



*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



Veterans Health Administration (VHA)



Defense Health Administration (DHA)



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.

	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 (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

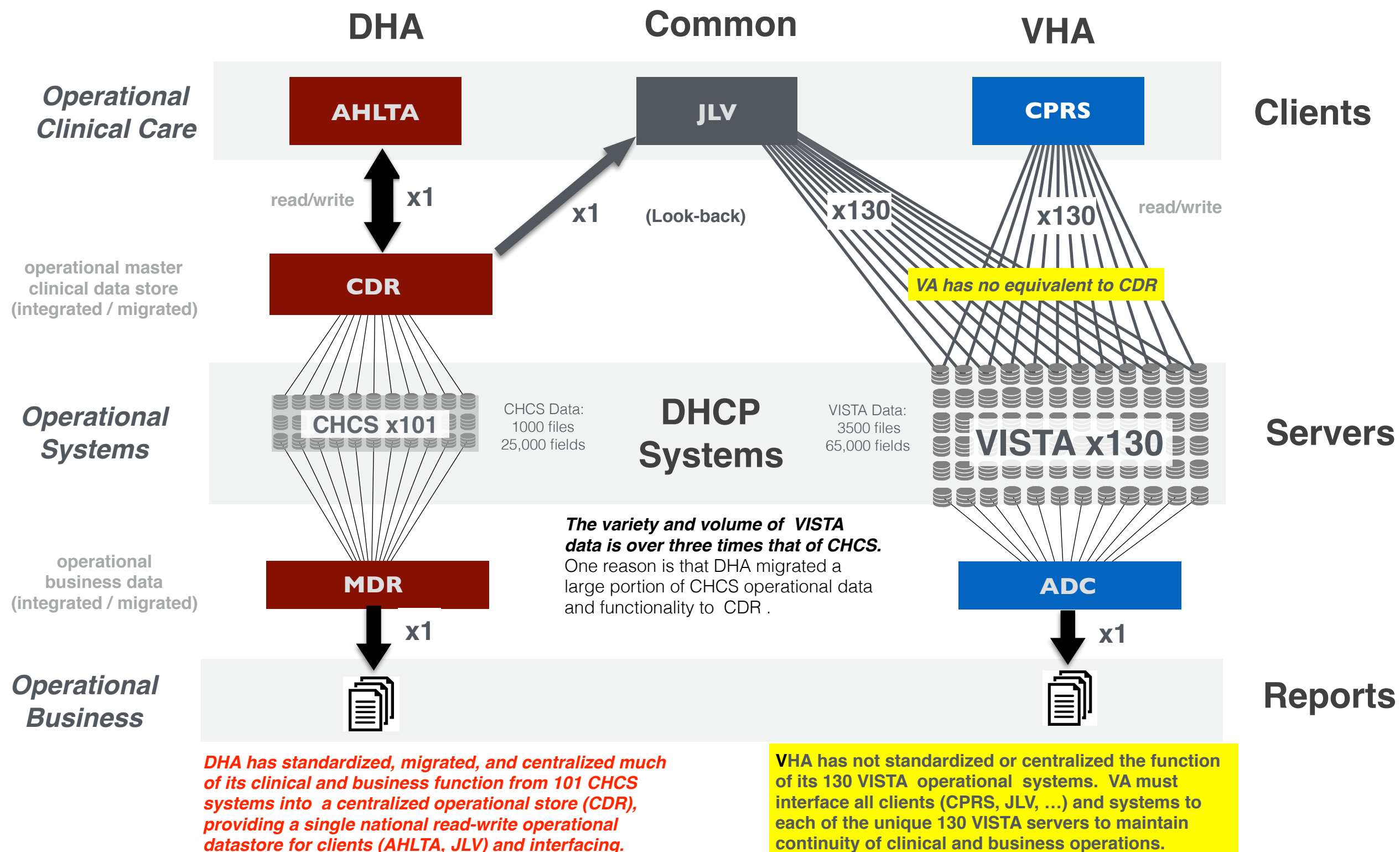


VHA-DHA Health IT Architecture

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VHA is larger and more complex



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)



VISTA is more than an EHR

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Most of VISTA is Business function supporting VA-specific operations

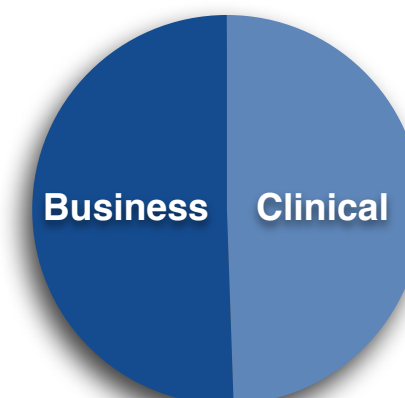
Content of largest 30 files in a VISTA system

	#	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

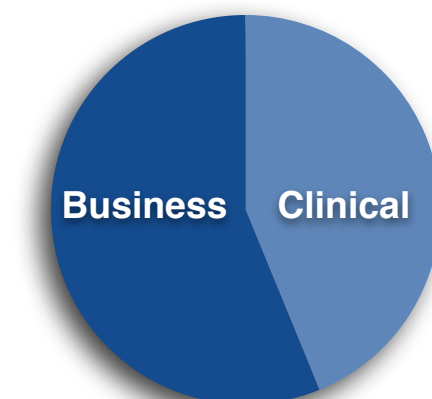
Business files 51,593,302



**VISTA
Packages
(total 180)**



**VISTA
Files
(largest 30)**



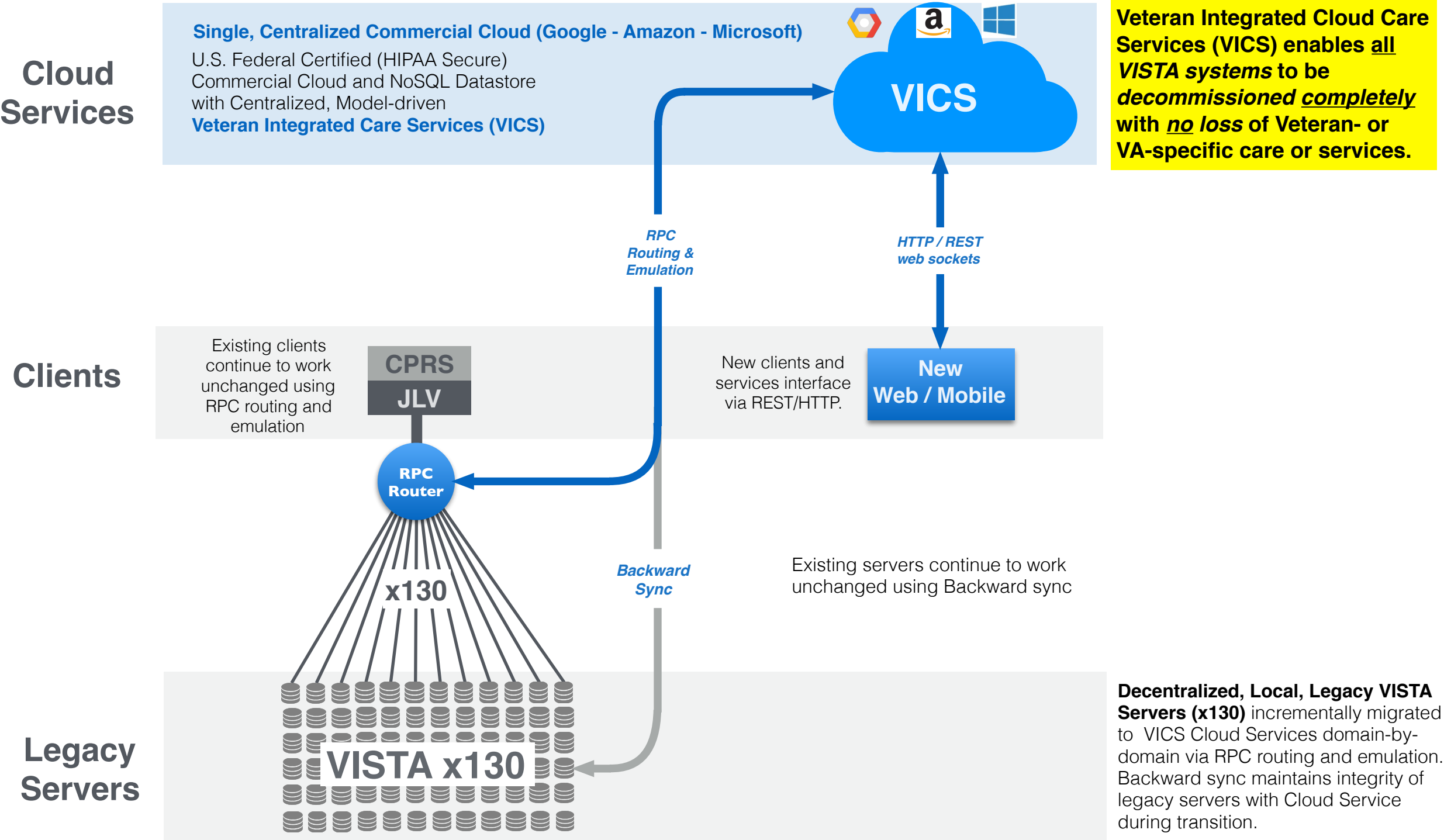
**VISTA
Data
(>90 million)**

VISTA provides the data for 100,000 business, operational, finance, and Congressionally-mandated safety, quality, and efficiency reports each year to provide VA- and Veteran-specific care and benefits.



VISTA Data Project

Migration from Servers to Services





Veteran Integrated Care Services (VICS)

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Example: Veterans Workload Service

<https://workload.vistadataproject.info>

workload.vistadataproject.info

Workload Browser

VA U.S. Department of Veterans Affairs
Veterans Workload Service

Welcome to the Veterans Workload Service

Email

Password

Login

Veterans Workload Service (VICS) website.

Work Details Outpatient / PRIMARY

ID: 3490080
Primary DSS: PSYCHIATRY - INDIVIDUAL
Secondary DSS: COMP & PENS (C&P) EXAMS
Entered Date: 11-21-2008 09:39 am
CPTs: DISABILITY EXAMINATION (99456)
Primary Provider: JENSEN, CLYDE M
Location: ZZIOW C&P JENSEN
Entered By: GUZMAN, HARRIETT J
Sent to NPCD?: YES

PSYCHIATRY - INDIVIDUAL

Work Details of C&P Psychiatry Exam on Nov 21, 2008

18	19	20	21 PSYCHIATRY - INDIVIDUAL	22
25 GENERAL INTERNAL MEDICINE AUDIOLOGY PRIMARY CARE MEDICINE OPTOMETRY	26 AUDIOLOGY MH INTGRD CARE IND	27	28 X-RAY	29

Nine (9) Outpatient encounters in Nov 2008

- Outpatient Work Details (9)**
- PSYCHIATRY - INDIVIDUAL (1)
 - GENERAL INTERNAL MEDICINE (1)
 - AUDIOLOGY (2)
 - PRIMARY CARE MEDICINE (1)
 - OPTOMETRY (1)
 - X-RAY (2)
 - MH INTGRD CARE IND (1)
- Click for Details

Work Details Timeline

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2008											9	8
2009	3	12	11	15	5	3	6	4	3	2		1
2010	3	2	3	1	1	2	4	2	5			2
2011	2	3										

Work Details Timeline by year and month




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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.

	Clinical	Business	
Veteran-specific	VICS	VICS	Preserves continuity of Veteran- and VA-specific care and services
Generic (COTS)	EHR 	ERP	Compliments and accelerates implementation of Commercial Off-the-Shelf Systems

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

- **100% Decommissioning** of all 130 VISTA systems (zero residual legacy technology or systems to maintain).
- **Proven** DoD-developed migration approach (common technology and goals)
-  **Centralized Commercial Cloud** solution (no GOTS, no legacy components)
- **Preserves Continuity** of Veteran- and VA-specific Integrated Care and Services (VICS)
- **Saves** required funding for maintenance and modernization of VISTA (\$19B over next 10 years)



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Contact

VISTA Data Project The Master Data Model for Veteran Care Demo 1 Demo 2 DevDocs

The Veterans Information Systems Technology Architecture (VISTA) is the U.S. Department of Veterans Affairs integrated longitudinal clinical, business, and administrative information system. 130 instances support the operations of over 1700 VA hospitals and clinics nationwide.

VISTA's data model - the roadmap to all of VA's institutional, business, and clinical processes and data - has evolved organically over the past 35 years but has not been surfaced and leveraged in computable form. Until now.

In the VISTA Data Project (VDP), this organic data model is comprehensively represented and incrementally normalized across all VISTA systems to produce a national, standardized Master VISTA Data Model (MVDM). An operationalized MVDM provides new clients with a single, secure, symmetric read-write interface to every VISTA and, through *emulation* of existing interfaces, VISTA's current clients such as CPRS and JLV work unchanged, but with greatly enhanced security.

Through this same MVDM-driven mechanism, VISTA functionality is incrementally migrated to a single national, cloud-based, veteran-specific Veteran Integrated Care Service (VICS), allowing the corresponding functionality of the decentralized VISTA systems to be decommissioned while maintaining seamless continuity of veteran-specific care and services.

The diagram illustrates the VISTA architecture and its migration to the VICS cloud service. It is organized into three main layers: Services, Clients, and Servers.

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

Key components and connections include:

- RPC Router:** A central component that routes requests between clients and servers.
- RPC Routing & Emulation:** The mechanism used to connect existing clients to the VICS cloud service.
- Backward Sync:** The mechanism used to maintain the integrity of legacy servers during the migration process.
- VISTA x130:** The legacy servers being migrated to the VICS cloud service.

Website

<http://vistadataproject.info>

Demo

<http://vistadataproject.info/demo>

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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
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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