Technology Strategies

Defining OI&T's "To Be" Technology Vision

Enterprise Design Patterns: SOA Design Patterns for VistA Evolution (COTS and Non-COTS Applications)

What are Design Patterns?

Reusable templates that guide the enterprise to implement a set of technologies in standard ways

How do Design Patterns relate to the Enterprise?

Design Patterns translate OI&T's strategic goals, as documented in the Enterprise Technology Strategic Plan (ETSP), into "real world" direction to guide system design

How can I learn more?

To learn more about this Design Pattern, contact Joseph Brooks (Joseph.Brooks2@va.gov)

To read the full document, see the TS website: www.techstrategies.oit.va.gov

To ask questions about Design Patterns in general, reach out to askCTS@va.gov

- **Design Pattern Scope:** Focuses on all new healthcare applications that must securely access VistA data and either use software developed within VA or acquired from external sources
- **Current State:** Healthcare applications use point-to-point connections and use proprietary products and protocols to access VistA data
- **Design Pattern Solution:** Enable the use of enterprise shared services (ESS) to store and retrieve information by creating a single interface to access VistA data

VA is planning for the evolution of VistA to provide an integrated set of capabilities enabled by a SOA-based approach

SOA essentially means that software capabilities are delivered and consumed as services. A SOA-based application can be more easily integrated with other legacy or purchased applications than a non-SOA application, and it is easier to maintain in the long run compared to traditional methods.

The COTS (commercial off-the-shelf) and non-COTS Design Patterns consider two different use cases, but essentially make the same key points about guiding all applications to using ESS through the Enterprise Messaging Infrastructure (eMI). The non-COTS document applies to all VistA Evolution applications that are **developed internally** by the VA and that share data with other VA applications. By contrast, the COTS document applies to all VistA Evolution applications that **were purchased or acquired** from an external source and must then be **integrated** into the enterprise.

Currently, proprietary products and protocols use point-to-point integrations with VistA

Applications currently face challenges with "vendor lock-in" due to being required to interface with the proprietary middleware that lies above VistA data. Additionally, current integrations with VistA are point-to-point in nature, resulting in maintenance challenges as customer requirements change over time. This also means that programs must spend extra time and money developing and testing their applications due to these integrations.

The VA should consume access to VistA using a single interface—with middleware in between—that pulls healthcare information as a common service to everyone on the interface

Under a SOA-based approach, the user interface sends out a request for specific healthcare information through calls to a standardized set of web services. This means that developers now only have to be able to **plug into a single interface** to access healthcare information. This interface essentially acts as a sort of pipeline or aggregator of data. Moreover, for the end user (e.g. the VA clinician), it will not matter where the healthcare information originates — as long as the interface is consistent.

The COTS and non-COTS use cases break down these concepts into a **number of rules**. This SOA-based approach ultimately helps to facilitate systems reuse, achieve economies of scale, and reduce development and maintenance costs.

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