

Paper number (to be completed by RBD): ERTG 0001

Title of proposal: Content Protection Update

Proposal submitted by: Matt Day [S40 (2)]

Date when paper is being presented at ERTG: 11/02/2010

This paper primarily relates to the following category; Content Protection and is also related to the following categories:

UK Legislative Agenda	<input type="checkbox"/>	Technology	<input checked="" type="checkbox"/>
EU Legislative Agenda	<input type="checkbox"/>	Content Protection	<input type="checkbox"/>
External Relations (non Gov)	<input type="checkbox"/>	Piracy	<input checked="" type="checkbox"/>
Enforcement	<input checked="" type="checkbox"/>	BBC Strategies	<input type="checkbox"/>

Executive Summary

In the context of the paper on "A pan-BBC approach to combating piracy" the BBC Direction Group said that the BBC's first position should always be to provide it's content on an unencrypted basis, but that any decisions on future use of encryption where appropriate should be left to the ERTG to consider.

The ERTG considered the matter in October 2009, but due to industry and regulatory developments it requires constant review, the attached paper outlines these developments.

[Not Relevant to request]

Discussion/Decision required

The attached paper raises a number of matters for consideration, in particular:

iPlayer on-demand encryption

For decision –

- Should the BBC look at introducing encryption to its on-demand streams given the changing market conditions : [s42]
[s43]
- FM&T would like to introduce a new system known as iDCP for providing iPlayer on-demand streams to a variety of different devices – is this aligned with the BBC's existing content protection measures used on platforms such as iPlayer to Freesat boxes?

[Not Relevant to request]

[Not Relevant]

Expected impact this will have on other areas within the BBC

- *Relevant rights areas have been checked.*
- *MC&A may need to manage a coherent communications strategy if agreed.*

Additional Papers Submitted

- *Content Protection paper for ERTG (Jan 2010).doc*

[Not Relevant]

EXTERNAL RELATIONS & TECHNOLOGY GROUP

Content Protection – Update for ERTG 09/02/2009

Background

In the context of the paper on “A pan-BBC approach to combating piracy” the BBC Direction Group endorsed the following recommendations in July 2009;

“We recommend that the BBC’s approach should continue to be based on the principle of universal access and that our starting point should assume that content will be available on a free-to-view basis. However, the approach will need to recognise that in some cases some form of protection will be required to:

- Preserve the value of BBC content in response to specific piracy threats.
- Ensure that we can licence content from programme suppliers.

An update paper was presented to the ERTG in October 2009 regarding issues around content protection, particularly *[Not Relevant]*, iPlayer to Freesat boxes and encryption of on-demand streams.

Purpose

The purpose of this paper is to update the ERTG on technical developments that have occurred since October 2009 regarding content protection and to assess whether these and other market developments necessitate a review of the BBC’s use of content protection across its services.

Current Situation

[Not Relevant to request]

[Not Relevant to request]

iPlayer on-demand downloads	Content uses various DRM technologies depending on platform (primarily Adobe AIR DRM, but also OMA 2 DRM for mobiles and Windows Media DRM for some platforms) to prevent redistribution of programmes and enforce the 7 day time limit on viewing programmes.
iPlayer on-demand streaming (PC)	In the hope of preventing users making permanent copies of content only available for seven days, content is presented to the public in an Adobe Flash "wrapper", but is not encrypted. This has led to the easy availability of public tools on the internet such as 'get_iPlayer' and 'iPlayer Downloader' which are free and will capture the streams on a permanent basis, even from HD iPlayer streams.
iPlayer on-demand streaming (Freesat)	Following the previous ERTG paper on this matter, iPlayer on-demand streams are now available to some Freesat boxes. [s43]
iPlayer on-demand (Wii)	A new version of iPlayer on the Nintendo Wii games console was made available in November 2009. [s43]

	[Section 43]
iPlayer on-demand (other platforms)	iPlayer on-demand content is streamed to a wide variety of devices, though none are encrypted. For more information see Appendix 1.

Current issues

i) iPlayer on-demand content protection

- 1) Shifting market conditions on encryption.

When BDG looked at encryption in September 2009 there was a fragmented selection of video providers using various levels of content protection technologies. While there are growing numbers of providers, the technology used has consolidated giving rise to a de-facto standard.

At the current time the other UK terrestrial broadcasters now all use the same technology (Adobe Flash with RTMPE encryption on the streams) for their online catch up services. In addition, MSN Video (with BBC Worldwide licensed content), YouTube's shows portal showing Channel 4 and 5 programmes, and US services including Hulu and many of the network's own sites are also now using the same software and encrypted streams,

[43]

- 2) Diminishing amounts of users would be locked out by adopting encryption.

Previous positions on encryption have been partially based on the fact that users of some older computer equipment would be locked out of iPlayer if encryption was used as those computers would not be fast enough to decrypt the video.

As time goes on this risk should reduce, as people will replace their equipment with newer, faster computers that are able to decrypt the video,

and hence the number of people who would be negatively affected by such a change should continue to fall.

[s43]

[s42]

[s42]

Question: Would such actions push the users of these tools to obtaining programmes from file-sharing networks instead, and would this be even worse?

[s43]

4) Other platforms still have no ability to encrypt

Some platforms we supply content to (primarily mobile handsets) have no ability to encrypt content streamed to them. If we encrypt all programmes these services could no longer function.

[s43]

[s43]

5) Introduction of progressive downloads

[s43]

6) Concern over integrated television strategies.

[s43]

The following posts were made on the BBC Internet Blog by Andrew Bowden, an FM&T developer, and are publicly viewable.

"Our aim is to build a standards compliant MHEG application that will run on any suitable MHEG device/software. At the minute, our roadmap contains Freesat HD devices, with Freeview HD later. However it doesn't need to stop there at all. If, for example, the Myth TV MHEG rendering engine is updated and can run this version of BBC iPlayer, then that's absolutely fine by me!" –

Andrew Bowden, BBC Internet Blog

(http://www.bbc.co.uk/blogs/bbcinternet/2010/01/update_iplayer_on_freesat.html#P90840707)

[s43]

If we were to provide a version of iPlayer that was available to any device, then there would be nothing to stop an unapproved manufacturer creating a box that allowed these streams to be kept in perpetuity, or the user of a PC

impersonating a set top box and being served a copy of the file with no content protection on it.

In addition, MythTV is mentioned as a possible platform to receive iPlayer. MythTV is an open-source computer program for PCs that operates as a PVR for computers with a TV tuner built in. If we were to provide iPlayer to this platform, we would effectively be giving programmes in a completely unprotected format with no timed-expiry to PC users.

Question: Is iDCP aligned with the BBC's existing content protection measures used on platforms such as iPlayer to Freesat boxes?

[Not Relevant to request]

[Not Relevant to request]

iii) Other content protection issues.

- 1) Increased newspaper scrutiny of BBC policies on encryption.

Over the course of the last several years a small but vocal lobby has appeared that is extremely critical of the use of any form of encryption or content protection, particularly on signals from public service broadcasters, usually on the basis that it locks out users of open source software. This lobby has gained increased visibility in some major newspapers over the past year, such as in the Guardian, and lead a campaign against the BBC's plans for copy protection flags on the BBC HD channel on Freeview (<http://www.guardian.co.uk/technology/2009/sep/29/bbc-hd-encryption>).

S43

[Not Relevant to request]

Appendix 1 – BBC Content Protection by Platform

Platform	BBC Services	Content protection	
		Territory	Use
[Not Relevant to request]			
On Demand (open platforms)	iPlayer	Geo-IP database	<p>Microsoft and Adobe AIR DRM used to protect downloads and time-out content after 7/30/7 window.</p> <p>Complicated picture for streaming depending on device – see next page.</p>
On Demand (closed platforms)	iPlayer (Virgin, Tiscali, BT Vision, Wii)	Geo-IP used for Wii version Otherwise limited by cable network.	Complicated picture depending on device – see next page.

BBC On-demand Content Protection

Platform	Concern about capturing streams at present	Could the platform support encryption?
PC streaming	"Point and click" tools available online to capture. [S43]	Can play encrypted streams, but this may shut out users on some low-end computers.
Playstation 3	Uses PC streams, but no benefit to hackers of going after console version instead.	Likely to be able to play encrypted streams
Freesat	[S43]	
[Not Relevant to request]		
Integrated television sets	Not yet launched.	
iPhone	[S43]	
Nokia phones		





Nintendo Wii

[S43]

As current

[Not Relevant to request]

Key

	Low level of concern/easy to encrypt streams
	Moderate level of concern/encryption difficult but achievable.
	Increasing concern/encryption achievable but may exclude some users.
	High level of concern/encryption impossible on this device.

External Relations Technology Group Meeting
February 11th 2010

Minutes and Actions

Attendees

James Lancaster (co-chair)	(JL)
Nicholas Eldred (co-chair)	(NE)
Anthony Rose	(AR)
Troy	(Troy)
Richard Leeming	(RL)
Simon Gillis	(SG)
Matteo Maggiore	(MM)
Kate Leece	(KL)
Daniel Wilson	(DW)
Najma Rajah	(NR)
Susan Payne	(SP)
Rhona Parry	(RP)
Alexis Hawkes	(AH)
Jo Korn	(JK)
Rob Kirkham	(RK)
Matt Day	(MD)
[S40(2)]	(AL)
Elizabeth Gibson	(EG)
James Jackson (for Graham Plumb)	(JJ)

Meeting Opens

- James Lancaster introduced the meeting and agenda.

1) Content Protection

Papers: ERTG 0001 (Content Protection Pro-forma Feb 10.doc)
ERTG 0001A (Content Protection Update for ERTG.doc)

- [S40(2)] Matt Day prepared the above documents to brief on the current situation and questions, focussing in particular on on-demand streams.
- JL felt that the group may need to revisit the issue of encryption on a regular basis.
- There have been three significant areas of movement since the ERTG last considered encryption:
 - As time goes on the amount of devices that possibly couldn't play the content reduces.

[S42]

[S43]

Encryption of online streams

- Anthony Rose noted that there are two parts of any content protection, device authentication and encryption. These are considered together but in fact are separate issues.

[S43]

- A company called Camiloo have launched an application called "Rewat.ch" which gives iPhone's the ability to save streams, so the iPhone content protection needs considering.
- New forms of authentication are now needed.

[s43]

- On other platforms the main means of provision for iPlayer streams is via Flash, but does not use RTMPE (encrypted streams)
- Not really authenticating so far – we could use SWF Verification. This can be introduced on networks and turned on within a couple of weeks.
- JL asked whether or not there are any downsides to platforms losing access when we turn on authentication.
- AR answered that so far everything has been done in a way that won't cause any issues to users. We could add more forms of content protection that might cause issues for some viewers but this is not necessary at present.

[s43]

- AR continued, stating that the cost of SWF Verification is in development time to the Online Media Group but not end users by blocking some devices.

[s43]

- JL felt this was good as we want to be flexible on the encryption issue This is not about blocking devices out if they must encrypt.

[s43]

- AR stated that the iPlayer Device Customisation Programme (examples of which can be seen on Level 4 of the Broadcast Centre) – won't change content protection because there are no new formats.
- The devices we're looking at almost always don't have Flash. Some could (and will) use Windows DRM (Digital Rights Management) but we don't currently produce very high picture quality variations of this format. Others will use H.264.

[s43]

-
-

[s43]

- AR understood the current position was that we do not want to encrypt some content and not others, and we didn't want to move to encryption on all platforms, but we were pragmatic when required on some devices.

- JL felt that we had made very good progress so far at getting content on all platforms.
- **ACTION: AR to implement SWE verification on the Flash on-demand streams.**

[s43]

[Not Relevant to request]

Nicholas Eldred joined the meeting.

[s43]

[s43]

- We need to make less variants of iPlayer with increasing numbers of platforms, and this would potentially help.

[s43]

- AR stated that this is a fast moving world and that the number of PC users who had Flash installed but couldn't use RTMPE has dropped from 70% to less than 1% in a year.
- AR accepted that there is a need to look at CPU but did not think it would be significant.

[s43]

- AR argued for a pragmatic approach. The new techniques do support some older devices but that's okay as they are a different class and often use different infrastructure now.

[s43]

- JL did not feel it has reached that point yet.

[S43]

- AR noted that there is currently a large demand for programmes and that the lack of applications on other platforms were driving people's actions.
- Troy felt that any change in approach might need to be taken to the Vision Board.
- JL felt that any significant change in approach would need to be a pan-BBC conversation anyway.
- Troy asked if the BBC is out of step with other terrestrials. Is their use of encryption universal on all their programmes? AL confirmed that it was.
- AR stated that Google are doing the same thing and that RTMPE is being used on 4OD and Five content on demand available via YouTube.

[Not Relevant to request]

- JL stated that a sub-meeting with the ERTG members/subgroup might be required in the meantime to ensure this happens.

[S43]

- AR responded that the BBC need to be agile as threats change and move. For example, we need to limit things to inside the BBC website and work on blocking people embedding without permission.

-

[S42]

-

- AR noted that we needed to look at the linear content streams too.
-

[Not relevant to request]