Location and Tracking Technology

Discussion
How will the incident commander really use the system? What happens if there is an information overload?

- We must not add to the operational burden on the incident commander.

- Can't expect to watch the system at all times.
  - Consensus: System needs to be a reference, used when needed. But must identify issues and alert command of situation. Need to borrow from military control systems (tactical operations software).
Are we looking at the right issue?

- Maybe physiological and personal situational (motionless) monitoring can solve most of the problems.
  - Firefighters die mainly from heart attacks. Who makes decisions on baselining for physiological monitoring? Heartrates are all different, how can you predict heart attacks?

- Many cases the location of the firefighters was known (two firefighters in basement, car dealership/warehouse roof collapse), but their status was the major unknown.

- The common element in many cases is a breakdown in communications. All the location and tracking systems require existing reliable communication line.
Breakdown in communications

- Need both reliable voice and reliable data. At present, we don’t have either.

- Technically, the communication capability exists. It is a matter of improving the standard and addressing political issues.

- Suggestions: microcell on trucks, dedicated spectrum, 2.4 GHz, etc?

- LTE (Long Term Evolution) presents an opportunity with dedicated emergency responder spectral space.

- Still need simplicity and reliability in communications and all systems.

- How does this all fit with existing fire department standards? (Would require big conversion from standard radios.)
What are the requirements for a personal location system?

- Formal evaluation and agreement on software, hardware, other standards must be set.
- Do difference in scenarios alter requirements? (i.e. different requirements for small house fires, warehouses, high rises, underground, etc.) There are different levels.
- Issues with incidence of command, what are team structures. Operation standards vary from department to department, how does the system compensate?
- What happens when procedures aren’t followed, things break down?
- The location technology is advancing and the importance of other system issues is becoming more apparent.
Are we trying to do too much?

- All inclusive solution is immensely costly and time consuming to design and build.
- We can satisfy separate small requirements. For instance, tracking in a 2 story home is solvable. But is there a market?
- Why not solve communication, and two-story house problem?
Firefighter perspective

- According to firefighter community present at discussion: 95% of the problem is not a “location” or “tracking” problem.
- Time is of the essence, signal distress to nearest firefighter, in addition to incident commander.
- There are many very different scenarios and unknowns, there may be no single system solution. (mall, subway, highrise vs. rural)
- Scene centric approach vs. command centric approach, orienting with respect to local coordinate system vs. global coordinate system.
- The point is to save lives, thus time is important and the firefighter closest to the scene is the one that needs to be notified of an imminent problem.
- Problems with pass alarms failing.