CISTER - Research Center in
Real-Time & Embedded Computing Systems

Cyber-OF : An adaptive cyber-physical OF for smart cities applications

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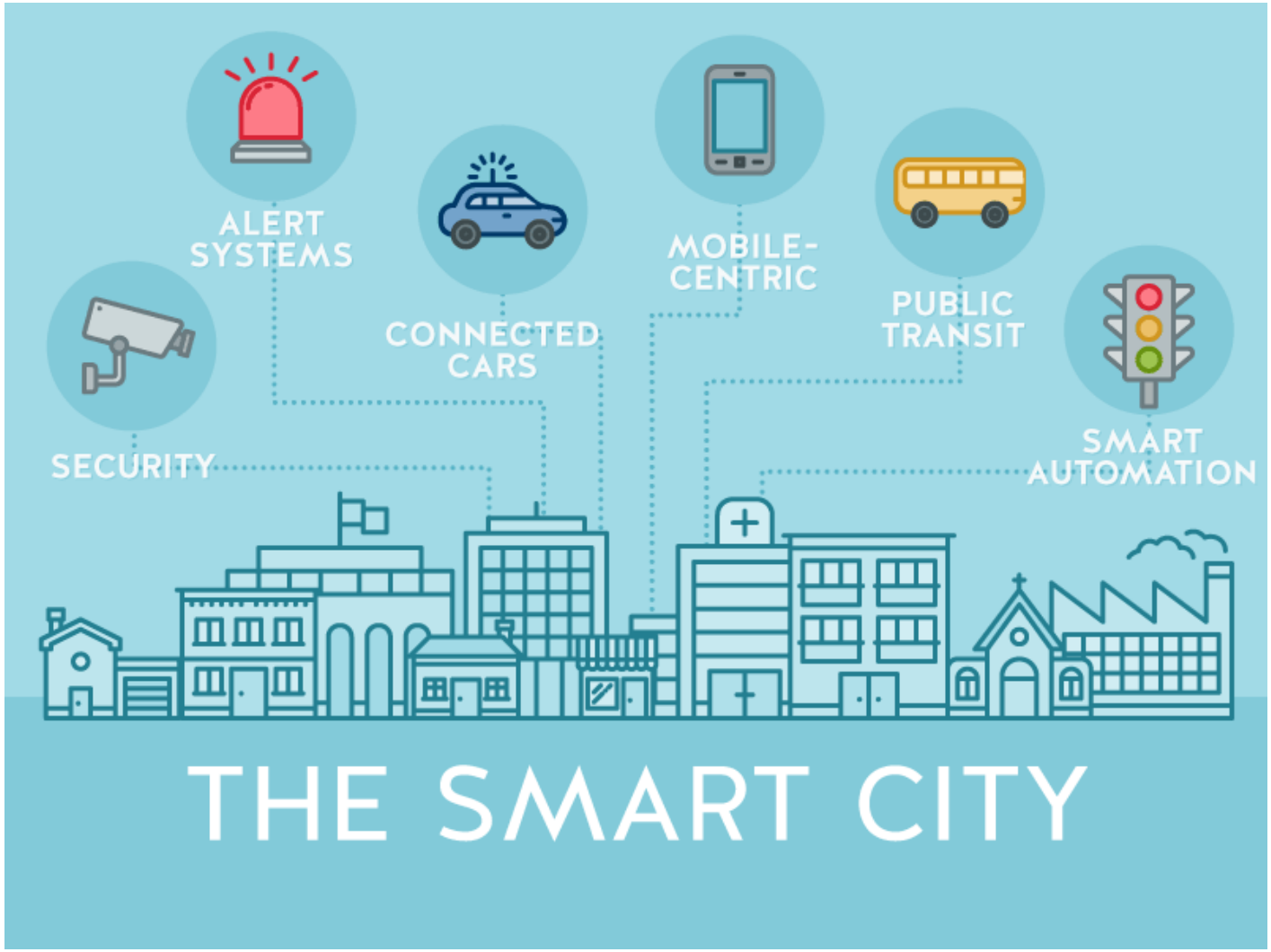
Context

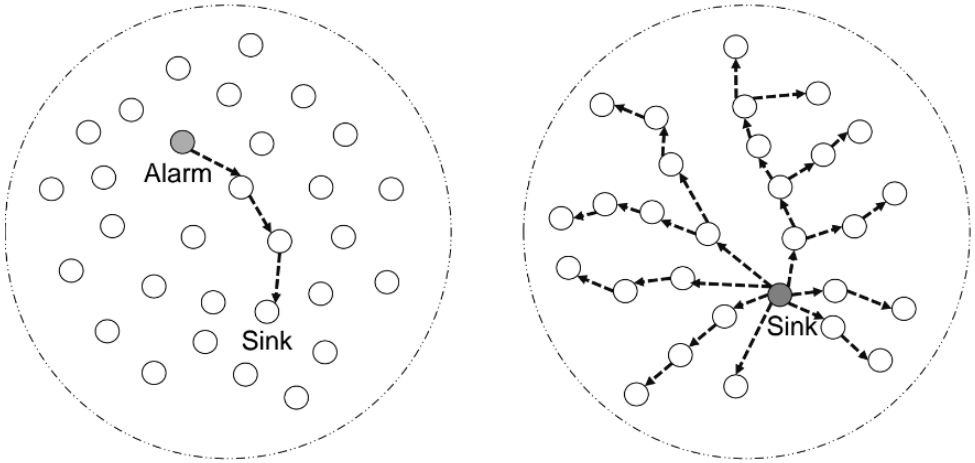

ALERT SYSTEMS
CONNECTED CARS
MOBILE-CENTRIC
PUBLIC TRANSIT
SECURITY
SMART AUTOMATION
THE SMART CITY

Motivation

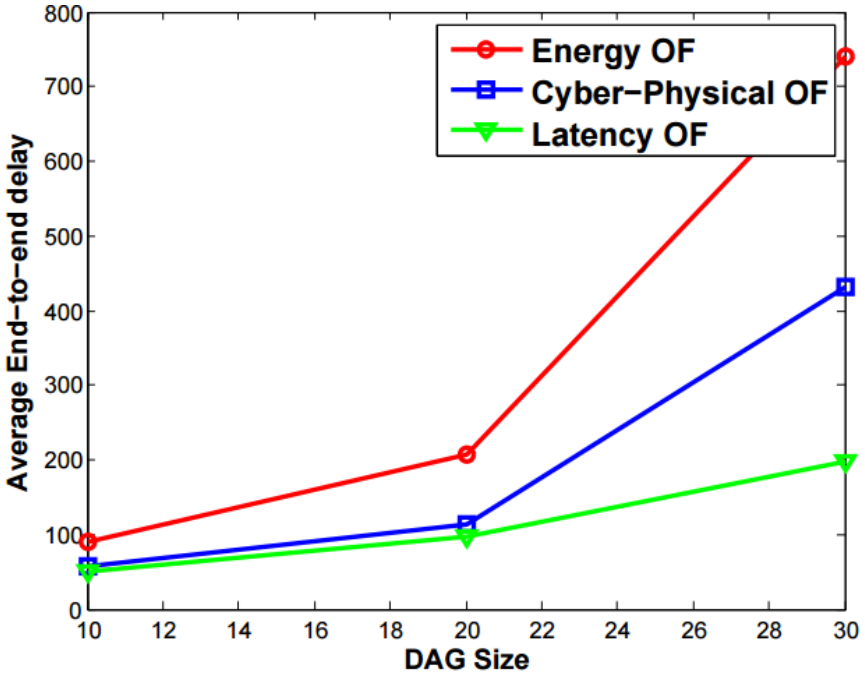
- Existing RPL-based sensor network are non adaptable to the Cyber-Physical properties of the environment.
  - Smart cities critical events :

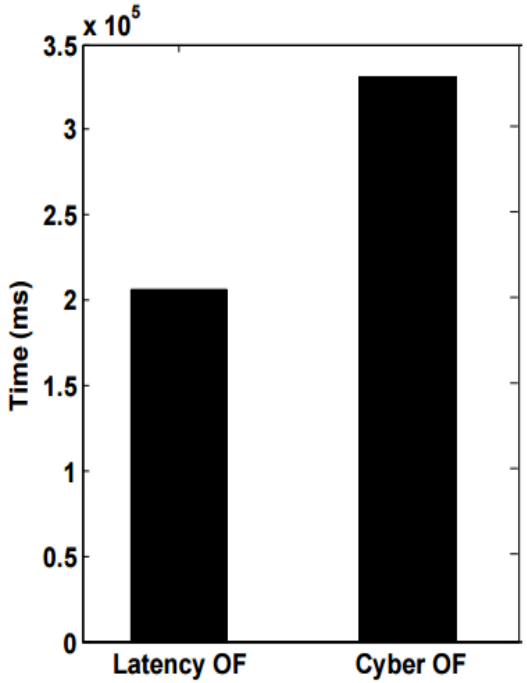
Solution

- Design an Objective Function that :
  - Adapt the network tree structure according to cyber-physical properties of the environment.
  - Improve QoS when critical events are detected



Preliminary results





Future work

- We plan to store two parent candidates in the sensor to speed up the advertisement of the alarm. One is used when a critical event is detected and the other is used in normal conditions.

- The energy metric will be combined with other metrics in order to guarantee an acceptable QoS in the presence of a disaster or in normal conditions.

Thank you ☺