Balancing freedom and safety on the internet

JEREMIAH FORD looks at some of the issues surrounding how much the internet should be policed when it comes to personal and national security

The computer and the internet have been taken out of the "tech" corner and have evolved into a serious tool with serious issues associated with it. The internet is increasingly becoming a great part of our daily life. This is growing so fast and affecting so many people that governments are taking a much closer look at what is being done on the internet.

It is now possible to hack into and control pacemakers for the human heart over the internet. While this was actually discovered in 2008, it did not make many headlines until 2010.

At the end of this summer, technology websites and other media reported how a computer virus infecting an air-traffic control computer may have downed Spanair flight 5022.

Another recent example is the Stuxnet virus. This is an advanced piece of computer programming, heavily disguised, and made with one very specific target: the Bushehr nuclear power plant in Iran.

These examples are serious threats. With threats to human life surfacing, the question of how much people should be allowed to do what they want on the internet presents itself.

Historically, the internet (which has actually been around for over 40 years) was a "free-for-all" of sorts. It was supposed to be like "international waters" where laws quickly become grey when data crosses borders.

Voice of America (VOA) hosted a live panel titled "Online Freedom vs. National Security: Finding a Middle Ground" on October 13th. This forum, coupled with live webcast, had a variety of speakers from both media and government.

VOA was founded in 1942, and describes itself as "an international multimedia service funded by the US government". Today they are very active in both free speech in the media, as well as topics in the world of current technology.

The forum covered a lot of ground on the subject of online freedom versus national security: from computer criminals taking advantage of people, to governments spying on their own citizens, to international threats such as the Stuxnet worm.

The panellists all have expertise in technology, but from different sides of the playing field – government, research scientist, technology journalist. They all pretty much agree on the goal, despite their different points of view on how to get there. This gives us an optimistic view of how things may go in the future regarding both internet security as well as people's rights.

Doug Bernard, the head of the Digital Frontier project at VOA, hosted the event. Towards the beginning of the forum, he explained why they decided to hold it: to discuss how a middle ground must be found while dealing with these issues – a balance between both human rights and battling computer crimes or computer-based terrorism.

The speakers got right to business, even during the introductions. Greg Nojiem wanted to share with the audience just how vulnerable we as internet users really are: vulnerable not only to criminals,

but to governments as well. He was quick to point out how surveillance laws were about 40 years out of date and really have no bearing on computer technology. He said there was no legislation even written to protect data from mobile phone transmissions.

Martin Libicki, senior management scientist of the RAND Corporation, pointed out how international surveillance holes may actually be exploitable by computer criminals. He also explained how certain organisations were considering banning infected computers from the internet and how it is really not the users' fault that they were given vulnerable products that are susceptible to malware.

Other guests were Ambassador Philip Verveer, US coor-

> **Internet users are vulnerable not only to criminals but to governments as well**

dinator for international communications and information policy, Nancy Scola, associate editor for techPresident.com, and Richard McNally, the FBI
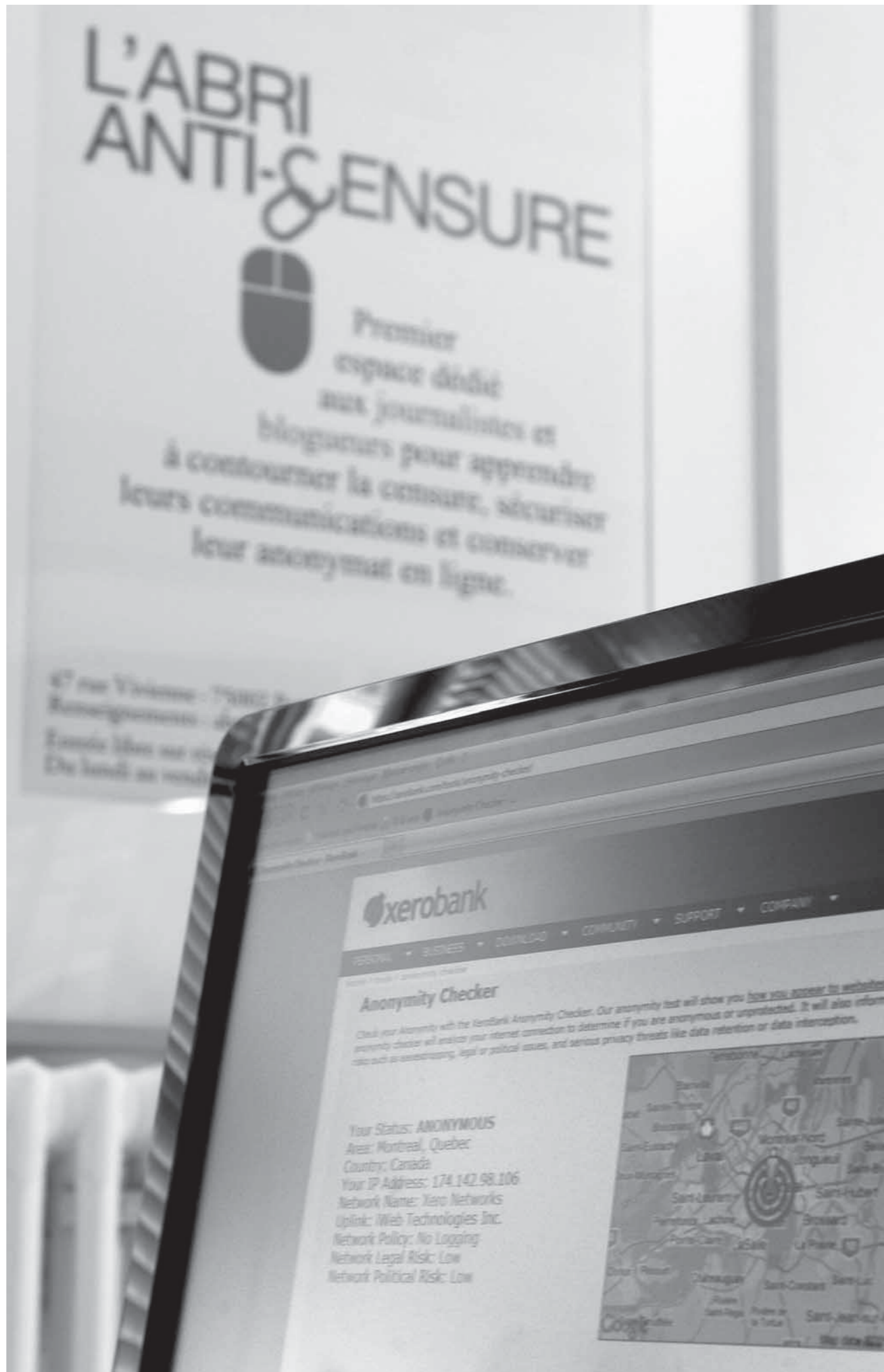
section chief for counterterrorism and counterintelligence. Ambassador Verveer presented a sobering thought: criminals with technology too advanced, such as heavy encryption, would make it too difficult to fight computer crimes – an argument similar to the idea of criminals having better guns than police.

In recent months, computers and the internet have become a heavy political issue

– the internet blockades of Iran, the Green Dam software in China, the Stuxnet worm. Now some governments are actively banning certain technologies.

As for governments being involved in what we do on the net and how we do it, there is always the question of "how much say should any government have?"

Internetfreedom.org, for example, suggests that users

should decide what they see on the internet. Others, such as the Chinese Communist Party, make it clear that they want complete control over the internet and to take control away from the users.

We got to see an example of these differing points of view during the 2009 communications lock-down in Iran during their election. The Iranian government wanted no information being leaked outside

of the country, but Iranian citizens bypassed the media block using software called FreeGate.

In the US, there have been ongoing discussions about "net neutrality" – the idea that the internet customer should have access to any content they want and not be controlled by any other entity. For the time being, at least, internet use is not heavily limited in most countries.

ANTI-CENSORSHIP: A computer at the headquarters of Paris-based media rights watchdog Reporters sans Frontieres (Reporters Without Borders) displays a virtual 'anti-censorship shelter' to protect bloggers around the world from repressive authorities

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2012 doomsday calculation could be wrong, says professor

ALEX JOHNSTON
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THE 2012 "doomsday" date supposedly predicted by the Mayan calendar could be wrong, a professor at the University of California, Santa Barbara has said.

The calendar, which was created thousands of years ago by the Mayan civilization in Central America, stops at the Gregorian date of December 12th, 2012. Many people have speculated that catastrophic

> **The date could be inaccurate by 50 to 100 years**

events could occur when the date comes.

Professor Gerardo Aldana, an associate professor of Chicana and Chicano Studies at UC Santa Barbara, said that the date could be inaccurate by 50 to 100 years or even more.

Aldana says that scholars have used the fixed numerical value called the GMT constant to figure out the correlation between the Mayan and Gregorian dates. He says that the method has never been proven conclusively.

Aldana has examined the evidence behind the GMT in detail. His findings could challenge the accepted Gregorian dates and are published in the new book *Calendars and Years II: Astronomy and Time in the Ancient and Medieval World*.

"A few scholars have stood up and said, 'No, the GMT is wrong'," said Aldana in a news release. "But in my opinion, what they've done is try to provide alternatives without looking at why the GMT is wrong in the first place."

In his research, Aldana attempts to reconstruct the astronomical practices of the ancient Mayan people.

"One of the principal complications is that there are really so few scholars who know the astronomy, the epigraphy, and the archaeology," he said.

"Because there are so few people who are working on that, you get people who don't see the full scope of the problem. And because they don't see the full scope, they buy things they otherwise wouldn't. It's a fun problem."

Google Sky lets users map the universe

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ASTRONOMY buffs will have more to explore, and even contribute, as space camera Slooh teams up with Google. The collaborative effort will add a new layer to Google Sky with a live astronomy feature.

Like Google Earth, which allows internet users to explore any location on the planet in increasingly greater detail, Google Sky explores space. Since 2007, Google Sky has incorporated images from the Hubble telescope, NASA, and the Sloan Digital Sky Survey. With the help of Slooh, Google Sky can now allow users to explore the galaxy in real time. Users can even participate in helping map the universe.

Slooh is an online space camera that streams live views of space through a worldwide network of mountaintop robotic telescopes stationed in the Canary Islands, Chile, and Australia. It utilises a unique, instant imaging technology that makes celestial objects appear like Polaroid images over the course of 5-minute sessions.

New Slooh space camera pictures will combine with

the more than 35,000 images of celestial objects taken by Slooh members that have already been integrated into Google Earth to give the feature an increasingly richer experience.

While the "map of the universe" application is available to anyone with an internet connection, Slooh gives members, regardless of skill level, the ability to control the telescopes and join featured missions to various parts of the galaxy. Members can also capture instant digital photos, label them, and automatically upload them to Google Earth to share with the world.

Individuals of any age can contribute to the project. Slooh is promoting Space Camera Launch cards for the 8 and older set that initiate live online missions to outer space. Each pack of cards come with launch codes specific to a particular category of celestial objects and the opportunity to photograph them with Slooh's Space Camera. After entering the launch code, card users take control of the telescope and join 5-minute missions into space accompanied by audio commentary.

In addition to space photos, Google will also feature broadcasts of Slooh's live

> **Slooh gives members the ability to control the telescopes and join featured missions**

feed of celestial events such as lunar eclipses, comets, and supernova discoveries. Nationally renowned US astronomer Bob Berman will provide commentary for much of the Slooh coverage.

"Slooh's 'map the universe' layer brings a powerful educational component to Google Earth," said Noel Gorelick, technical lead for Sky in Google Earth, in a statement for the collaboration. "Not only does the ability to explore space live bring a totally new active dimension to the experience, but also gives Google users a deeper awareness of the positions of a myriad of celestial

objects and the birth of galaxies in our solar system."

Slooh has already provided live coverage of several important celestial events, including the October 2009 coverage of NASA's LCROSS crash of a space ship into the

moon and a recent supernova discovery. With a greater number of eyes on the sky from Google's global community contributing to the project, the team hopes to capture even more celestial phenomena.

Google Sky now lets users contribute to an online map of the universe with the Slooh space camera

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Telepathic computing making a steady rise

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Thought-controlled technolgoy is slowly making its way into the market and could allow users to control just about any piece of technology using only their minds.

The two main companies working on this are Emotiv – which already has such a device on the market in the United States for $299 (£190) – and Canada-based InteraXon. The systems work by detecting the electrical signals the brain emits and translating them into different commands that are readable by a computer.

According to a description of the technology on InteraXon's website, the brain "generates electrical patterns that resonate outside your head", and the signals can then be detected by devices known as electroencephalographs (EEG).

"The EEG can't read your thoughts, just your brain's overall pattern of activity, like how relaxed or alert you are," states the InteraXon website. "With practice you can learn to manipulate your brainwave pattern, like flexing a muscle you've never used before."

The EEG systems from

InteraXon and Emotiv measure these brainwaves and convert variations of the signals into commands that can be understood by computers.

"We allow people to control things with their brainwaves," says InteraXon COO

> **'You can learn to manipulate your brainwave pattern, like flexing a muscle'**

Trevor Coleman in a promotional video for the system. "We can take this system anywhere and give people, for the first time, the opportunity to control something with their mind – to have that line between their mind and the world erased."

It's not as if the user thinks "move left" and a computer-controlled character moves to the left, however. The user will need to learn to control the different thoughts the EEGs can recognise, then

associate the signals with a computer command.

The Emotiv EPOC headset, which is already on the market, has just 14 different sensors capable of picking up commands. The device resembles a standard headset but with several small sensors branching out of it.

"It uses a set of sensors to tune into electric signals produced by the brain to detect player thoughts, feelings, and expressions and connects wirelessly to most PCs," says a description of the device on Emotiv's website.

Emotiv is offering several applications for the headset and has an App Store where users can access games and programs made to work with the device. It's also being marketed for researchers and advertisers to collect real-time feedback on how people react to different products or materials.

The Emotiv EPOC headset allows users to control specific computer commands using only their thoughts