

ENTERPRISE DESIGN PATTERNS

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OFFICE OF TECHNOLOGY STRATEGIES (TS)

INTRODUCTION

The Department of Veteran Affairs (VA) Office of Technology Strategies (TS), a pillar of the Office of Architecture, Strategy, and Design (ASD), develops Enterprise Design Patterns (EDPs) to support VA's Information Technology (IT) transformation strategy. An Enterprise Design Pattern (EDP) is a reusable capability guidance document that identifies best practice approaches and resources for achieving VA IT strategic objectives. Industry *trends* and *innovations*, enterprise architectural *standards*, and guiding *principles* for *capabilities* and *constraints* are used to define standard solutions to reoccurring technical problems; and guide the *design* of IT systems and services by VA project teams. This Tech Insight will provide a basic explanation of the purpose of EDPs and the IT topics they address. It will also convey a deeper understanding of the importance of EDPs as key components of VA's Enterprise Architecture (EA), and how VA project teams can benefit from using them.

OVERVIEW

EDPs are developed by TS through collaboration with internal and external subject matter experts (SMEs) and stakeholders. They take into account industry best practices and innovations to provide a consensus set of reusable principles, rules, and standards that inform and constrain IT capabilities. Mandated by VA Directive 6551, EDPs are vendor-agnostic and represent an authoritative source for enterprise capability requirements that address technology *gaps* to achieving IT strategic goals. They describe the "art of the possible" across different technology areas to ensure that IT capabilities delivered by project teams are on the right path to aligning to VA's future-state IT Vision, as described in the Enterprise Technology Strategic Plan (ETSP).

It is important to note that EDPs are *not* project-specific solution architectures, implementation policies, software development guides, or a set of approved and prohibited technologies and standards (as provided by the [One-VA Technical Reference Model](#) (TRM)). Rather, EDPs set the

“building codes” for these products, and they institutionalize reusable building blocks that follow these building codes. The building blocks include enterprise approaches and services, including Enterprise Shared Services (ESS) based on EDPs. EDPs are part of the standards in the technology portion of VA’s EA known as the Enterprise Technical Architecture (ETA). EDPs are developed iteratively in a “public forum,” entailing open collaboration and communication with stakeholders, both internal and external to VA. TS collaborates with SMEs, leading to a final version that is formally approved by the Deputy Chief Information Officer (DCIO) of ASD. EDPs account for the perspectives from Office of Information and Technology (OI&T) stakeholders at all levels, from senior-level IT investment decision-makers, to support personnel in field offices. They leverage vendor engagements that provide technology trends, best practices, and innovations from industry representatives.

EDP TOPIC AREAS

There are currently six EDP topic areas: Privacy and Security, Enterprise Architecture (EA), Interoperability and Data Sharing, IT Service Management (ITSM), Mobility, and Cloud Computing. The following language provides descriptions for each EDP topic:

Privacy and Security: EDPs provide the direction on using enterprise security services, including Identity and Access Management (IAM) and the Master Veteran Index (MVI) for all VA IT projects (e.g., enterprise-wide Single Sign-On (SSO), authorization (including role-based and attribute-based access control), centralized audit logging, and network security for person and non-person entities (NPE).

Enterprise Architecture (EA): EDPs explore ESS Service Oriented Architecture (SOA) design principles that are leveraged in standardized ways by consuming applications. EA EDPs establish the enterprise requirement for a catalog of ESS, and also include guidance on capabilities such as messaging, user interaction and design thinking, and Application Performance Management (APM).

Interoperability and Data Sharing: EDPs discuss enterprise-wide data interoperability, visibility, and accessibility, including standard approaches for enterprise data access services and analytics, and set the technical direction for adopting “big data” capabilities in VA.

ITSM: EDPs explore enterprise-wide IT asset management and service management, in accordance with VA security policies and CRISP (Continuous Readiness in Information in

Information Security Program). These EDPs support the establishment of a federated Configuration Management System (CMS) and a streamlined set of ITSM tools and technologies located in the TRM.

Mobility: EDPs cover capabilities to support Veteran-facing and staff-facing mobile computing, including Bring Your Own Device (BYOD). They provide guiding principles and constraints for mobile application architectures, including Enterprise Mobility Management (EMM), mobile security and integration with Internet of Things (IoT) connected devices, and secure access to internal and external services.

Cloud Computing: EDPs integrate cloud computing capabilities into the current VA IT infrastructure, including Enterprise Cloud Service Broker (ECSB) guiding principles; the hybrid cloud environment, leveraging both on premise private clouds and commercial public clouds, such as Software-as-a-Service (SaaS); cloud migration; and externally hosted development environments, such as Platform-as-a-Service (PaaS), to support business needs.

IMPORTANCE OF EDPs

EDPs address technical issues that impact VA's ability to improve and evolve information security, advance agile interoperability and information sharing, and reduce the total lifecycle costs of IT. EDPs enable VA project teams to leverage reusable architectural building blocks, which include enterprise approaches, services, and infrastructure platforms. Additionally, EDPs are part of the technical standards in the [Enterprise Technical Architecture](#) (ETA), guiding technology roadmaps aligned to business strategy, and informing IT investment planning with regard to the latest technology innovations and VA's IT Vision. As of March 2016, EDPs are mandated by VA Directive 6551. According to this directive, all projects that are subject to the Veteran-focused Integration Process (VIP) leverages required building blocks, including enterprise approaches and services, to comply with EDPs. Project teams are required to evaluate approved tools, standards, services, and infrastructure platforms that are based on EDP requirements. As a result, project teams will leverage EDPs to achieve optimal solutions and establish designs that are ETA compliant. These criteria include compliance epics (high-level compliance statements or line items) for design, engineering, and architecture (DE&A), and project teams work to demonstrate compliance before the Product Phase.

Approved EDPs also support the selection of approved industry standards and technologies catalogued in the TRM. Additionally, EDPs are developed in response to a business need and

support the IT Vision, which closes technology capability gaps identified in the VA's Enterprise Technology Strategic Plan (ETSP). EDPs are relevant to project teams facing different scenarios, whether they are upgrading a legacy system or acquiring commercial off-the-shelf (COTS) software. For example project teams that are deploying COTS software are using IAM services and integrating with the MVI to address security challenges described in the Privacy and Security EDPs, and they are evaluating cloud hosting per Cloud Computing EDP requirements.

CONCLUSION

EDPs are valuable documents for VA project teams as they design IT systems and services, and they are critical enablers to achieving VA's IT Vision. To read more about and download EDPs, visit the EDP page on the [TS Website](#). To remain current on all EDP updates, releases, and events, please check TS' [VA Pulse](#). To suggest an EDP, visit the EDP [Team Site](#). Additionally, you may visit the EDP page in the MAX Federal Community 'Department of Veterans Affairs External' space, [MAX.gov](#).

Read about more technology topics in [TS Tech Insights](#). With questions regarding EDPs or [enterprise architecture theory](#), don't hesitate to [ask TS](#) for assistance.

TS TECH INSIGHT SERIES

The monthly Tech Insight series aims to help readers make better decisions and be more informed customers (of Office of Information & Technology's products and services) by providing them with high-level overviews of technology issues that impact or will impact VA's Information Technology (IT) environment. Tech Insights introduce topics in an easily digestible fashion by presenting background information on the topic, clearly explaining its importance within VA, and providing recommendations for success from TS. View all TS Tech Insights [here](#).

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