CANADIAN CENTRE FOR POLICY ALTERNATIVES-SK

Saskatchewan Notes

Volume 2 Issue 5 — February 2003

Free Software: Ideal for Saskatchewan

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Governments around the world are adopting Free Software to meet their information technology (IT) needs and reduce costs to citizens...Given the Government's current need for innovative strategies, the merit of Free Software as a policy option needs to be fully explored.

Governments around the world are adopting Free Software to meet their information technology (IT) needs and reduce costs to citizens. This comes at a time when the Government of Saskatchewan is considering significant changes in its own IT policies, most recently highlighted by its proposal to outsource government IT management to EDS, a Texas-based firm. Given the Government's current need for innovative strategies, the merit of Free Software as a policy option needs to be fully explored.

Free Software, also known as Open Source Software, has been gaining popular recognition as a proven cost-saver. A recent study by Netproject in the United Kingdom suggests the cost of software ownership can be cut by up to 65 per cent through switching to Linux, an Open Source operating system (Turner 2002). Large firms such as Sun, IBM, Hewlett-Packard Co., and Oracle Corp. now provide customer support and services for Linux (Marron 2002). In 2001 alone, IBM invested $1 Billion (U.S.) in Open Source projects (Berger 2002). Increasing use of Free Software by governments, however, is also a global phenomenon with in excess of 66 government Free Software initiatives in over 24 countries (Lohr 2002). These include:

- A recent report commissioned by the European Union recommends that EU administrations adopt the Open Source model of software sharing (Schmitz and Castiaux 2002).
- The French Agency for e-Government (ATICA) has been actively promoting Free Software and the enforcement of open standards in government ("EuroLinux Alliance" 2001).
- The German government recently signed a major computer contract with IBM using Linux versus the Windows operating system ("IBM signs"2002).

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- The Department of Information Technology in India is encouraging Linux use by its central government and academic institutions (Nagaraj 2002).
- The Peruvian government is considering a bill mandating Free Software in public administration (Nuñez 2002).
- Beijing's municipal government has announced it will be adopting Linux (Mingjuan 2002).

Free Software is software that is copyrighted and then licensed with the needs of software users in mind. One important example of such a license is the GNU General Public License (GPL) developed by Richard Stallman. By using such a license, the person developing Free Software guarantees the freedom to copy, study, modify, and redistribute the computer source code to all other users. In exchange, the Free Software license requires that the copied or modified software when distributed to others must also carry the same free license. Those who redistribute the software are not able to apply any additional restrictions on users but, as a condition of use, must guarantee the same freedoms they themselves were guaranteed (Free Software Foundation 2001). This creates a set of "inalienable rights" for users (Stallman 2001). Violations of the terms of the license are legally enforceable through copyright law. A firm or person that develops software can still charge a fee for it, but is unable to earn the revenues from the economic monopoly ordinarily associated with copyright. As such, Free Software firms typically focus on providing development, services, and support for customers with only small charges, if any, for the software itself.

Much Free Software has originally been and continues to be generated by users. Those who both produce and use software have a natural interest in co-operative sharing arrangements that minimize financial and legal costs while maximizing user control. The Free Software model allows software developers to barter computer code knowing that the free license guarantees access to any future improvements by others (see Kaminski 1999). This generates a fruitful environment for knowledge sharing. This is starkly in contrast with the prevailing corporate culture that guards and protects research, restricting potential innovation.

The benefits of governments adopting Free Software are clear when compared to the significant economic and political disadvantages of propriety software.

The benefits of governments adopting Free Software are clear when compared to the significant economic and political disadvantages of proprietary software. When governments adopt proprietary software the firm holding the contract knows that a switch to a rival IT firm will be costly, disruptive, and time consuming and in many cases migration may not be possible. Knowing that their customers are virtually captive, these firms charge high premiums and have little incentive to provide flexible, custom-built solutions. Governments may also become beholden to a single firm's service expertise, undermining competitive tendering or the development of in-house competencies. Partnering with a single firm almost always results in poor support and ignores the long-term tax burden on citizens due to private monopolies. Free Software licensing, in contrast, creates a free market for support and maintenance of software, which is the best way to ensure high quality support at low cost to taxpayers. It allows for competitive tendering among firms both in software development and service while providing a single, stable architecture. The Taiwanese government, for example, sees Free Software as a way of allowing competition in their local software industry, which would otherwise be dominated by a few foreign companies (Berger 2002).

When a private firm develops software under contract with government, copyright for this material is frequently retained by the firm rather than citizens (see, for example, the federal government's *Policy on Title to Intellectual Property Arising Under Crown Procurement Contracts*; Government of Canada, 2000a; Government of Canada, 2000b: s. 3.7). As such, when governments renew software licenses, they can end up paying for intellectual property already paid for through citizen tax dollars. In contrast, when software is developed in-house by public servants, the copyright remains with citizens and their governments *(Copyright Act*, s. 12, 13(3), R.S.C. 1985, c. C-42). This is also true of patents (Section 3, *Public Servants Inventions Act*, R.S.C. 1985, c. P-32). Governments placing their knowledge under a Free Software license create a win-win situation as private software firms and citizens in general are able to make use of the software in addition to governments.

Governments around the world are also shifting to Free Software as a form of economic development. Saskatchewan is a net knowledge importer, a characteristic it shares with the rest of Canada and most developing countries. Unlike money spent within the public service, outsourcing work to large IT firms frequently means exporting citizen wealth and employment to other jurisdictions. Where the software produced is proprietary, Saskatchewan effectively subsidizes the firms outside Saskatchewan and further erodes the competitiveness of local firms. Many developing countries, such as Thailand and the Philippines, view Free Software as a way of reducing the export of IT funds to companies in the United States (Berger 2002). By building up its own Free Software base, India expects to provide low cost IT solutions for its citizenry and economic enterprises (Nagaraj, 2002).

In addition to costing more, proprietary software is also less effective in meeting citizen outcomes. Governments are unable to tailor software in-house without access to the computer source code. They must rely on the goodwill of proprietary software firms to develop the changes they need. There is little incentive for this, however, since it is the mass production of software in a global market that makes it profitable. A monoculture of software designed for dominant users develops, frequently made up of private firms seeking to maximize profit for shareholders. Governments, on the other hand, have much wider goals tied to improving citizen quality of life. At the same time they are confronted with unique needs tied to their history and geography. As such, governments increasingly find their needs imperfectly addressed by proprietary software. Free Software, however, allows for software solutions that are highly adaptive and flexible in achieving citizen outcomes. It also allows governments to share their software co-operatively with other governments facing similar problems. Governments also have special security and confidentiality needs not met using proprietary software. They are increasingly reluctant to use it in areas such as law enforcement, security, and defense because of the possibility of "spy-code" in programs that can allow unwarranted third party access (Nagaraj 2002; "IBM signs" 2002; Nuñez 2002). Guarding against this is extremely difficult where source code is not available for study and modification by users.

Free Software has also demonstrated higher performance and stability than popular proprietary software ("IBM signs"2002; see Wheeler 2002: section 3). The superior ability of Free Software to overcome and resist bugs is attributed to the fact that it is scrutinized and improved continually by a wide community of users. The reliability of Free Software means it is ideally suited to providing citizens with free, long-term access to public information stored as a permanent public record (Nuñez 2002). This can easily be done using the open and standard formats associated with Free Software ("EuroLinux Alliance" 2001).

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While the superior performance and cost effectiveness of Free Software are appealing to governments, it might be objected that changeover costs would be too high given the need to switch operating systems, reconfigure networks, and train people. Yet whether one is dealing with proprietary software or Free Software, rapid changes in IT require ongoing upgrading of systems and employee training. Furthermore, many Free Software programs, particularly desktop software, mirror those of popular proprietary versions making transitions relatively easy for employees. With Free Software, governments are free to upgrade based on their own needs, time schedules, and budgets rather than those set by proprietary software firms simply wanting to sell the latest version of their software. Finally, through its dealings with EDS and other IT firms, it is clear that the Government of Saskatchewan is already incurring costs in exploring its IT options. As such, transition and retraining costs are inevitable whether the Government chooses to adopt a Free Software strategy or not.

Unlike many issues facing the Government of Saskatchewan, in this case there is a surprisingly clear path to meet citizen IT objectives, minimize costs, and maximize performance. Pursuing a Free Software strategy would allow Saskatchewan to once again show global leadership in the area of public policy and place Saskatchewan on the cutting edge of global IT development. ❖

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