

## Feb 2012

- 21 Feb 2012: Adrian Bateman announced at the public-html mailing list that they have been working to provide an API to play encrypted media in HTML 5 [1](#). One of the mentioned reason was that many content providers and application developers have said they can't use `<audio>` and `<video>` because HTML lacks robust content protection.
  - Ian Hickson called the proposal unethical.
  - Glenn Adams objected to linking EME to issue 171 which talked about adding ways to pass arbitrary parameters to audio and video tags. Glenn rather proposes to have generic exchange mechanism which are not specifically related to encrypted content. He criticizes not supporting params.
  - A lot of talk there after is about comparison with `<object>` in a purely technical sense.
  - Chris Pearce questions the possibility of implementing content protection in a FOSS browser.
  - Eric Carlson said EME proposal is workable.
  - Tab Atkins [2](#) points out that the sole purpose of EME is DRM, he said DRM is “technically impossible and practically useless, imposing unnecessary costs on legitimate users while doing nothing whatsoever to actually stop copyright infringement.” He is disappointed that his employer, Google co-edits the proposal.
  - Glenn Adams argues that Firefox can use a OS API like mechanism of implement EME where they don't have to reveal the source code the decryption module.
  - Mark Watson argues that [3](#)
    - \* Millions of \$\$ of Engineering effort will go waste if they don't standarize DRM on the web.
    - \* EME is not an issue with Firefox from specification point of view because they don't specify the content Decryption Module.
    - \* The aim of DRM is to act like a speed bump for copyright infriengment and in that way it is effective. (Question: Is this speed bump effective)
  - Charles Pritchard argues that obfuscation should be enough for EME's intended pupose as only programmers can grab the content who is the 99.99% of world's population. He says "“consumer” content protection is just a silly cat and mouse game of make-work opportunities for corporate attorneys and 501c structures. It's well-established that content protection does not stop any consumer products from being pirated. Obfuscation works just fine for stopping the average consumer. Everything else is just extra work, unfortunately necessary to keep contracts from getting wet."

- Tab Atkins [4](#) made a really good point that commercial video can be done without DRM and an example of it are Indie producers on youtube. He also argues for the lack of interoperability. BTW Thinking on DRM free commercial systems, a good way to earn money can be inserting an ad in the video and more viewing (+ pirating) of the video just means more ad revenue, the producers only need to have a method to estimate their viewership to estimate the ad fee. Tab also talked about the comedian Louis CK who made a million dollar selling videos in DRM-free format.
- Charles Pritchard argues that there is no need of EME as `<video>` is codec agnostic and they can stream the video on a codec which only they support. [5](#)
- Mark Watson counters the cost to the users because of DRM with the cost of fragmentation. [6](#)
- Henri Sivonen argues that failing to describe the specs of the protection system EME doesn't provide benefits of interoperability and level playing field for competition. Only lowering the R&D cost for propriety DRM systems shouldn't be a good enough reason for W3C to work on EME. [7](#)
- Charles Pritchard makes an interesting observation that `<video>` and `<audio>` tags are intentionally about arbitrary codecs and don't push vendors for interoperability. He gave an example where trusted computing makes sense. He also argues that an encrypted stream is no better than an arbitrary codec but W3C should implement trusted computing anyway to protect the privacy of people. [8](#)
- John Foliot argues that they need to strip away the philosophical arguments about EME and think about from a purely technical point of view and then he justifies EME by saying it's what the economy wants. Failing to realize that "This is what economy wants" is not a technical argument, neither he justifies that W3C should do what CEOs want them to do.
- Carr, Wayne supports the proposal without justification. [10](#)
- Henri Sivonen counters John's post by saying that standard setters need to make value judgement all the time and arguing "Don't use it if you don't like it", is an extremely naive solution and doesn't tackle the issue of lack of level playing field [11](#). In the next email says that the lack of interoperability of `<video>` and `<audio>` shouldn't be taken as role model also. He countered Pritchard's example about Trusted computing by pointing out in his example the "Evil Maid" was an adversary but in EME the adversary is the user, he also says that it'll be laughable to say EME protects user's privacy.
- Bob Lund supports the proposal by saying it is a good first step to support problems of content providers and device manufacturers. [13](#)

- Tab Atkins points out that the legal difference between encryption and using an arbitrary codec is that the former is covered by DMCA but the later isn't. [14](#)
- Specifically replying to Henri, Mark Watson argues that EME is not about adding DRM to the web but about improving existing plugin based system. [15](#)
- Boris Zbarsky says that EME is bad for the web if it requires new browsers to coordinate with companies while comming up. [16](#)
- Ian Hickson draws a satire of John's "Don't use it if you don't like it" argument about DRM, argues that EME intentionally makes content inaccessible hence it is unethical [17](#). Glenn Adams calls Ian's argument non sense and says DRM/Content Protection has nothing to do with impaired users[18](#).
- Glenn Adams supports EME on the behalf of Cox Communications and asks W3C to remain neutral on the fact that DRM should be used or not. [19](#)
- Andreas Kuckartz opposes the proposal if it cannot be implemented by Open Source Software. [20](#)
- Glenn argues the protecting users should mean protecting the interests of content consumers and content producers, and we should not bias against users who are willing to pay for DRMed content. He points that EME has to take care of the constrains imposed by licensing terms of content providers, which might prevent usage of EME with open source implementation [21](#).
- Mark Watson says "A Content Decryption Module implementing the 'clearkey' keysystem can be implemented as Open Source. This serves as an existence proof, at least. Whether any given content provider believes any given keysystem implementation meets their needs is up to them. We are not proposing to standardize any Content Decryption Module except clearkey, just as HTML does not mandate any video codec and for similar reasons. So the specification as proposed can be implemented in Open Source just as well as the rest of the Media Element." [22](#)
- Glenn Adams calls for keeping licensing technical issues separate. [23](#)
- Henri Sivonen says a more interesting to ask is if Netflix et al. are willing to use open source implementations of CDMs to provide their content [24](#).
- John Vernaleo replies to Glenn saying that he'll like to keep technical and legal issue seperate but that might mean keeping OSS out [25](#) to which Glenn replies that this is over generalization and not all licenses block OSS [26](#), to which John Vernaleo says that the specifics of the restrictive policies are not important, what he is concerned about is building a system where OSS cannot participate, he also warns that

it is dangerous to build mechanisms supporting some parties without thinking about their consequences [27](#).

- There was small misunderstanding where Henri says that HTML5 already supports cases where user is not treated as an adversary, which Clark and Glenn found derogatory [28](#) [30](#). To which Henri later clarifies that Henri probably meant the term “adversary” in the technical context of cryptography [39](#). (Exchanges of Clarke and Tab [42](#), Andreas supports the nontechnical usage of term adversary in context of DRM and points out to RMS [45](#))
- Boris Zbarsky ... [32](#)
- Incompressible exchange between Charles and Kornel [33](#)
- Mark Vickers, representing Comcast, strongly supported the EME proposal claiming that EME will go a long way towards moving most of the functionality of web to plugins. He compared EME to SSL and said like SSL, EME will be a vital step enabling commerce and communications through web browser. [35](#)
- Charles argues that EME can help with privacy by ensuring that the content consumed by user doesn’t get intercepted by third parties, he mainly talks about browser extensions which be used for interception. He asks the group to give a full analysis to the proposal so that it can be used for the benefit of privacy [36](#).
- Supporting Ian, Benjamin Hawkes-Lewis posts three weblinks demonstrating the inverse relation between DRM and accessibility. Though two of these three weblinks are now broken [37](#). To which Glenn Adams responds by saying that DRM/CP doesn’t intentionally discriminates against accessibility features. He then points out that HTML5 offer work arounds in case where accessibility features are missing. [38](#)
- Henri says “Even if one accepted the notion that DRM discriminates equally against non-accessibility and accessibility features, discriminating against accessibility features at all deserves special attention, because traditionally under copyright law, accessibility is privileged. Typically European countries have copyright acts that put limitations on copyright (i.e. the copyright holder has less say) that enable adaptations for accessibility purposes. DRM foils this, which is a recurring theme in hearings about anti-circumvention legislation. Suppose the content provider isn’t providing a text track and has applied DRM to the audio track. Suppose that the DRM proprietor places a contractual requirements (amplified by anti-circumvention legislation) on implementors that say the unscrambled audio samples may only be sent to audio output hardware and must not be provided to other processes. This would prevent the accessibility use of sending the audio to a speech recognition system for generating captions on the fly on the client side.” He also demands to know why scrambling is

not being proposed as a solution. 40 To which Mark Watson responds that JS is not a secure enough and it might turn out to be too heavy for decryption. 50

- David Singer calls it a myth that HTML5 cannot play protected content. 44
  - Mark Vickers argues that EME improves upon many of the accessibility issues in plugin systems used to play protected content by providing standard ways to add accessibility features. 46 Vickers, Mark further asks following questions to David and EME editors. 47
- ““ David Singer:

1. How would the application and user agent communicate the particular content-protection scheme? Would it be in the source element type and/or codecs attributes? Can you give a concrete example?
2. How would the application key server connect to the user-agent key client?
3. Are there any examples deployed, prototyped or proposed for a specific content protection system using HTML5 in this manner?

David Dorwin, Adrian Bateman, Mark Watson:

1. Can you provide a functionality comparison of content protection using the current specs vs. with your proposal? ““
- David’s responds to the question 48 and Mark Watson responds by arguing that many browsers have entire media pipeline in the browser code and hence it cannot use the content protection facilities available on the OS, he also claims that it is not a myth that protected content cannot be run in HTML5 because there isn’t a standard way to do it. 49 And then David responds again (will do the summarization later) 56.
  - To issue of creating unlevelled field for browser’s Mark Watson responds that the same situation exists in plugin based environments and EME improves upon that. 50 To which Boris’s response was that any new browser with correct implementation of NPAPI can work with flash so the answer really depends on the specifics of the Content Decryption Modules. He also questions the assumption that browser developer will have greater control and more options in case of EME 51
  - Mark Watson argues that there are practical difficulties for new browser with flash even if they have an implementation of NPAPI according to the specification, he says CDMs provide more control to browsers because they are smaller and have much less functionality. 52 According to Boris this is different because there are no legal difficulties, where as implementing a CDM might lead to trouble with DMCA. 53 But Mark feels the situation is no worse both in legal and technical because CDM’s will only be a subset of the current plugins. 57

- Purely technical blabber [54](#) [58](#)
- Kornel ask if there will be standard way for browsers to communicate with CDMs [59](#) to which Mark Watson says “there could be if people would like there to be. On the other hand there is no such standardized API for plugins or media codecs.” [60](#) Vickers, Mark supports having a standard API saying it will be useful [62](#). Kornel says without an API the CDM side is all hypothetical [63](#) and Glenn say though having it will be a reasonable task but a not a task for W3C [64](#).
- Earlier Henri had asked if they are OK with revealing unscrambled content to the user only hiding it from the third parties then HTTPS should be enough to which Mark says the content providers might wish to hide content when it is stored in servers and that http service with CDNs are cheaper than https and is operationally simpler (Which appears to be a bogus claim). [61](#)
- 08 June 2012, Paul Cotton announced the mailing list and said that they’ll start working on the EME draft.

## Github Notes

- 17th May 2016: Paul Cotton announces that ensuring CDM level interoperability is out of scope of the working group’s charter [a](#).

## People

- Adrian Bateman works for Microsoft.
- Ian Hickson: He works for Google and is a part of CSS working group.
- Glenn Adams works for Cox Communications
- Silvia Pfeiffer Works at NICTA
- Chris Pearce works for Mozilla
- Eric Carlson works for Apple.
- Tab Atkins works for Google as a web standard’s hacker <http://www.xanthir.com>
- Mark Watson works for Netflix
- Charles Pritchard works for Jumis
- Henri Sivonen works for Mozilla
- Carr, Wayne works for Intel

- Bob Lund works for Cable Labs
- Boris Zbarsky works for MIT and a quick search suggests he an insider of W3C.
- Kornel Lesiński works at Financial Times
- Benjamin Hawkes-Lewis(bhawkeslewis@googlemail.com)'s isn't apparent from simple web search.
- David Singer works for Multimedia and Software Standards, Apple. He has written on identity management and privacy principles in W3C. <https://www.w3.org/2011/track-privacy/papers/Apple.pdf>  
[https://www.w3.org/2011/identity-ws/papers/idbrowser2011\\_submission\\_51.pdf](https://www.w3.org/2011/identity-ws/papers/idbrowser2011_submission_51.pdf)

## Notes from May 2013 discussion

- There have been a lots of internal disagreement about EME, some are found here on W3C mailing list. <https://www.w3.org/community/restrictedmedia/>
- Author's on the list: Julio Cesar Serrano, Andreas Kuckartz(AK)
- Discussion on the Formal Objection by EFF and reply by John Foliot <https://lists.w3.org/Archives/Public/public-html-admin/2013May/0146.html>
- John F is the principal accessibility strategist, for the last 15 year he has worked to make make websites more accessible, prior to that he worked for the record industry for 15 year.;  
– <https://lists.w3.org/Archives/Public/public-html-admin/2013May/0153.html>
- His primary objection to the formal objection is that stopping EME won't stop DRM in web, it is already a defacto standard and the big companies who are behind it will use some other business body or standards organization to push their agenda, btw he also supported the right to control and monetize what companies have invested in.
- John C. Vernaleo: Opposed to W3C supporting DRM, and does not say that removing EME will make DRM go away.
- piranna@gmail.com objects to EME <https://lists.w3.org/Archives/Public/public-html-admin/2013May/0154.html>
- She is an independent developer from Spain, probably a recent graduate. <http://pirannafs.blogspot.in>
- Tab Atkins Jr. accuses W3C's EME as double speak on the name of open standard; <https://lists.w3.org/Archives/Public/public-html-admin/2013May/0155.html>

- Tab Atkins works for Google as a web standard's hacker <http://www.xanthir.com>
- Mark Watson from Netflix makes the comparison that EME doesn't make anything less open than they are today. <https://lists.w3.org/Archives/Public/public-html-admin/2013May/0156.html>
- Casey Callaghan argues that EME standard will lead to the fragmentation of the web standard <https://lists.w3.org/Archives/Public/public-html-admin/2013May/0162.html> She is a software developer from South Africa, probably independent.
- François REMY argues that it will be worse to have a EME which is supported by “all” browsers but is not a standard. <https://lists.w3.org/Archives/Public/public-html-admin/2013May/0164.html> Francois is a participant in the CSS working group and is the cofounder of the Extensible Web Community Group. He now works for Microsoft, though he didn't at the time of the posting of the mail; <http://fremycompany.com/>
- There are at least three mailing lists on W3C where EME is being discussed, [public-html-admin@w3.org](mailto:public-html-admin@w3.org), [public-restrictedmedia@w3.org](mailto:public-restrictedmedia@w3.org), [public-html-media@w3.org](mailto:public-html-media@w3.org)

Links:

- Status of Formal Objection <https://dev.w3.org/html5/status/formal-objection-status.html#EME-1>