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**Address:** 1899 Victoria Landing, San Jose, CA 95132

**TECHNICAL SKILLS:**

**PROGRAMMING LANGUAGES KNOWN:**

* C *(Proficient)*, Assembly Language(8086), C++, Python.

**COMPUTER SKILLS\TOOLS KNOWN :**

* **Code Browsing/Refactoring :** vim (also developed a plugin), cscope, ctags, awk, sed.
* **Debugging Program/Cores:**
  + **Gdb(GNU Debugger):** used conditional breakpoints and watchpoints to narrow down the problem ; analysed core file, stack frames, inspected code paths, examined packets(hexdump) in memory, wrote gdb scripts/helpers for e.g to traverse linked list.
  + **Pdb(Python Debugger):** Debugged python scripts.
* **Network Tools :** wireshark and tcpdump(analyzed packet dumps), hping3 and ip (tailored packets), callgen and SAE-SIM(to tailor GTP packets).
* **Programming :** Socket programming, Device drivers, kernel modules, system calls.
* **Log Analysis :** NPU Manager logs/packet-dumps, Session Manager logs.
* **Web :** curl, Python *Request* Library to use REST APIs
* **Scripting :** bash, expect, GNU Screen.
* **Versioning System :** BitKeeper, svn, git.
* **Bug Tracking Tools :** CDETS, GNATS, Bugzilla.
* **Kernel Hacking:** Academic level idea of with hands-on in ProcFS, DebugFS, Tracing, Kprobes, Workqueues, BlockIO, spinlock/mutex.
* **Optimization :** BRANCH\_PREDICT, Likely/Unlikely.
* **Publishing :** latex, gnuplot.
* **Virtualization :** KVM/Qemu, VMware ESXi, virtio, SR-IOV, PCI-PassThrough, VMware Distributed Virtual Switch.

**OTHER KEYWORDS :**

* OpenVSwitch, Cloud Computing, Storage/Network QoS, Solid State Drives, Operating Systems, Filesystems, UNIX, Microprocessors, Regular Expressions, TCP/IP, IPv6, P2P(churn, co-operative tit-for-tat), Telecommunications, Embedded System.

**WORK EXPERIENCE:**

***Software Engineer at Nephelo (Cisco spin-in)***

***March 2015 - Present***

**Technology Area**: NFV, Virtualization, Virtual Packet Core Platform, DPDK, UCS Blades, Nexus 5K

* Brought up the lab from scratch for a NFV deployment. Tasks included installing UCS , Fabric Interconnects, N5K, CAT switches , interconnecting them and making sure the end to-end connectivity between nodes.
* Understood the various combinations of the NFV setup and gained expertise in deploying them in both KVM and Vmware ESXi.
* Understood how PCI Passthrough works in KVM and also debugged an issue in KVM in the area.
* Sucessfully supported bonding of network interfaces for service ports on NFV.
* Provided debugging support in DPDK application.

***Researcher at University of Illinois, Chicago***

***KernelSec Lab (May 2014 – May 2015).***

**Technology Area**: Xen Hypervisor, Operating Systems, Asynchronous calls, Events.

**Project : IPC Subsystem Cleanups**

* Analyse how to cleanup incomplete events that gets posted in the kernel by system calls in the IPC subsystem area.
* Identify test scenarios and write test cases for those scenarios.
* Provide a way to handle incomplete events in the event of Program termination normally or forcefully.
* Publish report in latex for the work done.

***Summer Intern at Yahoo! Inc***

(***June 2013 – August 2013)***

**Technology Area**: OpenStack, Cloud Computing, Nicira, Software Defined Networking(SDN), Open vSwitch , REST APIs, Web Services, Python, Python Request Library.

**Project : Monitoring Solution for Nicira NVP/Openstack Networking**

* Collect network related statistics from Nicira NVP via Web APIs and Open vSwitch via command line and parse them to be able to facilitate easy analysis of networking related problems for Virtual Machines on the cloud. Integrate with the Internal Monitoring Cloud called YAMAS that mantained time-series and helped plot graphs.
* The project mainly involved understanding the virtual network topology and getting well versed with SDN Concepts and then come up with a feasible solution as to of what information can be collected from Nicira and OVS and will be useful to facilitate monitoring.

**Software Engineer at Cisco Systems**

***July 2010 - August 2012 (2 years 2 months)***

**Technology Area:** 3G/UMTS, GTP (GPRS Tunneling Protocol), 4G/LTE Packet core networks, CISCO ASR5000, Carrier Grade Operating System(StarOS), Network Applications.

**Job Responsibilities:**

* Implement new features in product, CLI Approval, CLI Announcement, Requirement Document.
* Validate/fix issues reported by customer/QA team.
* Browse through huge log files to explore the correct code path.
* Load, analyse core dumps in gdb, analyse linked lists in core dumps.
* Unit Test cases in Python Framework.
* Write bash, expect scripts to come up with complex network setups.

**Achievements at Work :**

* CISCO STAR Award in Jan 2011 and Feb 2012.
* CISCO CAP Award in June 2012 for outstanding performance.
* Developed VIM-CDETS a vim interface for CDETS(Bug Tracking Tool).

**Research Resources Center, University of Illinois, Chicago**

***Graduate Research Assistant (1 year, 1 month)***

**Job Responsibilities involved variety of work in different areas.**

* Administration for Blade Servers, ZFS Servers, Samba Server, Git server, Mail server, Web Servers, Database Server and Network.
* Provide support and suggest solutions to researchers/professors for different needs.

**EDUCATION:**

**Student at University of Illinois, Chicago**

***MS in Computer Science (May 2015)***

**CGPA** 3.85/4.0

**Courses in Areas:** Computer Networks, Computer Architecture, System Security, Object Oriented Development, Algorithms, Parallel Processing, Applied Graph Theory.

**Projects:**

**Networking area:** HTTP Client/Server(threaded), DNS Resolver, Bittorrent(event based), Reliable Transport over a non-reliable channel(TCP), Study of Internet via distributed network hosts.

**Microprocessors and Computer Architecture area:** Cache replacement policy for Simplescalar (Access pattern analysis), Study of Compiler optimization technique for matrix multiplication using blocking method to improve cache use.

**Object Oriented Languages and Environment:** Object Oriented Design with C++, Memory leak analysis with valgrind, Cincom Smalltalk, iOS App Development with Xcode in Objective C.

**Parallel Processing: M**PI Programming.

**B.E in Information Technology (May 2010)**

**Pune Institute of Computer Technology.**

**CGPA** 3.60/4.0.

**Projects:**

**Reconfigurable Virtual Storage Device:**

* Guided by Ratnadeep Joshi (Toshiba) and Furquan Shaikh (Google).
* Undergraduate Research Project in Linux kernel.
* Ranked 3rd in Impetus and Concepts 2010 in Database and Storage Systems Area.
* Stack Device driver that combined SSD and Hard Drive and exported itself as a virtual block storage device.
* Processed bio requests from filesystems and mapped it to a bio on the respective device.
* Heuristic Access pattern analysis to characterize current hot blocks using EWMA.
* Workqueues for block relocation.
* Journaling of block relocation sub-operations for recovery from incomplete operations due to system failure.
* Performance: Achieved the performance close to that of SSD, with a SSD contributing to 30% of to the total storage.

**Antivirus:**

* Won First Prize in State Level Project Competition in 2007.
* A miniproject developed in C and a GUI with DOS Mode Graphics, C++ for GUI Library.
* Mouse Handling using Interrupts via Assembly Language code.
* Scan for virus signatures in files and detect infected files.
* Reverse the effects of virus that were non-destructive in nature.

**PortScanner:**

* MiniProject implemented in 2008.
* Distributed Port Scanning by exploiting the ID field in the IP Header.
* Worked much faster and was almost correct with its results.

**Extra-Curricular:**

* Won numerous State and National Level Programming, Technical Quiz and Hacking Competitions.