VA HEALTH CARE | Defining EXCELLENCE in the 21st Century

Continuity of Veteran Care during EHR Migration and beyond:

VISTA Data Project

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A Joint Interagency Project with the U.S. Department of Defense, Defense Health Agency

- VA-DoD Interagency Project
- Leverages DoD-developed EHR migration technology and approach
- Provides security, audit, analysis, and migration for all veteran data
- Creates Master Veteran Data Model for all veteran data
- Enables Master Veteran Data Repository for all veteran data
- Execution 2016-2018
- http://vistadataproject.info

VHA/DHA Health Management Systems:

DHCP is the common base system

VHA: 151 hospitals; 820 clinics; 300 vet centers; + other (total 1700 care sites)
DHA: 57 hospitals; 350 clinics + other

VHA: 131 VISTA systems operational (since 1981)
DHA: 101 CHCS systems operational (since 1985)
Total: 232 DHCP-based systems across VHA-DHA

DHCP-based systems
Common technology projects
VHA-specific interface and workflow
DHA-specific interface and workflow

Veterans Health Administration (VHA)

VHA

operational client

operational database and workflow

VISTA (x131) — *VISTA Data: 3000+ files; 55,000+ fields*

CPRS ••• EHRM

Common Base System

DHCP

joint technology projects

TAPS **VDP** ••• VISTA Data Project

Janus (JLV)

iEHR

Defense Health Administration (DHA)

DHA

operational database(s) and workflow

operational client

CHCS (x101) — *CHCS Data: 1000 files; <20,000 fields*

CDR / MDR

AHLTA ••• Genisys

While DHCP was initially the same in VHA and DHA, it has diverged over time. The most significant fork occurred in 2004 when DHA standardized and migrated a large portion of operational data and functions from CHCS to CDR and MDR databases. Currently the variety, volume, and function of CHCS data is approximately one-third that of VISTA.

	1980	1990	2000	2010	2017
VHA-specific		**VISTA**	CPRS		
Common	**DHCP**		JLV	iEHR TAPS	VDP
DHA-specific		**CHCS**	AHLTA / CDR	Genesis	

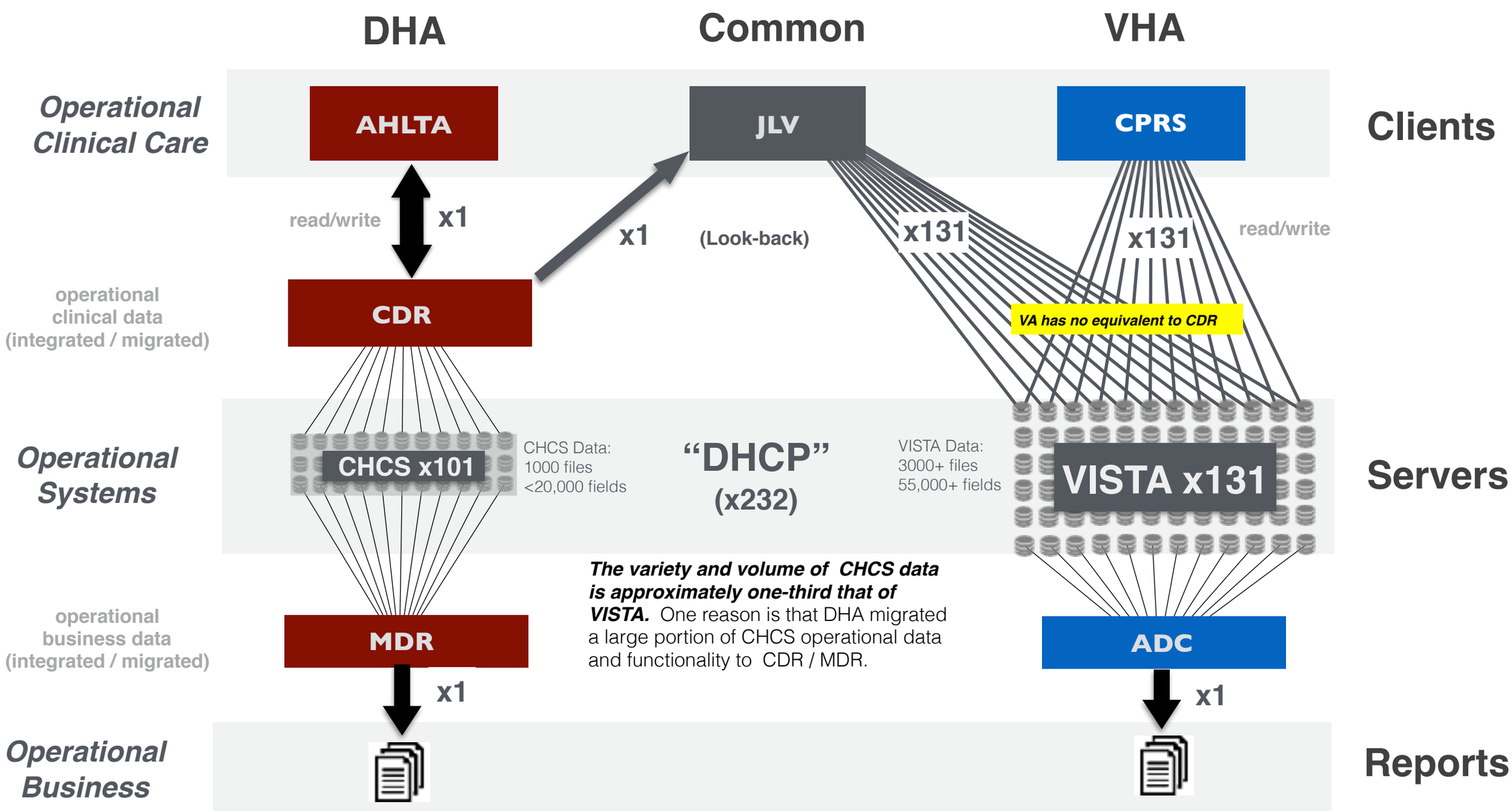
Note: Time scale simplified for clarity

1981 - DHCP - Decentralized Hospital Care Program - VA Fileman database and applications [VHA]
1985 - CHCS - (DHCP renamed to) Composite Health Care System; modified for DHA use [Leidos (SAIC)]
1994 - VISTA - (DHCP renamed to) Veterans Information Systems Technology Architecture [VHA]
1997 - CPRS - Computerized Patient Record System - graphical interface and workflow [VHA]
2004 - AHLTA/ CDR/ MDR - Armed Forces Health Longitudinal Technology Application [Northrup Grumman]

2003 - Janus - Interagency viewer (renamed to JLV in 2011) [DHA-VHA]
2011 - iEHR - Integrated Electronic Health Record [SMS]
2013 - TAPS - Transition Application Plan Support [DHA-VHA]
2016 - MHS Genisys (COTS EHR - Cerner)
2016 - VDP - VISTA Data Project [DHA-VHA]

VHA/DHA Health Management Systems

DHA centralized; VHA decentralized



DHA has standardized and migrated much its operational clinical and business data from CHCS into CDR, allowing read-write access to longitudinal health data while retiring CHCS, without loss of continuity of care.

VHA has not yet decided on its long-term strategy for migration of longitudinal Veteran operational business and clinical data. There is no equivalent of a CDR in VHA. VA remains fully dependent on VISTA for all clinical and business operations.

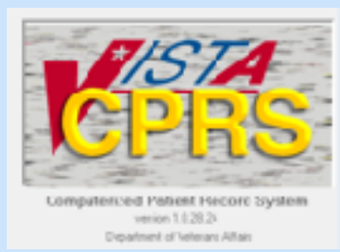
AHLTA - User Interface
CHCS - Composite Healthcare System (All operational data)
MDR - Military Data Repository (Operational business data)
CDR - Clinical Data Repository (Operational clinical data

CPRS - User Interface
VISTA - VA Information Systems Architecture (All operational data)
ADC - Austin Data Center (Operational business data)

VHA workflow:
Captured in VISTA Server

CLIENTS
(User Interfaces)

Terminal Interface
(integrated in VISTA server)



Graphical Interface
(remote from VISTA server)

1981 **1997** **2017**

INTEGRATED SERVER:

Database + Applications + Workflow Engine + Integration Engine + Terminal Interface

ScreenMan

RPCs (workflow)

VISTA Server (x131)

1980 1990 2000 2010 present

Because the VISTA server's remote procedure call (RPC) interfaces captures all the clinical and business operational workflow of the CPRS client, migrating VISTA "server-first" captures and ensures VA continuity of care and business processes.

VISTA Data Project
https://vistadataproject.info

VISTA Data Project

Phase I: Stepwise Server Migration while maintaining Continuity of Care

Phase I (FY16-17)
VISTA Metadata Audit Analytics and Automation
VA-DoD Pacific Joint Innovation Technology Center

- Proven, stepwise VISTA Server migration
- Formalizes and preserves Veteran Care Model
- Formalizes and preserves Veteran Business Model
- Provides seamless continuity of care (CPRS/JLV)
- Allows retirement of legacy MUMPS VISTA [spaghetti]

Current VISTAs

CPRS / JLV ….

RPC Interfaces (x 1000s) or *Insecure Asymmetric Opaque Legacy MUMPS Code-driven Interfaces*

Key Features

- *Measurable, Stepwise Migration from Legacy VISTA server*
- *Leverages DoD-funded migration tooling for VA systems*
- *Migrates to model-driven server, based on CPRS blueprint*
- *Executable Master Data Model, regression tested*
- ***Maintains continuity of care:***
  - *CPRS continues to run without change*
  - *JLV continues to run without change*
- *Provides new National Veteran Care Services interface*
- *Enables new, mobile and web clients*

VISTA Data Project

CPRS / JLV (current continue)

Web/Mobile Cloud/COTS (new enabled)

or

Single Secure Symmetric Modern Model-driven Interface

Stepwise, Measurable Server Migration

VISTA Server

RPC Interfaces (x1000's)

VISTA Applications (x180)

VA Fileman Database

Time

Pass Thru	
Pass Thru	Emul
Pass Thru	Emulate
Pass	Emulate
Emulate / REST	

RPC Emulator | REST

Clinical Domain Services

Master VISTA Data Model

VISTA Data Model

VA Fileman Database

Node

New Server

MUMPS-driven VISTA Server
(maintenance and growth issues)

Structured VISTA Server
(mainstream, extensible technology)

M Legacy VISTA (MUMPS)

Master Data Model - Node.js Driven VISTA (no MUMPS)

Strategic Benefits

- ***New, maintainable veteran care server*** *based on* ***mainstream technology***
- *New web and mobile clients enabled with mainstream technology*
- *Current clients (CPRS/JLV) supported and enforce continuity of VA Care coverage*
- ***May now safely incrementally retire legacy MUMPS VISTA*** *[spaghetti]*
- *(Some) Clinical Domain Services may be implemented over COTS* ***(EHR Migration)***

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VISTA Data Project

Phase II: Migrate to COTS/Cloud-based National EHR following proven VDP Phase I strategy

Phase II (FY18-19)
VISTA Adaptive Maintenance
VA Veteran Integrated Program

- Leverage proven stepwise VISTA Server migration
- Provides seamless continuity of care (CPRS/JLV)
- Provides national services for COTS EHR migration

Local Legacy VISTA Servers (x130)

Clients (care specifics)

CPRS / JLV

Insecure Asymmetric Opaque Legacy MUMPS Code-driven Interfaces

or

RPC Interfaces (x 1000s)

Key Features

- *Leverages VDP Phase I Migration Strategy*
- *Moves to Single National Cloud Services*
- ***Incrementally retire 131 VISTAs***
- ***Maintains Continuity of Care***
  - *CPRS continues to run without change*
  - *JLV continues to run without change*
- *Enable new mobile and web clients*
- ***Enables migration to COTS EHR***

Proven Server Migration Strategy of Phase I

National Veteran Cloud Services (x1)

CPRS / JLV (transitional) | New web/mobile (enabled)

Clients (current + new)

Secure Symmetric Modern Model-driven Interface

Commercial Cloud Services

Local Legacy Servers (x130)

RPC Interfaces
VISTA Applications (x180)
VISTA Database

Time

Legacy VISTA
Legacy | Model
Legacy | Model
Legacy | Model
Model Services

Emulator	REST
Model Services	*Commercial Services*
VA-specific Applications	Commercial EHR
Commercial Cloud DB	

New Cloud Server (x 1)

VA Proprietary

Specialized Veteran Care Services with Integrated Cloud COTS EHR

M Legacy VISTA (MUMPS; RETIRED)
Master Veteran Data Model Services (NEW)
Industry Standard Modules (NEW)

Strategic Benefits

- ***Single Integrated Veteran Care System***
- *Guarantees continuity of veteran care and services during migration*
- *VA stops maintaining features available in COTS / Cloud EHR*
- *Easily add new clients and services for providers and veterans*

Resources

Web: vistadataproject.info

Github: github.com/vistadataproject

Contact: rafael.richards@va.gov