Executive Brief

VistA Application Analytics

**Comprehensive cloud-based streaming
analytics of VHA clinical workflow**

*Hines Informatics Steering Committee
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Executive Summary

Objective
- *Comprehensive analytics of the real-world workflows of VHA clinicians*
  - *Year One: Intra-facilty workflows*
  - *Year Two: Inter-facilty workflows (including Telehealth, Community care)*

Background
- *All VistA systems have been migrated to the VA Cloud ("Cloud VistA").*
  - *Cloud VistA provides real-time cloud-based streaming traffic capture and analytics of the real-world use of VistA applications (CPRS and 40+ others)*
  - *All user interactions (mouse clicks, menu items, orders, tasks, or sub-tasks) of any Vista Applications can be captured to the millisecond and analyzed*

Benefits
- *Data-driven approach for clinical workflow analysis and optimization*
  - *Enterprise Standardization of clinical workflow*
  - *Clinical workflow optimization and efficiency*
  - *Benchmark workflows of different systems (VistA-EHRM-Other)*
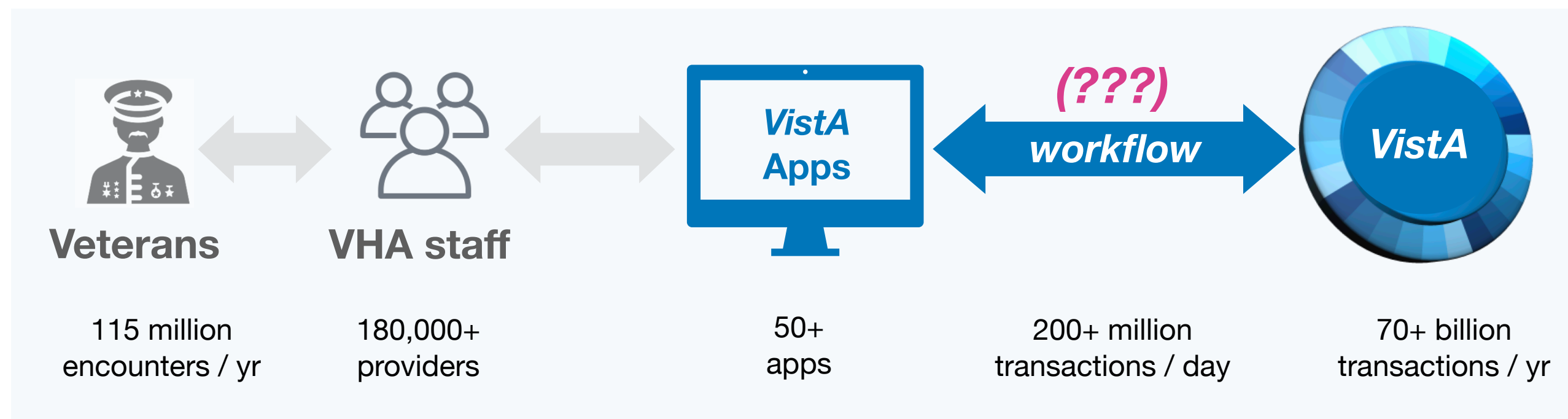 - *Strategic, targeted investment in health IT products and services*

Sponsor   *VHA Digital Health Office / FY24-25*

Status   *Two VAMCs (Texas, Omaha) in full operation with VAA 9/24.*

Ask   *Participation of Hines VAMC as third medical center for VAA*
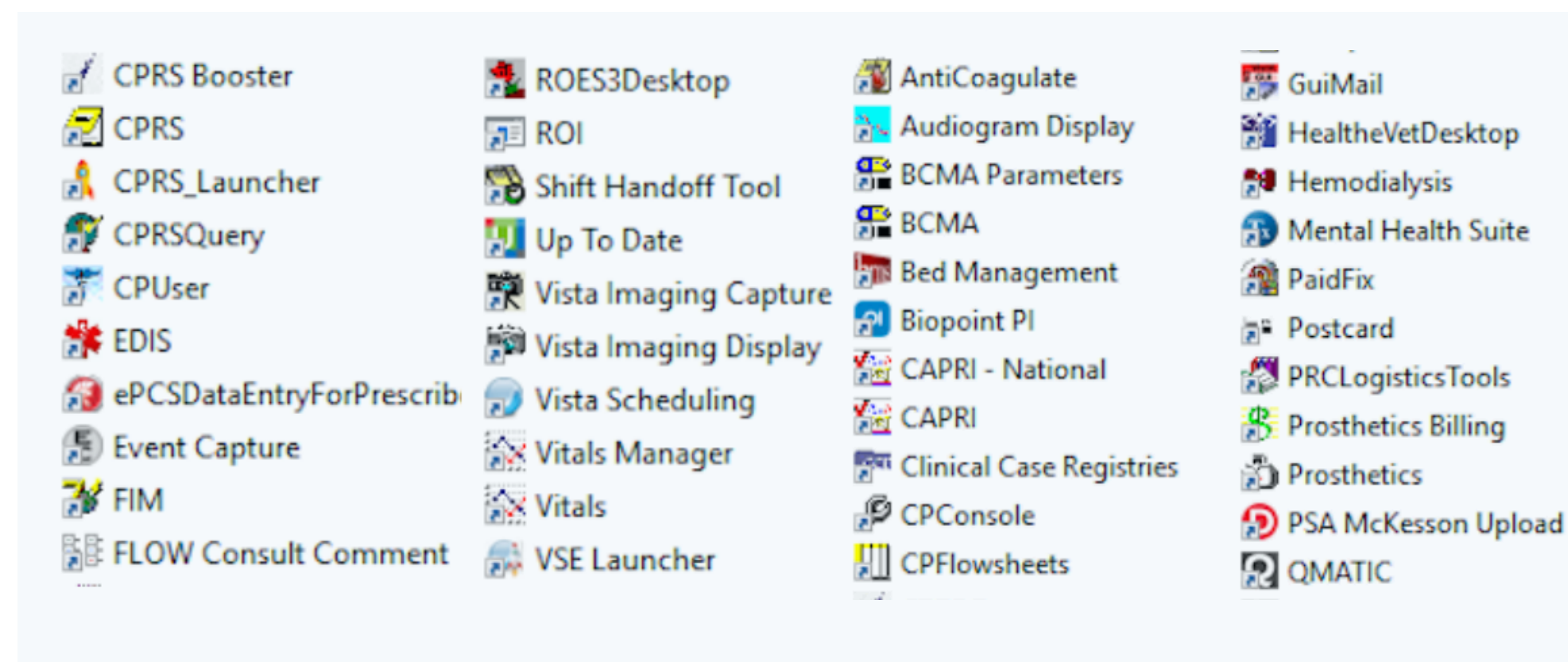
VistA App Analytics

VHA Clinical Workflow

Each day in VA, over 180,000 VHA staff at 1150+ medical facilities use VistA Applications to create, store, and process over 4 million new documents, images, lab, and pharmacy orders in VistA. In FY22, VHA provided over 115 million veteran care encounters using VistA Applications. The clinical workflow of VistA Applications, however, remains unmeasured and unknown.

Veterans — 115 million encounters / yr
VHA staff — 180,000+ providers
VistA Apps — 50+ apps
(???) workflow — 200+ million transactions / day
VistA — 70+ billion transactions / yr

VistA Server

- Contains 500+ million veteran-years of data, knowledge, and workflows.
- Adds 4 million new documents, lab, imaging, and pharmacy orders each day
- Supports 200+ million transactions each day with six sigma reliability.

CPRS Booster
CPRS
CPRS_Launcher
CPRSQuery
CPUser
EDIS
ePCSDataEntryForPrescrib
Event Capture
FIM
FLOW Consult Comment

ROES3Desktop
ROI
Shift Handoff Tool
Up To Date
Vista Imaging Capture
Vista Imaging Display
Vista Scheduling
Vitals Manager
Vitals
VSE Launcher

AntiCoagulate
Audiogram Display
BCMA Parameters
BCMA
Bed Management
Biopoint PI
CAPRI - National
CAPRI
Clinical Case Registries
CPConsole
CPFlowsheets

GuiMail
HealtheVetDesktop
Hemodialysis
Mental Health Suite
PaidFix
Postcard
PRCLogisticsTools
Prosthetics Billing
Prosthetics
PSA McKesson Upload
QMATIC

VistA Applications

- A suite of Windows desktop applications that use the VistA database for all healthcare transactions.
- Includes CPRS, VistA Imaging, and 40+ other applications
- *Workflows are currently unmonitored and unknown*

VistA App Analytics

VAA Overview

Comprehensive cloud-based streaming analytics of VHA clinical workflow

VHA Staff — **VistA Applications** — **Workflow Analytics** — **VistA Cloud**
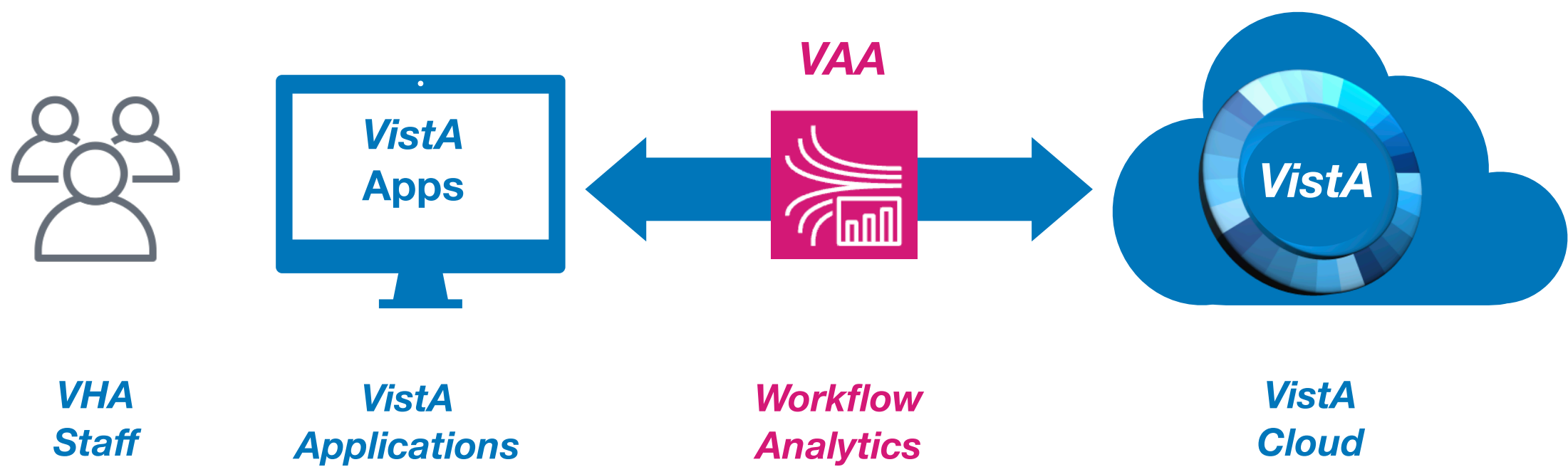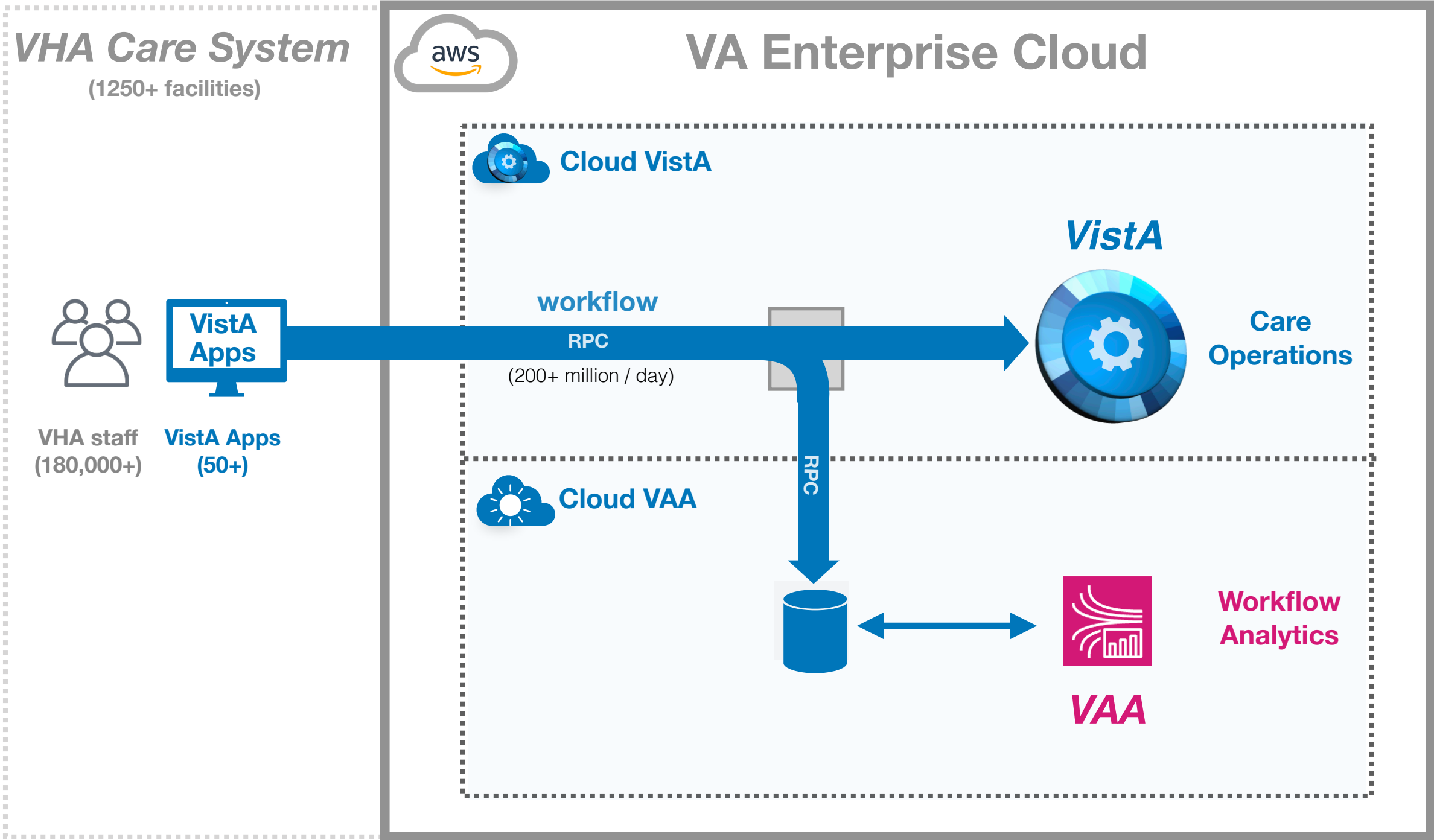
VA Cloud VistA

- All VistA systems have been migrated and modernized in the VA Enterprise Cloud (VAEC), a federally certified commercial cloud managed by Amazon Web Services (AWS).
- Cloud VistA acquires hundreds of new features and capabilities from its new VAEC environment, including security, scalability, and streaming traffic capture and analytics.

VistA Application Analytics (VAA) provides comprehensive cloud-based streaming analytics of all traffic, transactions, and interactions of all VistA applications (CPRS and others) to enable data-driven improvements to the workflows and efficiency of VHA clinical staff.

VistA App Analytics

VAA Implementation and Certification

All VistA systems are hosted in the VA Enterprise Cloud, a federally-certified commercial cloud provided by Amazon Web Services (AWS). VAA leverages VistA's new cloud-based platform and technology to provide secure cloud-based streaming capture and analytics of VistA Application workflows.

VHA Care System
(1250+ facilities)

aws

VA Enterprise Cloud

Cloud VistA

VistA

workflow
RPC
(200+ million / day)

RPC

Care Operations

VHA staff
(180,000+)

VistA Apps

VistA Apps
(50+)

Cloud VAA

Workflow Analytics

VAA

Amazon Web Services is a leading commercial cloud services provider

AWS cloud-based VistA inherits hundreds of new features, functionality, and services within the AWS cloud, including security, scalability, and real-time streaming traffic capture and analytics.

VAA is implemented in the same secure AWS cloud as VistA, which enables streaming analytics of VistA traffic and applications.

Cloud VistA

VistA: VHA Information Systems Technology Architecture
Care Apps: CPRS, Brillians, BCMA (and 50+ others)
VAEC: VA Enterprise Cloud
RPC: Remote Procedure Call (transaction)
AWS: Amazon Web Services
VPC: Virtual Private Cloud

Cloud VistA
U.S. GovCloud: FedRAMP-HIGH
VA: RiskVision (425 controls)
DoD: eMASS (1600+ controls)
NIST: FISMA-HIGH, FIPS
HHS: HIPAA

App Analytics
VASI ID: VAM
VA: T4NG-0411
TAC: 19-54164
ATO: 2020-01
IOC: 2020-03

U.S. GovCloud Certified

Examples of VAA Workflow Analytics

- **Clinician types and volume of use**
  - Physicians, nurses, administration (100+ other)
- **Time spent on different care tasks**
  - Ordering tests, documentation, reviewing labs
- **Clinical Task analysis**
  - Time spent on care sub-tasks
  - Example: reading a consult; ordering an image; writing a progress note
- **Data used by each clinician type**
  - Document types, Note types, Images
- **Applications use by clinician types**
  - Frequency and type of VistA applications clinicians use
  - CPRS, JLV, Brillians, BCMA (50+ other)
- **Enterprise standardization of workflows**
  - Comparative analysis of applications/workflows between facilities
- **Comparative analysis of systems of care**
  - Example: comparison of workflow timings / efficiency of VistA apps (measured with VAA) and EHRM apps (measured with Lights On)

VISTA App
Analytics

PERFORMANCE WORK STATEMENT (PWS)
DEPARTMENT OF VETERANS AFFAIRS

VistA Application Analytics (VAA)

July 30, 2024
VA-FY-24-00054128
Task Order PWS Version: 1.2

Status

- VHA Digital Health Office sponsored: 9/23
- Contract award: 8/24
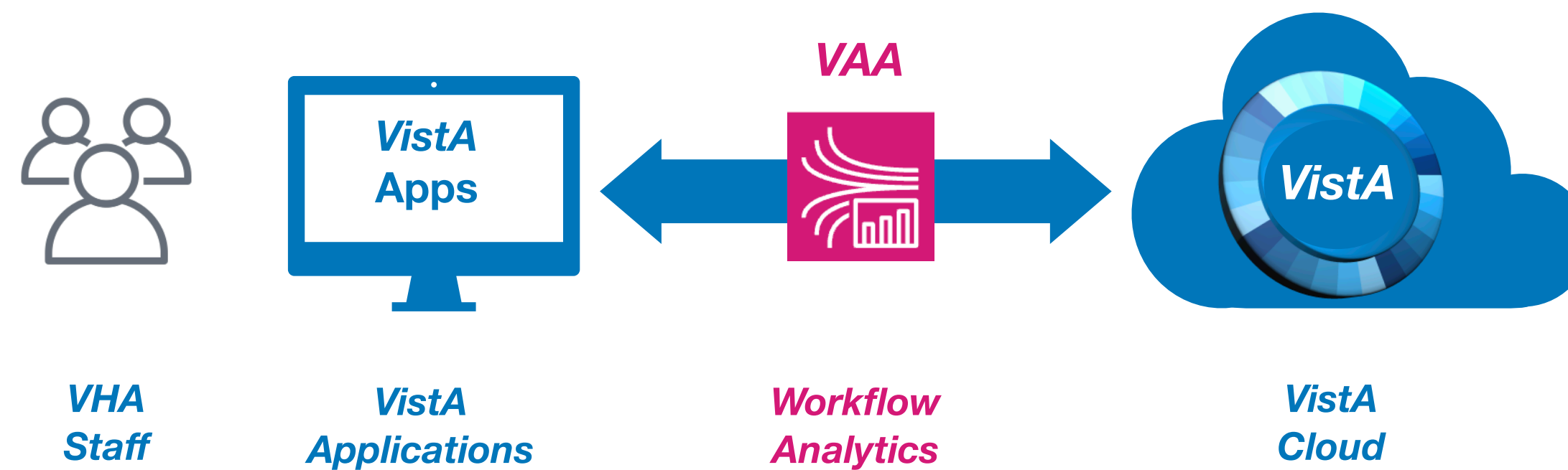- Implementation at Texas and Omaha VAMCs 9/24

Coming Soon

- Initial report on baseline VistA application usage
- Quarterly reports thereafter based on VHA input
- Dashboard on VAA clinical workflows

Outcome

- Real-time online dashboard on VAA clinical workflows

VISTA App Analytics

VAA Information / Follow-up

VAA

VistA **Apps**

VistA

VHA Staff

VistA Applications

Workflow Analytics

VistA Cloud

Contact   rafael.richards@va.gov
Website   https://cloudvista.github.io
Github   https://github.com/cloudvista/vaa