

MetaOS Concept

- MetaOS developed by Ambient Computing to coordinate the function of smart, networked devices
 - Smart networked devices include processing capabilities and sensors
 - MetaOS provides support for preferences, location awareness, & security
- Objective is to ease deployment and use of systems in the many application areas that have heterogeneous devices, contain a non-trivial number of devices, and span multiple locations
- Architecture can facilitate rapid development and deployment of defense and homeland security applications



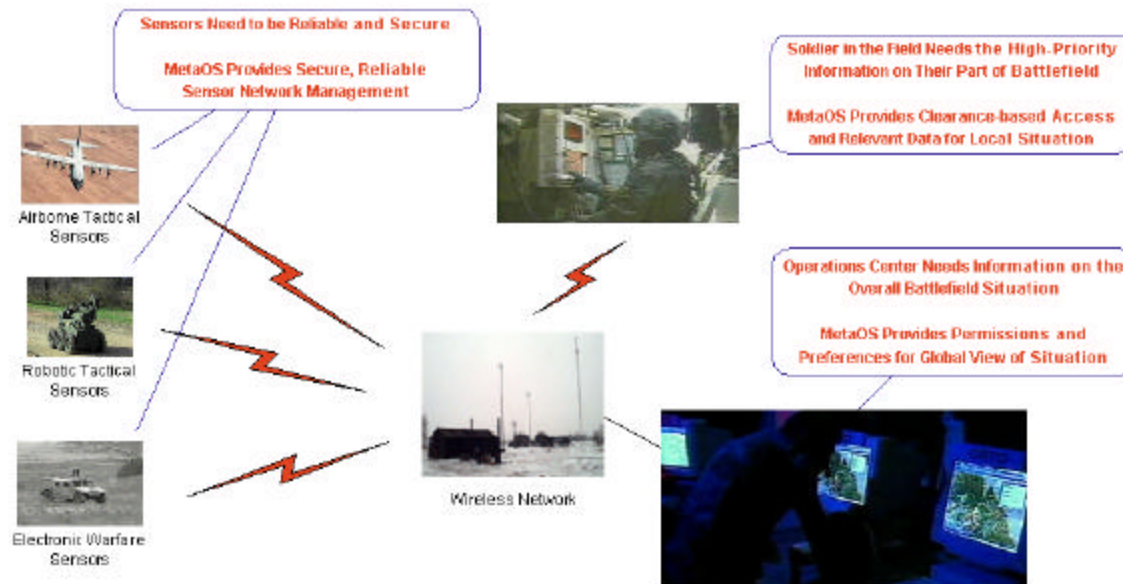
MetaOS Approach

- Applies operating system approach to groups of distributed, network-embedded devices
- Smart devices and standalone software are abstracted in the same way as resources and peripherals are in traditional operating systems
- Supports easy deployment of new services by providing common way to integrate and coordinate devices as well as write applications
- Permissions and user profiles handled as in traditional operating systems



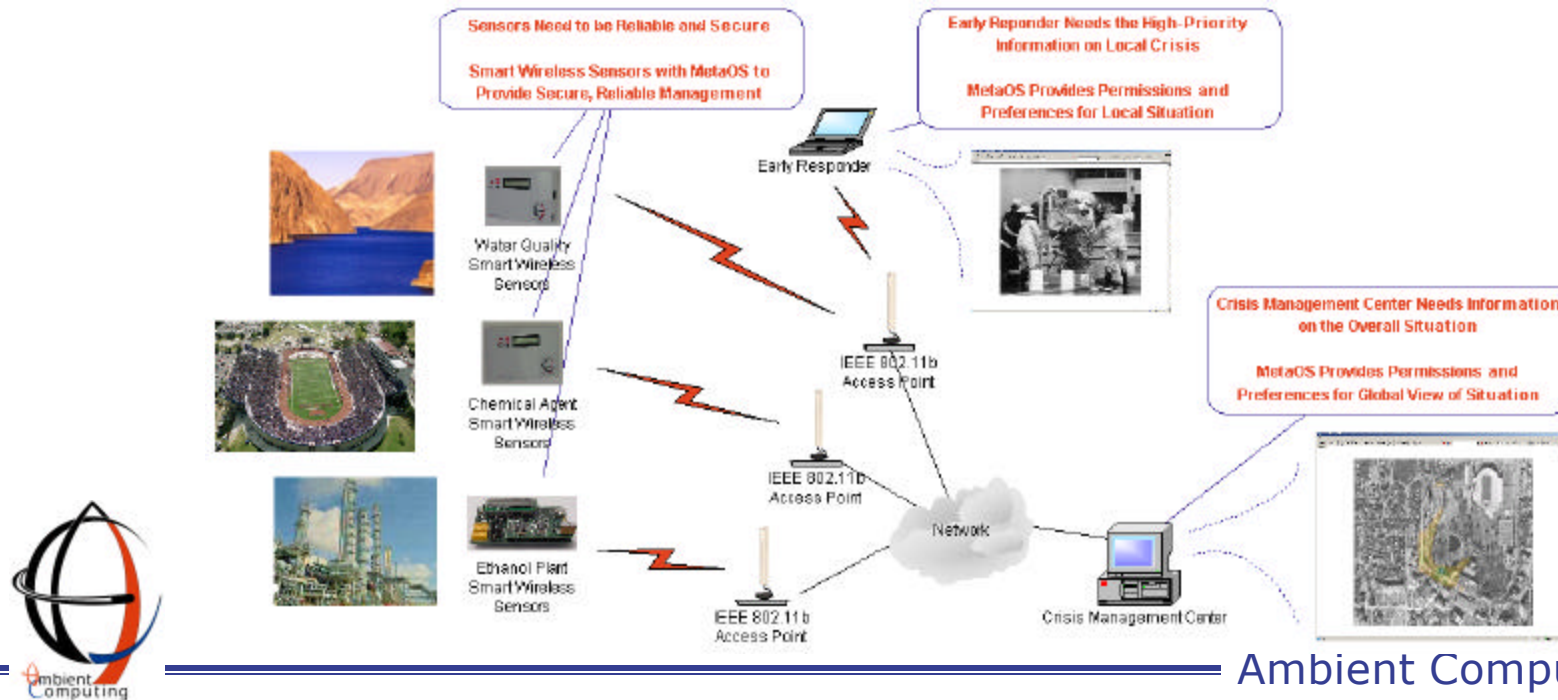
Defense Applications

- MetaOS provides capability for permissions, preferences, and location awareness to support different processing and views
- Multiple levels of access to managed resources and intelligence information are easily implemented
- Applications can be tailored to meet particular situations and command structure
 - Personnel may only see particular sensors and information based upon clearances or perhaps location
 - Leaders can customize views of data for effective battlefield management



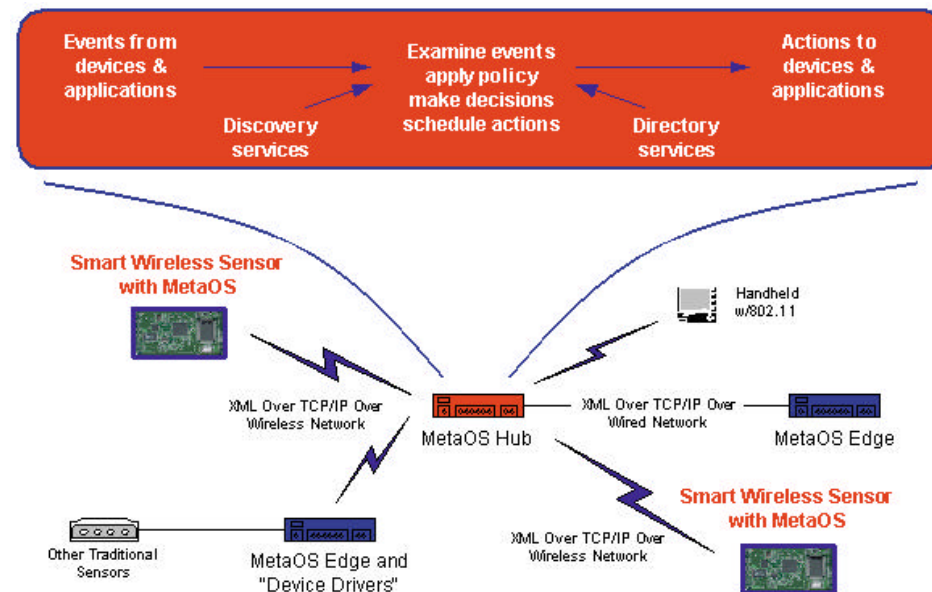
Homeland Security Applications

- MetaOS provides capability for sophisticated sensor network management
- Operators in different locations can customize interface to be most effective
- Operators with different responsibilities can customize views for monitoring, investigation, management
- Allows rapid deployment of new sensor processing applications



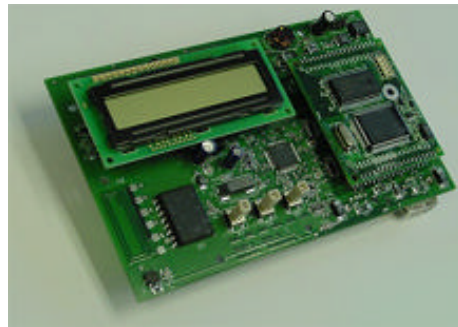
MetaOS Architecture

- Hub (kernel) manages domain, communicates with devices or programs via edge software (device drivers) using publish-subscribe approach
- Hub, edge, and device are typically on different network-connected processors
- XML messages used for various registration, notification, operation, and information tasks
- Applications interact with system devices through hub through a standard interface

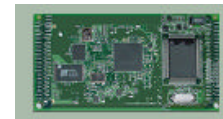


Smart Wireless Infrastructure

- Smart wireless devices
 - Tightly integrates embedded & wireless, which qualitatively changes the ability to use networked intelligence by pushing down cost of deployment and use
 - Smart wireless devices allow for deployment of ubiquitous and low-cost sensing capabilities by using standard protocols and embedded chipsets to implement MetaOS-capable devices
- Sensors and Processing
 - More sensors provide new and richer inputs for better decision-making
 - Processing at edge provides intelligence for reliability and security



Example Smart Wireless Device



Smart Wireless Module

