

The entertainment home cloud bursting with opportunity

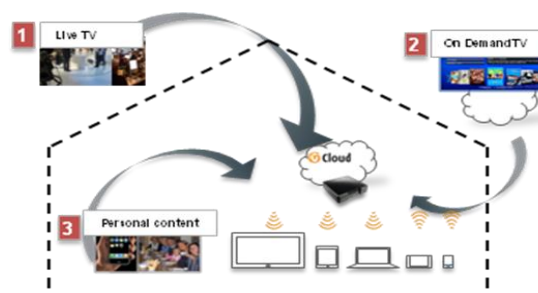
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INTRODUCTION

Since the onset of digital broadcasting technologies, virtually every year has seen the launch of something that has been hyped to redefine the whole broadcast technology market. Almost all of these technologies, from HD through to 3D, work in isolation and each in turn has been effectively supplanted in the consumer’s mind as being the next breakthrough. Since late 2010 and moving into 2011, the next innovations in line have been connected broadcast technologies and companion devices such as tablets. When used in conjunction they have huge potential to fundamentally change TV consumption and drastically simplify entertainment at home.

The question remains however of how to successfully allow these technologies to communicate to make them more than the sum of their parts. That is to say, making connected devices work together and complement each other. Netgem believes the answer lies in the deployment of secure home cloud technologies.

This white paper sets out the case for the home cloud as the key model for the delivery and consumption of enhanced TV services. It reveals how a home cloud operates, with particular reference to Netgem’s own nCloud, the first residential cloud to reach the market, and outlines how the creation of such a technology solves many of the business challenges currently facing pay-TV operators.



CONNECTED TV AND THE CLOUD: CLOUD FOR THE ENTERTAINMENT MARKET

The past couple of years have seen the launch of TV capable connected devices of all forms: indeed a survey by US analyst Knowledge Networks¹ in

July 2011 calculated that connected TV services are already established in two out of five US households. The stellar rise of tablets has been particularly significant in bringing about this change.

The limiting factors to the uptake of connected services won’t be down to technology, indeed, the number of TV ready devices coming to the market

¹ Connected TVs: How People Use Media
<http://mediastore.knowledgenetworks.com/>



within the next five years is likely to be staggering. Informa Telecoms & Media² says Android tablet sales will be neck and neck with the iPad in 2015 with 87 million and 90 million units respectively.

New devices trigger new usage and data³ suggests 90% of iPad users consume video content, with **70% using their iPad in front of their TV screen** and 57% in their bed.



The next step in the evolution of connected entertainment will be the interoperability of devices to simplify usage and stimulate premium content consumption. Some industry leaders see the cloud as a perfect platform to facilitate this. However, there has been a recent tendency to apply business models that have proven successful in IT direct to the entertainment industry and then to expect similar success. The pure-cloud, that is to say classic IT cloud approach, does not fully meet the needs of the entertainment market.

A pure-cloud approach requires expensive data centres to be built before generating any revenues against these. While in some cases overall Capex may be lower due to mutualisation of storage across users, additional costs are incurred in terms of redundancy, power supply (and mitigation by way of ventilation etc.), manpower, and bandwidth up and down-stream. Within a pure-cloud environment network downstream performance is intrinsically linked to the network bandwidth and, as such, infrastructures are not network agnostic, a crucial factor for many operators.

² Android Tablets to close the gap on iPad in 2015, Informa Telecoms & Media, July 2011
<http://www.informatandm.com/mbd>

³ Digital Clarity Nielsen Wire Blog, June 2011
http://blog.nielsen.com/nielsenwire/online_mobile/what-consumers-watch-nielsens-q1-2010-three-screen-report/

THE NCloud: SOLVING OPERATORS' BUSINESS CHALLENGES

While the big screen in the living room will always be at the heart of home TV experience, viewing

will increasingly move beyond the connected TV to the wider connected home and traditional set top boxes are given a new key role as intelligent proxy servers. The STB is used as a hub to blend various sources of content, whether from broadcast or broadband, into a seamless experience. Managing operators' services over a

local platform provides highly secure, highly available, highly reliable content delivery in accordance with the business rules of that service provider.

nCloud is designed to meet the demands of pay-TV customers for a cloud type experience providing simple and consistent access to all content, including live TV and video on demand, from any connected device within the home. There are some clear-cut business advantages for operators using nCloud; firstly the nCloud architecture does not require the deployment of a dedicated, and potentially expensive, overlay system. It provides an economically competitive platform offering enhanced reliability and performance. nCloud leverages existing feeds and devices to enable operators to differentiate their offerings in an ever more competitive sector, by simplifying (authorised) content consumption across devices and deploying new types of value added services.

As the nCloud does not require an overlay system for live TV feeds: this means no head-end, no bandwidth wasted for signals already present in the home. By way of stark contrast, hybrid cable systems are two or three times more Capex efficient than Cable IPTV. Such tangible business benefits have already been realised by leading operators like Monaco Télécom and NetPlus in Switzerland, both of whom have adopted hybrid approaches in their deployments.

For hybrid systems, such as the nCloud, broadcast feeds are only available at the box level; managing these feeds, recording them and transmitting them is most effective when these are carried out from



the media server rather than from the internet cloud. This is because the latter would require a new system to be built and wastes bandwidth.

Furthermore, nCloud services can be upgraded through simple software updates that happen seamlessly and invisibly as far as customers are concerned since there is no need for equipment or infrastructure upgrades. This is the beauty of the home cloud-based approach: operators make the hugely important business transition from higher one-off capital expenditure-intensive activities such as the case in a pure-cloud set up and instead rely on progressive investment where expenditure is totally aligned with business growth. In today's cash-constrained business environment this is hugely advantageous. In other words nCloud satisfies the requirements of the chief information officer as well as the financial executives and also shareholders desperate to see value from their venture.

The first implementation of the nCloud, in June 2011, was an application for the iPad, which introduced the innovation of giving users access to all live TV channels and VOD alongside their personal content. The app allows users to flip manually between channels, providing a whole new navigation concept for content consumption on companion devices. Indeed this highly usable approach shows how easy it can be to consume broadcast content on tablets. nCloud iPad content will soon be given a boost by upcoming social TV applications that will add peer recommendations and other social tools that are particularly well suited to the tablet experience.

In a world where Consumer Electronic vendors are trying to push their own technologies and standards, nCloud effectively simplifies connections between devices in the home in a number of ways:

- client applications on phones, tablets, TVs will ensure automatic discovery, set-up and symmetrical use of technologies
- content rights management: changing from proprietary CAS to standard DRMs

- service and content description: translating metadata into portals

nCloud also solves potential issues related to usage complexity and lack of consistency across devices by virtue of its use of the intelligent STB as a multimedia server that regards connected devices as clients.

The result is a cost-effective and user friendly multi-screen hybrid solution which leverages the power of the cloud while giving the end-user full control over his or her content through local storage and management. This hybrid nature is also at the heart of solving one of the most vital issues associated with both cloud-based and premium services and also with user-generated content, and one that consumers will be willing to pay for: content security.

MAINTAINING SECURITY AND REASSURING CONTENT OWNERS

It's a sad but fundamental fact that with an ever increasing range of platforms connecting over the cloud, there's also a commensurate increase in potential security risks. Looking back to retail cloud infrastructures, there is the risk of unauthorised persons gaining access to customer and payment details. Whilst this is also true with entertainment-based cloud services, there's also an additional risk - the unauthorised use of premium content.

Premium content owners have an eternal dilemma, they need to get their product to as many potential customers on as many devices as possible, however they also need to restrict usage to only those who have paid to access that content. It's much like retail: you don't necessarily want as many people in your shop as possible; you only want those who'll pay for your goods and services.

Sadly there have been examples of successful attacks on entertainment cloud based services, and these have impacted upon even the biggest names in the industry. Most people will be aware of the entertainment giant who was hit in





April 2011 which saw as many as 70 to 80 million users' personal details compromised. The effect of such an attack is eye-watering from a business perspective.

A secure cloud service isn't just good for business, it is the business. nCloud was designed around security capabilities and features a hybrid system because its developers firmly believe that consumers will become more and more cautious of sharing their personal data over the cloud. The nCloud solution ensures that devices such as TV, tablets, smartphones, etc. do not need to access the Internet to retrieve locally stored content. This is instead kept within the secure confines of the home cloud and nCloud's architecture ensures that consumers can maintain full control over what they do and do not wish to store online. This approach guarantees that privacy is a value-added service that operators can sell in to their customers.

THE FUTURE/CONCLUSIONS

Making assumptions as to how the future will pan out is always dangerous. However, it does seem that how we watch television is certainly set for a radical change, and this is happening right now. There also seems little doubt that before too long the majority of users will expect to be able to access the content they subscribe to on any connected device within their homes, as well as through the core living room experience.

However, the hypothesis that companion services will be the next steps in the development of the broadcast pay-TV market is not a given. This hinges upon the premise that operators will be able to provide a secure, cost-effective and reliable platform for the delivery of

enhanced, premium and non-premium TV content and other value added services to end users using these devices. Thanks to Netgem's nCloud this is no longer just an assumption.

The nCloud simultaneously answers the needs of end users and operators.

Operators gain the advantage of being able to offer pay as you grow solutions, with the ability to optimise price and performance, crucial facets in a challenging economic climate. Not every operator can make a huge financial bet on building an expensive data centre in order to support feeds which in many cases are duplicated. nCloud also enables better performance with fewer constraints on the network as it is re-using existing feeds, drawing better value from the network and enriching customer relationships through differentiation of services.

For the end user, nCloud offers the ability to receive high quality content across all screens, regardless of their increasing diversity, with simplicity and consistency, and with personal content privacy assured.

Key advantages

PRICE OPTIMIZATION

- Lower OPEX compared to datacenter
- Better bandwidth management
- Progressive investment for the operator

PERFORMANCE INCREASED

- Quality of service guaranteed
- Local streaming in the Connected Home
- Device to device communication

PRIVACY RESPECTED

- Personal content stored within the home
- Private data protected even outside the home
- Usage data locally managed

The bottom line is that the nCloud gives home entertainment users and providers alike three distinct advantages—price, performance and privacy—that all parties can take advantage of. Just ask Monaco Télécom which has entered an innovation partnership with Netgem and has seen a 40% uptake in the first year of implementation. This proves the extent to which nCloud offers an efficient model for the delivery and

consumption of enhanced TV services.

See also on www.netgem.com on related topics our other white papers: "Three sides of OTT" and "From intelligent servers to intelligent set-top boxes"



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