

Saurabh Barjatiya – Resume

EDUCATION

Education	University / School	Year	Percentage / CPI
MS CSE	IIT Hyderabad	2015	8.0
B. Tech(ICT)	DA-IICT	2008	77.6%
AISSCE	D.A.V. Public School	2004	70.2%
AISSE	Agarwal Public School	2002	84.8%

WORK EXPERIENCE

- I have started a new company called 'Rekall Software Pvt. Ltd.' which specializes in campus IT infrastructure management, esp. for educational institutes. The services include complete management of network, servers, security devices, etc. for a site. All servers are hosted using robust open-source tools and technologies based on Linux platform. The company also specializes in managing infrastructure hosted on cloud.
- I had joined ClipCard Technologies Pvt. Ltd. (A OneOcean company) at its IDC in Hyderabad as SDE in July, 2013. My responsibilities at ClipCard included managing IT infrastructure located at ClipCard India office and online infrastructure hosted on AWS cloud. I also provided DevOp support for developers at both sites (Hyderabad and Seattle).
- I have worked at VLEAD (Virtual Labs Engineering and Architecture Division), Virtual labs project, IIT Hyderabad as Technical Architect during October, 2012 to July, 2013. As a engineer at project I was responsible for designing and implementing a cloud infrastructure for hosting all virtual labs from central location. The project at the minimum required support for 300+ VMs for development of various labs.

Hence as part of the project I was responsible for setting up something close to a private cloud. This included implementation of storage networks and virtualization stack which used both VMs (kvm) and containers (openVZ).

- I had joined IIT Hyderabad, India as lecturer in July, 2009. I served as lecturer till October, 2012. As lecturer I taught courses like IT Workshop I, Software Technologies, Scripting and Computer Environment and offered labs for courses like System and Resource Virtualization and Advanced Computer Networks.
- I help in IT infrastructure management at IIT Hyderabad. I coordinate configuration and maintenance of servers, network and security devices. I have managed high-end security devices, network devices (switches, routers, etc.) and servers.

I have designed the current IP addressing scheme of IIT Hyderabad. I have configured and provided support for virtualization, storage networks, VPN, Wake On LAN, centralized DHCP, DNS, apache virtual hosting, etc. I take part in many important meetings related to staff recruitment and decision making related to IT infrastructure.

- I volunteered as system and server administrator of VLSI lab during UG (2007-2008) and performed installation, configuration, administration and maintenance of Operating System and services on VLSI lab PCs. I was the only student of university who helped in managing labs.

The work involved configuration and maintenance of NIS, NFS, HTTP, DNS and various other servers and clients. It also included maintenance of license servers for tools like Mentor Graphics and Cadence on both Sun Solaris and GNU/Linux systems.

PUBLICATIONS

Nov 2012 - Paper, Patent: BlueShield: A Layer 2 Appliance for Enhanced Isolation and Security Hardening among Multi-tenant Cloud Workloads ([IEEE Link](#), [Personal copy](#))

INTERNSHIPS

Research Internship - IBM

Organization : IBM India Research Labs (IRL)

Description : Internship on network and security of data centers and cloud

Duration : March-May, 2011

Research Internship - DA-IICT, Gandhinagar

Organization : DA-IICT, Gandhinagar

Description : Internship on server configuration issues under Server Administrator, DA-IICT.

Duration : April-June, 2007

SKILLS

Programming Languages

Proficient : C, Erlang, PHP

Familiar: Shell Script (bash), Racket(Scheme)

Rusty: Java, Python, Javascript, VB6, VB.NET, ASP.NET, C#, Lisp, C++

Operating Systems

Expert: Linux (Fedora Core, RHEL, Cent OS), Windows, Live CDs (Backtrack, Knoppix, Slax)

Familiar: Linux (Ubuntu, Suse), Windows Server, Open Solaris, Free DOS

Tools

Advanced: Emacs (Org-mode), Kile (L^AT_EX), OpenOffice.org (Document, Presentation), Microsoft Office (Word, Powerpoint), nmap, Wireshark, tcpdump, vim

Intermediate: Dia, The GIMP, Netbeans, Octave, Image-Magick tools, nessus, Cisco packet tracer, GNS3

Novice: Dr Geo, Audio & Video editing (Cinelerra)

Network / Security Devices

Cisco ASA (5520), Radware DefensePro (X20), Cyberoam UTM (1000i), Ironport Web Security Appliance (S650), Cisco catalyst switches(2912-4503), Cisco wireless access points (Aironet), IBM Proventia (GX5108) IPS, Tipping Point IPS (200 E), Cisco router (2500, 3600), Linksys/HP L2 switches, Juniper EX-2200, Cisco MDS 9124 SAN switch

Server Administration

<i>Expert:</i>	Cloud (AWS), Virtualization (Kvm, Xen, qemu, VMWare Workstation, Oracle VirtualBox), Containers (openVZ), HTTP (apache), DNS (BIND), Database (MySQL, PostgreSQL), Firewall (iptables), Web Proxy (squid), DHCP, Mediawiki(wikis), IDS (Tripwire, AIDE), Auditing (auditd), VPN (openvpn)
<i>Intermediate:</i>	Virtualization (Hyper-V, bochs), Software Raid, LVM, Monitoring (nagios), FTP (vsftpd), SSH (openssh), File sharing (samba, NFS), NIS, RPM Repository Server, tftpboot/pxeboot, Issues (Redmine), LDAP (openldap)
<i>Novice:</i>	Software switch (OpenvSwitch), Web mail (Squirrel mail), Peer Web DC++ (opendchub, dbhub), Database (Oracle 10g), Intranet search(htdig), Logging (syslog), SMTP (Sendmail), VMWare ESX server, Collaborative suites (Zimbra), IPS (Snort), Software Routing(Quagga), Logwatch

Erlang modules

OTP(gen_server, supervisor, application), Database(mnesia, odbc), Socket programming (gen_tcp, gen_udp), Distribution (global, rpc), Secure communication (ssh, ssh_sftp, ssl), Debugging (debugger), Hashing (crypto), Ports, Web server (yaws), GUI (WxWidgets), Testing (eunit), Type checking (typer, dialyzer), Documentation (edoc), Profiling (fproc, percept)

C Libraries

IPC (Shared Memory, Message Queue, pipes), Socket (TCP IPv4 and IPv6 / UDP / Unix), MySQL, PostgreSQL, SQLite, ndbm, GTK-2, Synchronization (Semaphores), ncurses, mmap, proc(Oracle), ccgi, lipcap, libnet, libpthread

PROJECTS

- **On-line Erlang interpreter** (Erlang) - An advanced on-line Erlang interpreter which is capable of remembering bindings and handling anonymous functions, recursion and error handling. The interpreter is hosted at <http://www.erlangcentral.com/>
- **Shoutcast server** (Erlang) - An shoutcast server capable of streaming songs using shoutcast protocol was developed. The server takes list of files to serve in various formats (list of files, parent folder name, etc) as message, so that server can be configured dynamically without stopping. The program is capable of reading various types of MP3 tags to supply correct tag line for receivers.
- **Tic-tac-toe and Tic-tac-drop** (Erlang) - Tic-tac-toe and tic-tac-drop programs where user plays against computer are developed. Programs accept difficulty level as argument and think number of steps ahead based on given difficulty. If difficulty level is high enough (≥ 3 in case of 3×3 tic-tac-toe), then computer plays such that it never loses and game can at the most be drawn.

There is no hard-wired logic anywhere in program that causes computer should play at given position based on a given board. The complete decision is based on available positions to play and whether computer or other player can win by playing at given position. Hence both tic-tac-toe and tic-tac-drop programs have identical decision making logic, only specifications of when user wins and what are allowed locations to play are different.

- **Operating System** (C, x86 Assembly) - A very basic operating system was made. After starting from small start up code we learned how to boot using Bochs and added keyboard support for Shift

and Caps lock keys. We added hard disk support and learned how to install our OS on hard disk and live CD. The final OS supported many virtual terminals running different processes using cooperative scheduling. The project was done in team of two and I worked on booting from live CD and hard disk support.

- **Two player on-line chess** (ASP.NET, VB.NET) - Two player on-line chess was made on which many chess games could run simultaneously. This was designed for chess club of University so that chess competitions could be organized on-line in labs. It had all the features required by chess club to organize chess competition including team management, user management, result page, admin interface and timers. It was used by chess club for organizing various competitions very easily and efficiently.
- **Book Forum** (PHP, Java Script, PostgreSQL) - A very large forum for book lovers was made as part of Software Engineering course. The project was made following all the good design principles and agile methodology of Software Development. The admin interface for the forum was very advanced allowing administrators to add / delete / modify any part of forum very easily. It had features including but not limited to management of users, books, topics, posts, book review, rating of books or users or reviews, blocked words.
- **Shutdown / Hibernate Service** (C#) - Made a service in C# which could shutdown PC when left on for more than specified minute and no body is logged on. It could also hibernate PC if somebody is logged on and has not done anything in past 15 minutes. It was used in lab to save power as the old BIOS of lab PCs did not support Microsoft Windows 2000 power saving options.
- **Chat sniffer** (C, libpcap / winpcap) - A chat sniffer which can sniff chat messages of people chatting on local LAN using common messengers like Yahoo. This was made as part of B. Tech project for companies that might want to allow its employees to use messengers provided they can ensure that employees are not passing on companies confidential information using messengers.
- **Squid log analyzer** (C, PHP, Oracle 10g) - A squid log analyzer was made to analyze web logs of university web proxy servers. Freely available log analyzers were not fast enough to analyze web log of university which grew to about 350 MB on any normal day. Hence a very fast, efficient log analyzer using C (sockets, proc), PHP(sockets) and Oracle10g was created so that log of up to 30 days could be analyzed at a time very fast. This was made during research internship under Server Administrator, DA-IICT to facilitate policy development related to web usage. (Later on more efficient version was created using C, PHP and PostgreSQL combination).
- **Scoring System** (C) - A scoring system was created which could poll HTTP, FTP, etc servers after every predefined interval and based on their availability assign points to each team. The scoring system was fully automated and could run without any manual intervention. It was used to organize fortress (a hacking competition) during our annual festival.
- **Search client** (C) - The code is used to Index Wikipedia semi-structured XML dump (around 20 GB). The search client allows using title, category, section, etc. as parameters. The results are displayed under 0.2 seconds even in worst case.

NETWORKING OR FORENSIC TOOLS / MODULES

- **VPN** (C, PHP) - VPN services based on openVPN are deployed and are being used extensively by all Institute members. Custom authentication modules for VPN are developed using C. VPN information website is developed using PHP. <http://vpn.iiit.ac.in/>

- **Wake On LAN** (Erlang / C, PHP) - Wake On LAN is a website based service which allows users to power on their machine using Wake feature supported by modern LAN cards. This leads to considerable power saving as machines which are going to be used remotely, need not be left powered on 24x7. Users can power on machines when required from any location and power it off when work is over.
- **utmp record viewer** (C) - Scans image of hard-disk or partition for utmp (successful ssh login log) records. This is useful to retrieve login records, if attacker deletes login record file after a break-in.
- **Tunneling web proxy** (C, PHP) - Enables anonymous access to Internet bypassing all firewall rules based on HTTP URL or IP address.
- **ARP correction** (C) - A tool to continuously send hardware address of proxy server to gateway. It was created to solve ARP communication problem between servers with multiple interfaces on same VLAN and gateway.
- **Squid authentication module** (C) - Allows basic authentication on squid using pop3 server. Supports multiple mail servers at same time. Same was extended later to provide VPN authentication.
- **Email notifier** (C, GTK2) - Periodically logs in web mail using HTTP protocol and checks whether a new unread mail is present. This was used when IMAP and POP3 access to mailbox was not allowed by institute policy.

WORK ASPIRATION

- Cloud and virtualization
- Parallel and distributed application development
- Linux Server and network administration
- Intranet and Internet security

CONTACT INFORMATION

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