Application Driven Network: From network engineering to network science

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Abstract

The key concept of ADN is that network design and evolution should be driven by network applications and usages. The ADN architecture is fundamentally different from traditional network architectures, which aim to optimize network operation and resource usage. This is the first time that the industry proposes the concept that the network should serve for applications. This new network architecture overthrows the traditional line of thoughts on operating networks, which aim to optimize network resources. The fundamental difference between the ADN architecture and existing network architectures is on the top layer of network design. The ADN architecture does not simply map multiple applications to the physical networks that serve as communication pipes; instead, ADN aims to customize the end-to-end communication for different applications and to optimize the quality of experience for end users. ADN is an insightful concept of network system design, built upon system implementation as well as modeling and theory. Among which, information consumption theory, information control theory and information dissemination theory are the bases and we will share some of the new progresses in this ICCCN2016.

Speaker Bio

Gong (Nicholas) Zhang is a Principal Researcher Scientist, director of the Future Network Theory Lab. His major research directions are network architecture and large-scale distributed systems.

He has abundant R&D experience on system architect in networks, distributed system and communication system for more than 20 years. He has more than 90 global patents in which some play significant roles in the company. In 2000, he acted as a system engineer for L3+ switch product and became the PDT (Product development team) leader for smart device development, pioneering a new consumer business for the company since 2002. Since 2005, he was a senior researcher, leading future internet research and cooperative communication. In 2009, he was in charge of the advance network technology research department, leading researches of future network, distributed computing, Database system and data analysis. In 2012, he became the Principal Researcher and led the system group in data mining and machine learning. Since 2014, he is the director and the Principal Researcher in Future Network Theory Lab.