Sol Frank Kavy (650) 328-5556	sol@kavy.com www.kavy.com https://www.linkedin.com/in/solkavy	

Summary

Senior engineer / product architect with 30 years of experience seeks small to medium sized company where my unique blend of technical know-how and business acumen can be brought to bear on real world customer issues.

I have produced and brought to market designs in diverse areas, including Enterprise solutions, embedded systems, consumer electronics, and network devices. Technical depth and an ability to listen to and understand the customer have enabled me to craft high performance, high quality solutions that solve real world problems.

As engineering development has expanded on a global scale, I have had the opportunity to drive and coordinate cross cultural teams seamlessly working in multiple geographies. Through rigorous focus on up-front design, prototyping and peer review, I have helped teams produce high-quality solutions.

Qualcomm – Sr. Director, Technology 2/2012 – present

Principal software architect for the IPQ806x family of processors. The IPQ processor line integrates the Ubi32 packet processing engine with Qualcomm's Snapdragon™ processors. The result is a high performance, low cost, low power network infrastructure device for Home Networking and Enterprise access points.

Led International development teams in US, China and India to integrate diverse technologies, including system performance (emulation of key components led to increasing FABRIC interconnect bandwidth and design); understanding how to integrate Ubi32 core into Qualcomm's trusted computing platform; leveraging existing Snapdragon Linux port and expanding it to cover new features in the IPQ family.

- Worked with Ubi32 hardware team to change endianess and reduce Ubi32 cores to data-plane specific operation.
- Authored and drove overall chip/family specification and detailed software plan.
- Ensured that system-level debugging was possible across heterogeneous processors
- Key presenter to customers and internal groups highlighting the strengths of the IPQ family.

Coordinated submission of system-wide (firmware, kernel, drivers, and tools) both proprietary and open source code through Qualcomm's rigorous legal review and release process. Ensured that developers followed proper legal process and procedures. Implemented critical improvements in both proprietary and open source code management.

Directed the development of carrier grade features for packet processing. The firmware implements an end-to-end network pipeline. The pipeline provides 5-tuple L2/L3 based NAT/FWD processing; tunnel support: 6RD, DS-Lite, and PPPoE; hierarchical Quality of Service; and DSCP / VLAN management.

- Refactored Network Subsystem firmware to increase reliability and improve maintainability
- Improved performance by focusing on locking and cache management
- Improved reliability through the use of assured message handling.

Technologies: C / Assembly, Linux Kernel Internals, Networking L2/L3 NAT/FWD

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Provided On-line at: https://www.codeaurora.org/cgit/quic/qsdk/oss/kernel/linux-msm/

Ubicom - Chief Software Engineer 2/2002 – 2/2012

Instrumental in setting strategy and direction for Ubicom, solutions including: Routers, Access Points, Bridges, Security Devices, Digital Picture Frames, and other home streaming media products. Ubicom shipped more than 10 million units world-wide. Ubicom's solutions were known for their reliability (fewest customer issues) and cutting-edge features: StreamEngine (Quality of Experience), # of connections, protocol development: LLTD, and proper implementation of networking standards.

Participated in the design and development of Ubicom's next generation processor technology. Responsible for the design of the MMU, new instructions, performance improvements, and debugging enhancements that were incorporated into Ubicom's processor designs.

Led architectural development and system design with engineering groups spanning multiple geographic regions primarily in the US, Turkey, and UK with some development work in Taiwan and India.

Enabled Ubicom's customers to take advantage of embedded open source software by porting SMP Linux to Ubicom's multi-threaded 32 bit micro-processor family. Member of a small group of individuals that have ported Linux to an entirely new architecture.

- MMU: Software TLB implementation, ASID management, Fault handler
- SMP: Locking primitives, atomic variables, logical CPU bring-up, Intra-Processor Interrupts
- Driver development: 802.11, USB, PCIe, Serial, Timers and Watchdog
- Interrupt Management: Software Programmable Interrupt Controller, IRQ Management
- Taught classes in Ubicom32, user-space and kernel-space debugging
- Branch and distribution management
- Improved SAMBA R/W performance through focus on system architecture, copy elimination, and acceleration
- Implemented Netfilters for NAT Type and Port Trigger

Design and implemented custom RTOS (*ipOS*), enabling the delivery of real-time products from Network Routers to Digital Picture Frames. Designed and implemented numerous key technologies:

- FAT File System, Drive Partition Manager, and Buffer Cache
- Layer 2 Network Address Translation for wireless bridging / Layer 2 Switch / MAC filtering
- MSFT Linker Layer Topology Discovery (LLTD)
- Web page development for several embedded applications (Router, Bridge, …)
- HTTP Infrastructure: HTTP Parser, HTTP Pool Manager, Web Server, Server Side Include parser
- XML parsing infrastructure: Sax XML parser, SAX Filters, XPath parser, UPnP.
- SMP lock primitives using strict ordering
- Implemented Bluetooth LAP and PAN

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Kavy Consulting: 6/97 - 1/99, 2/2001 - 2/2002

Provided consulting/contracting in the areas of Project Management, Network Infrastructure, Corporate Security, Streaming Media Programming and Deployment, Web Design, and Web Programming. Projects Included: C# - Desktop Phone Tools (TAPI based) and Multiple Web sites using Ajax and .NET technologies.

Technologies: Unix and NT Server Setup/Deployment, Exchange Server, DNS, WINS, Outlook, Java, JavaScript, Web Page Design, Database Design, SQL Server, TCP/IP, Direct Show, Windows Media Tools/Services, C#, .NET Services, TAPI.

iMonitoring.com - Co-founder and CTO 1/99 – 3/2001

Delivered the first end-to-end POTS based Internet Video Surveillance and Recording service. The technology provides storeowners and managers with unprecedented access and control of their environment at an affordable price point. Designed and implemented core video technology including video service and user interface. Grew the team from inception to 12 engineers.

Technologies: C++, Direct Show, Windows Format SDK, Windows Media Server, COM, Java, JDBC, Allaire JRUN, JMS, JavaScript, ActiveX, IE, RADIUS, SQL Server

Motorola - Director Engineering 9/94 – 6/97

Delivered Motorola branded desk side server products 3 months after acquisition. Restructured the engineering organization and site to focus on a single business unit. Delivered the industry's first PowerPC multimedia Windows/NT SMP workstations and servers. Built a strong team that was responsible for architecture definition, hardware bring-up, performance tuning, debugging, and software configuration.

EO, Inc.- Manager, Kernel Team 1/92 – 8/94

Ported GO's PenPoint Operating System to the AT&T Hobbit processor. Designed and implemented the ROM-based process execution model. Facilitated the merger of GO and EO into a single company able to deliver products to the industry in less than 9 months.

Hewlett-Packard - System Architect 6/83 – 1/92

Led a team redesigning the virtual memory subsystem. The VM system supported a wide range of hardware features including: multi-processors, 64-bit addressing, global virtual address spaces, forward-mapped page tables, virtually indexed caches, large physical memories (4 Megabytes - 4 Gigabytes).

Hewlett-Packard representative to the POSIX P1003.1 and P1103.4 committees.

Datapoint Corporation - Member of the Technical Staff 6/81 – 6/83

Publications ESC Conference Proceedings; Sept 2009; "Hardware I/O Controllers using Multi-threaded CPUs".

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Education: B.A., Computer Science, The University of Texas at Austin, 1983. President student chapter of the Association of Computing Machinery.