**RAPID**

Heterogeneous Secure Multi-level Remote Acceleration Service for Low-Power Integrated Systems and Devices

Foundation for Research and Technology Hellas, Sapienza University of Rome, Atos Spain S.A., Queen's University Belfast, Herta Security S.L., SingularLogic S.A., University of Naples "Parthenope"

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**Mobile Acceleration**

**Remote Offloading**

- **Diversity of Resources**
  - Cons using devices as accelerators
  - Cons using clouds as accelerators

- **Pros using devices as accelerators**
  - Remotely Accessible: high
  - Performance: high
  - Communication Energy: high
  - Acceleration Cost: high
  - Network Latency: high

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**Broad Design Space: Plenty of scenarios**

- Nowadays almost any Entity can be accelerated and/or act as an accelerator
- Acceleration Chaining

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**Main Components of RAPID**

- **Directory Server**
  - Registration (1) and search (2) of Entities
- **Acceleration Client**
  - Find nearby accelerators (2,3)
  - Decide which tasks to accelerate (4)
- **Acceleration Server**
  - Execute incoming tasks locally (5) or offload them remotely (6) (chaining)

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**Example Applications**

- **Kinect 3D hand tracking**
  - GPU-based 3D tracking of human hands
- **BioSurveillance**
  - Multiple face recognition

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