

Day-2 (15th Dec 2020)	Time (IST)
<b>Prof. Abhay Karandikar</b>	04.30 pm - 05.00 pm
Affiliation: Director, Indian Institute of Technology (IIT) Kanpur, India	
Title: Connecting the Unconnected in 5G and Beyond	
<b>Mr. Sadaf Arif Siddiqui</b>	05.00 pm - 05.30 pm
Affiliation: Marketing Manager with Keysight Technologies India	
Title: Trends & Evolutions in 5G	
<b>Dr. Robert Doverspike</b>	07.00 pm - 07.45 pm
Affiliation: Director, Network Evolution Strategies, LLC, IEEE Fellow, INFORMS Fellow	
Title: Carrier Network Architectures and Resiliency	
<b>Detailed Information</b>	
<b>Prof. Abhay Karandikar</b>	
<p><b>Bio:</b> Abhay Karandikar is currently the Director, Indian Institute of Technology (IIT) Kanpur. He is also Member (Part-Time) of Telecom Regulatory Authority of India (TRAI). Before joining IIT Kanpur as the Director in April 2018, he served as Institute Chair Professor in the Department of Electrical Engineering at IIT Bombay. He also served as Dean (Faculty Affairs) and Head of the Electrical Engineering Department at IIT Bombay. Prof Karandikar was the founding member and former Chairman of Telecommunications Standards Development Society India. He serves on the board of several companies and has founded and mentored start-ups in telecom and networking. Prof Karandikar has several patents issued and pending, contributions to IEEE, 3GPP standards, contributed chapters in books and large number of papers in international journals and conferences to his credit.</p>	
<p><b>Abstract:</b> In his talk, we review the challenges in connecting the unconnected and argue on rethinking the requirements of 5G and beyond systems. We propose an architecture called "Frugal 5G" for affordable broadband access. We discuss the architectural elements of Frugal 5G and its implementation within 3GPP 5G framework. Specifically, we present an OpenFlow based RAN architecture which enables unified access control at the edge. Finally, we show how by using Software Defined Networking and Network function virtualization, we can realize the architecture for providing affordable connectivity.</p>	
<b>Mr. Sadaf Arif Siddiqui</b>	
<p><b>Bio:</b> Sadaf A Siddiqui is working as Marketing Manager for IoT, Quantum computing &amp; Automotive Electronics with Keysight Technologies India. He works very closely with Academic &amp; Government research institutes as well as private organizations working in some of these cutting-edge technologies and application areas. He has got more than 16 years of work experience in Test &amp; Measurement, embedded and software industry domain. Prior to this role, Sadaf has worked in different roles like Technical Application Engineer, Global Education Program Manager focusing on some of the key product lines &amp; industry segments. In this tenure he worked closely with some of the global universities and partners to develop &amp; promote teaching as well as research solutions. He has been active voice of customer working closely with design &amp; validation team for solutions enhancements. Sadaf has delivered various talks in industry forums and panel discussions. He is an active contributor in Keysight technical case studies program and Electronics and Telecom media for technology and T&amp;M articles. Sadaf earned his bachelor's degree in Electronics Engineering from AMU, India. He received a Post Graduate Diploma in Business Management (Marketing) from Symbiosis Institute, Pune (India). Sadaf can be reached at sadaf_siddiqui@keysight.com</p>	
<b>Dr. Robert Doverspike</b>	
<p><b>Bio:</b> Robert Doverspike has a Ph.D. in Mathematics from Rensselaer Polytechnic Institute. He has worked at Bell Labs, Bell core-Telcordia, and AT&amp;T, where he was Executive Director of AT&amp;T Network Evolution Research. He later founded Network Evolution Strategies, LLC and consulted for Google. He is an INFORMS Fellow, an IEEE Fellow, and chaired/participated in many key conferences, most recently as Member OFC Steering Committee and 2018/2020 Program/General Co-Chair. He has 36 patents and many significant publications, is a world-renowned expert on network restoration and optimization, and has collaborated on the design of some of the world's largest networks.</p>	
<p><b>Abstract:</b> We summarize how and where resilience is provided by commercial telecommunication carriers in today's optical networks. We first describe the typical partitioning of terrestrial networks into their segments and then describe the multi-layered structure within each of these segments. Within these constructs, we summarize where and how network resiliency is provided. To better understand how the resiliency techniques deployed in various layers and segments are engineered, we discuss how end-to-end services are pieced together to provide their needed quality of service and availability. Finally, to provide insight into the evolution of this methodology, we overview why key resiliency technologies and methodologies were deployed plus, possibly more importantly, why some were phased out. This talk is based on the lead chapter in Springer Handbook of Optical Networks, Part B.</p>	

Day-3 (16th Dec 2020)	Time (IST)
<b>Dr. Sujata Banerjee</b> Affiliation: Sr. Director of Research at VMware Title: Towards Easy Accessibility to Network Innovations	09.30 am - 10.00 am
<b>Prof. Y. Narahari</b> Affiliation: Professor, Indian Institute of Science, Bangalore, India Title: Ballooning Multi-Armed Bandits	10.00 am - 10.30 am
<b>Mr. Sarav Radhakrishnan</b> Affiliation: Architecture Lead, CISCO Title: Secure Access Service Edge – The opportunities and challenges in the world of software defined WAN	10.30 am - 11.00 am
<b>Detailed Information</b>	
<b>Dr. Sujata Banerjee</b>	
<p><b>Bio:</b> Dr. Sujata Banerjee is a Sr. Director of Research at VMware. Her expertise is in topics related to software defined networking and network functions virtualization, and she is broadly interested in network automation and performance. Prior to joining VMware, she was a distinguished technologist and research director at Hewlett Packard Enterprise Labs, leading a network systems research group which conducted research on enterprise, service provider and datacentre networks. Prior to her industrial research career, she also held a tenured Associate Professor position at the University of Pittsburgh. She recently served as the technical program co-chair of the ACM SIGCOMM 2020 and USENIX NSDI 2018 conferences. She received the Ph.D. degree from the University of Southern California (USC) and the B.Tech. and MTech. degrees from the Indian Institute of Technology (IIT) Bombay. She holds 39 US patents and is a recipient of the U.S. National Science Foundation (NSF) CAREER award in networking research. She currently serves as the vice-chair of ACM SIGCOMM, is a member of the Computing Community Consortium (CCC) Council of the Computing Research Association (CRA) and is on the scientific advisory committee of the FABRIC programmable research infrastructure.</p>	
<p><b>Abstract:</b> We have seen a rapid pace of significant innovation in networking research and products in the last decade. Networks are increasingly programmable, verifiable, intent-driven with in-network compute capabilities and software-based network functions. Dynamic end-to-end control of network resources can lead to performant, efficient, robust and secure networks. However, there are significant challenges in realizing these advantages for all networks, particularly brownfield environments. This talk will focus on these challenges with examples from prior research and in this context, comment on research problems that arise in taking advantage of new trends such as data-driven approaches to networking.</p>	
<b>Prof. Y. Narahari</b>	
<p><b>Bio:</b> Y. Narahari is currently a Professor at the Department of Computer Science and Automation, Indian Institute of Science, Bangalore, India. He is also and Automation, Indian Institute of Science, Bangalore, India. He is also the Dean of Division of EECS (Electrical, Electronics, and Computer Sciences) at IISc. The focus of his current research is on exploring problems at the interface of game theory, optimization, and machine learning. He is the author of a textbook entitled "Game Theory and Mechanism Design" brought out by the IISc Press and the World Scientific Publishing Company. He is a fellow of INAE, IEEE, INSA, IASC, and NASI.</p>	
<p><b>Abstract:</b> Many common web-based applications such as online Q&amp;A forums and online review portals need a scientific way of identifying high quality answers or opinions and distinguishing them from ordinary ones. To tackle this problem, we introduce a new model which we call "ballooning multi-armed bandits" (B-MAB), a novel extension to the classical stochastic MAB model. In the BMAB model, the set of available arms grows (or balloons) over time. We first observe that the existing stochastic MAB algorithms are not regret-optimal for the B-MAB model. We next present our main result that if the best arm is more likely to arrive in the early rounds, one can achieve sub-linear regret. Making reasonable assumptions on the arrival distribution of the best arm in terms of the thinness of the distribution's tail, we prove that the proposed algorithm achieves sub-linear, instance-independent regret. We further quantify explicit dependence of regret on the arrival distribution parameters. Application to online Q&amp;A forums, online review platforms, and many other settings is immediate.</p>	
<b>Mr. Sarav Radhakrishnan</b>	
<p><b>Bio:</b> Sarav Radhakrishnan has been in Cisco for 21 years and during that time has worked on a number of products and solutions during his tenure in Cisco. Sarav is an expert in the enterprise security space and he is driving a number of initiatives that help secure the enterprise by combining the power of the network and the security portfolio. Sarav is also an architecture lead for the highly profitable catalyst switching portfolio while also being a linchpin in setting product and technology direction across a wide variety of cross-cutting initiatives in Cisco. He is also a lead investigator in Cisco's pioneer award winning encrypted traffic analytics. He has worked on a number of innovations across the enterprise portfolio. He's current research and development interests include enterprise security, wireless, LiFi and machine learning.</p>	
<p><b>Abstract:</b> With direct internet access becoming a reality owing to the increased adoption of SDWAN, customers have to secure their branches from external threats. At the same, there is an explosion in the number of remote workers (especially owing to the current covid crisis). Secure Access Service Edge provides an opportunity for customers to secure their branches and remote workers with a single architecture. But there are challenges as well in this architecture that needs to be considered carefully as customers evaluate the existing and new threat vectors and privacy requirements. This talk will focus on the opportunities and the challenges ahead for SASE, especially in the world of growing SDWAN deployments.</p>	

Day-4 (17th Dec 2020)	Time (IST)
<b>Mr. Andrew Lord</b>	02.00 pm - 02.30 pm
Affiliation: Senior Manager, Optical Research at BT	
Title: The impact of 5G on future optical networks	
<b>Prof. Dr.-Ing. Klaus David</b>	02.30 pm - 03.00 pm
Affiliation: Chair for Communication Technology (ComTec), University of Kassel	
Title: 6G: Vision, Requirements, key applications, and the role of AI	
<b>Prof. Joseph Noll</b>	03.00 pm - 03.30 pm
Affiliation: Secretary General at the Basic Internet Foundation, Professor at the University of Oslo	
Title: Empower the Unconnected Generation for a Sustainable Future	
<b>Detailed Information</b>	
<b>Mr. Andrew Lord</b>	
<p><b>Bio:</b> Andrew joined BT in 1985 after a BA in Physics from Oxford University. He has worked on a range of optical network systems, including long-haul subsea and terrestrial DWDM. He currently heads BT's optical research including quantum communications. He has published over 100 research papers. He was Technical / General Chair for the Optical fibre Communications Conference 2015/7 in Los Angeles. He is Visiting Professor at Essex University, a Senior Member of IEEE and is Associate Editor of the Journal of Lightwave Technology. He won the BT Martlesham Medal in 2018. He is project manager for the EU Metro-Haul Project and UK-based AIRQKD project.</p>	
<p><b>Abstract:</b> 5G is likely to impact not just on the bandwidth requirements of an optical network, but also place data-centric demands on the entire infrastructure. This will force traditionally de-coupled optical networks to become part of a new type of network, resembling an orchestrated, distributed data centre. The technologies required by this revolution will be highlighted in this keynote talk, together with the anticipated benefits in terms of cost, bandwidth, latency and electrical power. The talk will rely on the recently completed EU Metro-Haul project, which was led by the main author.</p>	
<b>Prof. Dr.-Ing. Klaus David</b>	
<p><b>Bio:</b> Prof. Dr.-Ing. Klaus David (born 1961 in Frankfurt am Main) studied Physics at the University of Siegen (Germany). Then he was for 4 years researcher with IMEC in Gent (Belgium) and obtained his PhD (Dr.-Ing.) at the University of Siegen (Germany). After six years with T-Mobile (Münster, Bonn, Germany) as project leader and group head, he became Professor at the chair for mobile systems at the Technical University of Brandenburg (BTU, Cottbus, Germany) in 1998. Since March 2000 he leads the Chair for Communication Technology (ComTec) at the University of Kassel. Prof. David has filed more than 10 patents, has written 2 Textbooks, and has published more than 200 publications. His research focuses on mobile applications and networks, context awareness, machine learning, and software (architectures). Application areas include: mobility, digital work, E-Learning and energy efficiency (home networking, smart grid).</p>	
<p><b>Abstract:</b> Based on a review of the experiences and success factors of 2G, 3G, 4G, and 5G a vision and requirements for 6G will be presented and discussed. This will also be put in context of key and break-through technologies such as visible light communications or AI. Finally, several future key applications enabled by 6G are given.</p>	
<b>Prof. Joseph Noll</b>	
<p><b>Bio:</b> Josef Noll is Visionary at the Basic Internet Foundation and professor at the University of Oslo. Through the foundation he addresses impact research as the basis of sustainable development and digital inclusion. A key topic is the network delivering mobile services. He is also head of research in Movation, Norway's open innovation company for mobile services. The company supported more than 200 start-ups in the last ten years. He was leader of several EU and Eurescom projects.</p>	
<p><b>Abstract:</b> Though the Mobile Industry has received tremendous success in including about half of the population to the Internet, the digital divide has just become bigger. 5G, Industry4.0, IoT, AI, Smart Cities are mainly technology driven, and do not sufficiently answer the societal challenges. Knowing that we will only reach the Sustainable Development Goals (SDGs) without digital inclusion requires a paradigm shift. "It is not a question of affordability, it is a question of sustainability to get everyone participating in the digital society". The paradigm shift affects business models, with a freemium model for Internet Lite, and technology such as 5G, where we can use a network slice to create the Internet Lite layer. Free access to information should be a human right. The talk will argue and demonstrate that free access to information, using InternetLite is viable, affordable, and easy to implement. Experiences from the roll-out of Information Spots ("InfoSpots") in rural Tanzania are presented. The main focus is on the business model for digital inclusion through the introduction of a National Knowledge Portal, following the philosophy of the National Portal of India. Through the free access to such a Knowledge Portal we build the base for innovations needed to combat the climate crisis and the need for decent work.</p>	