

## Contact

Iakovos Mavroidis, FORTH

✉ jacob@ics.forth.gr

[www.rapid-project.eu](http://www.rapid-project.eu)



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UNIVERSITÀ DI ROMA

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Queen's University  
Belfast

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

# RAPID

Accelerate your world

## ABSTRACT

RAPID targets a novel heterogeneous CPU-GPU multi-level Cloud acceleration focusing on applications running on embedded systems of low-power devices.

The project takes advantage of abundant mobile computation power and ubiquitous high-speed networks to provide a distributed heterogeneous acceleration infrastructure that can change the future of mobile applications.

## OBJECTIVES

- Development of a secure unified model where almost any device or infrastructure can operate as an accelerated entity and/or as an accelerator.
- Development of a registration mechanism which permits the accelerated entity to automatically find and connect the nearby accelerators.

## SOLUTION

- **Acceleration Client:** runtime library used to find nearby accelerators and decide whether a task must be executed locally or offloaded remotely.
- **Acceleration Compiler:** compiler that bridges the gap between the RAPID Programming Model and the Acceleration Client.
- **Acceleration Server:** piece of software that executes incoming tasks (Plain) or forwards them to another suitable Server (Enhanced), returning the results.

## IMPACT

- RAPID will create new innovation opportunities to service providers by introducing Acceleration as a Service.
- RAPID opens the door of GPU-based computation in the Cloud.

*Within the RAPID project the first Public Acceleration Cloud service will become available and commercially exploitable!*