



Geographically Targeted Messaging

## SquareLoop Technology Overview

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# SquareLoop Team



- **Thomas A. Stroup**, President
  - CEO of PCIA, Columbia Spectrum Management, P-Com Network Services, and GroupServe
  - Co-Founder CSM, NuRide, CSM Wireless
- **Rich Biby**, P.E., Technology
  - CTO Crown Castle International
  - Founder SiteSafe; Biby Engineering Services
- **Joe Walsh**, Business Development & Operations
  - Director of Investments VA Center for Innovative Technology;
  - VP Corporate Development Outbounder; Director Corporate Development [kinkos.com](http://kinkos.com)



- Hurricane Katrina panel concluded that effective warning systems should have:
  - Variable sized geographic targeting
  - Special alert tones
  - Multi-lingual capabilities
  - Visually impaired functionality
  - Wireline and wireless distribution
  - Group based distribution



# SquareLoop In Action



## First Responder Messages

Potentially heavy traffic on Route 66. Divert traffic to Route 29 where possible

## Citizen Messages

Memorial bridge blocked, alternate route Routes 66 or 29

Memorial bridge blocked, alternate route 395



**SquareLoop provides the ability to deliver different messages based on location and recipient**

# SquareLoop Overview



- Approach originally developed for DoD
- SquareLoop's patents licensed from MITRE provide the only method for geographically targeted messaging that:
  - Maintains user location privacy
  - Delivers messages based on current or past locations
  - Does not require new infrastructure
  - Works on existing handsets
  - Can deliver rich-media messages such as ringtones, MP3's, video clips, etc.



This system incorporates elements of the Geographic Alerting Method that was developed by The MITRE Corporation, and which is covered by U.S. Patent Nos. 5,636,245 and 6,522,250

# SquareLoop Overview (Continued)



- Subscriber configurable, opt-in model
- Can deliver messages where people are, and where they have been
- Can filter by velocity or direction of travel
- Messages can be sent to everyone:



**in a stadium**



**at a convention**



**at a festival**

# Launching Messages

SQUARE LOOP

intrado®



**FEMA** TACTICAL DISPLAY INTERFACE (TDI) **SQUARE LOOP**

User: sldemo1 Map: 38.9840 x -77.3557 3/23/2006 6:37 AM EST

Active Alerts:  
ID Severity Msg

Street:   
City:   
State:

Alert Level: **INFO - Informational Only**  
Message:   
Area UL:  x   
Area LR:  x

Start Time: **Thursday March 23, 2006 6:30 AM**  
End Time: **Thursday March 23, 2006 7:30 AM**  
Response: **Read Receipt**

Support Settings Logout Sound Refresh (c) 2005 SquareLoop, Inc.

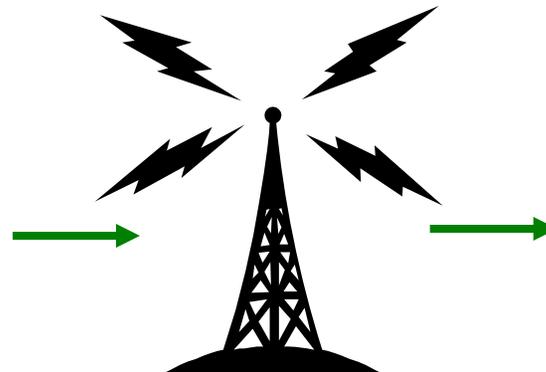


# How It Works



**Web Interface**

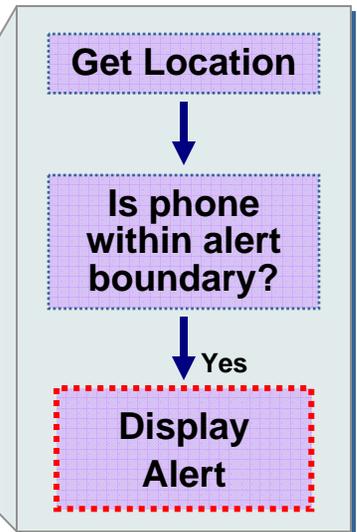
Location via GPS, network, etc.



**Wireless Carrier**



**Application On Phone**



- Location determination
  - Derived from base station
    - Indicates if within area
    - Further refinement possible with assistance from carrier
  - GPS when available / necessary
  - Network based location can also be used
- Location history stored on phone to display messages based on past location

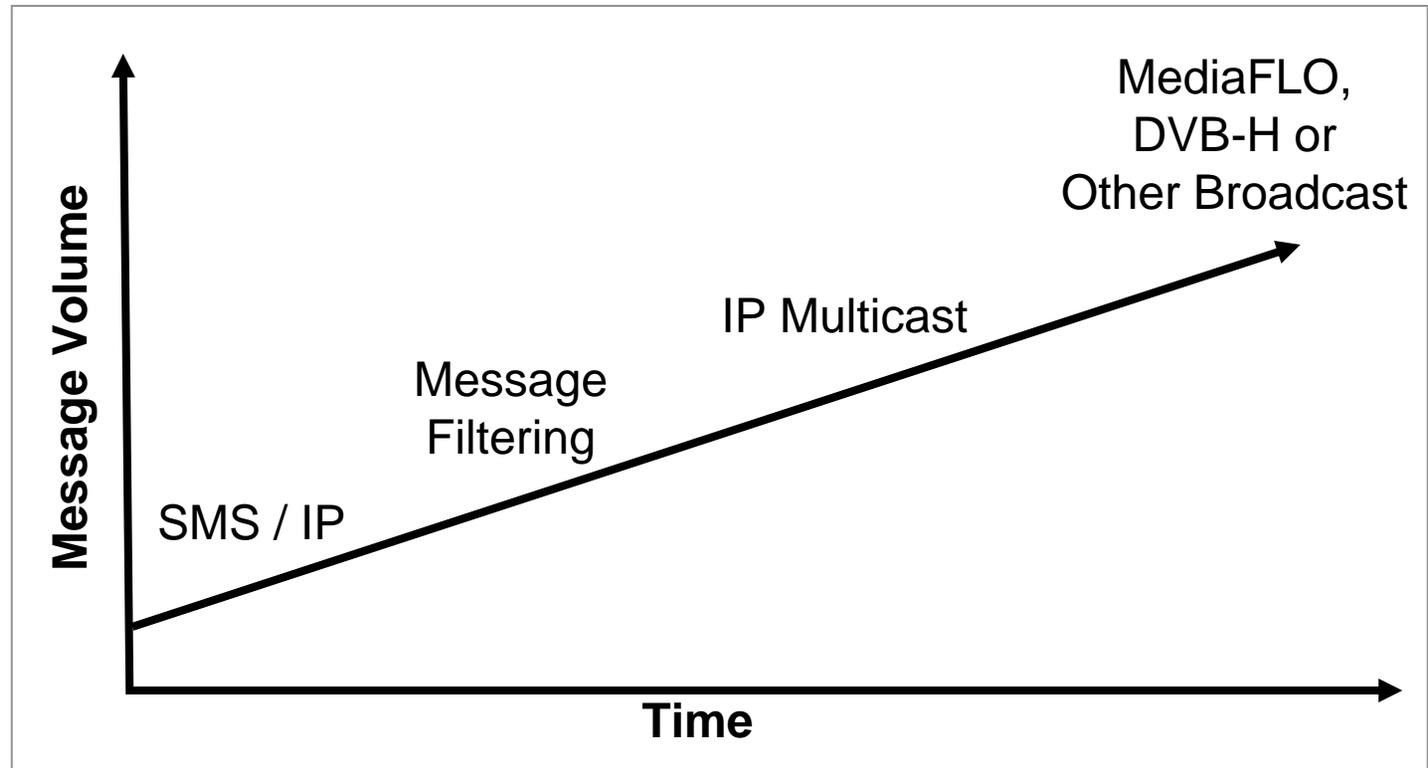
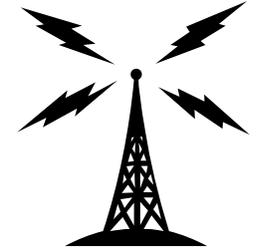


Location via  
GPS or cell tower



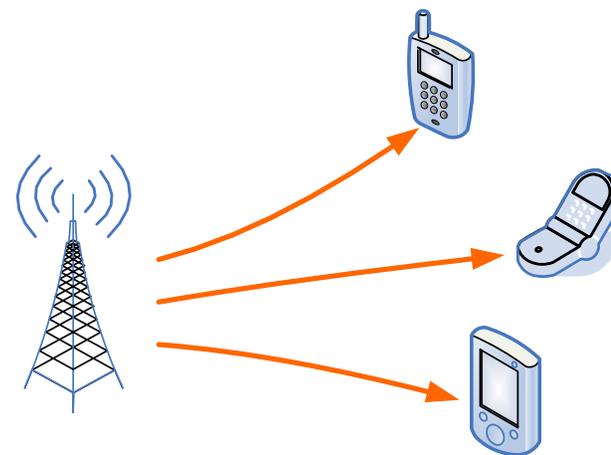
# Message Transmission

- Either TCP / IP or SMS
- Initial message contains location and authentication
- Subscribers nearby download remainder of message via IP



# Application (Continued)

- Current Deployment
  - Over-The-Air (OTA) download
- Future Deployment
  - Pre-provisioned handsets



# Benefits



- ✓ Network independent
- ✓ Fast deployment - no change to base station / towers or hardware changes to phones
- ✓ Cost effective
- ✓ Valid timeframe
- ✓ Historical messaging
- ✓ Response capabilities
- ✓ Rich media – alert tones, message size, message priority, graphics, etc.
- ✓ Built-in retry mechanism
- ✓ Selective message delivery based on subscriber profile
- ✓ No noticeable battery drain



## Manassas Beta Trial



- Beta trial February – April 2006
  - Internal trial of 20 – 30 users
  - Test user interface and uses for system
- Using TCP/IP with public IP addresses for communication
- Combination of pre-defined and ad hoc messages
- On Motorola and RIM devices



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<http://www.squareloop.com>