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SCUOLA DI INGEGNERIA INDUSTRIALE
E DELL'INFORMAZIONE

Software Engineering 2

Design Document

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Contents

Contents	i
1 Introduction	1
1.1 Purpose	1
1.2 Scope	1
1.3 Definitions, Acronyms, Abbreviations	1
1.4 Reference Documents	1
1.5 Document Structure	1
2 Architectural Design	3
2.1 Overview	3
2.2 Component View	3
2.3 Deployment View	3
2.3.1 Connection to the server	4
2.3.2 Promotions	5
2.3.3 EVD interactions	6
2.3.4 CPO DBMS	6
2.3.5 Charging stations communication	7
2.3.6 Services	7
2.4 Runtime View	7
2.5 Component Interfaces	8
2.6 Selected Architectural Styles and Patterns	8
2.7 Other Design Decisions	8
3 User Interface Design	9
3.1 General Overview	9
3.2 EVD Interface	9
3.3 CPO Interface	9

4 Requirements Traceability 11

4.1 Functional Requirements Traceability 11

4.2 Non Functional Requirements Traceability 11

5 Implementation, Integration and Test Plan 13

5.1 Implementation 13

5.2 Integration 13

5.3 Test Plan 13

6 Effort Spent 15

7 References 17

7.1 Paper References 17

7.2 Used Tools 17

List of Figures 19

List of Tables 21

1 | Introduction

1.1. Purpose

1.2. Scope

1.3. Definitions, Acronyms, Abbreviations

1.4. Reference Documents

1.5. Document Structure

2 | Architectural Design

2.1. Overview

2.2. Component View

2.3. Deployment View

In the following deployment diagram it is shown how all the component have been distributed into different nodes, and it highlights how they communicate to each other.

The following paragraphs will enter in details on the reasons behind the design choices.

The deployment diagram is:

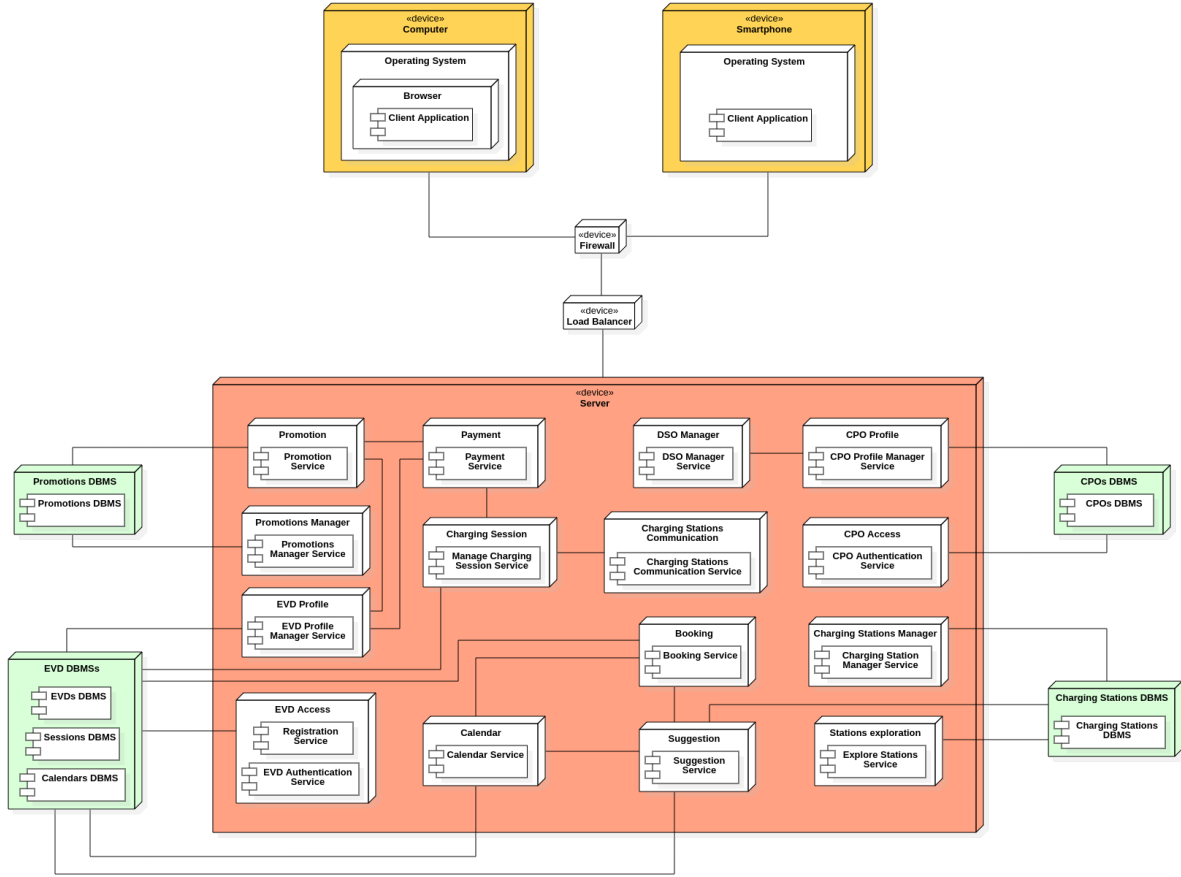


Figure 2.1: Deployment diagram of the eMALL system.

2.3.1. Connection to the server

EVDs and CPOs can access to the eMALL system from both PC and smartphone. In the first case, it is necessary to use a browser in order to get the web page of the system. In the second case, the client will use the application after having downloaded it from the smartphone's store (Android or iOS). When requests are sent to the server, first they pass into the firewall, so to avoid eventual cyberattacks to the system, and then they pass into the load balancer, so to optimize resource usage, improve performance, and increase availability of the several services. Load balancer will distribute the requests, that are now ready to be handled by the eMALL services. It follows the corresponding part from the deployment diagram:

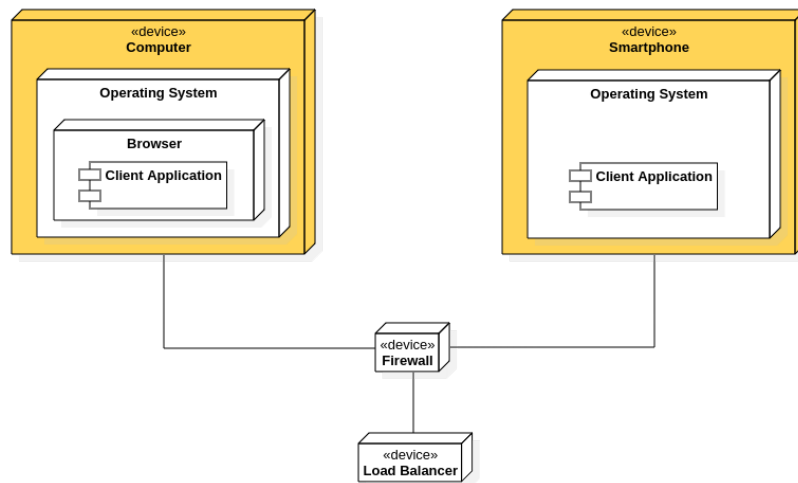


Figure 2.2: Connection to the server diagram.

2.3.2. Promotions

Promotion DBMS is one of the four DBMS nodes that have been identified. The choice of having divided it from other DBMS relies on the will to better scale the system: in this way, in fact, it is easier to guarantee the availability of other services that don't work with promotions, and maintenance sessions are facilitated too. It has not been grouped with other DBMSs into the same node because Promotions DBMS is used also by CPOs, so the system needs to guarantee a high level of scalability in order to assure business functionalities to the companies.

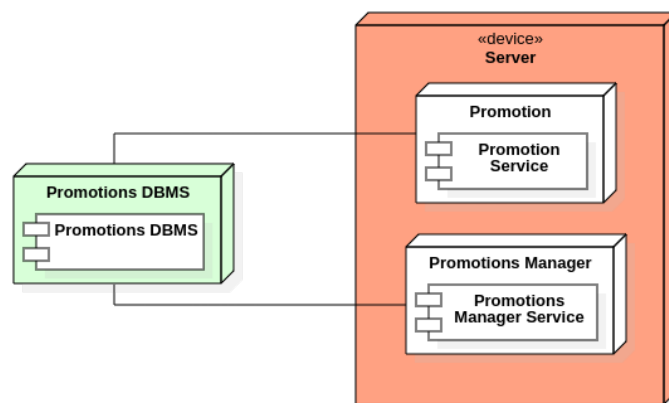


Figure 2.3: Promotions managing diagram.

2.3.3. EVD interactions

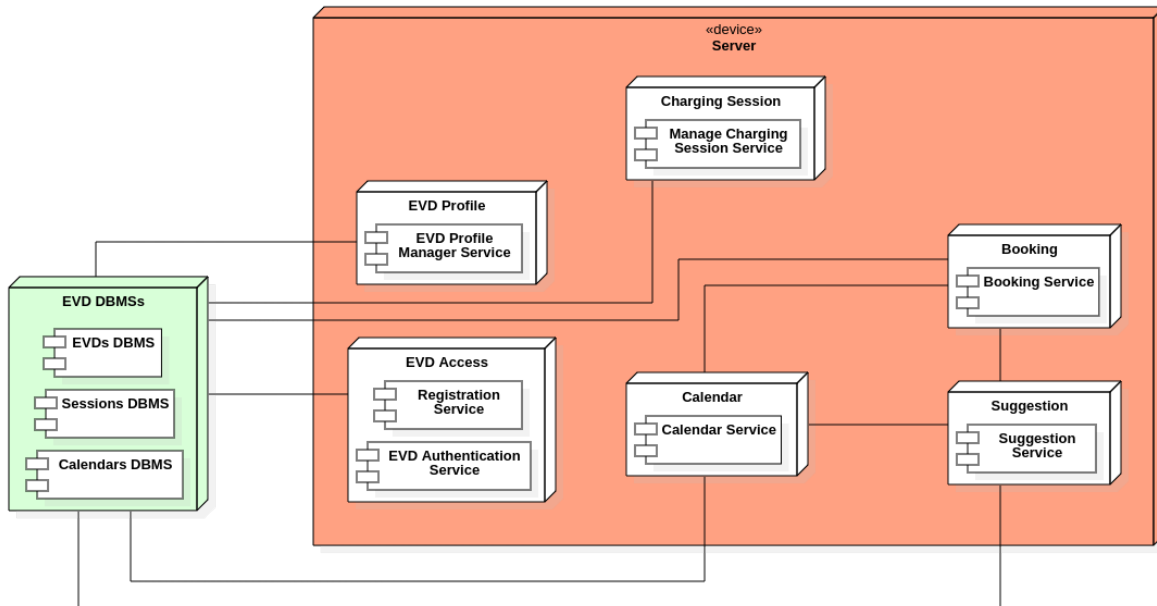


Figure 2.4: EVD interactions diagram.

2.3.4. CPO DBMS

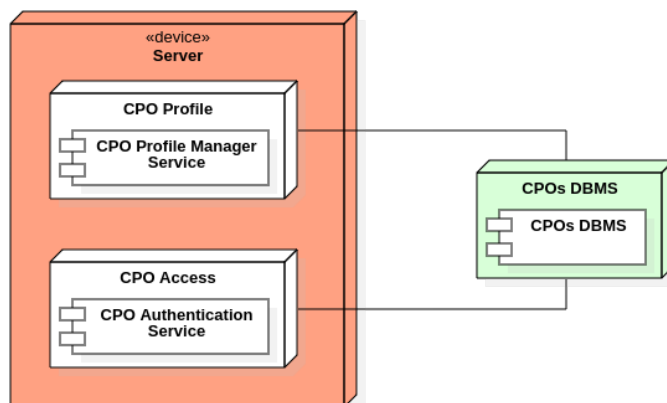


Figure 2.5: CPOs DBMS managing diagram.

2.3.5. Charging stations communication

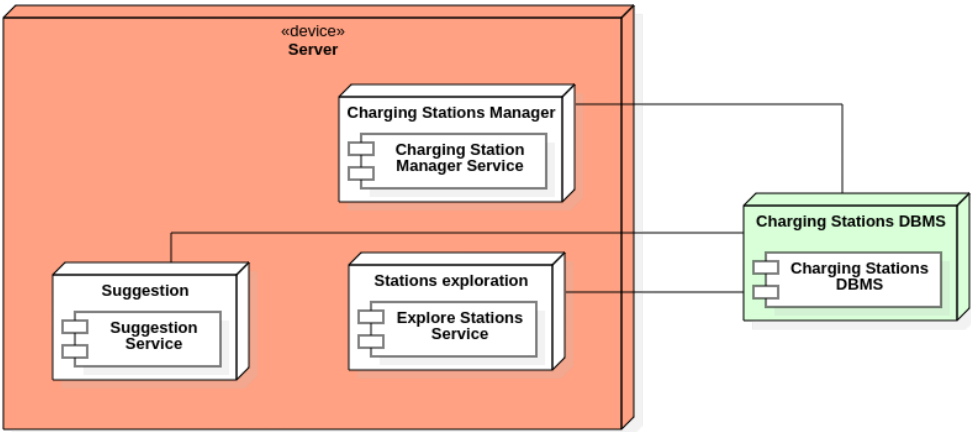


Figure 2.6: Charging stations communication diagram.

2.3.6. Services

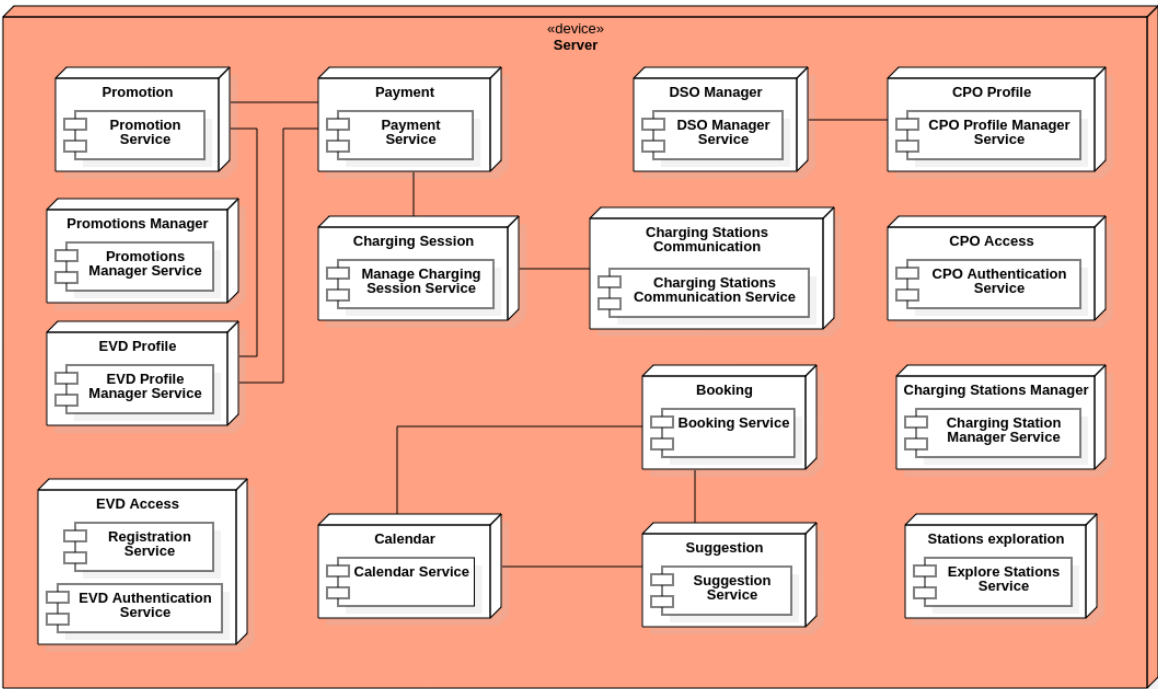


Figure 2.7: Server services diagram.

2.4. Runtime View

2.5. Component Interfaces

2.6. Selected Architectural Styles and Patterns

2.7. Other Design Decisions

3 | User Interface Design

3.1. General Overview

3.2. EVD Interface

3.3. CPO Interface

4 | Requirements Traceability

4.1. Functional Requirements Traceability

4.2. Non Functional Requirements Traceability

5 | Implementation, Integration and Test Plan

5.1. Implementation

5.2. Integration

5.3. Test Plan

6 | Effort Spent

7 | References

7.1. Paper References

7.2. Used Tools

List of Figures

2.1	Deployment diagram of the eMALL system.	4
2.2	Connection to the server diagram.	5
2.3	Promotions managing diagram.	5
2.4	EVD interactions diagram.	6
2.5	CPOs DBMS managing diagram.	6
2.6	Charging stations communication diagram.	7
2.7	Server services diagram.	7

List of Tables

