A VHO Scheme for supporting Healthcare Services in 5G Vehicular Cloud Computing Systems

ABSTRACT

- Fifth Generation Vehicular Cloud Computing (5GVCC) systems use heterogeneous network access technologies in order to fulfill the requirements of modern services, including medical services with strict constraints.
- Therefore, the need for efficient Vertical Handover (VHO) management schemes must be addressed. In this paper, a VHO management scheme for supporting medical services in 5G-VCC systems, is described.
- It consists of the VHO initiation and the network selection processes, while at the same time, the vehicle's velocity, its current connection type, as well as the status of the onboard patient's health, are considered.

CONTINUE

- It consists of the VHO initiation and the network selection processes, while at the same time, the vehicle's velocity, its current connection type, as well as the status of the onboard patient's health, are considered.
- Specifically, during the VHO initiation process the necessity to perform handover is evaluated. Subsequently, the network selection process selects the appropriate network alternative considering both medical service requirements and patients' health status.
- The proposed scheme is applied to a 5G-VCC system which includes Long Term Evolution (LTE) and Worldwide Interoperability Microwave Access (WiMAX) Macrocells and Femtocells, as well as Wireless Access for Vehicular Environment Road Side Units (WAVE RSUs).

EXISTING SYSTEM

- The vehicles should always obtain connectivity to the best network, in order the requirements of their services to be fulfilled.
- Therefore, the design of efficient Vertical Handover (VHO) management schemes is required.
- Heterogeneous network access technologies, such as the 3GPP Long Term Evolution (LTE) , the Worldwide Interoperability Microwave Access (WiMAX).
- The Wireless Access for Vehicular Environment (WAVE) [9], are used for the interconnection between the vehicles and the Cloud infrastructure.

CONTINUE

- Furthermore, the durability and the response latency of the 5G architecture could be improved by applying the operating principles of the Mobile Edge Computing (MEC).

PROPOSED SYSTEM

- In this paper, a VHO management scheme for supporting medical services in 5G-VCC systems, is described.
- It consists of the VHO initiation and the network selection processes, while at the same time, the vehicle's velocity, its current connection type, as well as the status of the onboard patient's health, are considered.
- Specifically, during the VHO initiation process the necessity to perform handover is evaluated. Subsequently, the network selection process selects the appropriate network alternative considering both medical service requirements and patients' health status.

CONTINUE

- The proposed scheme is applied to a 5G-VCC system which includes Long Term Evolution (LTE) and Worldwide Interoperability Microwave Access (WiMAX) Macrocells and Femtocells, as well as Wireless Access for Vehicular Environment Road Side Units (WAVE RSUs).

HARDWARE REQUIREMENTS

- Processor - Pentium –III
- Speed - 1.1 Ghz
- RAM - 256 MB(min)
- Hard Disk - 20 GB
- Floppy Drive - 1.44 MB
- Key Board - Standard Windows Keyboard
- Mouse - Two or Three Button Mouse
- Monitor - SVGA

SOFTWARE REQUIREMENTS

- Operating System : Windows 8
- Front End : Java /DOTNET
- Database : Mysql/HEIDISQL

CONCLUSION

- This paper proposes a VHO management scheme for supporting medical services in 5G-VCC systems. The discussed scheme consists of the VHO initiation and the network selection processes.
- The vehicle's velocity, its current connection type, as well as the status of patient's health, are considered.
- Specifically, during the VHO initiation process the necessity to perform handover is evaluated and, subsequently, the network selection process selects the appropriate network alternative. The proposed scheme is applied to a 5G-VCC system.

REFERENCE

[1] R. Vilalta et al., “Telcofog: A unified flexible fog and cloud computing architecture for 5g networks,” IEEE Communications Magazine, vol. 55, no. 8, pp. 36–43, 2017.

[2] F. Z. Yousaf, M. Bredel, S. Schaller, and F. Schneider, “Nfv and sdn-key technology enablers for 5g networks,” IEEE Journal on Selected Areas n Communications, 2017.

[3] T. A. et al., “Real time injecting device with automated robust vein detection using near infrared camera and live video,” in IEEE Global Humanitarian Technology Conference (GHTC), San Jose, CA, USA, October 19-22. IEEE, 2017.

CONTINUE

[4] “1609.3-2016 - ieee standard for wireless access in vehicular environments (wave) – networking services,” IEEE, 2016.

[5] K. Zhang, Y. Mao, S. Leng, Y. He, and Y. Zhang, “Mobile-edge computing for vehicular networks: A promising network paradigm with predictive off-loading,” IEEE Vehicular Technology Magazine, vol. 12, no. 2, pp. 36–44, 2017.

[6] H. T. Yewa, E. Supriyantoa, M. H. Satriaa, and Y. Wen, “Autonomous network selection strategy for telecardiology application in heterogeneous wireless networks,” pp. 147–153, 2015.