

# Service Continuity Management Scheme

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## SUMMARY

This paper proposes the service continuity management scheme based on a user perspective. We introduce the concept of the user-centric communication and present the newly designed protocol stacks of the User Equipment (UE) for supporting the user-centric mobility in Long Term Evolution (LTE) systems. We design a new protocol stack called Service Continuity Management (SCM). SCM has four functional blocks which is located between the application layer and the transport layer. SCM monitors the service Quality of Experience (QoE) and manages the multiple sessions for a one service using multiple radio adaptors in order to maintain QoE requirements.

## I. INTRODUCTION

In these days, different kind of wireless networks are setup and coexisted. And various mobile devices such as smart phones and tablet PCs support multiple wireless networks like WCDMA, WLAN and LTE. However these mobile devices use only one network to data communication. Therefore we propose the scheme that uses multiple networks simultaneously. To use multiple networks, networks or end user device should be modified. But the modification of the end user device is many benefits than that of networks for interworking heterogeneous networks. Thus, we design SCM in the end user device to maintain the service quality.

## II. Service Continuity Management

SCM is the function to maintain the service continuity along with the variance of the communication environment. SCM has two main features. SCM manages the multiple sessions using multiple networks for one service. Therefore it is easy to support seamless handover between heterogeneous networks. And SCM operate based on QoE. Conventional link management schemes are based on signal power. Thus, in the specific situation such as WiFi hot spot zone in the

downtown, the service quality could be bad, still signal power is good. However SCM can overcome that situation. To do these functions, SCM should be located in the communication protocol stacks. Figures 1 shows SCM protocol stacks based on LTE systems[1]. However SCM can be installed any kind of systems which use IP protocol. SCM manages the sessions and links based on application information and considering communication environments of low layers. SCM consist of four functional blocks such as *Information Management* for containing user preference and service QoE requirements, *QoE Management* for monitoring the service quality, *Sequence Management* for combining multiple sessions into a one service and *Session management* for determining optimal links and networks for sessions. We developed sequence management schemes according to transport protocol like TCP, UDP and also research the optimal link selection method for the session management scheme.

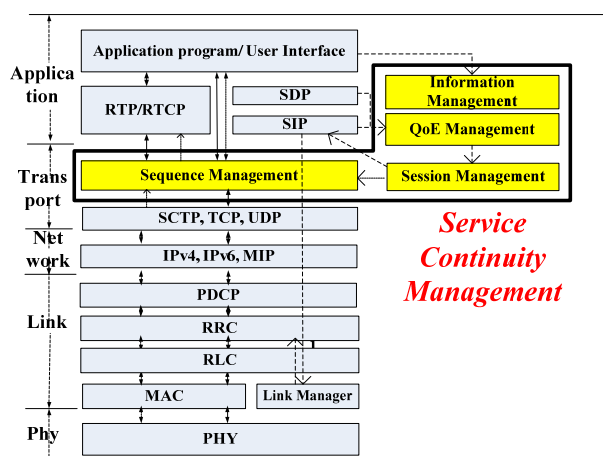


Figure 1: Service Continuity Management Structure

## REFERENCES

- 3GPP TS 36.300, "Evolved Universal Terrestrial Radio Access (E-UTRA) and Evolved Universal Terrestrial Radio Access Network (E-UTRAN); Overall description; Stage 2", 2011.