



CCDCOE

# Cyberspace and the Changing Nature of Warfare

Kenneth Geers

[kenneth.geers@ccdcoe.org](mailto:kenneth.geers@ccdcoe.org)

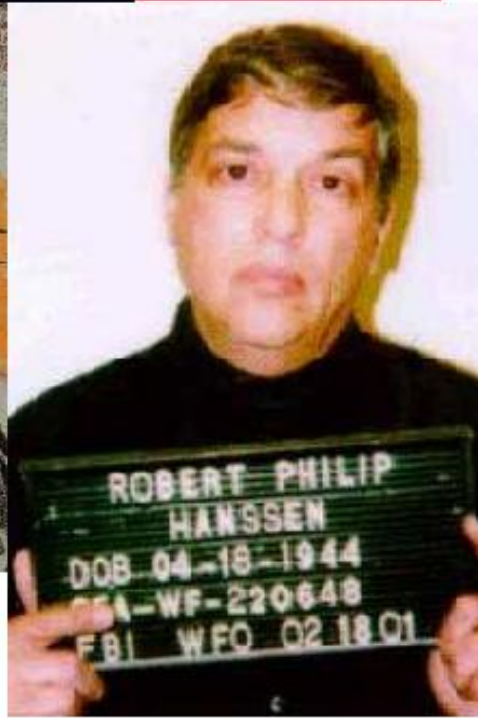
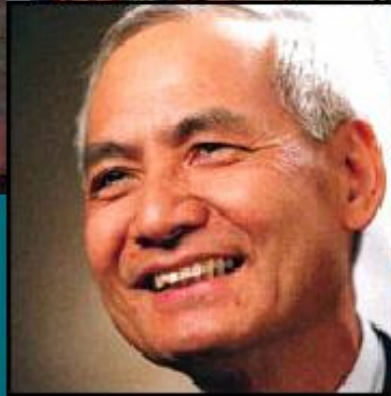
NATO Cooperative Cyber Defence  
Centre of Excellence Tallinn, Estonia



CCDCOE

# The New Espionage

- Universal media and intelligence gathering
  - If indefensible, normally not espionage
  - Binoculars, satellites, mass media, NMAP?
  - Metadata and reading between the lines
  - Territorial sovereignty not violated
  - International nature of Internet infrastructure





Internet: Swedish Hacker Accesses Embassy E-Mail Accounts



ALJAZEERA.NET

WATCH NOW  
FRONT PAGE

AFRICA  
AMERICAS

# 1 - De Chine, les « hackers rouges » ciblent les sites Internet de pays rivaux

NEWS ASIA-PACIFIC

NZ government computers 'hacked'

d of

## Hacking into the French state

SUNDAY, SEPTEMBER 9, 2007

A top French official has said  
latest country to fall victim to Chinese  
Internet piracy.

## Industrious Iranian Industrial Espionage in Germany

# TIMES ONLINE

China accused of hacking into heart of  
Merkel administration





CCDCOE

# Internal Security First

- The East German dilemma
- Computers to the Rescue
  - Processing power, databases, automated analysis, decryption, speech recognition, transcription, Artificial Intelligence, neural networks





CCDCOE

[www.youtube.com](http://www.youtube.com)



NATO Cooperative Cyber Defence  
Centre of Excellence [Tallinn, Estonia](http://www.nato.int/ccdc)



**CCDCOE**

**The New York Times**

# **Monks Are Silenced, and for Now, the Web Is, Too**

**October 4, 2007**

It was about as simple and uncomplicated as shooting demonstrators in the streets. Embarrassed by smuggled video and photographs that showed their people rising up against them, the generals who run Myanmar simply switched off the Internet.



# CCDCOE

## **REPORTERS WITHOUT BORDERS** FOR PRESS FREEDOM

### World Press Freedom Index 2006 - The rankings

|    |                    |     |                     |               |
|----|--------------------|-----|---------------------|---------------|
| 1  | <b>Finland</b>     |     |                     | <b>0,50</b>   |
| -  | <b>Iceland</b>     |     |                     | <b>0,50</b>   |
| -  | <b>Ireland</b>     |     |                     | <b>0,50</b>   |
| -  | <b>Netherlands</b> |     |                     | <b>0,50</b>   |
| 5  | <b>Czech Rep</b>   | 159 | <b>Nepal</b>        | <b>73,50</b>  |
| 6  | <b>Estonia</b>     | 160 | <b>Ethiopia</b>     | <b>75,00</b>  |
| -  | <b>Norway</b>      | 161 | <b>Saudi Arabia</b> | <b>76,00</b>  |
| 8  | <b>Slovakia</b>    | 162 | <b>Iran</b>         | <b>90,88</b>  |
| -  | <b>Switzerlan</b>  | 163 | <b>China</b>        | <b>94,00</b>  |
| 10 | <b>Hungary</b>     | 164 | <b>Burma</b>        | <b>94,75</b>  |
|    |                    | 165 | <b>Cuba</b>         | <b>95,00</b>  |
|    |                    | 166 | <b>Eritrea</b>      | <b>97,50</b>  |
|    |                    | 167 | <b>Turkmenistan</b> | <b>98,50</b>  |
|    |                    | 168 | <b>North Korea</b>  | <b>109,00</b> |

NATO Cooperative Cyber Defence  
Centre of Excellence [Tallinn, Estonia](#)



# Cyberwar and real war collide in Georgia

By **John Markoff**

Published: August 13, 2008

Weeks before bombs started falling on Georgia, a security researcher in suburban Massachusetts was watching an attack against the country in cyberspace.

Jose Nazario of Arbor Networks in Lexington noticed a stream of data directed at Georgian government sites with the message: "win+love+in+Rusia."

-  [E-Mail Article](#)
-  [Listen to Article](#)
-  [Printer-Friendly](#)
-  [3-Column Format](#)
-  [Translate](#)
-  [Share Article](#)



CCDCOE

# Strategy

1. The Internet is vulnerable to attack
2. High return on investment
3. Inadequacy of cyber defenses
4. Plausible deniability
5. Participation of non-state actors



CCDCOE

# Tactics

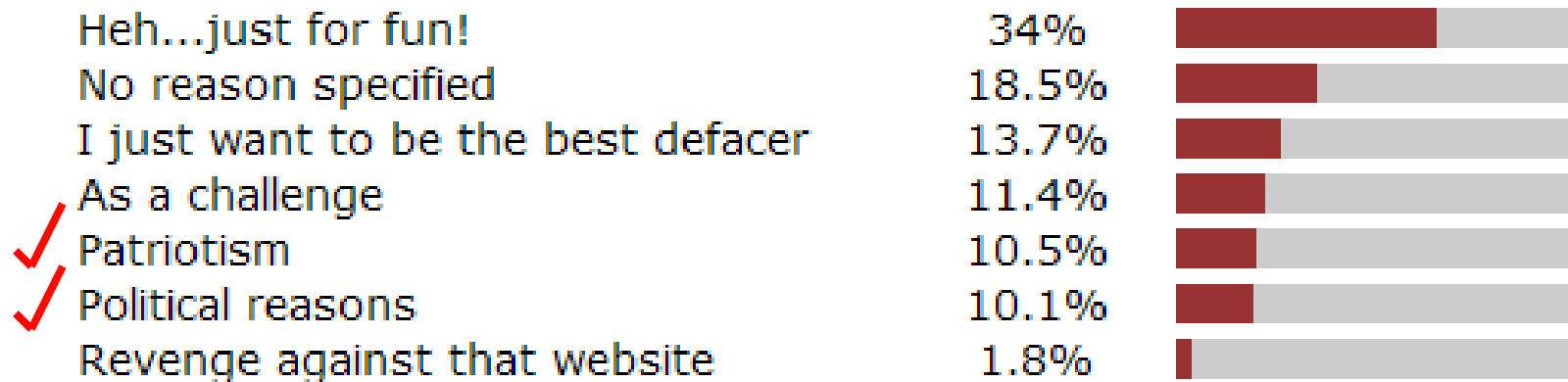
1. Espionage
2. Propaganda
3. Denial-of-Service (DoS)
4. Data modification
5. Infrastructure manipulation



CCDCOE

# Zone-H Stats

## By attack reason:









**CCDCOE**

## The Black Hand 2.0



NATO Cooperative Cyber Defence  
Centre of Excellence [Tallinn, Estonia](#)

**Ne Mutlu Turkum Diyene**



**Powered By BLOW-11**



Γ.Η.Σ.

GREEK HACKING SCENE



# The New York Times

July 1, 2008

## Hackers Tag Lithuanian Web Sites With Soviet Symbols

By SARA RHODIN

---

MOSCOW — Hackers attacked about 300 Web sites in [Lithuania](#) over the weekend, with Soviet symbols and anti-Lithuanian slogans, officials said Monday.







*The Chinese hackers advocate the freedom*

*We merely make the safe examination*

*Invades the Personnel*

*江南剑书生, FruNyIsE, Shnog, LnSang, HnBin, Ploiy, Xok*



# WIRED



TECH BIZ : IT 

## 'UFO Hacker' Tells What He Found

Nigel Watson  06.21.06

The search for proof of the existence of UFOs landed Gary McKinnon in a world of trouble.

After allegedly hacking into NASA websites -- where he says he found images of what looked like extraterrestrial spaceships -- the 40-year-old Briton faces extradition to the United States from his North London home. If convicted, McKinnon could receive a 70-year prison term and up to \$2 million in fines.



**Ministry of  
Health**



**and Child  
Welfare**

---

**Command Tribulation Ownz your b0x**

**Jesus loves you**



CCDCOE

ЧЕЧЕНСКАЯ РЕСПУБЛИКА ИЧКЕРИЯ  
**ЧЕЧЕНСКИЙ ПРЕСС**

Государственное информационное агентство

**RUSSIAN**

**TURKISH**

**ENGLISH**



[Professor U.Ezhiev's sons kidnapped](#)

On the night of 9 March 2003, in Staropromislov district of the Chechen capital Grozny, the Russian servicemen kidnapped two brothers Ezhaevs -

Ruslan and Arby Umalatovich. Certain details of the incident have become known today.

NATO Cooperative Cyber Defence  
Centre of Excellence [Tallinn, Estonia](#)



- Dirty Kuffar:

- “I do not know of any young Muslim who has not either seen or got this video. It is selling everywhere. Everyone I meet at the mosque is asking for it.”

- Saudi dissident





# CCDCOE



NATO Cooperative Cyber Defence  
Centre of Excellence Tallinn, Estonia





[www.hizbulla.org](http://www.hizbulla.org): October 25, 2000

**GROUP(I):**

[Click HERE and Help the Resistance\(I\).](#)

“You will attack...”

...these IPs:

You will attack :

<http://web.archive.org/web/20010226185153/http://www.israel.org/>

IP: 212.143.256.4

<http://web.archive.org/web/20010226185153/http://www.idf.il/>

IP: 212.143.256.4

<http://web.archive.org/web/20010226185153/http://resistance-defend.freesevers.com/<p>http://www.israel.com>

IP:63.194.226.226

<http://web.archive.org/web/20010226185153/http://www.wizel.com/>

IP: 194.90.202.20

and...

Bank of Israel

Tel Aviv Stock Exchange

Prime Minister's Office

[www.wizel.com](http://www.wizel.com)

**GROUP(II):**

[Click HERE and Help the Resistance\(II\).](#)

You Will Attack:

[www.bankisrael.gov.il](http://www.bankisrael.gov.il)

IP:161.58.232.244

[Tel Aviv Stock Exchange\(www.tase.co.il\)](http://www.tase.co.il)

IP:192.116.46.129

[www.pmo.gov.il\(Prime Ministry Office\)](http://www.pmo.gov.il)

IP:147.237.72.93

[www.wizel.com](http://www.wizel.com)



CCDCOE

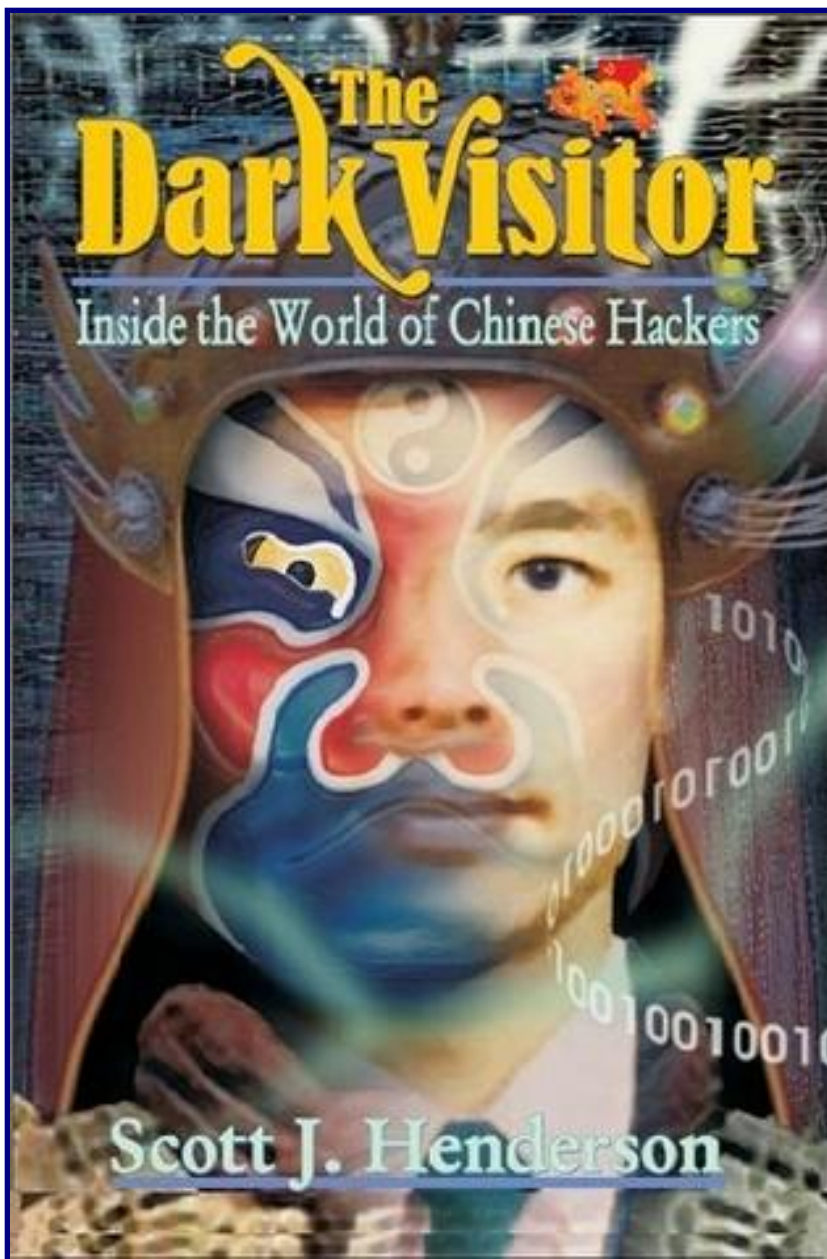
# Downed EP-3 on Hainan Island



NATO Cooperative Cyber Defence  
Centre of Excellence [Tallinn, Estonia](#)

# The Dark Visitor

Inside the World of Chinese Hackers



Scott J. Henderson





CCDCOE



NATO Cooperative Cyber Defence  
Centre of Excellence [Tallinn, Estonia](#)





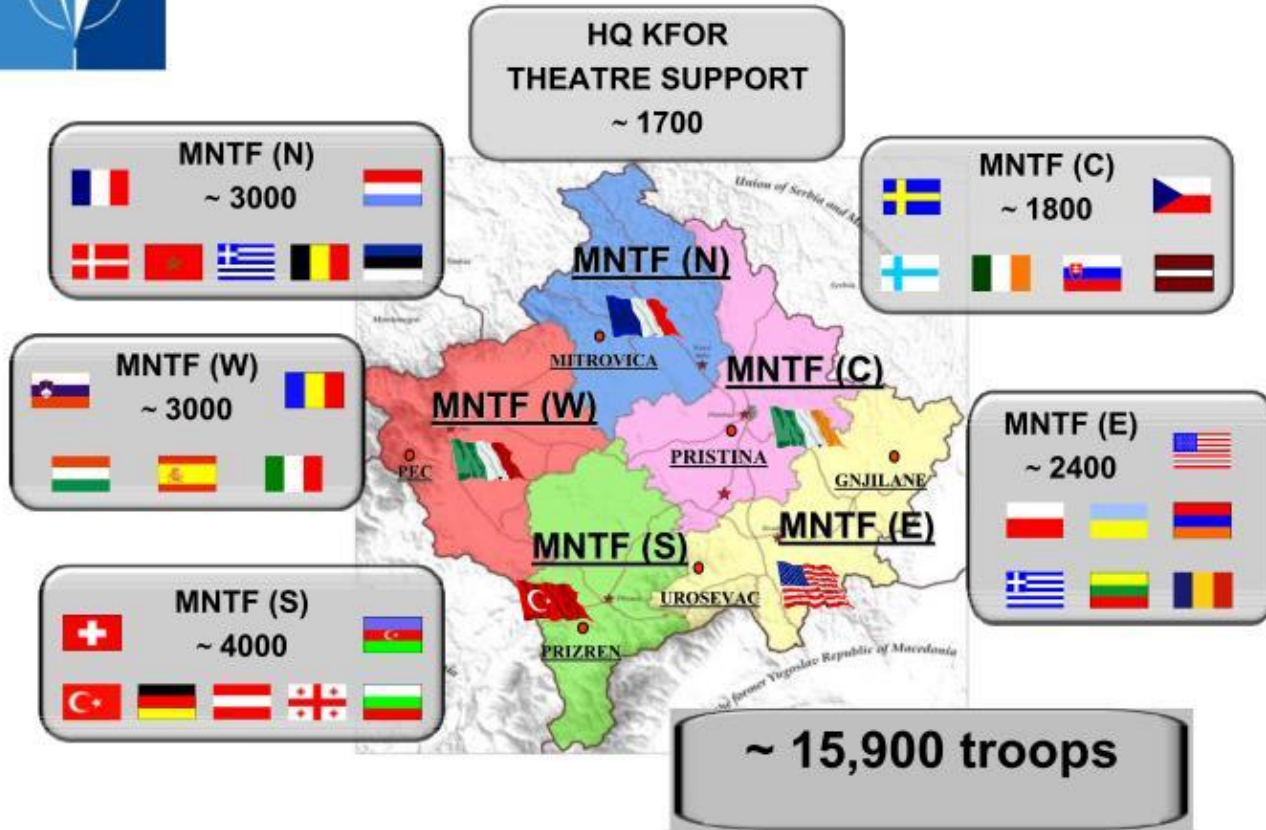
CCDCOE

# NATO: Dawn of Cyber

- 1999 Washington Summit (new “Strategic Concept”)
  - No mention of cyber
- 2002 Prague Summit:
  - “strengthen ... to defend against cyber attacks”
- 2004 Istanbul Summit:
  - No mention of cyber
- 2006 Riga Summit:
  - “protect information systems ... against cyber attacks”
  - “develop a NATO Network Enabled Capability”



# KFOR

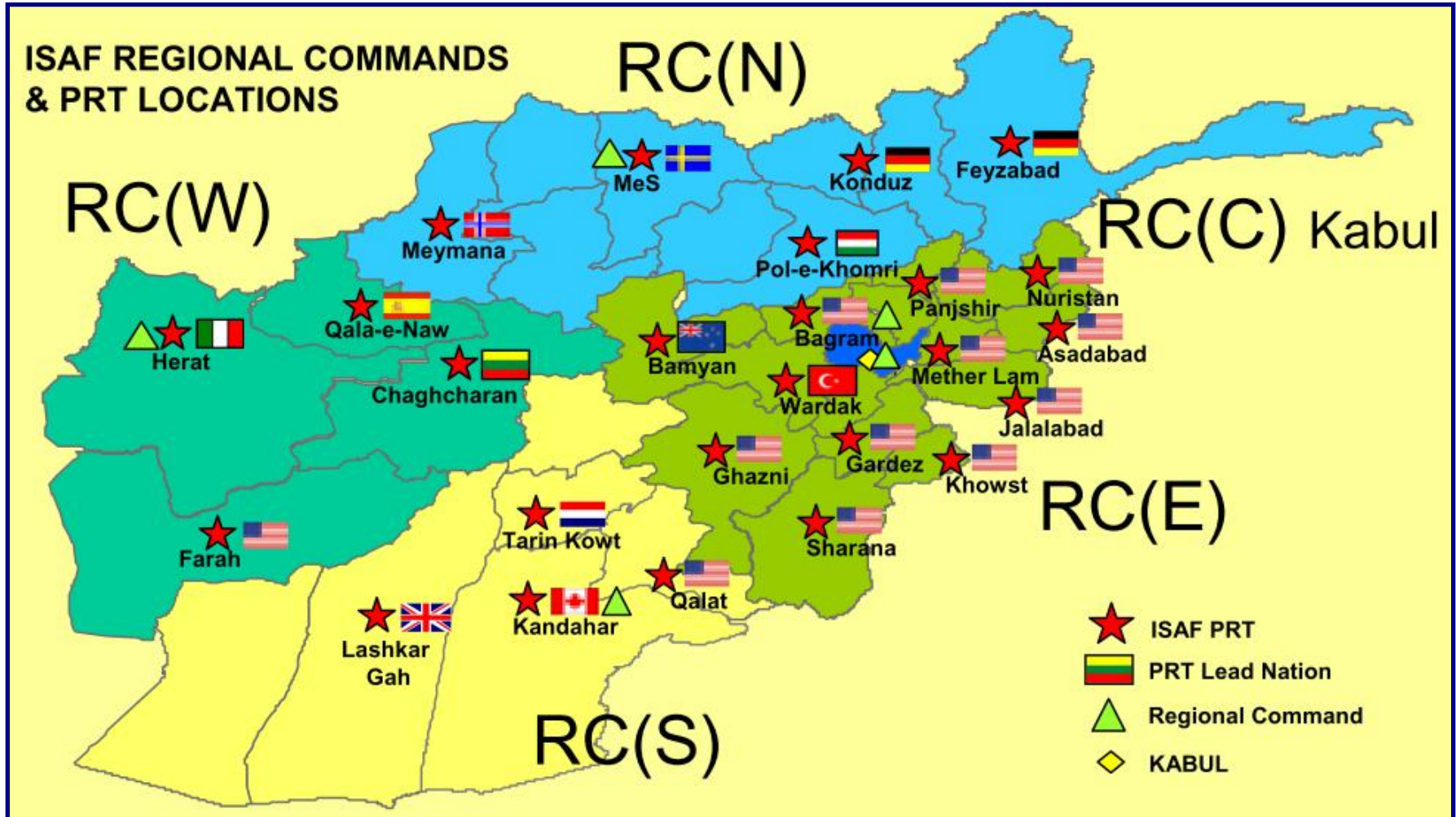


| 24 NATO NATIONS |             |             |
|-----------------|-------------|-------------|
| BEL<br>193      | HUN<br>564  | PRT<br>296  |
| BGR<br>42       | ITA<br>2567 | ROU<br>147  |
| CZE<br>435      | LVA<br>19   | SVK<br>135  |
| DNK<br>305      | LTU<br>32   | EST<br>29   |
| SVN<br>160      | LUX<br>23   | ESP<br>637  |
| FRA<br>2269     | NLD<br>6    | TUR<br>752  |
| DEU<br>2374     | NOR<br>22   | GBR<br>135  |
| GRC<br>605      | POL<br>320  | USA<br>1456 |

| 10 NON-NATO NATIONS |            |
|---------------------|------------|
| ARM<br>34           | IRL<br>279 |
| AUT<br>561          | MAR<br>213 |
| AZE<br>34           | SWE<br>331 |
| FIN<br>391          | CHE<br>209 |
| GEO<br>182          | UKR<br>184 |



# CCDCOE



NATO Cooperative Cyber Defence Centre of Excellence [Tallinn, Estonia](#)





CCDCOE

CCD CoE



NATO Cooperative Cyber Defence  
Centre of Excellence Tallinn, Estonia



CCDCOE

# Cyberspace and the Changing Nature of Warfare

Kenneth Geers

[kenneth.geers@ccdcoe.org](mailto:kenneth.geers@ccdcoe.org)

NATO Cooperative Cyber Defence  
Centre of Excellence Tallinn, Estonia