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Profile Summary

- Exemplary academic track record in combination with stellar work experience over a period of 9 years in Silicon Valley.
- Strong work ethics and a vibrant team player while delivering diverse products in the spaces of Internet applications and infrastructure, Storage and Security systems.
- Recipient of a Gold Medal in India's National Physics Olympiad.
- Multiple patents pending in storage and security infrastructure.
- Strong and diverse background in Computer Science, including Algorithms, Cryptography and Information Security, Distributed Computing, Networking.
- Contributor to open source projects. Launched *OStor* - data deduplication in the cloud. *http://code.google.com/p/ostor/*

Interests Internet applications and infrastructure, Storage, Security, Algorithms, Networking,

Education

University of North Carolina, Chapel Hill
Master of Science, Computer Science, May 2000

Indian Institute of Technology, Madras
Bachelor of Technology, Computer Science & Engineering, May 1998

Honours and Awards

Merit Award (**best 20** incoming students), IIT Madras '94.
President's Gold Medal (**top 0.1%** - 22,000 candidates), National Physics Olympiad '94.
Ranked 42nd (**top 0.05%** - 100,000 candidates), All India IIT-JEE '94.
Ranked 1st (among 5000 students**),** 12th Board exams '94 in the city.
Nexsi Patent Inventor '2002, Nexsi Systems.

Work Experience

Technical Yahoo!, Yahoo! CA (May 2008 – present)
Display Advertising Platform (next generation)/Yahoo Research

- Working on a joint project with Yahoo! Research Labs for building Yahoo!'s next generation Display Advertising platform for ***Inventory Management***.
- This system will replace the current platform that generates USD 1.5B per annum.
- Designed and implemented a large-scale backend platform for ***Supply Forecasting***
    - ***Hadoop map-reduce*** based software pipeline
    - Designed a multi-stage pipeline (12-16 stages) that transforms daily raw impressions data to ***fastbit*** indices consumed by frontend servers for forecast query processing. Daily pipeline processes 1 TB of uncompressed data and 2B impressions.
    - Pipeline optimization to parallelize tasks significantly reduced the end-to-end workflow duration
    - Offline analytics using ***Pig***
    - Maintain (24/7) the grid dataset and implement tools for better workflow management with fault-tolerance, rerun, pause, resume functionality
- Designed and implemented HA and failover functionality for Optimization servers (dual servers, shared file system based).
- ***Principal developer for the Morocco IMS milestone I-3***
    - ***Proposed and architected a distributed system architecture*** for IMS which involved data serialization and de-serialization, communication with server failover, multi-threading and offline grid compute tasks
    - Implemented algorithms for optimization, supply and demand forecasting, pricing, serving components

- Participated in Yahoo! hack day events and submitted multiple applications built on top of Yahoo! developer APIs.
    - **Yahoo visual search** - Implemented a visual search application based on Yahoo! BOSS search APIs. The application is hosted at the "*Google App Engine*" platform. http://yahoovisualsearch.appspot.com/

Senior Software Engineer, Cisco Systems, CA (April 2004 – April 2008)

- **Storage Media Encryption (SME)**
    - The SME system enables encryption of data that is stored on disks and tapes. The Cisco SME solution is modeled as a cluster of MDS switches and hardware modules in FIPS mode of operation and an external Cisco Key Management Center (KMC) for hosting the key database for long-term archival.
    - Member of the founding team that created and delivered SME.
    - ***The SME product line created a new business for Cisco Storage generating USD 30-40M per annum.***
    - ***Project leader for the SME Key Management project.***
    - Architected and delivered the Key Database and System Security model.
    - Represented Cisco in the ***Cisco-EMC joint proposal for RSA Key Manager*** (RKM) enhancements for SME Key Vaulting.
    - Proposed ***"threshold secret sharing"*** schemes for use in storage key management to the ***IEEE P1619*** standards committee.
    - ***Co-author for IETF RFC draft "Threshold secret sharing".***

Software Engineer, Andiamo Systems, CA (May 2002 – April 2004)
*(***Andiamo Systems** *was acquired by Cisco Systems April 2004)*

- **Network Security (IPSec)**
    - ***Project leader for the IPSec project which delivered IP Security for IP Storage applications including iSCSI and FCIP.***
    - Hardware uses in-line IPSec accelerators at 1Gbps full-duplex supporting all major crypto algorithms including AES-128/AES-256/3DES, with MD5/SHA1.
- **iSCSI**
    - Designed and implemented an iSCSI to FC gateway enabling iSCSI initiators to access FC targets.
    - Designed and implemented iSCSI proxy initiator mode of operation which enables all iSCSI initiators to be represented as the same FC initiator.

Software Engineer, Nexsi Systems, CA (Jan 2001 – April 2002)
Member of SSL Acceleration and Web Switching group

- **TCP/IP**
    - Designed and implemented Nexsi OS' TCP stack in a shared memory MIPS-based multi-CPU environment
    - Industry-first TCP *bufferless mode* of operation in proxy mode, resulting in significant improvements in *latency, throughput and memory requirements*.
    - Designed and implemented a TCP-based proxy server platform for SSL, Web Switching, Web Caching services.
- **Network Security (SSL)**
    - Industry's first 25,000 new SSL sessions per sec and 100,000 concurrent sessions system supporting SSL3/SSL2/TLS1.
    - Implemented a software pipeline for streamlining packet processing.

Software Engineer, Yahoo! Inc., CA (June 2000 – Dec 2000)
Member of Yahoo! Chat & Messenger Team

- Added new features in Messenger to integrate with other properties.
- Maintenance of the Yahoo! Messenger & Chat software and server farm.

Summer Intern, Bell Labs, Lucent Technologies, NJ (May 1999 – Aug 1999)
Member of Technical Staff, Distributed Software Research Department

- Implemented a distributed cluster server framework in WinNT.
- Implemented a Win32 *SNMP extension agent* to remotely manage the servers.

Open Source Projects

Storage Infrastructure:

- Launched an open source project (Oct 2009) – ***OStor (Optimized Storage)*** - to provide ***data deduplication*** services. *http://code.google.com/p/ostor/*
- Standalone as well as ***Hadoop Map-Reduce*** mode provides deduplication in the cloud – both private as well as public clouds (Amazon AWS Elastic MR).

School Projects

Internet Audio phone:

- Implemented in accordance with RTP/RTCP specifications over UDP/IP using IMA-ADPCM algorithm.
- Implemented *adaptive best-effort transmission* techniques including *queue monitoring* and forward error correction *(FEC).*

Collaborative Application:

- JAVA based web-application to facilitate Faculty/Student relationship with regards to coursework advisory activities.

Operating Systems:

- Implemented a *XINU-like distributed kernel* with process management
- Implemented distributed IPC and a distributed terminal driver

Advanced Programming Languages:

- Evaluate OOSD usage in Java (1995-2000)
- Modified *Kaffe JVM* to emit statistics and analytics information.

Computer Networks (B.Tech thesis):

- Traffic-shaping in High Speed Networks.

Patents and Publications

Cisco Systems, CA (2007)
"Encryption Key Management for Storage Area Network Devices"
"Master Key Generation and Distribution for Storage Area Network Devices"
"Distribution of Storage Area Network Encryption Keys Across Data Centers"

Nexsi Systems, CA (**2001**)
"SSL cut-through mode".

Co-author of IETF RFC draft for "Threshold Secret Sharing" with David McGrew and Alfred Hones**.**

Skills

Languages: C, Java, C++, Objective-C, PHP, Perl, Python.
Platforms/APIs: Hadoop, Pig, LAMP, Cocoa/iPhone SDK, Amazon AWS, Google App Engine, Yahoo! Developer Platform, Facebook API, Twitter API

References Available on request.