

Leverage your existing assets & keep the content
“format neutral”:
some technology considerations for an iDTV
e-Government service

A SysMedia “White Paper” by Colin Prior and John Holland

Arguably, the challenges facing local authorities wishing to use interactive Digital Television (iDTV) for the purposes of e-Government are similar in many respects to those facing TV channels moving into the iDTV space, and indeed those facing many consumer brands.

In a sense, the arrival of digital has forced all brands to become media brands. To put it at its simplest: once you have a web-site, you are in the media business and you have to decide whether you want to develop an “in-house” capability or outsource to an agency. Naturally there are also the associated issues of cost.

In many cases, councils and other public bodies will already have a digital presence – probably a web-site – and they will, quite understandably and perfectly reasonably, wish to leverage that existing and not inconsiderable investment. Indeed, it would be wrong – not to say mad – if they did not.

It is with this consideration front of mind that this paper focuses on the re-use of text and graphical content in the first instance. There is no intention to exclude audio-visual material. Quite the reverse - moving pictures with sound that are key to the creation of the most

compelling TV experiences. However, central to the thrust of this essay is how to make the most of existing investment.

The challenge then amounts to the republishing of content across multiple delivery platforms. It may be the web and iDTV initially, but in a heartbeat it'll also be mobile phones, Broadband, WAP, G3, a plethora of other mobile devices and so on.

Organisations will save themselves considerable amounts of time and money if they are mindful of this fact and plan content production and service infrastructure in such a way that it is scaleable.

New Types of Service

With the advent of Digital TV and other digital media, many new types of information services are now becoming feasible across an increased number of delivery options.

At the same time, the traditional business models and roles of broadcasters, programme and content producers and service providers are changing. These organisations increasingly see the future of television in terms of multi-media entertainment and interactivity across all available platforms.

"Digital" offers the opportunity to offer much more closely targeted content propositions across a growing number of devices, in a manner which leverages the particular strengths of those devices and which reaches the audience at different times of the day, catering for its different "need states" and "want states". Content producers, Local

Authorities included, have the potential to develop far closer, meaningful relationships with their target audience than has been possible hitherto, and thus increase their value.

The proliferation of platforms has, in turn, created a new need for re-purposing content into suitable formats for each of the chosen delivery channels.

Hand in glove with these developments, we have in recent years seen the emergence of new niche and thematic channels. The audience has been, and is still, fragmenting - with fierce competition for eyeballs. The rivalry is no longer just among TV channels. New Media now competes in this space as well.

All this competition for people's time and attention underscores the need for channels to have visibility. It's not enough just to launch a service. You must brand it and market it to ensure a profile with the audience. Get on their radar. Unless you do, they won't know you exist or what you have to offer.

Although many broadcasters and information publishers are already exploiting the new opportunities and building their brand presence with common content and coherent style across multiple delivery platforms, the work is largely being carried out manually and without the sophisticated tools needed to enable each service to be easily managed.

The tasks are becoming even more complex, with interactive and enhanced TV becoming increasingly sophisticated and generating considerable consumer interest.

The additional challenge is that there are multiple platforms for each device, as well as different vendor solutions and standards within each platform.

Let's confine ourselves to Digital TV for a moment and set other digital devices to one side, albeit briefly.

Here in the UK, digital TV comes in three main flavours: terrestrial, satellite and cable.

On digital terrestrial TV, the middleware that enables interactivity is known as MHEG5. On digital satellite, it's called OpenTV, and on digital cable TV it's called Liberate. These middlewares – technically known as Application Platform Interfaces – are incompatible. Quite a problem if you want your programmes to be on all three platforms. Re-versioning is expensive, editorially and technologically. It can be a showstopper.

Now the problem is even worse if we go beyond digital TV and throw the net wider to include WAP mobile phones, PDAs etc.

So where does this leave us? Well the goal is simply stated. It is to have common, consistent, attractively presented, easy-to-navigate, branded content available across multiple delivery platforms. It is the quality and relevance of the content within the programmes and

services that will drive the successful business models, in other words make your service a success.

However, at the risk of digression, it is worth pointing out that in iDTV and other digital media, the interface can be as important as the content – perhaps more so. If the interface is such that viewers find it difficult to navigate, they won't use the service and it will be threatened with failure. This is a separate issue, which falls outside the scope of this essay, but it is one of vital importance.

Multiple delivery platforms

Given our focus here on text and graphics, the real issue is how to originate and deliver content on multiple platforms and diverse technologies whilst minimising duplication of effort and resources. It is easy to understand the concept of 'author content once and publish to many platforms' but there are several factors to take into consideration:

- Where is the content originated?
- Is it authored in-house or is it from an external source?
- Does the content fit onto the delivery platforms in terms of length and style?
- Does it need to be re-versioned for specific devices or markets?
- How will service operators be able to check that the content displays correctly on all platforms?
- How will the different services be managed?

Content Origination and Re-purposing

Most broadcast organisations – and probably most local authorities - will have several sources of information. In the broadcasting space, typically this will include news stories, travel information, programme information, sports results, weather data and others. Sources will include external providers and internal sources within the organisation. This information has traditionally been delivered in what's known as presentation format (such as teletext or HTML) but many organisations are now moving towards presentation independent 'format neutral' data interchange standards.

For maximum flexibility, content should be available as generic data or 'format-neutral' so that it can be published to multiple outputs efficiently.

Many information publishers have established web sites with content that could form the basis for use in multiple services. The challenge is how to get this content into the right format and length to deliver to these other services.

Some web sites publish to a 'TV Guidelines' presentation, optimising the site content and layout for TV resolution. This is essentially working to the lowest common denominator platform and precludes use of many of the more attractive web features such as frames, flash components, etc.

A 'TV optimised' site viewed on a PC display looks a lot less attractive and sophisticated when compared to other sites which are only optimised for PC use.

Solutions that 'take apart' HTML-based web content and then re-assemble it for display on TV are not 100% reliable - this also raises the key issue of who is legally responsible if something goes wrong and erroneous content is delivered? As such, HTML as a content starting point should be viewed with caution due to the difficulty and complexity of successful implementation.

Content Management Solutions

A much better quality of cross-platform services can be delivered by migrating to format-neutral content sources and storage, often using XML technology.

XML (Extensible Markup Language) is emerging as the industry standard for content interchange.

Investing in systems that start from format-neutral content and transform this into device specific presentation to provide a multi-platform publishing environment minimises risk and provides a flexible platform for the future.

Many information publishers - especially in the broadcast and cable TV market - are adopting this approach, presenting a consistent branding of content across all platforms. Arguably, this is instructive for Local Authorities and other bodies involved in the delivery of e-Government services. They are set to become TV organisations and there is learning to be had from the broadcast world.

The strategic considerations for the immediate future are therefore to:

- move towards format neutral source content
- deploy systems that can transform this content into device specific multiple outputs with minimal production overhead
- don't become locked into platform-specific solutions or content
- anticipate the need to adapt for future needs as they are encountered. (In other words, try to future proof yourselves.)

Content Size and Style

Despite the differences, there is a large degree of commonality across the delivery platforms of TV and wireless devices. All require 'concise' content for the reasons of length, bandwidth and readability/usability.

It is important to deliver concise information to users - a long text article (more than 18 rows of text or between 3 and 5 paragraphs, depending on their length) is very difficult to read both on a TV display and on current mobile phones. This is because of the limited resolution of a TV and the small display on the mobile phone.

TV and current mobile devices (such as WAP phones) also have much reduced display capabilities when compared with current PC displays.

- A typical TV display resolution is only one quarter of that of a PC display.
- Many wireless devices have little or no graphic capability and generally have to be viewed as text only displays.
- Navigation functions are also severely limited on these devices - the typical TV remote control has direction keys (Up / Down / Left / Right),

plus the coloured fasttext keys. Most mobile devices are even more reduced.

- Contrast this to the sophisticated navigation possible with a mouse and hyperlinks available on a PC.

In general it is not possible to take a long article and just truncate the text after, say, the third paragraph so that the text fits into a TV or wireless display. The whole meaning of the article is often lost. Breaking up the article into multiple pages often reduces readability because of the limited navigation functions and display limitations available on TV and wireless devices. (Many Digital TV display devices do not support scrolling text, for example.)

However, if appropriate editorial style is enforced, content can be authored such that a 'concise' version may be extracted to stand-alone from a lengthier version that is, for example, intended for publishing on the Internet.

In this case the content has to be authored and stored in this way so that the correct components can be transformed for the output device.

The important point here is that the content is authored with this approach in mind - it is very difficult automatically to extract 'concise' content from material that was not written in this style.

Another factor to take in to account is bandwidth and response time. Bandwidth – that's to say the size of the pipe down which information is sent - may be limited by the platform technology - Digital Terrestrial TV and WAP are examples of limited bandwidth delivery channels and

require content to be concise in length for efficient transmission if user response times are to be made acceptable.

All these factors lead to the conclusion that content has to be authored in a certain style and length in order to address multiple delivery devices. This style of content can be very efficiently and economically published to multiple platforms with minimal editorial effort. The resulting solutions can deliver high-quality content that is readable, has layout and navigation appropriate to the platform and is scaleable to support large user populations.

Service Production

Managers and Editors need to be in control of their total output - both the content and the structure of the service.

It is often stated that "Content is King" - but only if it can be used effectively. This means that those responsible for the service must ensure the content is readable by the user and easily accessible in terms of access time and navigation.

It is important to have the facilities and tools for 'Service Management at a Glance' without being bogged down in complex technology or having to rely on a team of developers.

Authors, editors and producers need to be able to oversee their output - what content is where within the service and how does it look before it is delivered to viewers.

At the same time, it is vital in a multi-platform environment to be able to both preview and monitor how content is presented after it has been transformed into a device-specific format.

Service structures will need to change from time to time as businesses evolve and for special events, for example. Users need to be able to make changes as needed, often very quickly for major events in news or information markets: a gas explosion with implications for local authority services, or a police siege. Both of these are scenarios which – sadly – are far from unknown.

Appropriate tools are needed to allow those responsible for services to make changes 'on the fly'.

Scheduled changes to system content are also an essential part of the operation. Examples of this include program-related content that needs to be made available to users or removed from services at specific times, for example around local elections when legislation is very specific about certain issues, and what is permitted and when.

It is of great operational advantage to be able to prepare and validate content in advance, then let the system make the changes automatically, especially if this is in the middle of the night.

Conclusions

All that we have been discussing has been brought about by the phenomenon commonly called convergence. Convergence brings great

opportunity but also complexity, especially in a world that did not anticipate the speed with which it would arrive.

This essay has attempted to outline various aspects of multi-platform delivery whilst prioritizing the need to leverage existing investment.

We offer the following conclusions:

- Implement solutions that are delivery-platform independent when content is published to multiple devices. Markets and standards are evolving rapidly and therefore avoid solutions which are proprietary or locked into specific presentation format.
- Ensure solutions are flexible and are able to support rapid change and varied business requirements.
- Move to format-neutral content sources and solutions so that content can be transformed for device specific delivery as well as be delivered to additional portals for 'own-brand' transformation. Ensure that systems can support output to multiple delivery platforms.
- Ensure content is authored to suit the delivery platform. Don't assume that content can be taken from an existing web site and successfully converted for other delivery platforms without extensive re-authoring.
- Don't try to truncate existing content without re-authoring or deliver content that is too long or graphically rich for the display device - users will look elsewhere if it is not easy to navigate or use.
- Use solutions that provide effective content management tools for multiple platform operation. Output transformations should select those content items that are appropriate for each delivery platform.

SysMedia (www.sysmedia.com)

Surrey-based SysMedia Limited specialises in the design, implementation and support of solutions for enhanced television. The company has been involved with interactivity on the TV set since 1974, being the undisputed world leader in the supply of software for teletext production and transmission. With the advent of digital, SysMedia has moved into the iDTV space with a product known PLASMA **MAGENTA**.

PLASMA **MAGENTA** is an integrated iDTV production solution, a product which we believe the market has been waiting for. It is a tool which provides a means of producing and delivering enhanced and interactive propositions, not just text, across all DTV platforms and beyond to include all digital media, be it mobiles, PDAs, whatever.

This multi-platform content authoring and service management solution is based around the concept of format-neutral content (XML) with style sheets (templates) to transform output to support multiple platforms. It separates content from presentation and can integrate with content management systems. Designed for use by non-technical personnel such as journalists, editors and administrative staff, it requires no programming skills.

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