WiSense: A Client Based Framework for Wireless Diagnosis
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MOTIVATION
- Extensive WiFi deployments in homes and enterprises
- Performance issues
  - RF coverage
  - WiFi Link Interference
  - Non-WiFi interference
  - Traffic Hotspots / Channel contention
- Problems can location and time dependent

Leveraging WiFi client devices
- Client mobility can identify location specific problems
- No Access Point (AP) support: same client can be used at multiple locations
- Augment AP-only view of network performance

WiSense FRAMEWORK
Framework Overview
- WiSense enabled clients
- Internet
- Database
- Passive RF, MAC, Flow statistics
- Active Throughput, Latency Measurements
- Mobility + Location information
- Crowdsourcing data from WiSense clients

Diagnostic Applications
- Detect Coverage Holes
- Measure uplink WiFi interference
- Detect and localize non-WiFi interference
- Localize rogue WiFi networks
- User feedback on AP configuration

IMPLEMENTATION
- Android smartphones and tablets (e.g., Galaxy Nexus, Nexus 7)
- Atheros USB WiFi card
- WiSense Android application + updates for driver support
- WiSense download and installation instructions available at: http://www.wisense.io

WiSense FEATURES
- Live RF Heatmap
- Non-WiFi device detection
- Airtime usage information
- Active throughput measurements

EXAMPLE APPLICATIONS
RF coverage
- Interference Detection
- Packet Losses?
- Interference?
- WiSense Server