



# Paul Cowan

## National Cancer Institute

SemanticBits, LLC (government contractor)  
Herndon, VA (full-time remote)

## Senior Software Engineer

Feb 2017 – Present

**Microservice Architectures** – Participated in the design and coding of 3 incrementally more advanced working prototypes as part of a move to cloud-based microservices: 1. Java, SpringBoot, PostgreSQL, 2. Ruby, DynamoDB, 3. Python, Flask, DynamoDB, Redis, ElasticSearch.

**Python Microservices** – Coded multiple REST endpoint microservices using Python, Flask, Swagger, DynamoDB, Redis, Lambda, S3, SQS, Elasticsearch, TraviCI, Docker, and GitHub. Lead design sessions, conducted code reviews, trained junior developers on best practices, API design with Swagger, unit testing, mocking, and CI/DI integration.

**Legacy JEE Support** – Provided expert development and debugging support during conversion from legacy JEE (JBoss, EJB, JMS, Struts, Spring) architecture to a cloud based microservice architecture.

**Docker Environment** – Initiated, setup, and configured developer Docker environment (both legacy JEE and MS). Evangelized and trained team on Docker and Docker Compose usage and best practices.

**CI/CD Pipeline** – Worked with cloud engineers as the development POC on a GitHub/TravisCI/AWS based CI/CD Pipeline. Debugged various Docker, Travis, and AWS issues in code and environments.

**BDD Tests** – Collaborated with QA engineers to automate BDD integration tests using Cucumber and TravisCI on the CI/CD pipeline.

## USA Technologies, Inc

Malvern, PA (partial remote)

## Senior Software Engineer

Sept 2014 – Feb 2017

**Financial Transaction Processing** – Made enhancements and bug fixes to USAT Technologies' real-time credit card transaction processing systems using Java, JEE, Jetty, and Oracle SQL.

**Web Services** – Coded SOAP based web services using Apache Axis and Oracle SQL. Streamlined service development by introducing JAX-WS and Hibernate Validator declarative service descriptors.

**Reporting Systems** – Enhanced transaction reporting systems using Java, Oracle SQL, Stored Procedures, HTML, JavaScript, and JQuery.

**Continuous Integration** – Improved release quality and general respect for the development team by initiating continuous integration and training developers on proper JUnit and regression testing practices.

## Caucho Technology

San Diego, CA (full-time remote)

## Senior Software Engineer

October 2010 – June 2014

**Resin 4.0** – Added features, fixed bugs, and wrote tests, while being careful to maintain performance, thread safety, and spec compatibility.

[paul@monospacesoftware.com](mailto:paul@monospacesoftware.com)

Downingtown, PA USA

484-667-9885

*My goal is to find simple solutions to complex problems with minimal direction and least effort.*

18+ years of software development experience focused on Java, JEE, enterprise middleware, and distributed systems.

Experienced leader that other engineers naturally look to for help and advice.

Excellent communicator respected by management while always keeping a hand in the code.

Passionate about open-source technologies; active contributor to several communities.

Extensive understanding of Java enterprise technologies having worked as a JEE application server staff developer.

Contributed the WebSocket Client tutorial to the official JBoss Quickstart on GitHub.

IoT tinkerer and self-taught electrical engineer interested in circuit board design and product engineering.

Unix, Linux, OSX shell hacker good with perl, bash, vi, grep, sed, etc.

7 years of payment card industry experience dealing with PCI and SOX compliance intricacies.

National Institute of Health, NACI Level 1 Clearance (Non-Sensitive).

Active member of the Philadelphia Area Java Users' Group (Philly JUG) and Valley Forge Technology Group.

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**EL 3** – Implemented JEE 7 EL 3 parser for Resin 5.0. This included lambda expressions, stream operations on a collection, and static calls, among others enhancements. Executed JEE 7 TCK compliance testing. Interacted with EL 3 expert group regarding issues.

**Baratine** – Contributed to the design and architecture of Caucho's next generation Java application service framework. Baratine is a new breed ultra high performance in-memory microservice platform.

**JavaOne** – Engineer on-site at Caucho's booth during the 2011 and 2012 JavaOne conferences. Gave a live recorded video interview about Resin for InfoQ online tech magazine.

## Monospace Software LLC

Downingtown, PA

**Owner Engineer**

September 2010 – Present

I started my own company in 2010 as a means to pursue independent projects and contract opportunities.

**KegNet (Inactive)** – [www.kegnetwork.com](http://www.kegnetwork.com) – KegNet allowed home beer Kegerator owners to track and remotely view their beer keg volume, consumption, refrigerator temperature, and socialize with other enthusiasts. I developed both the client hardware (custom designed circuit-board on a Raspberry Pi) and server software. The server used the JEE7 technology stack on JBoss Wildfly; JSF (PrimeFaces), JPA (Hibernate), CDI (Weld), JAX-RS (RESTEasy), Jackson, and MySQL, on a Linux virtual environment.

## NOKIA/NAVTEQ – Traffic.com

Chesterbrook, PA

**Senior Architect**, October 2009 – October 2010

**Lead Engineer**, July 2009 – October 2009

**Senior Engineer**, October 2007 – July 2009

**User Profile** – Served as lead engineer for a 5 person development team of Java and Database developers on a full cycle development effort. Project utilized UML, JEE5 with JPA, Hibernate, Spring, Oracle, and JBoss.

**AMQP** – Led a large-scale effort to move from an EJB service based architecture to a message driven pipelined architecture. Designed evaluations, performed benchmarks, wrote prototypes, made recommendations.

**TEQTalk** – Conducted 1.5 hour long “brown bag talk” for approximately 100 R&D employees titled “Heterogeneous High-Speed Asynchronous Messaging” on AMQP, JMS, and asynchronous messaging systems.

**QA Test Tool** – Created an innovative Maven plugin that united the open source load-testing tool Grinder with Maven. Enabled QA to test without engineer assistance by writing basic Jython language statements.

## USA Technologies, Inc

Malvern, PA

**Senior Application Developer**

July 2003 – October 2007

Served as lead developer on a 5 person development/support team. Migrated legacy Perl applications to Java while improving speed, scalability, and security. Introduced software development processes; Bugzilla, Wiki, CVS, and migration planning. Received USA Technologies “Outstanding Contribution” award 2004.

## InternetSeer.com, Inc

Thornton, PA

**Network Applications Specialist**

October 2000 – July 2003

## Geisinger Health System

Hershey, PA

**Technical Analyst**

February 1999 – October 2000

## Education

- Bachelor of Science in Computer Science, Millersville University, Millersville, PA, May 1999
- Sun Certified Programmer for the Java 2 Platform, November 9, 1999