

**REED B. HASLAM**  
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## **EXPERTISE**

Expertise includes software design and development of systems and applications on Linux/Unix, and Windows operating systems including the following technologies:

- Java – My primary development language for 20 years. I have mixed Java with other languages when required.
- Cloud Migration – Moving large applications to cloud environments.
- Spring, including Spring Cloud
- Servicemix – Enterprise Service Bus environment.
- Health Information Exchange – Developing Connect/Aurion technologies for health information exchange. Added IHE messaging to the Aurion Exchange for Kaiser Permanente.
- Use of cryptographic technologies to implement encryption and tamper detection.
- Soap and Rest Webservices including validation and load analysis (SoapUI)
- Familiarity with Subversion and Git
- Use of virtual machines for testing and development in multiple operating environments
- Adobe InDesign and Adobe Dreamweaver

## **DEMONSTRATED ACHIEVEMENTS**

- Developed an auditing system for database transactions that internally provided an audit log with little to no overhead.
- Experience porting applications from a web application server environment to the *Apache Servicemix* enterprise service bus environment. This facilitates the mixing of various capabilities into a single environment where data translations are simple to perform. Used Apache Camel as a router and provider of many enterprise patterns.
- Experience interfacing with the IBM Initiate, a Master Patient Indexing system.
- Development of the National Level Repository (NLR) in support of the HITECH act. Developed the payment module which allows eligible providers of Medicare Services to receive payments for “meaningful use” of electronic medical record systems. This system was XML based and used DB2 for its database.
- Development of Web Services based software to support the exchange of health information in a distributed network of cooperating entities. Particular expertise includes:

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- Development of components of the Nationwide Health Information Network (NwHIN) from its earliest prototypes through current operations.
  - Dynamic document generation from data stored in Electronic Medical Records systems. Such documents are generally XML based in nature and rendered with XSLT.
  - Anonymization of health care records to facilitate their use in the public health or research domains.
  - Implementation of Patient Location Query (PDQ) inside the NwHIN framework.
  - Implementation of protocols compliant with NHIN, IHE and HL7.
- Development of large applications for Linux/Unix and Windows using J2EE, Java (applets, servlets, JAAS, JCE etc.) and C/C++. Work includes system level programming, networking, registry, cryptography, directory (LDAP), shell and graphical user interface (GUI) development.
  - Specifying, designing and building the effective user interfaces for complex tasks including (a) management of security technologies such as public/private key generation, X509 certificates, certificate revocation lists etc. (b) configuration and management interfaces for computer services including network, directory, specialized file services, and authentication services (password, smart card, biometric). Most of these interfaces were built with Java.
  - Implementation of key elements of the NetWare Operating System on top of UNIX, including the file system, and high performance I/O. Implemented a fast-portable NetWare data repository (database) for storing NetWare attributes not tracked by UNIX.
  - Selecting and implementing the use of new software applications and development tools and training others on the use of those tools.
  - Managing Linux/Unix, Windows, and NetWare computer operating systems. Webmaster for a family web site, which includes real time weather data from Sandy Utah as well as web sites for historical information and book sales. See [www.ReedHaslam.com](http://www.ReedHaslam.com), [www.theHaslams.com](http://www.theHaslams.com) and [www.htown-publishing.com](http://www.htown-publishing.com) .

## **WORK EXPERIENCE**

**Lead Software Engineer – NantHealth Inc. – A personal medicine company – July 1, 2015 – August 22, 2017. Note: NantHealth purchased Harris Healthcare on 7/1/2015**

- Implemented several algorithms in a cloud environment as part of NantHealth's move to cloud based services for health records and billing.
  - Java 8, Spring Cloud, Rest, JSON, Postman, MySQL, Eclipse
- Provided health information exchange technologies to Kaiser Permanente, a large healthcare network with regional offices covering several states. Implementation of a central hub gateway to support all independent regions. The gateway interfaced between

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dozens of external healthcare entities and the Kaiser regional operations. Kaiser uses the Epic electronic healthcare records system.

- Java 7 clients and Web Services, JAX/WS, Soap, SoapUI, XML, MySQL, Oracle, ActiveMQ, JMS, Eclipse

**Senior Software Engineer – Harris Healthcare Solutions - May 2012-June 2015**

- Continued work on development of the Nationwide Health Information Network as a participant in the Care Connectivity Consortium (CCC). The consortium is sponsored by Intermountain Healthcare, Mayo Clinic, Kaiser Permanente and others.
  - Java 7 clients and Web Services, JAX/WS, Soap, SoapUI, XML, MySQL, Oracle, Hibernate, Groovy, ActiveMQ, JMS, Eclipse

**Senior Software Engineer – Northrop Grumman Health Solutions January 2006-May 2012**

- Developed Web Services software for Health Information Exchange (HIE), including the development of Northrop's NwHIN-1 prototype, NHIN-2 implementation and the Military Interoperable Digital Hospital Testbed associated with the Department of Defense's Virtual Lifetime Electronic Record (VLER) initiative.
  - Java 7 clients and Web Services, JAX/WS, Soap, SoapUI, XML, MySQL, Oracle, Hibernate, Groovy, ActiveMQ, JMS, Eclipse
- Investigated various architectural alternatives including Enterprise Service Buses and other tools to enhance the speed of development and the robustness of the resulting system. Developed a payment module for the Centers for Medicare and Medicaid Services Interfaced with other Medicare Systems for payment information and payment processing.
  - Java, Spring, iBatis (persistence framework) Mirth Channels and DB2

**Senior Software Engineer - Novell Inc., Sandy and Provo, UT 1991 – November 2005**

- Open Enterprise Server for Linux – Team Lead for the development of YaST2 (an interpretive scripting language) based installation for all Novell services on top of SuSE Linux. Successfully completed the project from inception (learning the technology and the framework) to delivery in just 6 months. The work provided GUI management tools for 17 different Novell Services on SuSE Linux. The SuSE engineers who developed the YaST2 framework for SuSE Linux remarked how well the team had achieved these goals.
  - Java, YaST, SuSE Linux
- Novell PKI Services – Implemented public/private key cryptography including key and certificate generation on NetWare. Implemented the GUI front end for the management of keys and certificates within a Java based framework, interfacing with C++ coded APIs as required. Implemented the Java GUI for modular authentication services (multi-factor authentication) and mandatory access controls using biometric, and smart card devices.

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- - Java, X509 Digital Certificates, Certificate Revocation Lists, Java GUI, C++ interfaces with Java
- Novell Administrator for Windows Implemented software to manage Windows users and groups using Novell Directory Services (eDirectory). Using Win32 and NetWare APIs provided software to update Windows security accounts manager with changes from Novell directory services. Developed the critical code to produce a native robust Windows service that received account updates from the directory.
  - C, Directory Services, LDAP, Windows GUI and APIs
- NetWare Services for Unix Development Implemented the NetWare 4.x operating system on top of Unix (Solaris/AIX) focusing on core protocol processing, file system implementation and high performance I/O.
  - C, Memory Mapped Files, Data Semaphores,

The file system implementation for NetWare services for UNIX provided a 2-3 times faster performance than the prior 3.x implementation. This was due to a simpler NetWare database design using memory mapped I/O functionality.

**EDUCATION**

M.S. Computer Science, University of Utah

M.S. Meteorology, University of Utah

B.A. Mathematics, University of Utah

B.S. Meteorology, University of Utah