

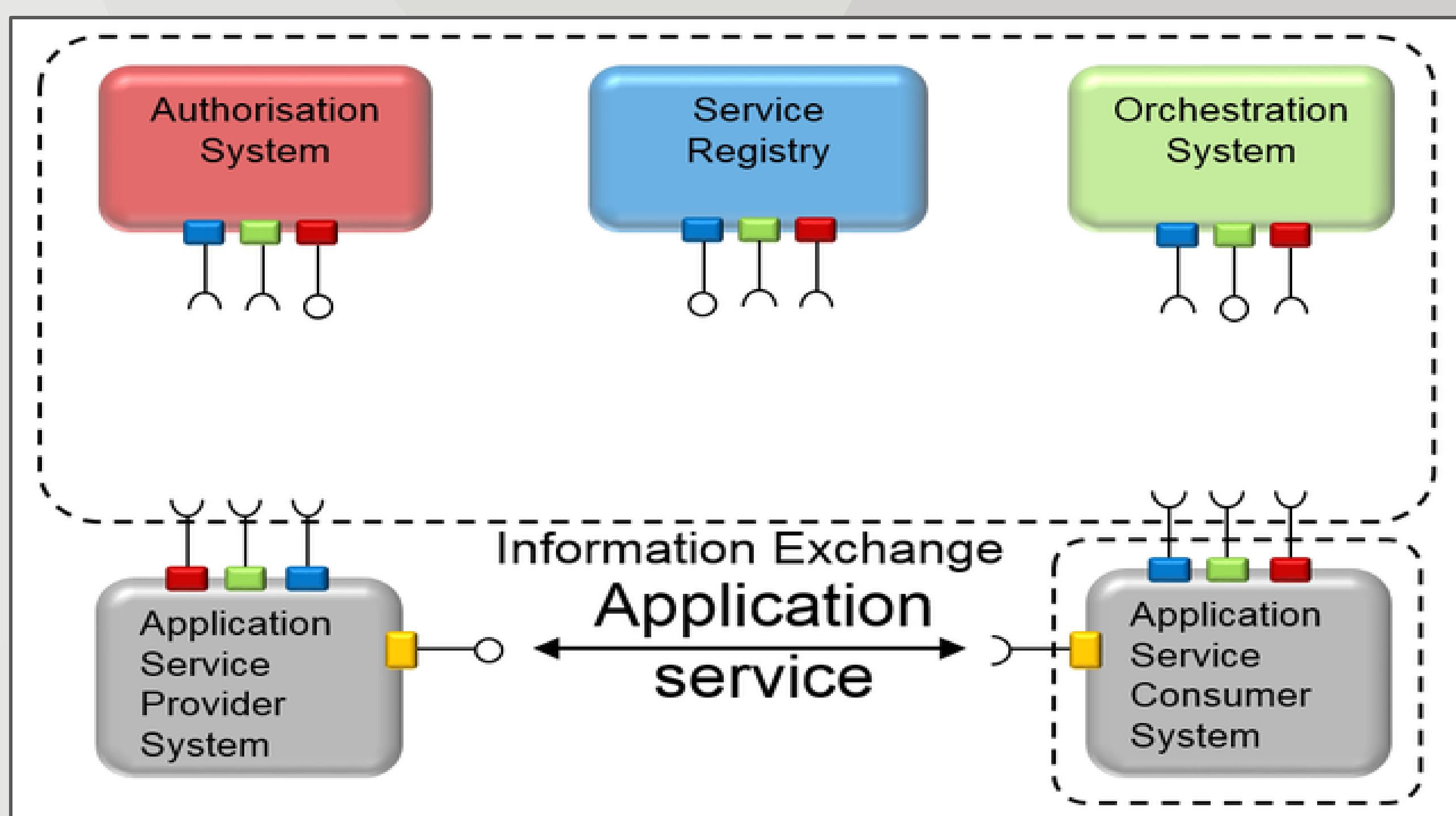
FlexHousing: Flexoffer concept applied to house energy automation

Objectives

- Creation of a pilot application for the application of the flexoffer concept to smart housing
- Integration of external technologies within the Arrowhead Framework.

Arrowhead Framework

- A Service Oriented framework for IoT automation applications
- Core system:
 - Authorization: authenticates and authorizes connections between consumers and producers
 - Orchestration: defines connections according to a specific criteria
 - Registry: allows to discover producers

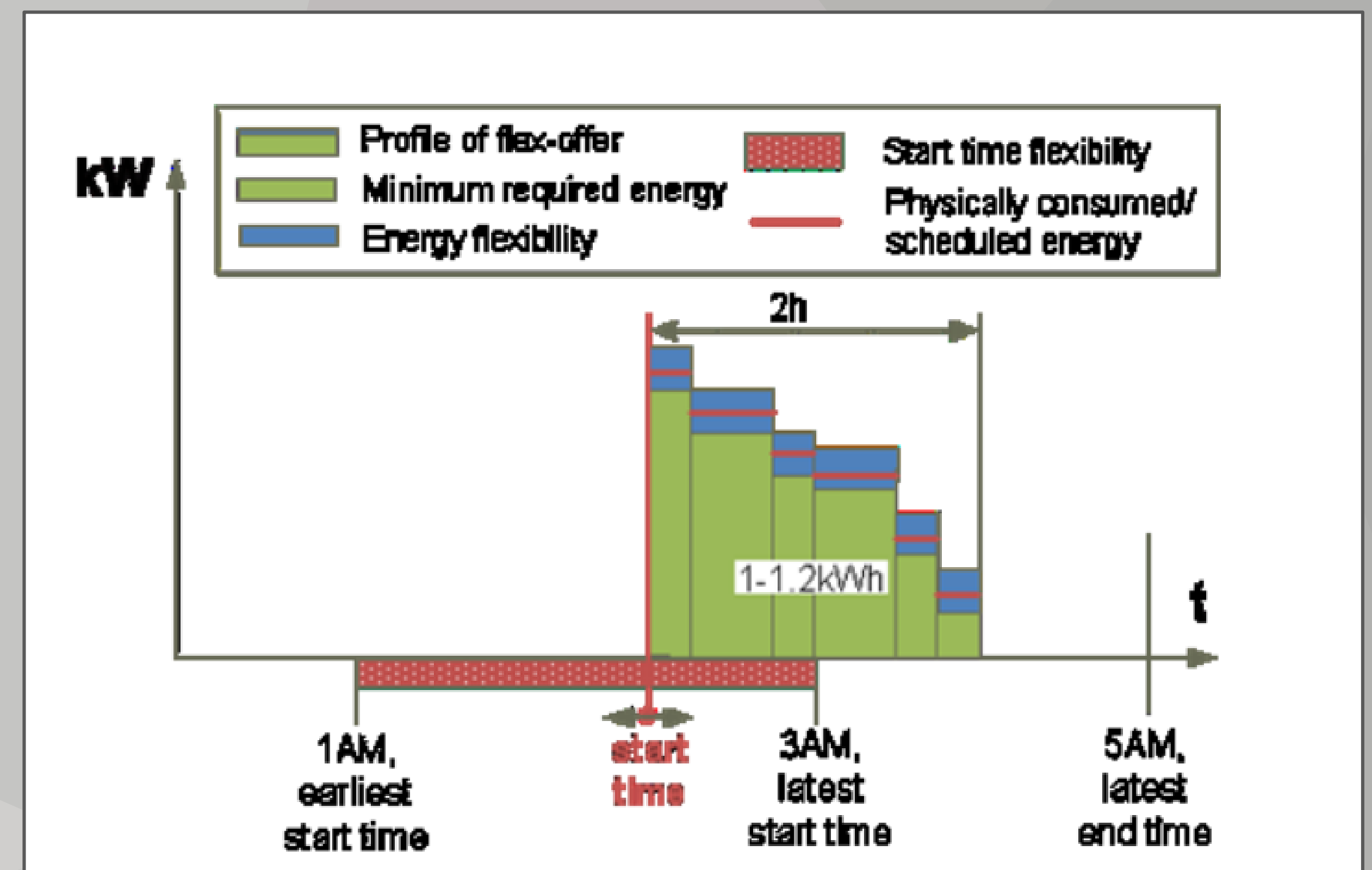


FlexHousing Concept

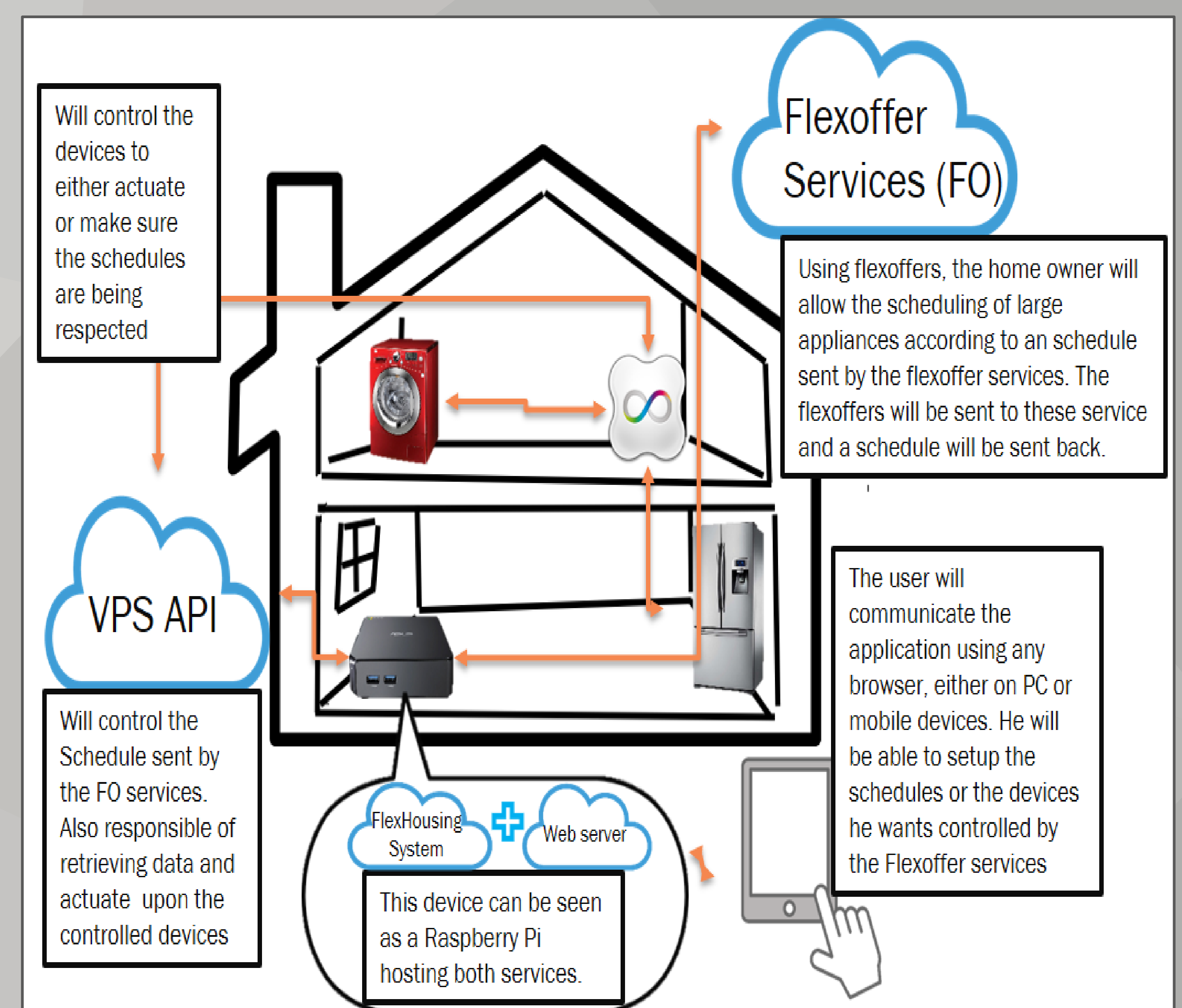
- Manage devices
 - Register, edit and delete.
 - Turn off and on any device. Every plug has the capability to cut the flow of electricity
- Monitors energy consumptions from devices
 - Stores energy consumption from devices
 - Displays energy consumption graphs
- View and manage Flexoffers
 - Create flexoffers for his appliances
 - Compare received flexoffers with actual consumption from devices
- Manage the house
 - Create new rooms
 - Create devices
 - Check the relationship between the rooms and devices

Flexoffer

A flexoffer specifies an amount of energy, a duration, an earliest begin time, a latest finish time, and a price, e.g., "I want 50 KWh over 3 hours between 5 PM and 12 PM, for a value of 0.25 €/kWh".



System Overview



References

- [1] M. Albano et al, "The ENCOURAGE ICT architecture for heterogeneous smart grids", in IEEE EUROCON 2013, July 1-4, Zagreb, Croatia, July 2013.
- [2] Ferreira, Luis Lino, et al. "Arrowhead compliant virtual market of energy", Proc. of the 19th IEEE Intl. Conf. on Emerging Technologies and Factory Automation (ETFA), Sep 2014.