The New US Anti-Linux Laws

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Introduction

Copyrights in the digital era become more and more hard to keep. New technologies like the ADSL (and other broad band technologies) enables users to download large files in almost no time (1 Mbit/sec = 7.5 MB/min.). New file formats enables to keep digital content in smaller file without affecting its usability (3:32 min. salsa song, 128 Kbit/sec, MP3 = 3.4 MB).

The Threat on Copyright

Music can be encoded in the MP3 format (or other various formats, like VQF) without losing its quality (192 Kbit/sec MP3 are almost indistinguishable from CD quality music).

Videos can be encoded in the DivX ;-) format (MPEG4, etc.) and you have a full feature in 700 MB (=100 minutes to download).

TV shows can be also encoded in MPEG4 format or RealMedia format (73 MB for 22 minutes of Simpsons = 10 minutes to download).

Conclusion: Content can be easily distributed.

The Threat on Copyright (Cont.')

Several File Sharing media have been evolved. The three oldest media are the web, ftp and IRC. As for most people INTERNET=WEB+FTP+IRC+EMAIL, these media were quite useful at the beginning.

However, it was hard to find specific files. You had to find a person which has the file you are looking for and then download it...

Solution: File Sharing Networks - Napster, Gnutella, Imesh, KaZaa, Morphius, eDonkey, etc.

Content Industry - Responding to the Attack

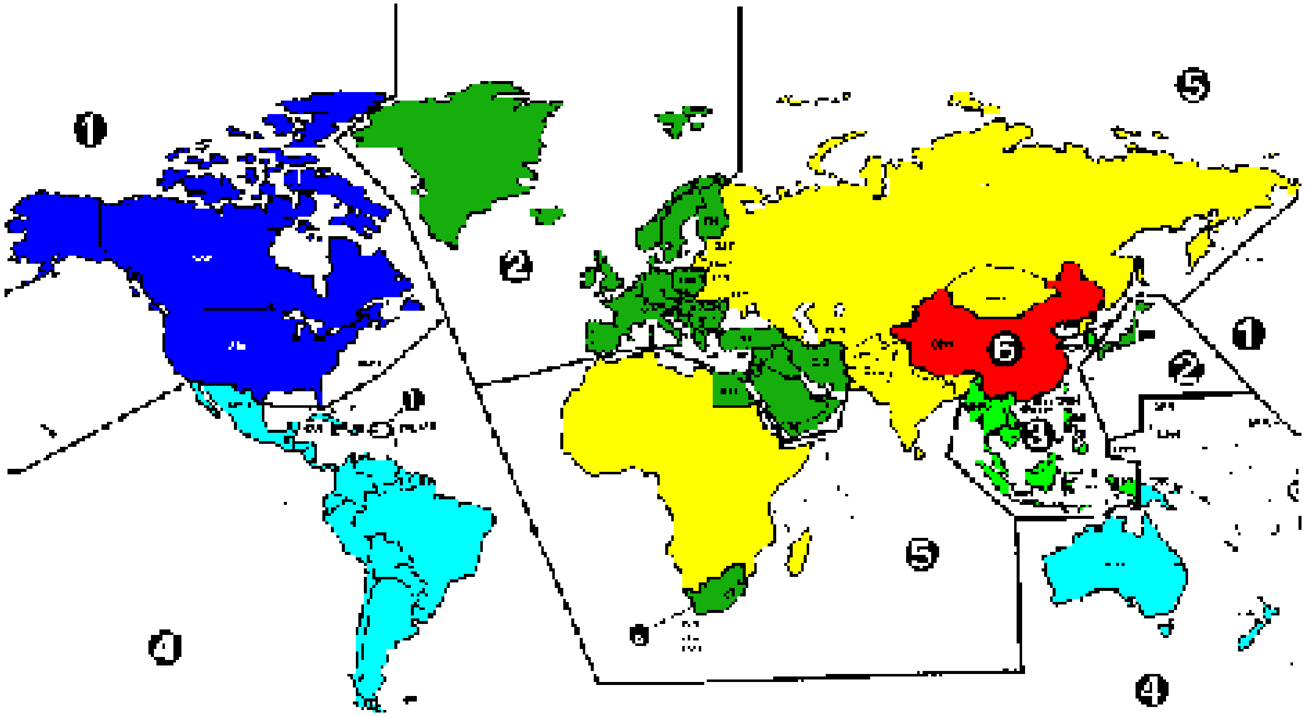
The content industry has no to deal with the simplicity of distributing its copyrighted content free of charge.

The movie industry had a two advantages over the music industry: Its content is much larger. And even though any person can rent a video, the process of digitizing it is very hard.

A new era has started with the DVD. The movie content is already digitized, and every computer can play it. The movie industry had no other choice but to protect the digital content - The Zones.

The Zones - In the Eye of the Linuxer

Each DVD had a zone option installed into it. All DVDs were protected by setting them to some zone. You can play a DVD only if your machine is set to the DVD's zone.



The Zones - In the Eye of the Linuxer (Cont.')

In order to view a DVD in the computer the software must decrypt the data (cryptographic encryption is widely used in the copyright protection world).

DVD players for windows has been released by the movie industry. But ... no players for Linux has been released.

The Linux Solution: Hack the system (Reverse Engineer). Find what does the windows program do and how to do the same under Linux.

The Hackers: Jon Johansen (Norway) + 2 (unknown).

Johansen put the DeCSS object files on-line, but not the source code. Later on the code was also available on-line.

DMCA

The Digital Millennium Copyright Act was accepted on 20/10/98 (signed 28/10/98) and is one of the tools the content industry has pushed in order to prevent digital copyright infringement.

The DMCA prohibits any copyright infringement. Moreover, according to the DMCA any person/organization which helps infringement of copyright is also guilty.

Thus, reverse engineering a DRM (Digital Rights Manager) is illegal, as it carry the risk of infringementing some copyrights.

Therefore, if Jon Johansen was a US citizen, or in the US while working on the DeCSS he could have been sentenced to up to 500,000$ fine or 5 years in behind bars.

DMCA - Interoperability

However, the DMCA allows reverse engineering for the sake of interoperability. This means that if there is DVD player for windows, but none for Linux, and you <u>b</u>uy a DVD you are allowed to reverse engineer it's DRM in order to see the DVD on your Linux system.

DMCA - So Everything is Fine

Unfortunately, no. You cannot co-operate with others as this means that one of you informs the others by plaintext or by source code about the weakness of the DRM, enabling you to use the DVD in windows system not according to the DRM.

Meaning - the DMCA forbids you from giving information how to “neutralize” the DRM in system in which there is a possibility to use the content.

Conclusion: Once you (and only you) succeeds in solving the DRM, you cannot tell others by code/plaintext about what you did. You can however, put a protected (=not reverse engineerable) utility on the web, as long as it cannot be used other than the systems where no official players are available.

Affect on Linux

No more reverse engineering projects for copyrighted material. This will give windows a major (and unfair) advantage over Linux. When new formats will enter the market, if only a windows player will be suggested - you won't have a Linux counterpart.

Moreover, Microsoft can now use the DMCA to prevent reverse engineering its formats. For example, Microsoft will declare that it uses the format of WORD document to maintain copyright (you can put in .doc file anything nowadays). If you want to support importing .doc files into some Linux word processor, you need to reverse engineer the .doc format - which you can't because it is used as a DRM.

Affect on Linux - Scientific Point of View

During the years, the academy environment and the Linux community shared many good things. For example is the strong crypto' campaigns which where led mostly by academic people, and free-speech activists which also support Linux and FSF (as strong crypto' has the same target as the FSF).

The DMCA has an exemption for the sake of cryptographic research. However, the act was very poorly written and thus, cryptographic research is restrained in the US. Officially there is no problem to conduct cryptanalysis. However, if the content owner, can show that the sake of the research was not only for the public sake but also had direct benefits to the research group - the research group can be prosecuted.

The New Threat - UCITA

The Uniform Computer Information Transactions Act (UCITA), is a proposal to all US states. Virginia and Maryland have accepted it with some changes. Among its purposes is the cause of forcing software industry to take responsibility over its products.

That's good for Linux! Now Microsoft will have to make good software or to be fined.

UCITA (Cont.')

No.

It is not good for Linux (and free software/open source). Big software firms can always form a good disclaimers, users agreements, etc. to remove the threat the UCITA pose to them.

Free software/open source is usually not written by people who can afford 1M$ lawyers who know how to write these documents. So they might get prosecuted even though they in advance declare no responsibility (but this is illegal according to the UCITA).

Moreover, these regulations are related to the programmer. Therefore, if he/she allowed others to redistribute, then if the redistribution was after the UCITA was accepted, they are responsible, even if they didn't do nothing.

UCITA II

No.

It is not good for Linux. According to the UCITA you can put in the license a clause which prohibits the users to criticize your product – No more critics. All software is good (if it came from a company which has money to hire good lawyers).

UCITA III

No.

Some technical aspects in the UCITA allows putting back doors in software.

No legal authority has to track these back doors (i.e., no one knows if you put one, and can monitor if it used for the right purposes).
These back doors can be used to DoS attacks (without liability of the software programmer) or any other hacks.

UCITA IV

No.

Reverse engineering is not allowed unless allowed by the software programmer. Ahm... Do you think Microsoft will allow you to reverse engineer .doc format?

Using the UCITA, the DMCA clauses about interoperability can be avoided (just put in the contract that you do not allow reverse engineering).

References

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