

Design and Implementation of A Secure Prototype for EPCglobal Network Services

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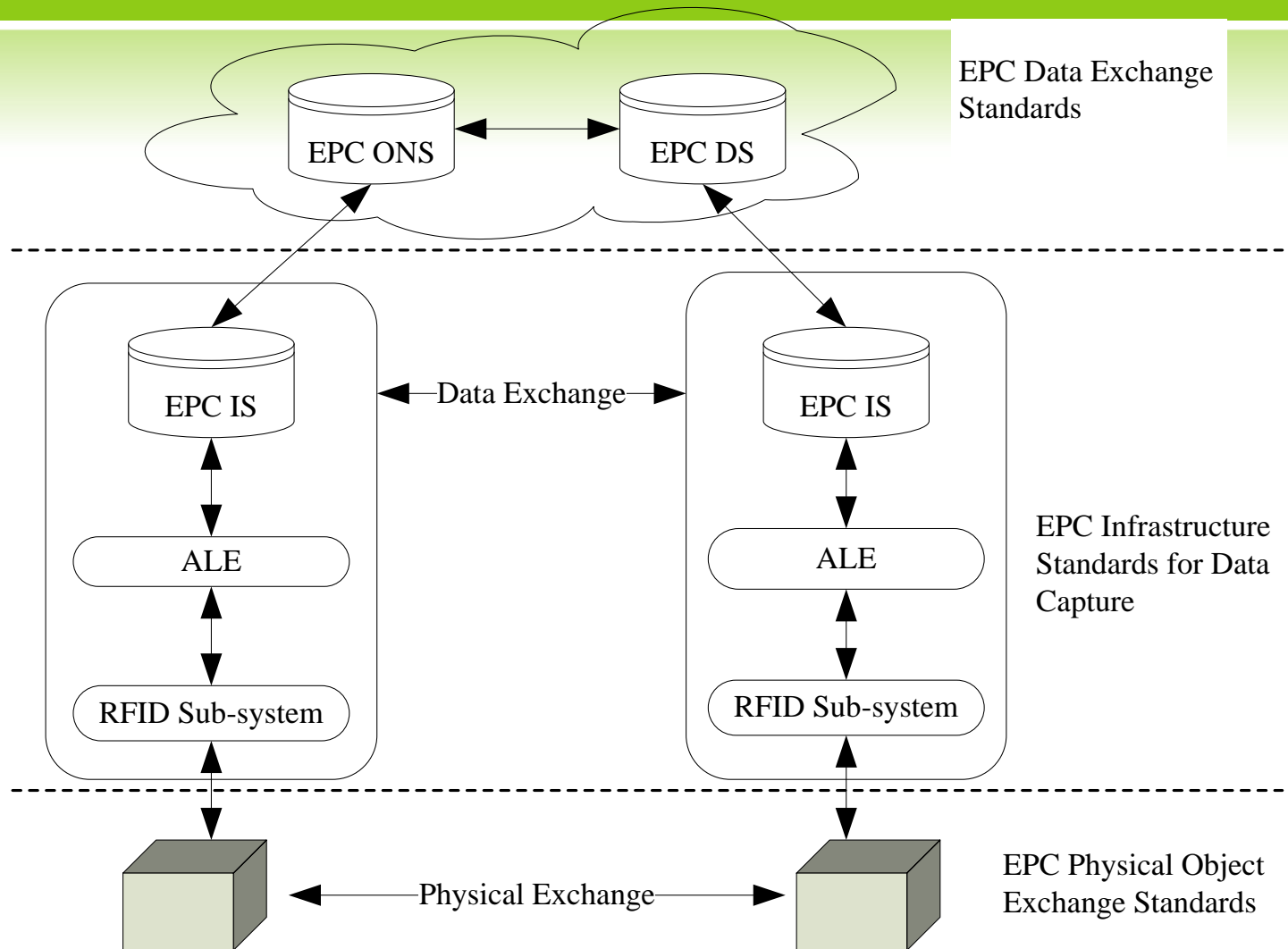
Agenda

EPCglobal Network Services

Design of Secure Prototype for
EPCglobal Network Services

Implementation of Secure Prototype
for EPCglobal Network Service

EPCglobal Network



EPCglobal Network Services

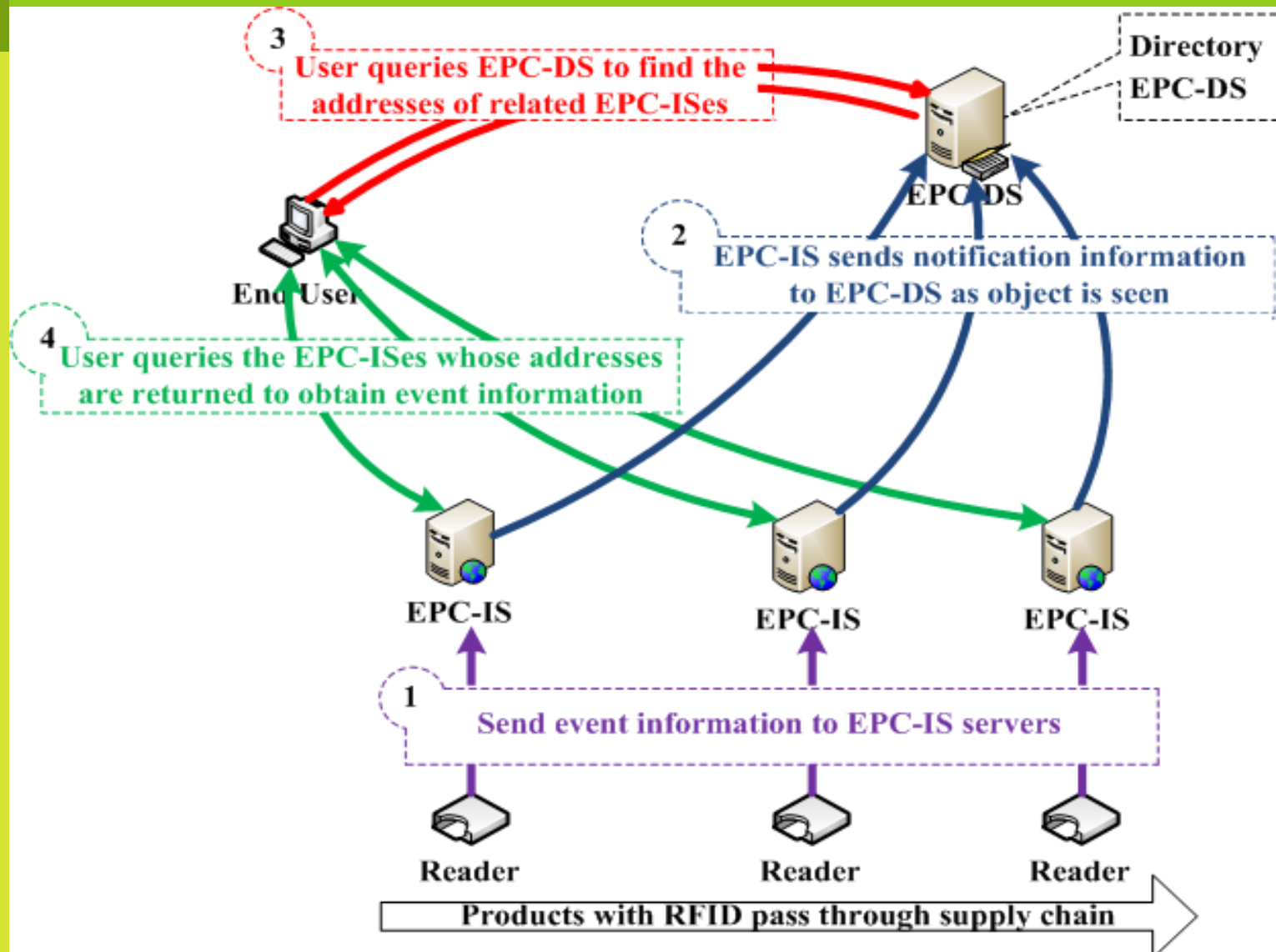
- ③ EPC Information Services (EPC IS)
- ③ EPC Discovery Services (EPC DS)
- ③ EPC Object Naming Service (EPC ONS)

EPCglobal Network Services

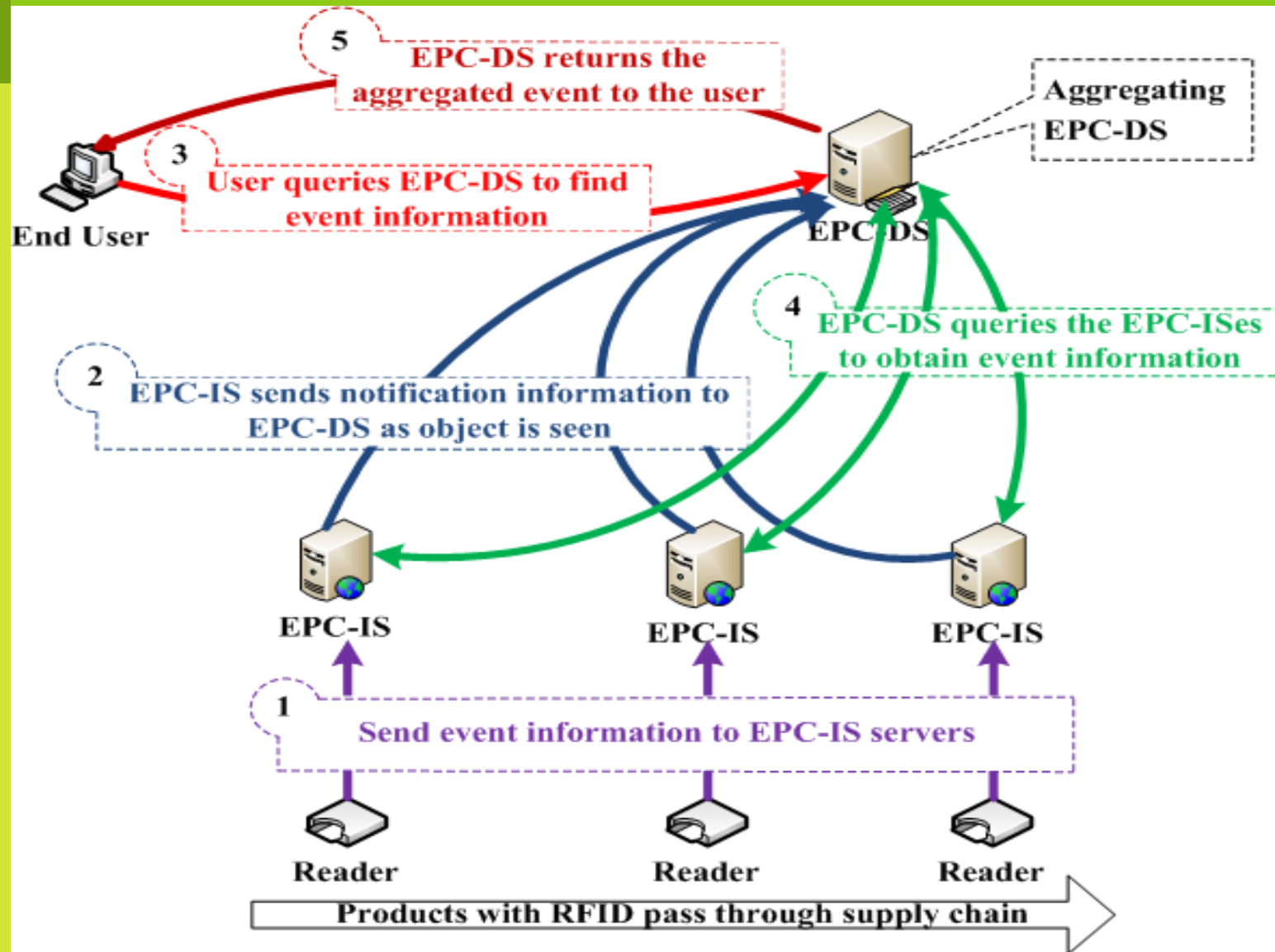
- ③ **EPC Information Services (EPC IS)**
- ③ **EPC Discovery Services (EPC DS)**
- ③ EPC Object Naming Service (EPC ONS)

- ③ Directory look-up based EPC-DS
- ③ Aggregating EPC-DS

Directory Look-up based EPC-DS



Aggregating EPC-DS



Secure Prototype for EPCglobal Network Services

Goals

Facilitating global information sharing among supply chain partners

- EPC-DS

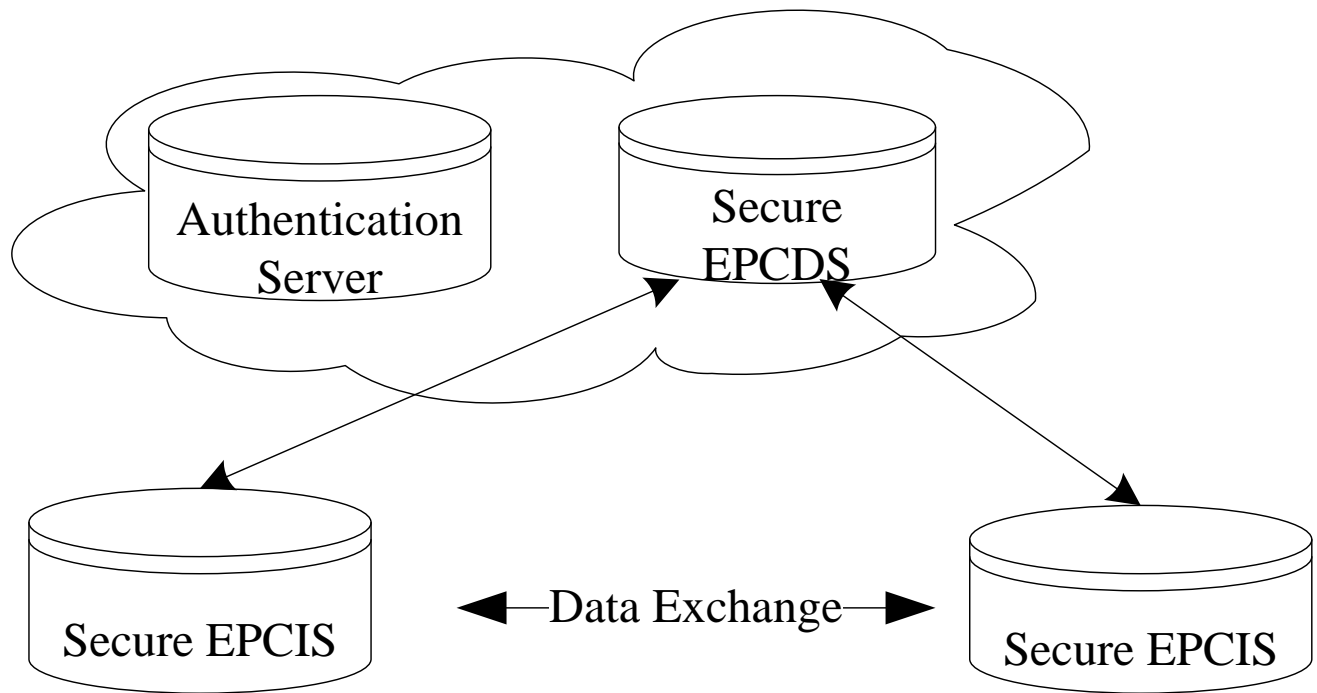
Security mechanism

- Access Control

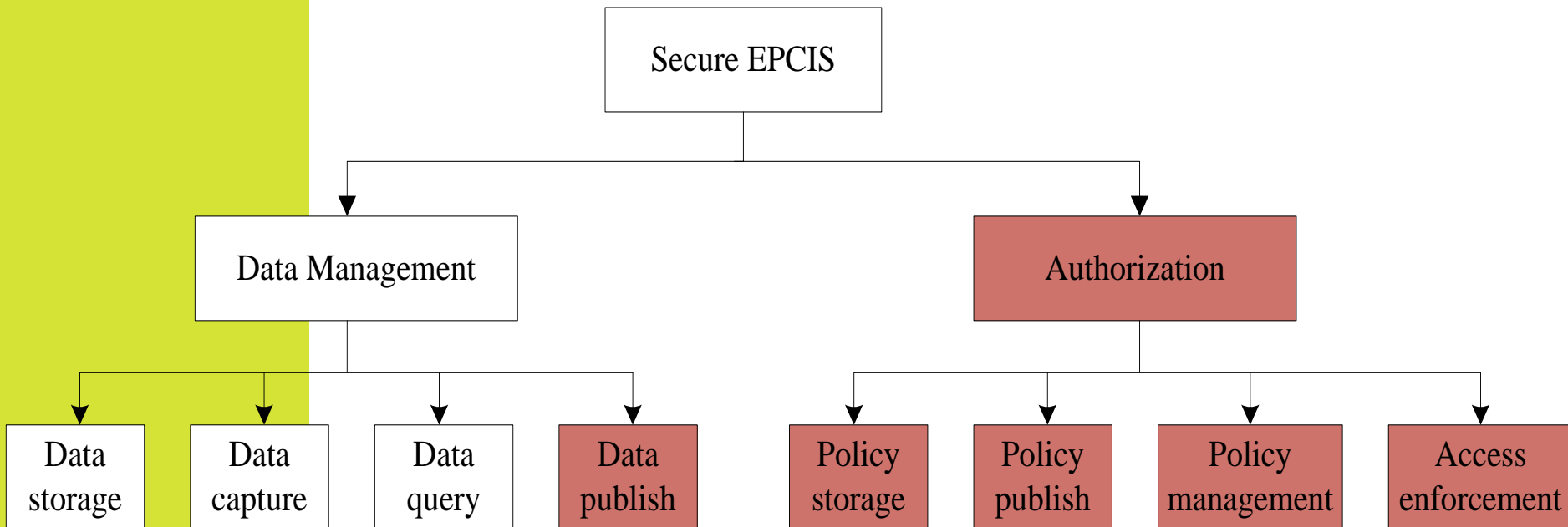
Reducing the cost of managing and maintaining supply chain partners' data and authorization policies

- Automatic Data and policy publishing

Architecture

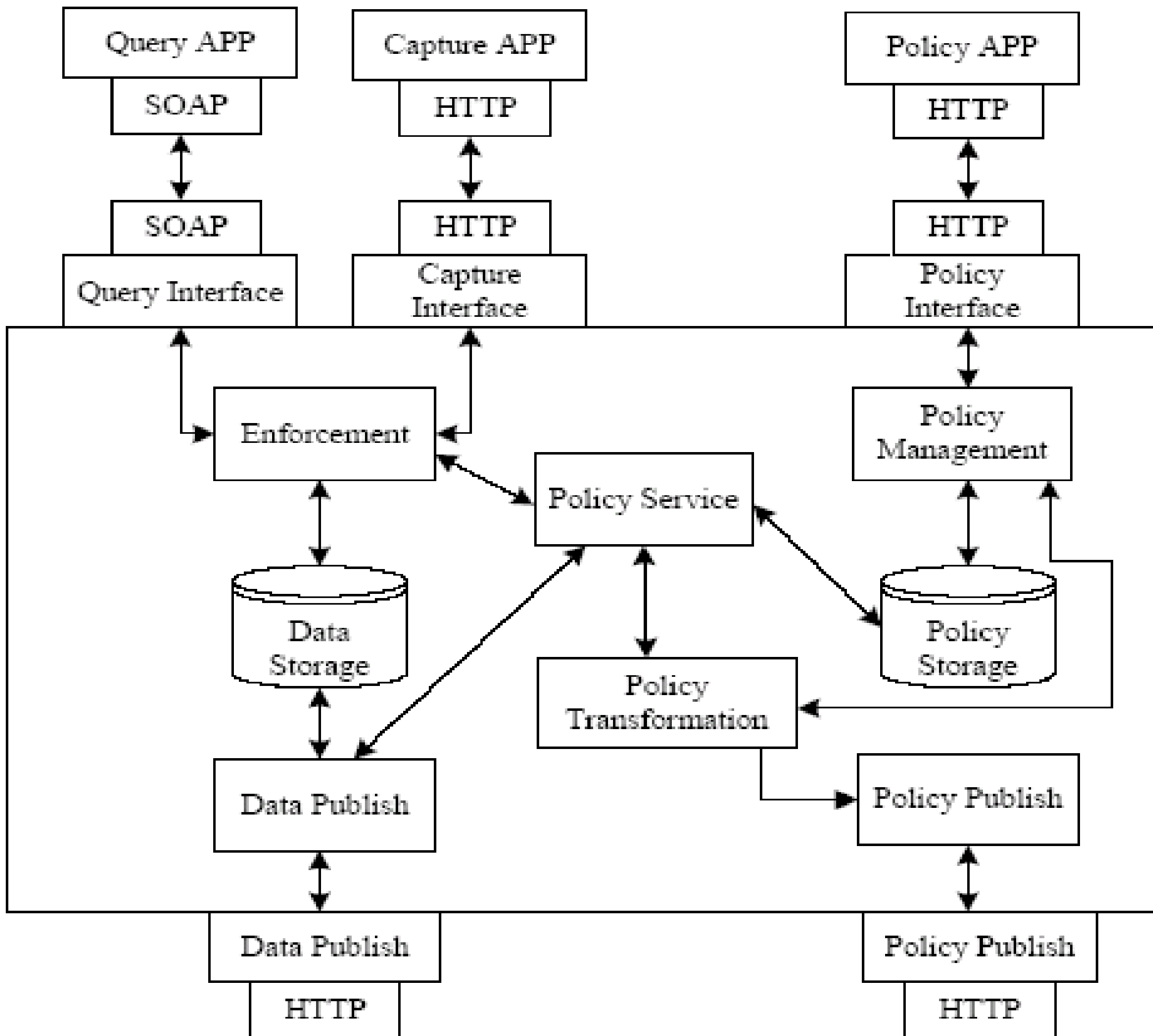


Functionalities of Secure EPC-IS

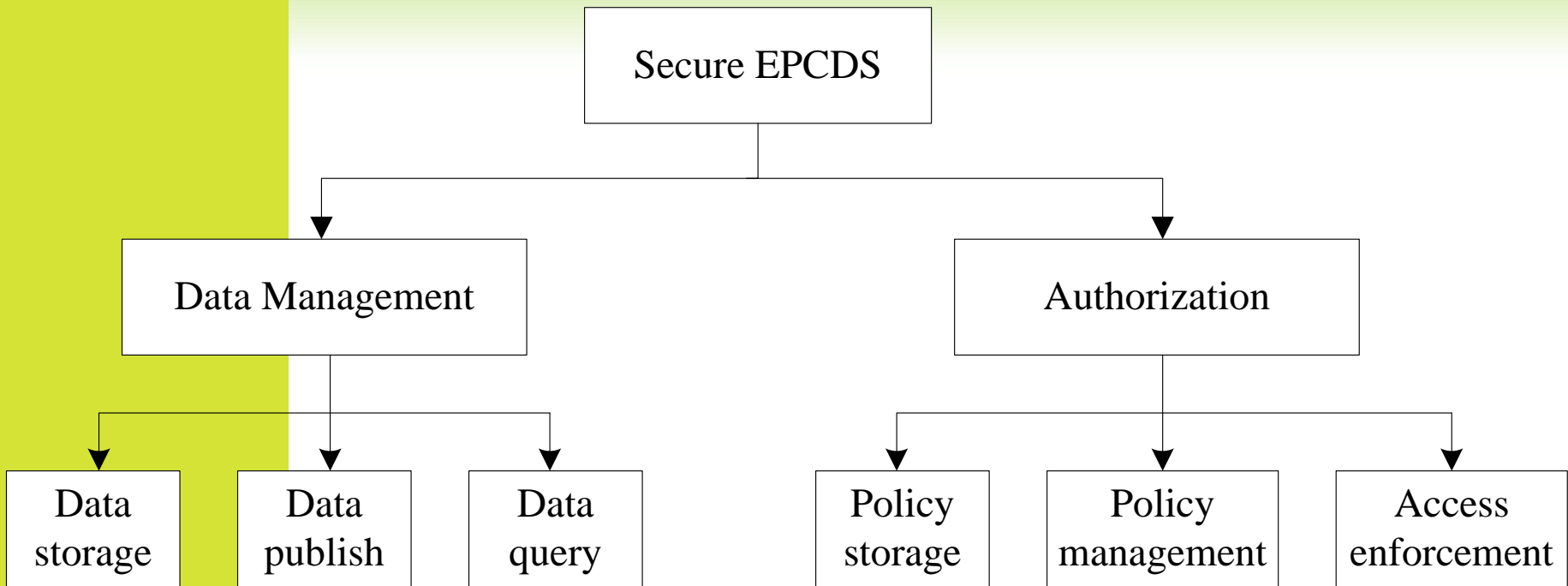


Architecture of Secure EPC-IS

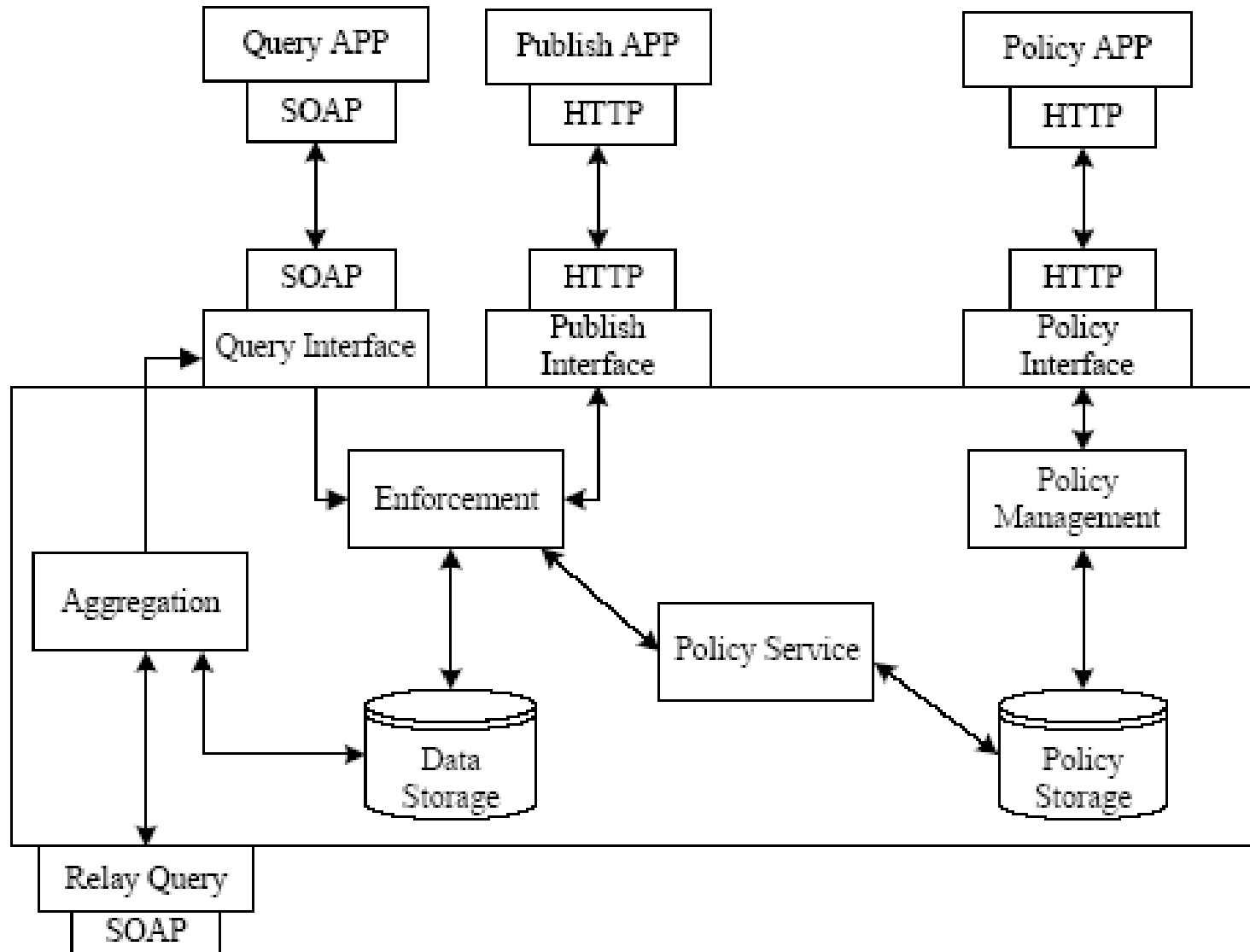
EPC-IS



Functionalities of Secure EPC-DS



Architecture of Secure EPC-DS



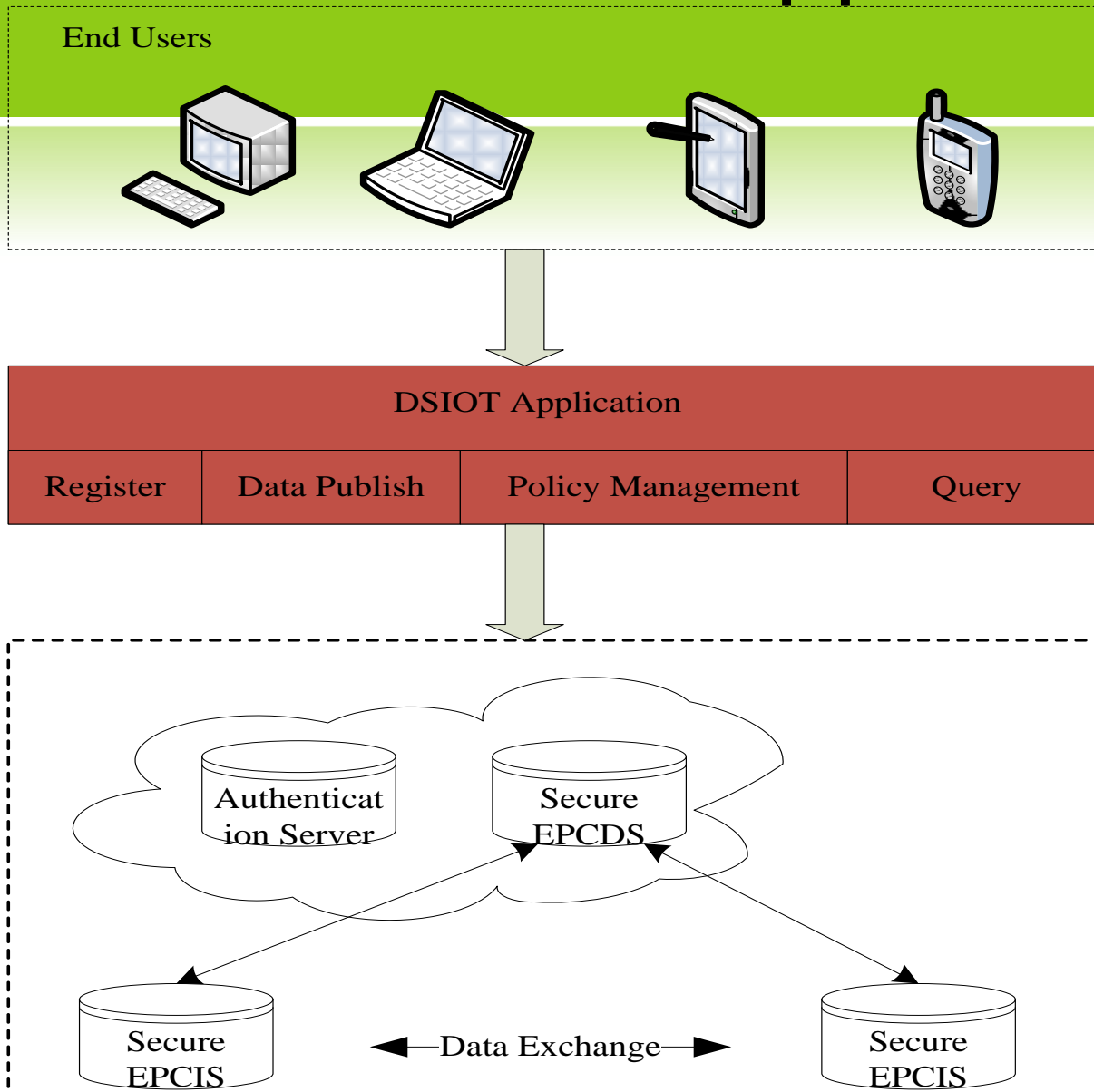
Implementation

- ③ Implement EPC-DS system following our design
- ③ Extend EPC-IS system (Fosstrack) to Secure EPC-IS system
- ③ Support attribute-based access control (CODASPY 2012)

DSIOT Web Application

- ③ DSIOT (Discovery Service for Internet of Things)
 - User Register
 - Data Publish
 - Policy Management
 - Data Query

DSIOT Web Application



DSIOT Web Application

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dsiot.com

dsiot.com

Google

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▼ Dashboard

- ▼ Discover and Trace
 - ▶ Publish
 - ▶ [Query](#)
 - ▶ LW Publish
 - ▶ LW Query
- ▼ User Management
 - ▶ DSIOT User Administrator
 - ▶ Company User Administra
 - ▶ Manage User Permission
- ▼ Policy Management
 - ▶ Create Policy
 - ▶ Delete Policy
 - ▶ Manage Chain
 - ▶ Policy for Dynamic Chain

Basic Search

urn:epc:id:sgtin:0057000.678930.5004

Query Results

EPC	Event Time	Biz Step	Disposition	EPC Parent	Aggregation Action	URL
urn:epc:id:sgtin:0057000.678930.5004	8/20/2006 1:03:51 PM				DELETE	http://10.4.12.8:8090/epcis-repository-0.5.0/query/
urn:epc:id:sgtin:0057000.678930.5004	8/20/2006 5:03:51 AM				DELETE	http://demo.fosstrak.org/epcis/query

Conclusions

- ③ Introduce EPCglobal Network Services
- ③ Design secure prototype For EPCglobal Network Services
- ③ Implement DSIOT web application

THANK YOU !