Gregory J. Totsline

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Summary of Experience: 30 years of software and systems engineering experience:

• Diverse expertise includes full life-cycle object oriented software development of enterprise systems entailing N-tier web applications, web services, information assurance, and databases. Extensive Spring, Java/JEE, and Web design and development, SOA/ReSTful Web Services development, network design, UNIX systems programming, and GUI development.

• Proven experience in all stages of object-oriented software analysis, design, and modeling using Agile methodologies.

Technical Skills

Software Development	Java, Spring Boot/Spring MVC, JEE, EJB3, Lucene, JMS, Servlets, XML, XSLT, XPath, C++
Web Services	ReST, JSON, SOAP/WSDL, JAX-WS, JAXB, SAML, JAXP, JWSDP, Apache CXF and Axis
Cloud & Analytics	Apache Spark, Accumulo, AWS, Elastic Search
Web UI Development	React, Redux, Material-UI, JQuery, Javascript, JSP, HTML, CSS
DBMS & NoSQL	MySQL, Oracle, Spring Data JDBC & JPA, JDBC, Hibernate/JPA, Accumulo
CI/CD	Git, Maven, Gradle, Jenkins, Docker, Swarm
OO Methodology	Scrum/Agile, Rational Unified Process, UML, Numerous Design Patterns
Information Assurance	GIAC Certified (2012), IPsec, 3DES, SHA-1, SSH, IBM Datapower
Network Management	SNMP, CMIP, GDMO, HPOV DM Platform, Managed Object Toolkit
Protocols	TCP/IP, UDP, RPCs, UNIX IPC Utilities, X.25, OSI Networking, SS5, R2, Inmarsat M/B
Platforms/OS	Linux, Windows, Tomcat, JBoss EAP, BEA Weblogic
Networking	Hands-On Work With Hubs, Routers, Switches, Terminal Servers
Technical Writing	Numerous Proposals, Requirements and Design Documents, Presentations

Work Experience

Lockheed Martin RMS, ***Software Engineer Senior Staff*** **- September 2005 – Present**

• Malware Management System (2020-Present) – software SME for a malware management system that ingests candidate malware file archives from various interfaces (GUI, JMS, ReST), stores them on a secure network, and provides a workflow for user analysis. Scaled out file archive ingest using JMS and implemented a Spring Boot routing application that evaluates consumer node health and host load to make routing decisions before forwarding an archive file to a consumer via JMS. Upgraded the system to Java 11, Spring Boot 2.1.5, and made changes needed to support remote Spring Boot dev tools. Implemented Spring Boot web services, Spring Data JDBC and JPA/Hibernate based DAOs, custom SQL queries. Performed Javascript, HTML, and CSS updates for GUI changes. Hands-on training: React, React Hooks, and Redux; Docker and Swarm; Deploying Spring Boot applications to AWS.

• Foreignness Determination (2018-2019) – software development lead for high-performance proof of concept that ingests billions of records in various formats, normalizes and updates them in a common data store (Accumulo) and makes foreignness determinations on those records; accessed ReSTful web services. Worked directly with customer to shape the TTO, develop functional and performance requirements, create system design (data model, architecture, deployment model).

Hands-on development of web services using Spring Boot, Apache Spark for ingest of data, and Apache Accumulo data access layer in the customer's high-performance computing center. Also responsible for definition of the team's CM workflows using Git, setup of Jenkins for CI, and defining the production deployment process.

• Knowledge Ecosystem (2014-2018) – software development lead for an integrated set of web applications that share a common Lucence/ElasticSearch index. Re-architected system to greatly improve service availability by identifying and eliminating key single points of failure in the system: web servers, MySQL database, file storage. Performed hands on Agile development using Java, Spring MVC / Spring JDBC, JQuery, Javascript, Lucene, MySQL DB queries, and JSPs to implement ReSTful web services that scale to support 13K unique users per month. Debuged existing functions, especially timing / race conditions. Lead initiatives to automate testing through use of Selenium, JUnit tests in Jenkins for CI testing of the system, and automation of build and deployment. This greatly reduced the amount of time required for debugging, regression testing, and DevOps support. Worked with the customer to define requirements, feature milestones, user stories and MVP functions. Optimized web session establishment to greatly reduce response time for users. Advise customer and team on technical changes and choices, derive software designs from requirements, assign development tasking. Established documentation and processes for formal software builds and deployments. Lead effort to successfully transition development to AWS so product could be shared with customer partners, task was completed on budget and schedule as part of a completion based TTO.

• Next Generation Identification (2008 - 2014) – team lead (player/coach) and Chief Programmer responsible for design and implementation of software for a national biometrics system that supports hundreds of transactions per hour and near real time biometric identification. I developed several JEE5/EJB3 applications on JBoss EAP5, numerous SOAP and REST based web services using Apache CXF, RESTEasy, JAXB, XPath, XSLT, and the Java API for XML digital signatures. Implemented the system persistence tier and JPQL queries using JPA/Hibernate/Oracle11g. Implemented web application using JQuery, JSP, and Spring MVC. Developed and maintained 100s of JUnit tests. Established software design process and documentation standards for the project (light weight UML, Rational tool suite). Worked directly with customer to develop system requirements, successfully delivered and presented system PDR/CDR for multiple increments to large federal audience, assisted in customer acceptance testing.

• Cyber Security Team (2008) – developed SAML 2.0 server and Java web services and integrated with COTS XML gateways and LDAP server to demonstrate cross domain ABAC concept in a multi-vendor environment. Secured web services using XML digital signatures and XML encryption using WS-Security standards. Responsible for developing the requirements for this task and deriving the software design, presenting key milestone results to stakeholders.

• Information Decision Superiority Team (2005-2007) – implemented a custom DB schema and Java persistence framework using Hibernate / JPA and Oracle. Implemented multi level security Java web services using digital signatures, SAML, SAAJ, and MTOM to authenticate and enforce access in a cross domain multi vendor environment. J2EE based development performed using BEA Weblogic, Google Web Toolkit, Tomcat, Eclipse, and Oracle backend. Designed XML schemas for tracking data support. Worked with task sponsors to identify key requirements; derived software design from requirements.

• Responsible for design and implementation of multiple Java based web services. Developed JMS queue and topic interfaces to support subscription and asynchronous messaging. Designed and implemented Oracle tables, views, and triggers. Responsible for the selection of a commercial BPMN platform and integrating it with custom applications and other 3rd party tools. Introduced Agile software development processes suitable for IRAD environment: lightweight use of UML, ICDs, and other design artifacts as well as mentoring of junior team members. Development environment: BEA WebLogic Platform, XML Beans, Eclipse, CVS, and Oracle.

• Helped design and developed features for a personnel tracking system using Struts, JSPs, Eclipse, and MySQL backend database. Designed and developed a multithreaded SOAP based web service to emulate the movement and reporting of tracked resources (e.g. vehicles, persons) to a policy based rule engine.

• Wrote a comprehensive development environment configuration guide to document procedures for configuring BEA WebLogic servers, services (JDBC connection pools, data sources, JMS servers and destinations, and JNDI properties) and other COTS tools. This task was done on my own initiative to address the fundamental lack of any written work instructions to aide development environment setup for a new team member.

Hughes Network Systems, Germantown, MD

Principal Software Engineer II – Transformational Communication MilsatCom (TSAT) , **March 2004 – September 2005**

• System and software engineering team member for TSAT space segment network management. Responsibilities include requirements development, architecture, system design, and prototype development of a network management system for a DoD multi-satellite communication system. Java Web Services / J2EE based prototyping and proof of concept performed on Linux cluster as part of architecture risk reduction. Development includes use of a policy based network management framework (Java based with WSDL interfaces).

• Position requires participation in numerous working groups: use case development, network management system designs, intra and inter-segment ICD development as well as hands on software design and development.

Principal Software Engineer I – Spaceway Broadband System, **November 1998 – September 2005**

• Lead software development engineer for the security management and element management subsystems within the Spaceway NOCC – the Network Operations Control Center for the Spaceway broadband satellite system. Spaceway is a satellite based broadband IP network.

• Derived design from system requirements, developed, and tested a multithreaded C++ key generation and distribution system which produces millions of symmetric keys and securely distributes them via satellite to millions of satellite terminals on a periodic basis. Designed a high performance, thread-safe shared memory based 3DES encryption library – scalable to support millions of key updates and scalable concurrent access by client applications.

• Extensive hands on OOA&D and implementation work in UML using Rational Rose, C++ and CORBA development, as well as mentoring junior staff members. SQL query development.

• Coordinate and direct the activities of subsystem development team – requires me to have multidisciplinary skills in information assurance (encryption, authentication, key management), network management (SNMP/HP OpenView based), object oriented design and analysis, CORBA, C++, TCP/IP networking, database, and high availability computing architectures in a UNIX environment. Support of systems integration and test teams through multiple increments.

• Selected as member of NOCC Architecture Team - address key architectural considerations: high availability, scalability, performance, maintainability, persistence, and security of the system. In this role, also responsible for guiding project's use of OO methodologies, and helped develop its coding standards.

• Responsible for creating system artifacts: functional requirement specifications, high and low level designs (in UML, following the Rational Unified Process), DB schema, interface specifications, and system design documents.

COMSAT, Principal Software Engineer, Clarksburg, MD, *May 1988 – November 1998*

• Worked as lead software engineer of network management development for the ACeS personal communications system product, a major cellular/satellite GSM based phone system.

• Responsible for the design and implementation of a TMN network management system for the central management site.

• Coordinate and direct the activities of the development team which encompasses network management, GUI, and DBMS subsystems. Product specification and task scheduling are also major job responsibilities.

• Lead software engineer for Inmarsat M/B LES communications system product. Full SDLC including requirements writing, software design, debug, and multiple levels of testing including international on-site acceptance testing.

• Responsible for the design, implementation, and test of real time finite state machine software in C for telephony circuit switching and PSTN applications that support call rates of up to tens of calls per second. This task was completed independently and ahead of schedule.

• Responsible for modeling each system's unique computing requirements and then specifying the servers, workstations, and peripherals to meet those requirements. Implemented numerous applications using sockets APIs for TCP/IP, UDP. RPCs used for client / server applications.

• Architect LAN topologies for system product to meet individual site requirements. Responsible for selection and deployment of networking equipment including bridges, routers, terminal servers, and Ethernet switches. Task required in-depth understanding of IP routing and addressing as well as the concepts of routing versus switching.

• Worked directly with international customers to design, write, and test Motif based GUIs which allow comprehensive M&C functions to be performed on the system.

Recent Training (2020): React with Redux and React Hooks, AWS, Material-UI, Docker
Security Clearance: Active DOD TS/SCI With Polygraph

Education

Johns Hopkins University, Baltimore, MD, Master of Science, Major: Computer Science, Concentration: Communication Networks

Rochester Institute of Technology, Rochester, NY, Bachelor of Science, Major: Computer Science

Publications

http://www.sans.org/reading_room/whitepapers/vpns/issues-ipsec-geosynchronous-satellite-links_770
http://ieeexplore.ieee.org/iel5/10687/33743/01605735.pdf?arnumber=1605735