Direct-to-Home (DTH) Services
Overview of the Required Architecture and Regulatory Considerations

Introduction
Section I of this white paper provides an overview of the required architecture for a Direct-to-Home (DTH) system, from the point of content source, through multiplexing, encryption and modulation at the headend, to transmission over the satellite and reception by a customer. The major components of a DTH system are addressed along with key considerations in implementing such a system.

Business model variations are reviewed in relation to the implementation of a DTH system, including a model that takes into account a headend and satellite capacity dedicated to a specific operator, as compared with the concept of a “shared” DTH platform, where there is a potential for cost savings in headend systems and operations, and in satellite capacity.

In addition, Section II of this white paper addresses some of the regulatory issues confronting regulators in promoting competition in the pay television/DTH market. These issues include (i) whether or not to impose regulation regarding the interoperability of set top boxes; (ii) whether to regulate exclusive content agreements; (iii) whether must carry obligations should be imposed on pay television operators; and (iv) what are the appropriate policies for regulatory fees related to the pay television market.
SECTION I: DTH SYSTEM ARCHITECTURE

Overview

As the name indicates, DTH services enable the delivery of video, and other content, directly to a user’s home via a satellite link. A simplified example of a DTH system architecture is shown in Figure 1, below.

The basic function of the DTH headend is to aggregate content into a format suitable for broadcasting directly to the homes of customers who have signed up and are authorized to receive the service. The source content, as available to the DTH headend, may not be in format suitable for reception at the home. The source content may arrive from multiple sources, such as downlinks from existing satellite feeds, terrestrial links, local broadcasters, or be locally stored at the headend for play-out.

The required content conditioning varies, based on the format of the respective sources. In most cases the content is available in an encoded (compressed) format, such as MPEG2 at certain data rate. If a format other than MPEG2 is required, such as MPEG4, the video needs to be transcoded (decoded and re-encoded). If the format is correct, but the data rate is too high, transrating (rate reduction) equipment is required. If the video is in an uncompressed format, MPEG2 or MPEG4 encoders are required.

Once in the correct format, the content is aggregated using multiplexers. There is one multiplexer corresponding to each satellite transponder. The content is aggregated to a data rate fully utilizing the transponder bandwidth and power.

Content is encrypted (scrambled) to preclude unauthorized viewing. For a given DTH service provider, the user community is managed with a SMS (subscriber management system), which interacts with the encryption system via a conditional access (CA) system.

The content is then modulated and transmitted from the DTH headend to the satellite for downlinking to customers. To view the content, a customer requires a TVRO (Television Receive Only) antenna, a LNB (low noise block downconverter), and an authorized STB (set top box). The STB outputs the video in a format compatible for TVs and/or monitors.

Major areas of the DTH service are discussed in the following sections.

Figure 1: DTH System Overview
Content Licensing

A DTH service provider generally requires a licensing authority from programmers before distributing content to customers. The license provides an agreement between the programmer and the DTH service provider on format, quality, etc., for content delivered to the end-user, as well as commercial arrangements for the service.

Video Encoding (Compression)

It is not practical to transmit video content to the home in its “native,” uncompressed digital format, since standard definition TV (SDTV) requires 270 Mbps and high definition TV (HDTV) requires 1.495 Gbps.

Video encoding provides a method of efficiently compressing the content. The MPEG2 format is the recognized digital compression standard since the 1990s, and is gradually being superseded by the more recent MPEG4 standard. Typical compression rates for broadcast quality video are 3-to-5 Mbps for SDTV, and 15-to-20 Mbps for HDTV content when using MPEG2. This compares with MPEG4, where, for the same quality, SDTV content can be compressed to 1.5-to-2.5 Mbps and HDTV to 6-to-10 Mbps.

For any given program stream, the actual information rate required at the output of the MPEG2 or MPEG4 compression engine varies based on the nature of the content. Compressing fast-action sports requires a higher data rate than “talking head” content. If an encoder is set for an output at a constant bit rate (CBR), it needs to be set high enough to ensure fast moving scenes are compressed properly without introducing compression artifacts. A typical artifact resulting from compressed digital video is blockiness in the viewed picture.

In some situations, use of CBR is a requirement, but it can waste bandwidth. A more efficient approach to compression is the use of variable bit rate (VBR) encoding, in which the compression bit rate is dynamically adjusted based on the content. The VBR concept can be efficiently used when multiplexing, as explained in the following section.

While legacy DTH platforms use MPEG2, new deployments seek to use MPEG4 due to the obvious bandwidth savings. Either less total bandwidth is required or additional channels are transmitted in a fixed amount of throughput. Considerations in moving to MPEG4 need to address any existing STB deployments to be integrated, since these are likely to be limited to decoding MPEG2.

The current price of MPEG4 encoding and decoding/STB equipment is approximately 30% to 50% higher than MPEG2; however, this difference will decrease and is expected to become negligible in coming years as MPEG4 deployments increase.

Today most content is currently available only in MPEG2. However, programmers are starting to address the need for providing content in MPEG4. Consequently, an MPEG4-based DTH platform would likely need to re-encode most of the source content.

Multiplexing

Multiplexing provides a method to aggregate a number of individual content streams into one. An MPEG2 or MPEG4 stream with a single program is referred to as a SPTS (single program transport stream). Multiplexing two or more SPTSs together results in a MPTS (multi-program transport stream).

There are several reasons for multiplexing. If multiple programs need to be transported to the same destination(s), combining as many of these programs into a single stream provides efficiencies in transmission equipment (e.g., switches, modulators, etc.) relative to that required to handle separate streams. With respect to the satellite link, more efficient usage is obtained by having one large carrier with a MPTS in a satellite transponder rather than multiple small carriers, each with a SPTS.

Another key benefit of multiplexing takes advantage of the relative independent nature of content in different program streams. If VBR encoding is used, multiple SPTSs can be efficiently multiplexed together, taking advantage of the statistical independence of each program; i.e., it is unlikely that the peaks in the compressed data rates of the different programs correspond.

This statistical multiplexing (statmuxing) enables the data rate used for the MPTS to be lower than the sum of the individual CBR (peak) rates of the SPTSs. With VBR plus multiplexing, a group of video channels is given a fixed aggregate data rate. Each channel’s encoding rate varies as needed within the constraint that the sum of the multiplex group can not exceed the aggregate rate. A typical example is 12 video channels sharing 36 Mbps where each channel’s encoding rate is VBR between 2.0 and 4.0 Mbps.
**Encryption (Scrambling) and Conditional Access (CA) Systems**

Encryption is used to prevent unauthorized decoding and viewing of content. An encryptor scrambles the bits of the digitized content. Once scrambled, only authorized STBs can descramble (decrypt) the received stream and make the content available for viewing. The authorization is managed by the CA System. A CA System is, therefore, typically coupled to a subscriber management system (SMS), and other back-office support systems (BSS) including those for billing.

The actual encryption process and system can be thought of as separate from the CA System, but is closely interfaced. The encryption system uses an algorithm to scramble the content based on an encryption key, also known as a control word (CW). The CW is changed on a regular basis, often on the order of seconds, to deter hacking the content. The encryption system generates the CWs and provides them to the CA System.

The CA System generates entitlement messages that are sent to the STBs. The entitlement messages are used to identity, on a STB by STB basis, which programs can be viewed (i.e., decrypted). Information contained within the entitlement messages enables a CA module within each STB perform the actual decryption. Entitlement messages are added into the multiplexed content stream at the DTH Headend for delivery to the STBs. The structure and content of the entitlement messages is unique and proprietary to a CA vendor and are, themselves, encrypted by the CA System.

Many of the major video equipment vendors have deployed scrambling systems, but use of these typically results in creating a proprietary solution or network which extends to the STBs that can be used. However, standards do exist for both the scrambling process and the interface to the CA System(s).

Use of a standard scrambling algorithm opens up options and creates more STBs choices for the home viewer. The most widely adopted standard, to date, is the Common Scrambling Algorithm (CSA) which is published by the DVB (Digital Video Broadcasting) consortium and standardized through ETSI (European Telecommunications Standards Institute). Another scrambling algorithm gaining traction in areas such as IPTV is the AES (Advanced Encryption Standard) family, which includes several variants. Some standards groups are investigating various versions of AES for possible adoption.

Another key standard is the interface between the encryption and CA Systems. Again, DVB provides a generally accepted standard for this; the DVB-SimulCrypt interface. A major benefit of using a DVB Simul-Crypt-compliant encryption system is that multiple CA systems can simultaneously be used on a single transmission.

While the scrambling algorithm is common to all connected CA Systems, the entitlement messages are unique to each CA System. This opens up the possibility of sharing a DTH Headend among several operators, each using their own, separate, CA system. This is further addressed below, when dedicated verses shared DTH headends are reviewed.

**Modulation**

Modulation is used to transfer the information of the digital content on to a signal suitable for transmission via the satellite. As with other aspects of the DTH system, standards are available.

The available standards have evolved from DVB-S, to DVB-DSNG, and recently to DVB-S2. All these standards are published through ETSI. The evolution relates to the efficiency (and complexity) of the modulation and forward error correction (FEC) coding schemes. Legacy systems likely use DVB-S or DVB-DSNG and their STB cannot receive DVB-S2 signals. This needs to be taken into consideration if a new DTH platform is required to integrate with existing users. DVB-S2 provides approximately 30% improvement in efficiencies over its predecessors, and therefore requires serious consideration for any new deployments.
**Dedicated DTH Headends**

The traditional approach in deploying a DTH system is to have a headend dedicated to a given user community. An example of this is shown in Figure 2, below. In this scenario each DTH headend, including its SMS, CA system and encryption system, is dedicated to a specific service provider. It is effectively a closed environment where all systems are chosen by the service provider and adherence to standards is not necessarily required.

In addition to the DTH headend, the satellite capacity is also dedicated to a single operator. The cost for both must be borne by one operator. Figure 2 shows two separate satellites be used for the respective service operator headends, but this separate capacity could also be at a transponder level on a single satellite.

From a business perspective, a dedicated DTH Headend is likely an attractive and viable model for a large service operator, but is potentially a financial burden for smaller operators.

*Figure 2: Dedicated DTH Headend Architecture*
**Shared DTH Headend**

An alternative model to a dedicated headend is shown in Figure 3, below. Each service provider has their own dedicated SMS and CA systems, but the remainder of the headend infrastructure, including the encryption system, and the satellite capacity is common. Consequently, the headend and satellite costs can be shared. Having individual SMS and CA systems ensures that each service provider has complete ownership, control, and exclusive visibility of their proprietary data.

The key feature that enables this approach is adherence to the DVB SimulCrypt interface standard between the multiple CA Systems and the single encryption system. In this service scenario, one scrambling algorithm is shared by all service providers. The encryption system provides the same CW information to each separate CA System which, in turn, generates its own entitlement messages.

The contents of entitlement messages are encrypted and included in the multiplexed content transport stream for transmission over the DTH satellite link. Entitlement messages are unique to the user community of STBs associated with a given service provider. Each STB contains a CA module uniquely identifying it as belonging to a specific service provider, and enables the STB to decrypt the appropriate entitlement messages and program content.

In a shared DTH Headend, different service providers can have different video content. While significant commonality between service providers is expected, each service provider will likely not have access to (i.e., not be licensed for) all the same content as other service providers. The encryption system controls access on a per channel and per service provider basis.

In a shared headend model service providers can still differentiate themselves based on service, equipment, presentation (e.g., middleware), content, and cost.

*Figure 3: Shared DTH Headend Architecture*
**Consumer Equipment**

The consumer equipment consists of three primary components; the TVRO, STB and middleware.

1. **TVRO**

DTH systems typically use Ku-band capacity. One benefit of this is the ability to use small TVRO sizes; usually less than 1m in size, and often in the order of 65 cm.

In addition to the reflector (dish), another key component of a TVRO is the LNBF (low-noise block down converter with attached feedhorn). The feedhorn is positioned at the focal point of the antenna dish and, as the name implies, is shaped like a horn. The feedhorn directs the received RF power to the LNB. The LNB has two basic roles; amplify the very weak signal and down convert a block (band) of satellite frequencies. The amplified and lower frequency signals at the output of the LNB can be routed to the indoor STB using cost effective cabling.

Ideally, all desired content is available from one satellite. However, capacity requirements may require a service provider to use multiple satellites. Installing multiple TVROs is generally not practical for users. This has led to the development of multi-satellite TVROs. These are antennas with a single reflector but multiple LNBFs. The combination of reflector shape and LNBF positioning enable the TVRO to receive signals from multiple satellites.

Home installation kits and guidelines are usually available for mounting and aligning the TVRO and LNBFs, but this task may best left to trained personnel, especially for multi-satellite systems.

2. **STB**

The STB has a number of functions. It demodulates the satellite signal that has been converted to a lower frequency care of the LNB. The resultant digital signal contains the multiplexed content and entitlement messages, but in a scrambled form.

To decrypt the content into a clear/viewable format, the STB must contain a CA module associated with the applicable service provider’s CA system. This CA module will then decrypt the entitlement messages, recover information on what content the STB is licensed to decrypt, obtain the appropriate CW (decryption keys), and use this for content decryption. The resultant unscrambled content can now be decoded from MPEG2 or MEG4 to a signal that is received by a TV monitor.

There are a number of methods for including a CA module into a STB. It can be installed in a STB at time of manufacture, or can be a removable module. A removable module provides some flexibility for STB deployment at the expense of having to manage the removable CA medium.

One standard-based method uses smart cards, which plug into an interface on the STB. The standard for this is the DVB Common Interface (DVB-CI). The smart card is effectively an external module containing the CA system processing.

3. **Middleware**

Middleware is the part of the system that sits between (in the middle of) the raw digital content coming into the STB and the information displayed on a TV to the viewer. The middleware, for example, provides an interactive program guide to the viewer. The program guide displays available channels for the viewer to scroll through. The middleware also provides a means of selecting pay-per-view content (movies and special events).

This latter function requires that a method is available for the Service Provider to interact with the customer and track usage. A simple, but operational intensive approach, is to have the viewer call the service provider to enable the program. A more effective method could be, for example, to have the STB automatically connect over a telephone line or Internet connection.

**Summary**

DTH provides a method of delivering video content directly to an end-user’s home via a satellite link into a small TVRO. Any new deployments of DTH systems should consider the efficiencies, and hence the potential savings, available in using the recent standards of MPEG4 for video compression and DVB-S2 for modulation.

For smaller service providers additional savings are be available by using a shared headend approach. This requires adherence to standards related to encryption and conditional access, but enables operators to share the costs associated with headend installation and operation, and with satellite capacity.
SECTION II: REGULATORY CONSIDERATIONS

Regulation of Set Top Boxes
To foster more competitive markets, some jurisdictions around the world impose regulation on the set top boxes required for the provision of pay television/DTH services. These policies are generally directed at allowing interoperability of STBs. However, the underlying rationale for such regulation varies.

In some jurisdictions, regulators mandate open standards for STBs to foster competition by reducing subscribers’ switching costs. Other jurisdictions prefer market-based mechanisms or other non-regulatory approaches to foster interoperability between pay television providers. Finally, STB standards regulation is also directed at promoting competition in the STB market itself.

1. Reduction of Switching Costs
Competition may be affected from the demand side by certain barriers imposed on subscribers that restrict their ability to change service providers. These barriers are generally referred to as switching costs, and they occur when a subscriber is forced to duplicate an investment specific to its current provider in order to change to a competing provider. In the pay television/DTH market, if consumers are made to incur significant investments in STBs, they could become locked-in to a specific operator.

Some countries are adopting mandated open STB standards to address the problem of switching costs. In India, for example, the current DTH model license requires service providers to adopt open architecture STBs to “ensure technical compatibility and effective interoperability among different DTH service providers.”1 This measure is ultimately directed at facilitating switching service providers by subscribers.2 The Telecommunications Regulatory Authority of India (TRAI) is currently consulting on the effectiveness of this measure vis-à-vis other alternatives such as leasing and buy-back requirements for STBs. To date, TRAI has not issued a final determination on this matter.

2. Fostering Interoperability without Imposing Mandated STB Standards
Some jurisdictions have opted to rely on market forces to achieve STB interoperability. The European regulatory framework, for example, encourages digital broadcasting services operators to comply with an open standard STB, but does not mandate such operators to implement a specific open STB.3

However, if digital broadcasting operators use proprietary STB technology, such operators must make available the necessary information to make STBs interoperable with other operators. This information must be provided on fair, reasonable and non-discriminatory terms and conditions, and at reasonable prices.

Notwithstanding the above, the European regulatory framework allows the European Commission to mandate a specific open standard STB if interoperability is not achieved by the market. For this purpose, the European Commission is required periodically to conduct market reviews to determine whether its intervention is necessary.4 In its last review, the European Commission determined that the market was best served by continuing to rely on industry-led voluntary standardization initiatives.5

Other authorities have chosen alternative approaches to foster interoperability. In Brazil, for example, DTH regulations bar service providers from restricting subscribers’ use of equipment compatible with their systems.6 No specific regulatory requirement is imposed upon STBs, and service providers are allowed to use proprietary STB technology.

---

1 Article 7.1 of the Schedule of Terms and Conditions of the License Agreement to maintain and operate a DTH platform. Available at: http://www.trai.gov.in/dthguidelines.asp. See also Indian Standard Digital Set Top Box For Direct-to-Home (DTH) Services – Specification. Available at: http://mib.nic.in/informationb/CODES/dstbdth.pdf
2 Currently, only two providers are offering DTH services in India – Dish TV having launched in May 2005 and Tata Sky in September 2006 - with three more soon expected to enter – Reliance, Sun Network, and Bharti Group.
4 Framework Directive at article 18.3.
6 Article 7.3 of Norma No 008/97, Serviço de Distribuição de Sinais de Televisão e de Áudio por Assinatura Via Satélite (DTH).
3. Fostering Competition in the STB Market

Mandated STB standards have also been imposed to foster competition in the equipment market. This is the case of the United States, where due to the monopoly supply structure traditionally characterized by the cable television market, regulation is directed at increasing competition in the STB market and in the video programming market as a whole. Thus, U.S. regulation of STBs is limited to two areas.

First, the U.S. Government has sought to promote competition in the STB cable equipment market by allowing third parties to manufacture and sell cable STBs. Secondly, the U.S. Government has allowed non-cable providers to offer proprietary STBs. In the first area of regulation, the U.S. Congress and the Federal Communications Commission (FCC) mandate that multichannel video programming distributors (MVPDs) must separate security and navigation functions so that third party vendors can sell directly to customers. In the few locations with more than one cable operator, interoperable STBs allow customers to switch from one provider to another without changing equipment.

Non-cable MVPDs like DTH and local exchange carriers (LECs) are exempt from providing non-proprietary STBs. The FCC exempted DTH operators in 1998 on the grounds that their equipment is widely available at retail outlets from unaffiliated service providers and equipment manufacturers. Also, since DTH providers have a national footprint, DTH subscribers can continue using their equipment if they move across the country. LECs were also exempt based on the rationale that they are recent MVPD entrants offering digital, multichannel video services over telephone lines, which provide wireline competition where satellite is unfeasible.

Exclusionary Practices: Exclusive Carriage Agreements

Granting broadcasting rights on an exclusive basis is an established commercial practice in many jurisdictions. Accordingly, blanket prohibitions on exclusivity agreements between content programmers and pay television distributors typically do not exist.

However, in certain instances exclusive agreements have been found to stifle competition. Some jurisdictions have found that (i) vertical integration and/or (ii) exclusive control over “premium” or “must have” content could be used as a strategic tool to exclude or raise a competitor’s costs in the pay television distribution market.

1. Vertical Integration between Content Programmers and Video Distributors

Vertical integration gives the entity controlling both the content or programming rights and the distribution platform the ability to discriminate in favor of its affiliated video distributor (e.g., cable or DTH) to the detriment of competitors in the downstream market. Such discrimination may lessen competition and diversity in the distribution of video programming, ultimately harming consumers.

In the United States, exclusive contracts for satellite cable programming or satellite broadcast programming between vertically integrated programming vendors and cable operators are prohibited. These “Program Access Rules” were introduced to address the concern that potential competitors to incumbent cable operators, particularly DTH providers, would be unable to gain access to the programming offered by vertically integrated cable operators.
In countries such as Australia, Spain and the United Kingdom, regulators have also imposed restrictions on exclusive content agreements between vertically integrated video programmers and distributors. These restrictions, however, have been adopted on a case-by-case basis in the context of mergers and other transactions. In the United Kingdom, for example, the merger between British Satellite Broadcasting and Sky in 1990 was conditioned on the requirement that the resulting entity – BskyB - offer a range of its affiliated channels, including the sport and film channels, for resale to other pay television operators.

Similarly, in Spain, the Government conditioned approval of the merger between Via Digital and Canal Satelite Digital (Sogecable) – the two main DTH providers –, inter alia, on the obligation that the resulting entity makes available to third parties for resale on non-discriminatory terms theme channels directly or indirectly produced by its affiliates.12

Finally, in Australia Foxtel and Optus (the two leading pay television operators) entered into a content sharing agreement in which the two operators agreed to share programming. The Australian Competition and Consumer Commission (ACCC) expressed concern over the competitive implications of this arrangement, including the impact of Foxtel's vertical integration in wholesale aggregation and supply of programming for subscription television.13 Foxtel accordingly presented the ACCC a set of undertakings including making its programming available to any competing video distributor.14

In Singapore, the lack of vertical integration between video programmers and cable distributors was a determining factor for Ministry of Information, Communications and the Arts (MICA) to allow StarHub Cable Vision's exclusive carriage agreements.15

2. Exclusivity Agreements over “Premium Content”

Exclusive rights over “premium content” or “must have” content have also raised competitive concerns from regulatory authorities. The European Commission has recognized that securing exclusive rights over premium content is the “driver” of the pay television market.16 What type of content is considered “premium content” or “must have” content depends, of course, on a country-specific assessment.

The FCC, for example, considers “must have” content as “programming for which there are no readily available substitutes and, without access to which, competitive MVPDs would be limited in their ability to compete in the video distribution market.”17

European Commission case law has recently addressed the competitive implications of these agreements. In a series of decisions involving exclusive agreements over “premium content” – mainly football and premium films – the European Commission expressed concern over possible horizontal effects (i.e., joint selling, where sporting associations pool the rights of the participating clubs; and joint buying); vertical effects (i.e., where exercise upstream of exclusive rights – by pooling for example – leads to reduced competition and exclusion in downstream distribution markets); or a combination of both (i.e., combination of a dominant position in the upstream and downstream markets, leading to strong market foreclosure).18

Recognizing the competitive concerns deriving from the joint selling of exclusive rights to premium content, the doctrine of the European Commission – stemming from the UEFA Champions League decision,19 and sub-

---

14 See Undertaking to the Australian Competition and Consumer Commission by Foxtel Management PTY LTD (for and on behalf of the Foxtel Partnership) and Foxtel Cable Television PTY Limited, Clause 8. Available at: http://www.accc.gov.au/content/item.phtml?itemId=755182&nodeid=f96555d722ff3a068d70135d7e604a33&fn=Draft%20Section%20878%20undertaking%20by%20Foxtel%20Management%20Pty%20Ltd.pdf
16 In a recent merger decision affecting the Italian pay-television market, the European Commission found exclusive rights over premium content – in that case recent premium films and certain football events - constitute “the essential factor (the drivers) that leads consumers to subscribe to a particular pay-TV channel / platform.” Case COMP/M.2876 – Newscorp/Telepiù, para. 54.
18 See Herbert Ungerer, Commercialising Sport, European Commission, Competition DG, COMP/C/2/AU/1rdu, October 2, 2003, at 4.
sequent decisions relating to the German Bundesliga and the British Premier League has focused on mitigating conditions limiting the downstream effects of this practice. In particular, the European Commission has sought to guarantee the existence of:

(i) open and transparent tender procedures in the assignment of such rights;

(ii) a limitation of the rights’ duration (usually not exceeding three years); and

(iii) the breaking down of the rights into different packages to allow several competitors to acquire rights.

In addition, the technological scope of exclusivity is another issue that has occupied European authorities, as shown by the recent merger cases in Italy and Spain. In Italy, for example, News corp – which acquired Telepiù and Stream, the two principal DTH providers – sought to waive ongoing and future exclusive rights over premium content with respect to television platforms other than DTH (terrestrial, cable, UMTS, Internet etc.). In Spain, Sogecable was also restricted from acquiring exclusive rights over “premium content” for transmission over technologies different than those it exploited at the time of the merger, including UMTS and data transmission systems.

**Must Carry**

The underlying rationale for must carry obligations varies between jurisdictions. In the United States, for example, must carry obligations were solely imposed on cable operators (given their extensive penetration in the market) in order to protect local over-the-air broadcasting stations from being excluded from the market.

In other countries, particularly European Union member states, must carry requirements have been imposed to ensure universal accessibility of specific over-the-air radio and broadcasting stations (especially, public service stations) and to guarantee content diversity to the public.

Countries that base their must carry schemes on achieving universal service goals include European states. Although the specific must carry regime varies between member states -subject to a series of political and cultural justifications- at the European Community level, the Universal Service Directive provides a general framework for must carry schemes. Its main objective is to balance the public interest (universal access) justification of must carry obligations with the burdens it imposes on video distribution operators. To achieve this balance, it establishes a series of general principles that must be adhered to by national administrations.

- First, must carry obligations should be limited to instances that are **strictly necessary** to meet specific general interest objectives.

- Second, such obligations should be **proportionate and transparent**. The European Commission has initiated several enforcement proceedings relating to must carry obligation, most recently against Belgium for failing to establish a limit of channels that must be carried.

---


23 Case COMP/M.2876 — News corp/Telepiù, para. 225 (b),(d).

24 Supra note 18.


26 European Commission, Must carry obligations under the 2003 regulatory framework for electronic communications networks and services (July 22, 2002), at p 2.

• Third, must carry obligations must be reviewed periodically so as not to impose disproportionate burdens on broadcasting network operators.28

• Fourth, the Universal Service Directive allows countries to establish compensation for the carriage of a station under the must carry regime. The only limit for this kind of compensation is that it be non-discriminatory (e.g., a broadcasting network operator cannot discriminate among stations and vice versa).29

The different rationales followed in the United States and the European Union have resulted in different must carry regimes. For example, must carry content in the European Union generally applies to public stations; whereas in the United States eligible stations can also be commercial private stations – the main requisite being that the channel be a local commercial station or a noncommercial educational station.

In both the European Union and the United States, must carry obligations are generally imposed only on cable operators, not on DTH providers.30 In the limited instances in which these obligations are imposed on satellite operators, the must carry obligations are considerably less restrictive than those imposed on cable operators.31

Regulatory Fees

Regulatory fees levied on service providers are another key issue that should be considered to foster a more competitive pay television market. International best practices suggest that such fees should be directed at covering administrative costs incurred by the regulatory authority.32 As such, they should not be used as a mechanism to extract rents from service providers as this may have negative effects on service take-up due to increased prices.

Contact Us

For more information about DTH Services and the Intelsat fleet, please contact your regional representative at

Africa Sales
+27 11-535-4700
sales.ame@intelsat.com

Asia-Pacific Sales
+65 6572-5450
sales.asiapacific@intelsat.com

Europe & Middle East Sales
+44 20-3036-6700
sales.eme@intelsat.com

Latin America & Caribbean Sales
+1 305-445-5536
sales.lac@intelsat.com

North America Sales
+1 703-559-6800
sales.na@intelsat.com

---


29 See European Commission, Must carry obligations under the 2003 regulatory framework for electronic communications networks and services (July 22, 2002), at p 8.

30 For instance, the United Kingdom decided not to impose must carry obligations on satellite operators as these were subject to the conditional access non-discrimination regime. In the United States, DTH operators are not subject to must carry obligations. However, there is a “carry-one, carry-all” requirement that mandates satellite operators to carry all local stations of the specific market if they decide to carry one single local station.

31 For instance, in France, DTH operators are subject to must carry obligations. However, they must carry only the public national stations (5 channels), whereas cable operators are mandated to carry any over-the-air television, regardless of whether it is public or private. See Le “must carry” sur le satellite avant la loi n° 2004-669 du juillet 2004, Direction du Développement et medias. Available at: http://www.ddm.gouv.fr/imprime.php?id_article=252.