Of seeds, movies, music, and software...

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Just as in the 90s we have witnessed a transborder revolution in information exchange with the generalization of the Internet in its graphical, user-friendly, highly interactive form generically called the World Wide Web, we are now experimenting the deepening of a spectacular transition in media handling , which could probably be also called a revolution which is terrifying the media industry as we know it - still reaping between 40% and 100% of its profits from the distribution of digital content printed on plastic discs called CDs or DVDs.

This transition is composed of two movements:

- reprinting of the discs and reselling them in informal markets in virtually every country at prices several times lower than what the media companies want to charge. Nothing the industry has done so far to prevent copying has worked, and in the current distribution formats will almost certainly not work.

- Internet workstation peering (also called peer-to-peer or simply P2P networking) which enables direct exchange of any file through an increasingly sophisticated and diversified system of repository addressing which cannot be disabled by the media industry.

The two movements are combined so that informal resellers can vertically own their entire business basically consisting of a microcomputer with a broadband Internet connection equipped with one or more CD/DVD recorders. This enables rapid distribution of movies or albums which are just now entering the media stores or movie theaters. But also involves huge operations which do exactly what the original media company did: print large quantities of copied CDs/DVDs in disc factories in China or Russia, for example, which end up in in the hands of a worldwide network involving thousands of street vendors (and some established retail merchants too).

This constitutes an unbeatable structure massively circumventing the current media industry paradigm. Who likes to be charged US$50 for a DVD movie when the same can be bought for US$5 or much less in many places in most countries, particularly when one knows that the industry spends a fraction of a dollar to print a copy of a disc? If you drop the idea of buying it (politicians might decide to run the CD-crunching show for the cameras from time to time), you still have P2P with millions of users online any time of the day or night, sharing petabytes of sound files, videos, documents and software.

The media industry would have to arrest nearly every computer user who has a broadband connection at home to try and make a small dent on this huge, swarming, unstoppable network of people. Is the idea of suing millions of people viable or ridiculous? What if the few ones who have been successfully sued just sue back because millions of others doing the same every minute have not been sued? This way looks clearly a dead-end for the industry.

The future is obviously bleak for the so-called "legal" media distributors as it stands today. A major shift in the way they do business is about to happen, and it is hard to imagine any scenario which does not take into account the inevitably free information sharing capabilities of the Internet, which tends to expand significantly as bandwidth in the last mile increases.

Issues are remarkably the same for the software industry which is also based on distributing shrink-wrapped digital content printed on plastic. The same ever expanding P2P network exchanges all kinds of software packages, and the same music and video distributors also copy and sell software in CD form.

And the intellectual property ownership mechanism used by the media industry is similar to the one used by the software industry: you are an author, you write music or code for us, and we become the owners of your music or code. There is no alternative mechanism acceptable for the proprietary software industry nor for the mainstream media industry.

However, a major difference happens regarding the type of content in each case - while in the media industry diversity of content is the rule (you do not have just one rock-and-roll band or movie producer), in the software industry there is at least one major case of quasi-monopoly, represented by the MS Windows operating system and associated applications owned by Microsoft Corporation. In the ideal world of Microsoft, every personal computer, workstation or even server would be running the Windows operating system and a set of Microsoft applications. Every other software for these computers would be really secondary except very special cases.

Microsoft was getting real close to this ideal scenario until... some noise from the rank-and-file started to turn up and materialize into a new proposition on how people develop and distribute software. The seminal stream came from the Free Software Foundation and its GNU proposition in 1984 for an alternative to the UNIX operating system with the same functionallity but entirely based on freely distributable software (including its source code) under a free software definition licence. It started to catch up when a free UNIX-like operating system called GNU/Linux became stable thanks to a growing community of fellow, volunteer programmers worldwide.

But it was only about five years ago that this new proposition really began to stand up against the Microsoft juggernaut with a clear chance to compete on equal terms and, particularly after advances in certain desktop applications, possibly win. GNU/Linux, a free UNIX alternative launched 10 years after the GNU initiative, has gained a stable graphic interface, reasonably easy installation routines, and advanced office applications with nearly all funcionality Windows users were used to find in the proprietary MS Office packages. By then GNU/Linux had already established itself several years earlier as a secure, reliable and higher-performance alternative to the server variations of Windows, and free and open source server software like the Apache Web server dominated its field.

Today what is generally called FOSS (free and open source software), distributed under a variation of licences (GPL, LGPL, several variations of the Creative Commons etc), covers the entire realm of data processing and digital communications. Cisco has been using embedded GNU/Linux in its latest Wi-Fi access points. SABRE, the largest air travel reservation network, is migrating to GNU/Linux and a FOSS database system called MySQL. It is quite probable the biometric sensor you will be using to enter a secure area contains GNU/Linux. And this operating system currently dominates the high-performance graphics rendering facilities (sometimes including thousands of computers working together) in the movie industry, from "Titanic" to "Shrek 2" and "Lord of the Rings".

Proprietary software giants are feeling the pinch. The "shrink-wrap model" of software distribution is being challenged by a new paradigm derived from the opportunity for collaborative work which the Internet makes possible. In the "big bucks" software market the situation is also unstable -- Oracle and PeopleSoft reportedly are slashing prices by up to 80% in multimillion dollar contracts to compete in a shrinking market for the "old way" to develop and

distribute software.

It is obvious FOSS has gone mainstream already. It is a matter of (probably fairly short) time for it to become ubiquitous in home computers and office workstations around the world. In the meantime, the sofware industry is already rearranging itself to find its space in this new paradigm: collaborative development of free software in a mutual trust network of thousands of programmers using very efficient version control systems to build and maintain open source computer programs. They call themselves "communities" (the Debian community, the Open Office community, the Fedora community, the Gnome community, the Linux Kernel community, the PHP community and so on).

The distinctive situational feature which differentiates the media industry from the software industry (the presence of a near-monopoly in the worldwide end-user software market) puts the latter closer to the GMO (genetically modified organism) industry, with a detail: in the GMO market there is a small group of large conglomerates owning the international GMO seed market and the corresponding biostructure's patents, while in the end-user software market there is Microsoft.

But the central issue at stake in both cases is the same: computer software and genetic code are of the same nature -- coded information which can be proprietary (and thus patentable depending on the legal framework for intellectual property in each country, and/or each country's adherence to WIPO's rules and conventions) or not.

Thus, discussing proprietary software or patented GMO seeds often involves the discussion of the same issues, involving the freedom of access to or intellectual property of code. The user licensing contract of a Microsoft shrink-wrapped product or a Monsanto seed pack bear striking similarities, but then this should not be a surprise.

In the political front of the struggle against GMOs, this issue seems to be often disregarded. Besides the very relevant facts of nature (e.g, the potential or actual effects on the environment, animal and human health in planting and consuming GMOs), one cannot ignore that a country like Brazil, for example -- a leading grain exporter which incidentally has arrived at this status without using GMOs -- would be in a very vulnerable position if it adopted proprietary seeds owned by a seed company from its leading competing country in this market, namely the USA.

One common conclusion: in software, GMOs and increasingly in media, we are not worried only about freedom of access and use versus restrictive licensing, but also about the consequences of monopolization or cartelization of the worldwide proprietary code market, which in software and digital media is now increasingly challenged by the FOSS alternatives.

This naturally leads to the incorporation of FOSS in national digital inclusion strategies in developing countries. Why? Some of the reasons:

- Due to the collaborative, open nature of FOSS development, there is a tremendous opportunity to acquire ICT knowledge in the process.
- In education, where we are talking about learning and not just end-user training, FOSS may also be a significant learning experience.
- Economically and politically speaking, FOSS has abundantly proven its value in licensing savings and independence from monopolistic code providers.

Finally, a few questions I would like to pose:

- Is there a case for FOSG -- free and open source GMO code? Or should we just reject any

GMO as a matter of natural principle?

- How to involve the academic community and industry in the discussion to leverage a national FOSS policy?
- How to establish public policies in such a way that a national decision to go FOSS is not just turned down with a change in government?
- How to extend the FOSS logic, ethics and conceptual framework to digital content?

Carlos A. Afonso, born in 1945, is a Brazilian who has studied naval engineering at Escola Politécnica, University of São Paulo, Brazil. Holds a Master degree in Economics, York University, Toronto, Canada, with doctoral studies in Social and Political Thought at the same university. Works in the economic and social development field since the early seventies (as consultant for Chile's ODEPLAN during the government of Salvador Allende in Chile, and later on for Canadian international development agencies). Co-founded the Brazilian Institute of Social and Economic Analyses (Ibase) in 1981, in Rio de Janeiro, of which he is currently Secretary of the Board. During this period, conceived, implemented and managed the AlterNex project, the first computer-based communications and information system in Latin America dedicated to serve civil society organizations. Initiated in 1987 and officially inaugurated as an Internet service in July, 1989, it was also the first Internet services provider in Brazil. Co-founder of the Association for Progressive Communications (APC), as Ibases representative (May, 1990). APC is an international consortium of organizations which share similar objectives in democratizing communications and information through computer networks worldwide. APC is also a member of the UNs Economic and Social Council (Ecosoc). Proposed and coordinated the "UNCED Information Strategy Project in Rio" (UNCED ISP/Rio) - 1991-1992 -, first Internet project specifically developed for a UN conference. ISP/Rios aims were to provide communications and information through the Internet so that organizations which had not been able to come to Rio were able to follow up on the events via the network. The project operated successful Internet telecenters in all main conference spaces as well as helped to enable Brazils first direct, permanent TCP/IP link to the US Internet. From 1995 to 1997, and during 2003-2004, is a member of the Brazilian Internet Steering Committee. From 1997 to 1998 was chairperson of the executive board of APC. In 1998, as an IDRC consultant, prepared a technical and social impact assessment of six PAN Asia Internet service providers (Bangladesh, Cambodia, Laos, Mongolia, Sri Lanka and Vietnam) which have been established with direct support from IDRC. In 1999, as a UNDP consultant, prepared an evaluation of Brazil's National Research Network (RNP), as part of a program assessment developed jointly by UNDP and Brazils National Research Council (CNPq). Since 1998 is a director of the Information Network for the Third Sector (Rits), Rio de Janeiro, Brazil, a national project to implement a NGO-oriented services and capacity-building and knowledge network on information and communication technologies. The project is currently supported by, among others, the National Research Network (RNP), Ford Foundation, Canada's IDRC, Kellogg Foundation, and several other national and international donors. Is author of several books, articles and studies on social and political issues and on Internet development, published in English, Spanish and Portuguese. Has also been working occasionally as an international consultant for UNDP, IDRC, the Kellogg Foundation, Friedrich Ebert Foundation and other international organizations, on ICTs and human development. Among other current activities, he is a board member of The Brazilian Interdisciplinary AIDS Association (Abia).