



WoT Infrastructure

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Project ASAWoO

Adaptive Supervision of Avatar / Object Links for the Web of Objects

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Abstract

This deliverable describes how the architecture is physically deployed in the ASAWoO project. It also describes our choices in terms of software tools for the development of our solution.

The WoT infrastructure is delimited within one or several gateways to restrict access and secure external communication between the infrastructure and external software (clients, Web services...).

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1 Physical Layers

We identify three physical layers that support variable parts of our logical architecture :

- The **cloud** : exported through the Web, we assume this part of our architecture stands no constraints in terms of resources, it can transparently adapt to a growth in charge
- The **gateway** : connects objects of the local network to the Web. The local gateway is a strategic place for essential components such as the infrastructure controller that triggers the avatar creation (or restoration) process upon device connection
- The **object** : hosts as many avatar components as possible, with respect to local processing capabilities.

An avatar can be distributed over the three aforementioned physical layers. We identify the following extreme cases :

1. The avatar is fully located on the object, has a proxy on the cloud and is registered on the gateway
2. The avatar is fully located on the cloud; the gateway only hosts a simple piece of code (appliance driver) to interact with the object

All the possible physical distributions of avatar components are situated between these two extreme cases with different modules on the cloud or on the object, communicating among each other using the network and through the gateway. Optimizing the communication consists in choosing where each component of the avatar should be located.

2 Software choices

- There is one implementation developed in Java and another one in Javascript to be developed
- OSGi has been chosen as the component-based framework to deploy avatar components
- Reasoner : Hermit
- Interoperability framework : OM2M, HAL
- Cloud infrastructure : Openstack

3 Conclusion

In this deliverable, we identified the three physical layer that are part of our architecture (the cloud, the gateway and the object) and described two cases for avatar location (fully on the cloud or fully on the object). We also presented the software we plan to use.