



# *1st-World IT Services*

## VMA – Architecture

## Summary

This is a summary of the application's architecture. This includes the minimum and/or actual technologies or hardware used in the development of the VMA.

Property	Value	Comment
Architecture	Client-Server Web Application	
Hardware Dependencies	Wifi and/or LAN card 2.2GHz processor 2GB RAM 300GB Hard Disk 64bit CPU 15.6" Display (Server) Keyboard and mouse UPS (recommended) printer	CPU type can influence the versions of server environment software
Operating System (Server environment)	Debian Linux (10)	
Web Server	Apache2 HTTP Server	
RDBMS	MySQL Community Server 8	
Programming Languages (Server environment)	PHP 7.3	
Programming Languages (Client Environment)	Javascript, HTML5, CSS	
Client environment	Web browser	Google Chrome, Firefox, Edge, Safari, Chromium

# 1.0 VMA Architecture

## Overview of the System's Architecture

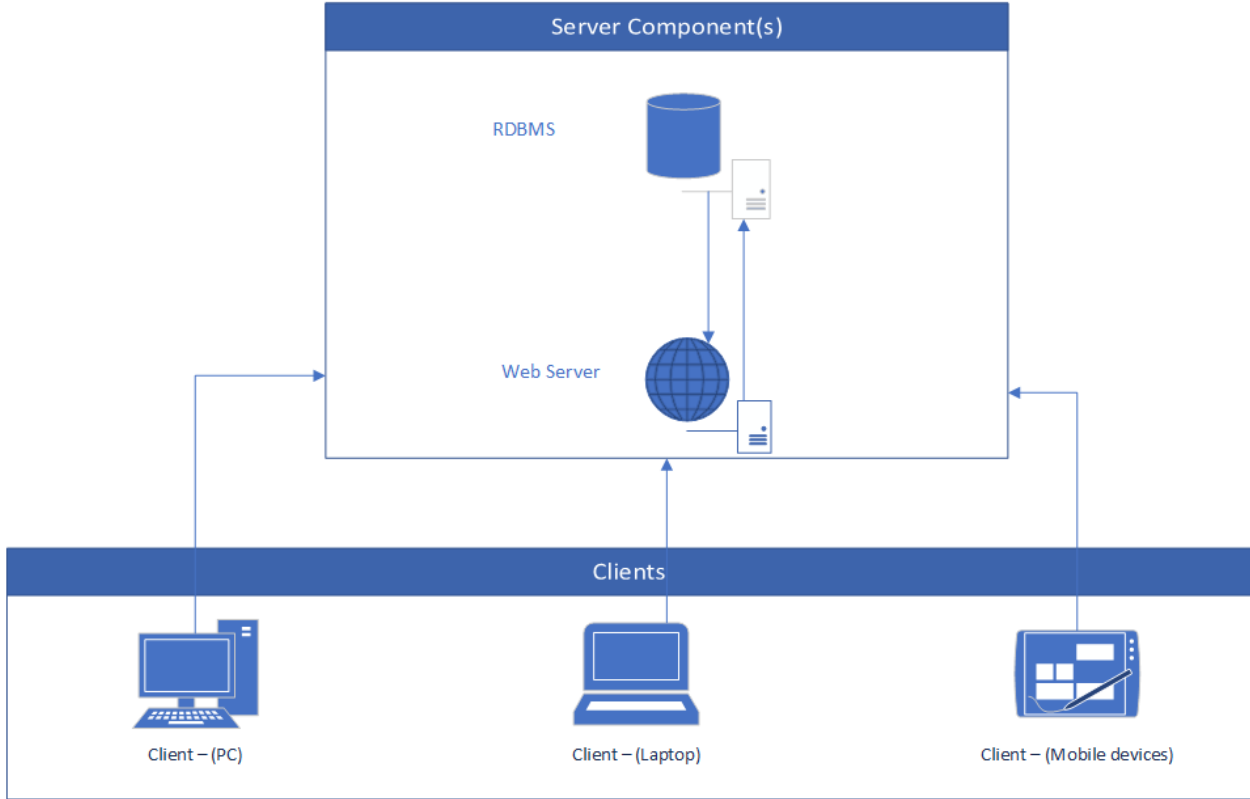


image 1.0

The current version of the VMA (1.1.0) is a very simple web application. It can be implemented on a single machine, on separate machines on a LAN or even across the Internet.

## 2.0 The Server Side

The default server side environment for the VMA comprises of:

1. The Operating System
2. The Web Server
3. The Database Server
4. Application code written in some programming language(s)

### 2.0.1 The Operating System

The design philosophy of the VMA is centered around availability for end users, stability, affordability, platform independence, ownership and minimal dependency on proprietary resources. For these reasons, the default operating system employed for the server side environment is Debian Linux.

The choice of operating system is not limited to strictly Linux, nor the Debian distribution. As the VMA is a web application, the role of the operating system is simply to host the other components of the server side environment, namely the web server, the programming language(s) and the relational database management system (RDBMS). Because the choices for all of the above are available for many different operating systems, the host operating system for the VMA can theoretically be any operating system that can host the web server, the programming environment and the RDBMS.

#### Recommended Operating System

1. Debian Linux (Version 10 or better)
2. Linux Mint

#### Other Options

1. Almost any Linux distribution
2. Microsoft Windows (10 or better)
3. MacOS

The client should consider that an operating system outside of the recommended list, may present challenges to ownership of the application or long term access to the application. This can occur through policies such as planned obsolescence (software and hardware based), subscription fees or purchase fees. Windows and MacOS operating systems can be used for the server environment. However, they may not be the best fit with respect to the design philosophy, albeit, they fulfill the technical requirements.

## 2.0.2 The Web Server

The web server utilized in the VMA is the Apache2 HTTP Server. While it is theoretically possible to use an alternative web server, the current application has not been tested on any such alternative.

The version used in development is **apache2 2.4.38-3+deb10u4**.

## 2.0.3 The RDBMS

The relational database management system utilized in the VMA is the MySQL Database Server. Specifically, MySQL Community Server 8.

The version used in development is **mysql-community-server 8.0.25-1debian10**.

## 2.0.4 The Programming Language(s) Environment

The PHP scripting language was utilized as the programming language for programming the application's logic.

The version of PHP used in development is **PHP 7.3**.