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NEM Workshop

Minutes 30/11/2017

Michael Boniface (IT Innovation) | 12/12/2017

AGENDA

– SESSION 1 (09:00 – 10:30) – **The Future of Digital Media**	
09:00 – 09:10	Welcome and introduction Michael Boniface, IT Innovation Centre
09:10 – 09: 50	Key Notes Future Design and Digital Media Dries De Roeck, Studio Dott Vision for software infrastructures Dirk Trossen, InterDigital
09:50 – 10:30	Panel debate with interactive audience: Q/A Chaired by Michael Boniface, IT Innovation Francesco D'Andria, Atos Michel De Wolf, DWESAM Ingrid Willems, DataScouts Pierre-Yves Danet, Orange Jean Dominique Meunier, Technicolor
Coffee Break	

– SESSION 2 (11:00 – 12:30) – **Building the FMI Ecosystem Through Experimentation**	
11:00 – 11:10	FLAME Offering : a flexible delivery platform for media services Michael Boniface, IT Innovation Centre
11:10 – 11:50	Early trials and experiments from broadcast, transmedia and gaming Personalised and participatory media Mike Matton, Marc Godon VRT Collaborative transmedia Julia Chatain, ETH Zurich
11:50 – 12:20	How to get involved in the FMI Ecosystem and FLAME Open Calls- with audience QA Monique Calisti, Martel Innovate
12:20 – 12:30	Wrap up and closure

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MINUTES

INTRODUCTION

Michael Boniface (MB) introduced the workshop on the future of digital media in 5G networks and the Next Generation Internet. MB highlighted the motivation for the workshop being the increasing dependency of society on digital media being met by an increasingly software defined infrastructure. These two factors are creating massive structural changes to digital media ecosystems. MB said that the FLAME project aimed to bridge the gap between media and software defined infrastructures and the workshop was an opportunity to explore the relationship and discover how to get involved with the FLAME project and associated ecosystems. MB reviewed the agenda and the purpose of each session.

FUTURE DESIGN AND DIGITAL MEDIA - DRIES DE ROECK, STUDIO DOTT

Dries De Roeck (DDR) provided a keynote take on future design and digital media from a smart cities perspective. The presentation focused initially on top down and bottom up approaches to design. A top down approach is quantifiable, objective and functional. For example, IoT based applications provide ever increasing control of spaces people interactive with such as notifications when lights are broken, identifying parking spots, turning on central heating in relation to home owners likely return time, or personalised cultural trials around cities.

DDR gave the analogy or two films, Tron and the Hobbit. Tron is based on a grid and is an example of top down thinking, data-driven functionality and efficiency. Open data portals are examples of top down thinking and although they provide access to potentially interesting information they do not engage citizens sufficiently. DDR lamented the emergence of open data metadata. Sensor networks are another example that provide data but often without engagement. Contrast this to the Shire in the Hobbit where interaction is ad-hoc and emotional where it's all about the people involved. DDR gave an example of a sensor network that engaged citizens using strawberry plants as sensors where the quality of the plant gave an indication of the air quality. Citizens engaged in discourse around their plans and were activity involved in the pollution monitoring in a collective and engaging way.

DDR then moved on to storytelling and providing meaningful experiences through products that have a soul. He gave an example of two people sitting experiences very different realities, one in VR and another sadly sitting next to him, disconnected from the experience. Another link to reality was the use of a traditional telephone box to capture feedback from citizens on their experience of the city. The physical nature of the interaction and placing the interaction within the real environment engaged a broader range of citizens, many of whom were used to interfacing using the traditional telephone box interface.

DDR wrapped up highlighted that interaction should be contextualised, unscripted with cues for engagement not directives, and should be actionable in that platforms should show what they can do and cannot do.

The leaving thought are that systems should connect people emotionally and not just rationally

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VISION FOR SOFTWARE INFRASTRUCTURES, DIRK TROSSEN, INTERDIGITAL

Dirk Trossen (DT) presented a vision for software infrastructures. He started with observations about the evolution of the Internet and the shift from connecting networks to services and where access via mobile devices is approaching 100% in parts of the world. DT stated that connecting networks/services is all about Platforms whereas connecting smartphones has become about selecting the right application and this is all about value chains.

DT summarised the emerging software infrastructure stack building software abstractions on top of physical ICT equipment. Using such abstractions services can be deployed within the network using network function virtualisation and then orchestrated according to demand. DT summarised an emerging platform view of application-specific service functions being deployed on standards based infrastructures such as OpenStack and OpenDaylight over a think abstraction model within the Linux Kernel.

DT then described the FLAME service delivery platform highlighting the support for distributed infrastructure models, adaptive routing and endpoint management, and cross layer optimisation and control, all within the context of enhancing QoE factors such as personalisation, interactivity, mobility and localisation. DT explored the FLAME technical proposition for fast, adaptive service provisioning and some features that increased the robustness and security of network services.

DT explored the increasingly rich API dialog between media services and platforms in terms of demand vs resourcing requirements. Today the specification of resources is explicitly defined through templates, whereas in future media services will define higher level constructs as KPIs in service level agreements that evolve overtime based on an analysis of usage and predictions. DT explored how flexible management and control could be used to set control policies and configure communication resources and compute/storage resources within data centres right out to the edge of the network.

DT explored the changes to the value chain based on the technical proposition of the platform placing the hosting platform/operator within the network and with greater value generation potential. The greater integration of platform with service, deployed on the infrastructure would create a much tighter integration of service and software based infrastructure including the network DT highlighted FLAME experimenters in the role of service and app developers.

PANEL DISCUSSION WITH AUDIENCE INTERACTION

MB kicked off the panel discussion introducing the panellists and the three topics to be discussed with audience participation.

- Michel De Wolf, DWESAM (MDW)
- Francesco D'Andria, Atos (FDA)
- Ingrid Willems, DataScouts (IW)
- Pierre-Yves Danet, Orange (PYD)
- Jean Dominique Meunier, Technicolor (JDM)

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MB said that the FLAME proposition is to support greater content personalisation, interactivity and mobility through an infrastructure that flexibly adapts to such demands. The platform offers low latency, efficient routing, multicast delivery, net-level indirection, secure end-to-end content, cross layer information sharing, along with a set of foundation media services integrated and benefiting from the platform made available for trials and experimentation

MB asked which scenarios may benefit most from 5G networks? PYD highlighted the work on the 5G-PPP stating that there's a lot of potential in health and automotive applications. MB commented that FLAME was focused on the creative industries although the generic capabilities of the platform means that the solution could be applicable to those sectors too. Audience highlighted that automotive is an interesting area, people are fearing driverless cars and providing simulations allows them to learning what it feels like to be in such a vehicle.

MB said that the FLAME's proposition is based using software-defined infrastructures to achieve a tight yet flexible integration between services and an underlying distributed infrastructure operated by current and new actors (e.g. cities, transport infrastructure operators, buildings and of course telcos themselves). MB asked how the panel thought the ecosystem would be disrupted by FLAME. What does it take to build the whole stack? Marc Godon (VRT) said the expectation we have from FLAME is that it will "compress" the stack and easy to use interfaces will be made available. MB said how can we make sure the FLAME platform and services will be easily digestible for creative players? Ingrid Willems said we must ensure to take users' needs at the centre of the vision – new ways of sharing experience will drive the way media service delivery is evolving. The current ecosystem diagram is commercial and business orientated and does not consider the user sufficiently. The Consumer is there but it's not core to the model. User centricity should be better emphasised as crucial for experimentation engagement and ecosystem creation. Involving SMEs in an early stage could help engaging them. IW also said that building communities starting from cities where FLAME services will be offered and made available will be crucial. MDW agreed and said that the cities were underrepresented in the current ecosystem model.

MDW said that FLAME should provide open and standard APIs for media players to be able to easily deploy the platform/technologies. Audience commented that there should be a clear distinction between B2C and B2B scenarios. Audience asked about the role of network operators in the value chain considering the need to monetize network slicing. DT said the operator is of course considered as an infrastructure provider but offering a commodity to services and applications.

PYD asked about open source and open APIs. MB said FLAME focuses on open APIs through engagement with standards at ETSI and IETF rather than open source software. FLAME believes adoption of the architecture and specifications is more important and will deliver greater impact.

The 3rd topic was to be about ecosystem building priorities but due to time the topic was not discussed.

FLAME OFFERING: A FLEXIBLE DELIVERY PLATFORM FOR MEDIA SERVICES, MICHAEL BONIFACE, IT INNOVATION CENTRE

MB introduced the second session by describing the FLAME offering. The offering included 6 main aspects. FLAME offers real-life infrastructures where services and applications can be deployed and tested with users, and where infrastructures are deployed around the users themselves including edge, metro and centralised resources. FLAME offers a media service delivery platform that includes core

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platform features for low latency compute and a set of foundation media services enhanced through integration with the platform for common media functions. FLAME offers knowledge and analytics allowing ecosystem stakeholders to explore cross-layer interactions, for example, relationship between media service demand and resource provisioning policies. FLAME offers methodologies, support and training to platform users, allowing them to design, implement and conduct experiments that deliver insights to those involved. FLAME offers an opportunity for showcasing technology to local stakeholders and a global audience. FLAME offers 2M+ funding through three open calls that will be implemented throughout 2018 and 2019.

MB then introduced two presentations by early experimenters

EARLY TRIALS AND EXPERIMENTS FROM BROADCAST, TRANSMEDIA AND GAMING, MIKE MATTON, VRT

Mike Matton (MM) and Marc Godon (MG) from VRT presented a FLAME experiment on Personalised and participatory media. MM provided the context describing the role of the public broadcaster in Flanders and the current set of strategic topics in the areas of personalisation, co-creation/interaction and new content production workflows. MM said the focus on the experiment was co-creation and interaction based on a concept called the Wall of Moments. The motivation was to create interactive audience participation as an online-extension to programming around live events. MM said there's significant interest from different departments in radio, TV and news. The Wall of Moments is a set of applications that allows audience interaction and brings together end users, editors and an onsite display. Experiments have been conducted in the areas of crowd journalism, music festivals and other events. The challenge is dealing with interactions as 1-1 don't scale although end users expect real-time interaction, editors are having to deal with many things at a time. Therefore technologies need to assist.

MG then discussed the FLAME opportunity in terms of the city location, the innovative platform for localised services and the testbed framework. The focus is a technical validation to learn what scenarios are possible within a smart city context based on edge computing and how edge services can reduce latency, cost and improve user experience. The validation with end users and media professionals is important. The concept is participants and spectators join a city sports event. Together they share live event information with community members or they create e.g. collective after-event-memorabilia. Live event information can be curated into a reportage or contribute to a collective mood board. Both can be shared in a closed private community or open public community. A media pipeline has been defined outlining the overall workflow based on dedicated audience members participating as a camera controller and recording footage for the broadcaster that can be incorporated into broadcast productions. FLAME provides the content ingest, storage, transcoding and video analytics in support of the interaction between audience and broadcaster. MG concluded that the experiment is an early technical trial that will start in Mar-18

Audience asked about evaluation of end user experience in this scenario. MG said they would be evaluating qualitative aspects as well and quantifiable measures. Question around user satisfaction will be asked of end users. MB said the motivation for the experiment was to use edge computing to filter content more quickly at the edge rather than transferring it to centralised hosts. If the audience camera participant can be redirected then there's more likelihood of their content being acceptable for use and that the content captures a desirable moment.

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Audience asked about approaches to content rights. MM said this is all through negotiation and there's no special approach. If the rights holders have enough interest in the event then there's an opportunity. MM said you have to select events where there's a balance of benefits between rights holders and experimenter.

COLLABORATIVE TRANSMEDIA, JULIA CHATAIN, ETH ZURICH

The Audience asked about the use of FLAME. For the augmented reality game scenario it is more obvious than the transmedia scenarios. MB said the vision is for the designer to simulate interaction in virtual reality and then deploy the geo-spatial assets into the real environment, where some of the virtual objects and characters are replaced by reality. DT said this is an asset distribution scenario, where the assets are distributed to edge nodes based on their geo-location and expected demand from end-users.

HOW TO GET INVOLVED IN THE FMI ECOSYSTEM AND FLAME OPEN CALLS-WITH AUDIENCE QA

Monique Calisti (MC) presented a talk on how to get involved in the FLAME ecosystem. MC highlighted the need for ground-breaking scenarios and the opportunity to get involved in a growing ecosystem based on the FLAME offering. MC gave full details on the open call of 2.2M EUR to be invested over three rounds. The 1st open call will be open in Apr-18 and will focus on industry and SME trials covering multi-media, creative industries as well as technology providers. Full coordinates on how to get further information on the open calls were provided in the slides.

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CONCLUSIONS

The FLAME workshop provided an important opportunity to engage the networked media community in the FLAME technical proposition and ecosystem engagement strategy. It's clear that the convergence of media with software defined infrastructures provides many opportunities for different stakeholders, however, the strategy for success and who will be the winners and losers is less clear. Experimentation such as that conducted by the FLAME project aims to establish evidence for effectiveness and business justifications for the technical propositions.

FLAME covers the full stack from users and creative designers through to networking and infrastructure experts optimising the utilisation of increasingly software-defined resources. Providing a proposition and ecosystem that is understandable for different stakeholder perspectives remains a challenge especially for end users and creative companies operating at the top of the stack. Work needs to be done to clearly articulate the proposition to the higher layers and it is expected that media service providers will play a critical role in translating low level features into high level features that can be incorporated into creative processes. Even though the strategy of starting with infrastructure is essential to deliver anything, it's clear that the benefits to cities and citizens needs greater emphasis as the project shifts towards the experimentation phase.

The tighter integration of the network with the content, aims to create a system where they these distinct elements are merged, and in effect become one. This will require multi-disciplinary teams of engineers and researchers to rapidly cross layers previously enforced by the traditional Internet stack. FLAME is a good opportunity to work towards this goal and the workshop participants and the audience made great steps in understand ways in which to achieve this.

A major community is now aware, engaged and excited about the potential of the FLAME project and getting directly involved. Telecoms operators, broadcasters, creative industry SMEs attending the event have the information they need to explore what this means for the future of infrastructure and media content delivery, and to decided how their businesses can benefit through engagement. The open call has been announced and the project looks forward to 2018 when the future partnerships discussed at the workshop can be made a reality.

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