Data Intensive Mobile Sensornets: Killer Applications and Grand Deterrents

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Rules of the Game

Killer Applications   Grand Deterrents

… not just **Funding Opportunities**
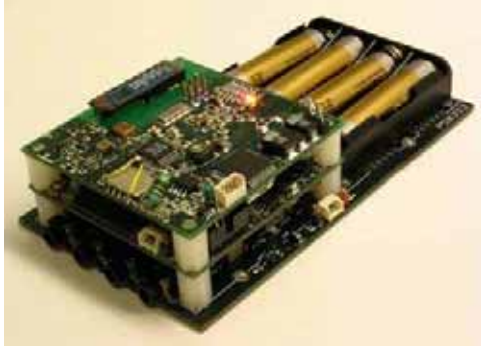
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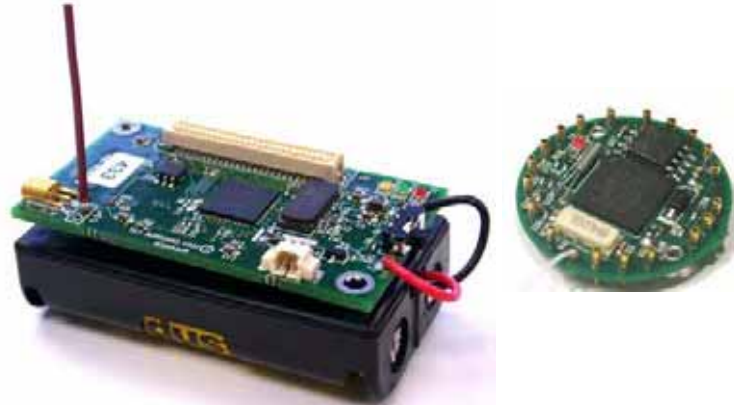
Moderators: *Panelists:*

Sensor Devices

µAMPS-1 (MIT)

MICA-2 and MICA2Dot (UC Berkeley, Crossbow)
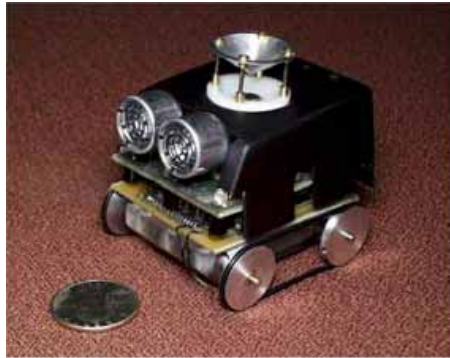
Medusa MK-2 (UCLA)

RAM: 4-128 KB;   Flash: 32KB - 1 MB; Running at: 4 – 40 MHz

Data rates: 20, 40 or 250 kbps in the 868, 915 or 2400 MHz bands respectively.

Transmit power: 1 – 2 mW.

More to expect: ultrawideband (UWB), very high data rates (110 - 400 Mbps) over short range, low power (order of 0.1mW).

Mobile Sensors

Milibot (CMU)

Robomote (USC)


COTS-BOTS
*(*Bergbreiter&Pister*)*

"Explore, discover, report ..."
Surveyor Wireless Mobile Robots:
 video for telepresence;
autonomous and swarm Operation.

Mesh Networks (e.g.,   MeshScape 4.0 Millennial Net system for commercial- and industrial- class wireless sensor networks).
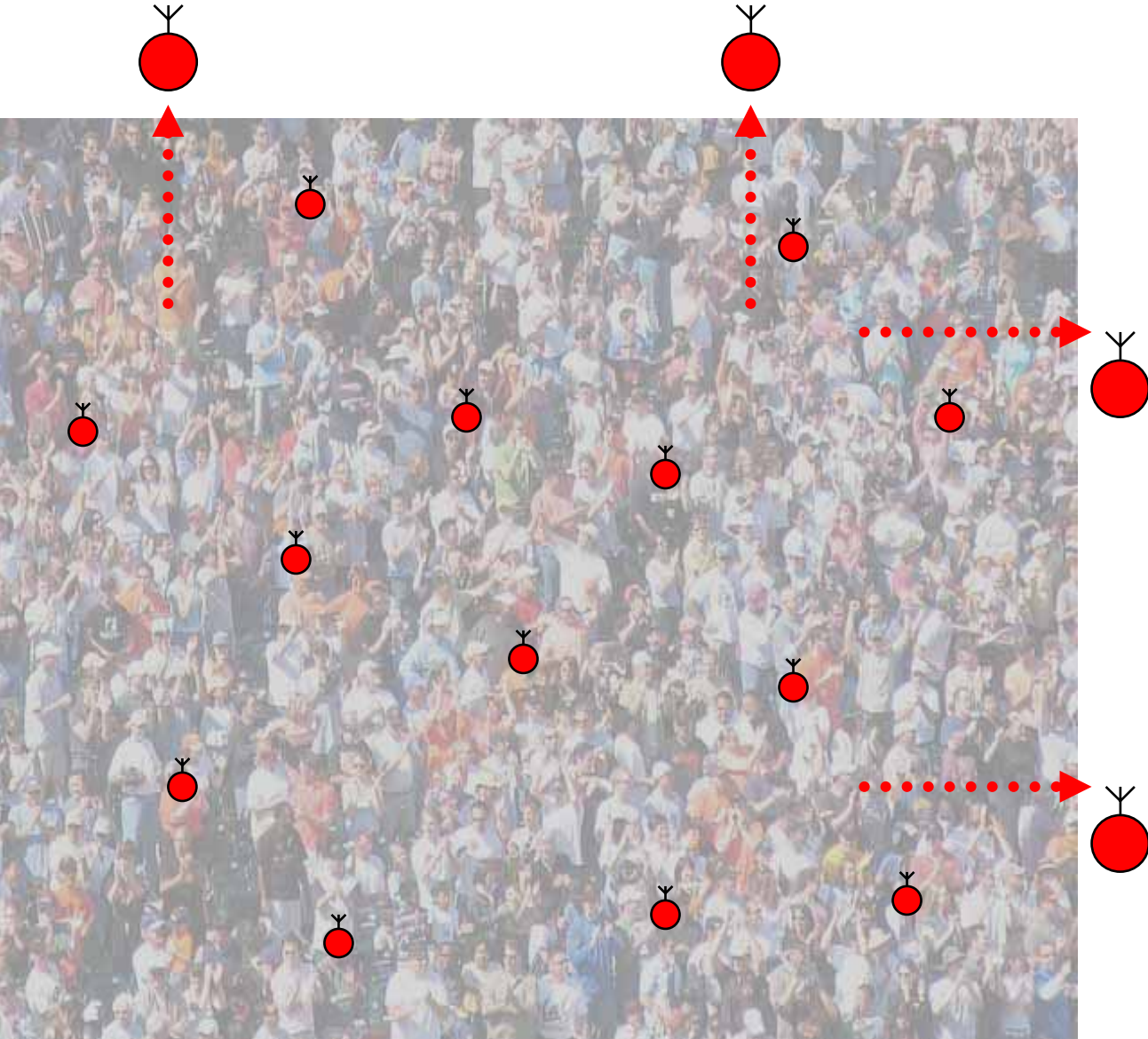
Killer Application #1

- A team of cooperative mobile robots can be considered as a wireless sensornet.
- Deployed in conjunction with stationary sensor nodes
- Acquire and process data for surveillance, tracking, environmental monitoring, or execute search and rescue operations.
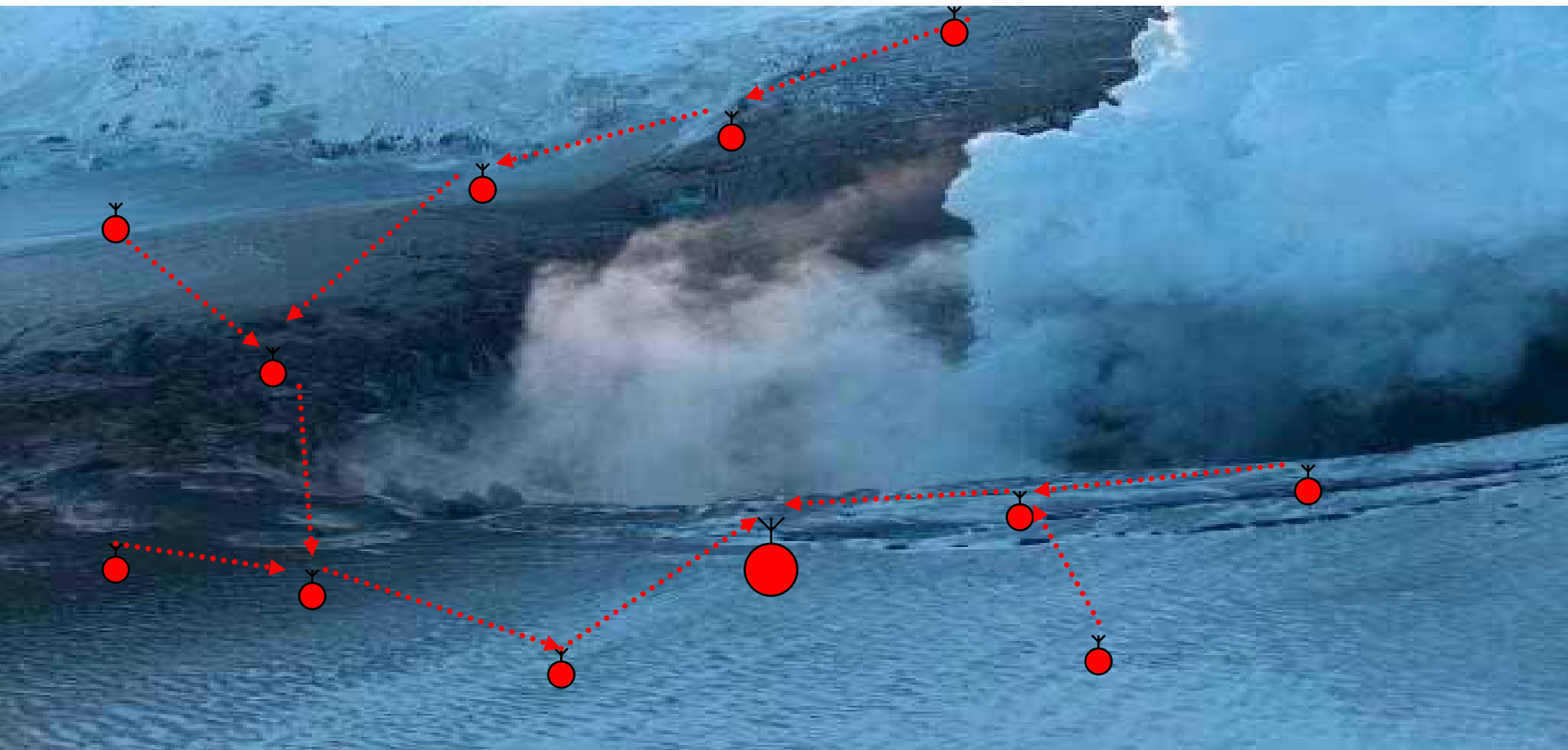
Killer Application #2

• Large-scale human health monitoring with body sensors reporting critical health parameters (e.g., blood pressure) to a processing station.

•More complicated version: monitoring the health of soldiers in a battlefield.
• Robomotes could deliver the information to a remote center that is away from the battlefield.

Killer Application #3

• Discovering traffic conditions.

• Assuming that each vehicle is provided with a group of sensors that reports its local parameters (e.g., speed) and surrounding condition (e.g., snow, icy road, etc.).

A complicated case: battlefield reports and extra speed (e.g., a swarm of jets).
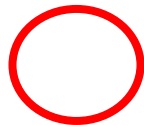
Must Get Them …

From Jim Grey's 1998 ACM Turing Award Speech:

- " … research turns into a billion dollar industry after a decade …" (e.g.: relational data bases)
- "This time lag is shortening … "

A humble suggestion to the MDM community:

Let's collect our billion !!!

Here Come The Grand Deterrents

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