

# ROUTE/DASH Server system development for real-time UHD broadcasting

Myungseok Ki, Jinwuk Seok, Hui Yong Kim

*Broadcasting and Telecommunications Media research Laboratory, ETRI(Electronics and Telecommunications Research Institute), Korea*

serdong@etri.re.kr, jinwseok@etri.re.kr, hykim5@etri.re.kr

**Abstract**— Recently, digital broadcasting has been increasingly demanded for high-definition broadcasting services such as HDR UHDTV. In addition, consumption environment of multimedia is also changing to a tendency to enjoy through various types of terminals. In order to satisfy such changes, we developed a ROUTE/DASH Server system to be inputted real-time encoded UHD stream, packetize it into ROUTE/DASH and output it to UDP, and we also verify it through developed ROUTE/DASH client. The developed ROUTE/DASH Server system provides a way to solve that the limitations of various network and receiving environment of existing MPEG-2 TS system. Using the developed system, it is expected that it can be used not only for multimedia service through broadband but also for transmission system of broadcasting system of ATSC 3.0 in which next standard broadcasting is being standardized.

**Keyword**—DASH, ROUTE, UHDTV, Digital multimedia Broadcasting



**Myungseok Ki** received his BS and MS degrees in computer engineering from Chonnam University, Gwangju, Rep. of Korea in 1999 and 2001, respectively. He is currently a senior member of the research staff at ETRI. His research interests include image processing, multimedia streaming, and interactive broadcasting systems.



Jinwuk Seok received his BS and MS degrees in electrical control engineering from Hong-Ik University, Seoul, Rep. of Korea in 1993 and 1995, respectively, and his PhD in electrical engineering from Hong-Ik University in 1998. He has been a principal member of the engineering staff at ETRI, Daejeon, Rep. of Korea since 2000, and an adjunct professor of the Computer Software Engineering Department at the University of Science and Technology, Daejeon, Rep. of Korea since 2009. His research interests include video compression, pattern recognition, neural networks, and stochastic nonlinear control.



**Hui Yong Kim** received his BS and MS degrees and his PhD from Korea Advanced Institute of Science and Technology, Daejeon, Rep. of Korea in 1994, 1998, and 2004, respectively. From 2003 to 2005, he was the leader of the Multimedia Research Team of AddPac Technology Co., Seoul, Rep. of Korea, Ltd. In 2005, he joined the Broadcasting and Telecommunications Media Research Laboratory of ETRI, and currently serves as the director of the Visual Media Research Section. From 2006 to 2010, he was also an affiliate professor at UST. From 2013 to 2014, he was a visiting scholar at the Media Communications Lab of the University of Southern California, Los Angeles, USA. He has made many contributions to the development of international standards such as MPEG's Multimedia Application Format and JCT-VC's High Efficiency Video Coding as an active technology contributor, editor, and ad-hoc group co-chair. His current research interests are in image and video signal processing and compression for realistic media applications such as UHD, 3D, VR, and HDR.