
# SOFTWARE ARCHITECTURE DOCUMENT

***Author: Gerard Mundo Bosch***
***Content Owner: SVT Analytics***

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# 1. INTRODUCTION

Retail companies are constantly adapting to new technologies. The customer experience is key to succeed and they know it. So they don't hesitate to place more attractive signs, redesign the layout, hire nice employees and use soft colors.

Apart from that, the continuous expansion of the digitalization of the information, combined with cheaper storage and computer infrastructures is directly impacting these companies. Today's stores are equipped with digital signage, free wifi, surveillance cameras, POS directly connected to the company's database, and more. The traditional retail store model is already obsolete in favor of one more adapted to the information technology era.

However, the same ideas behind the scenes apply: attract customer's attention, and build a loyal customer base.

## 1.1 PURPOSE

### 1.1.1 PROBLEM DEFINITION

A great way for companies to gain customer loyalty is to learn their likes. There are some ways that store and mall owners already use to that purpose:

- Customer satisfaction and feedback surveys
- Online website reviews
- Sales associates analyzing the retail sales floors
- Data collection from the POS
- Observation of product outflow

But they have problems:

- Customer's time and effort
- Manual collection and analysis of feedback by the employees
- Qualitative vs. quantitative appreciation
- Misinterpretation of the cause of some effects (empty shelves <> likes)

Events that happen in the store must be carefully handled as soon as they happen.

Placing advertisements in stores is difficult too. Reaching the right people for each advertisement is a hard task, and digital signage has helped with that up to some extent. Grabbing consumer's attention with advertisements is essential: it provides brand recognition and highlights popular products.

I'm curious about whether you are reading the whole document. Please, let me know if you read this.

With these considerations in mind, this document has been made as accurate as possible, and as any developer-made artifact, it naturally contains a few, evident jokes to make the reader smile.

## 1. 3 GLOSSARY AND ACRONYM LIST

Term list:

- Stakeholder: any person involved or affected, directly or indirectly, by this product.
- Scaffolding: from the Wikipedia «auto-generated code that the application can use to create, read, update and delete database entries, effectively treating the template as a "scaffold" on which to build a more powerful application»
- Javascript: (originally) web-browser interpreted programming language for enhancing web sites in a dynamic way.
- Ruby: dynamic, object-oriented programming language
- SQL injection: the typing of SQL statements in user-input fields with the purpose of messing with the database, gaining access or obtaining private information.

Acronym list:

- SAD: Software Architecture Document.
- POS: Point of Sale, the checkout place at any store.
- REST: Representational State Transfer, web API featuring a state-less client-server infrastructure.
- API: Application Programming Interface, a protocol used as an interface to allow communication between different components.
- MJPEG: Motion JPEG, a video format in which each frame is compressed as a JPEG image.
- CSS: Cascading-Style Sheets, document that describes the appearance of web pages.
- JSON: JavaScript Object Notation, a text-based standard for human-readable data exchange.
- MVC: Model-View-Controller, a software architecture pattern that separates the physical way to store data, the business logic and the appearance to the user.

## 1. 4 STAKEHOLDERS

Each stakeholder is concerned with different characteristics of the system. Here is a list of the stakeholder roles considered in the development of the architecture described by this SAD.

| Name |
|---|

| Software developers |
| --- |
| Description |
| They are the coders of the application |
| Responsibilities |
| Write code compliant with the requirements specified by the product owner and customers |
| Concerns |
| Security, network, performance, UI, programming language, database, workplace and workstations. And the paycheck! |

| Name |
| --- |
| Software testers |
| Description |
| Software developers specialized in testing the application |
| Responsibilities |
| Find bugs, security holes and checking the functionality against the requirements |
| Concerns |
| Security, platforms, architecture, network, database and Pwn2Own computer hacking contest |

| Name |
| --- |
| Hardware experts |
| Description |
| Employees highly informed and with wide experience in devices and components |
| Responsibilities |
| Buy and maintain the hardware that supports our application |
| Concerns |
| Hardware components prices, new technologies, architecture of the application |

| Name |
| --- |
| Product owner |
| Description |
| Conceiver of the original idea |
| Responsibilities |
| Lead the developing process, sell the product, listen for product feature proposals and conceive new ideas and features |
| Concerns |
| Product success, developer's happiness ☺ |