**VA Online Scheduling (VAOS) Web Application 4.x SDD**



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# Mobile Application System Design Document (SDD) Addendum

The System Design Document (SDD) is a dual-use document that provides the conceptual design as well as the as-built design. This document will be updated as the product is built, to reflect the as-built product. Per the Project Management Accountability System (PMAS) Guide, the SDD with conceptual design is required prior to the Milestone 1 Review. The as-built for each delivery must be incorporated prior to the Milestone 2 Review.

# Mobile Application Information

## - Overview

|  |  |
| --- | --- |
| **Software Name** | VA Online Scheduling (VAOS) Web Application |
| **Project Increment / Release Designation:** | var-web |
| **Product Version (current)** | 4.5.2 |
| **Source Repository** | [https://coderepo.mobilehealth.va.gov/projects/VAR/repos/var-web](https://coderepo.mobilehealth.va.gov/projects/VAR/repos/var-web/browse?at=refs%2Fheads%2Frelease%2F4.5)  [/browse?at=refs%2Fheads%2Frelease%2F4.5](https://coderepo.mobilehealth.va.gov/projects/VAR/repos/var-web/browse?at=refs%2Fheads%2Frelease%2F4.5) |
| **Enclave(s)** | Veteran Provider |



**Software Type**

Service App

Background Process Other

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Veteran** | **Care Giver** | **Provider** | **Public** | **Help Desk** |
| Intended Audience for Mobile Application | X |  |  |  |  |

### - Data Storage

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Question** | **Yes** | **No** | **If Yes, what information / data** | **If yes, then identify any consumer or source system(s) for the data** |
| Does the user enter information or data into the mobile application? | X |  | Appointment request information  VistA appointment information Notification preference data | VARDB  VistA |
| Does Mobile Application store information or data entered by the User? If yes, where is it stored? | X |  | VARDB Oracle Database | VARDB |
| Does Mobile Application transmit/push data entered outside of the VAMF to VA? | X |  | Appointment request information  Appointment information | VARDB  VistA |
| Does Mobile Application pull data from a VA Database (external to VAMF)? | X |  | Patient Information Booked appointments Facilities  Providers and clinics | VARDB  VistA CDW |
| Does the Mobile Application store in the VAMF or on the device data pulled from a VA Database? | X |  | Patient Information Patient preference data Appointment request information | VARDB |

* + 1. **- Application Classification**

This application can be classified as one of the following:

|  |  |
| --- | --- |
| **Mobile Application Classification (Only one box may be checked)** | **Mark with X** |
| 1 – Very Low: Mobile Application does not use VA Resource |  |
| 2 – Low: Read only access to VA Resource(s) (No PII / PHI) |  |

|  |  |
| --- | --- |
| 3 – Medium: Write access to VA Resource(s) |  |
| 4 – High: Read and/or Write access of sensitive data to VA Resource(s) (Includes PII/PHI/other sensitive) | X |

## - Supported Devices

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Device OS** | **Native** | **Hybrid** | **Web-Only** | **OS version supported** | **Targeted Devices (iPhone, iPad, Samsung model...)** | **Estimated Storage Re quired for Device** |
| iOS |  |  | X | iOS 9+ | iPhone | n/a |
| Android |  |  | X | 4.x+ (confirm) | Tablet - Samsung Galaxy Note | n/a |
| Windows |  |  | X | Windows 8 (confirm) | Desktop | n/a |

* 1. **- Supported Browsers**

|  |  |  |
| --- | --- | --- |
| **Device** | **Browser** | **Version** |
| iOS | Safari |  |
| Android | Chrome |  |
| Windows | Internet Explorer | 10+ |
| Apple OSX | Safari |  |

* 1. **- Capabilities**

The **VAOS Web** application provides the following features:

* + 1. View list of VistA booked appointments.
    2. Cancel VistA booked appointments.
    3. View list of appointment requests made in VAR.
    4. Cancel appointment requests.
    5. Directly book a VistA appointment at a clinic.
    6. Request an appointment at a facility.
       1. Submit message to clerk along with request.
    7. Submit an Express Care request.

# Application Design

## - Design Principles and Patterns

VAR follows the 12 Factor App Guidelines <https://12factor.net/>

VAR is a VAMF NextGen Application and follows the fundamentals and requirements of the platform

Single Page Application - Single Page Application design patterns will be leveraged, but, not strictly adhered to. This includes the Backbone.js framework and the addition of mobile styling from jQuery UI.

Application Specific Dependencies - External REST service dependencies are managed through application specific resource directory (resource-directory.json) packaged with the application. Each REST service endpoint is defined with a "title" and "href". For convenience, all the dependencies are identified in the VAMF Interfaces section.

REST Conventions - The application works with data using HTTP verbs. GET is used for retrieving data, POST is used for creating or processing data, PUT is used for updating data and DELETE is used for deleting data.

Exception Handling using HTTP standards - Exception handling is performed based on HTTP status codes. Bad Request (status code

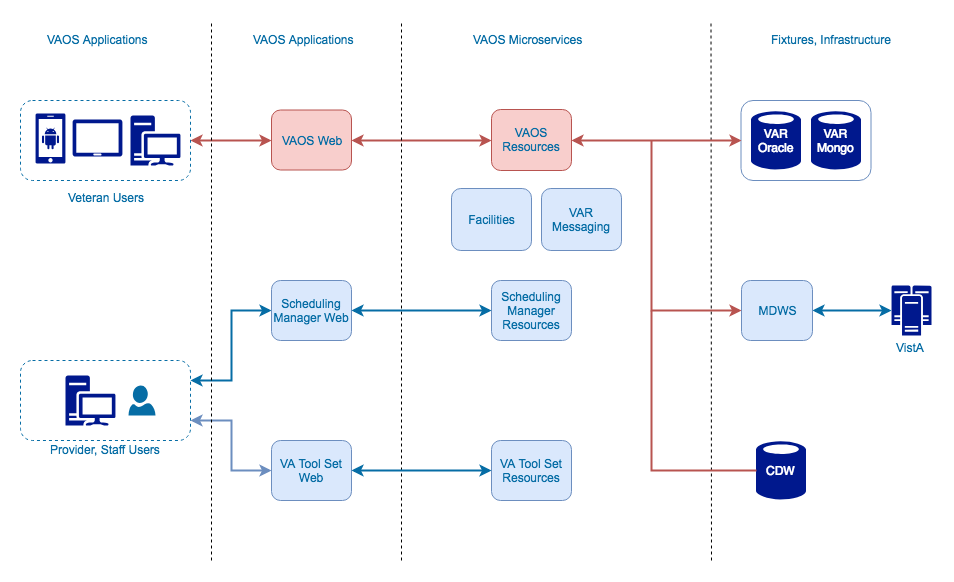
400) is handled at the Model or Resource level. Internal Server Error (status code 500) is handled globally within the application. Leveraging common VAMF Services such as User Service and Right of Access (ROA) Web/Service.

## - Conceptual Perspective

Component diagram depicting how the VAR Web Application connects across software in the VAOS Scheduling Suite is illustrated below.

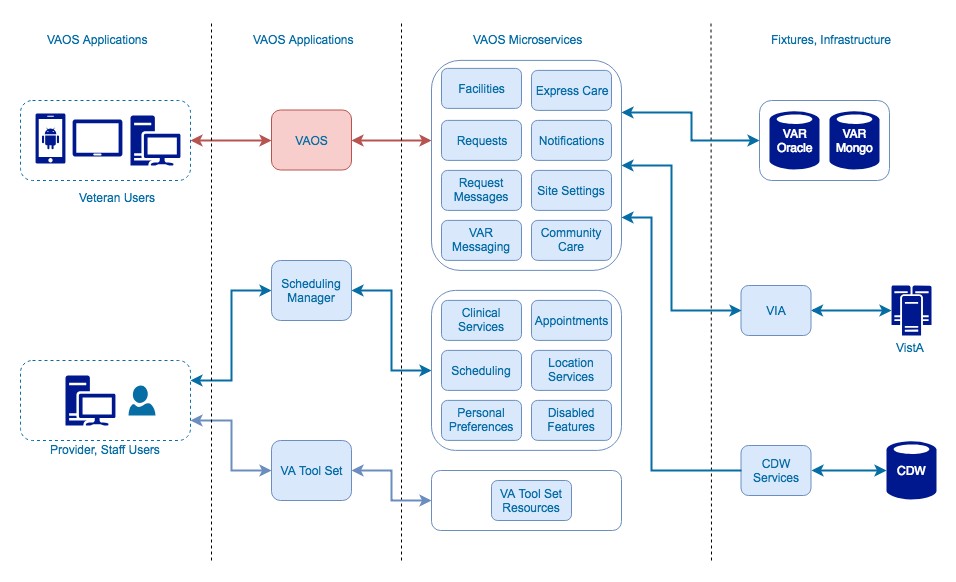
### - Component Overview - Current as of August 15, 2018

**VA Online Scheduling Web Application (VAR Web)** receives input from Veteran Users and requests appointments and other settings data through ***VAOS Shared Resources***. **VAR Web** also accesses ***MDWS*** for EHR and other Patient information, as well as appointment slots for booking appointments and servicing requests. Site-specific settings for this application are retrieved from ***VAOS Shared Resources*** as configured through ***VA Tool Set***.



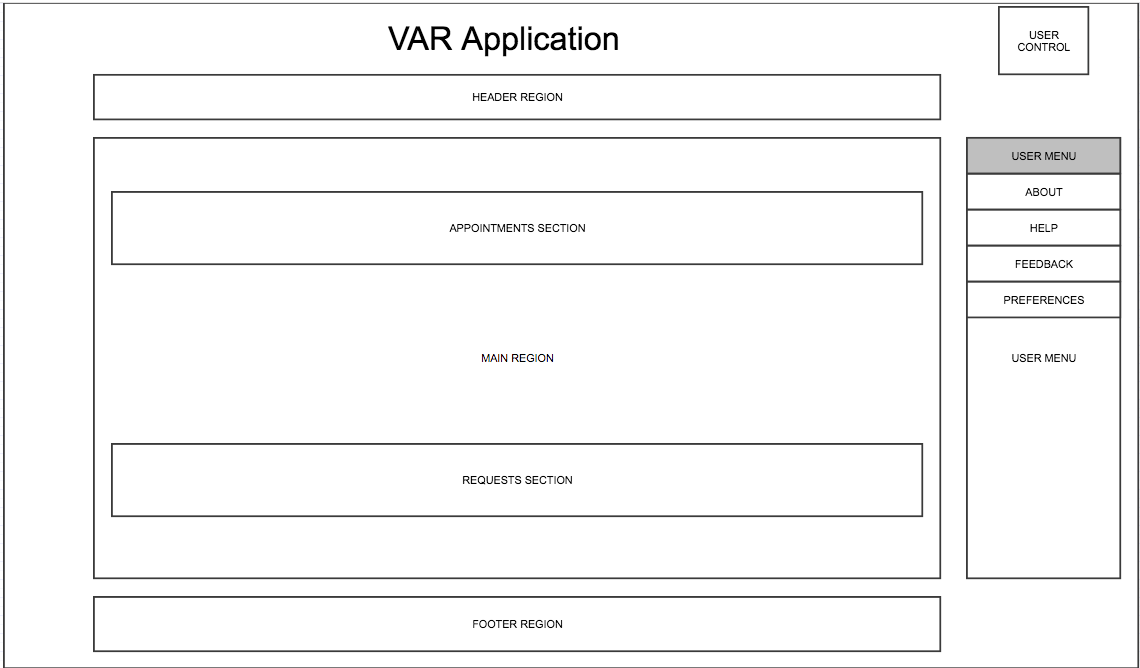
### - Component Overview - through completion of VAR 4.x

The following diagram illustrates the to-be architecture through the completion of VAR 4.x. The primary differences here are the use of ***VIA*** for EHR and other Patient Information, and the use of ***VAOS Microsevices*** in place of ***Shared Resources*** to retrieve VAR-centric data and settings.



### - High-level User Interface Diagram

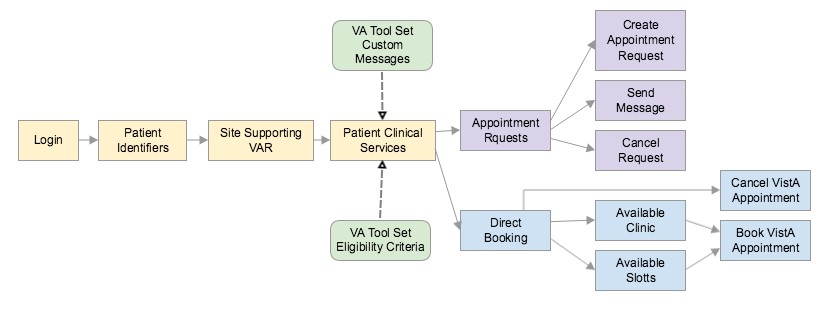
The primary User Experience, noted as functional regions and components, is depicted in the diagram below.



## - Logical Perspective

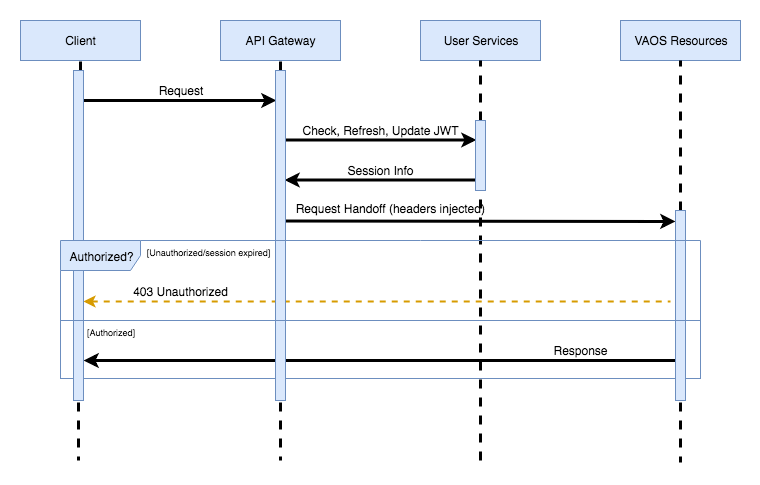
### - Functional Workflows Diagram

VAR logical functions are depicted below. The two main functional areas are Appointment Requests and Direct Booking. Only patients meeting the eligibility criteria are allowed to access the main functions operating on a Facility registered as a Site supporting VAR. Subsequent actions in each functional area are as illustrated.



### - Typical Request Workflow Diagram

Below depicts an all-encompassing boilerplate interaction between the VAOS Web Application and its attached resources. Requests from the client will always pass through the **API Gateway** where an authorization check will take place. Upon successful authorization, proper headers and session cookies will be injected into the request and then handed off to the appropriate resource.



# Physical Perspective

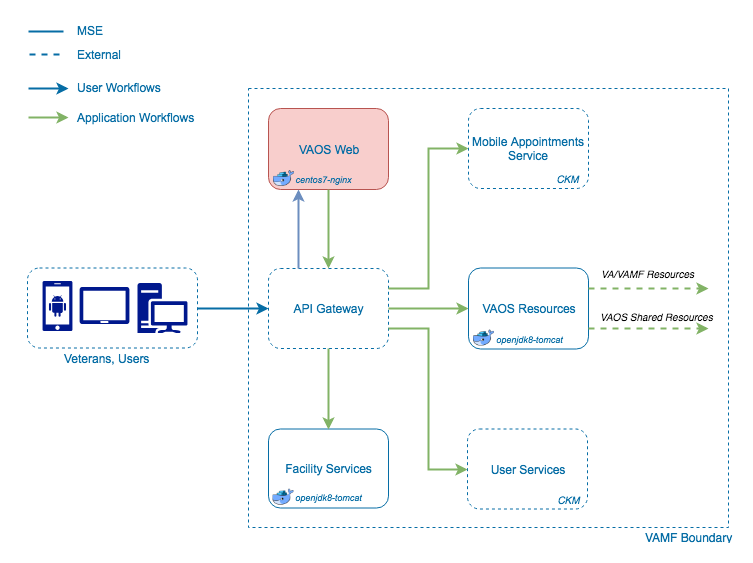
## - Deployment Diagrams

This section highlights a complete list of the deployment diagrams, in order of completion and delivery of the software. The first set is based on incremental releases. The last is the ideal planned architecture based on evolving requirements and targeted resolution of technical debt.

### 3.1.1 - Deployment Diagram, Current as of August 15, 2018

Summary:

Deployment of the **VAOS Web** application is depicted in the diagram below. **VAOS Web** is intended for deployment in the VAMF NextGen environment, and as such, all containers listed in the diagram are run in both a Docker Compose environment and Docker Swarm environment, depending on the deployment stage to production. The ***VAOS Web*** (VAOS UI) portion is deployed to a CentOS 7 NginX server in a Docker container. Please refer to the other ***VAMF Shared Services*** SRVDDs for additional information and component dependencies related to those services independently, but not listed in this diagram.

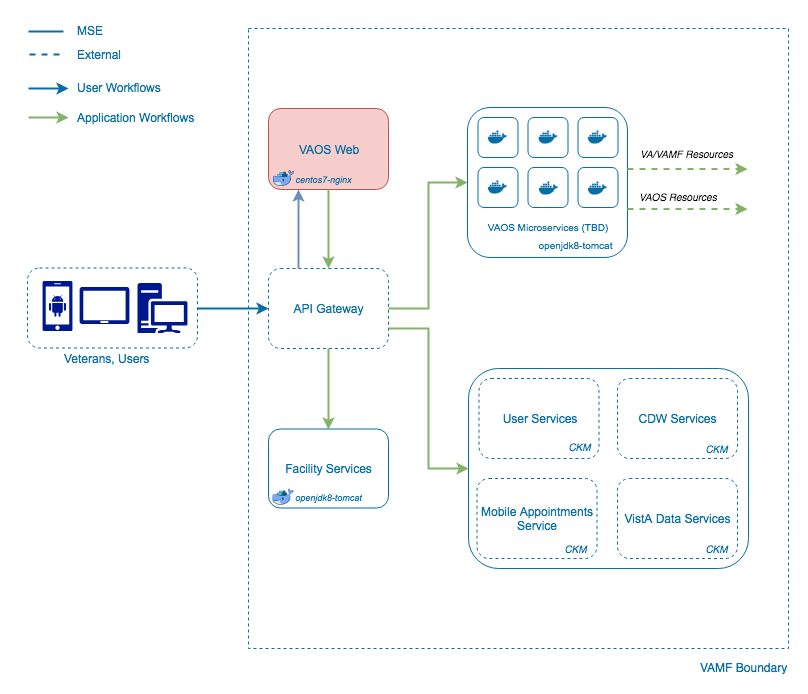


Footnotes:

* + 1. The direct use of MVI is technical debt that is accounted for, and scoped for a future release (priority not yet given). The use is around legacy EDIPI correlation to account for pre-existing data design in production, as well as proper collection of DFNs. This will be resolved with the most up to date correlation pattern using ICN and a production-level data migration.

### 3.1.2 - Deployment Diagram, Planned for 4.x completion (subject to change as requirements evolve)

Summary:



# Technology Stack and Service Dependencies

## - Technology Stack Overview

The following is a running list of all major technologies chosen to build out the **VAR Web Application**.

|  |  |  |
| --- | --- | --- |
| Technologies, Libraries, and Tools Used in the App | Version | On the TRM? (If not, provide a link to the waiver) |
| HTML5 | 5 | [Yes](http://www.va.gov/TRM/StandardPage.asp?tid=5201&amp;tab=2) |
| CSS | 3 | [Yes](http://www.va.gov/TRM/StandardPage.asp?tid=5194&amp;tab=2) |
| BackboneJS | 1.1.2 | [Yes](http://www.va.gov/TRM/ToolPage.asp?tid=6683&amp;tab=2) |
| Marionette | 2.4.4 | [Yes](http://www.va.gov/TRM/ToolPage.asp?tid=7759&amp;tab=2) |
| jQuery | 2.1.4 | [Yes](http://www.va.gov/TRM/ToolPage.asp?tid=6706&amp;tab=2) |

|  |  |  |
| --- | --- | --- |
| jQuery Mobile | 1.4.5 | [Yes](http://www.va.gov/TRM/ToolPage.asp?tid=6707&amp;tab=2) |
| Lo-Dash | 2.4.2 | [Yes](http://www.va.gov/TRM/ToolPage.asp?tid=8036&amp;tab=2) |
| Moment | 2.7.0 | [Yes](http://www.va.gov/TRM/ToolPage.asp?tid=8855&amp;tab=2) |
| Moment Timezone | 0.5.13 | [Yes](http://www.va.gov/TRM/ToolPage.asp?tid=8855&amp;tab=2) |
| [Font Face Observer](https://github.com/bramstein/fontfaceobserver) | 1.7.1 | No |
| RequireJS | 2.1.14 | [Yes](http://www.va.gov/TRM/ToolPage.asp?tid=8043&amp;tab=2) |
| Applicare | 7.3.8.4 | [Yes](https://www.va.gov/TRM/ToolPage.aspx?tid=6753) |
| Google Analytics | 7.x | [Yes](https://www.va.gov/TRM/ToolPage.aspx?tid=6484) |

## - VA Interfaces

### 4.2.1 - VA Mobile Infrastructure and Microservices

The **VAR Web Application** has *direct dependencies* on the following VA-provided interfaces:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Interface Name** | **Version** | **Domain** | **Description of Role** | **SDD** |
| API Gateway | 1.x | VAMF NextGen Infrastructure | Access to VA domain services | [VDD Link](https://wiki.mobilehealth.va.gov/pages/viewpage.action?pageId=63841495) |
| User Services | 1.x | VAMF NextGen Infrastructure | Login, Session, Patient Information | [SRVDD Link](https://wiki.mobilehealth.va.gov/pages/viewpage.action?pageId=61375407) |
| Consul (HashiCorp) |  | VAMF NextGen Infrastructure | Application runtime configuration |  |
| Mobile Appointments Enterprise Service | 1.x | VAMF NextGen Infrastructure | Centralized retrieval of appointments across all enterprise types | [SRVDD Link](https://coderepo.mobilehealth.va.gov/projects/VDSMS/repos/mobile-appointment-service/browse/docs/SRVDD-1.0.0.md) |
| \*\* VistA Data Services | 1.x | VAMF NextGen Infrastructure |  | [VistA Data Services v1](https://wiki.mobilehealth.va.gov/display/VDSMS/VistA%2BData%2BServices%2Bv1%2BSRVDD) [SRVDD](https://wiki.mobilehealth.va.gov/display/VDSMS/VistA%2BData%2BServices%2Bv1%2BSRVDD) |
| \*\* CDW Services | 1.x | VAMF NextGen Infrastructure |  | [CDW-Service - SRVDD](https://wiki.mobilehealth.va.gov/pages/viewpage.action?pageId=68198847) [(1.6.0)](https://wiki.mobilehealth.va.gov/pages/viewpage.action?pageId=68198847) |

Footnotes:

\*\* - To be integrated by the completion of VAOS Web 4.x

## 4.3 - VAOS Interfaces

The VAR Web Application has *direct dependencies* on the following VAOS interfaces developed in line with Scheduling Manager on the same contract:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Interface Name** | **Version** | **Domain** | **Description of Role** |  |
| VAR Resources | 4.2.x | VAOS Services | Business logic passthrough for access to underlying VAMF Infrastructure | [SRVDD Link](https://wiki.mobilehealth.va.gov/display/ARA/Veteran%2BAppointment%2BRequest%2B%28VAR%29%2BService%2B4.2.x%2BSRVDD) |
| Facility Service | 2.x | VAOS Services | Retrieval of facilities supporting VAR functionality | [SRVDD Link](https://wiki.mobilehealth.va.gov/display/ARA/Facility%2BService%2B2.0.x%2BSRVDD) |
| \*\* Community Care Microservice | 1.x | VAOS Microservices | Requesting and modifying pending Community Care Consults in the VAOS system | [Community Care](https://wiki.mobilehealth.va.gov/display/%7Ekuruczd/Community%2BCare%2BAppointments%2BMicroservice%2B1.x%2B-%2BSRVDD) [Appointments Microservice](https://wiki.mobilehealth.va.gov/display/%7Ekuruczd/Community%2BCare%2BAppointments%2BMicroservice%2B1.x%2B-%2BSRVDD)  [1.x - SRVDD](https://wiki.mobilehealth.va.gov/display/%7Ekuruczd/Community%2BCare%2BAppointments%2BMicroservice%2B1.x%2B-%2BSRVDD) |

Footnotes:

\*\* - To be integrated by the completion of VAOS Web 4.x

# Non-functional Requirements

## - Container Capacity

|  |  |  |
| --- | --- | --- |
| **Type** | **Min** | **Max** |
| CPU | 1 | 2 |
| Memory | 512 MB | 1024 MB |
| Storage | 1 GB | 5 GB |

* 1. **- User Volume**

|  |  |  |
| --- | --- | --- |
| **User Category** | **Total Number of Users** | **Concurrent Users** |
| Veterans | ~ 5000/week | ~ 100 |

1. **Developer and Program Manager (PM) Contact Information**

|  |  |  |
| --- | --- | --- |
| Developer Name/Point of Contact (POC) | VA E-Mail Address | Phone Number |
| Doug Kurucz | [doug.kurucz@ablevets.com](mailto:doug.kurucz@ablevets.com) PII |  |
| Developer Organization/Company | Contract Start Date | Contract End Date |
| AbleVets | 1/27/17 | 1/26/18 |
| Web and Mobile Solutions PM or POC | VA E-Mail Address | Phone Number |
| Steve Green | [PII](mailto:steve.green@va.gov) |  |
| VA Product Development PM or POC | VA E-Mail Address | Phone Number |
| Steve Green | [PII](mailto:steven.green@va.gov) |  |