

IDENTITY MANAGEMENT FRAMEWORK FOR INTERNET OF THINGS



Parikshit Mahalle

pnm@es.aau.dk



SUPERVISORS

Dr. Neeli Rashmi Prasad
Supervisor
CTiF , AAU , Denmark

Prof. Ramjee Prasad
Co – Supervisor
CTiF , AAU , Denmark

Dr.Sudhir Dixit
Co - Supervisor
HP Labs , Bangalore
India

ORGANIZATION OF THE TALK

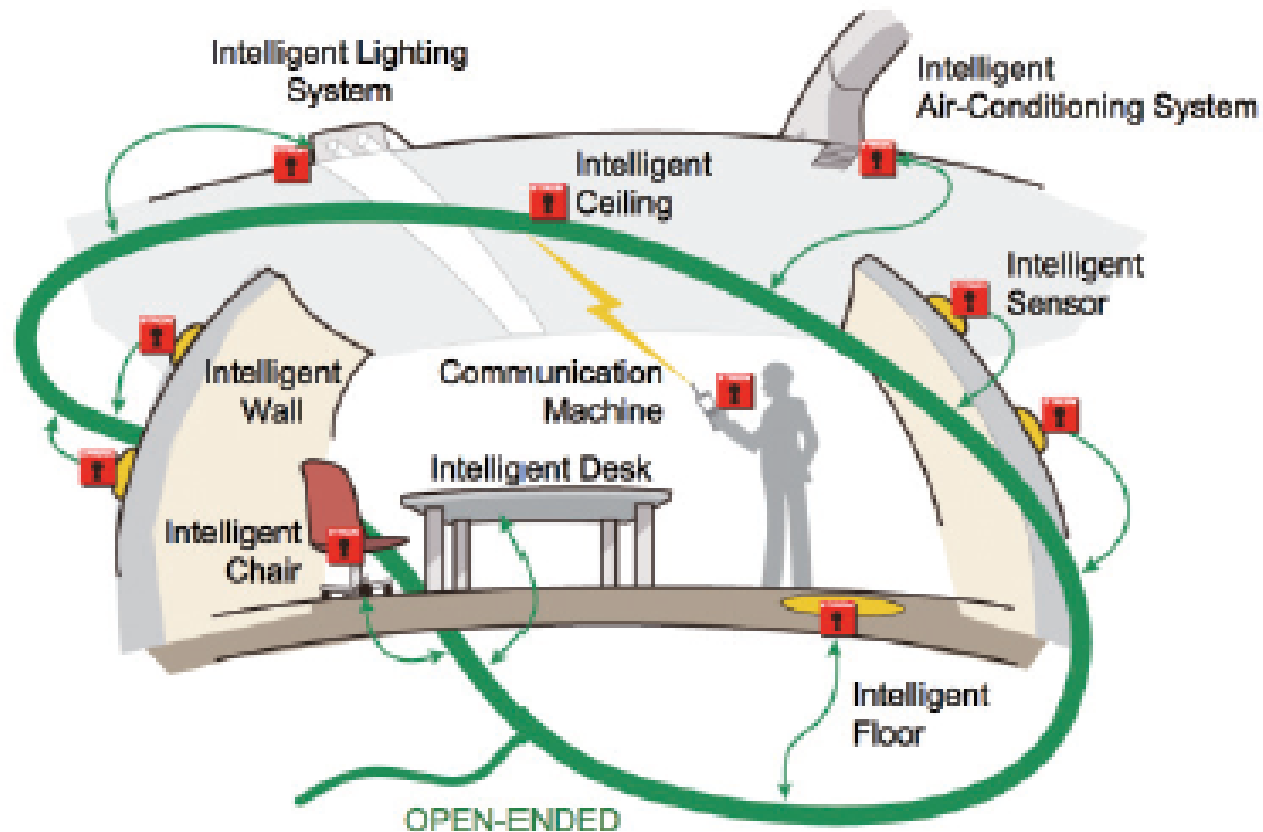
- Introduction
 - Background
 - IoT Scenario
 - Identity management in house of IoT
 - Key Issues
- Key Challenges
- Proposed Framework
- Towards Proposed Solution
- Conclusions and Future Work

INTRODUCTION

- New era of Information Communication, Technology (ICT) in future
 - Internet of Things : IoT
 - Wireless communication
 - New portable devices and applications
- Properties – Mobility, Wireless ,Embedded use, Diversity and Scale
- Challenge – Identity and Security to devices
- Key technology for security – New techniques & Architecture

IoT SCENARIO : INDOOR AND OUTDOOR

INDOOR



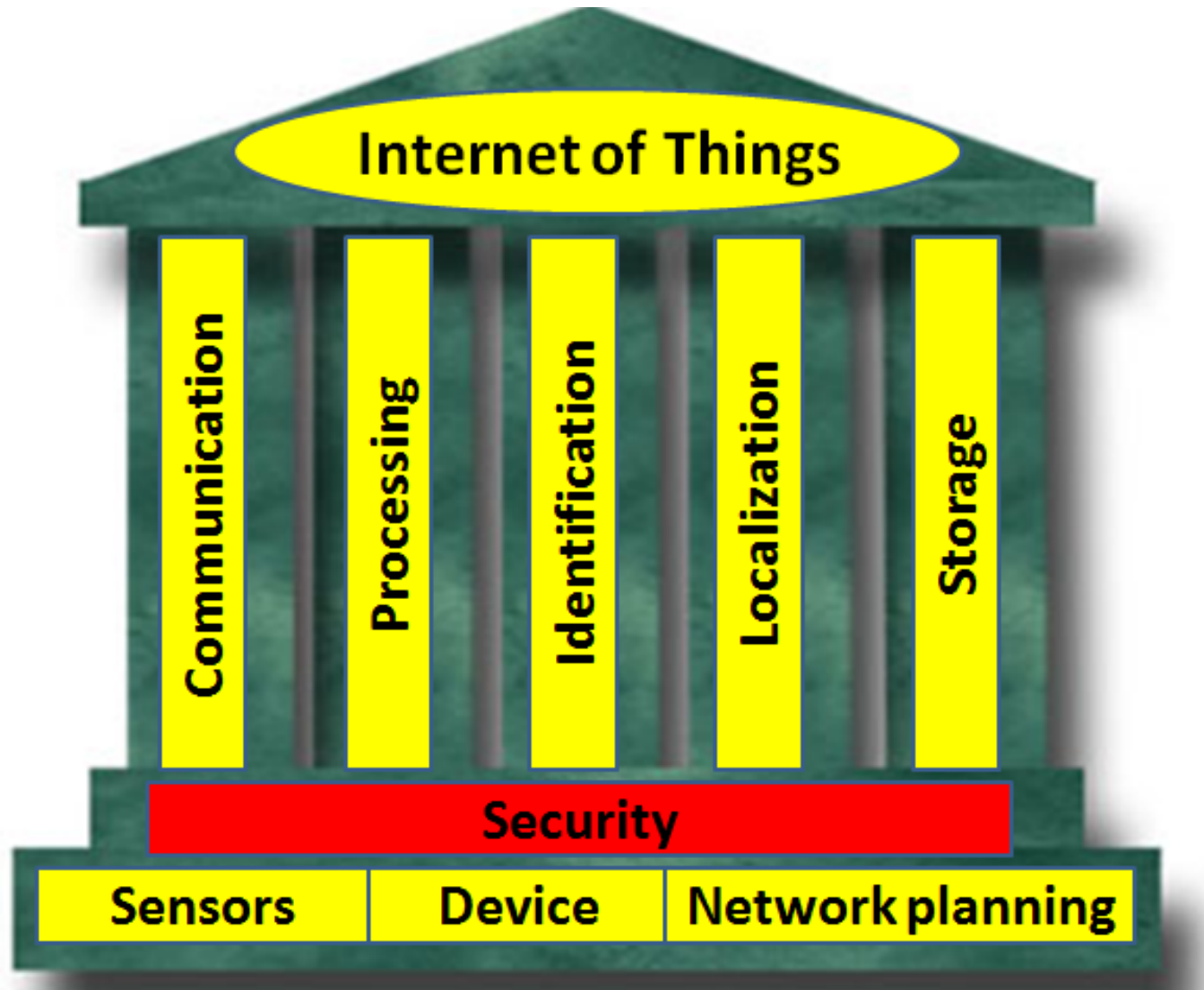
[Source : www.uidcenter.org]

OUTDOOR

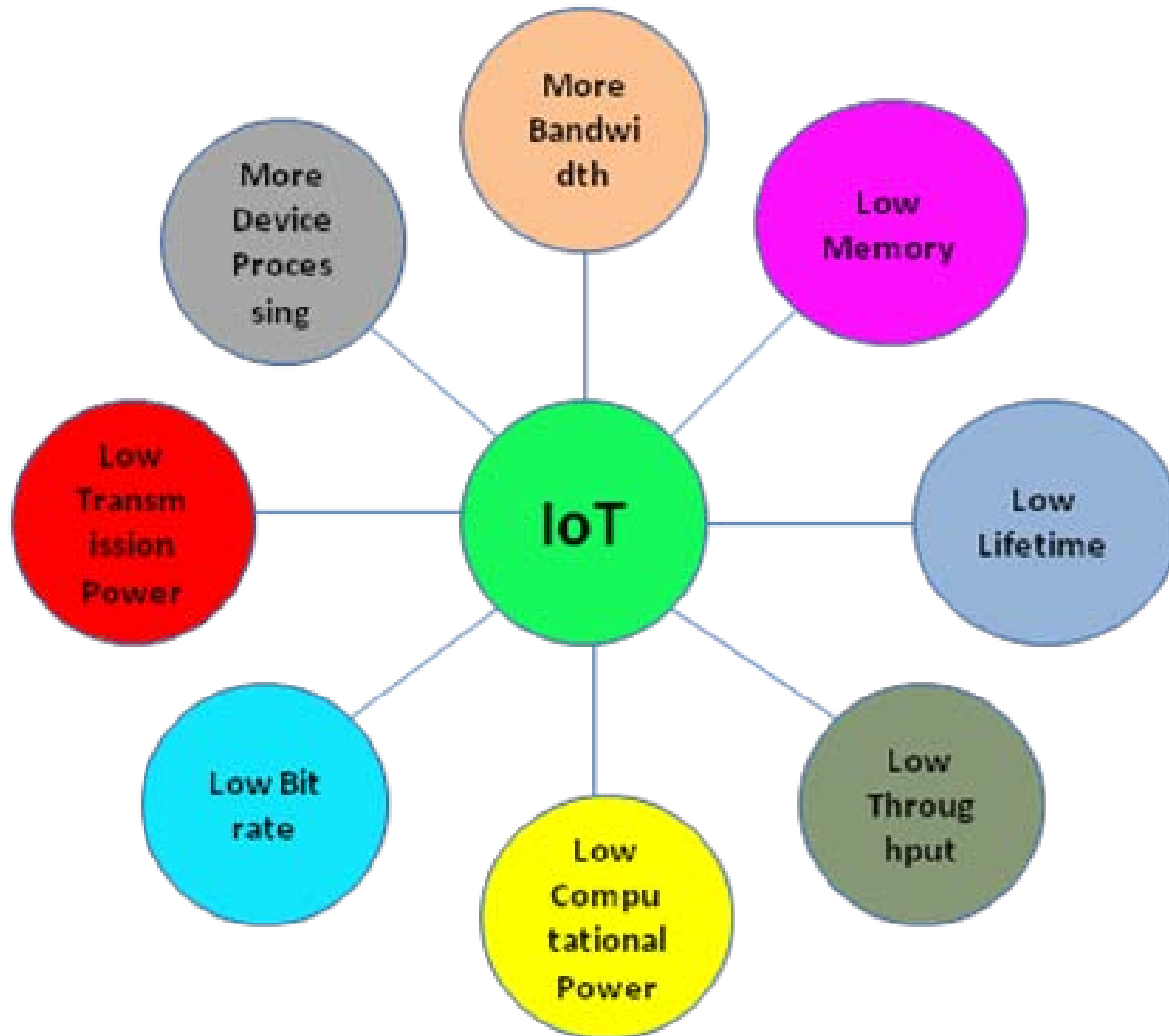


[Source : www.uidcenter.org]

HOUSE OF IoT



KEY DESIGN ISSUES



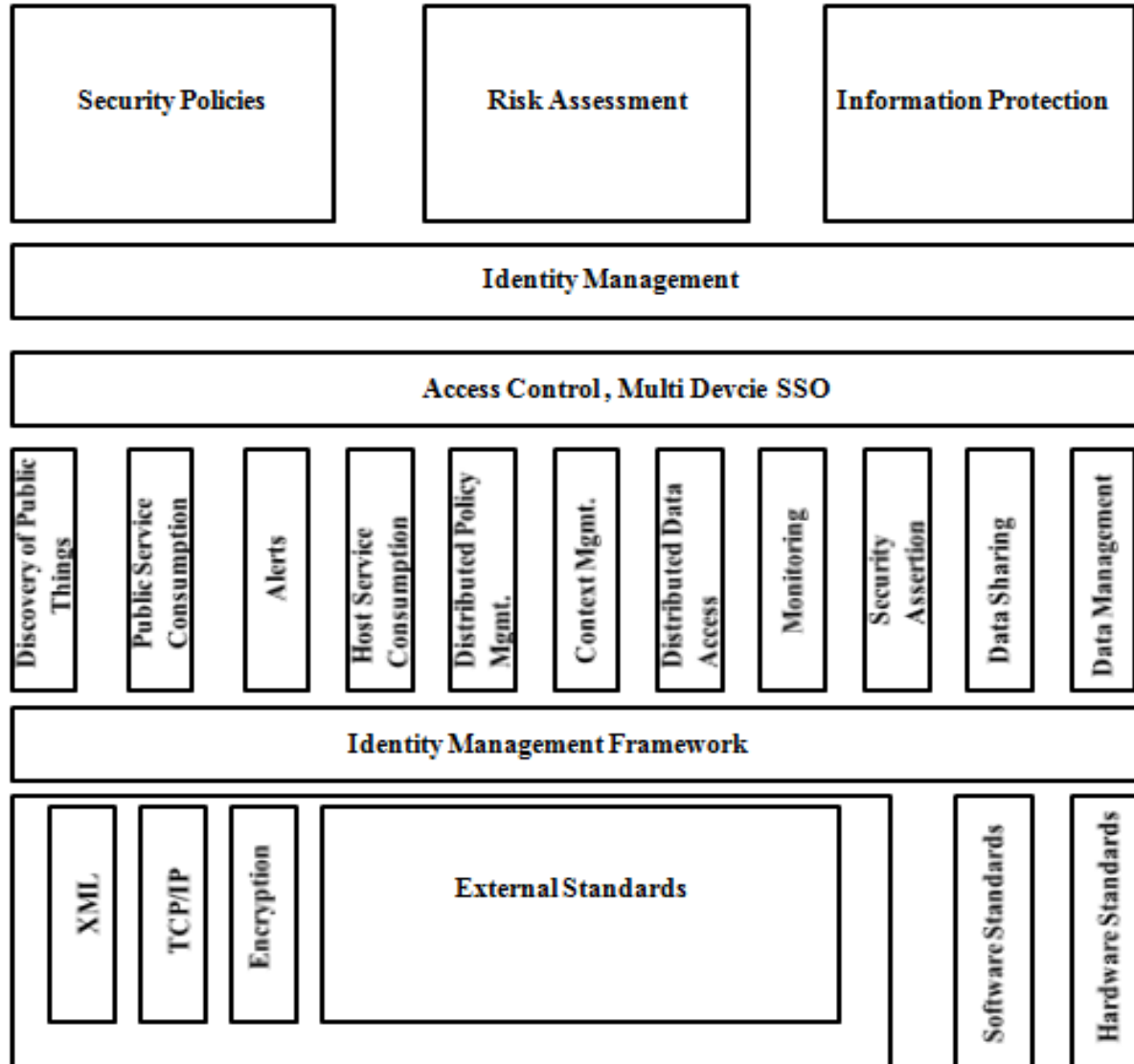
IDENTITY MANAGEMENT

- Identity of things : Authentication ,Authorization and Access control

KEY CHALLENGES

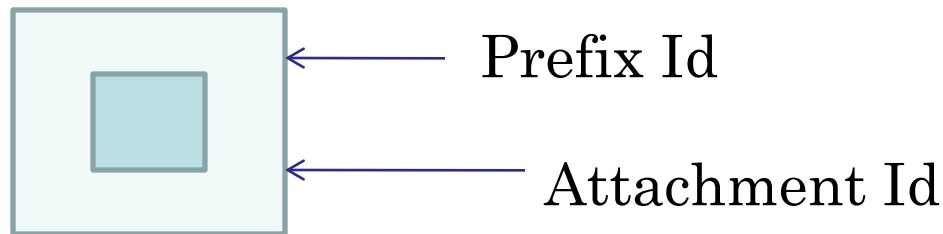
- Naming and Addressing that holds Identity
- Discovery and Binding
- Management of Implicit Names
- Privacy
- Context based Authentication
- Multi Device Single Sign On

PROPOSED FRAMEWORK



TOWARDS PROPOSED SOLUTION

- Investigating Hierarchically Encrypted Addresses in which different levels can be hidden from different parties
- Example : two level address hierarchy comprised of *prefix id* and *attachment id* within prefix id



- Prefix Id has global meaning and Attachment Id has local meaning

CONTD..

- Cryptographic mechanism for protecting privacy of searches , responses and beacons
- Naming mechanism and multiple levels of name resolution
- Developing a system to dynamically measure the level of privacy provided by devices

CONCLUSIONS AND FUTURE WORK

- Need of lightweight, hybrid IdM with device identity , multi device SSO and many to many authentication
- Generic interoperable framework with privacy , authorization and secure discovery
- Proposal for Naming and Addressing
- Design and Implementation

Thank You

