Akraino Workshop / Regional Developer Meetup - India

The Linux Foundation Akraino Edge Stack community will conduct a workshop on December 17th at the BITS Pilani, Campus in Goa, India. The workshop will be co-located with IEEE International Conference on Advanced Networks and Telecommunications Systems which is being held at the same venue December 16-19, 2019.

Registration Link: http://www.cvent.com/d/khq4y0/4W

On December 20th, 2019 Akraino community will participate in a partner event organized by Open Technology for Digital Transformation initiative in New Delhi, India. The location is National Informatics Center Building, Shastri Park, New Delhi, India.

Launched in 2018, and now part of the LF Edge umbrella, Akraino Edge Stack is creating an open source software stack that supports a high-availability cloud stack optimized for edge computing systems and applications. Designed to improve the state of edge cloud infrastructure for enterprise edge, OTT edge, and carrier edge networks, it offers users new levels of flexibility to scale edge cloud services quickly, to maximize the applications and functions supported at the edge, and to help ensure the reliability of systems that must be up at all times. The Akraino Edge Stack blueprints use several upstream open source projects such as ORAN Alliance, CNCF, Openstack, ONF, ONAP, TIP and the community works with open source communities to enhance any missing edge functionality.

This workshop will provide an overview of Akraino Edge Stack with a focus on engaging service providers and enterprises in India so they can leverage Akraino blueprints for deploying edge computing solutions for their use cases of interest.

Led by experienced architects, designers and academics this workshop will provide a unique opportunity to learn best practices and acquire needed skills in edge computing space. Besides providing comprehensive coverage of topics in edge computing there will be an opportunity for peer networking to connect with fellow professionals and expert practitioners from industry.

There is no cost to attend the event and we encourage everyone interested in edge computing infrastructure to attend.

Agenda:

Workshop, Tuesday, 17 Dec 2019

Location: BITS Pilani, KK Birla Goa Campus, Zuarinagar, District South Goa,
Goa - 403726, India. Registration Link: http://www.cvent.com/d/khq4y0/4W

Time (Local time, IST)	Topics
9:30 - 10:00 AM	Welcome Remarks - Kandan Kathirvel, TSC-Chair, Akraino Edge Stack Introduction to Akraino Edge Stack - Akraino community member (TBD)

| 10:00 - 10:20 AM |

Speaker: Prof. Hazur Saran - IIT Delhi

Title of Talk: 5G Applications, Edge Computing and Networking for scaling Smart IOT Systems

Abstract: In this talk we will present various initiatives at IIT Delhi based on the approach of decomposition of Smart IoT apps across cloud, edge, and sensor device components. Patterns of hierarchical, sequential decision making, contextual processing, and distributed learning design. Our design approach is being validated in the context of an application deployment on IIT-D campus; i. e., an application for target classification and navigation based on machine learned functions. Potential applications include pedestrian and traffic monitoring for security. We will also present a discussion on systems support for programmability on edge server and IoT devices, while considering the edge network and explore of limits of resource efficient processing on single microcontroller devices as well as new low power heterogeneous processing systems on chip. The specific objective is: Design of resource efficient machine learning for IoT devices applications both shallow and deep on single/multi-processor IoT devices.

Bio: Prof Huzur Saran is a Professor in the Department of Computer Science IIT Delhi. Prior to joining IIT Delhi in 1990, he did his Ph. D in Computer Science from the University of California, Berkeley in 1989 and, a B.Tech from IIT Delhi in 1983. His research is focused on Wireless Networks, Computer Systems & Security and Algorithms. He has served as the Head of the Computer Science Dept and the Amar Nath & Shashi Khosla School of IT, at IIT Delhi from 2007-2014 & 2015-18. He is currently the co-ordinator of the Centre of Excellence in CyberSecurity at IIT Delhi.

Prof Saran has been actively working in 4G and 5G wireless technologies. He is currently a PI at IITD for the 5G Testbed Project funded by the Deportment of Telecom. During 2000-2002 he was a Visiting Professor at the Information Systems Lab, Stanford where he worked on the media access control layer of an early 4G wireless system. Dr Saran was a consultant in the past with AT&T Research and Lucent Bell Labs in the area of Network Performance Analysis.

Dr Saran has also been looking at various aspects of Computer Systems Security. Dr Saran was a consultant to Solidcore Inc, a Software Startup. He helped define and build a novel software protection technology. Solidcore was purchased by Mcafee in 2009 for its pathbreaking Dynamic Whitelisting technology. |

| 10:20 - 10: 40 AM |

Speaker: Prof. D. Manjunath - IIT Bombay

Title of Talk: Coded caching at the edge: System details and measurement studies

Abstract: We will describe WiCode, a software defined framework which improves DASH video content delivery at the wireless edge. WiCode reduces the number of video segments transmission over the wireless network by performing index coding on video segments before transmission, and index coding on UDP packets when re-transmission is needed. WiCode also reduces the latency by caching video segments at the wireless edge nodes. This paper describes the design and implementation of the WiCode index coding system. We describe our implementation that makes the index coding module available as a browser plugin at the client side. Hence it does not require any change in client side device configuration. The practical gains that are achievable on a real system, taking into consideration all the overheads introduced by the proposed framework are also reported via measurements on our implementation testbed. Measurements that compare the performance of our WiCode with a standard DASH system also indicate the significant performance gains that are achievable in a practical index coding system.

Bio: Prof D. Manjunath received his BE from Mysore University, MS from Indian Institute of Technology, Madras and PhD from Rensselaer Polytechnic Inst, Troy NY in 1986, 1989 and 1993 respectively. He has worked in the Corporate R & D center of General Electric in Scehenctady NY during the summer of 1990. He was a Visiting Faculty in the Computer and Information Sciences Dept of the University of Delaware and a Post-Doctoral Fellow in the Computer Science Dept of the University of Toronto. He was on the Electrical Engineering faculty of the Indian Inst of Technology, Kanpur during December 1994 - July 1998. He has been with the Dept of Electrical Engineering of IIT, Bombay since July 1998. |

10:40 - 11:00 AM	 **Speaker:** Chitti Nimmagadda, Senior Director, CTO Office, Ericsson **Title of Talk:** Akraino Network Cloud: A blueprint for edge infrastructure **Abstract:** With an increasing interest in new use cases such as smart manufacturing, augmented reality and a multitude of IoT applications, there is a need for an infrastructure with edge computing capabilities. Akraino Edge stack is an open source initiative to bring edge computing capabilities to the service provider industry and enables new revenue streams. This presentation highlights Ericsson vision on edge computing and Ericsson's contributions in the Akraino Edge stack community, specifically Network Cloud Family Blueprints. **Bio:** Chitti Nimmagadda is a Senior Director - Network Virtualization at the Ericsson Digital Services Business Unit. He has over 20 years of experience in software industry, and his current focus and passion is in bringing the cloud native technologies to the telecom industry. Most recently, he was a Principal Architect at Citrix and helped build the high performance datacenter networking product NetScaler SDX from the ground up using virtualization technologies. Previously, he worked in many technology areas, including embedded systems, real time operating systems and data warehousing. Chitti holds a Master's degree in Computer Science Engineering from the Indian Institute of Technology, Kanpur.
11:00 - 11: 30 AM	Tea / Coffee Break

11:30 - 11:50 AM	 **Speaker:** Srinivasan Ramanujam, Intel **Title of Talk:** Integrated Cloud Native NFV (ICN) stack Blueprint **Bio:** As Market development manager for Intel Network Platforms group (NPG), Srini drives Network and Edge Cloud transformation with Indian Communication Service providers and ecosystem partners leading to 5G build-out. Srini brings strong technical and domain expertise having worked over 20+ years of experience in architecting and building Telecom Software Products & Services. He had worked in multiple wireless domains like 3G, WiMAX, LTE, 5G and network management solutions. His specialties include Product management in networking domain. He had been associated with Alcatel Lucent-CDOT, Radisys, Altran, Wipro and TCS. Srini has done Bachelor of Electrical & Electronics Engineering from A.C.Tech Government College of Engineering and Post Graduate Diploma in Business Administration from NMIMS
11:50 - 12:10 PM	 **Speaker:** Khemendra Kumar, Huawei **Title of Talk: Enterprise Edge Lightweight and IOT (ELIOT) Blueprint** **Bio:** Khemendra Kumar has 11+ years of experience in embedded, networking, SDN and Cloud/Edge computing. He worked in FD.io and DPDK community for VPP performance optimization, porting on multiple platforms, lightweight Host stacks like DMM with LWIP etc. Currently he is active in Akraino community to build lightweight Edge stack ELIOT for resource constraints devices. In Akraino, he is Project Team Lead (PTL) for Enterprise Edge Lightweight and IOT (ELIOT) Blueprint and is a Akrino Technical Steering Committee (TSC) member.
12:10 - 12:30 AM	**Speaker:** Neeraj Pandey, Vice President, Vodafone

| 12:30 - 12:50 PM |

Speaker: Deepthi V V, Lumina Networks

Title of Talk: Composable Network Services for the Edge

Abstract: The next generation infrastructure needs composable architecture to realize the needs of 5G/Edge requirements. This talk will explore a step by step approach to interconnect Edge compute applications to core network functions using open source tools. The talk will also delve into scaling such a solution using cloud native technologies.

Bio: Deepthi V V is a Senior Software Engineer at Lumina Networks. She has experience in working with open source projects such as OpenDaylight and Openstack and has worked on OpenDaylight since its inception. At Lumina, she is developing applications on OpenDaylight for data center networks. |
| 12:50 - 1: 10 PM | Closing Remarks |