Sandhya Ramanarayanan

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Education

2015 - present **MS, Software Engineering** San Jose State University
GPA: 3.72/4

2007 - 2011 **BTech, Computer Science and Engineering** National Institute of Technology(Trichy)

Experience

Software Development Engineer Intern, Amazon Web Services, Summer 2016
Elastic transcoding team

Senior Member of Technical Staff, Oracle Inc., 2011-2015
Oracle ACFS support for databases - ASM cluster file system

- Built a C/C++ based test application to test sparse files on ACFS that starts a multiprocess/multi-threaded workload to create sparse files, test various types of I/O on holes and data blocks.
- Worked on developing stress tests for storing database files on Oracle ACFS. Designed and implemented test framework based on PL/SQL, SQL, shell scripts for different types of database workload generation covering data mining (using STAR schema,ETL,OLTP/OLAP,securefiles LOBs) and comprehensive testing of features across Oracle RDBMS, including data layer, recovery and backup, query execution and optimisation, filesystem throughput across various operating systems - Linux, Solaris, AIX, Windows
- Developed C++ extension stress test for ACFS plugins to calculate filesystem metrics using OOPS paradigm

Stress, Performance, Destructive Testing for Oracle 11g, 12c.

- Design/Development/Execution of multi-tier stress test suites simulating real-world customer scenarios to uncover Product defects and enhance product quality. Architect large-scale, high-load,massively concurrent end-to-end test applications to assess Oracle Database's scalability, reliability, availability and performance.

Exadata

- Worked on stress and performance testing of bundle patches for Exadata, ACFS support on Exadata, WBFC (write back flash cache) support for ACFS on Exadata, EHCC(Exadata Hybrid Columnar Compression) support for ACFS on Exadata, sparse diskgroups to store datafiles on Exadata.
- Cross functional testing of multitenant container databases (CDB), In-Memory,Compression, Data Guard, RAC, ASM on ACFS/Exadata
- RDS testing to measure database throughput on Exadata clusters.

Projects

Pi Cloud (Spring '16)

- Pi Cloud is a Raspberry Pi-based PaaS service(written in Python) that can add or remove nodes in real-time without restarting the server. It features a controller that can register new nodes, deploy applications on-demand given a github repository, and load balance traffic to the applications it manages and deploys, and implement CI/CD for these applications.
  Technologies - Python, REST Server via Flask, Fabric.

Mini Key/Value NoSQL Database (Spring '16)

- Extended an existing key/value database store written in Java (ShoreDB). Implemented a N-node instance of the database that exposes REST API calls to the user that map to CRUD operations. Built a prototype of highly available, scalable system using Elastic Load Balancer, VPC for hosting the application and database servers. Demonstrated availability in the face of partition, **ie AP**. Also implemented **indexing for searching** through records.
  Technologies - AWS, Java, Spring framework.

e-Shopping Cart Prototype (Spring '16)

- Built a scalable shopping cart service on Amazon Cloud and Heroku. Implemented session management using Redis, product catalog using MongoDB, and Express framework for the frontend. Backend consists of N-node instance of application server connecting to MySQL database.
  Technologies - AWS, Express, Redis , MongoDB, Spring, MySQL, Heroku.

Photo Gallery Application (Spring '16)

- Built a Photo Gallery web application. Application server focusses on concurrency design, high availability and scalability. Used MySQL for implementing replication and Django for the full stack consisting of static files, application server and REST interface. Monitored AWS resources using Cloudwatch.
  Technologies - Django, MySQL.

Compliance Manager for the cloud (Fall '15)

- Real time management of compliances for cloud environment and deviation detections with respect to cloud security standards, alerting and recommendation engine for deviations, visualizing the compliance status based on roles. Implemented with AWS for the cloud, spark for the database, python for framework and D3 for the UI.

Priority-Based Flow control for Data Center Networks (Fall '15)

- Research study on PFC, PAUSE frames, Ethernet network congestion control mechanism and usage of PFC in Data centers.

Skill Set

Programming Languages	C, C++, SQL, Python, Java, Go
Operating Systems	Linux, Solaris, Windows
Strengths	Kernel, C++, Storage solutions, RDBMS, AWS