Kiran MAKHIJANI
Bay Area, California | ***-***-****
kiranmak@gmail.com

Summary

Seeking an architect or a principal leadership role in the area of networks, protocol and platform research and development. I have been in the data- and telecommunication industry all through my career and have a track record of accomplishing beyond the project goals. I have successfully collaborated with internal and external partners, arriving at the best possible approach to a problem. Reporting into the OCTO, I have brought several early-stage vision and initiatives to tangible solutions through proof-of-concepts; have driven their strategy, planning and road-maps while continuing to be hands-on. As a technologist, I deepdive into use case workflows, understand network-specific nuances, and explore ways to resolve them. I have a number of patents, my work is published in both academic and industry standard organizations.

Recent Experience

FUTUREWEI TECHNOLOGIES — *2013-Present /Santa Clara, CA, USA*

PRINCIPAL ENGINEER

Working with the office of the CTO, involved in the industry research on next-generation network technologies and protocols in service provider and large-scale network markets. Day to day work involves equal parts research, standardization and collaboration. It entails presenting, meeting partners and customers explaining new research directions, design and solution with technical details.

- Technical Research: Focus on in-network services and capabilities for emerging applications in industry automation, and advanced media ('holographic type' and high-precision communications). Analyse challenges in current networks and research new data plane and packet format mechanisms. Designing proof-of-concepts for research in transport and network layer. Earlier, a: developed a virtual routing architecture and protocol for auto-provisioning of tenant networks. b: An end to end 5G/B5G Network Slicing architecture and protocol for resource sharing in a multi-domain, multi-tenant network. c: Co-innovated preferred path routing for 5G and B5G backhaul.
- Standards activities: Founding member of FG-NET-2030. *Network 2030 initiative* at ITU, to develop formal road map and requirements for the next-gen network technologies. Familiar with IETF mechanisms and leading standardization of network slices in IETF.
- Program and Project Management: Both in the US and Europe on future network architecture topics, guiding students on New IP research.

CISCO SYSTEMS — *2005-2013/Milpitas, USA*

TECHNICAL LEADER

Led many projects on IOS-XR, IOS for edge service routers such as Openflow agent, policy based routing, Lawful intercept and platform bring up. I learnt a great deal about the scalability challenges and means to overcome them in a distributed operating system such as IOS-XR.
At Cisco, I have contributed to many aspects - bringing up new WAN, LAN line cards, and implementing metro Ethernet design. I mentored new hires, resolved customer issues and worked with platform-hardware and core operating system teams.

- Policy services layer Developed architecture to support flow-based infrastructure as well as network programmability (ONEP) for a distributed system. Platform Stability: Provided HA solution for lawful intercept as a part of L2L3 services team. Developed hybrid architecture endian aware message translation methods.
- Edge router (7600) services: developed platform-dependent slow-path forwarding module, added performance tweaks for QoS, selectively drop packets, prioritizing control packets, and bug fixes.
- L2 functions: Designed support for CFM 802.1ag standard over EoMPLS and different Metro Ethernet services. The services included CFM over VFI interfaces.

Technical Skills

Program. Commercial product development using C;
Lang. Hands-on with Python and C++; Developed PoC using XDP and BPF libraries; comfortable with scripting languages

Domain Knowledge of a variety of Network Domain Architectures
Expert 3GPP 5G Architecture, 5G-Backhaul, Edge compute and networks, Network Slices, Service Provider and Data Center Networks, Industrial netoworks

Protocols Familiarity with routing protocols such as OSPF, BGP; have developed with layer 2 protocols such as connectivity fault management, VxLAN, TSN, etc.
Network services such as access control lists, policy-based routing, lawful intercept, segment routing, VPLS, designed protocols for segmentation and isolation in data centers, various dataplane technologies

Stds. and IETF | ITU-T | ETSI | ACM | IEEE involvement.
Research Network Infrastructure: IOS | IOS-XR | ASR9k | 7600 series | FRR

Earlier Experience

- Worked at a start up (Inkra Networks) as a board bring up and platform engineer for a management processor.
- Developed a control plane and data plane separation software, bring up WAN modules. Designing Network Programming Interface (NPI) for router platforms.
- Device driver Engineer with BSP and board bring up. various drivers and modules for RTOS and telcom-exchange software.

Education

PUNE UNIVERSITY *1994-1997*
MASTERS IN COMPUTER SCIENCE APPLICATIONS (MCA)

DELHI UNIVERSITY *1991-1994*
B.SC IN PHYSICS

External Positions

2020-21 NIPAA Workshop at ICNP — General Chair
IEEE New Internetworking Protocols, Architecture and Algorithms

2018 The Ist New Internet Forum — Session Chair
ETSI Track, SDN NFV Congress

2018,19-23 NEAT Workshop, IIoT-NETS Workshop at ACM SIGCOMM — General Chair
Workshop on Networking for Emerging Applications and Technologies. Workshop on Industrial Networks and Cloud Continuum

2017 ETSI-NGP, E2E Network Slicing Architecture — Rapporteur
Next-generation Protocols group at ETSI.