

Open for Change

In my travels across the United States and around the world, I hear countless stories of schools that are stretching their technology budgets in an effort to educate their students. I am proud to have met so many resourceful, ingenious technology educators. I am inspired by their dedication. Although their budgets may fluctuate, what doesn't change is their commitment to providing a quality technology education to prepare young people for the world beyond the classroom.

Geography and political borders are losing their relevance. Our work and ideas travel around the world in an instant. The young people of today will be competing in a world that is very different from the one we know. They will be competing and collaborating on a global scale. They will need technology resources that not only give them the education to pursue a career but also give them the tools to create and to build on the creation of others.

Many educational institutions have already discovered that open source provides a high-quality, low-cost alternative. The open source model has its origins in the traditions of learning institutions around the world. It is built around the premise that technology is transparent, allowing the best ideas to win in an open, collaborative environment, as well as the idea that open source development should contribute to a body of knowledge that others can learn from and build on. It is a philosophy that celebrates sharing. One that gives back more than it takes.

Open source allows for the ability to see the code that makes up the software. I believe this creates an opportunity for a deeper level of learning. Students can

understand how the software is constructed, the decisions that were made in its development, the problems that had to be solved. They can understand more than just how the software works from the surface.

Open source also allows a greater ability to localize content—to make technology both universal and local at the same time, giving developers the opportunity to translate and tune the software for their local language and needs. This is critical for learning institutions around the world, particularly those in developing countries. Access should not be limited to only those who can afford proprietary software.

One of the most exciting endeavors I've seen in many years is the One Laptop Per Child project (see <<http://www.laptop.org>>). One Laptop is built around a big dream: To put laptops directly into the hands of millions of children around the world. To give them access to the wealth of information, educational applications, and teaching resources available online today. And to give them a tool to help them communicate, create, and share. One Laptop, a non-profit organization led by Nicholas Negroponte, is designed to create extremely low-cost laptop computers that can be powered without external sources of electricity and that run free, open source software. Red Hat is proud to be a key contributor to the project.

In creating this laptop, the One Laptop developers had to consider significant design challenges: How to provide power and network access in areas of the world where electricity may not exist. How to ensure that the device can run on as little power as a human can generate manually. How to create a display screen that can be

viewed in direct sunlight. How to design a device that can withstand some of the world's harshest climates. How to produce a laptop at such a low cost that even the most impoverished nations can afford it. And how to design the entire device and the software that runs on it so that the laptop can be put directly into the hands of children. This is no small task.

In the past year, I've seen the One Laptop organization and the Red Hat development team work hard to overcome these challenges, conducting the design process in an open, collaborative way. For electricity, the laptops will use human power, whether by hand cranks or pull cords. They'll use mesh networks to connect to one another and to the Internet. The laptop will also be specially designed to be protected from heavy use and harsh elements like heat and sand and to reduce the need for service. There are no moving parts inside the laptop, and the case will be sealed when closed.

To encourage curiosity and open learning, the system itself must be open so that children can see the technology work from the inside. The laptop's software will be open source. It will run an operating system that is Linux-based, a slimmer version of the Fedora operating system. It will also feature an entirely new interface and desktop suite designed for children.

I believe the One Laptop Per Child project has the power to level traditional barriers to technology access. So no matter where in the world children are—even in the poorest and remotest areas, where the basic necessities are scarce—every child has the opportunity to connect, learn, and participate in a global society in ways that were once impossible. More than ever, I

believe the philosophy of open source is changing the world.

Yet with this global interconnectivity comes a new problem faced by our society and our schools. We now have to work to keep open other sources of content: music, text, images, video, even ideas. At Red Hat, we believe that a key part of our mission as a company is to strengthen the social fabric through the democratization of content. To encourage an environment where the work we create is free from conditions of artificial control. An environment where individuals can access global sources of information, bypassing the



Illustration by Paul Watson, © 2007

traditional gatekeepers. And we believe that everyone should be free to use materials to communicate and create.

The advance of technology in the last ten years has given our society a special opportunity—the opportunity to rebuild the collaborative social structures that we have begun to lose in our communities. But instead of simply rebuilding what we came to accept before, we need to build a new social fabric and to build it in a defining way. One that connects people as neighbors even though oceans may separate them. One that unites people with like interests yet ignores artificial barriers such as race, religion, power, and money. One that generates and nurtures great ideas, no matter where they originate.

This past summer, Red Hat partnered with North Carolina State University to

host a technology camp for middle-school students: Red Hat High. Fifty-two students came from seven North Carolina counties to learn about creativity, collaboration, and open source technology. The goal was to reach groups traditionally underrepresented in technology fields. Three out of four students were African-American, and nearly half were female. Students were nominated by their teachers, who recognized them as creative students interested in technology. Students chose one of four areas to study: audio, video, 3D animation, and Web design. The software used was free and open source. We wanted to

introduce the principles of open source to a new generation and the possibility of future careers in technology to teenagers who may not have otherwise considered such careers.

The lessons Red Hat has learned about the power of collaboration can now translate beyond building software. It is time for us to take our process and share it with the world. To change lives by teaching people how to build and connect ideas in the way that we in the open source movement have learned to do. As in software code, when content is open, all of us can learn from it, build on it, and use it to create. It is time to embrace those who seek to share ideas.

Educational institutions are founded on the transfer of knowledge. Educators understand that great ideas can change

the world. But when ideas are restricted by a web of intellectual copyright laws, learning is also restricted. We are no longer standing on the shoulders of giants. Instead we are having to rediscover and reinvent. These are the challenges we face in a world where technology allows the ability to build global communities at such a rapid pace.

Historically, educational institutions have been shining examples of environments that put learning first. For example, the MIT OpenCourseWare (OCW) project provides free access to MIT's course materials for educators, students, and anyone who wants to learn. As of May 2006, the project had published the materials from 1,400 courses, with plans to make virtually all of MIT's undergraduate and graduate courses available by 2008. The project not only encourages emerging countries around the world to use these materials but also encourages other institutions to contribute. It's a philosophy built on sharing, growing, and collaborating. Once again, knowledge builds on knowledge.

One needs only to look at resources like *Wikipedia* to appreciate the tremendous amount of information that can be collected and shared when everyone is allowed to contribute. When we are free to develop new content in an open way, that's when knowledge will progress as it never has before. At Red Hat, we want to promote a culture of sharing rather than one of ownership.

Classrooms are filled with students who share and learn from each other. How would the human condition change if millions of young people around the world, regardless of geography or technical resources, were free to do the same thing on a global scale? If millions could share and build on each other's ideas, collaborate in an open way, learn what truly unites us all?

We believe that Red Hat and the open source community can play an important role in developing the tools for and promoting the means of collaboration. I am honored that our company has been able to serve educational institutions and contribute to the open source software that is used in schools.



Matthew J. Szulik is Chairman, CEO, and President of Red Hat.