MANOJ SRIVASTAVA

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Summary Sixteen years of experience with the design of complex applications, three years of experience troubleshooting. Fourteen years of experience with Linux, thirteen of them as a Debian developer. TS level security clearance (2008)

Education

Indian Institute of Technology, Kharagpur, W.B., India *May 1985*
B. Tech. (Hons.) **Electronics and Electrical Communications Engineering**

University of Massachusetts at Amherst *September 1992*
M. S. **Electrical and Computer Engineering**

Experience

SYSTEMS ARCHITECT AND LEAD DEVELOPER

October 2000–Present
System/Technology Development Corp.

As a senior member of the S/TDC research and development team, I am responsible for the design, development and integration of technologies and products related to both S/TDC's government research and development efforts and S/TDC's corporate research and development efforts. I participate in technology identification activities that contribute to the definition of an S/TDC product line, in writing proposals, marketing and technical vision, and serving in a mentoring role for other junior engineers. I am involved in the design and implementation of user space security object managers and mandatory access control mechanisms for web applications. I am also involved in creating a reference policy for security enhanced Linux and conducting research on discovery and documentation of security design patterns for software architecture patterns commonly found in modern software subsystems and applications.

Tangram: I lead a team that was tasked with creating an evaluation infrastructure for a distributed, grid based software, and setting up and supporting a source code repository and a problem tracking system for the project. We designed and implemented a flexible, automated, and scriptable testing framework, starting from experiment definition, then scheduling experiments, executing distributed experiments, monitoring, and collecting experimental data, and culminating in calculating measures of performance and effectiveness, multi-attribute utility analysis and automated report generation. This evaluation framework builds on experiences gained in previous programs and has been generalized to be useful beyond the Tangram program. To support this activity I shredded synthetic intelligence datasets for verisimilitude, set up grid-aware monitoring and data collection systems. I also set up nightly build and static testing processes, and with my team acted as a systems integrator prior to evaluation. A TS security clearance was obtained for this work.

Ultral*g: Brought in mid-program after the previous assessment team failed, I led the effort to devise a viable assessment protocol and methodology for a distributed, agent based logistics system. The effort required an analysis of the distributed agent systems work flow, and an analysis of the complex, non-deterministic logistics plan that it produced, and creation of a quantitative measure of military utility, survivability, and performance of the system in face of the designedly non-deterministic results produced. A custom evaluation framework was created to conduct experiments, perform multi-attribute utility analysis and report generation.

QUITE: I was the lead developer and architect for QoS Metrics Services (QMS), funded by DARPA's QUITE program. The design problem was to allow different QoS management components to interface and provide assured resource management and Quality of Service for the managed services and resources. QMS is a message oriented transport which formed the backbone of the experiments and the deliverables for the program, namely, a demonstrated ability to negotiate QoS in multiple dimensions by enabling dynamic insight into changing system resources, conditions and mission needs, and to react gracefully to degraded capabilities. This required an ability to instrument, probe and monitor diverse system resources and capabilities in real time, to discover and monitor network topologies and bandwidth resources, and to allow the system and its resource management software to use reflection to adapt its behavior to changes in the environment.

DEBIAN DEVELOPER

October 1995–Present
Debian Project

As a Debian developer, I had to integrate third party software into the project's policies, often requiring significant massaging of code and build procedures, to integrate with leading edge technology. I also handle bug reports, debug errors, provide customer support, and liaise with the author. Active involvement in creating technical policy requires a broader perspective and expertise than application development. I have also taken the lead in ensuring that the Debian project contains all the tools required for people to enable mandatory access controls on Debian machine, including

providing patches for system software as needed.

- I am the Debian Project Secretary, responsible for elections and voting machinery.
- I am Co-editor of the Debian Technical policy document
- I have helped design several pieces of the Debian infrastructure, including kernel packaging, and package management tools
- I am a member of the Technical Committee, the final arbiter of technical issues in the project
- I maintain several packages for the Project (including most of the SELinux packages), and some where I am the primary author. I am the co-team lead in the SELinux port to Debian.

CONSULTING AND CONTRACT PROGRAMMING

Feb 2005–March 2006

Base Systems, Inc.

I was brought in as an external architect to design a HIPPA compliant Medical Transcription Web application. The design goals were to address robustness, scalability, security and privacy concerns, and enhance flexibility and reconfigurability. Privacy laws made security a critical part of the business goals, with strong requirements for compartmentalization of patient data. I followed the unified rational design methodology, starting with user interviews, use cases, and architectural design patterns, and implemented a mandatory access control scheme, policy based security, as well as a pluggable scheduling engine, on the Rails platform. The separation of security policy from security implementation makes it feasible to do information flow analysis for demonstrated compliance with privacy laws.

CONTRACT PROGRAMMING

October 1999–August 2000

The Open Group

My responsibilities included designing and implementing a distributed testbed and monitoring application, and providing support for the QUITE contract team.

CONSULTANT, CRITICAL ESCALATION RESOLUTION

December 1996–August 1999

DEC/COMPAQ

During this assignment, I provided on site consulting services during critical escalations for high profile customers, requiring rapid responses to ongoing outages, This required a broad overview of the deployed architecture and a generalist's mindset. Deployment was generally at short notice, with high risk, high profile accounts, hard deadlines and little prior technical information. The security requirements were often onerous, and interfered with rapid resolution. The challenges of the position involved soothing irate customers, tactfully handling the needs of on site personnel, as well as customer support staff and engineers at home base, while gathering data and troubleshooting under pressure. Assignments were domestic as well as international, with high profile assignments in Nice, France, The Hong Kong Jockey Club, Australia, a major telco in the US, as well as a leading US ISP.

SYSTEMS RESEARCH PROGRAMMER

August 1992–August 1996

Project Pilgrim, University of Massachusetts

I led a team on the research and implementation of cutting edge multi-tier distributed applications using OSF/DCE. Project Pilgrim concentrated on research on distributed applications, as well as designing and implementing several real life applications based on DCE. As a demonstration of the security capabilities, we set up a local DCE cell (based on a modified Kerberos V). We set up cross realm authentication with cells in Karlsruhe, Germany, and Sydney, Australia. My responsibilities also included in-house consulting with other divisions in the university about security and remote access, as well as providing systems administration services for the project. I helped craft the university's security policy, setting up Kerberos based security and tying it into the Oracle based student database. I created a system that automated configuration, compilation, and installation of software across multiple platforms

Publications

[1] NARKIEWICZ, J. D., GIRKAR, M., SRIVASTAVA, M., GAYLORD, A. S., AND RAHMAN, M. Pilgrim's OSF DCE-based services architecture. In *Proceedings of the International DCE Workshop on DCE — The OSF Distributed Computing Environment, Client/Server Model and Beyond* (London, UK, 1993), Springer-Verlag, pp. 120–134.

[2] SRIVASTAVA, M. Security enhanced virtual machines: An introduction and recipe. In *Proceedings of the Sixth annual Debian conference Debconf6, Oaxtepec, Mexico* (May 2006), The Debian Project.

[3] SRIVASTAVA, M. Security enhanced linux on Debian Stable. In *Proceedings of the Seventh annual Debian conference Debconf7, Edinburgh, Scotland* (Jun 2007), The Debian Project.

Affiliations

- IEEE, including the Computer Society.
- Association of Computing Machinery (ACM).
- USENIX, including the Systems Administrators Guild (SAGE).