

EXPERIENCE

Marvell | Senior Staff Software Engineer, January 2022 – Present

Working on building the vision and software ecosystem around the DPU [data processing unit].

The DPU is essentially a sum of three main blocks: compute [general purpose], networking [including HW acceleration for tunneling, switching etc.] and specific workload accelerators [AI, Crypto etc.].

Main contributions:

- Identification and definition of use-cases that allow unlocking the value of the DPU in container orchestration solutions [Kubernetes, OpenShift etc.].
- Definition of vision and roadmap.
- Conveying technical topics to upper management [AVP level].
- Producing proof of concepts.
- Participation in cross organizational architecture meetings [RedHat, OPI etc].

During my day to day work I had a chance to touch on the following technologies:

Kubernetes [Device Plugins, CNIs, Operators, Ingress Controllers, Service Mesh].

Software Defined Networking [OVS, OVN, OVN-Kubernetes].

Qualcomm | Senior Software Engineer, May 2020 – January 2022

Working on the Secure Processor Unit [SPU] solution. SPU is a crypto co-processor inside the Snapdragon SoC which provides security related services and features like secure boot, cryptographic acceleration, key provisioning, anti-replay protection etc.

The focus of my work was designing and developing [C/C++] features for our proprietary kernel running on SPU.

Main contributions:

- Designed and implemented virtual memory support for our proprietary kernel.
- Studied kernel IPC [inter process communication] and RPC [remote process communication] mechanisms, designed and delivered RPC loop-back functionality. This allowed verification of RPC code in pre-silicon stage while running SPU in standalone mode [without any other subsystems].
- Improved performance of software-based encryption algorithms by 500%.
- Improved performance of NVM commit operations by 30%.
- Debugging and maintenance of complex system wide features spanning boot loaders, Linux kernel drivers [platform and character] and SPU kernel.
- Mentoring junior engineers.

During my day to day work I had a chance to touch on the following technologies: C, C++, lauterbach trace32, DMA, Linux kernel.

Cisco Systems | Software Engineer, July 2018 – April 2020

Worked on Application Visibility and Control [AVC] solution. The AVC solution allows to recognize, analyze and optimize network traffic as well as help with anomaly detection, network troubleshooting etc.

The focus of my work was designing and developing [C/C++] code for Deep Packet Inspection [DPI] engines running on proprietary Network Processing Unit [NPU].

Main contributions:

- Deep dived into SIP protocol, designed and developed SIP Parser Engine which allows recognition of SIP traffic with minimal latency hit. The feature involved end to end understanding and implementation of data and control plane with hard memory and runtime constraints.
- Designed and developed Dynamic Flow Attributes, the feature allows marking [decision on what traffic to mark was received from network controller] of traffic and performing QoS [quality of service].

Tech stack and skills: C, C++, gdb, T-Rex traffic generator, low level performance aware code [cache coherency and performance], high concurrency.

PERSONAL PROJECTS

Anti-Ransomware Windows Kernel Mode Solution

The goal of this project was to gain understanding on how to write Windows kernel drivers. The main component of this project is a mini-filter driver [running in kernel mode] which tracks all IO operations and tries to identify malicious processes.

Tech stack and skills: C++, WinDbg, Windows kernel [mini-filter driver], KMDF.

EDUCATION

Technion – Israel Institute of Technology | Bachelor of Science, Computer Engineering

Specialization in operating systems and computer security.

TECHNICAL INTERESTS

Low-level system programming, virtualization, operating systems internals, software defined networks and security.