Buildings as a Service Project Newsletter Nº1

Upcoming events

SUSTAINABLE ENERGY WEEK 24-28 JUNE 2013

Workshop:InnovationonConstruction & Energy sectors:through the "Smart Concept".CARTIF. Valladolid (Spain). June 25,2013.

BaaS

BaaS project takes part in the European Sustainable Energy Week 2013 (EUSAW 2013) jointly the fellow project DIRECTION. This workshop looks at passive and active actions to minimise energy as well as the use of equipment and optimized control systems for reaching maximum efficiency. Welcome to the first BaaS Newsletter, where we will try to summarize the major achievements fulfilled during the first year of the project. At this first stage, the design of the BaaS solution has started, considering the requirements that this system must verify, both from the technological and from the end-user point of view. All the work in charge of developing this solution is divided in six Work Packages, which state of progress is shown below.

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Also, we invite you to visit our communication channels: BaaS project website and BaaS community in LinkedIn, where we will show and share the work progress and the upcoming events in which BaaS is involved. *Cesar Valmaseda, BaaS Project Coordinator*



Workshop on Integrated Building Performance Management. TU Vienna, Austria. September 10, 2013.

This workshop, jointly organized by the EU-FP7 projects CAMPUS 21 and BaaS aims to present intermediate results of both projects in order to continue the dialogue with stakeholder groups. Expression of interest for participation in stakeholder groupdiscussion:IBPM2013@4C.ucc.ie

BaaS project background

There are a number of important elements in designing of building energy management systems – when data collection, aggregation and management is usually well addressed by existing building management systems, actual analytical components allowing to diagnose a behavior leading to excessive energy consumption and/or compromised occupants' comfort are far less mature.

It is not only about developing algorithms for such tools, but also proper design of a hosting platform and its viability – it should not only enable access to sensor readings, but also provide access to other building data like Building Information Models and allow collaboration and interconnection of such analytics.

Developing a smart platform supporting these services naturally leads to a concept of the building as a service eco-system (BaaS) where any new tool can be plugged in the system and can benefit from already existing components.

News of WP1

This work-package continuously monitors the proper alignment of RTD outcomes with

Work in progress



Figure 1: Scheme of the methodology for the development of the BaaS System, WP1

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5	Plant (The Building)	External Services	Extended BI
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the application domain of "non-residential" buildings, in operational stage. The methodology (scheme reflected on Figure 1) was developed, Case Studies were analysed. The existing measure and verification protocols have been reviewed, emphasizing on a comparative among their characteristics. As result of this study, the International Performance Measurement and Verification Protocol (IPMVP) was selected for measuring the savings due to the BaaS system.

News of WP2

As a result of the activities developed in the WP2 during the Year 1 (Y1) of BaaS, the data model IFC4 has been selected as the standard to exchange building information among the different software elements of the BaaS Project system, especially chosen for its openness, interoperability and capacity to cover all the phases of the building life cycle, as well as the possibility to define and implement Model View Definitions (MVDs).

Regarding the BIM repository, the required servers are implemented with the open solution BIM-Server 1.2 by TNO, adapted to the standard IFC4 as part of the activities of the Task 2.3; whereas the clients, required to perform queries and extract the building's data from the servers, have been completely programmed in JAVA as part of the same task 2.3.





News of WP3

In Y1 of the BaaS project the WP3 made several fundamental decisions regarding the overall BaaS system design. Among others, a harmonised approach to the data models to be employed in the BaaS system has been presented, i.e. wherever possible an extended IFC model (based on 2x4 R3) and the BACnet protocol will be used. Moreover, in order to allow the speedy and efficient implementation of a BaaS prototype to be deployed to several demo sites, the high-level system design has been introduced. This includes the description of use cases, scenarios, and functional requirements along with the distribution of data and functionality as well as the interfaces. Last, security and privacy considerations relating to the collection, storage, and processing of building data have been addressed.



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BaaS demonstration



BaaS

News of WP4

During Y1, WP4 has developed initial interfaces to be connected to the BIM-Servers, through the WP5, responsible of extracting the information needed to create the simulation environments needed by BaaS to evaluate KPI's, control strategies, abnormal strategies of the building equipment.

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Great progress has been achieved in solving IFC2x3, 2x4 and BIM-Server problems found; WP4 has finished a tool that queries the BIM-Server and produces a translation of the information contained in it about the building equipment to a TRNSYS simulation file, able to run nearly autonomously.

From this tool we can get the dependencies of each thermal zone with their energy generators, evaluate each one of the components autonomously or by groups. The use of this tool gives the WP5 simulation resources needed for control optimization or for searching efficiency lacks around the facility.

Figure 3: BaaS demonstrators, WP6

BaaS useful contacts



César Valmaseda Fundación Cartif Energy Division BaaS project coordinator

News of WP5

Work during Y1 of the Project in WP5 started with a functional and interoperability requirements collection phase. During this phase needs for the proper operation of the APO (Assess, Prediction and Optimisation) layer were identified. These include:

- needs for data access and homogenization;
- requirements on the use of simulation models and interactions of the APO services with them;
- requirements for the invocation and implementation of APO services were detailed; extra focus was paid to easy deployment new APO services

Moving beyond requirements in D5.1, a platform (hereby, referred to as the APO Kernel) has been specified that is capable of addressing these requirements. A set of components and abstractions where defined leading to a preliminary design of the APO Kernel. In the schematic shown on Figure 2 the modularity concept for the integration of a set of modules, along with components that form the APO Kernel. Implementation of the APO Kernel has commenced in an effort to deliver a first prototype of the APO Kernel. A first operational version of the APO Kernel has already been deployed at the demonstration test-bed of the Technical University of Crete (TUC) Building and is accessible for testing and component development.

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Visit the BaaS website for more details: www.baas-project.eu

News of WP6

In this first stage of the project, demonstration buildings have been selected, defined (building general information, installed energy systems, existing monitoring and control systems) and analysed in order to adapt the buildings to implement the BaaS solution and the M&V protocol selected (IPMVP) in WP1. Thus, this is the beginning of the second phase of the demonstration, were the main inefficiencies of the buildings will be analysed in order to implement the appropriate Energy Conservation Measures (ECMs) in the BaaS context.

You can join us here:

BaaS project takes part in the European Sustainable Energy Week 2013 (EUSEW 2013) jointly the fellow project "Direction" which is going to be celebrated in Valladolid (Spain) on 25th of June.

Joint BaaS / CAMPUS 21 dissemination workshop in conjunction with CESBP 2013 will take a place in Vienna, September 9-11, 2013. It will be three sessions with presentations of achievements and discussions with emphasis on interaction with the members of the stakeholder groups.



Follow updates and news and benefit from the exchanges among wide-ranging players in the energy efficient community by joining "BaaS – Building as a Service (Ecosystem) community" on LinkedIn.

If you would like to become a member of the BaaS Dissemination Network, please contact us at baas dissemination@cartif.es

BaaS useful contacts:

In respect to BaaS Project coordination and management you can contact the BaaS Project coordinator César Valmaseda from Fundación Cartif, Energy Division;

- In respect to BaaS events participation and related dissemination you can contact the BaaS Workshop Coordinator Professor Karsten Menzel from University College Cork, Ireland;
- If you have a questions related to scientific objectives with emphasis on project APO (Assess, Prediction and Optimisation) you can contact Dimitrios Rovas. Since 2007 he is an Assistant Professor in the Department of Production Engineering and Management at the Technical University of Crete. Dimitrios is leading the WP5 of BaaS.

In our following newsletters we will continuously introduce other participants of the project.

