DIGITAL TELEVISION - A FRAMEWORK FOR DELIVERING E-GOVERNMENT SERVICES TO THE HOME

Response by the Digital TV Group

SUMMARY

The policy framework presented in the Office of the e-Envoy (OeE) consultation document, in the view of the Digital TV Group (DTG), comprises a laudable set of aspirations concerning common look and feel, a one-stop-shopping approach, sharing of best practice and awareness building. The framework does not, however, address the more fundamental question concerning how e-government services are actually going to be delivered to the vast majority of the population.

At present, the great majority of homes that have 'gone digital' have chosen D-SAT or D-Cable options and indeed there is still growth in the take-up of these two platforms. However, if analogue switchover is to become a reality then the DTT platform will have an important role to play. The OeE have been involved in a number of successful trials focused primarily on vertical, tightly controlled commercial systems (satellite and cable). The real challenge for government and industry alike is how to offer e-government services on the DTT platform given the limit on bandwidth available, the fact that most new DTT adaptors do not have a return path and the problems of compatibility between different versions of MHEG.

This DTG response describes the above observation in more detail, offers a view of the limitations of current delivery systems and sets out a vision of the future based, in part, on current DTG initiatives but expanded to demonstrate what might be achievable.

The DTG is founded upon principles of open standards, collaboration and industry consensus. It is an organisation that firmly believes that the reason for the dramatic growth in digital TV take-up in the UK is twofold:

- the provision of robust and reliable, in demand content and interactive services via cable and satellite platforms.
- the digital TV industry's ability to work in a spirit of mutual collective benefit.

The DTG view here is that the matter put forward for consultation by the OeE requires the collective input of the digital TV industry in order to create the conditions that will drive mutual benefits. This is the only way that government will achieve its goals of reach and inclusion without resort to intervention in the form of legislation or large-scale subsidisation.

ABOUT THE DIGITAL TV GROUP

Established in 1996, the DTG is an Industry association whose members co-coordinated the UK launch of digital terrestrial television. Its membership has grown to more than 100 organisations representing all sections of the digital television industry including broadcasters, platform operators, network operators, consumer electronics manufacturers and retailers, and consumer groups.

Given the wide collective industry knowledge and experience of its members, the DTG is ideally placed to comment on progress towards digital switchover and any of the service development or technical matters helping to achieve that goal. Members of the DTG have played and are playing an important role in current cross-industry and government initiatives to drive towards switchover. Much of the work currently underway within the joint government and industry project; the Digital Television Action Plan, is designed to remove the barriers to switchover first collated in the DTG's advisory paper entitled, 'Technical Impediments to Analogue Switchover' commissioned by the DTI in 2000.

This response has been drawn up in consultation with its members and represents a consensus of the views expressed. Individual members may, of course, have particular objectives and may submit their own responses to this consultation, which may differ in detail to this collective response.

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Section 1 - The situation from a DTG perspective

The consultation document is clear in describing the Government's wish to use digital television to bring e-government services to people who may currently be reluctant or unable to use them over the internet. The DTG concurs that the TV is a key delivery tool if the government wishes to provide citizen access to government services on a non-discriminatory basis by electronic means. The most likely route to this goal is, of course, through the application of a number of delivery systems - the personal computer (accessing the internet via dial-up and broadband mechanisms) and digital television (receiving and displaying data via a number of possible delivery mechanisms) will together provide the greatest reach.

The television will be particularly relevant to those members of the public that do not have PC's and are unlikely to get one, either because of the cost, complexity or apprehension involved. The DTG does recognise, however, that the Internet experience on TV is limited in its consumer appeal due to the difficulties of displaying and reading PC-centric information on a TV screen. Despite these limitations, trials have shown that even PC owners will utilise their TV to receive certain services if they are able to because it can be more convenient.

The OeE have been successful in offering e-government services on the satellite TV platform and on cable TV platforms either as part of trials or fully operating services. In terms of 'reach' the satellite platform enables between 6 and 7 million homes to receive e-government services whilst cable platforms could deliver services to a further 2.1 million homes. The DTT platform has not been utilised in the vast majority of trials perhaps because there are too few 'suitable' products with a browser which supports a return path capability or because of concerns over platform stability.

Nevertheless the DTT platform remains an important tool available to the government for delivery of e-government services. The importance of the DTT platform will increase if the government progress towards their stated goal of switching off analogue transmissions in favour of digital alternatives. The DTT platform will become the platform of choice for many who will already have the necessary reception antenna on their property and are reluctant to subscribe to TV services. It is likely that the satellite and cable platforms will continue to attract new subscribers but the DTG's view is that there will be an enormous growth in homes opting for DTT. The DTT platform will therefore play an increasing role in the continued roll-out of digital TV.

The DTG perspective here is that is it is vital for the government to work closely with industry to understand how best to deliver its e-government services on the DTT platform. The DTG stands by one of its founding principles in this instance – that of the development and promotion of open and horizontal markets. The successes enjoyed by the OeE to date on the cable and satellite platforms are, in part, due to the ease of use of the few proprietary software and hardware solutions operational in these environments. There are no such proprietary approaches on the DTT platform

– this adds a degree of complexity in that open standards need to be developed agreed and adopted across the industry. A good example here is the standard MHEG 5 established for delivery of interactive services on the DTT platform. It is such a complex specification that despite best endeavours, the industry is still striving to agree finer details four years after introduction.

The precise solution here remains blurred. Consumer electronics manufacturers demonstrate little enthusiasm for developing equipment capable of receiving and displaying data services while broadcasters have other priorities for spectrum use. These positions are in part a function of the limitations of current delivery systems that are described in more detail below. Nevertheless, there are possible solutions available that, if explored, agreed and supported could well help meet the objectives of the OeE and help support a healthy open, competitive market for digital television products and services in the UK.

Section 2 - Limitations of current delivery systems to the TV

The following limitations are reviewed below:

- Content re-authoring
- Call charges and line blocking
- Bandwidth and return path limitations

Content re-authoring challenges business models
Stand-alone PSTN based Internet TV set top boxes have not succeeded so far for a number of reasons. Fundamentally, there is no compelling evidence to suggest that consumers want to browse HTML content on TV – the internet is basically a one-to-one experience. TV displays are different to PC's. Very few users are happy with the compromises that are involved in re-authoring 'WWW' content intended for PC's and there is very little content that is authored specifically for TV's. Provision of an interactive TV capability linked with popular TV programmes such as Big Brother etc. has, however, attracted users who are in many cases then also prepared to use other non-entertainment services.

Those TV specific interactive services that have been produced have all been linked to digital satellite or cable TV networks and therefore primarily available to those that are able to/prepared to subscribe to Pay TV. (It is acknowledged that cable and satellite operators do provide free to view, or free at the point of delivery services, to significant numbers or households.) These services are all also currently based on proprietary API's (or proprietary extensions of open standards) and the cost of authoring is very high compared with authoring for the Internet. This creates a vicious circle where platform owners may charge very high rates to service providers who can then only use the platform if they can expect enough profit from the closed (and therefore limited) group that they can address.

Call charges and line blocking discourage use
The charges associated with using the PSTN are also a problem for many

potential users, particularly as operators often mark-up the basic BT rate and insist that email messages are composed online. Concerns over blocking the phone line could be overcome by using ADSL that will (at least in densely populated areas) also allow for video rich services including VOD. Addition of a broadband capability would significantly help to make TV based interactive services acceptable but the price and performance of ADSL currently make this impractical.

Bandwidth and return path limitations on the DTT platform
Text based services could also be broadcast as part of the broadcast stream and received by digital receivers in the home. However, the trend of broadcasters and regulators to fill the limited spectrum available with as much TV programming as possible and in a coding format that limits capacity further means that there is likely to be inadequate capacity to carry government services in this manner. Few DTT receivers have integrated modems, and in practice, even where they exist, DTT users rarely connect their digital receivers to a phone line (unlike the satellite platform where connection is a condition of installation). In any case, the DTT platform does not currently have a return path capability – this is a situation that the DTG is seeking to improve upon.

Section 3 - A DTG Vision of the future
The DTG has long recognized that there is a need for an open platform approach that can provide an acceptable means for data service delivery to the TV. This section of our response describes a route to achieve this goal based on current (but only recently available) technology that is being addressed by DTG and then identifies the major obstacles that would need to be dealt with in order to drive a fully operational practical solution.

The approach involves definition and adoption of an open platform with 3 elements as described below:

- A common authoring format
- A common browser profile
- A practical delivery system

A common authoring format based on Internet techniques
DTG members are defining a set of authoring guidelines that will allow TV content to be optimised to allow for the limitations of TV displays but still have maximum synergy with similar content intended for PC's. This will allow all service providers to create content at relatively low cost knowing that it will be rendered in the same way on all user terminals with the minimum capabilities defined in a common browser profile (see below). If a way can be found to provide a practical delivery system (perhaps by one of the means outlined below) that is open to all SP's they should have the confidence to invest in using the complete platform.

A common browser profile
DTG is also currently defining a set of minimum profiles that will (if they and

the required interfaces are implemented in TV appliances) enable the delivery of the services authored (as described above) in a uniform manner.

A practical delivery system
The approach described below is intended to make the most cost effective and efficient use of all the available means of delivery to match users and service provider's needs and comprises a number of delivery channels, set out as follows:

Physical Delivery
At the simplest level, content would be delivered to users on DVD's. This format is now becoming accepted as the norm for movies etc. and DVD drives are therefore being incorporated into an increasing range of TV appliances. Some experts believe they will eventually be incorporated in most TV appliances. It is therefore logical to extend this to include delivery of TV formatted Internet content that can include URL's etc. to link to other delivery systems. This approach is particularly suitable for content that does not change very often e.g. health advice, tax guidance etc. Users could collect a disk from a central site, as required or they could be provided with magazines or sent through the post. It is also very suitable for software updates etc.

Push Internet Delivery
In this case DTT (or DST if independent of pay TV services) capacity could be used to broadcast (or Push) Internet formatted content to a hard disk (or similar) cache in the TV appliance (PVR or similar device). This can be done using continuously repeated carousels or at regular intervals according to how time dependent the content is. This option is particularly good for EPG's or magazine services that can be delivered to many users in the same form (even if they then tailor them to their requirements). These types of service are updated regularly but do not have to be immediate. PVR devices are now on the market and whilst sales are modest to date (circa 100,000) the DTG anticipates that they will become common eventually being integrated into TV appliances replacing VCRs. It may therefore be logical to use them for Internet TV applications as well as for video.

Although DTT capacity is limited, the broadcast channel can also be used for a range of always-on services and for low data rate personalised services such as email alerts.

Pull Internet Delivery
Although the systems described above would be adequate for many users needs, it would also be necessary to allow for immediate/personal interactivity. In the very simplest case this could be achieved by supplying a phone number but many users would increasingly wish to use a PSTN modem for more immediate online interactivity e.g. ordering goods, making a doctors appointment. This approach would of course tie up the phone line and incur costs but, as it would only be used when needed it is likely that it would be more acceptable than for current stand-alone PSTN

systems. The modem could of course also be used to enable surfing for WWW content outside the that provided by the Push Internet system but in this case the customers would have to accept the inconvenience and cost. Experience to date shows that most users prefer to use a PC for conventional WWW surfing.

The services provided would not be directly equivalent to those that can be accessed by a PSTN modem in a PC. In particular, the display would limit the amount of text/graphics on each page. However, this is likely to be acceptable to many of those that do not currently use PC's, because they are (almost all) familiar with the TV environment. The range of content would also be more limited than on the Internet (unless it is provided via DVD's). On the other hand, the platform would be superior in a number of ways. The use of DVD's and Push Internet would give a very attractive pseudo-broadband experience plus always-on services and email alerts to complement conventional online interactivity. It could also be provided at a much lower cost than for PSTN only.

Section 4 - Obstacles and Concluding remarks

A platform of the sort outlined above would almost certainly be adequate for the vast majority of the public that do not currently have PC's and could therefore provide a practical means of delivering most government services. It could also be used by those people that have PC's but wish to access services via their TV's. Even those that have broadband connections based on ADSL, cable or FWA would still find a DVD or a cache useful (as they do for PC services). As broadband penetration increases it is likely that a market for TV appliances with a suitable modem or an in-home networks interface (perhaps added via an upgrade port) would develop but the basic TV format could remain the same.

DTG members are already addressing many aspects of the required platform. However, although specifications are essential, they are not enough. Manufacturers won't produce the required TV appliances unless there are services that will attract users to pay for their products. Service providers won't use a platform if it cannot reach enough customers either through poor coverage, lack of appliances in homes or restrictions on their use. There is therefore no incentive for implementation of the Push Internet element of the platform, which is essential if an attractive bundle of services is to be provided. It will be necessary to do something to break the vicious circle.

Access to government services alone would not be attractive to the majority of users. However, government engagement (possibly through the Office of the e-Envoy) indicating that a significant number of departments would be prepared to use a Push Internet delivery system based on open standards could be a useful encouragement for operators considering such developments. The platform would, of course, also have to carry commercial services to be viable and attractive but the government might, at this stage, be able to influence the business case for such a venture to ensure that access is offered to all service providers on fair and reasonable terms i.e. that the

resulting platform is 'open'. The government could therefore provide a catalyst enabling a major step towards achieving its own goals in a fairly short timeframe (a commercial service would take around 2 years to implement).

DTT is now almost exclusively free-to-air. This is attracting increasing numbers of users who do not want to pay for extra TV channels: exactly the market that needs to be addressed to complement the services provided via existing PC and digital satellite/cable interactive pay TV platforms. DTT is also likely to become ubiquitous after analogue switchover in the areas where coverage is possible. It is estimated that an attractive commercial Push Internet service could be offered with around 4Mbit/s of broadcast capacity. Even though DTT capacity is limited it should be possible to find this amount as the channel line-up is still evolving and one multiplex is not fully used. There are also likely to be improvements in digital TV encoding techniques in the future. However, it would be necessary to increase the current ITC limit on the amount of capacity in a multiplex that can be used for non-programme related services.

DTG represents major companies involved with all aspects of the supply chain for DTT, PVR's and Internet TV and a number of other issues relevant to delivery of interactive multimedia services to the TV. Evolution towards interactivity is considered very important. It is in all our interests (Government and Industry) to determine whether a practical and cost effective platform for delivery of information services to the TV could be used for government services and to achieve the maximum amount of backing for the adoption of an open approach as soon as possible.

DTG would therefore be happy to work with the Office of the e-Envoy on a formal, regular basis to investigate the requirements for delivery of government services and the ways in which a DTT based platform similar to that described above could help to achieve the government goals.