FIRST CHARITY PROJECT WEBINAR

CHARITY project organised its first Project Webinar on 30th November 2021 where Fermin Calvo (SM2 by PLEXUS), CHARITY's Communication Manager, guided the audience through the event which included the following speaker panel:

- CHARITY Project Introduction (Uwe Herzog - Eurescom)
- CHARITY Project Architecture (Tarik Taleb - ICT-Ficial)
- VR Medical Training Use Case (Antonis Protopsaltis - OramaVR)
- Collaborative Gaming Use Case (Zbyszek Ledwoń - Orbital Knight)

Project Coordinator Uwe Herzog presented a description of the project objectives, the consortium, and its strengths. Dr. Tarik Taleb, Tecnhical Managager of CHARITY, summarized the most relevant and innovative aspects of CHARITY's architecture, showing the challenges we are facing. Both use cases, medical training and collaborative gaming, were widely described demonstrating the importance of the applications themselves and the technological advances they will incorporate as results of the CHARITY project.

Overall, the speakers highlighted the opportunities of Cloud & Edge Computing together with Augmented Reality (AR), Virtual Reality (VR) and Holography in the context of communication applications.

The webinar was recorded and is available on the project website at https://www.charity-project.eu/en/webinars for everyone who didn't have a chance to attend.

The next project webinar is coming soon. Follow CHARITY's social media accounts to stay up to date!

USE CASE PRESENTATION

The CHARITY project takes the opportunity to present the seventh Use Case: Holographic Meetings.

Holographic Meetings

(Use Case 1-2)

With over two decades of experience, Avcom Entertainment (HOLO3D) is a provider of unique 3D holographic display solutions for retail, expos, and brand activations.

Using the CHARITY platform and its cloud services, HOLO3D is planning to make holographic meetings possible for everyone. By employing 3D projection devices along with streaming, video signal rendering and cloud services people can have meetings in a holographic form without the need of powerful media servers or audio-visual (AV) trained technicians.

Current technology work very well for local or almost local events in which no long-distance communication networks are being used. With CHARITY we foresee holographic meetings to be performed from anyplace connected to advanced communication networks (5G, fibre optics, etc.). Audio and video compression and synchronization in all the venues impose extremely hard challenges for a series of technologies so as to cope with QoE and QoS demands.

Alex Roibu, Holo3D
Use Case Scenario Provider

CHARITY NEWS

- Uwe Herzog as coordinator of the CHARITY Project presented at "Success Stories and Use Cases from the European Cloud Community" session of H-Cloud Summit 2021 the CHARITY's holographic assistant use case.
- Antonios Makris from Harokopio University of Athens presented at the 10th IEEE International Conference on Cloud Networking (CloudNet) a joint paper from the CHARITY consortium where he discussed the vision and research directions of CHARITY.
- Luis Cordeiro from OneSource presented at the International Symposium on 6G Networking in Lisbon the future of XR Services, their upcoming network and computing challenges and the role of 6G in addressing them.

MORE ON CHARITY TECHNOLOGY

Follows a brief summary of the CHARITY joint paper entitled **"Cloud for Holography and Augmented Reality"** presented at the IEEE CloudNet 2021, more details are available on the Papers & Conferences section of our project website.

Advanced media applications enabling immersive communication are becoming ubiquitous in our lives, and there is a global trend to adopt virtual solutions to support day-to-day business operations, social events, and general lifestyle. A subset of highly attractive innovative immersive communication applications includes Virtual Reality, Augmented Reality, and Holography, known as XR. Unfortunately, such kinds of collaborative and interactive systems or services requiring live data processing, present challenges. From a network standpoint, XR services define a new class of services where best-effort and simple traffic differentiation approaches are insufficient to meet their strict requirements with the most important of which being the ultra low latency, the extremely large bandwidth and the huge data processing power.

CHARITY aims to shift the immersive data processing towards the network edges in the cloud where more processing power will be deported and aspires to leverage the benefits of intelligent, autonomous orchestration of cloud, edge, and network resources, to create a symbiotic relationship between low and high latency infrastructures that will facilitate the needs of emerging applications. The overarching vision of CHARITY is the development of a unified framework ensuring a complete cycle of highly interactive services management, spanning from CI/CD (Continuous Integration/Continuous Delivery) to life cycle management and orchestration.

The general architecture of the CHARITY framework is composed of five main layers supported by an Application Management Framework (AMF) and a CI/CD pipeline. More specifically, from the bottom up the architectural layers are the following: i) Infrastructure Layer - which consist of all the underlying physical infrastructure that spans from computing platforms to end user devices, ii) Network Function Layer - which is in charge of managing the computations and resources of network functions, iii) Network Slicing Layer - which orchestrates and manages the infrastructure and network functions provided by the two previous layers, iv) Convergence and Abstraction Layer - which is an End-to-End (E2E) service management domain that is able to orchestrate and manage all XR services and v) Network Security and User Privacy Layer - which aims to secure the applications development, the communications, and the platform where services are running. Finally, the AMF and CI/CD pipeline is the entry point of XR providers and developers to the CHARITY platform.

The CHARITY platform is validated by three different use cases (UCs) that demonstrate the capabilities of the proposed architecture. The UCs are organised in three main categories, namely Real time Holographic, Immersive Virtual Training and Mixed Reality Interactive applications, aiming to address the main challenges in these sectors.

CHARITY
Cloud for Holography and
Augmented RealITY

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