

# Protocols and Use Cases for Media Independent Management in SDN-based Wireless Access Networks

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**Abstract**— This paper presents protocol messages, signalling procedures, and use cases for Media Independent Management (MIM) in Software-Defined Networking (SDN)-based wireless access networks. MIM control framework allows to control and to acquire information in a media independent way through a generic interface between higher layers and existing media-specific link layers. Focusing on tightly-coupled integration between SDN and MIM control planes, this paper describes signalling architecture, protocol messages, high-level signalling procedures for resource management and seamless handover, and three use cases of MIM in SDN-based heterogeneous wireless access networks.

**Keyword**— SDN, Media Independent Management, Signalling



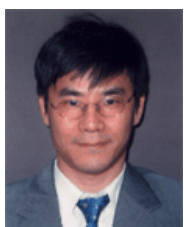
**Hyeong Ho Lee** received B.S. degree from Seoul National University, Seoul, Korea in 1977, and the M.S. and Ph.D. degrees from KAIST (Korea Advanced Institute of Science and Technology), Daejeon, Korea, all in Electrical Engineering in 1979 and 1983, respectively. From 1983 he has been working for ETRI (Electronics and Telecommunications Research Institute) and engaged in the research and development of digital switching systems, LAN equipment, routers, optical access systems, and IT standardization. From 1984 to 1986, he was a visiting engineer in AT&T Bell Laboratories, Naperville, U.S.A., where he was involved in the development of the No.5 ESS digital switching system. From 1997 to 2007, he was the director of Switching System, Router Technology, Optical Access Network Technology Departments, and Protocol Engineering Center (PEC) in ETRI. He was a Special Fellow at ETRI from 2008 to 2016. From 2013 to 2017, he was an adjunct professor at UST (University of Science and Technology), Daejeon, Korea. As a principal researcher at ETRI, he works in the area of standardization researches for wireless mobile networks. He was the chairman of KOREF (Korea Ethernet Forum) from 2000 to 2004, the President of IPv6 Forum Korea from 2005 to 2008, and a Vice President of IEIE (Institute of Electronics and Information Engineers) from 2004 to 2011. Also, he served as a Vice Chairman of ITU-T SG11 (Study Group on signalling requirements, protocols and test specifications) from 2005 to 2012, and as the Chairman of IEEE (Institute of Electrical and Electronics Engineers) Korea Council from 2013 to 2015. Currently, he is the Vice Chair of IEEE 802.21 WG, an Editor of the ETRI Journal, a Council member of KICS (Korean Institute of Communications and Information Sciences), and a Senior member of IEEE.



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**Byung Jun Ahn** is a principal researcher at ETRI, Korea, since 1986. His current research area includes the convergence of computing and networking, Internet traffic managements, network virtualization, service oriented architecture, and 5G. He has led many research projects in telecommunications traffic management and micro-flow based Internet router systems technologies. Currently, Dr. Ahn is the editor of ITU-T SG 13 draft Rec. Y.IMT2020-frame and Y.IMT2020-arch. He received his Ph.D. degree in Computer Engineering from Iowa State University.



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