

Joel Allen Luellwitz

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Professional Summary

A strong computer programmer with experience in large-scale software development, network security, software architecture, software automated testing and DevOps seeking long term employment in security software development and/or privacy software development.

Work Experience

Senior Software Engineer (Java and Ruby)

May 2023 – February 2024

VikingCloud Incorporated

Chicago, Illinois

- Continued maintaining the Ruby network security scanner purchased from Trustwave. (See prior employment below.) Also, inherited responsibility for maintaining a Java/Python web application scanner also purchased from Trustwave. (See <https://www.vikingcloud.com/cybersecurity/vulnerability-scanning/>)
- Responsible for migrating scanning related source code repositories, continuous integration systems (GitLab and Jenkins), internal documentation (Confluence), the project tracking system (Jira), and virtual machines from Trustwave to VikingCloud.
- Tracked down several reasons why the security scanners were no longer passing the PCI Security Standards Council's Authorized Scanning Vendor (ASV) exam.
- Fixed an error that caused the application security scanner to crash when scanning a website with medium sized images. Fixed the issue by increasing the amount of shared memory allocated to the scanner's Docker container.
- Coded a replacement for a Ruby library that was not compatible with the security scanner's proprietary licensing.
- Authored a Jenkins job to upload Docker images to Google Cloud Platform (GCP).

Senior Software Engineer (Java and Ruby)

August 2012 – May 2023

Trustwave Holdings Incorporated

Chicago, Illinois

- Started working at Trustwave as a Java full stack developer and gradually moved into a role maintaining the Ruby network security scanner. (See <https://www.trustwave.com/en-us/resources/library/documents/trustwave-vulnerability-scanning/>)
- Reduced the network security scanner's memory usage by 50% by compiling Ruby to use jemalloc instead of the default glibc malloc implementation.
- Increased scan performance by compiling the scanner with gcc's -O3 optimization flag, resulting in an 18% to 80% speed increase depending on the type of scan.
- Was co-credited with discovering a vulnerability in OpenSSL. See CVE-2021-23839 at <https://www.openssl.org/news/secadv/20210216.txt>.
- Rewrote the scanner build system to leverage Docker which improved build reproducibility and portability.
- Identified and fixed several gaps in IPv6 support in the network security scanner itself, related back-end services, and the customer facing website supporting the scanner.
- Authored a Maven plugin to package specially formatted Maven projects as RedHat RPM files.
- Added TLSv1.3 support to the network scanner while still maintaining SSLv2 support by simultaneously loading two different versions of the OpenSSL library into the same running process.
- Discovered a Trustwave firewall had been blocking internal vulnerability scanning for years. This resulted in the security operations center releasing an urgent fix.
- Removed the scanner's dependency on CentOS 6 which had recently lost upstream support.
- Primary developer responsible for migrating 80,000 customers from the legacy JSP based portal to the newer Apache Flex based portal.
- Supported and added features to Trustwave's Vulnerability Scanning and Management website by modifying Java back-end code, the Apache Flex front-end and MySQL databases.
- Designed and created an asynchronous database cache to improve scanning performance. The cache refreshed regularly every few minutes.
- Tested Java service tier and data tier modules using JUnit, Mockito and HyperSQL and tested the Ruby network scanner using RSpec and WEBrick.
- Wrote and optimized automated database migrations using the Liquibase framework.

**Work
Experience
(Continued)**

Java Software Engineer
Peapod LLC

November 2009 – July 2012
Skokie, Illinois

- Supported and added features to Peapod's sister companies' websites : Stop & Shop Supermarket Company (stopandshop.com) and Giant Food, LLC (giantfood.com).
- Optimized an existing internal web service by removing redundant calls to a third party service. The optimization resulted in a 100% increase in the number of supported users on the consumer facing websites.
- Implemented a grocery store locator using Google Maps for geolocation and MongoDB for geospatial indexing.
- Implemented an AJAX based My Shopping List application that integrates with store product information. The front-end was implemented using jQuery and communicates with back-end servers using a RESTful API.
- Responsible for converting the consumer facing websites from one loyalty card system to another. The conversion was to take place over eight months and required simultaneous updates to both systems during the conversion period.
- Identified and corrected several security and SSL errors on the consumer facing websites.
- Participated in an on-call rotation to address urgent production issues.

Java Application Developer

October 2008 – October 2009
Pittsburgh, Pennsylvania

Accenture Consulting – Highmark Insurance

- Assisted in the implementation of the Legacy Modernization project to replace Highmark's out-of-date information and benefits system with a modern browser-based system.
- Developed four web pages to manipulate client demographic information, insurance rates and workflow items. Used the ICEfaces AJAX rich Internet application framework.

Java Application Developer

April 2007 – September 2008

Accenture Consulting – Illinois Department of Employment Security (IDES) Chicago, Illinois

- Developed the Illinois Benefit Information System's correspondence architecture used to send reports, forms and letters concerning unemployment insurance claims.
- Identified the need for, designed and developed a service to retrieve employer addresses from an existing client database. This removed the need for other developers to reproduce this complex business logic in their own code.

Web Application Developer

October 2006 – March 2007

Accenture Consulting – Washington Mutual Card Services

San Francisco, California

- Developed a browser-based dashboard application to display metrics and statistics for project plans at Washington Mutual Card Services. The dashboard was written in Java using Apache Struts and was deployed using the Apache Tomcat container.

**Technical
Skills**

Languages: ASP, C, C++, CMake, CSS, Dynamic HTML, Java, JavaScript, Perl, POSIX Shell, Python, Ruby, Visual Basic and x86 Assembler

Frameworks and Libraries: Atomikos, Coverage.py, Hibernate, iBATIS, IceFaces (JSF), Liquibase, log4j, Java Server Pages (JSP), Java Servlets, JDOM, Joomla, jQuery, junit, Nokogiri, OpenCV, OpenSSL, RSpec, RubySMB, SimpleCov, Spring, Spring Batch, Struts, Template Toolkit and Xerces

Development Tools: Ant, Confluence, Crucible, Docker, Eclipse, Git (BitBucket, GitLab and GitHub), Google Cloud CLI, Jira, Maven, Podman, Rational ClearCase, Rational ClearQuest, Sonatype Nexus, Subversion and VMware vSphere

Databases: Experience interfacing with DB2, HyperSQL, Informix, Microsoft SQL Server, MongoDB, MySQL, Postgres, Oracle and SQLite

Operating Systems: Debian Linux, macOS, Microsoft Windows and RedHat Enterprise Linux

Networking: Troubleshooting and maintenance of TCP/IP wired and wireless networks including identifying the presence of intrusion detection systems.

Education

The University of Illinois at Chicago

December 2005

Master of Science: Management Information Systems (IT)
GPA: 3.37/4.00

The University of Illinois at Chicago

December 2004

Bachelor of Science: Information and Decision Sciences (IT)
GPA: 3.34/4.00, Major GPA: 4.00/4.00
Graduated with College Honors
Dean's List (Six Semesters)