Providing continuity of Veteran Care during EHR Modernization and beyond

VISTA Data Project

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- Leverages DoD-developed EHR migration technology
- Provides security, audit, analysis, and migration for all veteran data
- Creates Master Veteran Data Model for all veteran care and services
- Preserves veteran-specific care and services
- Execution 2016-2018
- http://vistadataproject.info

VHA-DHA Health IT Architecture

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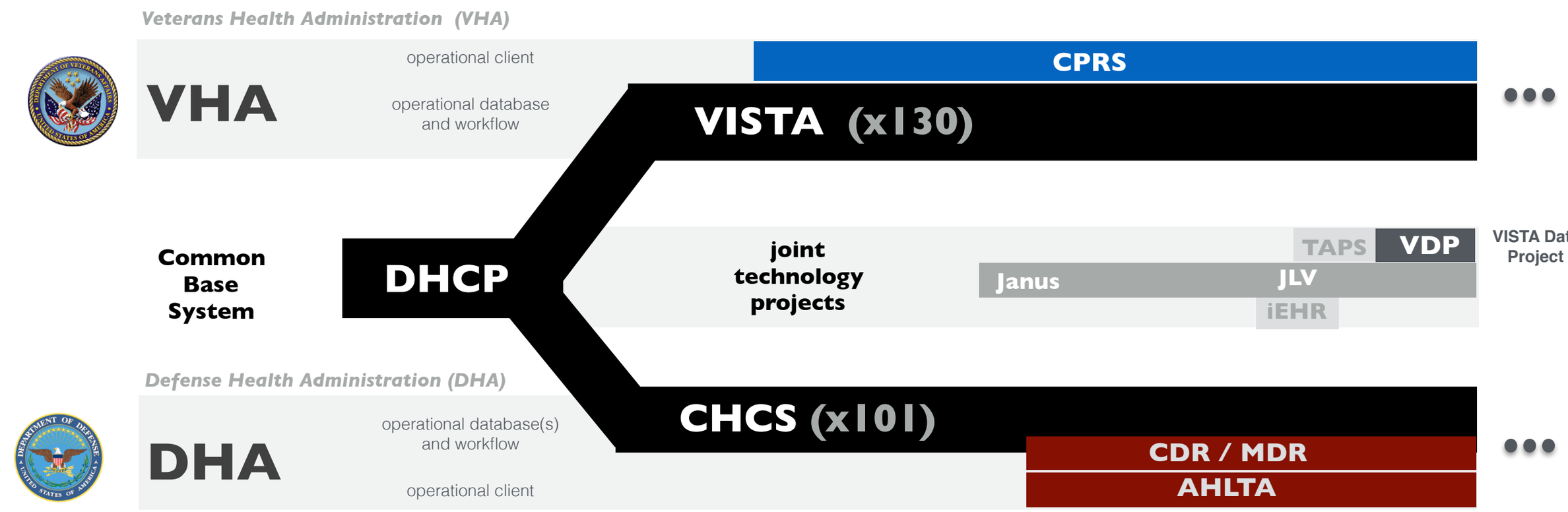
DHCP is the common base system

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

VHA: 130 VISTA systems operational (since 1981)
DHA: 101 CHCS systems operational (since 1985)
Total: 231 DHCP-based systems across VHA-DHA

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



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

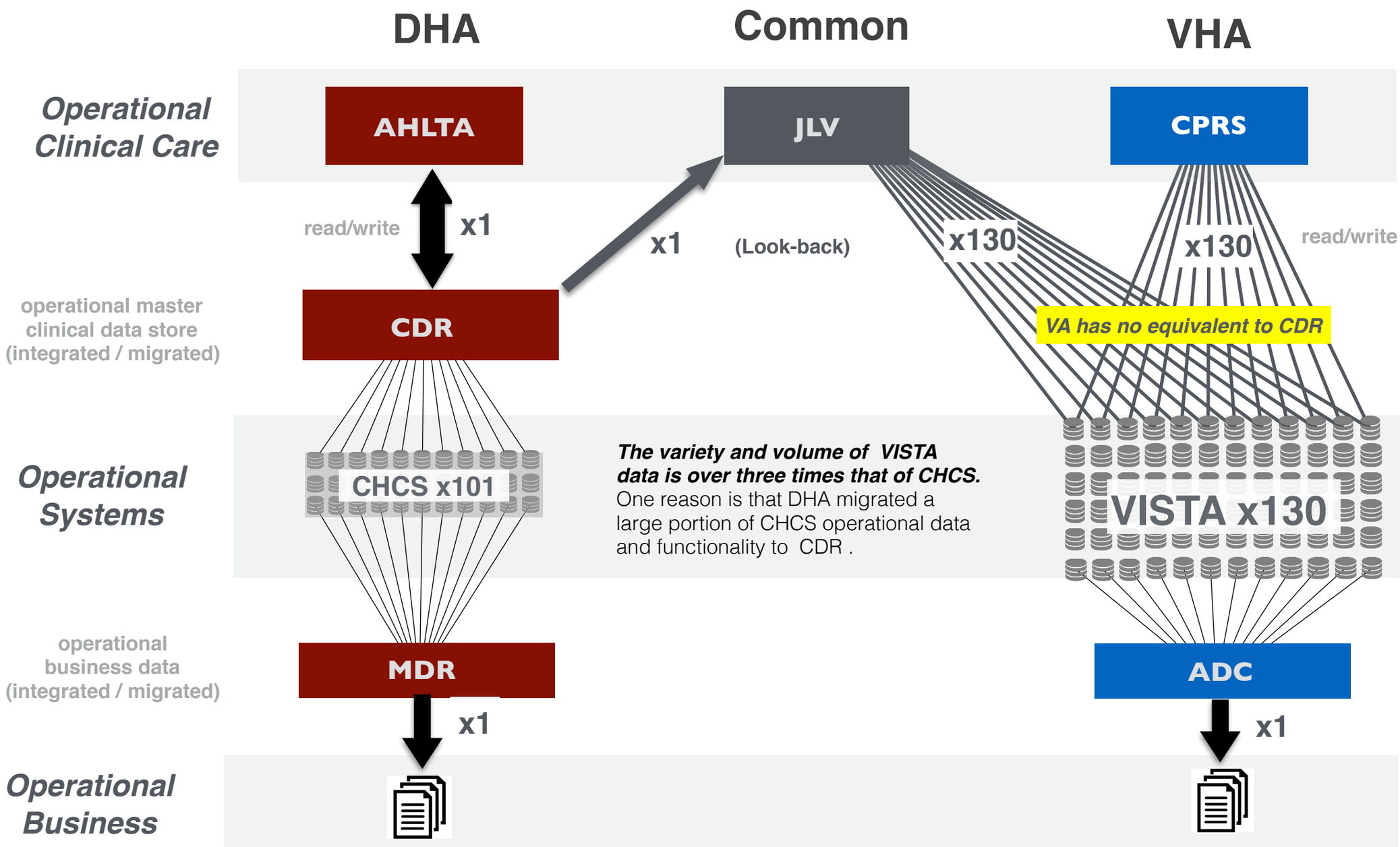
Note: Time scale simplified for clarity

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

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

VHA-DHA Health IT Architecture

VHA is larger and more complex



DHA has standardized, migrated, and centralized much of its clinical and business function from 101 CHCS systems into a centralized operational store (CDR), providing a single national read-write operational datastore for clients (AHLTA, JLV) and interfacing.

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

VHA has not standardized or centralized the function of its 130 VISTA operational systems. VA must interface all clients (CPRS, JLV, …) and systems to each of the unique 130 VISTA servers to maintain continuity of clinical and business operations.

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

VISTA is not only an EHR

Most of VISTA is VA-specific Business function and data

Content of largest 30 files in a VISTA system

	#	File	Count
Clinical	P1	IMAGE (2005)	5,728,923
Business	P2	AR TRANSACTION (433)	5,595,597
Clinical	P3	GMRV VITAL MEASUREMENT (120.5)	5,582,099
Clinical	P4	V CPT (9000010.18)	5,533,193
Business	P5	ENROLLMENT/ELIGIBILITY UPLOAD AUDIT	5,525,976
Clinical	P6	ORDER (100)	5,243,872
Clinical	P7	TIU DOCUMENT (8925)	4,588,982
Clinical	P8	VISIT (9000010)	4,465,018
Clinical	P9	OUTPATIENT ENCOUNTER (409.68)	4,385,585
Business	P10	BCMA MEDICATION LOG (53.79)	3,901,198
Clinical	P11	V POV (9000010.07)	3,640,303
Clinical	P12	V PROVIDER (9000010.06)	3,446,623
Business	P13	ACRP TRANSMISSION HISTORY (409.77)	3,122,925
Business	P14	TRANSMITTED OUTPATIENT ENCOUNTER	2,697,388
Business	P15	IMAGE ACCESS LOG (2006.95)	2,524,259
Business	P16	PATIENT ENROLLMENT (27.11)	2,386,762
Business	P17	IB COPAY TRANSACTIONS (354.71)	2,291,380
Business	P18	BCMA REPORT REQUEST (53.69)	2,119,037
Business	P19	INTEGRATED BILLING ACTION (350)	2,065,742
Business	P20	CLAIMS TRACKING (356)	1,989,049
Business	P21	ADT/HL7 PIVOT (391.71)	1,987,001
Clinical	P22	PRESCRIPTION (52)	1,863,696
Business	P23	ORDER CHECK INSTANCES (100.05)	1,486,470
Business	P24	UNIT DOSE EXTRACT DATA (728.904)	1,475,497
Business	P25	ACCOUNTS RECEIVABLE (430)	1,466,346
Clinical	P26	V HEALTH FACTORS (9000010.23)	1,462,325
Business	P27	IVM FINANCIAL QUERY LOG (301.62)	1,439,880
Business	P28	IVM TRANSMISSION LOG (301.6)	1,285,905
Business	P29	IB BILL/CLAIMS DIAGNOSIS (362.3)	1,264,869
Business	P30	BCMA UNABLE TO SCAN LOG (53.77)	1,239,098

Total files	91,804,998
Clinical files	40,211,696
Business files	51,593,302

VISTA Packages (total 180)

VISTA Files (largest 30)

VISTA Data (>90 million)

VISTA Data Project
Migration from Servers to Services

Cloud Services

Google - Amazon - Microsoft Cloud
U.S. Federal Certified (HIPAA Secure) Commercial Cloud and NoSQL Datastore with Centralized, Model-driven
Veteran Integrated Care Services (VICS)

Veteran Integrated Care Services (VICS) enables <u>all</u> *VISTA systems* to be *decommissioned <u>completely</u>* with *<u>no</u> loss* of Veteran- or VA-specific care or services.

RPC Routing & Emulation

HTTP / REST web sockets

Clients

Existing clients continue to work unchanged using RPC routing and emulation

CPRS
JLV

New clients and services interface via REST/HTTP.

New Web / Mobile

RPC Router

Backward Sync

Existing servers continue to work unchanged using Backward sync

Legacy Servers

Decentralized, Local, Legacy VISTA Servers (x130) incrementally migrated to VICS Cloud Services domain-by-domain via RPC routing and emulation. Backward sync maintains integrity of legacy servers with Cloud Service during transition.

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Example of Veteran Integrated Care Service (VICS)

Workload

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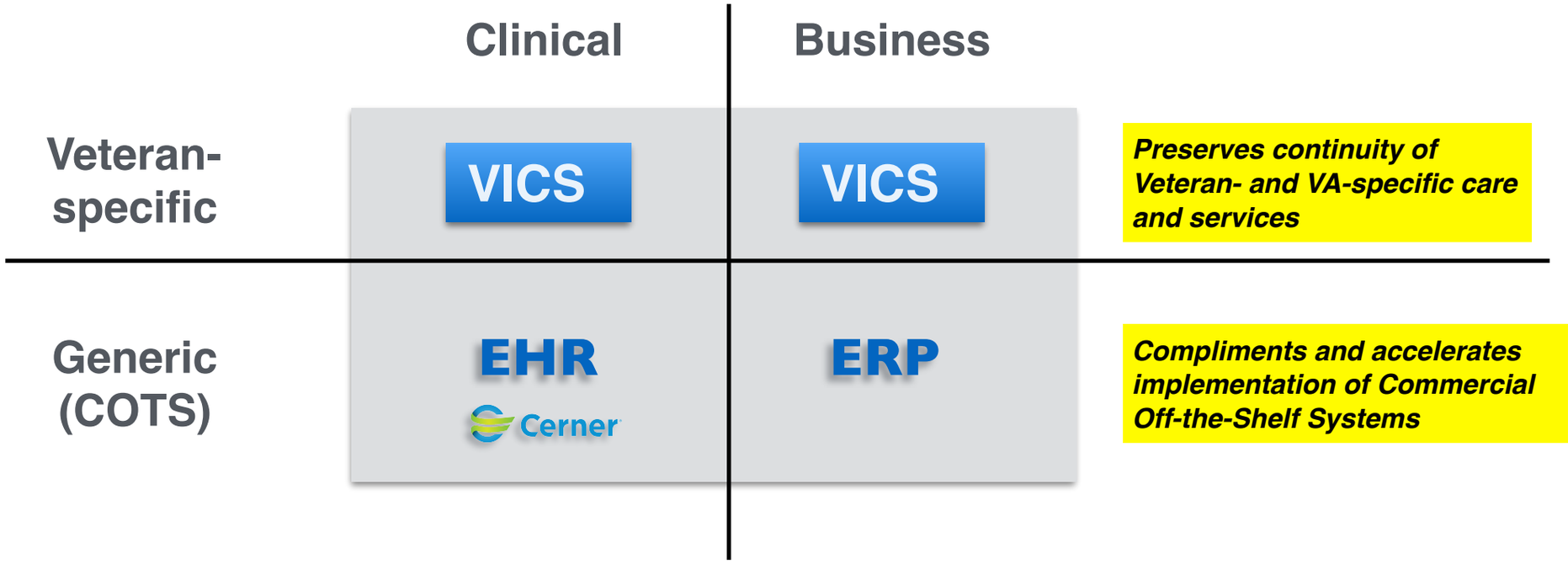
VICS Compliments and Accelerates EHRM Success

VICS Compliments EHRM	Veteran Integrated Care Services (VICS) enables migration from 130 VISTA servers to a commercial clinical and business systems (COTS EHR / ERP) while maintaining seamless continuity of veteran-specific care and services.



VICS Accelerates EHRM	The VICS Approach allows the decommissioning all 130 VISTA systems *independent of (and more rapidly than) the rate of COTS systems implementation - allowing resources to focus on COTS EHR implementation.*

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Conclusion

- **Complete Decomissioning** of all 130 VISTA systems (no residual technology or servers to maintain).
- ***Proven*** DoD-developed approach (common goals)
- ***Pure* Commercial Cloud** solution (no GOTS)
- ***Preserves* Continuity** of Veteran- and VA-specific Integrated Care and Services (VICS)
- ***Saves*** government maintenance and modernization costs of VISTA systems ($19B over 10 years)

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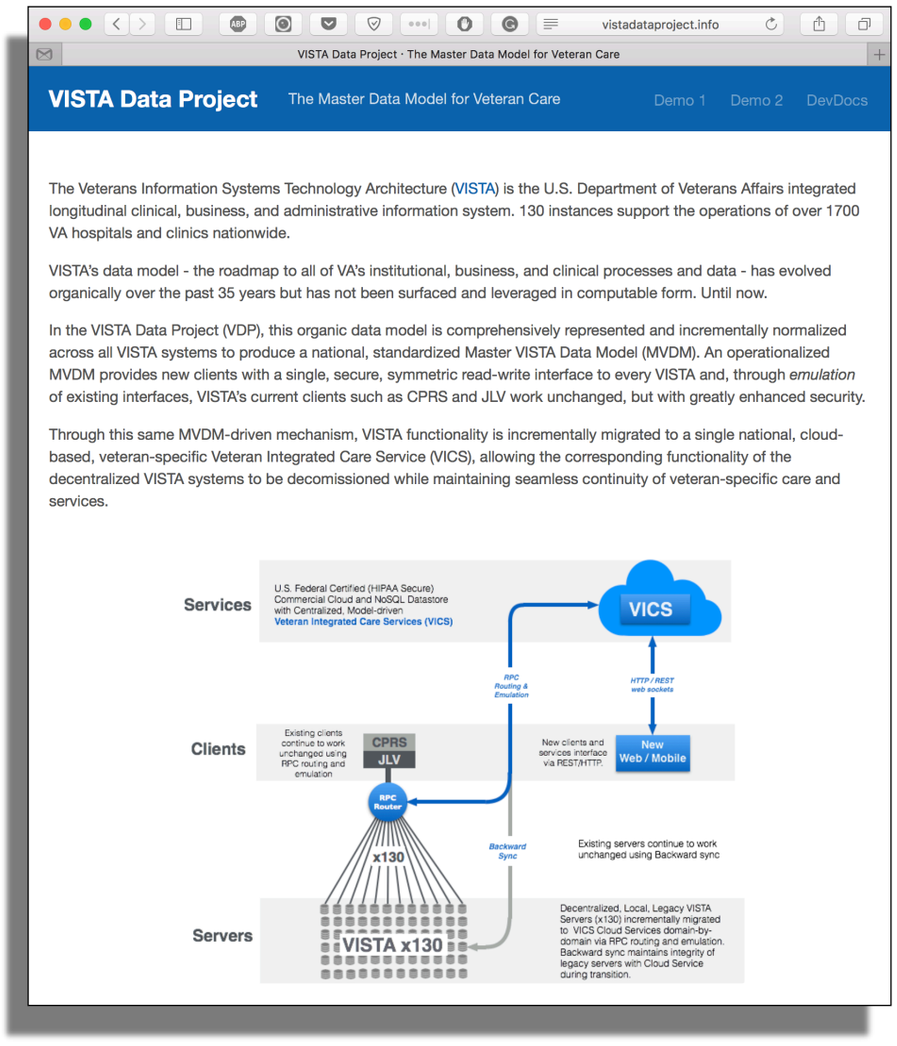
Contact



Website

http://vistadataproject.info

Demo

http://vistadataproject.info/demo

Contact

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END

VHA-DHA Health IT Architecture

Common Systems / Common Tooling

Common Systems	**DHCP (x231)**		Fileman / Data-dictionary driven MUMPS information system
Common Tooling	**DHA (CHCS x101)**	**TAPS**	v1: POC: Fileman Query Language (FMQL) v2: IOC:
	VHA (VISTA x130)	**VDP**	v1: POC: RPC Emulation; Master VISTA Data Model v2: IOC: RPC Routing; Cloud-based VICS