Bill F. Dimmick

Senior Staff Software Engineer

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(919) 414-9634 | Seattle, WA (open to remote work)

Skills

Expert	Distributed Systems, Information Security (Cryptography, Threat Modeling) Privacy (GDPR, General), JVM Languages (Java, Scala) Databases (General SQL, MySQL, Postgres)
Adept	Cloud Computing (AWS), Real-Time Stream Processing (Kafka), Agile (Scrum) Non-JVM Languages (Python, Perl), JVM Frameworks (Spring, Hibernate) Linux (RHEL/Centos, Debian)
Apprentice	Non-JVM Languages (Rust, Go, Javascript (classic) ,C/C++) Deployment Infrastructure (Docker, Kubernetes) Machine Learning (Scalding)

Work History and Major Accomplishments

Twitter (2013 - Current)	**Cryptographic Key Distribution System (TSS):** • Identified critical vulnerabilities in the existing system and advocated for its replacement, including a "buy vs. build" document for solution options. • Technical Lead for the design, ensuring that the technology choices would be secure and also operate at Twitter scale and availability. • Threat modeled the design and engaged Infosec to ensure the resulting solution would be as secure as possible. • Core developer of the system, with 90% code contribution for the production launch of 3 services in Scala on ~100 hosts and a Python daemon on ~50000 hosts across 3 datacenters. • Created ~50 pages of documentation for end users to easily use the product and for on-calls to deploy and maintain the service while keeping Tier 0 three nines SLAs. • Gathered feedback post-launch across all teams at Twitter, acting as a project manager to improve availability and user experience. **Service to Service Authentication:** • As Technical Lead, chose mTLS as the solution, obtained buy-in from other stakeholders, and designed the parts of the X.509 SANs which would work for all services at Twitter. • Guided and code reviewed the implementations for Java, Scala, and Python, ensuring 90% of production services could enable the solution in an easy and secure way. • Company-wide support and advocacy across all engineering teams at the company, ensuing as timely and smooth adoption as was possible.

	• Developed a reporting service that provided detailed information on the state of S2S adoption in all Twitter services, increasing the ability to adopt and giving leadership insight into progress. **Privacy and Data Protection (PDP):** • Technical Lead for the PDP steering committee, providing technical context to non-technical product and legal team members. • Point of contact for 100+ engineering teams regarding PDP issues, enabling them to find answers quickly to questions and concerns. • Author of 8 briefs to leadership detailing the technical challenges of PDP to inform how implementation could be streamlined. **Crowdsource Misinformation Detection (Birdwatch):** • Created backend systems which powered pseudo-anonymous aliases for Birdwatch participants to reduce harassment. • Implemented real-time stream processing for note ratings and impressions, to replace a batch system which lagged by days. • Reduced the unit tests runtime for every service for Birdwatch from ~50 minutes to ~5 minutes, increasing developer velocity. Other accomplishments during the time at Twitter: • Created a new 6-person engineering team (Platform Security) within Infosec dedicated solely to building security systems, including staffing and training. • Core contributor to the End to End DM Encryption conversation up to the CEO-level. • Project manager for the Twitter whitehat vulnerability reporting program and front-line responder to discovered security incidents. • Conducted 50+ technical design and security reviews for teams across the company. • Participated in 100+ hiring panels and promotion committees. • Mentored ~20 engineers (from intern to staff levels) on career growth, system design, project management, and conflict resolution. • 4+ years on two cross-functional think-tank groups (TAG and Platforum) which guided the technical direction of the company.
Salesforce (2011 - 2013)	Salesforce Build Automation: • Implemented a distributed artifact store for all build artifacts and build logs for every autobuild, replacing the legacy system and stopping multi-day outages for developers. • Added digital signatures for artifacts which were used to verify which specific check-in, virtual machine, and physical machine related to the artifact, allowing releasing builds to be done with 100% trust. • Built a dynamic allocator for VMWare and Openstack virtual machines, enabling auto-scaling of the build system, reducing wasted VMs and reducing outages during peak times.. • Removed a direct dependency for an auto-build instance requiring a “hot” connection to the database server, ensuring a build run would always complete when the database needed to be offline or was experiencing an outage.

AWS (2009 - 2011)	**AWS Elastic Beanstalk:** ● Designed and developed a secured safety monitoring system to self-heal environments and notify customers when they accidentally made their Beanstalk environments unusable via unsafe config changes. ● Implemented how Beanstalk environment deployments would be coordinated to other AWS Services (EC2, ELB, Route53, etc.) in a manner which would meet customer expectations. ● Trained new hires on Amazon's build and deploy systems in their first two weeks, improving overall team efficiency and ability to meet aggressive schedules. ● Documented all deployment and operational procedures to ensure on-call engineers could quickly address issues without impacting customer experience. ● Built a reporting engine used to determine environment launch times and root cause launch failures, enabling the team to build a better product in a data-driven way. ● Replaced synchronous operations with asynchronous workflows on SQS to prevent bottlenecks from directly impacting customer experience of using Beanstalk.
Amazon.com (2006 - 2009)	**Cryptographic Key Distribution System (Odin):** ● Gathered and documented requirements for how cryptographic keys and credentials were being used across major stakeholders across the company. ● As technical lead, documented the ~50 page design, wrote a threat model, and engaged infosec for review to ensure correctness. ● Educated team members without a crypto background on the basics of security: safe key handling, symmetric and asymmetric ciphers, digital signatures. ● Developed the secure host daemon for use on all Amazon hosts in every datacenter by other Amazon systems. ● Developed the distribution nodes, used for distributing materials to the host daemons in a low-latency (1s tp99) high-availability (five nines) manner. ● Delivered a company-wide Principal's talk to Amazon developers overviewing design, implementation, and best practices of system use. **Company-wide Secure Cloud Storage Standard (Knox):** ● Gathered and formally documented requirements for teams desiring to store sensitive data on S3. ● Implemented the company-wide standard for teams with Java services and supported its use solo by other teams. ● Developed a proxy service that allowed non-Java customers to securely store and access data in the same way. ● Designed a work-around S3's (at the time) 5GB size limitation, which hampered teams with large data requirements. **Amazon.com Co-brand Visa Card team:** ● Integrated JBPM libraries into Amazon systems for managing credit

	card application workflows to take onboarding external partners from months to days of engineer work. ● Replaced request/response bottlenecks with asynchronous process workflows, resulting in a customer experience on the order ~10s of ms, down from 100+s. ● Promoted and coached on agile development within the team, specifically in the form of Scrum and Test-Driven Development, to speed up development cycle. Other accomplishments during the time at Amazon: ● Authored, managed, and executed the internal AWS Education Course for 2 years, educating hundreds of Amazon engineers to the early systems of AWS (S3, EC2, SQS, etc.) ● Actively educated engineers on scaling Java services, concurrency issues, JVM GC tuning, and code testing and safety. ● Mentored ~5 engineers on software development practices, conflict resolution, and career growth.
Rho, Inc. (2004 - 2006)	**Rho Project Tracker:** ● Gathered and documented requirements from all levels of the company, from company leadership to line statisticians. ● Designed and developed all Java Servlets, Taglibs, JSPs, and Javascript to power the Project Tracker. ● Maintained and optimized the SQL database, ensuring no bottlenecks experienced by users. Other work at Rho included: ● Maintained Rho's single sign-on implementation, including fixing several security flaws in its initial design. ● Developed RhoReviews, presented at the 2005 Society of Clinical Trials and an early cited example of AJAX-based web interfaces for clinical trials.
UNC School of Medicine (2003 - 2004)	**UNC School of Medicine Online Testing System:** ● Designed and implemented an online testing system to replace the traditional overhead projector system, used to improve the testing experience of 300+ first and second year medical students.
Hiddenmind (2000 - 2002)	**Hiddenmind Active Mobility Server:** ● Created the license key verification libraries and tools used by sales to generate license keys. ● Developed a Java language parser for a 10x improvement in product build time.

Education

North Carolina State University, BS Computer Science (2000)