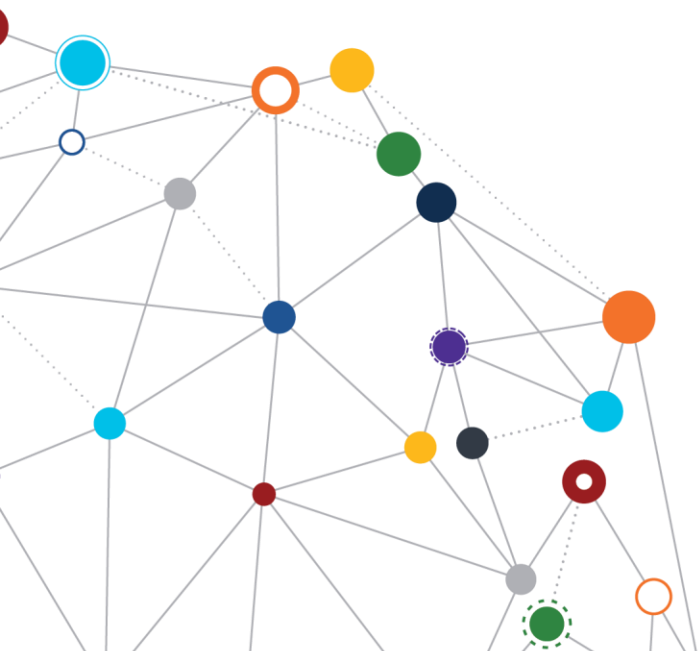


OFFICE OF  
INFORMATION  
AND TECHNOLOGY

# Mobile Veteran-Facing Applications Enterprise Design Pattern

*Mobile Veteran-Facing Applications Management:  
User Experience, Analytics and Metrics, Centralized  
App Store*

August 2018 | Demand Management Division



**VA**



**U.S. Department of Veterans Affairs**  
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*Table 1: Change Matrix*

Version	Date	Description of Updates
<b>1.0</b>	08/03/2018	Mobile Veteran-Facing Applications EDP Segment 3 document approved

## 1 Context

Extending enterprise resources to mobile devices enables Veterans to access and engage Department of Veterans Affairs' (VA) benefits and services; and provide consistent visibility to Veteran data through a single access point for review and updates. The ability to implement standard approaches to managing mobile Veteran-facing applications has provided VA project teams with the opportunity to improve application performance and user experience (UX).

## 2 Problem

Currently, there are challenges in establishing, gathering, and analyzing application level metrics to achieve an optimal VA UX. These include a lack of sufficient metrics for validating user interests and measuring performance for Veteran-facing mobile applications.

## 3 Approach

To ensure that VA offerings focus on UX, thereby enhancing user interaction capabilities through a deeper understanding of the desires, requirements, and motivations of VA mobile users; it is necessary to resolve the lack of quantifiable measurements. VA must establish mobile Veteran-facing application standard architectural guidance, analytics, metrics, and best practices for UX design and development.

### 3.1 User Experience

The mobile user experience focuses on the process of enhancing usability, accessibility, and interaction between the Veteran and the mobile application. The mobile user experience comprises information architecture and visual design. Project teams should complete the following actions:

- Incorporate end user participation as part of the Human Centered Design (HCD) Framework,<sup>1</sup> to help determine user needs and shape product design, throughout the entire software development lifecycle.<sup>2</sup>
  - When end user participation is limited or not possible, utilize personas defined by the Human Factors Engineering (HFE) Personal Development Project.<sup>3</sup>

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<sup>1</sup> Reference the *User Interaction Capabilities* EDP for information on the HCD Framework at <http://vaww.ea.oit.va.gov/enterprise-design-patterns-reports/>.

<sup>2</sup> Reference information on how to use personas at [https://vaww.portal2.va.gov/sites/humanfactors/\\_layouts/15/WopiFrame.aspx?sourcedoc=/sites/humanfactors/BookContent/How%20to%20Use%20Personas.docx&action=default](https://vaww.portal2.va.gov/sites/humanfactors/_layouts/15/WopiFrame.aspx?sourcedoc=/sites/humanfactors/BookContent/How%20to%20Use%20Personas.docx&action=default).

<sup>3</sup> Reference information on how personas are defined by the Human Factors Engineering (HFE) Persona Development Project at <https://vaww.portal2.va.gov/sites/humanfactors/Pages/Home.aspx>.

- Prioritize the main features and contents that appear on the landing page, according to the needs of Veterans.
- Use device features and capabilities to support changes in the Veteran's context, such as the usage location and time of day.
- Ensure enterprise mobile application offline data access, while maintaining data integrity.
  - Applications should have an encrypted database for short-lived data that is inside the application.
- Enable *Always-On Virtual Private Network (VPN)* to improve user experience, without compromising security.
- Ensure that the VA Application Store adopts over-the-air application installation, configuration, update, and removal capabilities.<sup>4</sup>

### 3.2 Analytics and Metrics

Project teams should incorporate the following activities:<sup>5</sup>

- Establish Key Performance Indicators (KPIs) at the application level.
- Identify application performance and usage metrics to demonstrate application adoption. Examples include the following:<sup>6</sup>
  - Number of errors, responses, and stalls
  - Structured Query Language (SQL) and other database per-query response times and details
  - Response times by application subcomponent
  - Back-end vs. front-end triaging and Uniform Resource Locator (URL) monitoring
  - Thread, process, authentication, and web service performance
- Track application performance across multiple devices and device versions.<sup>7</sup>
  - An example includes creating campaign hyperlinks to measure the success of a website using Google Analytics, as directed by the Digital Analytics Program (DAP), the Federal Government's mandated web analytics program.<sup>8</sup>
- Ensure the use of application performance tools provided by the VA Enterprise Cloud (VAEC). The VA Enterprise Cloud Solutions Office (ECSO) that supports the VAEC is

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<sup>4</sup> The existing Veteran-facing application store enables Veterans to easily access trusted applications from one location, using one central location can send and remove updates to all applications on the VA network.

<sup>5</sup> Refer to VA *End-to-End Application Performance Management* EDP at <http://vaww.ea.oit.va.gov/enterprise-design-patterns-reports/>.

<sup>6</sup> Refer to the *Application Performance Management* EDP at [https://www.oit.va.gov/library/programs/ts/edp/ea/ApplicationPerformanceManagement\\_v3.pdf](https://www.oit.va.gov/library/programs/ts/edp/ea/ApplicationPerformanceManagement_v3.pdf).

<sup>7</sup> Data providing metrics on slow web service calls, network performance, and service request performance will provide the information to evaluate the capacity of the infrastructure to support an increasing user base.

<sup>8</sup> Reference the DAP campaign hyperlinks directives at <https://vaww.ewis.eo.va.gov/apps/kbx/kbarticle.cfm?get=2017-LYT-0329092117>.

currently exploring options for third party tools and evaluating the opportunity to leverage the cloud native APM capabilities of Amazon Web Services (AWS) and Microsoft Azure.

## 4 Application

The Design, Engineering, and Architecture (DEA) User Stories have a standard for user interface design and platform analytics. Project teams using the Veteran-focused Integration Process (VIP), or developing mobile Veteran-facing applications must comply with the approved standards in the One-VA Technical Reference Model (TRM);<sup>9</sup> and map to the DEA User Stories below. Future changes in the standard will be reflected in the TRM; and in pertinent DEA User Stories that are related to both Veteran-facing applications consumption and provisioning.

*Table 2: DEA User Stories*

DEA User Story	Title	Description
<b>DEA.04.11.01</b>	Common Look and Feel	Application user interfaces (UI) shall follow the enterprise common UI templates and style guidelines.
<b>DEA.04.14.01</b>	COTS Products	All Commercial-off-the-Shelf (COTS) products used in the solution shall be from mature companies, large enough to support those products over the expected life of the product at all locations at which they may be installed.
<b>DEA.04.14.03</b>	One-VA EA Technical Reference Model (TRM)	All technologies and standards and their respective versions used by the solution shall be listed and identified as permissible for usage in the VA Technical Reference Model (TRM) or have appropriate waivers issued by the Strategic Technology Alignment Team (STAT) Governance Council (GC). <sup>10</sup>
<b>DEA 4.18.01</b>	System Monitoring	The system has documented capabilities in place for end-to-end monitoring for performance and security.

<sup>9</sup> Reference the One-VA TRM on the VA internal network at <http://trm.oit.va.gov/>.

<sup>10</sup> Reference STAT waiver information at [https://www.ea.oit.va.gov/EAOIT/VA\\_EA/STRATEGIC\\_TECHNOLOGY\\_ALIGNMENT\\_TEAM\\_STAT\\_WAIVERS.asp](https://www.ea.oit.va.gov/EAOIT/VA_EA/STRATEGIC_TECHNOLOGY_ALIGNMENT_TEAM_STAT_WAIVERS.asp).

DEA User Story	Title	Description
DEA.04.18.02	Web Analytics	Web performance and customer satisfaction tools should be implemented on all VA websites, providing objective performance analytics to improve the development and delivery of effective digital government services. Products must adhere to the implementation guidance of the GSA Tier 2 implementation of Google Analytics.

Future updates of this document will reflect updates to the DEA Compliance Criteria to reflect the guiding principles for Veteran-facing application management.

## 5 Impacts

If Veteran-facing application guidelines are not implemented, the following have the potential to impact product delivery:

- Unsatisfactory and inconsistent UX across the VA Enterprise
- Inefficient application performance

## Appendix: References

### References:

- Human Factors Engineering (HFE) Persona Development Project:  
<https://vaww.portal2.va.gov/sites/humanfactors/Pages/Home.aspx>
- VA Enterprise Design Patterns *User Interaction Capabilities*:  
<http://vaww.ea.oit.va.gov/enterprise-design-patterns-reports/>
- VA Enterprise Design Patterns *End-to-End Application Performance Management*:  
<http://vaww.ea.oit.va.gov/enterprise-design-patterns-reports/>
- VA DEA Assessment Guidance:  
[https://vaww.portal2.va.gov/sites/asd/AERB/DEA\\_Assessment/DEA%20User%20Story%20Alignment/Home.aspx](https://vaww.portal2.va.gov/sites/asd/AERB/DEA_Assessment/DEA%20User%20Story%20Alignment/Home.aspx)
- VA Directive 6551:  
[https://www.va.gov/vapubs/viewPublication.asp?Pub\\_ID=829&FType=2](https://www.va.gov/vapubs/viewPublication.asp?Pub_ID=829&FType=2)

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