Naming Architecture for Object to Object Communications

<draft-lee-object-naming-01.txt>

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History of activities on object naming

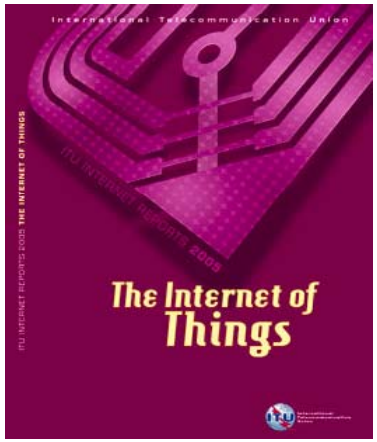
- **Previous document (HIP extensions for object to object communications)**
  - Presented the necessity of object to object communications
  - Introduced ITU-T's activities
  - Discussed several technical issues including security
  - Specified protocols for HIP extension
- **Document on object naming (01 version)**
  - Explains the concept of object to object communications and describes naming issues for object identification.
  - Provides the naming architecture according to mapping relationships between host and object(s).
  - Considerations of protocols for naming object are specified

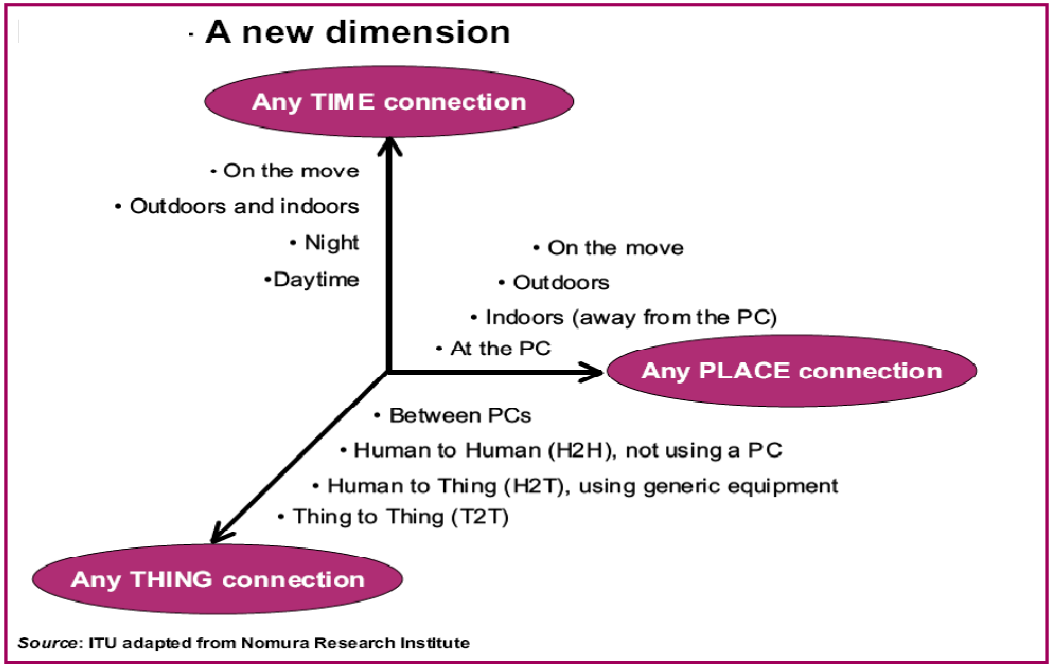
Ubiquitous connectivity

Ubiquitous Computing + Ubiquitous Connectivity

Internet of Things

Web of Things





ITU-T Y.2002
Ubiquitous Networking
Object to Object communications

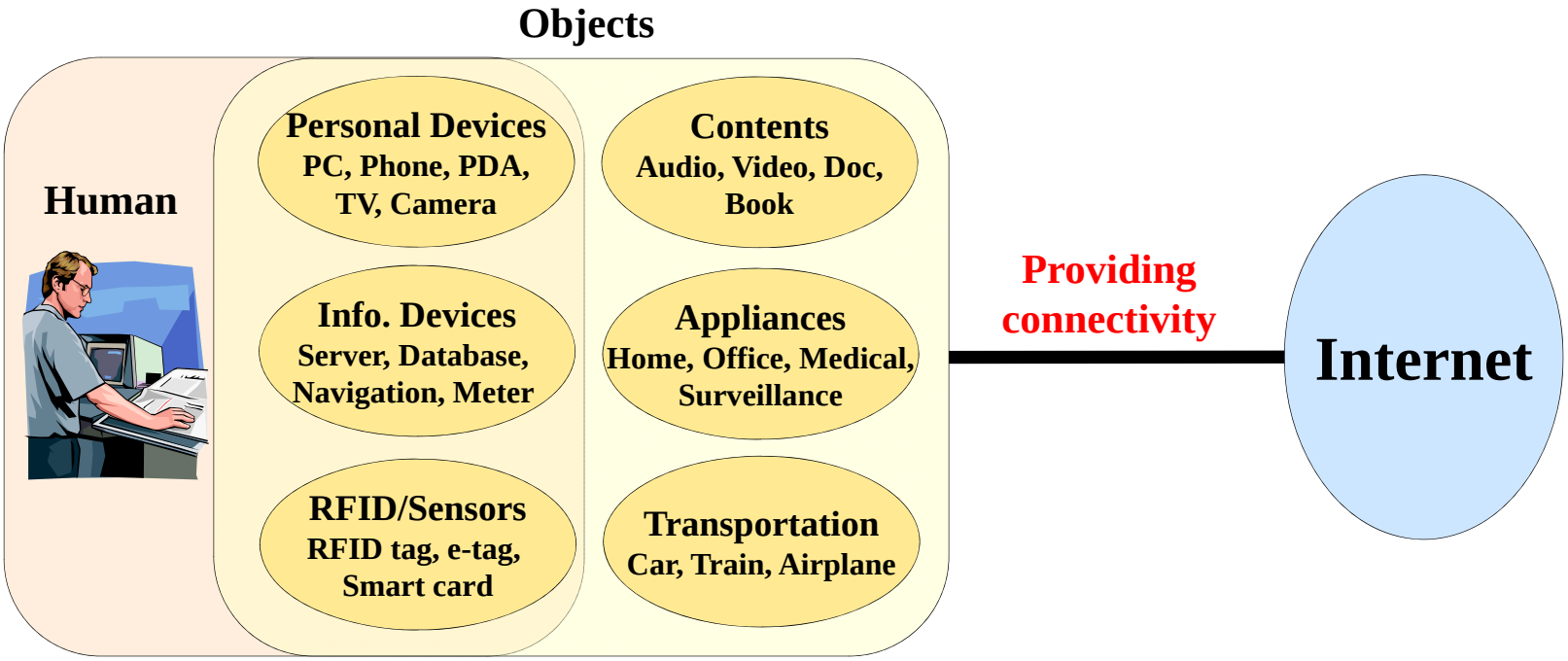
The concept of object

❒ Objects

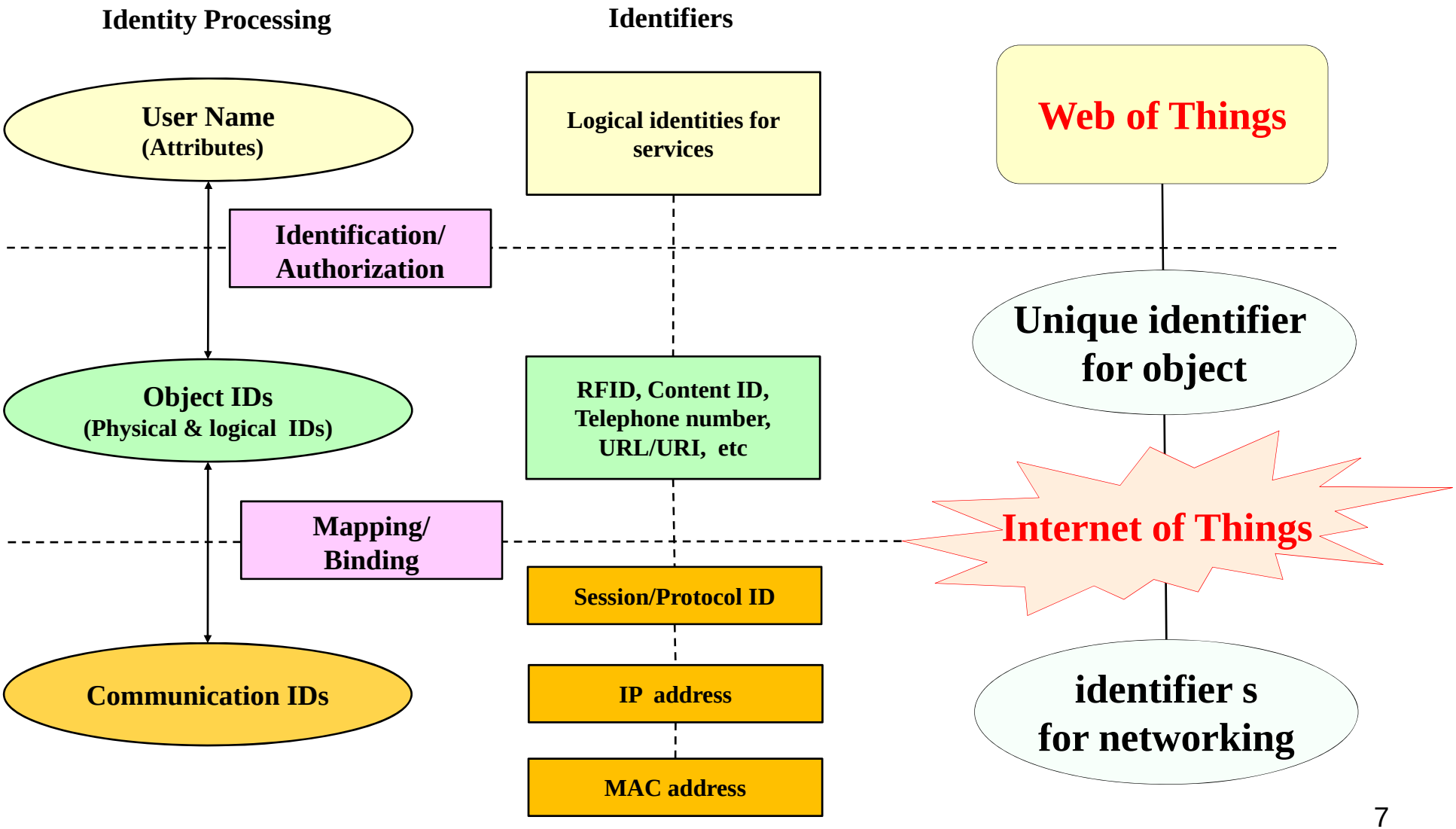
- include terminal devices (e.g. used by a person to access the network such as mobile phones, Personal computers, etc), remote monitoring devices (e.g. cameras, sensors, etc), information devices (e.g. content delivery server), products, contents, and resources.

Ubiquitous connectivity vs. object

- **How to identify object to provide "connecting to anything"**
  - To develop "object identity protocol"

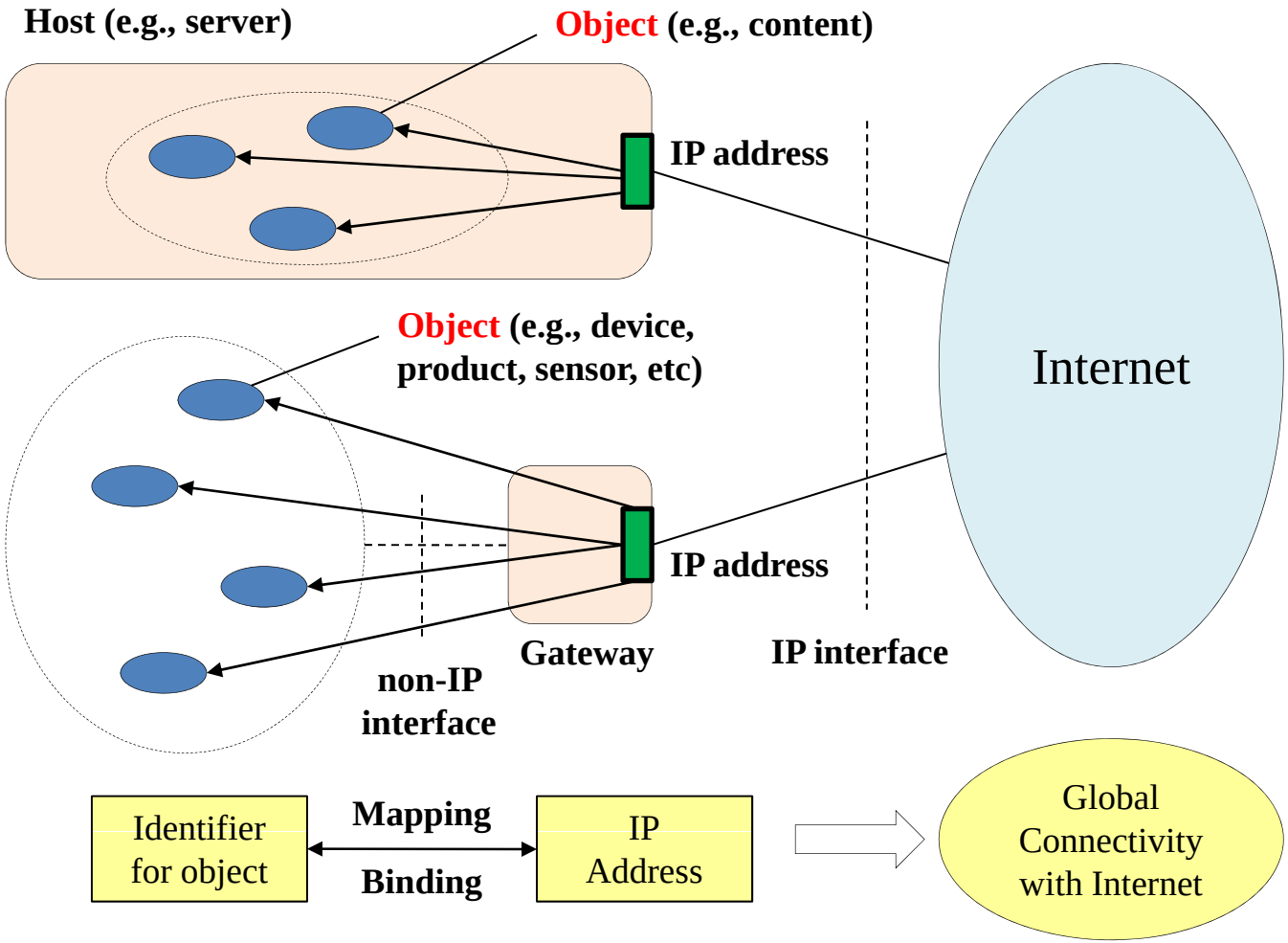


Layered architecture for identity processing



Conceptual diagram for providing connectivity to objects

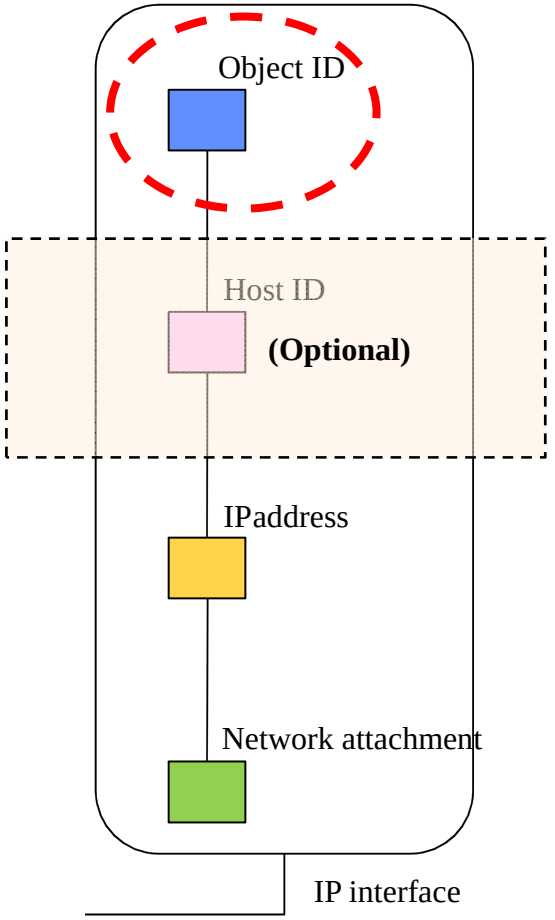
- Consider relationship between host and object



Object mapping – extension of stack architecture

❒ Objects in a host

- New naming space for object
  - Object ID – Host ID – IP address
- Use object ID instead of Host ID
  - Object ID – IP address
- Security association with IP address

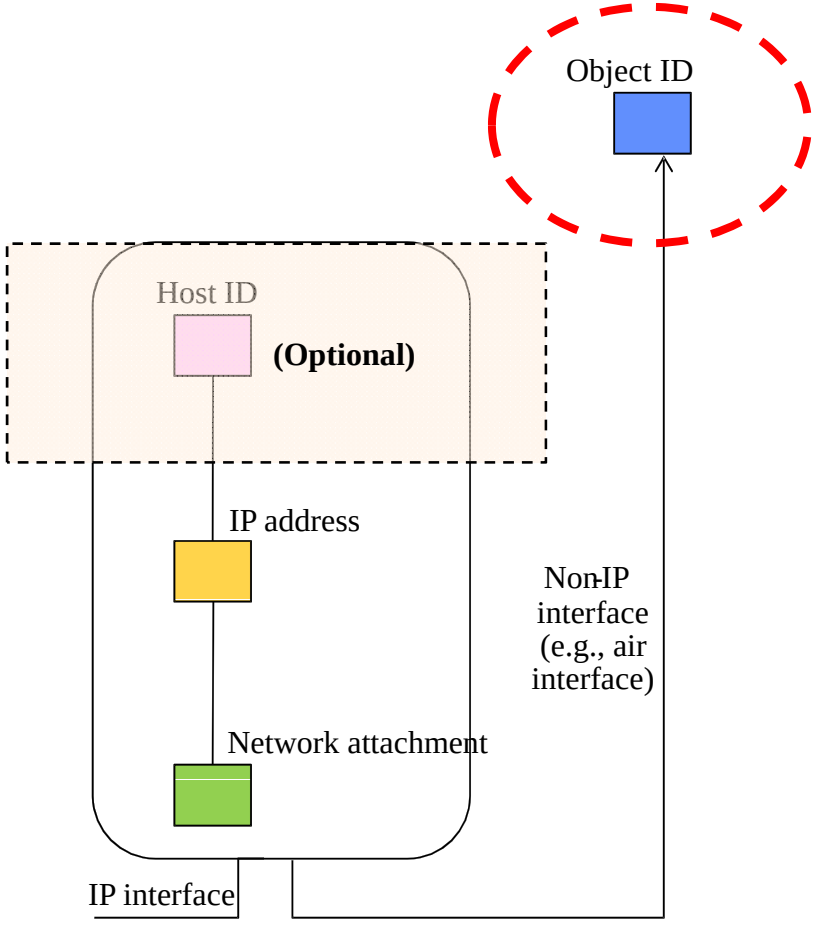


(a) Direct mapping (Objects in a host)

Object mapping – extension of stack architecture

❒ Remote objects

- How to associate Host with IP address and Object with air interface
  - IP address – remote object ID
- Security association



(b) Indirect mapping (remote objects)

Discussion Issues

- **Security**
  - Selectively support security associations
- **Interactions with naming systems**
  - DNS
  - ONS of EPCglobal
- **Relationship with ID/Loc separation**
  - , Host ID and locator + Extensible to object ID
- **Protocol development**
  - Reuse existing protocol vs. develop a new protocol

Next Steps

- **Future work on Internet of Things**
  - Proposal for RG item
    - Charter update: Development of solutions for object identification
    - Candidate documents
      - A new high-level architectural document
        - Decide a right direction for protocol development
      - Protocol solutions and mechanisms
  - Encourage these activities and invite experts as an editor
- **Q&A**