

Oracle Smart Home

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Introduction

Everyone dreams of having a smart home, the requirements of a smart home ranges from lights control, heating and cooling systems controls to security, entertainment and so on. The dreams are closer to reality with the current industry standards and for sure using cloud services.

In this presentation, I will show you how to build a smart home with minimal technical know-how using Oracle Cloud Services like: Mobile Cloud Service, Application Container Cloud, Visual Builder Cloud Service, Mobile Accelerator and Database Cloud.

The demo part of the presentation will show how to control Philips Hue Lights from Oracle Cloud and how to build a custom user interface for your own unique smart home. The architecture presented here is the foundation of integrating other smart things in a smart home and provide a unique user interface using low-code cloud services from Oracle.

Architecture

Starting from the idea of having a secured and standard platform that is available in a couple of days, I can develop a unique interface for mobile device but also a web based application that is able to control the devices from a smart home. Each of the device that we can use in a smart home comes with their own cloud solution, with their own mobile application, exactly how is depicted in Figure 1.

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Illustration. 1: smart home devices controlled by their own cloud applications.

The solution is to shift and lift the API's provide by each of the devices into one secured and standard platform. The Figure 2 shows that on the first step I have to isolate the API's from the devices:

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Illustration. 2: Isolate the API's

After having the API's isolated I can lift and shift in a second step into the Oracle Cloud.

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Illustration. 2: Lift and Shift API's into Oracle Cloud

In the example from the demo section where I will control a Philips Hue light using Oracle Cloud, I've used application container service to act as a proxy between other Oracle Cloud Services, like Mobile Cloud Service, and Philips Hue. The second benefit is that I can transform the API to a more standard REST calls which can be easily consumed by mobile cloud service. The same think could be done by Java cloud service. Database cloud service can be used to extend the data model, for instance if I want to cluster the lights in rooms I will use a database to have the new tables that hold the room information and the link between a room and the light. Then I will go back to application container and add the necessary REST calls for managing the rooms but also for turn on/off the light on all bulbs from room.

Mobile cloud service is used to hook on the API provided by the application container and to create the mobile application by using the mobile accelerator service. There are other benefits that comes with mobile cloud service, like authentication, security, analytics, etc.

Visual Builder Cloud Service is used to provide the web console for controlling the smart home, here there are two options either consuming the API provide by application container or reuse the mobile backend defined in mobile cloud service.

With only minimal code and mostly by drag and drop I'm able to have mobile application but also a web based application ready to control a smart home in no time. The following figure indicates the services used by the DEMO and some of the services that could be used to extend the functionality of the smart home SaaS application.

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Illustration. 2: Lift and Shift API's into Oracle Cloud

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