

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!