Balakumaran Kannan

System Programmer

Linux system programmer having 8 years of experience with a Bachelor of Engineering degree specialized in computer science and engineering. Open source contributor, hobby blogger and proud fan of Vim

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Bangalore ⚲

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💼 Work Experience

Now | 2014 Aug

Hewlett Packard Enterprise

💼 Software Engineer - System   ⚲ Bangalore
- Owner of Service OS for ARM based switches
- Board bring-up, U-boot and Linux port to ARM platforms

2014 Aug | 2012 May

SONY

💼 Consultant Software Engineer   ⚲ Bangalore
- Network library development
- Linux kernel debugging
- IPSec tools, Curl library, Squid proxy
- IPv6 verification using TAHI tools

2012 May | 2011 Jun

Tata Elxsi

💼 Software Engineer   ⚲ Coimbatore
- Application development for connected TVs

🎓 Education

2011 | 2007

B.E., Computer Science & Engineering

🏛 Jeppiaar Engg. College   ⚲ Chennai
- Passed with 72%
- Done project on mitigation of ARP cache poisoning attack

2007 | 2005

Higher Secondary Education

🏛 SRV Higher Secondary School   ⚲ Namakkal
- Passed with 92.6%

2005 | 2003

SSLC

🏛 Govt. Higher Secondary School   ⚲ Pattukkottai
- Passed with 93%

🔧 Skills

`C`   `Linux`   `Assembly`   `Yocto`

👍 Significant Works

Patents filed

1. High available DHCP service by running DHCP servers on a BlockChain network
2. Multiple-site Virtual Private Network secured by IPsec, using Blockchain application for key exchange to optimize number of IPsec rules

Contribution to Linux kernel

- smsc911x: set NOCARRIER flag in driver initialization   [link]
- Check for aneg completion before setting state to PHY_RUNNING   [link]
- Remove stale condition check in phy   [link]
- Fix broken IPv6 routing table after loopback down-up   [link]

📂 Projects

Now | 2017 May — Linux OS development for ARM & ARM64

💼 Hewlett Packard Enterprise 📍 Bangalore

- Brought-up two boards. One is an ARM64 based SoC provided by NXP, another is an in-house developed ARM32 SoC
- Prepared our own Linux distribution using Yocto
- Worked on kernel config and userland package selection
- Managed device-tree changes for the board
- Fixed multiple compile-time and bring-up issues

Now | 2018 Sep — Bootloader development for ARM32

💼 Hewlett Packard Enterprise 📍 Bangalore

- Developed First Stage Loader (FSL) for the in-house build ARM32 platform
- U-boot is configured, built and kept as an integral part of FSL
- After console and DRAM initilization, control will be given to u-boot
- Worked closely with hardware team for DRAM inialization sequence and BIST enablement

Now | 2017 May — Other significant activities

💼 Hewlett Packard Enterprise 📍 Bangalore

- Updated syscon-reboot driver to set DDR in self-refresh mode before reboot. It required a procfs file cretion, an ideal mapping section in kernel and careful alignment of reset code.
- Enabled D-cache in kexec purgatory code, which reduced boot time
- Debugged multiple early-boot issues with early_printk and JTAG
- Spent significant amount of time with ARM,ARM64 Assembly code
- Designed a core-dump capture system to capture kernel-core dump via NFS

2017 May | 2014 Aug — HA/RFS module development

💼 Hewlett Packard Enterprise 📍 Bangalore

- Owner of High-Availability [HA] and Redundant File System [RFS] modules for a range of HPE procurve switches
- Played a key role in the core-team that developed Fron Plane Stacking [FPS] switches
- Re-architectured HA/RFS modules to make it work seamless in both BPS and FPS environment
- Participated in complete development cycle - Design, Develop, Test and Maintanence

2014 Aug | 2013 Apr — Preperation of SONY Linux

💼 SONY 📍 Bangalore

- Part of a team that developed a Linux distribution for SONY devices
- Ported open source network packages like Curl, OpenSSL, Squid, IPSEC tools
- Performed IPv6 Ready Logo tests with TAHI test framework
- Identified bugs with Linux kernel. Contributed fixes kernel community

2013 Mar | 2012 May — Networking library development

💼 SONY 📍 Bangalore

- Developed a network library with wired and wireless support
- It was used in SONY TVs and Blueray DVD players and are still in use
- Participated in all phases of development cycle

2012 May | 2011 Jun — Application development for connected devices

💼 Tata Elxsi 📍 Coimbatore

- Developed two prototype applications - BigFlix and Flikr - on Samsung Smart TV, Panasonic VIErA connect TV, ROKU and BOXEE streaming player