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D6.2

Mobile Virtual Desktop Use Case

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BASMATI Glossary

Term/Acronym	Definition
Mobile cloud services	Online services offered by cloud resources to support mobile apps. The backend of the mobile apps.
CP	Cloud Provider. The actor that provides the cloud infrastructure/resources, such as VMs
CSP	Cloud Service Provider. The actor that provides cloud services on top of a rent infrastructure from a CP
Cloudlet	Limited capacity infrastructures with virtualization capabilities, often used to support a limited amount of users or perform a limited set of operations on behalf of the central cloud infrastructure that hosts the complete application
Edge resources	Resources aimed to operate specialized functionality, located at the "edge" of the network infrastructure, thus, closer to the end users. Examples are (clusters of) RaspberryPis or cloudlets
BUDaMaF	BASMATI Unified Data Management Framework
KE	Knowledge Extractor
DM	Decision Maker
RB	Resource Broker
MVD	Mobile Virtual Desktop
DASFEST	An 3-day long music festival taking place in Karlsruhe, Germany every July
ACE	Amenesik Cloud Engine. The cloud service deployment tool through which actual federation is achieved
BEAM	BASMATI Enhanced Application Model. An extension of the TOSCA specification
ASP	Application Service Provider. A Federation user that rents resource services in order to provide an Application services to End-users
Brokering	The matchmaking support provided by BASMATI platform to decide about the best cloud resources to exploit for the execution of the back-end of BASMATI applications. This activity regards the placement of the services or data on computational resources and storages belonging to the cloud data centre and the cloudlets within the federation.
End user	A user who benefits the various application and infrastructure services provided by the Cloud. Within BASMATI, the most typical example is exploiting the Cloud federation via a mobile device (possibly a laptop) using specialized apps or a web browser.
Offloading	The ability of BASMATI platform supporting the runtime placement of the components composing the front-end of BASMATI applications on edge resources available nearby the end user. This activity takes place both when edge and mobiles exchange one each other their own workload or when such devices transfer some workload to the clouds or cloudlets. In BASMATI we often distinguish Front-end offloading, related to the mobile part of application, from Back-end offloading, concerning the server side of applications. The latter roughly translates to the known concept of Cloudbursting.
QoE	Quality of experience. It is a measure of a customer's experiences with a

	service. It may be related to some aspects of the QoS and QoP, but can also take into account other metrics.
Service handover	Service handover refers to the activity of transferring an active service between two computational resources (e.g. Cloudlets) with minimal or no disruption on the availability of the service. Ideally, service handover is transparent with respect to the user.
Situational Awareness	The ability of the BASMATI platform to recognise the “situation” characterising the actual combined status of users, applications and resources, aimed at achieving an effective and efficient management of applications and resources.

Executive Summary

The purpose of this report is to demonstrate MVD (Mobile Virtual Desktop) application running on BASMATI platform. The successfulness of the demonstration is validated with requirements from scenarios identical to real-world situations.



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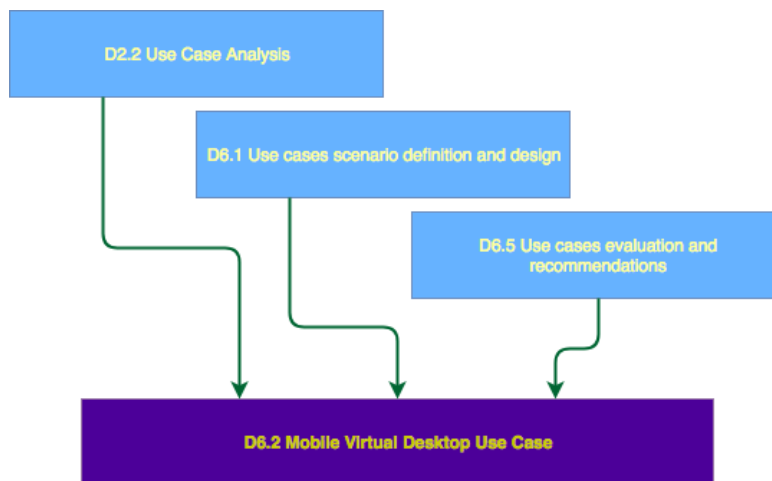
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1 Introduction

The demonstration of Mobile Virtual Desktop (MVD) is presented in this report. MVD [1] is defined as a cloud service category in which the capabilities provided to the Cloud Service Customer (CSC) are the ability to build, configure, manage, store, execute and deliver users' mobile desktop functions remotely. The complete and elaborate explanation on MVD can be found in D2.2.

1.1 Relationship to Other Deliverables

This deliverable presents the demonstration of integration of MVD to BASMATI platform. The integration will be tested and verified with scenarios defined in D2.2 and D6.1. From the perspective of MVD, the success of the integration is defined by the success conditions mentioned in each scenario. However, for BASMATI platform, there are other metrics and tests which needed to be satisfied by the integration. The metrics are defined in D6.5.



Picture 1. Relationship of D6.2 to other deliverables

1.2 Scope of the report

The report is intended to show how BASMATI platform can be utilized by a mobile cloud application such as MVD. In order to serve MVD, all internal BASMATI components are working together in this demonstration. However, the details of each component is not discussed in this report. For more details on each component, please refer to the related deliverable report. MVD source code is not open to public therefore the instruction on how the installation and its usage is not in the scope of this report.

2 MVD Use Case Demonstration

The demonstration is shown through a video. The purpose of presenting the demonstration in a video format is to provide an accessible way to show the BASMATI project to readers.

2.1 Location

To provide better dissemination about BASMATI project to public, the video of the demonstration for this report was uploaded on Youtube. The URL for the video is <https://www.youtube.com/watch?v=0rbLHZoUlhc>.

2.2 Description

The video shows 2 workspaces (user interface), they are:

1. BASMATI Workspace. This workspace has two types of users:
 - a. Administrator, which will be able to manage all cloud service providers, applications, and application's owners in BASMATI federation, and
 - b. Application Owner, which will be able to manage his/her/their own infrastructure and applications in BASMATI.
2. MVD workspace. This workspace has two types of users:
 - a. Administrator, which will be able to manage all infrastructure, users, and virtual desktops in MVD.
 - b. Virtual Desktops Users, which will be able to manage his/her/their own virtual desktops in MVD.

The video is divided into 6 parts:

1. Overview of BASMATI workspace (start – 01:10)

In this part we are looking at what can be seen by both types of BASMATI Workspace.

2. Deployment of MVD infrastructure via BASMATI (01:11 – 03:19)

We begin the deployment of MVD by *basmatizing* the application topology, starting, and deploying the applications in selected resources. Furthermore, the information related to resources are presented to the user and MVD administrator set the newly deployed resources as necessary.

3. Virtual Desktop Deployment and Migration (03:20 – 06:11)

In here we show the capability of MVD to migrate virtual desktops from one region to another with the help of BASMATI.

4. Virtual Desktop Interface for Mobile Devices (06:12 – 06:31)

MVD can be accessed by mobile devices as well and it is running well and fast utilizing BASMATI platform.

5. Basmati Scale-up and Scale-down Capabilities (06:32 – 08:50)

With BASMATI it is possible for MVD administrator to add or remove new resources based on the needs of MVD. Unfortunately, the scaling up and down should be conducted in manual manner due to the limitation of MVD in giving automatic signals to BASMATI to increase resource. However, it's not a problem for BASMATI which provides both manual and automatic scaling capabilities.

6. MVD with Multi Virtual Desktops (08:56 – end)

This part is showcasing the user can have more than one virtual desktops in one or more regions. The virtual desktop is isolated from one to another.

3 References

[1] Kim, Sunwook, Jihyeok Choi, Seongwoon Kim, and Hagyoung Kim. "Cloud-based virtual desktop service using lightweight network display protocol." In Information Networking (ICOIN), 2016 International Conference on, pp. 244-248. IEEE, 2016.