

# B.K.Raghuram

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## Summary

Technology experience includes over 18 years in various roles such as a developer, architect and co-founder, primarily in open source development environments. Application areas spanning online web services, high availability, data storage and scalable web solutions, Internet security, e-commerce and database applications. This experience includes work with various aspects of the product development life-cycle in large projects in services and product companies. Experience also includes the management of software development teams over complete project life-cycles. Was presented the 2004 ACM Software System Award for being a co-inventor of the concept of secure sockets ([https://awards.acm.org/award\\_winners/bindignavle\\_1474498](https://awards.acm.org/award_winners/bindignavle_1474498)).

Non technical areas of interest have been mainly in the social sphere. I have periodically stepped away from the technology space to explore interests in woodworking, livelihoods, education, the environment and agriculture for over 7 years.

## Work Experience

### 2013-2021 Fractalio Data, Bangalore

Co-founder and technical architect

- Co-founded a startup that aims to build single node and scale-out high performance storage systems at affordable prices using primarily open source technologies, primarily for the Indian market. The purpose of this venture was also to explore the possibility of creating a bootstrapped, small but profitable enterprise, based in a rural setting whose profits could be used to explore innovative solutions to local problems. While we did not succeed in two of the three intentions, we did learn a lot from the adventure.
- Designed and developed a scale-out storage system based on Redhat's gluster file system. The system was built using CentOS as the base distribution for each node with ZFS on Linux as the storage file system with the orchestration of services on the nodes being done using SaltStack. The primary languages used for development was Python with Django being the web framework for the administrative interface,
- Designed and developed a single node storage system based on CentOS and ZFS on Linux. The main components include a customized installation, file system management storage access management (CIFS, NFS, iSCSI, FTP, rsync), a monitoring and alerting system, an auditing system, a customizable scheduling system for routine tasks, reporting systems, network configuration systems, replication management, user and group management, access control and a storage insights system that analyzed the file system and provided useful insights into stored data. The primary languages used for development was Python with Django being the web framework for the administrative interface. The user interfaces were designed using Bootstrap aided by javascript with sqlite being the backend database. The system also had a docker runtime incorporated for users to install and launch their preferred containers.

### 2009-2012 Centre For Learning, Varadenahalli

- Worked with children in the middle-high school ages. This involved coordinating two groups of children through the year in all activities and a deep exploration into philosophies of education and living.

### 2008-2009 The Valley School, Bangalore

- Coordinated a group of high school students and taught mathematics.

## **2006-2008 Yahoo! Inc, Bangalore**

Senior Engineering Manager

- **Yahoo! India Local Search** - Managed a team that was in charge of designing and developing the Yahoo! India Local Search product offering. This involved working with external vendors to procure databases of local businesses and using this information to provide geographically searchable interfaces based on user provided keywords. This information was also mapped on Yahoo Maps with driving directions if available. This required a very high performance solution that involved minimum latency to the end user.
- **Yahoo! Platforms Team** – The platform team develops many of the underlying technologies that are used by most Yahoo offerings globally. This requires that these services have very high availability and performance. I managed the team that provided access to Yahoo Avatars – graphical online personas that end users could use to represent themselves. Various Yahoo! Offerings would provide end users with the ability to use these avatars and our team was responsible for providing interfaces to create these personas as well as serving up these stored personas in very high volumes whenever users logged into various services.

## **2005-2006 – Aventail Corporation, Bangalore**

Senior consultant, senior software engineer

- Aventail is the best-of-breed SSL VPN technology company and the authority on secure application access technology and was the first to introduce an SSL VPN solution.
- The first assignment was to establish a rapid response team that would work on pre-sales customization requests from large customers as well as devise rapid solutions to critical issues that arose from existing customers. The team in Bangalore was dealing with issues relating to web based secure access to internal resources and involved quick turnaround tasks of design, coding, testing and deployment. The technology involved changes to a customized Apache module coded in C++ running on a Linux platform.
- The second and assignment involved the establishment of a team to re-factor and add new functionality to the web based administrative console utility that is used to manage, configure and monitor the SSL VPN appliance. I was chartered with the responsibility of visiting the Seattle office to gain an understanding of the current architecture and establishment a team in Bangalore to initiate the re-factoring and further development efforts. The administrative console is built as a struts/tiles based web application that uses XML/XSLT to maintain and transform the data store and LDAP/AD access for authentication/authorization checks.

**2002-2005** – This was an exploratory period spent visiting development organizations in various rural areas in India and spending more extended periods of time at Timbuktu Collective (Andhra Pradesh) and in Nagarkoodal (Dharmapuri Dt, TN).

**1999-2002** – Was a volunteer with the University of Maryland chapter of a student-run organization called the Association for India's Development (AID). While the aim of the organization was to raise money from people in the US to fund activities of various NGOs in India, our learning about such work was far greater than what we were able to assist with. We were privileged to host many people who had spent their lives with peoples' movements and NGOs and these extended periods of conversations sparked an enduring interest in social issues in India and worldwide.

## **1999-2002 – Startec Global Communications Corp., Bethesda, Maryland, USA**

Manager, eCRM Development Team

- Startec is a long distance phone services provider catering to the ethnic communities of the American population.

- Managed a team that was entrusted with architecting, designing, implementation and maintenance of a web based customer care system that catered to the customer care staff as well as customers over the Internet for self-eCare solutions. Services included online bill-presentment, bill payment solutions, online product subscriptions, sign-ups and customer care interactions. The technology was Java Servlets interacting with an Oracle database with user interface presentment using JSPs and HTML.

### **1998 – 1999 Consulting at Bell Atlantic, Arlington, Virginia, USA**

Consultant – Extranet Messaging Team

- Bell Atlantic is the largest local phone services provider in the USA.
- Was part of a multi-organization team entrusted with capacity planning, design, implementation and stress testing of an extranet messaging infrastructure for over 500,000 proposed customers. Work involved the design and implementation of hardware and software configurations as well as the implementation of software used to stress test the various components.
- Led a team in the design and implementation of a distributed performance/error logging service for use by all deployed software components in Bell Atlantic. The aim was to provide CORBA based Java and C++ libraries that could be used by various functional software units to log events into a centralized database for easy monitoring by the operations team.

### **July 1997-December 1997 CyberCash Inc. Bangalore, India**

Team Lead – Cash Register Development

- Was responsible for leading a team in the development of two releases of the Cash Register and Hosted Cash Register products. This involved the development and enhancement of online credit and electronic check payment systems for the Internet. The development environment was C++ on various UNIX variants.

### **1994-April 1997 Novell Inc., San Jose, California, USA**

Software Engineer II – Internet Commerce Division

- Design and development of 3 successive versions of the Netware Web Server product. This involved:
  - Porting and bug fixing of a Perl 4 interpreter to the Netware platform. Integrating the interpreter as an extension scripting language processor for the Netware Web Server.
  - Performance enhancements to make it the world's fastest web server.
  - Development of a Remote CGI (RCGI) interface to enable the web server to run cross platform scripted extensions.
  - Design and development of a multi-homing facility to enable a single executable to host multiple web servers.
  - Design and development of a Java based performance monitor.
  - Design and development of a Java based utility to remotely administer the web server.
- Development of the Domain Name Server and the unified console for the NetWare NFS Product.
- Development of an installation tool for the NFS product.
- Design and development of a new caching scheme for entries in the NetDB hostname/IP address database in order to boost performance.

*All development was done in C and Java. Test scripts for the interpreter were written in Perl. Platform was IntraNetWare. Platforms worked on previously include variants of UNIX.*

### **1991-1992 Wipro Systems Ltd., Bangalore**

Software Engineer

- Enhancement and debugging of a cross-reference listing generator for Bell Northern Research's variant of the Pascal Language.

## Education

### **1992-1994 University of Texas, Austin, Texas, U.S.A**

M.S. Computer Science

- *Spring 1994* : Research Assistant, Department of Computer Sciences – Conducting research in the areas of network security and transport protocols for multimedia applications.
- *Spring 1993*: Design and implementation of an authorization specification compiler for a security specification language.
- *Fall 1992*: Design and implementation of a File Transport Utility to run on UDP, providing complete sequencing/error detection/retransmission functionalities for end-to-end data integrity guarantee.

### **1987-1991 Regional Engineering College Allahabad**

B.E. Computer Science

- *Summer 1991*: Research Assistant, Microprocessor Applications Lab, Department of Computer Science, Indian Institute of Science, Bangalore. Participated in a research workshop focusing on fault tolerant parallel architectures and the effect of fault injections in simulations.

## Publications

"SNP: An interface for secure network programming" Presented at USENIX 1994 Summer Technical Conference.

<http://www.cs.utexas.edu/users/lam/Vita/Cpapers/WBSL94.pdf>

## Awards

ACM Software System Award 2004

*For inventing secure sockets and prototyping the first secure sockets layer as a high-level abstraction suitable for securing Internet applications.*

[https://awards.acm.org/award\\_winners/bindignavle\\_1474498](https://awards.acm.org/award_winners/bindignavle_1474498)