

IPTV - the future

by Yun Chao Hu, President and Chairman, Open IPTV Forum

Originally, IPTV consisted of a single service provider offering TV content and interactive services via a set-top box. Today, IPTV's multi-service-provider, multi-content-source, multi-network, multi-device universe delivers a 'what I want, where I want it, when I want it, how I want it' experience. This variety is great for the consumer, but is increasingly difficult for service providers to manage without industry-wide standards for IPTV services and devices such as those being developed and introduced by the Open IPTV Forum.



Mr Yun Chao Hu is the President and Chairman of the Board of the Open IPTV Forum that targets the development of the next generation IPTV providing end-users a completely new experience for their entertainment and communication services. Yun Chao Hu is currently employed by Ericsson Sweden in Ericsson Corporate Function Standardization where he is responsible for IPTV standardisation strategies as well as business and product strategies for Ericsson IPTV solutions. Yun Chao Hu has worked within several Ericsson organizations within China, Sweden, Japan and the Netherlands. He was actively involved in many standardization areas including Intelligent Networks (IN), IMT-2000, UMTS, IMS and PacketCable and participated in such standardization bodies as International Telecommunication Union-Telecommunication (ITU-T), 3rd Generation Partnership Project (3GPP), International Trade Commission (ITC) (Japan), China Communications Standards Association (CCSA) (China), CableLabs (USA) and European Telecommunications Standards Institute (ETSI) (Europe). He acted as ITU-T SG11 Q.24 Rapporteur, 3GPP TSG CN WG 4 Chairman and several editorships.

Yun Chao Hu began his career at Ericsson Netherlands as a member of the IN Application Laboratory. Before joining Ericsson, he worked as System Analyst for Cross Connect switches and as research-assistant at the Technical University of Eindhoven in the Netherlands.

The original IPTV proposition involved a single service provider offering TV content and interactive services via a single STB (*set-top box*), but this view of IPTV is being superseded by a multi-service-provider, multi-content-source, multi-network, multi-device concept and corresponding mindset which delivers not only a 'what I want, where I want it, when I want it' experience but as International Telecommunication Union-Telecommunication (ITU-T), 3rd Generation Partnership Project (3GPP), International Trade Commission (ITC) (Japan), China Communications Standards Association (CCSA) (China), CableLabs (USA) and European Telecommunications Standards Institute (ETSI) (Europe). I

want it' experience. This environment is characterized by diversification of content and content source at one end of the delivery chain, diversification of delivery device and location at the other, and flexibility regarding the path between content and consumer.

Central to this changing definition of IPTV is the fact that video from multiple sources, delivered through various networks to any device, must now be considered an inevitable and desirable (even essential) part of a compelling future TV experience. For this reason, credible IPTV solutions must be prepared to adapt and evolve to accommodate this broadening definition of IPTV.

Ironically, as the world of IPTV becomes ever more complex and potentially ever more fragmented, this evolution poses a risk to the development of a coherent and efficient IPTV market. Although it's possible for many desirable linear and on-demand IPTV services to exist using independently developed technology islands, the potential for IPTV innovation becomes more compelling if 'joined-up thinking' is applied to the infrastructure, the services, the content and the applications.

It's this desire for joined-up thinking which led to the creation of the Open IPTV Forum (OIPF), a global organization involving many key stakeholders in the IPTV market. The goal of the Forum is

to stimulate an end-user mass market for IPTV by accelerating the introduction and deployment of industry standards-based IPTV services and devices. It aims to achieve this by agreeing and placing in the public domain a set of end-to-end specifications for the creation of standardized IPTV solutions and services, using existing standards from established standards bodies wherever possible.

By dealing with the detailed interactions at the many interface points within and between networks, services and users, the OIPF specifications allow the different elements to be decoupled (for example, separating network investments from in-home investments). This means that vendors can develop products independently, within the scope of the specifications, confident that the results of their efforts will integrate and interoperate more readily in the broader IPTV environment.

So there's tremendous interest today in the potential for IPTV, broadly defined as the delivery of 'televisual' content using Internet Protocol, to reshape and eventually redefine the TV experience. But this reshaping involves not only our relationship with the TV set as a standalone device, but also the ways in which it can interact with other devices and various content sources to engage us in new and innovative ways, and the reality that a TV experience need no longer actually involve the TV set, or may include the traditional TV set in combination with other devices. The emergence of video as a ubiquitous format has thus changed perception of the term 'TV', which in one context means the familiar device in the corner of the living room which is many people's primary source of information and entertainment, but also refers to a particular consumer video experience which is characterised as having high visual quality and reliability, and a simple model for control.

The OIPF is focused on the development of pragmatic specifications and usage profiles which correspond to these evolving expectations of the IPTV market. This is not easy, as trends emerge, morph and fade with alarming speed, but there are certain fundamental expectations which permeate these trends and which the OIPF has adopted in defining the basis for the published specifications.

So what does this mean in today's rapidly changing market for video consumption? Is

all video a form of TV, and does TV include the delivery of video in all forms and in all environments? There's no consistent answer to these questions, but it's fair to say that the human interaction requirements of many popular online video services do not incorporate the key TV characteristics of quality, robustness and simplicity, so when we think of a future, broadly based IPTV solution we must adapt our mindset with respect to what constitutes TV. It's a very subjective concept, based largely on the expectations and tolerance of the individual TV consumer.

The goal of the OIPF in defining its specifications is to accommodate this flexibility and leave it to service providers to decide how narrowly (or not) they wish to define TV in the delivery of their services. There is clearly a push to incorporate OTT (*over-the-top*) Internet-based content alongside managed high-quality content in delivering a broadly based and differentiated TV service, but in many cases the distinction between perceived content quality will be reflected in the devices used for consumption. So although the OIPF allows and accepts a flexible mapping between source and consumer device, this flexibility may only be partially implemented in many cases.

Ubiquitous availability of increasingly capable network technologies, in the fixed line, wireless and cellular domains, is by its very nature blurring the distinction between devices and more specifically between screens. The largest screens on mobile devices are larger than those on the smallest TVs, so size as a delineation factor for delivery of services is no longer an appropriate metric. TVs, PCs, PDAs, Tablets and smartphones all have capabilities which can, if desired, be utilised by service providers and hence by consumers.

This blurring of screens leads to a natural desire to make content ubiquitously accessible from any device, so standardising the repurposing of content is a key element in catering for the expanded multi-device environment. But being able to simply access content on different devices is not enough. The OIPF specifications also allow for session transfer between devices, so a piece of content can be part-watched on one device, paused, and then seamlessly picked up on a different device at a later time in a different location.

By blending communications services with content services, shared experiences can

be enjoyed by different people in different locations and on different devices. So standardisation of this expanded form of IPTV allows developers, service providers and consumers to start to explore the innovation and imaginative services which were intended from the outset to be the driver for IPTV.

In the case of handheld devices, not only can they participate in the kind of flexibility described above, but the device itself can be used as a remote control for other devices and services, such as remotely programming a PVR (*personal video recorder*) device or even being used as a content selection device in which the screen can be configured to provide simple, highly functional control for specific applications developed for traditional TV sets, but which cannot easily be controlled using a conventional RCU (*remote control unit*). When coupled with such existing mobile capabilities as itemised billing, hand-held devices become natural candidates for network-based control of large-screen applications.

Whether consumers will want to access the same content on all devices is still a matter of much debate, and it may well be that consumers will vary in terms of their willingness, for example, to watch lower quality online clips on their large plasmas, or Hollywood movies on their mobiles. However, it is reasonable to assume that as average video quality improves, and average connection bandwidth increases, the distinctions - which may initially be geographic, or generational, or depend on the breadth and quality of the traditional local TV service - will diminish.

IPTV will continue to evolve, but the fundamental requirements of infrastructure compatibility (integration and interoperation), and apps and content portability (develop once, deploy many) will persist. The OIPF is determined to facilitate these characteristics for the benefit of all IPTV stakeholders, not just the Forum members, and is making substantial progress in this respect. Ultimately, however, the success of the OIPF will depend on broad industry support for its goals and use of OIPF specifications, profiles and certification; and an invitation to join the Forum is extended to anyone who shares the ambition to make IPTV a major force in the connected future. ●