Session 3.4 – Games, networks and clouds: What are their requirements?

Rapporteurs/organisers: Malte Behrmann, EGDF
Co-rapporteur: Jean Charles Point, JCP Consult
Supported by the Mobile Game Arch Project

Session summary
The session included high-quality presentations and allowed the game development community and operators to give their views on mobile game requirements in view of the cloud, how applications can become “network aware”, the role of network operators, and the potential evolution of different stakeholders in this framework. Conclusions were drawn on the different possible architectures meeting the requirements of mobile games, as well as possible research directions and gaps. The need for harmonisation, integration of the different frameworks, and standardisation was highlighted. Specific requirements of mobile gaming were discussed by the panel.

Malte Behrmann of the European Games Developers Federation and Mobile Game Arch project introduced the session. He focused on important challenges facing the games sector compared to other media, such as cinema, video and music, and issues concerning the development of online and mobile games in the context of consumer spending in Europe. He suggested there are several different perspectives – online game developers, mobile game developers, Telco and research perspectives – to examine in relation to gaming in networks and clouds.

Online game developer perspective
In his presentation, Kerry Fraser Robinson of Redbedlam, UK explained in detail how he came into online games and what he believes are the key issues at stake. Chief among them are request and response sessions. In real-time gaming action, anything under a 50-millisecond response time would be ideal, up to 100ms is doable but nothing above 200ms would satisfy online gamers. He mentioned specific requirements (term-based approach) of massively multiplayer online (MMO) game play and offered a description of different game types, including MMO, mobile and multi-platform formats, and combinations of the three. Concerning the code behind the games and networking, he referred to ‘transmission control protocol’ (TCP) – the workhorse of the internet – as well as ‘user datagram protocol’ (UDP) and combinations thereof. Concerning the hosting services, he mentioned that different types of server applications exist and confirmed that cloud services are in discussion at the moment. Cloud service providers and designers should not underestimate the importance of super high-speed traffic within the hosted virtual network, he concluded.
Mobile gaming developer perspective

Michael Baros of Redikod, Sweden said the cloud is not new as a mobile storage device, but advanced cloud services which allow virtualisation and streaming – key elements of real-time gaming – are more interesting recent developments. Mobile cloud-gaming, he suggested, still faces a number of specific “geographic” challenges. For example, today to make sure the gamer’s location is not an issue in the gaming experience, providers ‘virtualise’ a server on the cloud for every game ‘instance’ and write simple code that connects users to that instance to ensure continuity of the gaming experience. But this is an untidy solution. It would be cheaper and cleaner to use a common solution rather than treating each incidence as a one-off. Again, this is a complex problem in cloud-gaming.

Network perspective

Adolfo Rosas of Telefónica, Spain described the less than smooth relationship, historically, between telecom operators and the gaming sector. But Telcos need app stores and game developers need differentiation. Combined with appropriate pricing, this provides grounds to develop deals between developers and telecom companies. He explained possible content architectures, from a Telco point of view, and how these specific requirements could influence state-of-the-art game development, and how the networks will be called on to deal with much more gaming, and in turn use the experience to establish premium services themselves.

Kusanagi project

Patrick Troung of Orange Labs, France presented a project focused on network computing for cloud-gaming, in particular a cloud-gaming concept which runs remotely and is executed on powerful servers in the cloud. The project is going all the way back to basic engineering design and architecture in dealing with the classic time-response challenge confronting real-time gaming – with a threshold latency of 150ms.

Research perspective and conclusions

In his roundup, Jean Charles Point of JCP Consult, France relayed the latest research and findings and potential applications (mobile and cloud) in the fast-moving gaming field. He said new paradigms for cloud optimisations – such as power consumption, latency, bandwidth costs and distributed architectures – have been introduced thanks to developments in mobile clouds. Game developers, network operators, and new entrants like community operators will have a role to play in these new paradigms.

While the technological building blocks and frameworks exists to deal with these changes, further integration and solutions to harmonise these frameworks are still necessary, to ensure interoperability and openness as the gaming sector develops and evolves.

Discussion

Within the discussion there were comments from David Kennedy of Eurescom who offered several points from the Telco perspective. Bernard Barani from the European Commission countered with several points from the developer’s perspective. After several other interventions, the discussion proceeded on the specific aspects of mobile gaming to enable mobile cloud architectures.
Links and info


Read the presentations: http://www.mobilegamearch.eu/
European Games Developer Federation (EGDF): http://www.egdf.eu