

# The Department of Veteran's Affairs OEAMS Enterprise Architecture Services (EAS)

Department of Veteran's Affairs Executive Overview:

*RDPC- Regional Data Processing Center Co-location Project*

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## DOCUMENT CHANGE HISTORY

The table below identifies changes that have been incorporated into this document.

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01/25/07	A. Bland	0.1a	Initial draft document completed
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*Table of Contents*

*1. Executive Summary..... 5*

*2. Present Environment..... 5*

*3. Target Environment ..... 6*

*4. RDPC Benefits ..... 8*

*5. RDPC Program Objectives..... 11*

*6. RDPC Project Structure ..... 12*

*7. Conclusion ..... 13*

*8. Bibliography ..... 14*

## 1. Executive Summary

The Veterans Health Administration (VHA) of the Department of Veterans Affairs (VA) has the mission of providing healthcare to eligible veterans. The provisioning of this healthcare encompasses a network of 21 Veterans Integrated Service Networks (VISNs) that manage over 1,400 sites of care, including 172 hospitals and medical centers, over 800 community based outpatient clinics, 135 nursing homes, 206 readjustment counseling centers and 43 domiciles.

To support the delivery of healthcare, VHA is heavily dependent on its health information system and supporting infrastructure, which includes data processing centers distributed across the entire VHA enterprise. These data processing centers serve as an integral component of VHA's comprehensive health information system. Although more than 20 years old, this computing infrastructure still supports a robust and heavy user/clinical environment, however the infrastructure is dated, and is becoming ever more expensive to maintain.

This paper will summarize the objectives, direction, and progress to date of the Regional Data Processing Center (RDPC) Co-location initiative. Additionally, it will provide the background and context on which this initiative is based and it will outline the next steps in the project lifecycle and describe the challenges facing the initiative.

This document is intended, primarily, to provide the enterprise architecture reader with sufficient background knowledge to permit cogent discussions of this topic and to promote general understanding of the work product developed by the RDPC PMO. This paper also has a secondary purpose of providing information to all involved principles to support a continued dialog throughout the project lifecycle.

## 2. Present Environment

Within the current VHA environment, the majority of data processing normally takes place at the medical center. However, many VISNs have moved toward co-location of VISN information systems and services. The result of the move towards co-location and consolidation has been the creation of an environment that has disparate levels of service and robustness from one VISN to the next.

This migration towards increased co-location at the VISN-level has occurred on several levels – from system level consolidation to co-location of databases, to include both the core VistA medical management system and administrative messaging facilities. The current decentralized model makes it impractical to provide true redundancy, Continuity of Operations and rapid disaster recovery within any reasonable cost or management complexity. This disparity has resulted in a number of deficiencies in the delivery of IT Services, including:

- Increased costs – significant duplication of investments in IT assets and in Full Time Employee Expense.

- Increased procurement costs – not achieving economy of scale discounts
- Inefficient management of security
- Greater complexity with respect to maintaining standardization across the enterprise
- Inability to react in a timely manner to new technology and/or business requirements.
- Varying levels of IT implementation of innovation and investments
- Lack of uniform policies, standards and procedures which affect overall operations.

In addition to these inefficiencies in the current environment, the existing model is not sustainable given the current and projected resource limitations.

### 3. Target Environment

The RDPC Co-location Initiative represents the centralization of VA/VHA health information data processing by co-locating and/or integrating services at a reduced number of data centers and will yield the following benefits:

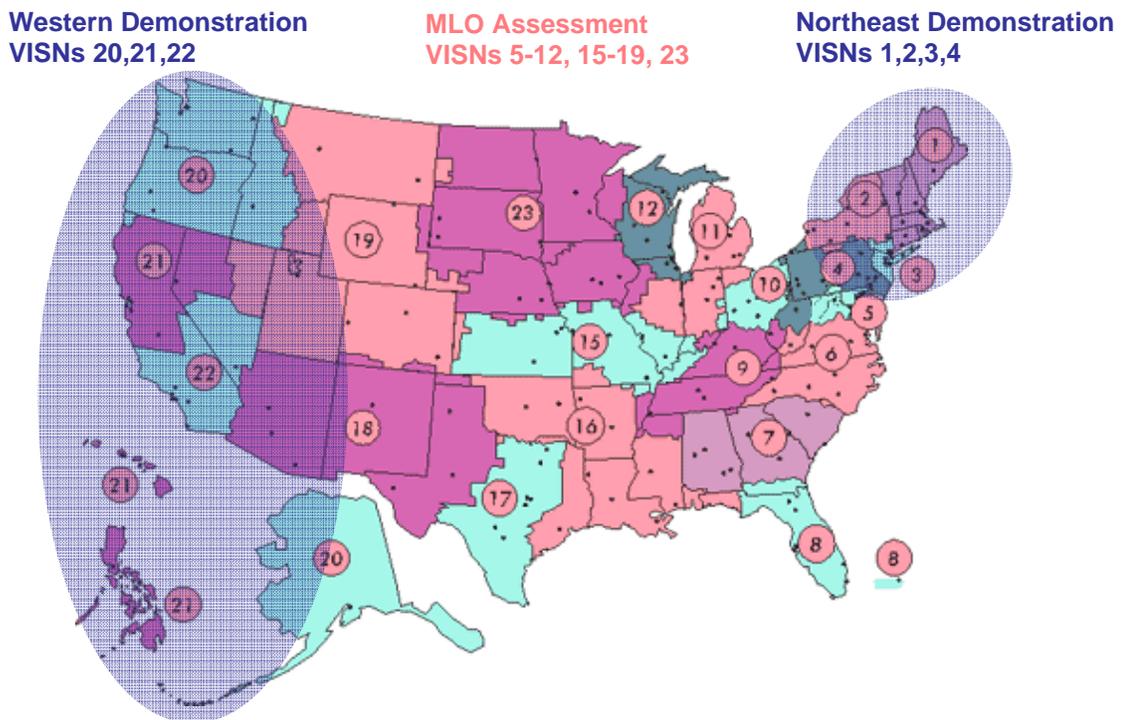
- Improve efficiency.
- Greater standardization.
- Higher operational performance.
- Greater reliability.
- Enable next generation healthcare delivery
- More efficient and effective response to change.
- Leverages enterprise-wide economies of scale discounts.
- Improved security across the enterprise.
- Increases standardization across the enterprise

The RDPC initiative builds upon earlier successes in the regionalization arena. The regionalization leaders, VISN 3 and VISN 20, will augment their current implementation of a co-located VISN environment by including other VISNs. The underlying costs, risks, and benefits of migrating to an increased level of consolidation have been analyzed, and indications are that significant advantages from increasing the efficiency of the data processing infrastructure can be realized. The overall objective for the RDPC Co-

location project is to clarify, validate and document in a systematic and process-driven format, the business case for the regionalized data processing center model.

The RDPC Co-location Initiative will consist of two components:

- (1) Regional Conceptual Demonstrations utilizing seven VISNs located in the Western and Northeast Regions and;
- (2) An infrastructure assessment of the remaining 14 VISNs to determine preparedness and potential cost for migration to a VISN/Region-level data processing co-location environment. Below is an illustration of the RDPC components.



*RDPC Components: Two Conceptual Demonstrations and MLO Assessment*

1. Conceptual Demonstration Component: The Regional Conceptual Demonstration Component will consist of two elements – the Northeast Conceptual Regional Demonstration and the Western Conceptual Regional Demonstration.
  - a. Northeast Conceptual Regional Demonstration: This component includes VISNs 1, 2, 3, 4 and will co-locate and consolidate, wherever practicable, data processing into one existing tier III VA owned facility and one leased facility with a tertiary recovery facility. The normal operational locations for these centers are Brooklyn, NY, (VA) and the VA Philadelphia Data Processing Center (DPC). The Philadelphia, PA Sunguard facility will provide professional Disaster Recovery services.

- b. Western Conceptual Regional Demonstration: This component includes VISNs 20, 21, 22 and will co-locate data processing into two leased facilities. The primary locations for these centers are Sacramento, CA, and potentially a second leased site in Salt Lake City (TBD).

The Conceptual Regional Demonstration component of the RDPC Co-location Initiative will explore the impact and results of the concept demonstrations to assess the feasibility and anticipated benefits of consolidating appropriate systems and services for multiple VISNs into two, shared regional data centers.

Beyond the consolidation, the regionalization would also endeavor to introduce standardization of practices and infrastructure across the breadth of its geography to further extend the efficiencies in cost and manageability. The Western Region demonstration will test and validate the acceptable network latency tolerances associated with co-location and the Northeast Region demonstration will validate scalability in consolidating a larger number of VISNs, medical centers and databases, and the consequences of servicing a larger end user population from a common, remote location.

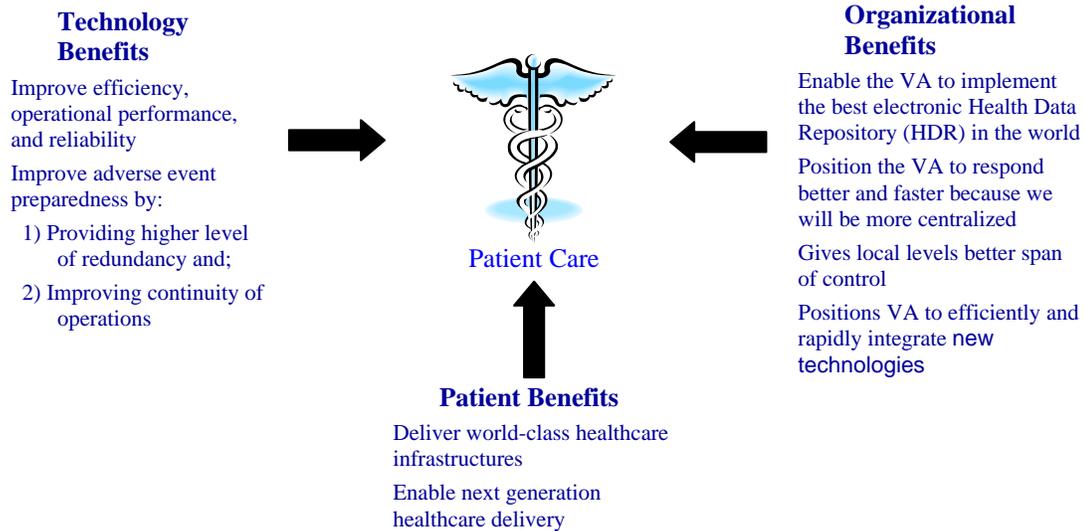
These demonstrations are designed to validate the technical feasibility of co-location, but also to demonstrate the organizational structure that will successfully support regionalization. The demonstration component will include developing detailed implementation plans through FY 2007.

- 2. Minimum Level of Operations (MLO): This component of the project will perform an infrastructure assessment of the 14 VISNs not involved in the Regional Conceptual Demonstration Component (VISNs 5-12, 15-19, 23) and will document the necessary changes required to achieve Minimum Level of Operations (MLO) at each of the locations.

An assessment of the current infrastructure will document the current environment and provide insight into challenges and related cost necessary to determine the suitability for migration to a co-located environment at the Regional and/or VISN level.

#### 4. RDPC Benefits

There are many benefits to be realized by migrating to the RDPC environment – as compared to the current 128 data centers across the 21 VISNs. Benefits may be divided into various technical, organizational, and patient categories which support the agency’s mission of *patient safety*. The co-location efforts of VISN 3 and VISN 20 have realized the following benefits:



### RDPC Benefits

Following is a list of technical and organizational benefits that has already been realized by VISN 3 and VISN 20.

- Future hardware and software upgrades can be implemented in a significantly more efficient manner
- Redundant/backup hardware also serves as a production system
- One contingency plan
- One recovery site
- One office model
- One set of standards
- One interface between VISN/Regional IT and national
- Fewer interfaces to IT (hardware and software)
- Standardization (for training, changes, enhancements, etc.)
- Minimize or eliminate duplication of efforts
- Fewer sites required to implement mandated compliance
- Fewer, larger systems providing greater capacity at a lower per unit price.
- Improved service levels at all sites to the highest level at any site
- Expanded hours of service with onsite support by Enterprise Management Team
- Better leveraging of expertise across sites

- Enhanced reliability of system fixes and new installations
- Shared purchasing; easier equipment re-allocation
- Availability/costs of services, software, or capacity justifiable for the Region/VISN but not for each medical center.
- Increased performance, scalability and reliability of the VistA platform
- Failover/backup for regional environmental or infrastructure disruption or failures (both planned and unplanned)
- Better management of system data and resources because there are fewer systems to manage
- Optimization of resources. Resource efficiency includes IT personnel and system optimization.
- Reduction of variations in IT performance and availability across the VISN
- Potential for standardization of business and information management practices
- Standardization of enterprise-wide security and integrity of the VistA databases
- Limited points of entry. This is particularly relevant from a security perspective because it is easier to control or audit points of entry with fewer systems to secure
- Reduction in cost relating to data storage as data is available at one location as opposed to many (hardware/software). From a business perspective, it reduces the probability of errors that could impact or affect physical data storage

A critical potential benefit in the RDPC environments is that these facilities can be modified more efficiently and thereby address future technology or business requirements quickly. Also, the development of support overhead for VA applications will be minimized due to fewer instances of each application installation base.

The benefits of migrating to an RDPC environment will facilitate enhanced quality of care, greater standardization, and more stable and supportable systems; resulting in enhanced healthcare delivery for all veterans, regardless of geography.

The development of an integrated delivery system is another benefit of the RDPC environment. The movement toward developing an integrated delivery system requires standardization of IT operations within the VISNs. Standardized operations would help improve the service provided to patients through structured processes and more effective handling of patient data.

Migration to the RDPC environment will provide opportunity to realize efficiencies through economies of scale such as consolidation at the server level. The case for server consolidation is driven by the business need to eliminate or greatly reduce inefficiencies like the under-utilization of resources and duplication of effort.

The benefits of server consolidation include minimized future costs, effective use of resources and the delivery of expanded and enhanced services. The benefits of server consolidation have been clearly demonstrated by the results achieved by VISN 20 and VISN 3. As a result of server consolidation, VISNs 20 and VISN 3 reduced the amount

of equipment required, reduced maintenance costs, decreased the number of software licenses, decreased the number of FTEs required to manage the equipment, and standard operations practices were more easily introduced.

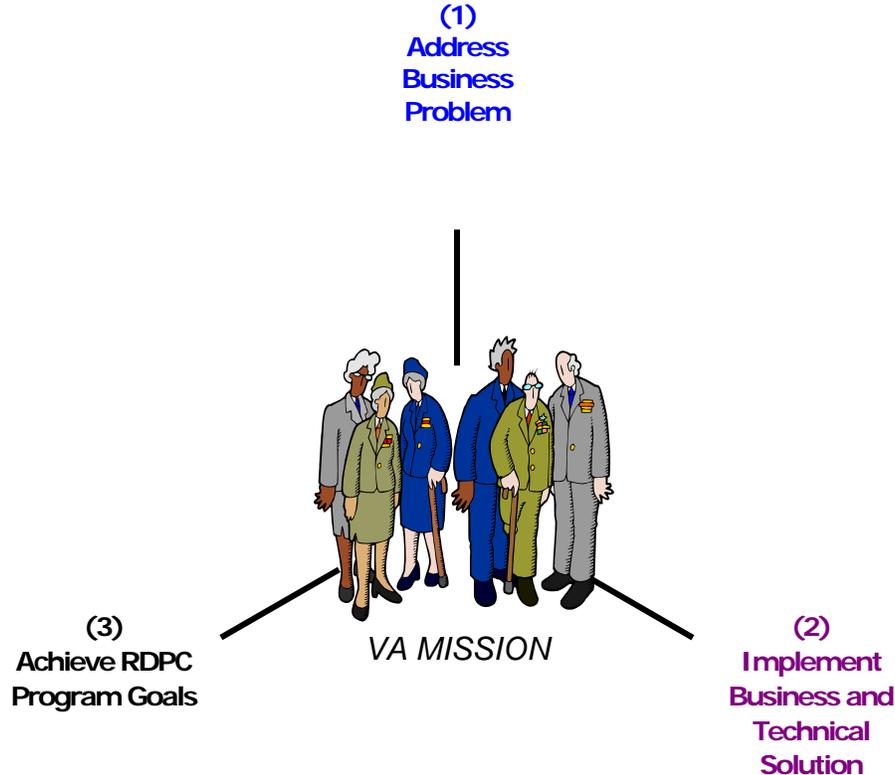
Finally, migration to the RDPC environment will support the efficient enhancement of hardware, software, middleware, and COTS products. These modifications can be leveraged across all locations, thus reducing cost and time delays typically associated with such activities. When the wholesale duplication of management tasks is eliminated, not only can the overall number of support FTEs be reduced, but it will also allow for better allocation of resources towards the ongoing research, development and implementation of critical future features and strategies.

## 5. RDPC Program Objectives

The RDPC Program Objectives are as follows:

- Unify management structure and realize efficiencies via reduced data centers
- Provide robust, reliable, and flexible infrastructure via unification and standardization
- Replicate centralized model; create governance structure that supports it
- Position the remaining VISNs (MLO) to more seamlessly migrate to a regional model.
- Safely and successfully transition medical center operations to a regional model with the very least amount of disruption and, in turn, foster support and acceptance for the RDPCs
- Introduce a COOP architecture that will provide superior data availability and data protection, which only exists currently in only a very small percentage of the organization
- Create a replicable model (or "Pattern") for RDPC deployment – including the technologies used, architectures chosen, the governance structure and the customer support structure
- Put in a structure that realizes economies of scale and efficiencies – of cost and otherwise – and poises the Department to reap the many benefits of wide scale standardization
- Validate the governance model – its successful alignment with the business goals and vision of the business units and the organization as a whole and its ability to avoid the difficulties common to monolithic structures and retain the agility to respond ably to the business
- Demonstrate and document the benefits and by products – both tangible and intangible – of regionalization

The following diagram illustrates how RDPC program goals work to address the current business problem and ultimately support high level VA business strategy.

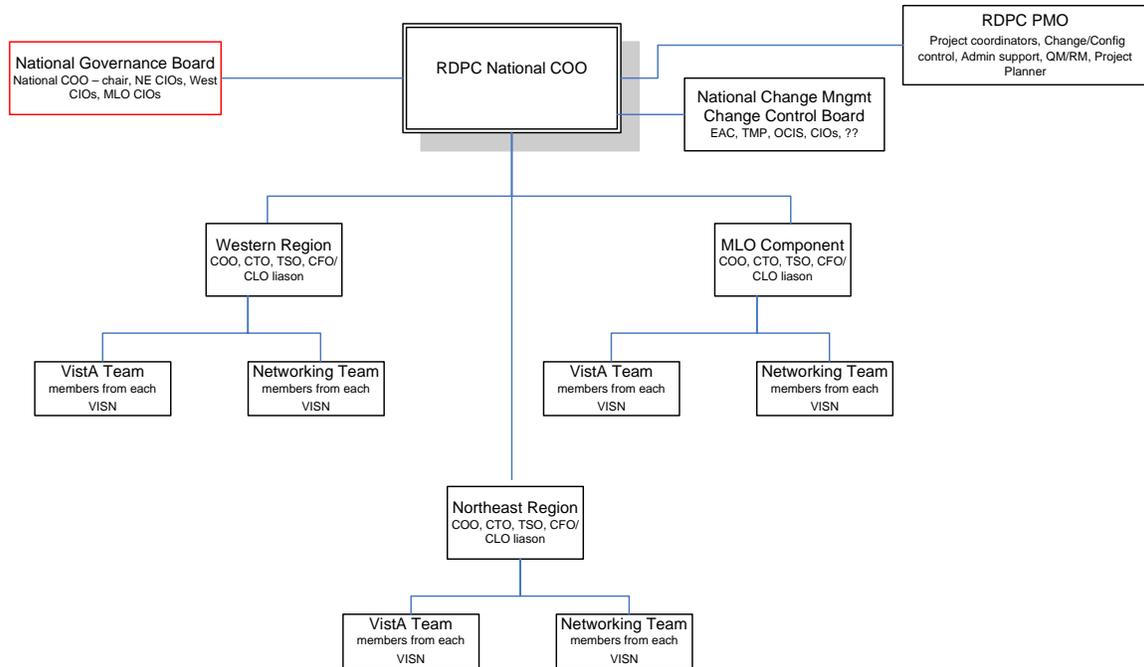


### RDPC Centralization Supports VA Mission

- (1) Data processing within VISNs is decentralized at facility level*
- (1) Decentralization leads to inefficiencies and poor customer service for: Patients, Hospitals, Directors, and Providers*
- (1) Current model is not sustainable due to resource limitations*
- (2) Centralize data processing by co-locating and/or integrating data centers at the VISN level*
- (2) Standardize and enhance IT operations, security; optimize resources*
- (2) Provide a "cookbook" for replicating throughout the agency*
- (3) Unify management structure and realize efficiencies via reduced data centers*
- (3) Provide robust, reliable, and flexible infrastructure via unification and standardization*
- (3) Replicate centralized model; create governance structure that supports it*
- (3) Position the remaining VISNs to more seamlessly migrate to a regional model*

## 6. RDPC Project Structure

The RDPC Initiative has a defined project structure which has been outlined by the VA Enterprise CIO Council (VCIOC) and supported by the IDMC. This structure is currently being executed in the Western Region, Northeast Region, and the MLO. Currently, the RDPC initiative is being guided by Ray Sullivan, Charles De Sanno, and Michael Lay. While there is no formal charge designating this group as the RDPC leadership, these individual are acting in that capacity.



*Notional RDPC Structure*

## 7. Conclusion

The RDPC Co-Location project has proven itself to be viable; however, a major factor to success for RDPC is a visible, proactive Executive Sponsor and an official charge memo to validate the RDPC Leadership's importance in carrying out the project across the agency. Lack of Executive Sponsorship creates a separation between the organization's formal strategic agenda and the objectives of the RDPC, posing a great risk to the project's success. And finally, adequate resources are needed to continue the RDPC work to ensure the project's success. Without support at the executive level and the allocation of resources, the RDPC Co-location initiative will fail to achieve its full potential.

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