

Real-Time Fuel Supply Monitoring

Dean Mallory

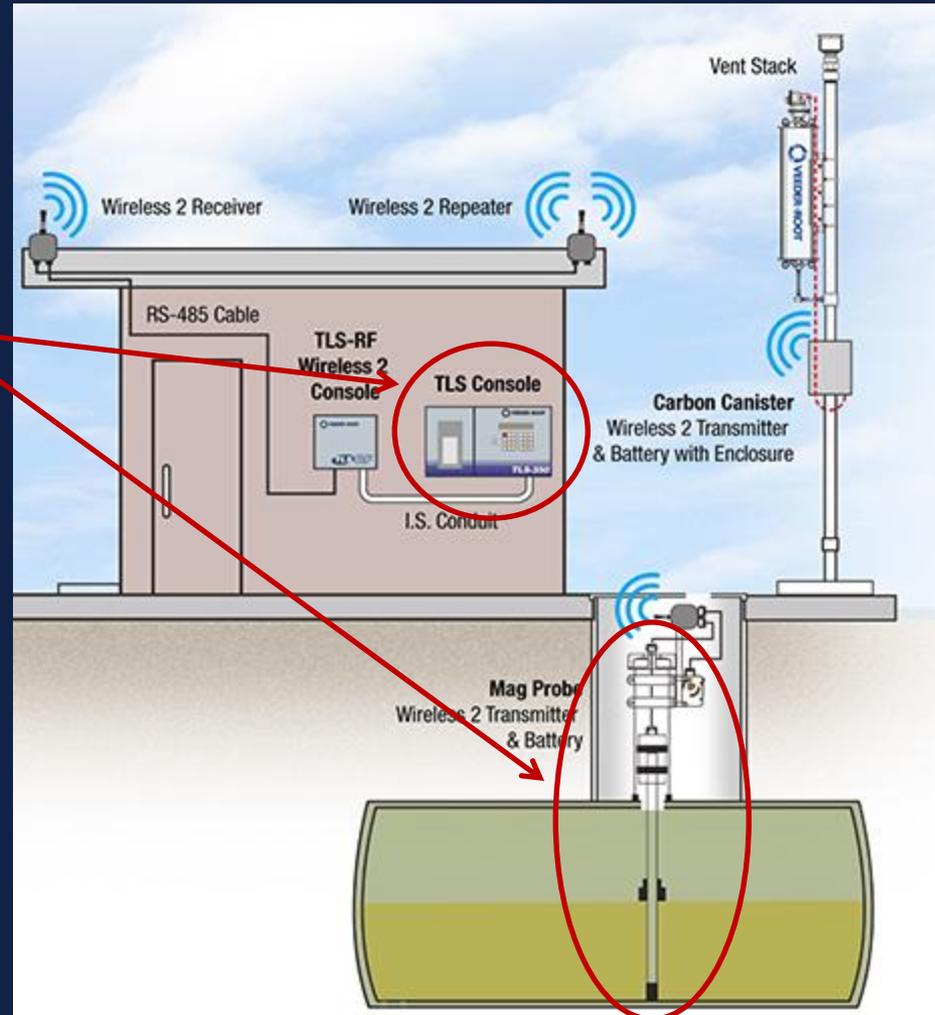
June 1, 2012

- Objectives
- Typical Gas Station Configuration
- Poll Sensors Directly
- Demonstration
- Going Full-Scale

- Obtain “near real time” fuel supply status of stations along hurricane evacuation routes
 - Near Real Time: Less than or equal to 1 hour old
- Display and interact with this data on GIS map
- Compare this data with projected demand model

Typical Station

- The tank gauge sensor is both:
 - Mag Probe
 - Console
- With wired, or wireless connection
- External Connectivity:
 - Telephone only (>90%)
 - Internet (<10%)



Typical Station



- Data connectivity
- Internet-ready device
- Out via internet

6/1/2012

5

Typical Station



- Telephone connectivity
- Direct
- Or through other device

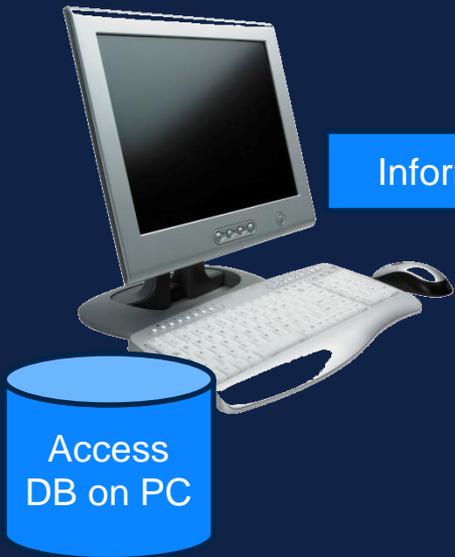
6/1/2012

6

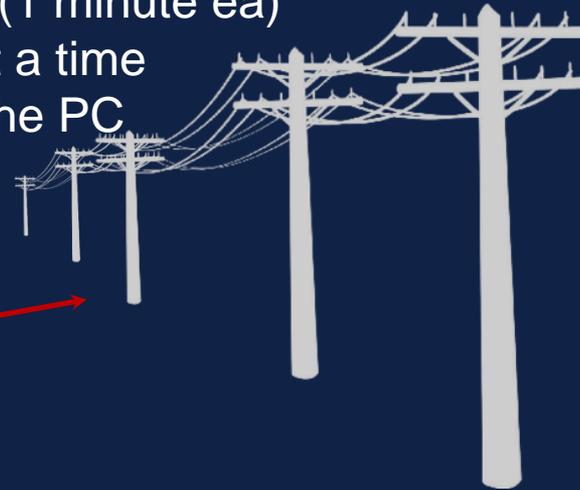
Polling the Sensors

Inform:

- PC-based software
- Installed on one PC of multi-site owner
- One phone call at a time (1 minute ea)
 - Or one IP address at a time
- Writes to Access DB on the PC



Inform



1

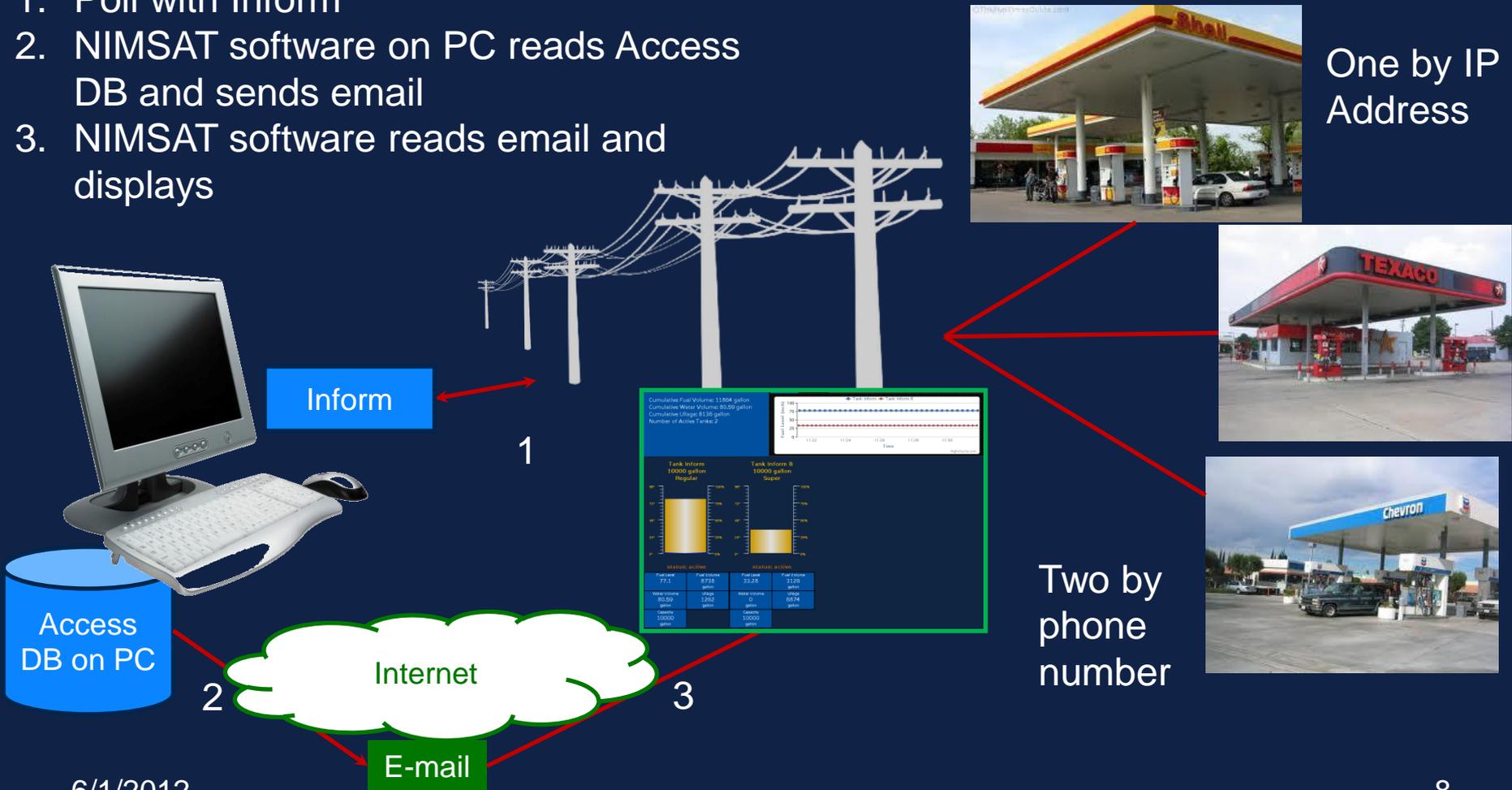


then 2

then 3



1. Poll with Inform
2. NIMSAT software on PC reads Access DB and sends email
3. NIMSAT software reads email and displays



6/1/2012

8

NIMSAT

NATIONAL INCIDENT MANAGEMENT SYSTEMS

AND ADVANCED TECHNOLOGIES

UNIVERSITY OF LOUISIANA AT LAFAYETTE

DEMONSTRATION

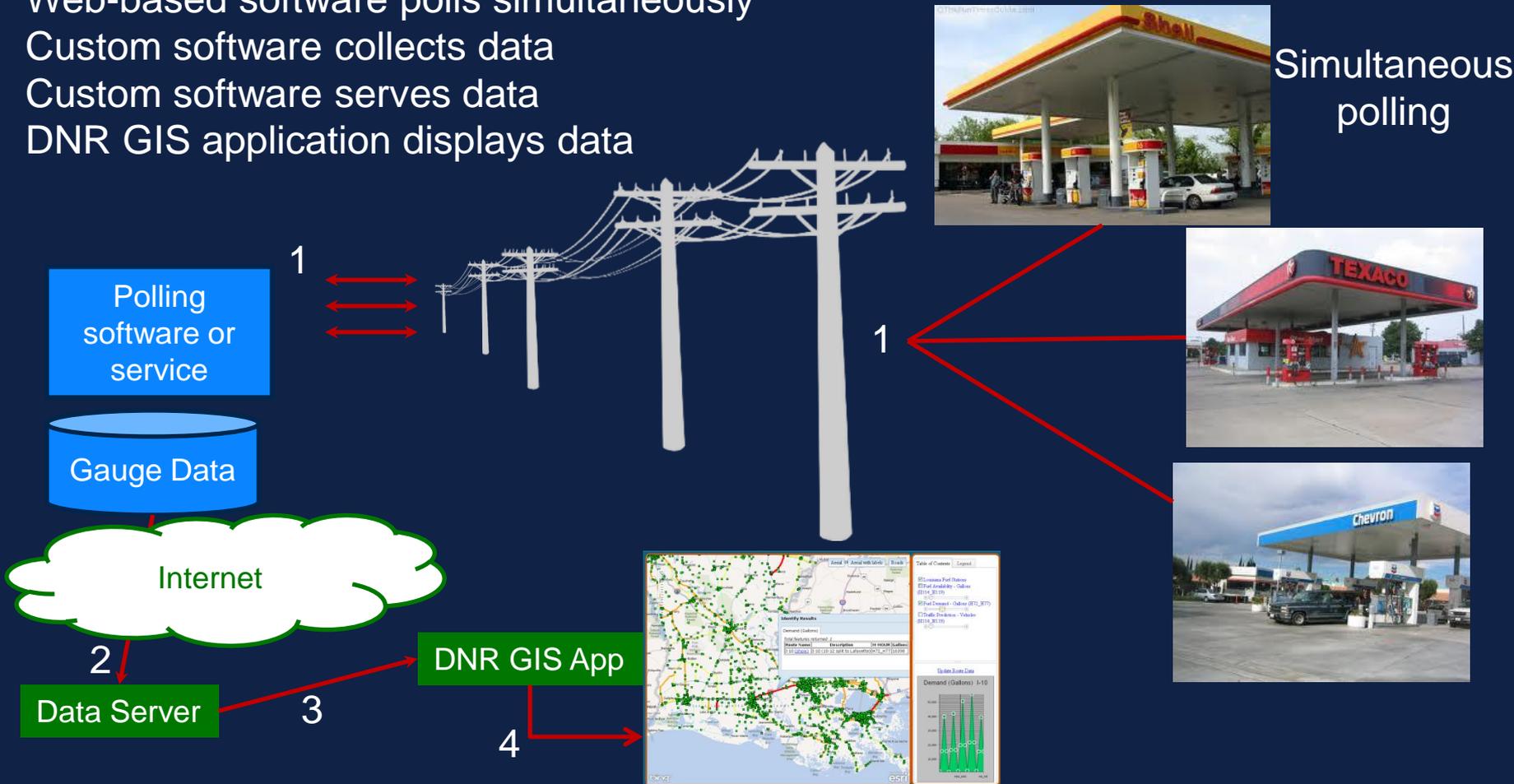
6/1/2012

9

CONNECTING FOR A RESILIENT AMERICA

Scaling Up

1. Web-based software polls simultaneously
2. Custom software collects data
3. Custom software serves data
4. DNR GIS application displays data



- Option 1: Web-based service provides us data
 - Examples: Intellifuel, Veeder-Root's Fuel Management Service (FMS)
 - Can poll multiple stations simultaneously
 - Data available in near-real-time by FTP (File Transfer Protocol)
 - Cost: investigating
- Option 2: Server-based software and communications company
 - Example: Veeder-Root's Inform.NET
 - DNR copy of software installed at communications company with multiple simultaneous telephone connectivity
 - Data available in near-real-time
 - Cost:
 - Approx \$75,000 first year, approx \$12,500 yearly (negotiable)
 - 30 day free trial, 10 sites (negotiable)
- Option 3: Custom server-based software and communications company
 - Develop minimal software for communications company to run: Polls a gauge, collects data
- Each option requires development of software to collect data and feed DNR GIS

- One more option:
 - IF enough large-scale owners already use Inform.NET, or Intellifuel, AND
 - IF enough of these large-scale owners participate:
 - Install software on server (Inform.NET) to send data to DNR OR Agree to let Intellifuel or FMS post data for DNR access, AND
 - Agree to increase polling frequency during emergencies
 - AND
 - IF the participating stations cover enough of the evacuation routes
 - THEN this could be done at very low cost to DNR:
 - Cost to locally develop software to run on Inform.NET server
 - Cost to locally develop software to collect posted data from Intellifuel
 - Cost to serve collected data to DNR map-based application

Any solution must:

- Be very easy for stations and owners
- Be no cost to stations or owners
- Be low cost for DNR
- Be voluntary, with owners in control of their data:
 - Password protection: not possible with dial-in, requires effort with internet
 - Process to grant/revoke DNR permission and data access
- Only be used when needed:
 - Very infrequent testing during “off season”
 - Full-scale only during days of actual emergency evacuation (including return)