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Kiran Makhijani

Introduction

I am passionate about using my experience in research, products, and standards development to build simple, converged, and connectivity-for-all network solutions that make a positive impact on network communications and technological advancements.

Industry and SDO Experience: I am a data- and telecommunication industry veteran, having developed carrier-grade software for ISP markets (MPLS, VPLS, QoS, Policy-based routing). I have a thorough understanding of domain-specific network architectures and protocols in service provider, datacenter, cellular, home, industrial and, IoT networks. I particularly focus on next-gen in-network service-aware technologies for 5G/B5G and industry automation.

+ I have a working knowledge of toolsets XDP, eBPF, P4, etc. Known for successful collaborations with internal and external partners, I have led initiatives in SDOs (IETF, ITU, ETSI) and research community (IEEE, ACM).
+ Reporting into the OCTO, I contribute to long-term technology roadmap, identifying opprtunities and timeliness; collaborated with executives and managers to architect from incubated ideas to realization, strategic initiatives, defining targets, requirements, and actionable recommendations.
+ Guided and trained graduate students through industry proof-of-concept projects, especially mentoring through COVID times on career advice, development projects, and soft skills as part of a level-up program, with my alma mater preparing students for professional life.

Professional Experience

Futurewei Technologies, Santa Clara, CA

Nov, 2013 – present ***Principal Engineer***.
Working with the office of the CTO, I participate in the industry research on next-generation (5G/B5G/6G) 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 solution validation and feasibility through technical designs and proof-of-concepts.

+ ***5G/B5G Mobile Backhaul Transport Networks***, Focus on *in-network services* and capabilities for 5G applications. Overcoming challenges in current networks and research data plane and packet format mechanisms in an effort to optimize backhaul transport stacks .
  An in-depth study and evaluation of end-to-end LTE, 5G/B5G Network Slicing architecture with specific focus on mobility and protocol overheads in mobile networks
+ ***In-network services***, paradigm extended for industry automation and remote operations through high-precision communication service framework. Formalized usecases, requirements and also developed Proof-of-concept .
+ ***Operator-centric Architecture for Network Slices***, 5G/B5G Network Slicing configuration, on-boarding, and distributed protocol for resource sharing in a multi-domain, multi-provider network, Early proponent of standardizing Network slice framework .

SDO Involvement: ***Played a crucial role in establishment of Future Networks Studies in SDOs***, At ITU, *FG-NET-2030* focus group at ITU to develop formal road map and requirements for the next-gen network technologies.
At ETSI, Developing standards relating to 5G/B5G networks.
At IETF, brought new work to IoTOPS, TEAS and DETNET WG.

Soft Skills: ***Project Management***, Long and short term strategy and planning for our projects with emphasis on adapting to changing market conditions .
Managed several collaborations with Universities, led budgeting, resourcing, and progress tracking

Cisco Systems, San Jose, CA

July,2005 – Oct,2013 ***Technical Leader***.
Led design & development of Edge routing and switching components on IOS-XR, IOS. Including first in-house support of an Openflow agent, policy based routing, Lawful intercept, etc. Solved high-availability and scalability challenges on a distributed system such as IOS-XR.
At Cisco, I have mentored new hires, resolved customer issues and worked with platform-hardware and core operating system teams.

Developed a generalized policy-based service architecture to support flow-based network programmability (ONEP) for edge services.
Provided high-availability support for several ACLs, IPHC, lawful intercept as a part of L2L3 services team.

Designed support for CFM 802.1ag standard over EoMPLS and different Metro Ethernet services. The services included CFM over VFI interfaces.

Pre-2005 ***Software Engineer***, Contributed to network device drivers and RTOS projects at HCL Tech, Futuresoft, Alcatel, Tasman Networks .

Education

1994–1997 : **Master of Computer Applications**, *Computer Science Department* , Pune University).

1991–1994 : **Bachelor of Science**, *Delhi University*, Delhi, India.

IETF and Standards Related Exposure

Being part of next-generation network initiative, I have been exclusively involved in network architecture evolution. Assesing new scenarios vis-a-vis existing approaches; developing one solution to address multiple challenges fascinate me. I am also a proponent of clear separation between application and network boundaries. Lately, I am trying to learn and solve network problems that will make machine-to-machine communication easy and reliable.

External Positions of Responsibility

2021- **IETF WG Chair** for the SNAC-WG: Stub Networks using IPv6.

2020-22 **General Chair** of the Workshops on IEEE New Internetworking Protocols, NIPAA'20, NIPAA'21, and NIB'22 collocated with IEEE ICNP.

2018, 19, 23 **General Chair** of the Workshops NEAT'18, NEAT'19 and IIoT-NETS'23 at ACM SIGCOMM.

2017 **Rapporteur** for E2E Network Slicing Architecture, Next-generation Protocols group at **ETSI-NGP**

2019, 21 **Invited delegate** to annual CXO Advisory Board meetings for Telecommunication Standardization Bureau **ITU-TSB**

References

Available on Request