Middleware for Sensor Networks?

More wild claims

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Middleware

- Software layer between application and hardware/OS
  - Eases network programming
  - Programming abstractions (distributed objects)
  - Communication primitives (remote method call)
  - Common services (naming, ...)

- Some features
  - Hides heterogeneity (hardware, OS)
  - Provides transparency (location, ...)
  - Runtime system (with significant overhead)
  - Application-independent functionality
  - Based on a common system model
Common System Model?

- **View 1**
  - Dedicated low-power, tiny sensor nodes
  - Multi-hop, ad hoc, self-configuring network
  - Mobile nodes
  - Heterogeneous hardware

- **View 2**
  - Commodity devices (mobile phones?)
  - Single-hop + base station
  - Fixed star topology
  - Immobile nodes
  - Homogeneous hardware
  - Many non-problems, e.g., time sync, routing, ...

- Depends on the application!
More Questions

- Is there application-independent functionality?
  - In-network aggregation mixes communication and application-specific data processing!

- Do we have the resources?
  - 10 kilo bytes, 8 MIPS?

- Is there heterogeneity?
  - Many assume there is not!

- Does transparency make sense?
  - Location matters!