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<https://github.com/bantunks>

<https://learningsonlinux.blogspot.com>

EXPERIENCE SUMMARY:

- As Senior Staff Software Engineer with Delphix — Nov 2020 — present
- As Software Principal Engineer with Dell Technologies -- Oct 2015 – Nov 2020
- As Software Developer with India Software Labs, IBM India Pvt. Ltd -- Sep 2008 – Oct 2015
- As Software Systems Design Engineer with Yahoo! India -- December 2006 – July 2008
- As Systems Engineer with Infogain India Pvt Ltd (formerly Blue Star Infotech), Bangalore -- September 2003 – November 2006

PROFILE:

- Cumulative experience of 17 years in exciting areas of backend systems/platform services, Database Internals, Distributed Systems and Linux Internals.
- Keen interest in concurrent, scalable and high-performance systems.
- Experience with large code bases.
- Publications – Contributed to the DB2 best practices paper titled “*Tuning and Monitoring Database System Performance in DB2 for LUW*” -- <https://ibm.biz/Bdx2nt>.

SKILLS:

- Primary experience in C/C++, well versed with multithreading concepts.
- Substantial experience in analyzing and fixing issues in large and complex source code bases.
- Experience with Distributed Systems and Database Engines/Internals.
- Understanding of different NoSQL systems including key-value stores, document and timeseries databases and columnar storage. Keen interest in distributed storage systems.
- Understanding of query processing and query optimization in database systems.
- Understanding of message queues and distributed message queue systems.
- Exposure to design and development of Restful APIs
- Experience with Linux Systems programming and good understanding of Linux Kernel Internals
- Exposure to Virtualization technologies and some experience with KVM hypervisor.
- Experience with GDB debugging and network tracing tools like TCPDUMP
- Experience in Network Programming (TCP/IP stack) and Linux Network Internals
- Some exposure to security and authentication protocols like SSH, SSL/TLS, IPSec and HTTPS
- Experience in Linux Kernel IO Stack and Filesystems Internals.
- Storage domain exposure to SAN, NAS, RAID and related technologies.
- Exposure to storage protocols and standards like SCSI, PCIe and NVMe.
- Understanding of Cloud Computing concepts including IAAS, PAAS and SAAS layers.

EDUCATION SUMMARY:

- MS (Master of Science) in Computer Science from Manipal University - 2013.
- Bachelor of Science in Computer Applications, Ranchi University - 2002.

EXPERIENCE DETAILS:

Nov 2020 - present at Delphix

- As an architect in the data source integration lab, I lead the design and development of plugins to enable data virtualisation workflows on top of the core Delphix Engine. The plugins are designed and developed for different types of data sources including but not limited to major relational databases. My role is focussed on technical leadership with a good blend of expertise on areas of database internals and application design and development.

Nov 2015 – Nov 2020 at Dell Technologies (erstwhile EMC)

- Led the design and development of the infrastructure of a project which was aimed at designing and developing use cases to protect on premise block storage data by leveraging Cloud storage.
 - Helped define the resource layout (CPU, RAM, Disk, Network, etc.) of a new virtual machine proposed to host snapshot shipping functions from the storage controller to AWS S3.
 - Designed, developed and coordinated serviceability features. Owned the call home error feature which ensures real time collection of application errors and their propagation to a Control Station from where they can be further shipped for diagnosis and analysis.
 - Ownership of containerization (docker based) of snapshot shipping feature for the next hardware release. As part of this, I am working on proof of concepts to validate the functional and non-functional correctness of the container deployed version of the feature.
- Contributed to design and development of hyper-converged infrastructure to manage the lifecycle of storage management applications hosted inside the PowerMax storage controller.
 - As part of this involvement, I took over the ownership of the feature that handles installation and upgradation of virtual machines hosted inside the PowerMax Storage Controller. These virtual machines host storage management applications.
 - Solved a critical defect related to corrupt OS image transfer during install/upgrade process. The transfer was based on TFTP protocol. The issue was widespread as it occurred during the install/upgrade phase which meant no other testing could proceed in the absence of a successful install/upgrade of the virtual machine.
- Exposure to different high-speed interconnect standards like PCIe and Infiniband and new storage protocols like NVMe.
- Exposure to internals of PowerMax storage controller's core operating system, end-to-end IO flow processing, caching and snapshot processing technologies.
- Exposure to Linux HA Cluster using Heartbeat and Pacemaker and RESTful design.

Sep 2008 – Oct 2015 at IBM India Software Labs

- Contributed to and later led the continued engineering team that handled defects in existing releases of the DB2 database engine from 2009 to 2013. Owned the monitoring component of the engine and also learnt on other components like process model, compiler, optimizer, bufferpool, locking and runtime components and their complex interactions.
- Contributed to design and development of a server-side solution that achieved 50% improvement in performance of DB2 Ingest utility in MPP (Massively Parallel Processing) environment.
- Triaged defects in process/thread infrastructure and runtime components of DB2 columnar database engine in MPP environment.
- Involved in several presentations and trainings delivered to customers of DB2, especially from database monitoring point of view.
- Implemented a new test suite to test customer fixes in every fix pack with the purpose of catching

- regressions in future fix pack releases.
- Learnt concepts on scale out distributed data processing inside Netezza Datawarehouse appliance.
- Learnt about distributed processing framework with reference to MapReduce. Developed understanding of the overall Hadoop ecosystem.
- Developed a migration module to allow for a live and transparent migration of QEMU virtual machines hosting a VirtFS client from one physical server to another physical server. I Learned a lot about virtualization concepts.

Dec 2006 – July 2008 at Yahoo! Research and Development India Pvt Ltd.

- Contributed in the role of SRE to a backend feed system that pulls data from external servers like weather.com, converts it into a proprietary format, and then replicates the same to end servers in different geographical regions. The replicated data is finally rendered by Apache processes on Yahoo web pages.

Sep 2003 – Nov 2006 at Infogain India Pvt Ltd (formerly Blue Star Infotech Ltd)

- Contributed through defect fixes in FTAM (OSI equivalent of FTP) protocol implementation product.
- Iterative integration and testing of OTS OSI Transport Services, an in-kernel implementation of the OSI Network model. The integration involved testing and updating of OTS source code to the continuous changes being made for the next release of HP-UX operating system.
- Contributed to systems and integration testing of a mediation module in a Network Management System implementation. The mediation module interfaces with network elements or devices for exchange of alarm events.