

No Purpose – No Data: Goal-Oriented Access Control for Ambient Assisted Living



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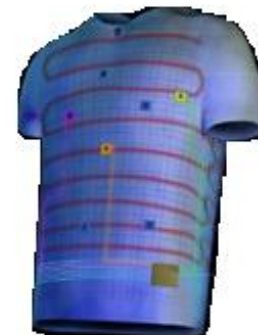
This work is partially supported by EU committee with grant of

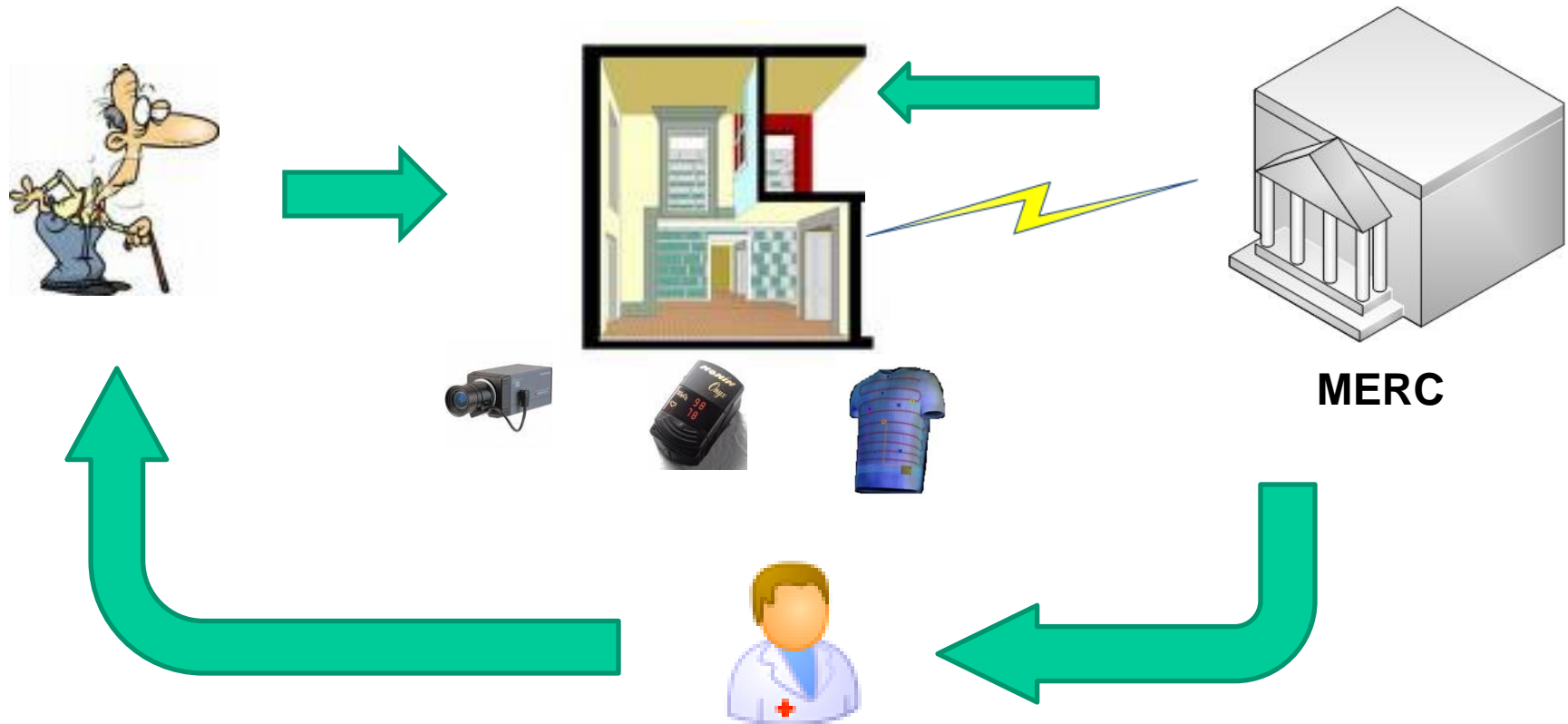




- Ambient Assisted Living (AAL)
- Demo
- Goal-oriented Role Based Access Control
- Summary

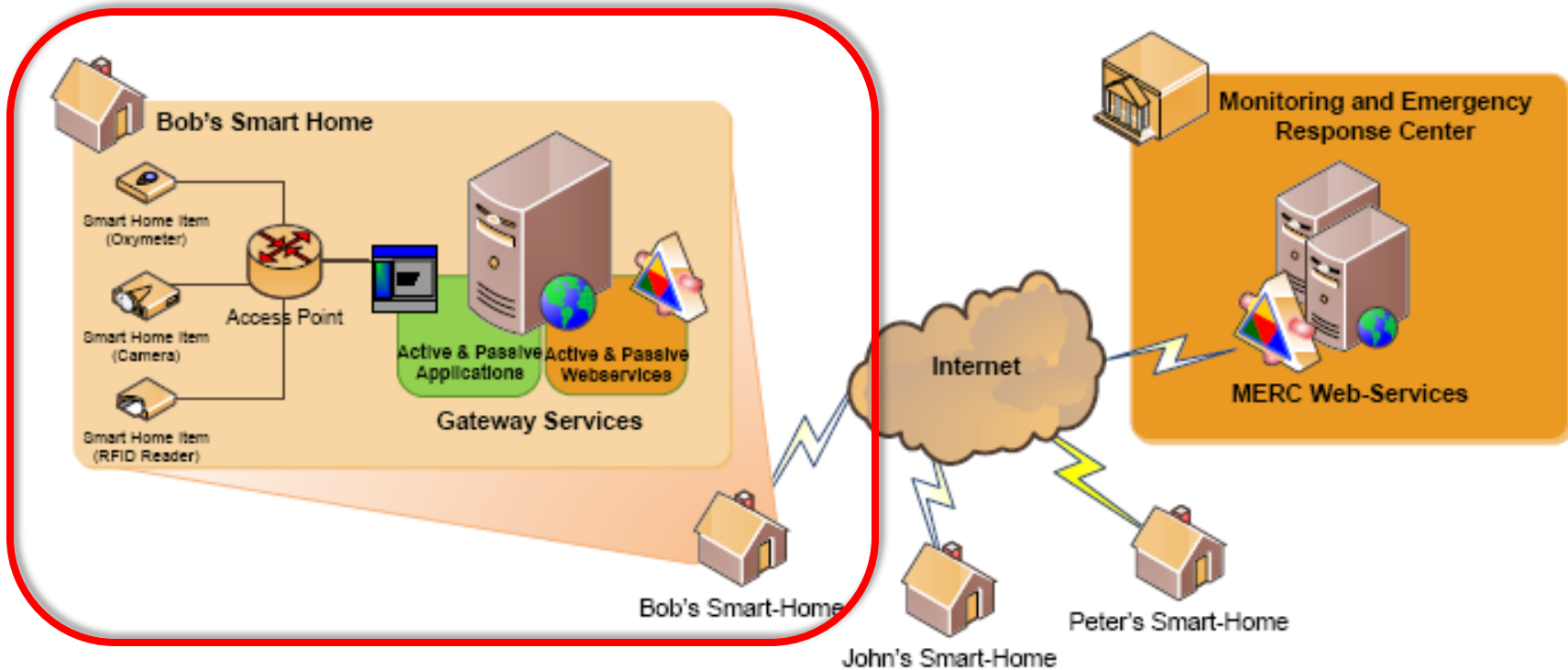
- AAL is a home environment enhanced with embedded technologies
 - Cameras
 - Oximeter
 - Smart T-shirt
 - ...





- We do not want our medical data out unless it serves some purposes: **privacy requirement**
- We want to be monitored even if one of monitor devices fails: **dependability requirement**

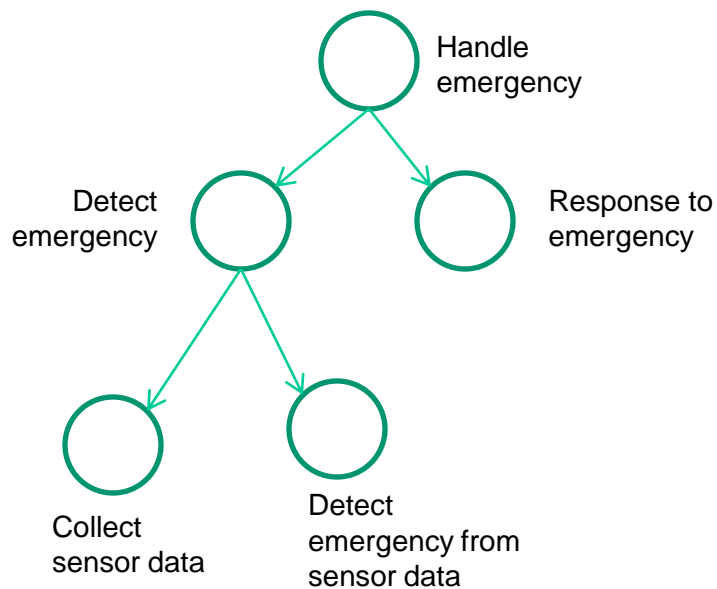
Smart-Home prototype



Video demo



- Organizational Model
 - Goals, Actors



Smart Home

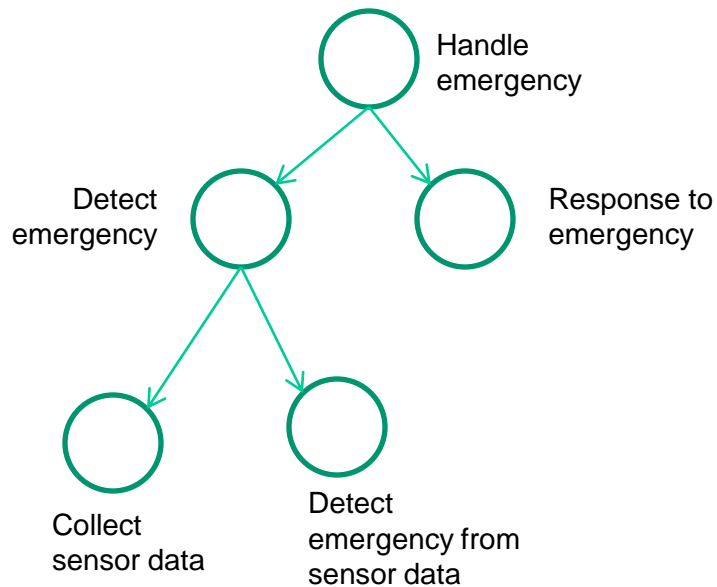


Sensor
Manager



Camera
Handler

- Organizational Model
 - Goals, Actors, **Goals-to-Actors assignment**



Smart Home

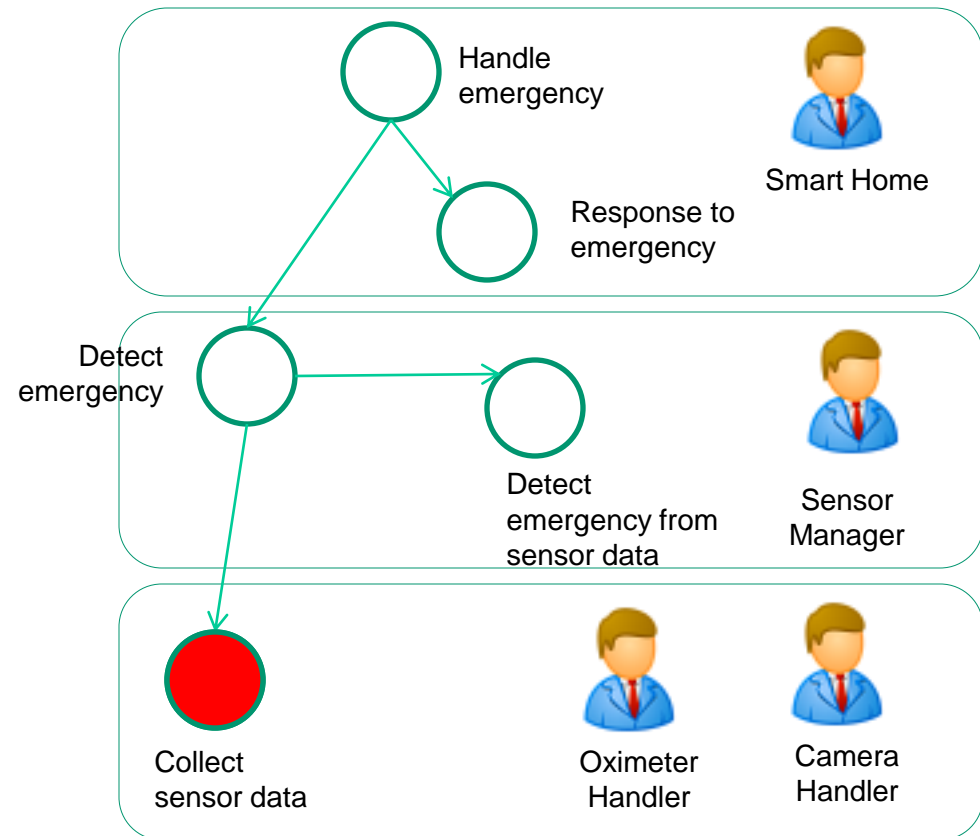


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Camera
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- Organizational Model
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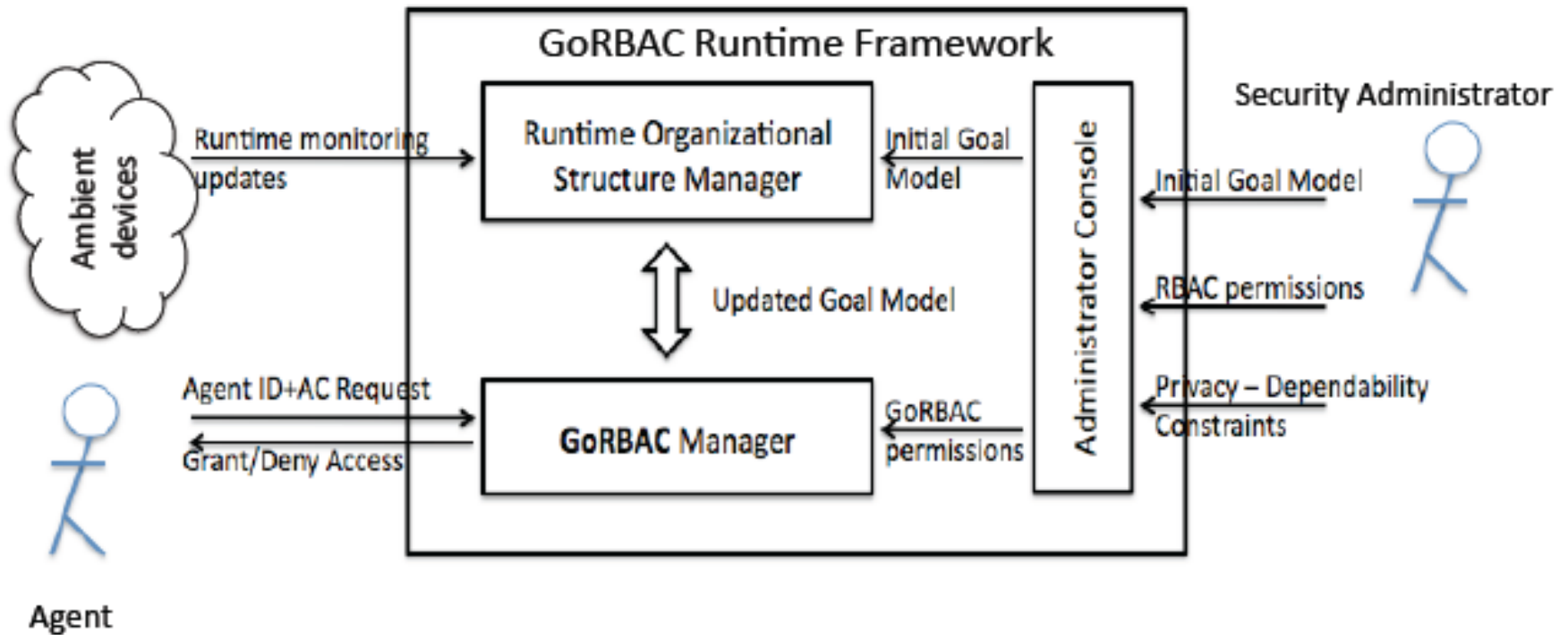




Goal-Oriented Role-Based Access Control

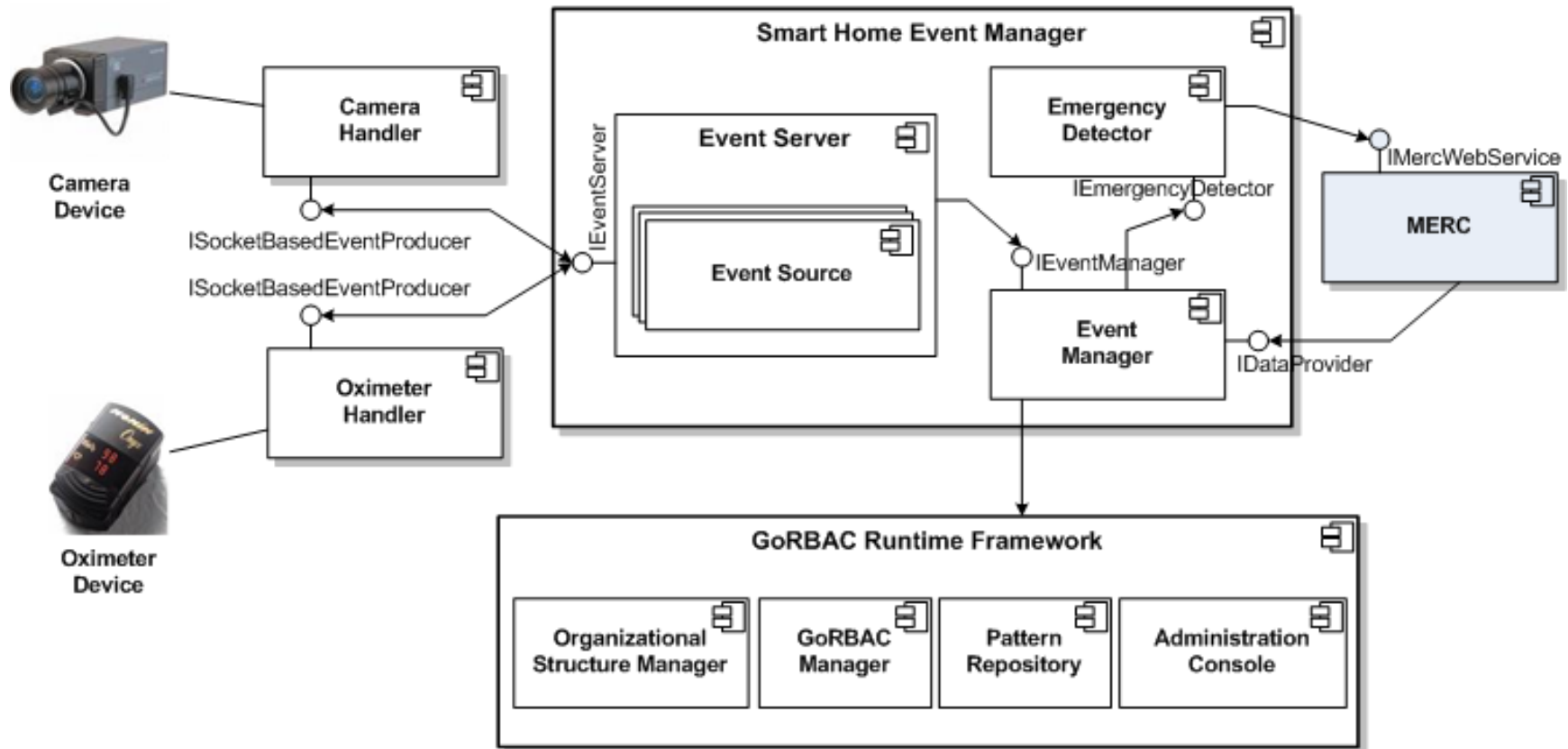
- Organizational model
 - Privacy goals
 - E.g., MERC wants to check out **medical data** for monitoring purpose
 - Critical goals
 - E.g., Access monitor devices' data in an **emergency**
 - Normal goals
- Access control strategies
 - Privacy setting
 - Privacy resources are accessed by authorized agents **if and only if** it is **needed**
 - Dependability setting
 - The derived permissions of all sub goals' resources are released **once** the user is authorized to fulfill the top goal
 - Normal setting

GoRBAC Architecture





Prototype Architecture





- AAL security challenges
 - Privacy requirement
 - Dependability requirement
- GoRBAC for AAL applications
 - Privacy strategy
 - Dependability strategy
 - Normal strategy
- Smart-Home prototype

<http://www.disi.unitn.it/~massacci/Download/SERENITY-MPEG.mpg>

Thank you



QUESTIONS ?