



Access Control Models for Cloud-Enabled Internet of Things: A Proposed Architecture and Research Agenda

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Goals

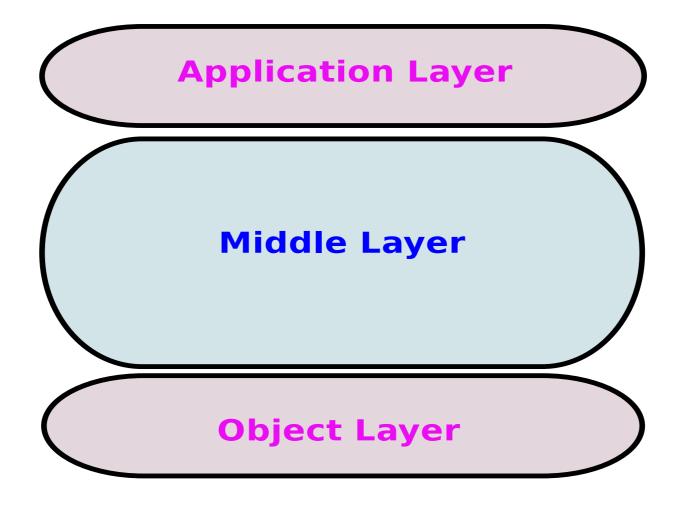


- Develop an initial set of identity and access control models for IoT within a robust framework, which can
- Support further maturation and elaboration of this initial set.



IoT Proposed Architectures







IoT Proposed Architectures



Application Layer Application Layer Application Layer Application Layer Middleware Layer Service Layer Middle Layer **Network Layer Network Layer Network Layer Object Layer Object Layer Object Layer Object Layer**



IoT Proposed Architectures



Application Layer

Application Layer

Application Layer

Service Management Layer

Service Composition

Layer

Service Management

Layer

Cloud Computing Layer

Object Abstraction Layer

Object Abstraction Layer

Object Layer

Object Layer

Object Layer





User and Administrator Interaction



Application Layer

Cloud Services Layer

Virtual Object Layer

Object Layer

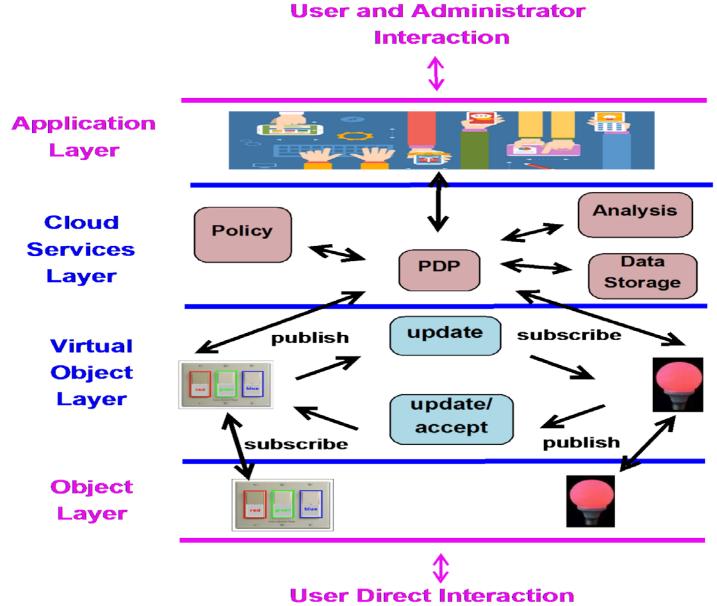


User Direct Interaction



Simple Use Case of ACO-IoT Architecture

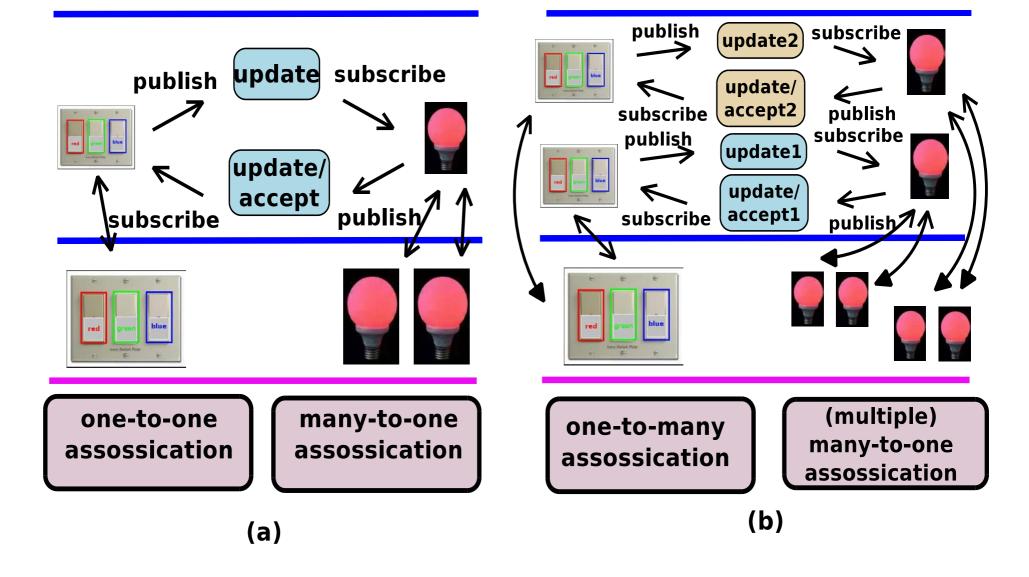






Use Case Sample Enhancements









User and Administrator Interaction



Application Layer

Cloud Services Layer

Virtual Object Layer

Object Layer

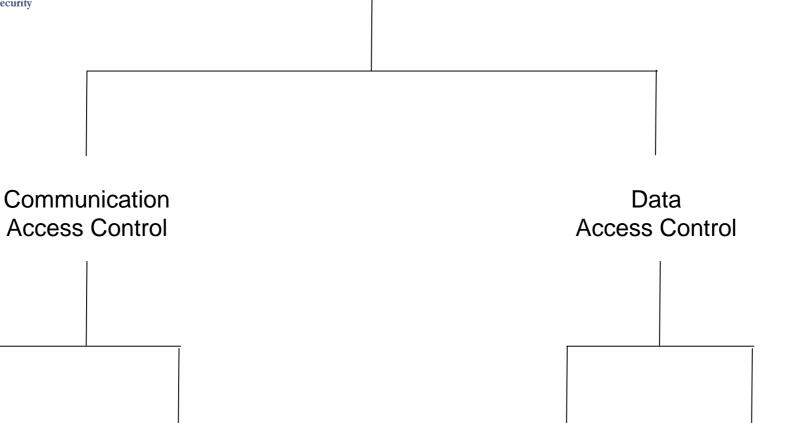


User Direct Interaction



Access Control Issues in ACO-IoT





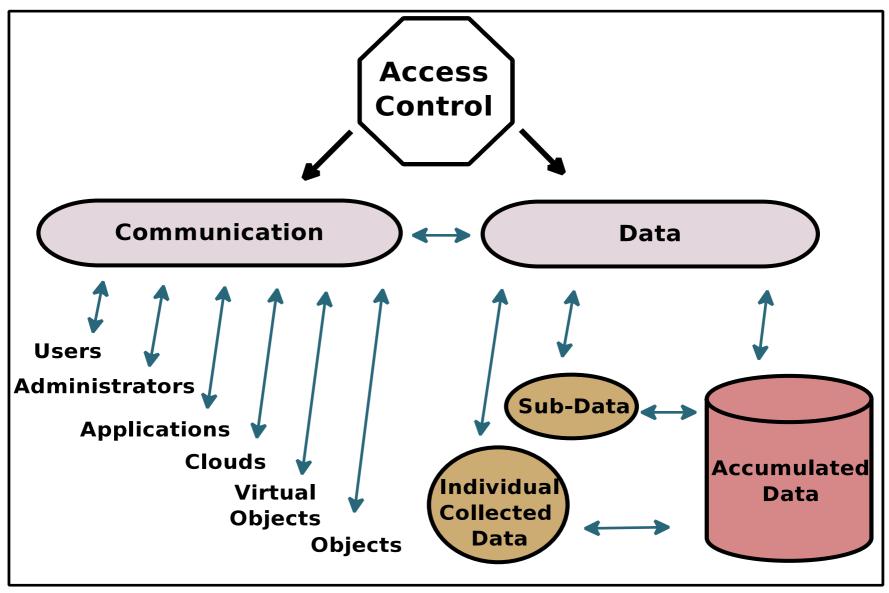
Intra-Layer Cross-Layer

Micro Data All Layers Big Data Cloud Services Layer







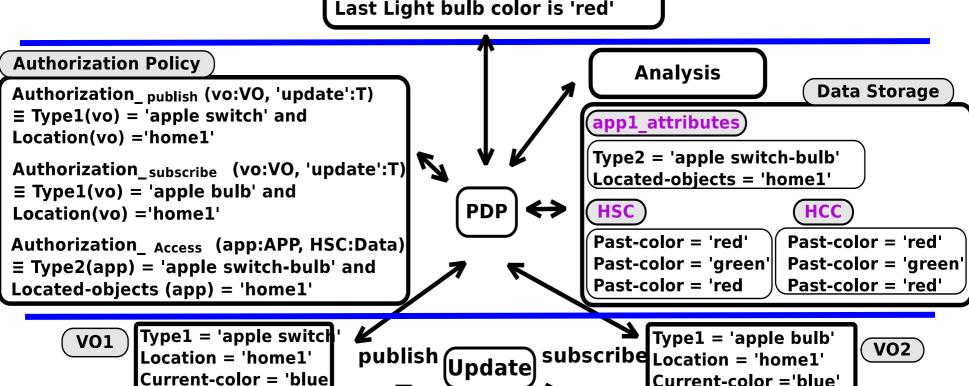


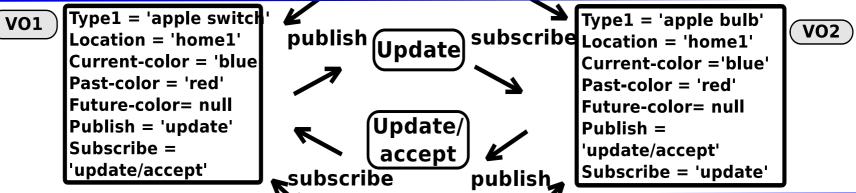


Example using ABAC





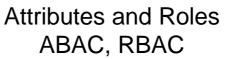


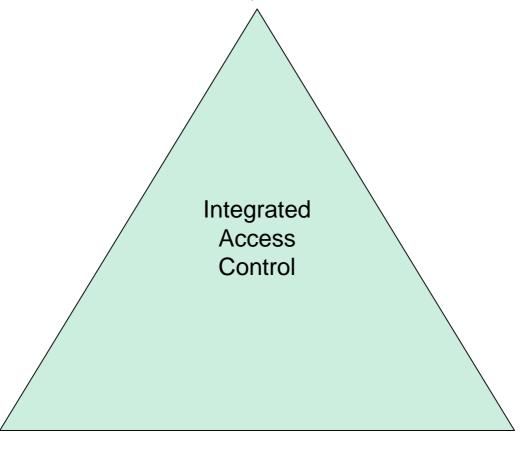




Integrated Access Control Models







Relationships ReBAC

Provenance PrBAC