The Indian Health Service and Open Source HIT

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IHS RPMS Overview
Resource & Patient Management System

• IHS Health Information Solution since 1984
• RPMS is an integrated Public Health information system
  o Composed of over 80 component applications/namespaces
  o Patient and Population based clinical applications
  o Patient and Population based practice management applications
  o Financially-oriented administrative applications
  
www.ihs.gov/CIO/RPMS
History of RPMS

- RPMS Patient Care Component (PCC) launched in 1984
- Based on the VA’s VistA system – RPMS and VistA have evolved together over the years
- RPMS is VistA at its core, sharing much of the same infrastructure and some clinical applications such as Radiology, VistA Imaging, and BCMA
- Many VA applications (Laboratory, Pharmacy) have been extensively modified to meet IHS requirements.
- IHS has develop numerous applications independently of VA to address IHS-specific mission and business needs (child health, public/population health, revenue cycle)
IHS is not VHA

- Cradle to grave care
  - Pediatrics
  - Prenatal and obstetrical care
- Smaller facilities, more rurally located
- Decentralized administration
- Tribal autonomy
- Community and population-based mission
- Very modest IT staffing & budget
RPMS Application Suites

• Clinical Applications
  o Patient Care Component, Electronic Health Record, Behavioral Health System, Reminders, Pharmacy, Laboratory, e-Prescribing, etc.

• Population Health and Case Management
  o Diabetes Management System, HIV Management System, Immunization Tracking, iCare Population Management, etc.

• Practice Management Suite
  o Patient Registration, Scheduling, Third Party Billing, Accounts Receivable, Pharmacy Point of Sale, etc.

• Quality Reporting
  o Clinical Reporting System (GPRA), Uniform Data Set (HRSA), MU Clinical Quality Measures, Improving Patient Care (IPC) Measures

• Personal Health Tools
  o Patient Wellness Handout, Personal Health Record

• Infrastructure and Health Information Exchange
  o Master Patient Index, CONNECT gateway, Direct, etc.
IHS “Value Adds” to VistA/CPRS

• On-the-fly Queries (QMAN, PGEN, VGEN)
• Componentized EHR
• Medication Management enhancements
• Immunization Tracking and Data Exchange
• Well Child functionality
• Care Management Event Tracking
• iCare Population Management
• HIV Management System
• Clinical Reporting System
• Prenatal Care functionality
• Electronic Prescribing
• Certification for Meaningful Use
Relationship of RPMS to Open Source
RPMS Technology Architecture

• Operating Systems
  o Microsoft Windows Server 2008 R2
    or . . .
  o IBM AIX 7.1
• Database & Integration Engine
  o Intersystems Cache/Ensemble 2012.2.5
• RPMS M code – Routines & Globals
• Services and RPC Brokers
• VueCentric Framework (EHR)
• BMW Framework (Practice Management)
• Other GUI applications
• Various interfaces
• MPI, C32 and CCDA, HIE, Direct
How Much of RPMS is “Open Source”?  

• Very little, in fact  
• VueCentric Framework  
  o Originally licensed from Clinical Informatics Associates, then Medsphere Systems Corporation  
  o MSC put VueCentric into O/S about 2007 – AGPL license  
• Apelon Distributed Terminology System (DTS)  
  o New Terminology Services capability being introduced for 2014  
  o Apache v2.0 license  
• WinHasher v1.6 – used to meet MU hashing requirement  
• 7-Zip – Encryption for MU (Tribal only)  
• Nothing else in RPMS has an Open Source license
How Much of RPMS is Public Domain?

- Almost all of it
- All RPMS M code, and all GUI applications and brokers are taxpayer-funded work product either from the VA or developed by IHS
- All available under FOIA anyway, so IHS publishes on SourceForge
- Exceptions –
  - Security-related code such as hashing algorithms
  - Globals with proprietary content such as CPT codes, FDB drug data
  - ImmServ immunization forecaster
  - VistA Imaging – FDA certified, modifiable only by VA
Proprietary Elements of Certified RPMS

- InterSystems Cache & Ensemble v2012.2.5
- ImmServ Immunization Forecaster (MDA)*
  - *Transitioning to Texas Children’s Hospital Immunization Forecaster in 2014
  - TCH forecaster is not open source but TCH may be willing to let others use it as freeware

- Meaningful Use encryption:
  - Symantec EndPoint Encryption (SEE) v8.2 (Windows)
  - Van Dyke Encryption v 6.2 (AIX)
  - Credant2Go (certified with RPMS, only used by Alaska)
Open Standards in RPMS

- Open Standards are key to successful Open Source development and adoption
- IHS uses the following standards and terminologies in the RPMS Suite:
  - ICD 9/10
  - HL-7
  - SNOMED CT
  - LOINC
  - UCUM
  - UNII
  - DICOM
  - CCDA
  - Direct
  - CONNECT
  - Others I’m probably not thinking of . . . .
IHS and the Open Source Community
IHS Value to Open Source Community

- We do cool stuff that people seem to want
- RPMS addresses ambulatory care and "safety-net" practices better than VistA
- We have a lot more flexibility to add capabilities to the EHR because of VueCentric
- We have done a lot in the child health and women’s health spaces that the VA hasn’t done
- We have done a lot with population health that VA hasn’t done
- We have figured out the certification issues
- We have certified e-prescribing solutions
Open Source Community Value to IHS

• You do cool stuff too . . . .
• Help sustain and improve legacy product “in sustainment” at VA:
  o Pharmacy, Laboratory, Radiology, VistA Imaging/Rad
• Help evolve (“modernize”) to facilitate adoption and support
• Develop niche product not within scope for IHS priorities or funding
  o Mobile provider or patient interfaces, incoming eRx, etc.
• Develop tools for interfacing with proprietary products
  o New services for different types of data read/write
• Grow VistA/RPMS support capabilities and industry
Issues and Barriers

• IHS product not easily adaptable to VistA/CPRS, largely because of PCC
• Numerous IHS-specific aspects, some hard-coded
• Much new IHS product is dependent on Ensemble, i.e. less attractive to open source community
• Perceived challenges for government agencies to adopt open source – non-competitive “something for nothing” issues
• IHS capacity to test, certify and implement product from open source community is limited
Possibilities . . . .

- **Convergence** – Best of RPMS with Best of VistA
- **Sustainability** – open source HIT thrives irrespective of government capriciousness
- **Modernization** – SOA, Web, external hosting
- **Supportability** – improved management interfaces, security key and role-based access management, simplification of customization
- **Innovation** – encourage and enable agile, creative new features and capabilities
- **Interoperability** – expose & document services and API to facilitate value-added products & data portability
- **Accessibility** – affordable public utility HIT for “the rest of us” – small practices, safety net, international
... Thank You ...