ASHIK RATNANI

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EDUCATION

Cornell University, Ithaca, NY — *May '12*
Masters of Engineering in Computer Science — GPA: 3.83/4

Nirma University, India — *May '10*
Bachelor of Technology in Computer Science — GPA: 8.76/10

PROFESSIONAL EXPERIENCE

Oracle Inc, Santa Clara, CA
Senior Software Developer, Solaris Core Services — *Oct '15 - Present*
Software Developer, Solaris Core Services — *June '12 - Sept '15*

Cornell University, Ithaca, NY
Graduate Research Assistant, Prof. Ken Birman's Group — *Jan '12 - May '12*

Infosys Technologies Ltd, India
Test Engineer, Finacle — *July '10 - July '11*
Intern, Education & Research — *Jan '10 - May '10*

PROJECTS

Solaris Statistics Store, Oracle Inc. — *June '12 - Present*

- Developed a **new service to aggregate statistics/events** from various sources (*kstat, dtrace, /proc, user-application, audit, faults, alerts*) in Solaris, and **provide an abstraction via curated namespace, unified library interfaces, and a web-based UI** to allow a non-expert user analyze system performance.
- **Worked on every aspect of product life cycle** including: Defining requirements, Architecture & UI design, Implementation, Testing & Bug fixing, Documentation, Internationalization & Localization, and Collaborating with other teams for adoption. Some of the interesting modules owned by me are:

  Library interfaces
  - **Designed and implemented C interfaces** in collaboration with team members and other stakeholders to:
    - Read, record, or purge statistics & events and their metadata
    - Search statistics & events in a hierarchical namespace
    - Provide user-application statistics via shared memory region, or door call based update interface
    - Manage namespace for user-application statistics
    - Manage user preference for persistent collection of statistics & events
  - Wrote **Python wrapper** around the C interfaces using **Python ctypes** module.
  - Designed and implemented a **REST style interface** in collaboration with the UI team to allow remote access for the Web-based UI client.
  - Implemented **role based access control** to restrict access to sensitive data or privileged action to authorized users only.
  - **Mentored a new hire** to design and extend read interface to export statistics & events in JSON & CSV format.
  - Added **unit tests and documentation** for the interfaces.

  User-application statistics provider
  - Implemented backend logic in Statistics Store daemon for the library interfaces that allow a user-application to provide and expose its statistics via the hierarchical namespace.
  - **Collaborated with owners of various core services** in Solaris to **define & integrate their statistics** in Statistics Store and **create a sheet with interactive visualizations** for the WebUI client to visually analyze service health/performance.
  - **Mentored an intern** to design and implement a **statistics provider for apache web server**.

Event logging framework

- Designed and implemented **asynchronous event logging framework** to collect/record events from various event sources with **automatic aging of older events**.
- Developed a plugin for auditd service to push audit events to Statistics Store and connect it to the event logging framework.
- Used interfaces exposed by Fault management facility to fetch fault & alerts into Statistics Store and connect it to the event logging framework.
- Designed and implemented an interface to request events in various parsable and user-friendly formats including a **human-readable summary format**.
- Designed and implemented a JSON file based interface to allow users to **filter events and map them to curated nodes** in the namespace.
- Added unit tests and documentation for the new interfaces.

Response Cache

- Designed and implemented an **LRU based in-memory cache with auto timeout** to save processed results from client queries and efficiently serve multiple clients requesting the same data.
- Added cache statistics and unit tests to analyze performance and verify cache operation.

Distributed platform to support the SmartGrid, Cornell University *Jan '12 - May '12*

- Monitor thousands of sensors in the **Smart Power Grid** using a reliable distributed computing framework to control and track blackouts within a couple of seconds

Distributed Execution Engine for GE's MAPS and MARS, Cornell University *Aug '11 - Dec '11*

- Developed a framework to enable the GE's MAPS and MARS, which are widely used for planning and simulating electric power grids; assessing the economic performance of large electricity markets; and evaluating generation reliability, to be easily executed using **Hadoop and HDFS**. The implementation was tested on **Amazon's EC2** and **Cornell's Red Cloud**.

Linux System Call emulation on Windows, Nirma University *Aug '09 - Dec '09*

- Developed a library and an automatic code generator to emulate some of the Linux System Calls (fork, pipe etc.) on Windows using Win32 API, Context Free Grammar, **LEX and YACC**.

TECHNICAL SKILLS

Languages	C, Python, Swift, Java, C++
Web Technologies	XML, HTML, JavaScript, CSS, PHP, REST
Frameworks & Tools	Hadoop, Mercurial, Git, LEX, YACC,

ACADEMIC HONORS

- Received a **Scholarship** of 32612 USD from Aga Khan Foundation for study at Cornell University.
- Awarded **Best Performer** among 700 interns by Infosys.
- C coding Competition, Nirma University (2nd Place).

EXTRA CURRICULAR

- Lead a team of **70+ members** to create a exhibition of projects by Aga Khan Foundation for **AKF Silicon Valley Walk/Run 2016**; Exhibits were well received and attended by **more than 500+ (even with heavy rains) including Fremont Mayor Bill Harrison, Milpitas Mayor Jose Esteves**, and many high rank civic leaders