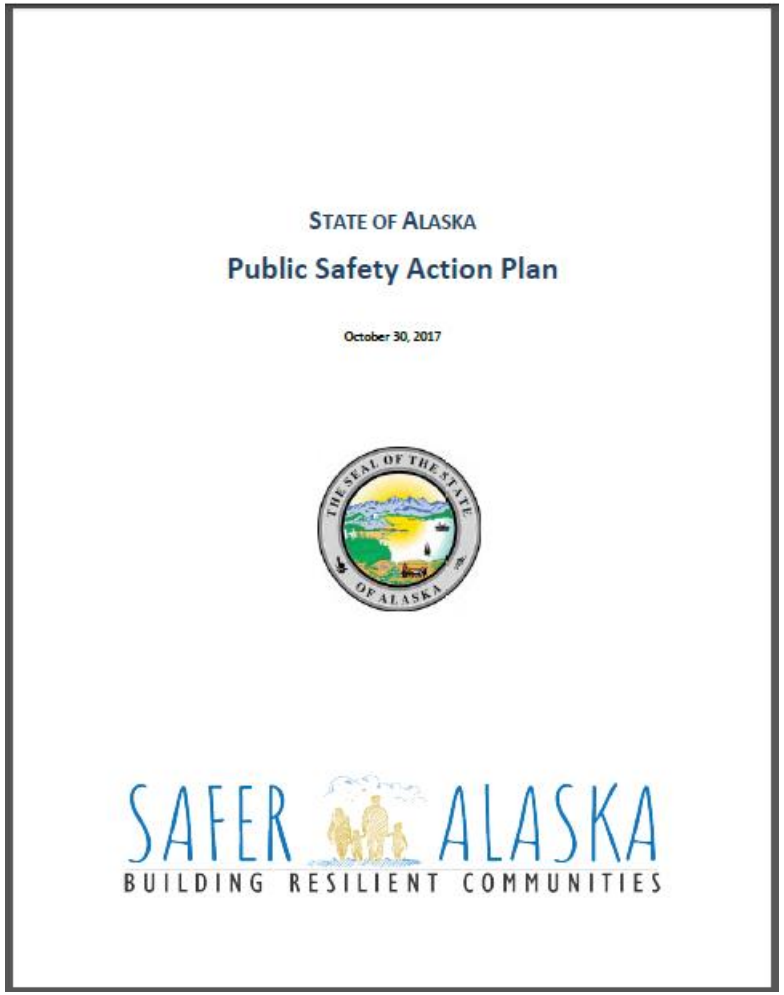
FirstNet's solution meets Alaska 's public safety priorities

FirstNet consulted extensively with the Alaska public safety community to ensure the network design would meet public safety's needs. To do so, FirstNet developed a multi-level, multi-year consultation program in partnership with Alaska's Single Point of Contact (SPOC) John Rockwell, and Gerad Godfrey, Senior Advisor to Governor Walker, which included stakeholders from the cities of Anchorage and Kenai, Alaska State Troopers, and the Fairbanks Police Department and tribal organizations across the state. Furthermore, FirstNet met with Chief Jeff Tucker, Kenai Fire Department, and Assistant Chief Brad Johnson, Fairbanks Police Department to prepare Alaska for the decision process.

We've listened to your concerns and understand your needs. The key issues Alaska shared with us during multiple consultation visits related to geographical coverage areas, cost that may be incurred by the state, network resiliency, and economic impacts. More specifically, Alaska recommended that coverage include emphasis on remote and tribal areas, that roaming capabilities be available, that deployables be quickly available for police and emergency incidents in the state, that the state's costs and liabilities be limited, that the network be built to mission-critical specifications, and that FirstNet and state activities (such as Arctic Circle Fiber Project and Rural

Proprietary and Confidential; To be used solely in support of Governor's Decision under 47 U.S.C. 1442(e)(2); Disclosure governed by and subject to applicable Federal Law; Public availability to be determined under 47 U.S.C. 1426(d)

"Leveraging the FirstNet program" is #29 of Governor Walker's key public safety recommendations for a Safer Alaska.



Bringing it Together

FIRSTNET™ Built with AT&T

Applications Base Technologies

- Location apps
- Information exchange
- Situational awareness
- Data analytics
  - Social media
  - RT video

- E-citations & court systems
- Digital evidence
- Facial recognition
- Field reporting

- CAD systems
- Integrated dispatch
- NG 9-1-1
- Electronic citizen reporting
- Government records
- Alarm management

- Personnel biometrics
- Personnel location
- 3D building plans

- Electronic health records
- En-route collaboration
- Telemedicine

Future Technologies

- Z-axis acquisition
- MC-PTT
- MC-Data
- MC-Video
- P2P Apps
- IoT
- Virtual Assistants
- AR/VR
- ICAM

Internet of Life-Saving Things (IoLST)

FIRSTNET™ Built with AT&T

Image: Motorola via http://www.gadget.co.za/meet-futurecop-the-vr-policeman-of-tomorrow/

http://iffmag.mdmpublishing.com/application-fireground-intelligence/

AT&T Smart Cities

Jawad Tareen
Business Development Lead
Smart Cities/IoT West Coast

★ Alaska Smart Communities Forum
1/30/18

36M+ Connected Devices and High Growth Momentum

*32M+ connected devices as of 1Q17

Vertical Solutions

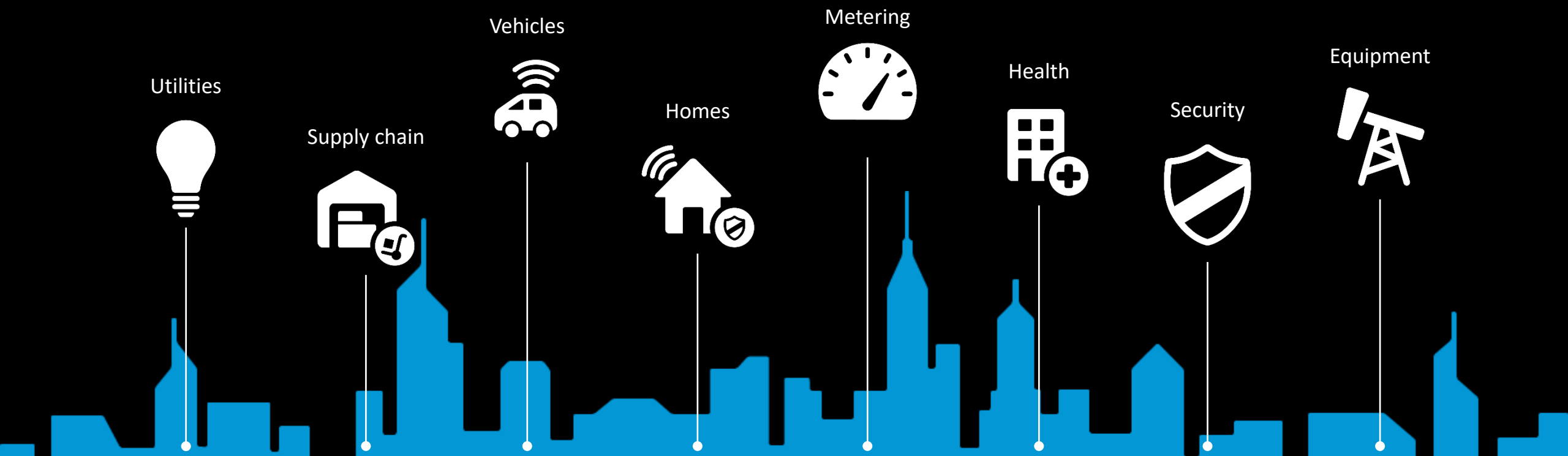
- Connected Car
- Fleet Management
- Health Care
- Asset Management
- Smart Cities
- Wearables
- Connected Home
- Retail
- Drones

AT&T Business

© 2017 AT&T Intellectual Property. All rights reserved. AT&T, Globe logo, Mobilizing Your World and DIRECTV are registered trademarks and service marks of AT&T Intellectual Property and/or AT&T affiliated companies. All other marks are the property of their respective owners. AT&T Proprietary (Internal Use Only). Not for use or disclosure outside the AT&T companies except under written agreement.

What is a smart city?

The integration of technology with a strategic approach to sustainability, cost reduction, citizen well-being and economic development.



International Electrotechnical Commission, 2014

©2017 AT&T Intellectual Property. All rights reserved. AT&T and Globe logo are registered trademarks of AT&T Intellectual Property. All other marks are the property of their respective owners.

GE and the GE Monogram are trademarks of the General Electric Company. All other trademarks are the property of their respective owners. Information provided is subject to change without notice. Current, powered by GE, is a division of the General Electric Company.

Building a Smarter City

Drivers that Influence Development

© 2017 AT&T Intellectual Property. All rights reserved. AT&T, Globe logo, Mobilizing Your World and DIRECTV are registered trademarks and service marks of AT&T Intellectual Property and/or AT&T affiliated companies. All other marks are the property of their respective owners.

AT&T Smart Cities Framework

Highly Secure Connectivity

- 4G LTE
- LTE-M
- Private LTE
- Broadband
- Wi-Fi
- Giga Power
- Satellite

Scalable Platforms

- Control Center
- M2X
- Flow Designer
- Security
- NetBond
- Cloud

Vertically Integrated Solutions

- Energy & Utilities
- Transportation
- Public Safety
- Infrastructure
- Citizen Engagement

Strategic Alliances

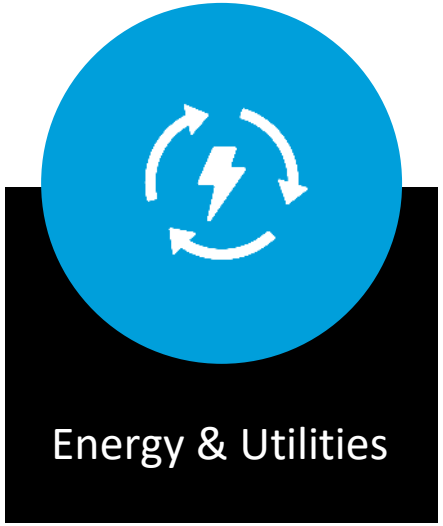
- Cisco
- Deloitte
- Ericsson
- GE
- Hitachi
- IBM
- Intel
- Nokia
- Qualcomm
- Southern Company

Thought Leadership

- National Institute of Standards and Technology (NIST)
- Smart Cities Council
- US Ignite
- Envision America
- Spotlight Cities
- DOT Challenge

Vertically Integrated Solutions

AT&T Business



Energy & Utilities

- Private LTE Network
- Smart Metering
- Prepay Energy
- Smart Irrigation
- Smart Leak

Infrastructure

- Digital Infrastructure
- Asset Monitoring
- Waste Management

Public Safety

- Smart Surveillance
- Gunshot Detection
- Environmental & Air Quality

Transportation

- Connected Vehicles
- Traffic Light Controls
- Smart Signage
- Public Transit
- Smart Parking

Citizen Engagement

- Digital Kiosk
- Operations Center
- Municipal Wi-Fi
- Way Finding

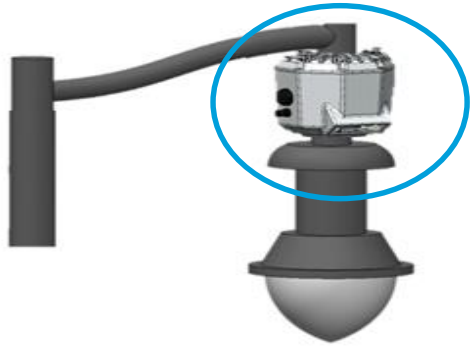
© 2017 AT&T Intellectual Property. All rights reserved. AT&T, Globe logo, Mobilizing Your World and DIRECTV are registered trademarks and service marks of AT&T Intellectual Property and/or AT&T affiliated companies. All other marks are the property of their respective owners.

AT&T Smart Cities Digital Infrastructure

in partnership with Current by GE

Universal vertical mount

Universal arm mount



Universal vertical mount

Edge Metadata

Pedestrian	Traffic	Parking
Count, Direction	Count, Direction, Lane, Speed, Classification	Car-In, Car-out

Sensors

Camera
2 x 1080p color

2x microphones

Environmental
Temperature
Pressure
Humidity
Vibration

Hardware

Computer - Intel Based

Solid State Drive 512GB

Key Features

- 120-277v; 480v
- -20C to 40C
- Image/video on demand
- OTA update
- Analytics store
- Computer Vision
- Sensor fusion
- concurrent analytics
- Gun-shot detection

Communications

Backhaul

Cellular

Ethernet

Wi-Fi

External Sensor

Wi-Fi

BLE 4.1

Certifications

RoHS
IP65
FCC
UL

current powered by GE

© 2017 AT&T Intellectual Property. All rights reserved. AT&T, Globe logo, Mobilizing Your World and DIRECTV are registered trademarks and service marks of AT&T Intellectual Property and/or AT&T affiliated companies.
All other marks are the property of their respective owners. AT&T Proprietary (Internal Use Only). Not for use or disclosure outside the AT&T companies except under written agreement.

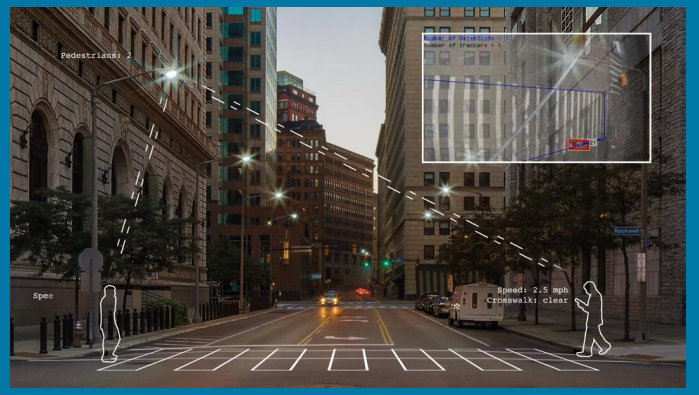
GE and the GE Monogram are trademarks of the General Electric Company. All other trademarks are the property of their respective owners. Information provided is subject to change without notice. Current, powered by GE, is a division of the General Electric Company.

Capturing data on the move

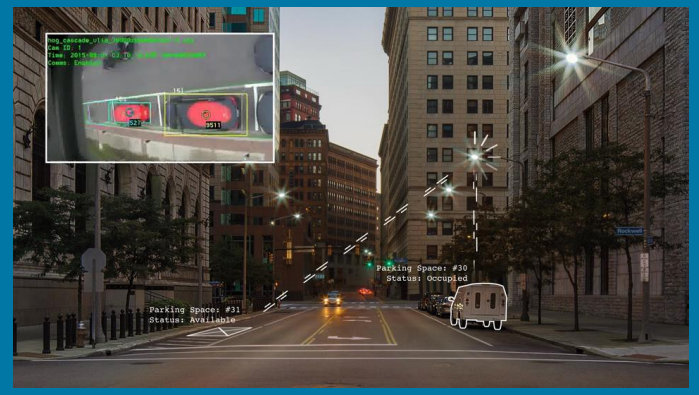
Traffic Planning	Parking Planning	Pedestrian Planning	Environmental Planning	Public Safety
Speed Direction Count Location	Vehicle in Vehicle out Location	Speed Direction Count Location	Humidity Pressure Temperature Vibration Location	Video on demand Image on demand

TRAFFIC OPTIMIZATION

PEDESTRIAN SAFETY



PARKING UTILIZATION



©2017 AT&T Intellectual Property. All rights reserved. AT&T and Globe logo are registered trademarks of AT&T Intellectual Property. All other marks are the property of their respective owners.

GE and the GE Monogram are trademarks of the General Electric Company. All other trademarks are the property of their respective owners. Information provided is subject to change without notice. Current, powered by GE, is a division of the General Electric Company.

Water Management

The biggest problem with current irrigation methods is that outdoor irrigation makes up about 60%[1] of watering and about 50%[2] of it is wasted.

Source:

1. *The USGS Water Science School, Irrigation water use, U.S. Geological Survey (USGS), 2016 http://water.usgs.gov/edu/wuir.html*
2. *WaterSense, United States Environmental Protection Agency, 2016 https://www3.epa.gov/watersense/pubs/outdoor.html*

© 2016 AT&T Intellectual Property. All rights reserved. AT&T, Globe logo, Mobilizing Your World and DIRECTV are registered trademarks and service marks of AT&T Intellectual Property and/or AT&T affiliated companies. All other marks are the property of their respective owners.

Smart Water Irrigation

AT&T has teamed with HydroPoint to deliver proven results for irrigation

Reduced water consumption by an average of 40%[1]

Reduced landscape run-off by up to 71%[2]

Thousands of dollars saved per site with a typical payback in 12–36 months

97% customer satisfaction rates[3]

Sources:

1. *Report on Performance of ET-Based Irrigation Controller: Analysis of Operation of WeatherTRAK™ Controller in Field Conditions by Aquacraft, Inc. , Santa Barbara County ET Controller Distribution and Installation Program Final Report , LADWP Weather-Based Irrigation Controller Pilot Study*
2. *Irvine ET Controller Residential Runoff Reduction Study*
3. *HydroPoint Data Systems, Inc.*

© 2016 HydroPoint Data Systems, Inc. HydroPoint® and WeatherTRAK® are registered trademarks of HydroPoint Data Systems, Inc.

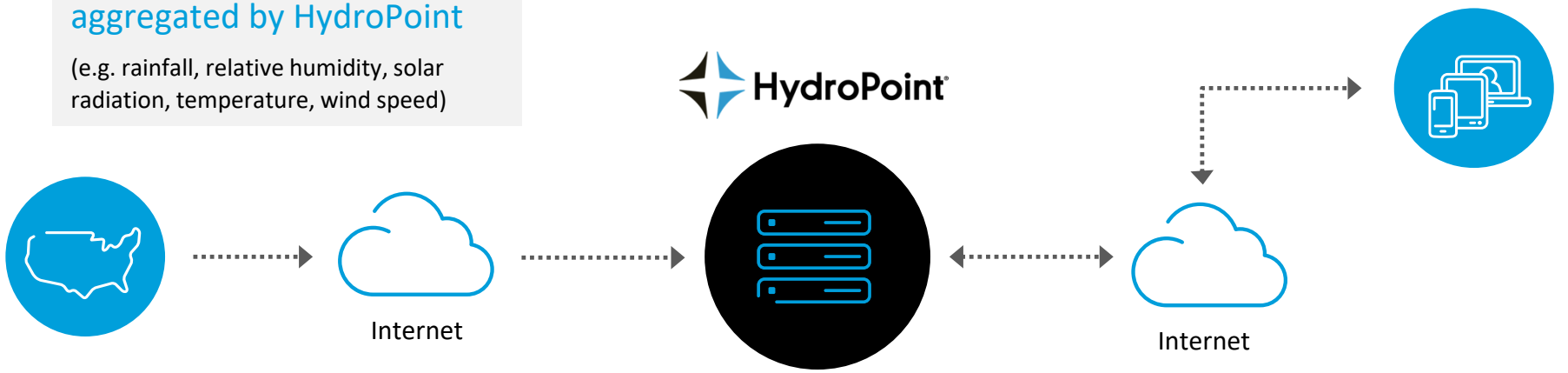
© 2016 AT&T Intellectual Property. All rights reserved. AT&T, Globe logo, Mobilizing Your World and DIRECTV are registered trademarks and service marks of AT&T Intellectual Property and/or AT&T affiliated companies. All other marks are the property of their respective owners.

Smart irrigation for water management

AT&T Business

8 Million daily data points aggregated by HydroPoint

(e.g. rainfall, relative humidity, solar radiation, temperature, wind speed)



Weather stations

Over 40,000 weather stations across the U.S. and Canada

Climate center

Calculates virtual weather station data for every customer site

SaaS conservation applications

Optimizes settings, reports water savings, and provides email alerts for leaks or sprinkler failures

Smart controller

- Manages schedule and monitors water use
- Programmable (e.g. soil type, shade level, root depth, sprinkler type)
- Wireless-enabled

Customer Installation

Sprinklers with flow and valve controls

© 2016 HydroPoint Data Systems, Inc. HydroPoint® and WeatherTRAK® are registered trademarks of HydroPoint Data Systems, Inc

© 2017 AT&T Intellectual Property. All rights reserved. AT&T, Globe logo, Mobilizing Your World and DIRECTV are registered trademarks and service marks of AT&T Intellectual Property and/or AT&T affiliated companies. All other marks are the property of their respective owners.

Introducing Structure Monitoring

AT&T Business

AT&T has teamed with IBM and Moniteye to deliver a smart solution for aging infrastructure

Overview

Structure Monitoring provides governmental and private entities with the ability to remotely monitor key infrastructure which has been equipped with AT&T LTE enabled crack and tilt sensors. Monitoring occurs in near real-time via any web-enabled device.

Solution Components

- Crack sensor
- Tilt sensor
- Remote monitoring portal
- IBM Cognitive Cloud ®

Benefits may include:

- Increase efficiency, safety and awareness
- Make more informed decisions
- Lower operations cost

© 2017 AT&T Intellectual Property. All rights reserved. AT&T, Globe logo, Mobilizing Your World and DIRECTV are registered trademarks and service marks of AT&T Intellectual Property and/or AT&T affiliated companies. All other marks are the property of their respective owners.

AT&T Business

AT&T Platform Innovation: Smart Cities Operations Center

AT&T Spotlight Cities Across the U.S.

Plus:

Columbus, OH USDOT challenge winner

77 US DOT Applicant Cities

20 Envision America Cities

© 2017 AT&T Intellectual Property. All rights reserved. AT&T, Globe logo, Mobilizing Your World and DIRECTV are registered trader service marks of AT&T Intellectual Property and/or AT&T affiliated companies. All other marks are the property of their respective ow

Multi-layered approach to securing IoT

AT&T recommends a multi-layered approach to security to help protect the IoT ecosystem end-to-end.

Strategy & Governance
IoT Security Consulting

Endpoint
IoT endpoints vary in type, processing power & capability

Connectivity
Securing the network (across multiple connectivity types)

Data/Application
Securing workloads/applications

Threat Management
IoT threat detection & response

© 2017 AT&T Intellectual Property. All rights reserved. AT&T, Globe logo, Mobilizing Your World and DIRECTV are registered trademarks and service marks of AT&T Intellectual Property and/or AT&T affiliated companies. All other marks are the property of their respective owners.

AT&T Control Center (ACC) – automated device management

AT&T Business

A cloud-based solution that allows users to automate the management of mobile services for their connected devices. AT&T Control Center has been designed ground-up to help enterprises launch, manage and monetize their connected devices.

Lower Costs

Rules-driven automation drives down costs by eliminating manual processes and taking action when exception activity occurs

Service Reliability

Automated real-time diagnostics and control capabilities allow users to identify potential connectivity problems and take corrective actions

Scalability

Lets users define a mobile services lifecycle specific to their business needs freeing them up from the tasks of everyday connectivity management

© 2016 AT&T Intellectual Property. All rights reserved. AT&T, Globe logo, Mobilizing Your World and DIRECTV are registered trademarks and service marks of AT&T Intellectual Property and/or AT&T affiliated companies. All other marks are the property of their respective owners. AT&T Proprietary (Internal Use Only). Not for use or disclosure outside the AT&T companies except under written agreement.

AT&T Control Center – Ensuring your M2M Success

AT&T Business

Automatic, Customizable Life Cycle Management

Real time Visibility in all devices

Diagnostics Wizard

Real Time Problem Identification and Status Tool “SpotLight”

Global SIM

© 2017 AT&T Intellectual Property. All rights reserved. AT&T, Globe logo, Mobilizing Your World and DIRECTV are registered trademarks and service marks of AT&T Intellectual Property and/or AT&T affiliated companies. All other marks are the property of their respective owners.
© 2014 AT&T Intellectual Property. All rights reserved. AT&T and the AT&T logo are trademarks of AT&T Intellectual Property.

Get our team behind you – Professional Services

AT&T Business

Our solution includes experts to help you plan, deploy and manage your system.

Strategy & Design

Based on your business and application requirements

Solution Development & Integration

Extensive experience with developing fixed and mobile enterprise-grade M2M applications

Deployment

Experts help stage complex roll-outs and plan for success

Managed Services & Service Assurance

You can focus on core activities while leveraging our specialized IT services

MOBILIZING
YOUR
WORLD℠