VMWare Application Platform Experience

# Experience Day

The objective is the day is to get participants building actual applications with the help of VMware’s application platform.

As well as gaining experience of how to build applications, participants will also be able to articulate the real-world value of VMware’s tools based on their experiences during the day.

The aim is to build a full end-end story for VMware’s application centric technologies rather than one specific tool. Participants will not be deploying/configuring VMware technologies, but they will be deploying their applications on top of them.

# High Level Application

At a high level, we will be building a “smart thermostat” system, combining the sensors, the backend system and a mobile application.

Participants will split into a number of teams, to mimic how real teams would be divided up, to build their own part of the application.

Teams will broadly split into “sensor”, “app server” & “mobile interface”.

## Sensor – IOT Device

The sensor will be comprised of a Raspberry Pi and a low cost temperature sensor. An LED will also be used to indicate the status of the heating system.

This team will be responsible for building the appropriate code to read the sensors and then sending those readings off to the central system.

Additionally, they must make a system to determine whether the heating system (the LED) should be on or off.

## App Server

The app server is effectively a database with a number of APIs presented outwards.

The app server is responsible for authenticating IOT endpoints, collecting readings, presenting data from the database and acting as a central “state” point.

## Mobile Interface

To avoid the complexity of creating an actual mobile application, the team will create a HTML5 web interface that can be displayed on a browser or a mobile. From here, the user will be able to authenticate into the system and determine the status of their home thermostat. They can view historical readings and also change the state of their heating.

## APIs

The teams will have to work together to come up with an appropriate set of specifications for APIs so that the system will all work together.

# VMware Platform Components

It is intended that any applications that the teams create will use VMware products to either run or enhance them where appropriate.

**CI/CD Pipeline:**

It is envisaged that Harbor could be used as the container repository, with a Jenkins pipeline and GIT environment configured to automatically build containers.

**VKE:**

The app server components could be created in containers and hosted on a VKE platform. Teams could for example build the persistent layers of the app here.

**Despatch:**

The app server could also leverage OpenFaaS which would sit on top of the VKE Kubenetes cluster. Teams could build (for example) the API gateway in this.

**VMC:**

We intend to leverage a VMC environment to host all of the app server / web interface.

**LIOTA:**

The Liota agent could be leveraged to build an IOT gateway for the sensors.

**Pulse:**

Pulse could be used to manage, enrol and monitor the IOT sensors.

**Wavefront:**

Could be deployed to monitor the number of sensors, utilisation and could even be used to collect temperature points for analysis.

## High Level Architecture

Light blue denotes pre-configured components, dark blue indicates infrastructure, and grey indicates the components the teams will build.

