Information/Communications Rights as a New Environmentalism?

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Introduction

While there are many individually identifiable computerization movements (CMs), there is no over-arching computerization movement as such. Nor should we expect to find one, given the disparity of goals and values reflected among them. However, there are plenty of overlaps and potential connections among them that have so far been largely unexplored. The various CMs related to informational rights offer a promising starting point to look for the emergence of a broader, synthetic CM based on alliances between hitherto distinct movements.

A defining characteristic of computerization movements (CM), according to Kling and Iacono (1998), is their orientation to social reform. Some CMs go so far as to position the pursuit of particular, fundamental rights at the core of their ideologies. Prominent among these information rights-oriented computerization movements (IRCMs) are these three:

- community networking (and ICTs for development), which promotes universal access to and effective use of computers and information infrastructures to enhance local community-based economic and social development

- free/open source software (F/OSS), which advocates for multiple software ‘freedoms’ (to run, copy, distribute, study, change and improve the software) and promotes the use of free software over proprietary software

- informational privacy, which seeks to protect personal information and promote ‘informational self-determination’.

In each case there are movement advocates, both individuals and organizations, who ‘focus on computer-based systems as instruments to bring about a new social order.’ Among their driving ideological beliefs can be found the five beliefs — about the role and scope of computing in social reform, and the obstacles to its achievement — that characterize CMs (and counter-computerization movements (CCMs)).

1 The call for participation for this workshop names 34 CMs. “Workshop on Social Informatics: Extending the Contributions of Professor Rob Kling to the Analysis of Computerization Movements” July 15, 2004, p. 5.

2 This brief summary of purpose is taken from the description of the Free Software Movement (FSM) found in Elliott & Scacchi, (2004).

3 From the call for participation for this workshop, p. 3

4 In the case of the 5th belief (‘Perverse or undisciplined people are the main barriers to social reform through computing’), most of these movements would not regard individuals per se as the main barriers, but larger organizations or institutions, with their prominent leaders serving as proxies and symbolic targets (e.g. Bill Gates for Microsoft Corp. and George W. Bush, for the U.S. Government)

5 It should be noted that informational privacy is probably better characterized as a computerization counter-movement (CCM), as it is mainly oriented to resisting incursions of computerization promoted by others. The promotion of ‘privacy enhancing technologies (PETs)’ is in turn a counter example of this. It is often (increasingly?) the case that movements promoting a particular vision of computerization for social reform (i.e. a CM), are pitted against other CMs promoting different computerization goals or paths (i.e. can be characterized as CCMs). The point is not whether these are CMs or CCMs, but whether they fit the characteristics of social movements.
manifestos, recruiting members and allies, establishing advocacy organizations and tackling opponents. While often experiencing setbacks, they each legitimately claim some notable achievements.

But beyond these commonalities and a shared broad interest in ‘rights’, these CMs currently have remarkably little connection between them, and are isolated from each other in terms of their constituencies, methods, and conceptual underpinnings. This lack of connection risks fragmentation of effort, thereby undermining their effectiveness. Particularly when compared with social movements in other areas, including those similarly oriented to human and civil rights, these three CMs can at best be regarded as fledgling, in the sense that they have not mobilized broad public support nor, consequently, yet achieved a significant reforming influence on social institutions. One social movement that is notably more mature and successful in this respect is the environmental movement. Having coalesced earlier and sharing several striking commonalities with these IRCMs, the environmental movement offers a promising point of comparison and inspiration.

A measure of a CM’s maturity is the degree to which its core issues are relevant to the concerns of a diverse public and can offer practical, or at least promising, action strategies. This in turn garners popular attention and support, providing the basis for effective mobilization. In the case of the environmental movement, there are many people who over the past few decades have come to understand that such everyday activities as eating, breathing, drinking, cleaning, driving and so on are intimately and often problematically linked to each other, as well as with wider issues of the quality and sustainability of life on earth. A further achievement is that there is wide recognition of a more or less coherent program of recommended remedies by individuals, cities, corporations, governments, that even if not fully complied with, at least substantively inform debate.

People also conduct their affairs with and within an increasingly complex informational environment, constituted out of a widening range of media, symbol systems, and socio-material practices centuries in the making. Computerization has significantly intensified these interactions and (re-)raised a host of issues that confront people, overtly and subtly, on a daily basis. As millions of individuals now routinely go on-line, they encounter a web of inter-related challenges, such as expensive devices, inscrutable interfaces, flaky connections, viruses, spam, obnoxious pop-ups, unreliable and insecure operating systems, corrupted identities, inaccessible databases, unaccountable technical support staff, and an onslaught of sometimes questionable information. It requires skills, effort and resources to achieve and sustain a smoothly functional information/communication environment for all. The various CMs mentioned above collectively address most of these obstacles while each offers significant insights and distinctive programs directed towards achieve /accomplish the ideal, but from the point of view of the individual users, there is little obvious correlation between the various CM issues and their on-line experience. If rights oriented CMs are to engage the popular imagination in the way that the environmental movement has, they need much more than just greater publicity, there needs to be a clearer articulation of the ways in which these movements’ principles are related to each other and to the day-to-day experiences of the average computer user.
The primary aim of this paper is to investigate the potential for a greater alignment among these CMs, drawing specifically on the core precepts of environmentalism as conventionally understood. It will do this mainly by exploring the similarities (and differences) between the nascent information rights movement, as reflected in the public statements of prominent North American, European and international IRCM advocacy organizations, and the much more fully developed environmental movement. In keeping with the social informatics ideals, it strives to examine “new social phenomena that emerge as people use ICTs” and thereby achieve a “better understanding of the design, use, configuration, and/or consequences of ICTs such that they are more workable for people in organizations and society” (Kling, 1999, para.2).

The paper is structured as follows. The next section discusses the emergence of the environmental movement as a coming together of many disparate movements each with distinctive issues and a diversity of popular organizations, mobilizing means, strategies, and targets. It emphasizes the emergences of the unifying conception of the ‘environment’ as a shared commons vital for the sustenance of life, characterized by diverse, interdependent ecologies, and then explores how these concepts could be used by CMs. Each of the three IRCMs are discussed in turn, highlighting their historical, conceptual and ideological roots, identifying their differences as well as overlaps, and revealing the common threads shared with the environmental movement. The value of this analysis is illustrated by reviewing the on-line challenges raised above in light of environmental insights. The paper concludes with a sketch of recent developments towards a synthetic information/communications rights CM and the prospects for further integration.

The Rise of the Environmental Movement

While the roots of the environmental movement can be traced back several centuries, in North America it only became popularized after World War II, amidst an increasingly prosperous, well-educated and consumer-oriented society. The post-war higher standard of living increased people’s access to wilderness areas, and also equipped them with the resources and skills to protect their local environments. Environmental concerns became widespread in North America during the 1960s, and seem to have coalesced into a recognizable “movement” by the 1970s. But this social movement was and continues to be fragmentary, comprised of many groups of disparate composition, ideology, and aims. Despite this, however, the movement has had success in uniting towards common cause. Three broad strands of environmental concern are worth noting for their specific contributions to what would eventually become known as the environmental movement. The first of these is the wilderness movement, which came into prominence in the 1950s through the efforts of groups such as the Sierra Club, the Audubon Society, and the National Geographic Society. These groups lobbied to protect remote and spectacularly beautiful areas against industrial encroachment, in order to preserve them for aesthetic and recreational enjoyment. The post-war boom forced wilderness lovers to become more vocal in the defense of remote areas.

Communities all over North America were also moved to protect areas closer to
home, in an effort to conserve community assets. The campaign to protect wetlands is one example of this impulse, which succeeded in mobilizing a diverse range of interests, from scientists to hunters, towards a common cause. Whether they were interested in these lands for aesthetic, recreational, or functional reasons, citizens recognized them as a common good worthy of conserving. Attempts to ward off threats to common environmental assets were also manifested in community actions to halt large-scale intrusions such as dams, highways, and oil refineries. Environmental struggles were characterized as a local resistance to some “outside” force, such as a government agency or corporate industry. While more formal environmental organizations with regional or national agendas often supported these local actions, the sustaining drive of protection campaigns was an “accumulation of local grievances and thwarted hopes” (Hays, 2000, p. 320).

A third theme in the growing environmental movement of post-war North America was a concern with personal and community health. Advances in medicine and public health meant that the threat of bacterial diseases was much diminished, and citizens’ perspectives on health began to change, with an emphasis on healthy living, good nutrition and exercise. As personal and scientific evidence showing the link between environmental factors and human health mounted, individuals and communities began to mistrust industry and government spokespeople who de-emphasized the danger of such environmental threats as toxic waste dumps or chemical fertilizers. The “disconnect” between official explanations of environmental threats and the realities of personal experience resulted in an attitude of frustration among the general public, and a stance of self-reliance in matters of health. The natural food movement, influenced by the counter-cultural atmosphere of the 1960s, was one result of this attitude.

What unites these three broad areas of environmental concern is their grass-roots social and political drive: they were not typically tied to particular power groups or political parties. As well, the growing movement was deeply influenced by new scientific discoveries. The new fields of environmental science and ecology showed how seemingly separate problems (e.g. smog and human illness) could in fact be intimately related, and hugely popular books such as Rachel Carson’s *Silent Spring* created a public dialogue around these issues. The widening diffusion of the television meant that spectacular environmental disasters were delivered in full colour to living rooms across North America, eliciting wide support for local struggles and an awareness of environmental threats. Other protest movements of the 1960s and 70s, especially the peace movement, also shaped the environmental movement. Environmental concerns fit into larger pushes for social justice, and the activist belief that groups of ordinary citizens could and must push for change inspired both established and new environmental groups to adopt fresh strategies in their goal to protect the environmental commons.

Traditional groups such as the Sierra Club adopted new, more aggressive, strategies. In 1965, the Sierra Club launched its first lawsuit, and soon after founded the Sierra Club Legal Defense Fund, which continues to use the concept of “environmental rights” to wage high profile battles against big businesses implicated in wilderness

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6 More recently, social scientists, particularly in the technoscience studies tradition have also contributed, by challenging the presumptions of a nature/society dichotomy and pointing out the ways the deeply social character of ‘environment’ (see Latour, 2004)
destruction and pollution. Newer groups grew out of a frustration with traditional approaches and the activist political stance borrowed from the anti-war movement. These groups ranged from Greenpeace, which encouraged activists to “bear witness” and engage in non-violent resistance, to Earth First!, whose followers engaged in civil disobedience and illegal actions such as tree spiking. Although the actions of these protest generation groups often angered more conservative parts of the movement, by the late 1960s the younger group of environmentalists constituted the broad base of support for environmentalism, as well as some of its most influential spokespeople (Sale, 1993).

By the mid-1970s, although still fraught with internal tensions and preoccupied with divergent aims, the environmental movement had certainly achieved a much broader scope. Old conservationist concerns about the impact of human society on a particular wilderness area or species had widened to include a concern for the impact human actions had on the environment in general. The 1970s became the ‘decade of environmental legislation’ in North America, seeing laws passed on air pollution, water quality, and species protection. The U.S. Environmental Protection Act of 1969 required that all actions undertaken by a governmental agency in the United States undergo an Environmental Impact Assessment before proceeding. In 1972, the United Nations hosted a conference on the Human Environment, reflecting the realization that environmental issues were global in scope and required collective custodianship. The Stockholm Declaration that was adopted at the conference contains principles of environmental protection and development, as well as practical recommendations for their implementation. These legislative changes, although by no means complete victories, demonstrate the wide influence of the environmental movement and the general acceptance of the notion that the Earth represents a ‘public good’ that deserves protection. The current widespread acceptance and promotion (at least in principle, if not in practice) of environmental values in most sectors of the “developed” world, from individual waste reduction and sorting practices, to municipal recycling programs, to prominent international protocols, are certainly a testament to the movement’s force and scope.

Environment

In achieving this degree of coherence and popular appeal, the environmental movement has overcome some formidable obstacles. Notable among these is finding common cause among the wide range of individual movements (such as around wilderness protection, global warming, ozone depletion, endangered species, community composting, and even specific sites or tracts of land). In part, this diversity and fragmentation stemmed from the lack on obvious relationship among these. Contributing to their unification was the development of a discourse that helped people see the hitherto hidden interconnections and their implications for everyone. A key element of a unifying discourse is the concept of the ‘environment’ itself – loosely treated as ‘all the stuff that surrounds us and which we rely on for our basic activities.’ To say that it is potentially anything and everything of course makes it difficult to pin down its meaning in any particular context, but this very ambiguity likely well served the unifying of the various movements because they could all say they were fundamentally about the same thing that was so consequential for us all. The concept of a unified environment encouraged
individuals to see themselves as a part of an environmental community of interdependent parts, and to take a moral responsibility for the health of that community. As early environmentalist Aldo Leopold (1949) wrote, “the land ethic simply enlarges the boundaries of the community to include soils, waters, plants, and animals, collectively: the land” (p. 203).

The informational/computational analog to the natural environment is most simply termed ‘information environment’, i.e. those aspects of the general environment constituted out of the information artifacts and practices that we interact with in conducting our everyday affairs. Within this broad notion, it is useful to focus on a central aspect that has been treated analytically by various authors: the ‘information infrastructure.’ Bowker and Star (1999) note of this technical environment: “We hardly know what we have built. No one is in control of infrastructure; no one has the power centrally to change it. To the extent that we live in, on, and around this new infrastructure, it helps form the shape of our moral, scientific and esthetic choices” (p.319). Clement and Shade (2000) note that the information environment encompasses communications media both old and new, and emphasize that users of information have diverse needs and desires in relation to the information environment. Like the concept of the natural environment, the information infrastructure is a broad concept with broad implications for those who use it. Thus, it makes sense for individuals and communities of computer users to take an interest in, and some responsibility for, the health and development of this complex and always-evolving set of relationships and systems.

**Commons**

Another concept that has been useful for the mobilization of environmental ideals is the notion of the natural world as a common or public good. Common goods, as defined by economists, are competitive and non-excludable, while true public goods are both non-competitive and non-excludable. Environmentalists have defined most natural resources, such as forests or fish stocks, as common goods, while a smaller number of environmental assets, such as clean air, are seen as public goods. Seeing most of the natural world as a common yet consumable set of resources unites the environmental and the social, and resonates with some of the core values of mainstream environmentalism. The drive to establish national parks, the proliferation of legislation to protect water and air quality, and the signing of international protocols to curb pollution have all been helped along by a general commitment to the idea that air, water, and land are invaluable assets that communities benefit from and are responsible for, and that should not come under private ownership or control. This broad concept of public rights and responsibilities is an accessible entry point into the often complex and impenetrable world of scientific studies and gloomy environmental predictions. It has been used to great effect by environmental groups seeking to effect policy change, because it moves environmental concerns into the same policy arena as common goods such as public health and education, concepts which have long been able to mobilize a broad level of support among citizens.

ICTs, as environmental assets before them, are often described by CMs as common goods or resources. The concept is used by the CMs discussed in this paper in a
number of ways: to ensure participatory and transparent governance of the internet and other ICTs, to curb commercial intrusion into online ‘spaces’, to ensure equitable public access to new technologies, to distribute and use free software, and to preserve a common level of privacy for those who use ICTs. Those trying to curb the commercialization of ICTs stress that the transformative power of the internet and related technologies can only be realized if they are free from state and market control. The Association for Progressive Communication states of the development of the internet: “Today, as governments and businesses become more and more interested in ‘controlling’ the internet, we need to defend the internet as a secure and accessible space for social justice, campaigning and for promoting development” (APC, para.3). This drive to preserve public space online that will benefit large numbers of people resembles the push in the 1950s to establish national parks, and to protect land against commercial development.

Online advertising, media conglomeration, and expensive, opaque proprietary software become the virtual equivalents of toxic waste and polluting and greedy corporations. Big corporations are portrayed by CMs as selfish and shortsighted, concerned only with profit and not with the long-term benefit of computer users. The F/OSS movement has been especially vocal in its criticism of large software companies such as Microsoft. But although the concept of an informational commons has motivated activists in CMs, it has not yet mobilized broad public support for the protection of a public digital sphere. While national governments have made policy decisions to support public access to ICTs, ensuring access to meaningful electronic resources and tools free from corporate influence or control have been left largely up to individual efforts. However, each of the CMs discussed in this paper have something to gain from the commons analogy, and could gain strength for their causes by more explicitly aligning issues of common access and control of ICTs with other common good issues already widely supported by citizens and governments.

Ecology

The concept of an all-encompassing natural environment provided a discourse that helped motivate the nascent environmental movement. The conceptual framework introduced by ecology, however, offered a more precise way to document and understand the interconnections in the natural world. Numerous books on ecology, first scientific and then more popular, have had a huge impact on the environmental movement. The discipline of ecology, being the study of interactions between and among organisms and their environment, has shown that these interactions are ubiquitous and important for the continued health of the planet. The discoveries of ecologists were useful for those working towards progressive environmental change. An ecological approach to the environment resonated with the growing popular awareness that seemingly disparate phenomena, like pollution and cancer, were in fact inextricably linked. In her influential 1962 book *Silent Spring*, Rachel Carson pointed to the disastrous and unintended effects of insecticides on the larger community of animals and humans, and suggested that these poisons be renamed “biocides” to reflect their universally destructive nature. Ecology gave the environmental movement a new way of conceptualizing the relationships between elements of the natural world, as well as a new language and methodology to express its goals, thus lending to the movement the authority of science.
Since the initial, biological definition of ecology was put forward in the 1950s, the concept has been used to explain human, political, and economic interactions. CMs have also used the ecology model to explain and examine relationships between people and ICTs in “information ecologies.” Nardi and O’Day (1999) define information ecologies as systems of “people, practices, values and technologies in a particular local environment” (p.49). Community networking advocates have framed access to the internet in an ecological manner, focusing not just on basic connectivity but on “effective use” (Gurstein, 2003), which encompasses the wide range of social and political dimensions of access. The F/OSS movement has stressed that seemingly “invisible” parts of the technological milieu, such as software, actually have a huge impact on people’s ability to participate in culture and to exercise their rights to free speech and movement. Unlike proprietary software, F/OSS gives full control of the technology to its users, providing they have the necessary skills to exercise this control. Giving computer users more control over the technological environment is also a preoccupation of the informational privacy movement, which tries to educate users about how personal information is collected and shared online by governments and corporations. The group Privacy International warns: “As consumers engage in routine online transactions, they leave behind a trail of personal details, often without any idea that they are doing so. Much of this information is routinely captured in computer logs” (Privacy International, para.1). The Electronic Frontier Foundation has launched a “Privacy Now!” campaign to educate computer users to the implications of their online behaviour. This campaign is similar to efforts such as recycling or energy-reduction campaigns, which have been successful at educating citizens about the implications of their activities in the natural environment. Just because human bodies are not left behind when entering the information environment does not mean that online actions and interactions cannot have very real and serious consequences. The language of ecology has helped CMs to animate and draw attention to the complex systems that underlie computer use. It has also pointed to the intimate connections between the diverse parts of the information environment, from fibre-optic networks to software programs to individual behaviours such as online shopping. This integrative approach could be useful for diverse CMs trying to craft a more cohesive and coherent movement based on areas of mutual and related concern.

Considering these achievements of the environmental movement, and with the themes of environment, ecology and commons in mind, we turn to exploring the developmental trajectories of three rights oriented CMs.

Community Networking

Community networking and its closely allied research area of community informatics “encompass the social appropriation of information and communication technologies for local benefit, self determination and social inclusion in decision making” (CIRN, 2005). With its local geographic orientation, community networking as a movement traces its North American origins to the early 1970’s with experiments in public access to on-line community notice boards via terminals linked to time sharing
mainframe computers\textsuperscript{7}. In the 1980’s with the emergence of personal computers, the focus was on dialup access to locally oriented bulletin board systems (BBS), which flourished in the early 1990s as Freenets, precursors to commercial internet service providers\textsuperscript{8}. At its peak, these services in aggregate claimed well over half a million users. More recently, as the cost of basic internet access has dropped in urban centres, Freenets have declined and the emphasis has shifted to accessing broadband and WiFi networks, especially in rural and remote areas, and to developing locally relevant community content\textsuperscript{9}.

Governments have assisted with community networking, but principally as a way to stimulate electronic commerce and e-government services. In the US, the Technology Opportunities Program (TOP) and in Canada, Community Assistance Programs (CAP) have each invested several hundred million dollars since the mid 1990’s, but are now terminated (TOP) or in decline (CAP).

The focus of attention in community networking is widening to include initiatives in the third world, where access to ICTs are actively promoted by a disparate array of advocates (UN agencies, foundations, NGOs) as a way to enhance greater north-south connection and stimulate local socio-economic development. Among the organizations encouraging this trend are NGOs such as the Association for Progressive Communications (APC) and its member organizations\textsuperscript{10}, FEMNET, SIGINIS, Panos and others. Many are linked through the World Forum on Community Networking. Under the banner of ICT4D (ICTs for Development), these civil society organizations played a visible role in the 2003 UN World Summit on the Information Society (WSIS).

The core value concept that has animated this movement is that of universal access to the information/communication infrastructure and the pool of human knowledge. In part this is regarded as a social justice issue of promoting equity (e.g. bridging ‘digital divides’) but also it is about building and maintaining an ‘information commons’ or public informational sphere (Schuler, 1996).

Adopting a multi-layered ‘access rainbow’ model for this infrastructure helps conceptualize such universal access as involving much more that basic connectivity and computer facilities to encompass the more social and political dimensions of ICT adoption (Clement and Shade, 2000). Complementing the focus on these broad concepts of interoperable networks and coherent policy frameworks, attention is also paid to the local ecologies of systems implementation and information practices that are essential for achieving effective use (Gurstein, 2003).

While the software deployed in these various initiatives has typically been a varied mix of proprietary, shared and ‘homegrown’ software, as the sophistication and

\textsuperscript{7} see Community Memory in Berkeley and Vancouver, and Santa Monica’s Public Electronic Network (PEN).
\textsuperscript{8} see National Public Telecomputing Network (NPTN), \url{http://www.nptn.org/}
\textsuperscript{9} see Association for Community Networking, \url{http://www.afcn.org/}
\textsuperscript{10} see SangoNet, in South Africa
range of community oriented applications expands, there is growing interest in standardizing on free/open source software. Surman and Reilly (2003) note that besides the practical advantages to open source software, including the lack of licensing fees and the opportunities for collaborative development, community-minded groups can benefit from the open source culture: “as the values of open source begin to be imagined and implemented beyond software, there is a great opportunity for those within civil society to explore new models of collaboration, resource sharing and political actions. This opportunity should be embraced” (p. 6). This impulse among community groups provides the potential for stronger connections to the next CM we discuss.

**Free/Open Source Software (F/OSS)**

Of the three IRCMs we examine here, F/OSS is the one that most visibly exemplifies a CM. Its central advocacy organization, the Free Software Foundation and its founder, Richard Stallman in particular, promote an ambitious mission of social reform, based on the “development of new free software---and on making that software into a coherent system which can eliminate the need to use proprietary software” (Stallman cited in Elliot and Scacchi, 2004, p.8). Central to their definition of free software are a set of freedoms encoded in the General Public License (GPL) and based explicitly on the ideals of the American Revolution of 1776 (Elliot and Scacchi, 2004). The FSF famously defines ‘free software’ as:

> [A] matter of liberty, not price. To understand the concept, you should think of ‘free’ as in ‘free speech,’ not as in ‘free beer.’ Free software is a matter of the users’ freedom to run, copy, distribute, study, change and improve the software. More precisely, it refers to four kinds of freedom, for the users of the software:

- The freedom to run the program, for any purpose (freedom 0).
- The freedom to study how the program works, and adapt it to your needs (freedom 1). Access to the source code is a precondition for this.
- The freedom to redistribute copies so you can help your neighbor (freedom 2).
- The freedom to improve the program, and release your improvements to the public, so that the whole community benefits (freedom 3). Access to the source code is a precondition for this.

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11 There are some important, and contested, distinctions between the concepts of ‘free software’ and ‘open source’, but except where specifically noted, for the purposes of this paper they will be treated as a single movement using the term commonly applied – free/open source software (F/OSS). It is also referred to as FLOSS (Free/libre Open source software, a term that emphasises the libre meaning of the word "free" rather than the "free of charge" or gratis and is less anglocentric. http://en.wikipedia.org/wiki/FLOSS On the distinctions between the Free Software and the Open Software movements, from an FSM perspective, see: http://www.gnu.org/philosophy/free-software-for-freedom.html. This paper leans more to the free software side because it reveals its movement characteristics more clearly. There are also clear connections to the Free Speech Movement, founded 20 years earlier. See the Free Speech Movement Archives, which in the fall of 2004 celebrated the 40th anniversary of the movement. http://www.fsm-a.org/
A program is free software if users have all of these freedoms. 
(http://www.gnu.org/philosophy/free-sw.html)

In a deliberate and significant way, free and open source software constitutes a software commons from which everyone (with the appropriate skills and technical means) can draw. The vitality of the commons, in terms of the quality and range of the software, draws principally on the community of 'hackers’ dedicated to F/OSS principles (Elliott & Scacchi, 2004), as well as the legal power of the GPL, a key provision of which requires derivative creations to be similarly licensed under the GPL. Analysis of F/OSS production as a form of social organization suggests that it offers a powerful alternative model to conventional modes of software production (Castells, 2005).

An important tension resides within this model, since much of the energy behind building and sustaining the commons comes from the purity and meritocratic elitism of ‘hacker culture’. This tends to exclude those who are not software experts and potentially means that software is less likely to be built for applications where there is little peer encouragement (e.g. health, primary education).

However, this has not yet emerged as a major limiting factor in its dramatic growth. In the past few years the F/OSS movement has achieved some remarkable gains, particularly as GNU/Linux is beginning to challenge the dominance of the Microsoft Windows operating system. Its public profile is rising on news stories of its apparent superiority over proprietary software in key performance areas. Major computer industry firms, notably IBM, promote business models built on F/OSS, while a growing number of national and state governments around the world (e.g. Korea, Brazil) are standardizing on F/OSS products or including them in their procurement policies. Penguin Days, intended to “to bring together open source developers and technology support staff for nonprofits” contribute to the spread of F/OSS in the civil society sector, where cost factors and ideological commitments favour such alternatives (Penguin Days, 2004, para.2).

F/OSS is also providing inspiration to non-software economic production systems based on ‘peer-production’ (Benkler, 2001) as well as broader culturally and politically oriented movements of ‘free culture’ (Lessig, 2004). The relationship between F/OSS and the community networking movement is so far rather uni-directional. On the one hand, F/OSS generally assumes and relies on people already having access to digital technologies and the skills to use them. Relatively little attempt has been made to create interfaces highly accessible to those not already adept, nor to develop applications outside the domain of the interests of the F/OSS ‘inner circle’. On the other hand, community networking advocates are increasingly building on F/OSS infrastructures and developing the applications that are oriented to easy and effective use.

In F/OSS, ‘conspicuous contribution’ (Neice, 2000) is celebrated much more that the protection of personal information protection. It is therefore not surprising that there is currently even less connection between it and the informational privacy movement than between it and community networking groups. It is to the privacy movement that we now turn.
Informational Privacy

The informational rights movement shares with F/OSS a strong and fundamental commitment to the ideal of personal ‘freedom’. While the frequently cited core conception of privacy as the ‘right to be left alone’ is more than a century old (Warren and Brandeis, 1890), the modern privacy movement dates from the 1960s when advocates brought the growth of massive computerized data banks of personal information to public, policy and academic attention. Allan Westin’s books, Privacy and Freedom (1967) and Databanks and a Free Society (Westin and Baker, 1972) make this rights ideal explicit and provide the seminal definition of informational privacy as "... the claim of individuals, groups, or institutions to determine for themselves when, how, and to what extent information about them is communicated to others" (Westin, 1967, p.487)\(^\text{12}\).

In important respects the privacy movement enjoyed an early and resounding success. The five data protection principles in the Code of Fair Information Practices formulated by Westin and others in 1973 were expanded to eight in the Organization of Economic Cooperation and Development’s (OECD) "Guidelines on the Protection of Privacy and Transborder Flows of Personal Data" (1980) and now underpin virtually all the national data protection legislation worldwide. Modeled on their environmental forerunners, privacy impact assessments (PIAs) are also becoming required in various jurisdictions (Clarke, 2004).

The privacy movement is also characterized by some quite effective advocacy organizations, mainly at the national level. Most notable are Privacy International, based in London, and the Electronic Privacy Information Centre (EPIC) which grew out of Computer Professionals for Social Responsibility (CPSR) and is now based in Washington DC. These two organizations frequently bring media attention to breaking issues of privacy, identity and surveillance, while annually co-producing one of the most comprehensive and authoritative reports in the field, the Privacy and Human Rights survey\(^\text{13}\).

A third indication of movement success is the widespread popular recognition in North America and Europe of the importance of personal privacy and the contemporary threats to it. This is shown in the consistently high and growing levels of concern reported in recurring public opinion surveys dating back to the 1970s. This trend continues as people go on-line, as revealed in the recent AOL/Roper Starch Worldwide Adult 2000 Cyberstudy (see Figure 1).

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\(^{12}\) This is now referred to as “informational self-determination”, a term first used by the West German Federal Constitutional Court.

\(^{13}\) The 7th annual Privacy and Human Rights survey, published by Privacy International & the US based Electronic Privacy Information Center (EPIC) reviews the state of privacy in sixty countries and warns that invasions of privacy across the world has increased significantly in the past twelve months. The 800 page report is available free of charge at http://www.privacyinternational.org/survey/phr2004
However, these apparent successes are belied by studies of people’s actual practices (Solove, 2001), the growing invasions into personal privacy documented in the annual Privacy and Human Rights reports (EPIC/PI 2004), and the great difficulty that the advocacy organizations have in mobilizing public support around anything other than dramatic public ‘scandals’.

Part of these difficulties can be attributed to the conception of privacy as principally an individual concern – quite understandable given the explicit language about ‘personal information’ and ‘the right to be left alone’. As Regan (2002) notes, when privacy protection is treated as an individual calculation ‘people are less likely to make choices that protect their privacy unless these choices are relatively easy, obvious and low-cost” (p. 401). This leaves data hungry organizations with a free hand to invade privacy with relative impunity, even when they offer ‘opt-out’ consent provisions. As an alternative, she suggests that “viewing the issue of online privacy as a common pool resource provides a [more helpful] entry point for defining the problem and crafting policy solutions” (p. 402). In keeping with the environmental notion of a shared commons, treating privacy as a public good can point the way out of the mutually mistrustful surveillance cycle. Just as people have accepted the idea that waste and toxins which apparently disappear into the environment come back later to harm us individually and collectively through invisible webs of ecological interaction, so too there is a potential for an informational ecology awareness to develop to the point that people will take personal and political steps to better manage the personal information commons.  

A very different approach is taken by Brin (1999), in The Transparent Society. Brin contrasts the “reflex response” of many privacy advocates against his preferred concept of “reciprocal transparency.” Brin argues that most privacy advocates have a “reflex response” when faced with privacy concerns, where they
A Nascent Over-Arching Information/Communications Rights Social Movement?

Beyond their obvious orientation to computerization, these three CMs all share a focus on human rights issues. However, so far they pursue these in quite disparate ways. In this respect, they are similar to advocacy organizations in the early stages of the environmental movement, working in relative isolation from each other. The underlying issues of these CMs – universal access, intellectual freedom, and privacy respectively – are of course not confined to computerization, but are long standing issues that each have pre-existing movements associated with them. This suggests that one way to enhance their effectiveness would be to make linkages with other, non-computerized human rights movements such as those pursuing civil liberties, community media, and global justice. The spread of the internet is in turn bringing these previously non-computerization movements into greater contact with CMs, allowing the two sets of groups to organize around common goals. One such alliance is the Platform for Communication Rights, which is a grouping of NGOs formed in 1996 that uses a common strategy relating to communication and democratization to “work for the Right to Communication to be recognized and guaranteed as fundamental to securing Human Rights founded on principles of genuine participation, social justice, plurality and diversity and which reflect gender, cultural and regional perspectives” (CRIS, para.2). In November 2001 the Platform initiated the Communication Rights in the Information Society (CRIS) campaign, whose purpose is to ensure that the issues of communication rights and the democratization of the information infrastructure are kept on the agenda of the UN World Summit on the Information Society (WSIS). The CRIS campaign’s inclusive goals, which incorporate many of the aspirations of the CMs discussed in this paper, and the fact that it has been able to mobilize support from a broad range of NGOs, foundations, and individuals, all point to the potentially fruitful results of coalitions between computerization movements and existing human rights/social justice movements.

A complementary approach (and not a mutually exclusive one) is for CMs to draw lessons from the environmental movement. It succeeded in bringing a wide range of disparate advocacy efforts into a more unified force for social reform in part by developing an integrative conceptual frame centred on the idea of a shared geo-biological environment that was vital for sustaining life and which needed collective as well as individual custodianship.

The three CMs discussed in this paper currently face a similar challenge. The recurrence through each of these CMs of such environmental movement-inspired ideas as reactively shut down flows of information when faced with privacy concerns. He argues that this solution conflicts fundamentally with human nature, and is an unrealistic response in the face of the inventiveness and amorality of the market. Instead, Brin advocates for “reciprocal transparency” which opens data flows wider: “For instance, if some company wishes to collect data on consumers across America, let it do so only on condition that the top one hundred officers in the firm must post exactly the same information about themselves and all their family members on an accessible Web site” (1999, p.81). By giving all members of society equal access to information and the tools of surveillance and control, Brin sketches out a libertarian approach that instead of trying to protect individual privacy, instead does away with the whole project. In this rather different way, he shares with Regan the idea that a collective, commons approach is the way out of the current shortcoming of the privacy debate.
the information commons and information ecologies, as well as the broader information environment and ‘infosphere’\(^{15}\) strongly suggest that there is a conceptual basis at least for the emergence of an over-aching computerization movement around a shared concern for information and communications rights that can draw from the rich experience of the environmental movement. In order to attract wide support among average computer users, CMs need to clearly show how they are working to address the challenges and problems associated with daily life using ICTs, including expensive software, identity theft, spam, and oppressive internet service providers. Currently, community networking, F/OSS, and privacy movements are addressing these issues, but not in a way that unites these diverse concerns and demonstrates that it is necessary to see them as interconnected parts of a larger environment.

By borrowing from the discourse of the environmental movement, CMs can more fully illuminate the concept of an information environment, full of interconnected and complex systems of actors. The conceptual and discursive tools offered by the environmental movement can serve to illuminate the hitherto shadowy corners of the infosphere and bring computerization issues into a broader public arena. Environmental metaphors are especially useful when discussing the information environment, because they put what can often seem a vague and intangible set of virtual actors and systems into a familiar perspective. By framing the infosphere as an embodied ecological environment, CMs can more easily articulate a set of rights and responsibilities for the citizens who operate within it, and can work together to develop and protect an information environment that is widely accessible and responsive to the needs and aspirations of computer users – a challenging prospect, to be sure. As groups concerned with computerization issues start to coalesce into larger advocacy campaigns such as CRIS, and attempt to have an impact on high-level policy discussions such as the WSIS, the environmental movement could provide a fruitful vein of comparison to reflect upon future strategies and aims of CMs.

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\(^{15}\) Infosphere, should be distinguished from the ‘noosphere’ that refers to the "sphere of human thought", but like it, extends and transforms the geosphere and biosphere. [http://en.wikipedia.org/wiki/Noosphere](http://en.wikipedia.org/wiki/Noosphere).
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