Distributed Mobility Control Schemes in the HIP-based Mobile Networks

Sang-Il Choi and Seok-Joo Koh

School of Computer Science and Engineering, Kyungpook National University, Korea

overcycos@gmail.com, sjkoh@knu.ac.kr

***Abstract*—The Host Identity Protocol (HIP) has been proposed as an identifier-locator (ID-LOC) separation scheme, in which the 128-bit Host Identity Tag (HIT) is used as an ID and the IP address of the host is used as a LOC. In HIP, the mobility control operations are performed based on a centralized Rendezvous Server (RVS) that acts as a mobility anchor for mobile nodes, in server. However, this centralized mobility scheme has some limitation, such as the service degradation by a point of failure and the overhead of centralized anchor. In this paper, we propose the two schemes for distributed mobility management (DMM): HIP-DMM-Push and HIP-DMM-Pull. From the numerical analysis, it is shown that the proposed DMM schemes can provide the better performance than the existing centralized scheme, and that the pull-based distributed control scheme (HIP-DMM-Pull) provides the best performance among the candidate mobility schemes in terms of the processing overhead at the central RVS server and the HIP connection setup delays.**

***Keyword*—HIP, Rendezvous Server, Distributed management**

Sang Il Choi received B.S and M.S. degrees in Engineering from Kyungpook National University in 2010 and 2012, respectively. Since March 2012, he enters to the Ph.D. program. His current research interests include mobility control and Future Internet such as Locator Identifier Separation Protocol (LISP) and Host Identity Protocol (HIP). Now, he studies the distributed mobility management in Future Internet.
E-mail: overcycos@gmail.com

Seok Joo Koh received B.S and M.S. degrees in Management Science from KAIST in 1992 and 1994, respectively. He also received Ph.D. degree in Industrial Engineering from KAIST in 1998. From August 1998 to February 2004, he worked for Protocol Engineering Center in ETRI. Since March 2004, he has been with the school of Electrical Engineering and Computer Science in the Kyungpook National University as an Associate Professor. He has published over 25 international journal papers with IEEE, Elsevier, and Springer-Verlag. His current research interests include mobility control in Future Internet, mobile SCTP, and mobile multicasting. He has also participated in the International Standardization as an editor in the ITU-T SG13 and ISO/IEC JTC1/SC6.
E-mail: sjkoh@knu.ac.kr