Live Monitoring Solution Overview

- Live monitoring solution overview
- Deep dive on the smart device gateway
- Deep dive on the software
- Target customers and applications
- Demo
- Customer pains addressed with iNet Now
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New Era of Gas Detection

Stage 1  Instrument alerts

Stage 2  Peer to peer alerts

Stage 3  Alerts to supervisors equipped to respond appropriately
Introducing iNet Now
What is iNet Now?

• Sends real-time, customized alerts when workers are exposed to hazardous gases or activate panic and man-down alarms

• Enables supervisors or other safety leaders to continuously monitor worker status on a map
Worker Hangs by One Leg for 8 Hours
Lone Worker Fatality

Worker dies on Dakota Access Pipeline

By Kalsey Stults on Aug 27, 2016 at 4:16 p.m.

One of the bigs that we’ve put together is that the individual was working by himself so they weren’t working in pairs," he said. "So when the accident happened, who knows how long it was from when he got injured until the foreman found him."
One by one, 3 utility workers descended into a manhole. One by one, they died.

By Samantha Schmidt  January 18

Louis O'Keefe, 49
Elway Gray, 34
Robert Wilson, 24
Leonardo Moreno, injured in rescue attempt

#UPDATE Officials now say 3 utility workers in Keys have died after being overcome by fumes bit.ly/2jBBEvo
11:08 AM - 16 Jan 2017
How Live Monitoring Works

Real-Time Alerts

Map of Worker Status

Gateway
What We Are Announcing

Gateways

Software

Software is the same across ALL gateways
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How Live Monitoring Works

Real-Time Alerts

Map of Worker Status
Worker Experience - Smart Device Gateway

Gas detector is the safety device **NOT** smart device

30 foot range
Instruments Show Monitoring Status

- Audible and visual alerts when not monitored
- Requires Ventis Pro v2.2 firmware
Smart Device Gateway Designed for Safety

30 foot range

No Pairing Required, Always Listening
Features of Smart Device Gateway

- Always running
- Simple to use
- Never log out

Must be in Wi-Fi or Cell range. Will queue updates.
Radius and Ventis Pro

Up to 6 LENS connected devices, one **MUST** be a Ventis Pro with iNet Now enabled.
What’s Being Sent to Cloud?

Full datalog available when docked

Every minute

“I’m OK”

“I’m OK” + GPS Position

Every minute
What’s Being Sent to Cloud?

“I’m charging” + GPS Position

Full datalog available when docked
What’s Being Sent to Cloud?

- Sensor Readings
- Sensor Readings + GPS Position

Full datalog available when docked
GPS Notes

- GPS comes from the smart device
- Location accurate within 100 meters
Smart Device Gateway Requirements

- iOS 8.4 or later
- Android 5.1 or later
- Bluetooth Low Energy (BLE) 4.1
- BLE high-bandwidth communication, little power
  - 2.4 GHz, same as Wi-Fi, but with low power
- 15MB per month
- Consumes 10-25% of battery depending on other apps in use
- Ventis Pro battery 10% off standard runtime
## Bluetooth Barriers

<table>
<thead>
<tr>
<th>Type of Barrier</th>
<th>Interference Potential</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wood</td>
<td>Low</td>
</tr>
<tr>
<td>Synthetic material</td>
<td>Low</td>
</tr>
<tr>
<td>Glass</td>
<td>Low</td>
</tr>
<tr>
<td>Water</td>
<td>Medium</td>
</tr>
<tr>
<td>Bricks</td>
<td>Medium</td>
</tr>
<tr>
<td>Marble</td>
<td>Medium</td>
</tr>
<tr>
<td>Plaster</td>
<td>High</td>
</tr>
<tr>
<td>Concrete</td>
<td>High</td>
</tr>
<tr>
<td>Metal</td>
<td>Very high</td>
</tr>
</tbody>
</table>
Supported Smart Devices

- iPad 3 or later
- iPad Air or later
- iPad mini or later
- iPad Pro or later
- iPhone 4s or later
- iPod Touch 5 or later
- Google/Huawei Nexus 6P
- Google/LG Nexus 5X
- Google/Motorola Nexus 6
- HTC One (M9)
- LG G4
- Samsung Galaxy S7

GPS and Bluetooth must be enabled on smart devices
iNet Now Sync App

iNet Now Sync is working properly.
Troubleshooting Tips

No instruments are talking to this device right now.
Make sure your instrument is on and its Bluetooth is enabled.

You do not have a network connection.
Try turning on Wi-Fi or moving back into a cellular coverage area.
Troubleshooting Tips

Bluetooth is off.
Turn Bluetooth back on to enable connecting to instruments.
Touch this message to turn Bluetooth on.

You do not have a network connection.
Try turning on Wi-Fi or moving back into a cellular coverage area.

GPS is off.
GPS needs to be enabled in order to notify iNet of your current location.
Touch this message to access Location settings, and ensure that Location mode is turned on and is set to either High accuracy or Device only.
Which of the following is NOT true for iNet Now Sync?

a) Runs on iOS and Android devices
b) Requires GPS and Bluetooth
X) Requires pairing with a gas detector
d) Sends data from LENS connected devices to cloud
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Live Monitoring Fundamentally Changes How We Keep People Safe

Current State of Gas Detection: Historical Record Keeping and Reporting
1. Worker docks gas detector
2. Safety leaders use historical data to gain visibility across people, equipment and hazards
3. Safety leaders use historical data to ensure gas detectors are working and properly maintained
Live Monitoring Fundamentally Changes How We Keep People Safe

- Real-Time Alerts
- Map of Worker Status
Supervisor Experience
Cloud Infrastructure Investments

iNet Now turns this...

Into real-time alerts

High Alarm
Kimberly Madia
Low Alarm 19.3 %vol O2
Normal 4.0 %lel C5H12
Normal 2.5 ppm H2S
Normal 0.0 ppm CO

https://google.com/maps?q=40.439727,-80.158165
6:37 PM

Panic Alarm
Kimberly Madia
Normal 20.3 %vol O2
Normal 3.0 %lel C5H12
Normal 1.7 ppm H2S
Normal -5.0 ppm CO

https://google.com/maps?q=40.439648,-80.158165
6:39 PM

Type message

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Cloud Infrastructure Investments

• No outages for scheduled maintenance starting in July
• Dedicated servers for iNet Now
• Investment in Google Maps
• Eliminate complexity
What’s Critical to You?

Set real-time alerts at different values compared to instrument alerts

For example:
- Instrument alerts at **10 PPM H2S**
- iNet Now alerts at **50 PPM H2S**
Historical Data or Real-Time Data?

Customers need both

Historical Data
• Monthly diagnostics report
• Oil change/service reminders
• Smart driver (performance report)

Real-Time Data
• Emergency Assistance
• Airbag deployment
• Turn by turn direction
• Stolen vehicle assistance
Historical and Real-Time Data for Gas Detection

Historical
- **People** Gas Detector Usage
- **Equipment** Bump and Calibration Certificates
- **Hazards** Alarm Trends

Real-Time
- **People** Worker Location
- **Equipment** Turned Off
- **Hazards** Gas, Panic, and Man-Down Alarms
How Do Customers Get iNet Now?

**Instrument**
1. Purchase iNet Now enabled instruments
2. Upgrade instruments, one time activation fee

**Gateway**  No charge

**Software**  iNet Now subscription
• iNet Now monthly software subscription fee per instrument
Customers pick gas detectors, software, and services

Equipment
- Ventis Pro
- MX4
- MX6
- Tango
- Radius
- GasBadge Pro
- Docking stations
- Gateways

Software Apps
- iNet Control
- iNet Now

Services
- Calibration Gas Auto-Replenish
- iNet Exchange
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Target Customers

- Oil and gas
- Utilities
- Construction
- Pulp and Paper

- Customers with lone workers
- Very large customers, facilities are huge and workers are isolated
- Customers with workers called out after hours
- Customers with first responder teams onsite
Application of Live Monitoring

Lone Worker

• An employee who performs an activity that is carried out in isolation from other workers without close or direct supervision
Application of Live Monitoring

Real-Time Area Monitoring

• Gas detection not put on a person (PPE) or permanently installed on a structure (fixed)
  – Most often for temporary work
    • Risk higher, work longer than usual
    • More people, unfamiliar with site
    • Confined spaces, hot work, etc.
iNet Now Opens New Opportunities

- Integrate with monitoring services
- Integrate with e-Permitting solutions

Roadmap session tomorrow!
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What data doesn’t come to the cloud?

X) Sensors readings every minute
b) GPS location
c) Status messages every minute
d) User name and site
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Customer Pains

• It takes hours or days to learn of incidents

• Supervisors or safety leaders can’t be certain workers are safe or where they are located at any moment in time

• Real-time gas detection software is complex, designed for IT not safety teams
Customer Pain: Takes Hours or Days to Learn of Incidents

Find out in real-time when there is a safety hazard

- Real-time SMS/email for panic, man-down, high alarm, low alarm, STEL, TWA, long/short term lost
- Review/acknowledge real-time alerts
- Add contact details for each worker
- Drill into each worker to understand duration of alarms, day/time of the alarm, alarm readings, location
- Set real-time alert levels different from instrument alerts
Real-Time Text Message

- Alert Type
- User
- Sensor Readings
- Map
Real-Time Emails

User ———>

Map ———>

Alert Type ———>

Sensor Readings ———>

A WARNING

Panic Alarm

USER: Kimberly Macia
LOCATION: Map it
ALARM TYPES: Panic Alarm
SENSORS:
- Normal 20.3 %vol O2
- Normal 3.0 %vol C5H12
- Normal 1.7 ppm H2S
- Normal 5.0 ppm CO
SMART DEVICE USER: Kimberly Macia
ALARM TIME: May 2, 2017 6:39:46 PM GMT-04:00

View ———>
### Log of Real-Time Alerts

<table>
<thead>
<tr>
<th>Cleared</th>
<th>Alarm Type</th>
<th>Occurred On</th>
<th>Alert Time</th>
<th>Equip Type</th>
<th>User</th>
<th>SN</th>
<th>Site</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>View</td>
<td>Clear this Alert</td>
<td>Long term lost</td>
<td>4/16/2017 12:55 AM</td>
<td>4/16/2017 1:57 AM</td>
<td>Bowie - Radius Z</td>
<td>Josh Futrell</td>
<td>16041MU-001</td>
<td>SafeCore Module</td>
</tr>
<tr>
<td>View</td>
<td>Clear this Alert</td>
<td>Short term lost</td>
<td>4/16/2017 12:55 AM</td>
<td>4/16/2017 1:06 AM</td>
<td>Bowie - Radius Z</td>
<td>Josh Futrell</td>
<td>16041MU-001</td>
<td>SafeCore Module</td>
</tr>
<tr>
<td>View</td>
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<td>4/15/2017 11:22 PM</td>
<td>4/15/2017 11:33 PM</td>
<td>Bowie - Radius Z</td>
<td>Josh Futrell</td>
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<td>4/15/2017 10:45 PM</td>
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<td>Short term lost</td>
<td>4/15/2017 10:05 PM</td>
<td>4/15/2017 10:15 PM</td>
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<td>SafeCore Module</td>
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<tr>
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<td>4/15/2017 8:06 PM</td>
<td>4/15/2017 8:17 PM</td>
<td>Bowie - Radius Z</td>
<td>Josh Futrell</td>
<td>16041MU-001</td>
<td>SafeCore Module</td>
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<td>4/15/2017 7:29 PM</td>
<td>4/15/2017 7:40 PM</td>
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<td>SafeCore Module</td>
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<td>Short term lost</td>
<td>4/15/2017 5:11 PM</td>
<td>4/15/2017 5:22 PM</td>
<td>Bowie - Radius Z</td>
<td>Josh Futrell</td>
<td>16041MU-001</td>
<td>SafeCore Module</td>
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<td>4/15/2017 4:44 PM</td>
<td>4/15/2017 4:55 PM</td>
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<td>Josh Futrell</td>
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<tr>
<td>View</td>
<td>Cleared</td>
<td>Short term lost</td>
<td>4/15/2017 11:57 AM</td>
<td>4/15/2017 12:08 PM</td>
<td>Bowie - Radius Z</td>
<td>Josh Futrell</td>
<td>16041MU-001</td>
<td>SafeCore Module</td>
</tr>
<tr>
<td>View</td>
<td>Cleared</td>
<td>Short term lost</td>
<td>4/15/2017 11:35 AM</td>
<td>4/15/2017 11:46 AM</td>
<td>Bowie - Radius Z</td>
<td>Josh Futrell</td>
<td>16041MU-001</td>
<td>SafeCore Module</td>
</tr>
<tr>
<td>View</td>
<td>Cleared</td>
<td>Short term lost</td>
<td>4/15/2017 9:55 AM</td>
<td>4/15/2017 10:06 AM</td>
<td>Bowie - Radius Z</td>
<td>Josh Futrell</td>
<td>16041MU-001</td>
<td>SafeCore Module</td>
</tr>
</tbody>
</table>
What’s Critical to You?

- Send me iNet Now alerts via text
- Send me iNet Now alerts via email

Subscribe to:

An instrument alarm occurred during live monitoring

- Custom Alarm
- High Alarm (includes all oxygen alarms)
- Low Alarm
- Man-down Alarm
- Panic Alarm
- STEL Alarm
- TWA Alarm

Lost contact with instrument during live monitoring

- Long term lost
- Short term lost
Customer Pain: Can’t be certain workers are safe or where they are located

**Know worker status and location in real-time**

- Live map shows location and status
- Search for workers by name or instrument SN
- Monitor LENS connected gas detectors
- Create equipment groups to monitor instruments by job type or location
Customer Pain: Can’t be certain workers are safe or where they are located

Eliminate the need for check-in or buddy system

- Live map to show location and status
  - Not relying solely on gas detector
  - No need for the buddy system
  - Reduce human error
Live Map
Customer Pain: Real-time gas detection software is complex

<table>
<thead>
<tr>
<th>Start Fast</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Works out of the box with Industrial Scientific gas detectors, Ventis Pro and Radius</td>
</tr>
<tr>
<td>• Integrated with iNet Control</td>
</tr>
<tr>
<td>• No pairing of smart devices with instruments</td>
</tr>
<tr>
<td>• No local IT set up</td>
</tr>
</tbody>
</table>
Integrated with iNet Control
Why iNet Now?

• Find out in real-time when there is a safety hazard
  – Real-time texts/emails
  – Custom alert levels
  – Drill into alert details

• Easy and Quick to Start
  – Automatically connect with Ventis Pro and Radius
  – Works with smartphone immediately, no third parties, no local IT set up

• Check-in at any time
  – Check worker status and location on a Google map
  – Eliminate tedious check-in processes

• Know worker status and location in real-time
  – Worker status and location updated every 15 seconds on a Google map
iNet Now Summary

Peace of mind that workers are safe
Questions?