Adaptive Multimedia Content in Mobile Cloud Computing Environment

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INTRODUCTION

- Usage of the processing power of the Mobile Cloud Computing (MCC) environment for adapting the multimedia content to the context – aware network conditions of the mobile user.
- Improvement the QoE metrics as a multi-dimensional construct of user perceptions and behaviors
- Case study for multimedia mobile learning
Architecture of the MCC for multimedia content adaptation

User Mobile Device

Network connection

Wi-Fi  GPRS  LTE  4G

Analysing of the requests on the basis of the user’s profiles.

Multimedia Content Adaption

User profiles

Sending requests

Context-aware user devices

MM data

Receiving request

Response
ADAPTIVE PROVISIONING OF MULTIMEDIA CONTENT

The proposed adaptive provisioning of multimedia content workflow are the media files, that are highly depend initially from the context-aware network conditions and the type of mobile device.

Using the network protocols, users of mobile devices easily send their requests to be processed within the MCC environment.

The received requests than can be managed and scheduled for processing in the mobile cloud.
QoE model

Multimedia content m-Cloud Delivery → Transcoding / encoding service → Transcoding / encoding MM Content → Multimedia Network

User Mobile device → Adapted multimedia Content → Decoding Service

QoS: (delay, jitter, packet lost ratio, bandwidth)
In order to apply the appropriate mapping settings, we use mapping functions between the QoS and QoE.

The context – aware network conditions are estimated by QoS.

The user cognitive perception is measured according to the QoE model.
Case study for multimedia mobile learning

We have investigated some of the prospects of using the mobile cloud computing for delivery of augmented distance learning systems (as a case study).

The QoE survey questions were answered by a group of 25 students that participated in research.

From this study we observed an increased overall satisfaction and educational advantage of the used methodology of m-learning.
CONCLUSION

We presented a MCC environment for delivery of adapted multimedia content

According to our QoE model, we found a significantly increased students attention in the process of m-learning

For the future work, we plan to investigate the MCC environment together with improved QoE models for different applications such as m-health, m-business, m-social services etc.