



SDA EVENING DEBATE REPORT

CYBER SECURITY: A TRANSATLANTIC PERSPECTIVE



A Security & Defence Agenda Report

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SECURITY & DEFENCE AGENDA

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Evening Debate – Monday, March 22nd, 2010

Bibliothèque Solvay, 18:00-19:30

On both sides of the Atlantic, policymakers are increasingly concerned that cyber-attacks represent a serious threat. The 2007 "cyberwar" against Estonia has been mirrored in the U.S. by repeated penetrations of secure government and military networks. But how closely are they working together to improve their defences? What steps are being taken by NATO and the EU to coordinate national cyber-defences, and what scope is there for private-public partner-ships? In light of the transatlantic tensions created by some counter-terrorism measures, what is the outlook for a common agenda on cyber security?

Programme

17:30 Registration

18:00-19:30 Evening debate

19:30 Cocktail Reception

Speakers

Stewart Baker, Distinguished Visiting Fellow, Center for Strategic and International Studies (CSIS)

Greg Day, Director of Security Strategy, EMEA, McAfee

Ágnes Hankiss, Member of the Committee on Civil Liberties, Justice and Home Affairs, Member of the Subcommittee on Security and Defence, European Parliament

Udo Helmbrecht, Executive Director, European Network and Information Security Agency (ENISA)

Jamie Shea, Director for Policy & Planning, Private Office of the Secretary General, NATO

Moderator

Giles Merritt, Director, Security & Defence Agenda



INTRODUCTION

Cyber-warfare is now firmly on the international security agenda.

The dangers range from denial of service attacks that cripple computer networks, to espionage incursions enabling foreign powers to download confidential documents, or the risk that hackers can gain long-distance control over critical infrastructure like power grids, water supply or even weapons systems.

Many in the military now view cyber-space as a new theatre of operations alongside land, sea, air and space, a trend that was underscored by the creation last year of the new U.S. Cyber Command to coordinate America's computer network defences.

Fifty-four percent of IT and security experts taking part in an international survey last year reported suffering largescale denial of service attacks by a high level adversary such as organized crime, terrorists or nation state.

A similar proportion said they had been subjected to "stealthy infiltration" by high-level hackers and 59 percent said they believed foreign governments had been involved in such attacks or infiltrations, according to the survey by the California-based computer security company McAfee which interviewed 600 experts from 14 countries around the world.

At a debate on the issue organized by the Security Defence Agenda on Monday, 22nd March, senior NATO official Jamie Shea said the North Atlantic alliance suffered around 100 cyber incidents everyday.

Georgia's ambassador to NATO Grigol Mgalobishvili told the conference his country had come under a cyber attack coordinated with land, air and sea operations during the 2008 war with Russia, which disrupted banking and communications at a crucial time in the conflict.

Other real world examples include the 2007 attacks which swamped Estonian banks, media and government sites during a dispute between the Baltic republic and Russia over the re-location of World War II memorial in Tallinn; and the so-called GhostNet cyber-espionage operation which infiltrated the computers of embassies and government offices of dozens of countries and the Tibetan exile movement close to the Dalai Lama.

Such incidents reflect not only the real and present danger posed by cyber threats but also the difficulty in unearthing the origin of such attacks. Although suspicion fell on Russian sources for the Estonia attacks and Chinese links to GhostNet, no conclusive evidence has been found to connect the incidents to government agen-

more reliant on investment"

"We are becoming ever More than 200 officials from NATO and the EU, politicians, technology but we are national diplomats, security not necessarily keeping experts and journalists atpace with our security tended the SDA conference under the theme Cyber Security: a transatlantic perspective.

They heard from McAfee's director of security strategy Greg Day; Stewart Baker, Distinguished Visiting Fellow at the Center for Strategic and International Studies (CSIS) who co-authored the McAfee survey; Hungarian MEP Agnes Hankiss; Ronald de Bruin, head of strategy and public affairs at the European Network and Information Security Agency; and Shea, who serves as director for policy and planning in the private office of NATO's secretary general.

Issues covered ranged from how to define the nature of cyber-warfare and the extent of the risks, to the need for greater coordination both among European nations and between Europe and the United States; and the need



and effectiveness of international "cyber-arms control" agreements.

DEFINING THE THREAT

Baker, former assistant secretary at the U.S. Department of Homeland Security, opened the debate contending that the lines between political cyber attacks and criminal activity have been blurred. For example, he pointed out that the techniques of the GhostNet incursion which seemed to be politically inspired espionage, were quickly imitated by criminal operators to steal from businesses.

The same theme was taken up by Day. "There is actually a dichotomy of which is leading which: is cyber crime leading innovation, that's then being used for cyber warfare, or is cyber warfare leading innovation that's then being picked up for cyber crime?"

Day said MacAfee's research paper last year was an attempt to pin down what exactly the nature of the cyber warfare threat.

"There isn't actually a consistent common definition as to what is cyber warfare." He said they looked at a framework to define it including the sophistication of attacks,

consistent common cyber warfare"

the source (i.e.potential of state "There isn't actually a sponsorship), or the sustainability and consequences of an definition as to what is attack on critical infrastructures and concluded that a lot of the potential targets of even politi-

cally motivated cyber attacks were actually in the private sector – such as power grids, banks or water utilities.

A key problem is that those private companies are perhaps focused on keeping their business safe from attackers, but seldom looking at the bigger picture of their role in a potential attack on state security. There is a need for financial support and legislation as well as education to improve the private sector's understanding of the threat and define the response, Day said.

"What should we worry about more? That one, very specific targeted attack, or the potential 40 million compromised systems that somebody could either rent part of,

connected, everybody makes themselves more vulnerable"

or go buy or build for a col-"As everybody needs to be laborative attack, whether against a private sector organisation, i.e. something that's perceived to be part of our national infrastruc-

ture, or to be used for specific warfare in the future," Day concluded.

NATO's Jamie Shea pointed out that the ever-growing use of software was creating more and more portals for attackers to gain access. He said the military was increasingly using off-the-shelf software and the Internet.

"As everybody needs to be connected, everybody makes themselves more vulnerable," he warned. However, he recalled that 90 percent of computer penetration continues to be with criminal rather than political or strategic intent.

Much of the political use involves states using "cyber warfare against their own people rather than against others," Shea said, pointing to Iranian government efforts to crack down on the opposition's use of social networks like Twitter to communicate. "Cyber warfare is becoming part of a domestic political struggle, but there is strategic use as well. About 120 countries are now estimated to either have or be in the process of developing offensive cyber attack systems," Shea said. "Strategists are now talking about Cyber as being the 5th domain after space, after sea, after land, after air."



THE EXTENT OF THE THREAT

Early in the debate, SDA Director **Giles Merritt** asked if future wars would be cyber based "geek-vs.-geek" conflicts fought out by cyber warriors operating keyboards far from traditional frontlines. His comments sparked a sometimes intense discussion on the extent of the cyber threat and whether cyber attacks will replace physical threats or merely be a prelude or sideshow to war in the real world.

Shea asked whether "a cyber attack henceforth would play the same role in initiating hostilities between states that air campaigns played in the 20th century" by softening up adversaries for a military offensive.

"Strategists are still out on this fascinating question as to whether in the future, wars will be wholly won or wholly lost in cyberspace, or whether cyber intelligence will give one side or another an initial advantage, which they may or may not be able to exploit, after which, we'll go back to the usual ways of war fought with weapons that cause physical destruction, rather than simply mass disruption of systems," said the NATO official.

Looking at the range of areas where cyber warfare was already being used, he pointed to the fact that Iraqi insurgents were able to buy a system called SkyGrabber of the internet which briefly enabled them to monitor communications from U.S. drones, until the Pentagon shut them down. He said there was speculation in the defence community that the Israelis successfully planted a bug in Syrian air defence that they were then able to activate, which allowed their air force to attack a nuclear installation under construction a few years ago.

"Cyber attacks are the perfect illustration of asymmetric warfare. It achieves the maximum impact, for the minimum expenditure and the attacker can quickly hide his tracks and even try to blame innocent parties," Shea said. "Entry level is very easy and cheap ... a single hacker can paralyse an entire air traffic control system."

He revealed that NATO was the target of about 100 cyber incidents a day. "In a funny way it's a good thing. We're challenged all the time, and we are therefore constantly improving our awareness of the threat and our ability to respond."

In one of the most controversial statements of the evening, Shea sought to put the threat into context, by stressing that the risk from the weapons of mass destruction remains more serious than that from cyber attacks, regardless of its ability to cause mass disruption of the systems on which modern life has come to depend.

"A pre-emptive nuclear strike would be decisive. What we've learned from cyber attacks is that they are very effective for about 36 hours after which, we're on to them ... cyber attacks may not have the same kind of impact, at least in military terms as the blitzkrieg bolt from the blue that we've seen earlier," he argued.

"If we had to do without computers altogether in order to be safe from attack, we would go back, not to the Stone Age, which would have been to the consequences of a nuclear war, but back to the 1960s. Life wasn't that bad in the sixties, we got by without computers."

In the question and answer session, **Elly Plooij-Van Gorsel**, an advisor to the Dutch Ministry of Foreign Affairs and former Member of the European Parliament asked Shea how he imagined that the people of 2010



"Entry level is very easy and cheap... a single hacker can paralyse an entire air traffic control system" would cope with the lack of computers, mobile phones and other modern communications.

"I think going back to the sixties is not really an option," added Baker.

Shea defended his comments, insisting that his point was that the issue should not be over-hyped. "It's still something that we can deal with quickly. The main disruption, in fact, is likely to be short lived," he said pointing out that even the mass attack on Estonia was brought under control within five days.

"I read in a think tank report the other day... the absurd remark that a cyber attack was the equivalent of an attack by a nuclear weapon; sorry, no! The use of a nuclear weapon would change civilization as we know it ... cyber attacks are not at that level."

De Bruin from ENISA said more study was needed to assess the extent of the problem. "How much money do we need to put in there? How big is the problem? It's very difficult to quantify ... but we need to prepare ourselves. We have to become more resilient."

Where once the problem was a computer nerd looking for five minutes of fame, the threat is now coming from organizations motivated by criminal or political designs, De Bruin said.

A sobering note was injected into the debate by Georgia's ambassador to NATO Grigol Mgalobishvili who said his country's banks and government web sites were subjected to a cyber attack coordinated with land, sea and air forces during the 2008 war with Russia.

"We have very strong suspicions as to who may be behind it," he said. "This was a critical time when we needed open communications with the outside world ... The Georgian case was a good example of how harmful it might be when it is very well coordinated with a military assault. We are now facing a completely new form of warfare."

EUROPE NEEDS TO DO MORE

The focus of the intervention by Hungarian MEP Ágnes Hankiss was the need for Europe to do more to build up cyber defences, including by increasing cooperation both among EU member nations and by working with the United States. It was a theme taken up by several other speakers.

"It is beyond debate that the US and EU must work together in this field and in order to do so more efficiently harmonising our approaches would make sense," said the European People's Party member who sits on the EP's Committee for Civil Liberties, Justice and Home Affairs and the Subcommittee on Security and Defence.

"It is beyond debate that the US and EU must work together in this field and in order to do so more efficiently harmonising our approaches would make sense"

De Bruin said Europe and the United States should plan a common exercise to plan for cyber emergencies and enhance cooperation, building on the Cyber Strom exercises carried out by the

US Department of Homeland Security and the EU's debut cyber war games scheduled in November.

"We share the same interests, to protect our economies



and our security," he told the conference. "Security is not a matter of competition, but a matter of cooperation."

Hankiss asserted that the EU's Central European members were more vigilant to the problems of cyber crime due to their recent experience within the Soviet empire. She complained that Russia continues to treat the region as within its sphere of influence and said the EU should make sure it is sufficiently protected from cyber attacks from the East.

Pointing out the use of the internet for recruiting terrorists, Hankiss referred to the link between extremist movements, terrorist acts and the internet. As an example she mentioned her home country, Hungary, where in recent years extreme-right groups have been using the internet for legitimisation purposes. Recruitment and propaganda through anonymous homepages were allegedly financed by the post-communist left.

In the light of the 2007 attacks on Estonia, Hankiss said NATO needed to have a debate on the extend to which a cyber assault on a country's critical infrastructure should be considered an attack under Article 5 of the alliance's founding treaty.

"It is time for discussing and agreeing on a broader term of solidarity which would apply to a cyber attack against a member state's vital civilian or cyber infrastructure," she said.

Pointing to the creation of the Pentagon's Cyber Command last year, Hankiss said the EU should give priority to prevention rather than traction. "We should not run after terrorists," she said.

"It is time for the European Union to reconsider its approach and unify its forces for the sake of the better se-

curity of all European citizens, that means Europol, the European Defence Agency, the Commission and all EU bodies dealing with cyber security ... a much more focused and coordinated approach is needed." She suggested the EU should launch an "action plan for cyber defence."

Baker recalled that the McAfee survey had indicated serious differences between the levels of engagement in tackling cyber crime by the various EU member states.

"The European Union members ranged from the very top or near the top to the very bottom," he said. The report showed Germany, Spain and Italy near the bottom of the table in terms of measures to improve cyber security, with only India scoring lower. Britain however was one of the best performers behind China and the United states. The range between the EU member states in the survey was greater than the differences between Russia, Brazil, Mexico and India.

"Europe as a whole has yet to arrive at a policy or to implement that policy in a coherent fashion," Baker cautioned.

De Bruin said the first pan-European exercise in November should help improve coordination within the EU. Member states unanimously approved a high level scenario to test the efficiency of cross-border communications links and procedures in times of emergency. In due time the EU and NATO should jointly organize a "transatlantic cyber storm" exercise.

While acknowledging the differences among member nations, De Bruin said there were notable examples of more advanced nations helping others. He cited Hungary's efforts to support the formation of a computer re-



sponse team in Bulgaria as an example.

Journalist Brooks Tigner, of Jane's Defence, put the

"We share the same economies and our security"

panel on the spot by asking precisely what the transatlantic interests, to protect our perspective is. "If it came to a major attack on cyber network it would require a common set of responses ... what are the two

sides doing?" He also asked if about cooperation between NATO and the European Union, asking if technicians from the two sides are working together "or are you relying on Belgacom?"

"There is no organised transatlantic response," Baker acknowledged.

"We need to learn from each other. We have to bear in mind that indeed security can lead to competitive advantage on the market, however ... we need cooperation," answered De Bruin. "We still have many years to go in order to reach where we want to be."

IS ENOUGH BEING INVESTED IN CYBER **DEFENCE?**

Merritt put the question to Greg Day of whether advanced countries spend enough on cyber-defences.

In reply the McAfee director said it was important to ascertain if the ever increasing number of detected incidents was a sign that the situation is getting worse, or if it showed that companies like his were getting better at detecting them.

"In my view more is better, we're doing the right thing,"

was his reply.

Referring to the McAfee report he said most of those surveyed believed that they had adequate levels of security. However, he warned that about a guarter of them had dropped their security investment by 15 percent or more in response to the economic crisis. He warned that there is a danger that more and more companies were investing in technology to reduce labour costs, but at the same time were cutting security budgets.

"We are becoming more reliant on technology but we're not necessarily keeping pace with our security investments," Day said.

The survey showed that the financial sector, which is heavily reliant on technology, comes under the most consistent attacks and as such has the highest level of investment to tackle the problem. In contrast companies in the water or sewage systems may consider themselves at lower risk and have invested less in protection. However they could be vulnerable to a cyber attack that could have devastating effects at a regional or national level.

"We have to understand the risk, not only to our own organizations but also in terms in terms of what does that mean to our nation."

To give an idea of the scale of the problem, he said McAfee last year found over 40 million public systems compromised by long distance takeover that turned them into zombies that can be used to launch attacks by their hidden controllers. Over 6,000 new threats are uncovered every day he said.

Jamie Shea said NATO should perhaps contemplate a move away from the Internet to move back to private enclosed systems with built-in firewalls.



HOW CAN THE EU AND NATO BUILD UP **DETERRENCE AND COUNTER-ATTACK** CAPACITY?

In nuclear or conventional conflict, the possibility of retaliation could act as a deterrence, but in the cyber world, it's difficult to even know who the enemy is, Shea said.

"A real problem is to rethink deterrence," he said. He questioned if the conventional response of blocking attacks, detecting the culprit and seeking diplomatic sanctions are sufficient. "Do we have to have some kind of retaliatory cyber-attack policy? Who initiates that? Do we have to have a war powers resolution from the US Congress for a government to formally initiate cyber retaliation? Do we leave that in the hands of the defence establishment to decide on alone? Can we retaliate only with equivalent cyber measures or can we use other types of military measures?"

Other issues to be resolved are when a civilian police response is more appropriate and when the military needs to get involved. Then, there is what Shea called the "Thomas Becket syndrome" where a state doesn't actually initiate an attack, but tacitly gives a private operator the go-ahead.

"In that scenario is a state legally responsible for the actions of its citizens who think they are operating on its behalf?" he asked.

"This is an area where the law ... is extremely murky," he concluded, suggesting that the SDA should bring experts together to look at a possible framework.

David Fouguet, director of the Asia-Europe project, asked about the role of preventive diplomacy with the idea of launching multilateral consultations or international cyber arms control agreements. The idea was given short shrift by Baker.

"We shouldn't do any of those things because we don't have any assured responses that scare anyone. We haven't promised a kinetic response and we wouldn't know where to send the cruise missiles if we were to promise one," he argued. "It would turn out to be a unilateral disarmament in a situation where we are virtually disarmed today."

the law... is extremely murky"

Greg Day pointed out that the "This is an area where Council of Europe already has a cyber crime convention but to date still very few nations have signed up to it.

Shea however expressed interest in the idea of international conventions, perhaps to commit nations to allow Interpol investigations on their territories if they are suspected of being used as the base for cyber attacks, or an agreement not to target civilian targets such as hospitals or water systems. "There are far more questions than answers in this area," he acknowledged.

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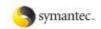


























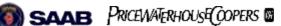
































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