Saving Cyberspace

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A global domain within the information environment consisting of the interdependent network of information technology infrastructures and resident data, including the Internet, telecommunications networks, computer systems, and embedded processors and controllers.
If there is something you know, communicate it. If there is something you don't know, search for it.
Violates Privacy? Civil Liberties?

Legal? Constitutional?
“If there is something you know, communicate it. If there is something you don't know, search for it.”
Global Internet Users

1993: 14 million
2003: 778 million
2013: 2.7 billion
2030?  2280?
Data breaches
Cyber crime
Anonymous
Malware
Espionage
State-sponsored attacks
Stuxnet
Heartbleed
Erection of borders
...
...
...
Future Economic and National Security

Today’s National Security
Today’s National Security
Today’s National Security

Future Possibilities
Until the End of Humankind
How many future Renaissances and Enlightenments will humanity miss if we – all of us, for any purpose – keep treating the Internet as a place for crime, warfare and espionage?
SAVING FOR WHOM?
Sustainable for future generations
    – Not just five years or fifty but two hundred and fifty

Especially as some of the most innovative technologies in our near future must have strong security for us to unlock them without resulting disaster
Which of the Most Transformative Technologies Must Be Most Secure? — Illustrative

Cultural or Societal Impact

Low, High
- Online games
- Specific social apps
- Streaming music

Economic Impact

High, High
- Industrial control systems
- Internet of everything
- Smart grid
- Online medical records
- Cloud-enabled tech

Low, Low
- White goods
- Next-gen TV, audio

High, Low
- Advanced medical technology
- Renewable energy
- Next-gen nuclear
- Unconventional gas and oil
- Energy storage

Power to Transform Society
- Mobile Internet
- Embedded medical devices
- Autonomous vehicles
- Online voting
- Automation of knowledge work

- Advanced robotics
- Advanced manufacturing
- 3D printing
- Next-gen genomics
- Advanced materials
SECURITY FROM WHAT
Saving ... from What?

• Obvious Stuff
• Global Shocks
• Tipping Point
The Threat is Increasing

The Insider is the Wildcard

Source: 1997 DSB Summer Study
The Threat is Increasing

The Insider is the Wildcard

Source: 1997 DSB Summer Study
Global Shocks
Initiated or Amplified Through the Internet

“As society becomes more technologic, even the mundane comes to depend on distant digital perfection.”

Dan Geer

“This increasingly tight coupling of the internet with the real economy and society means a full-scale cyber shock is far more likely to occur.”

“Beyond Data Breaches: Global Interconnections of Cyber Risk”
“Few if any contemporary computer security controls have prevented a [red team] from easily accessing any information sought.”

Lt Col Roger Schell (USAF) in 1979
Bad Guys Finish First

“Few if any contemporary computer security controls have prevented a [red team] from easily accessing any information sought.”

O>D

black hat USA 2014
Doesn’t Have to Stay This Way
Great News! Security is Getting Better!

Whether in detection, control, or prevention, we are notching personal bests…

- Dan Geer, 2014
Bad News! We’re Still Losing and at a Faster Rate!

Whether in detection, control, or prevention, we are notching personal bests **but all the while the opposition is setting world records.**

Dan Geer, 2014

“Wild West”

![Diagram showing the improvement of defense and offense over time.](image-url)
Or Is It Exponentially Worse?

Improvement of Offense

Improvement of Defense

2014
Can This Last Forever?

Tipping Point?

Improvement of Defense

Improvement of Offense

Effectiveness

Time

2014
When Will There Be More Predators Than Prey?

Diagram:
- Tipping Point?
- "Somalia" at O>>D
- "Wild West" at O>D
- 2014
- Time
- Effectiveness
• Sustainable Cyberspace

• Private-Sector Centric Approach

• Working at Scale

• Single Cyber Strategy

• Disruptive Defensive Technologies ... but only if they work at scale!
THIS HAS BEEN VERY NEGATIVE, SO TO END ON A POSITIVE NOTE...
Cyber Statecraft Initiative
• International conflict, competition and cooperation in cyberspace
• Our goal is Saving Cyberspace
• Publications (all at our website, atlanticcouncil.org)
• Public and Private Events

QUESTIONS?
1. History of cyber conflict
2. Future of cyber conflict
3. Systemic cyber risks
4. Public sector-centric strategy
5. Sustainable cyberspace

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