M A N O J   S R I V A S T A V A

Present Address

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Summary I have several years of experience building and trouble shooting complex distributed applications in C, C++ and Java. I have experience in in designing and leading development teams to build and manage complex and resilient distributed applications for DARPA, including projects related to fault tolerant layered resource management, army logistics, and intelligence data mining. I Also have four years of experience in systems engineering at Amazon looking after the global retail server fleets, At Amazon I took the lead in designing and delivering a turn key system to spin up fleets of virtual servers with an eye for high availability and disaster recovery (load balancing, data center redundancy & failover, logging and automated recovery systems). Designed an automated test framework to link capacity to performance goals and to continuously optimize a fleet for maximum efficiency and availability. Clearance: TS/SCI (2008)

Experience

Amazon.com
January 2010–April 2014
SENIOR SYSTEMS ENGINEER

Senior engineer on the Amazon Retail Website hosting operations team. Took a leadership role in the following projects.

- **MAWS:** Designed and helped execute test plan for moving Amazon's European retail websites from physical hosts to **EC2** virtual fleets. This resulted in configuration changes that saved $875,000 annually.
- **Tommy:** Designed a composable, fully document driven, flexible work flow engine to ease the task of creating complex applications by taking care of sub task scheduling and of data flow. (Perl, Java)
- **Fleet Creation Work-flow** Designed and implemented a turnkey product to create EC2 fleets, with load balancing, virtual IP setup, monitoring, alarming, and automated correction of failure modes. Reduced fleet build time from 60 hours to 30 minutes). Fleets created are actively auto scaled based on load. (AWS, Perl)
- **TARDIS:** Designed and created a tool to find out and remove cruft from the retail website stack (using a transparent overlay file system)which resulted in a 27% reduction in size of the software deployed, and reduced mean time to traffic by 5% in the first quarter of operation. (C, S3, Perl)
- **SIF:** Designed the SELinux security policy for the secure ingestion of confidential information into Amazon websites. The security policies ensure that the critical data is isolated before being encrypted with a hardware security module, and is only handled by **TPM** equipped machines running SELinux (the root of trust is the HSM).
- **Fleet Optimization** Designed a mechanism to model a service, & use that model to determine the relationship between responsiveness and fleet size, allowing the business organization to opt to by back latency with a larger fleet. Improved capacity planning, aligning it with business goals. Increased revenue by about 5%. (R, Perl)
- **PPS:** Designed a performance profiling infrastructure to create A/B/../N performance comparisons of distributed services. Designed and implemented services to do Multi attribute utility analysis based on user supplied business utility measures. This cut down the effort in testing major software updates to the retail website by 95%, while improving the number of metrics considered by 400%. Added continuous configuration optimization for efficiency using hill climbing. Co-inventor of a patent (application P12807-US in progress). (Perl, Java)
- **Hardware Profiling:** Designed and implemented an automated framework to perform a viability analysis for new software for a given service based on a cost benefit analysis with current hardware. Also determine operation ranges and configuration settings for the new hardware. (Perl, R, MySQL)

Debian Project [A Linux Distribution]
October 1995–Present
DEBIAN DEVELOPER

The Debian project is one of the primary creators of a Linux operating system distribution.

- Created the original Debian kernel packaging tools
- Charter member of the Technical Committee, the final arbiter of technical issues in the project (1997–2009.)
- Wrote the application to conduct voting for the Debian project (Condorcet method, mailed in signed ballots)
- Created initial SELinux packages and Co-lead of the Debian SELinux port (2002–2009).
- Conducted Debian elections and votes as Debian Project Secretary (2002–2009)
- Co-editor of the Debian Technical policy document (1998–2010)

System/Technology Development Corp.
October 2000–May 2009
LEAD SYSTEMS PROGRAMMER & ARCHITECT

Technical lead for the company's DARPA projects.

- Created single sign on mechanism and security practices for the company. (Kerberos, LDAP, NIS)
- Provided technical sections in bids for DARPA and IARPA project contracts (Broad Agency Agreements). Successfully landed four contracts, with a total value of over $10 million.

Tangram: Team lead of the independent evaluation team for IARPA's project Tangram. (C++, Nagios, PostgreSQL)
- Designed and implemented a continuous build and integration system.
- Designed and implemented an evaluation framework to test distributed, Globus grid based distributed application.
- Designed and deployed a grid-aware monitoring and data collection system
- Implemented a system to calculate measures of performance and effectiveness for the Tangram application
- Tailored a system to perform multi-attribute utility analysis and automated report generation for this project.
- Shredded synthetic intelligence data sets for verisimilitude
- Obtained a TS security clearance for this work.

Ultra⋆g: Technical lead of the assessment team (Java, Perl, ruby)
- Brought in mid-program after the previous assessment team failed, created an evaluation plan from scratch
- Devised a viable assessment protocol and methodology for a distributed, agent logistics system. The evaluation protocol had to be robust in face of the designedly non-deterministic results.
- Designed a quantitative measure of military utility, survivability, and performance of the system
- Created a system to perform multi-attribute utility analysis and generate reports, based on user specifications

QUITE: Lead developer and architect for QoS Metrics Services (QMS), funded by DARPA's QUITE program. (C++)
- Created a transport mechanism to allow different QoS management components to interact and provide assured resource management and Quality of Service for the managed services and resources.

Base Systems, Inc. *Feb 2005–March 2006*
<div align="right">CONSULTING AND CONTRACT PROGRAMMING</div>

The role was that of a systems architect and software consultant.
- Conducted user interviews and created the requirements document
- Designed a HIPPA compliant Medical Transcription Web application.
- Implemented a policy driven mandatory access schema for the application, and crafted an exemplar policy

The Open Group *October 1999–August 2000*
<div align="right">CONTRACT PROGRAMMING</div>

Designed and implemented a distributed test-bed and monitoring application, reducing time to deployment of software by 33%. Provided systems engineering support for the QUITE contract team. (C++, Scripting)

DEC/COMPAQ *December 1996–August 1999*
<div align="right">CONSULTANT, CRITICAL ESCALATION RESOLUTION</div>

Provided on site consulting services during critical escalations for high profile customers. Average resolution time for issues was 5 days, and most issues had been open for six months or more. (C, kernel, threads)

Project Pilgrim, University of Massachusetts *August 1992–August 1996*
<div align="right">SYSTEMS RESEARCH PROGRAMMER</div>

Team lead on the research and implementation of cutting edge multi-tier distributed applications using OSF/DCE. Project Pilgrim concentrated on research on distributed applications based on DCE. (C, C++)

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**

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.

Skills   **Languages:** C, C++, Perl, shell, Ruby, Java, R, SGML, XML.
Computer systems: Linux, Unix (TRU64 UNIX, HP-UX, Ultrix).
Software systems: AWS, CORBA, OSF/DCE, DFS/AFS, UML, SELinux