

# WARGAMES IN THE 5TH DOMAIN

"The next Pearl Harbor could very well be a cyber attack."

- Leon Panetta,  
US Secretary of Defense

"The United States is fighting a cyber-war today, and we are losing".

- Mike McConnell,  
former Director of National Intelligence

"It's no exaggeration to say that cyber attacks have become a new form of permanent, low-level warfare."

Anders Fogh Rasmussen,  
NATO Secretary-General

"Rarely has something  
been so important  
and so talked about  
with less clarity  
and less apparent  
understanding  
than this phenomenon  
[cyber war]"

Michael Hayden  
DIRNSA 1999-2005 etc.



# CYBERWAR IS COMING...



## HACKERS CAN TURN YOUR HOME COMPUTER INTO A BOMB

By RANDY JEFFRIES / Weekly World News

WASHINGTON — Right now, computer hackers have the ability to turn your home computer into a bomb and blow you to Kingdom Come — and they can do it anonymously from thousands of miles away!

Experts say the recent "break-ins" that paralyzed the Amazon.com, Buy.com and eBay websites are tame compared to what will happen in the near future.

Computer expert Arnold Yabenson, president of the Washington-based consumer group National CyberCrime Prevention Foundation (NCCPF), says that as far as computer crime is concerned, we've only seen the tip of the iceberg.

"The criminals who knocked out those three major online businesses are —

*... & blow your family to smithereens!*



KABOOM! It might not look like it, but an innocent home computer like this one can be turned into a deadly weapon.

# CYBERWAR IS COMING...

"Cyberwar is coming!"

John Arquilla and David Ronfeldt (1993)  
RAND researchers

"I think it is appropriate to call information operations the fifth dimension of warfare."

Gen. Ronald R. Fogleman (1995)  
US Air Force Chief of Staff

"As a doctrinal matter, the Pentagon has formally recognized cyberspace as a new domain of warfare. Although cyberspace is a man-made domain, it has become just as critical to military operations as land, sea, air, and space."

William J. Lynn III (2010)  
US Deputy Secretary of Defense

HOME COMPUTER

BOMB



It may not look like it, but an innocent home computer can be turned into a deadly weapon.

# DEFINITION?

~~"actions by a nation-state to penetrate another nation's computers or networks for the purposes of causing damage or disruption."~~

~~Richard A. Clarke  
Cybergeddon doomsday prophet~~

"A true cyberwar is an event with the characteristics of conventional war but fought exclusively in cyberspace."

Peter Sommer  
Professor at LSE



**NOT AN ACT OF WAR.**

**NOT AN ACT OF WAR.**




**WAR?**



**CRIME?**



A photograph of soldiers in a conflict zone. Several soldiers in camouflage uniforms and helmets are visible, some holding rifles. The scene is outdoors with trees and a concrete wall in the background. The image is slightly blurred, suggesting movement or a candid shot.

".... refrain in their international relations from the threat or use of force..."

UN Charter Art. 2(4)

"... inherent right of individual or collective self-defense if an armed attack occurs ..."

UN Charter Art. 51

attacks = "acts of violence against an adversary"


Art. 49 Protocol I Geneva Conv.

"When individuals carry out malicious acts for private purposes, the aggrieved state does not generally have the right to use force in self-defense"

US DOD General Counsel  
Assessment of Int'l Legal Issues in Information Operations

"to be legally responsible, it would have to be proved that that State had effective control of the operations [of the private actors]"

ICJ, (Nicaragua v. United States of America)

A photograph of Israeli soldiers in a combat zone, with a text box overlaid. The soldiers are wearing helmets and carrying rifles, positioned behind a concrete wall. The ground is littered with debris and a helmet. The text box is white with a torn edge and contains a definition of war.

War is "a hostile interaction between two or more **States**, either in a technical or in a material sense. War in the technical sense is a formal status produced by a declaration of war. War in the material sense is generated by **actual use of armed force**, which must be **comprehensive** on the part of at least one party to the conflict."

Yoram Dinstein

former President and Dean of Law at Tel Aviv University

# DDOS?

"What is the difference between a blockade of harbors or airports of sovereign states and the blockade of government institutions and newspaper websites?"

- Andrus Ansip, Estonian Prime Minister

# FORCE

Russia accused of unleashing cyberwar to disable Estonia | World news | The Guardian

http://www.guardian.co.uk/world/2007/may/17/tu Reader

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## Russia accused of unleashing cyberwar to disable Estonia

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Baltic states agonise over Putin's invitation



Bronze Soldier, the Soviet war memorial removed from Tallinn. Photograph: Timur Nisametdinov/AP

A three-week wave of massive cyber-attacks on the small Baltic country of Estonia, the first known incidence of such an assault on a state, is causing alarm across the western alliance, with Nato urgently examining the offensive and its implications.

# WEBSITE DEFACEMENT?





# STUXNET



خالد الأطرش || مهندس معماري, 32

أنا أتلقى نفس الراتب منذ 5 سنوات تقريباً. وفي كل مرة كنت أفكر أن أدخل للمدير لأطلب علاوة, بسبب ...  
القصة الكاملة >>

هل تريد أن  
تزيد من دخلك الشهري؟

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## Hacker group Anonymous knocks CIA website offline

Saturday, 11 February 2012



Anonymous last month briefly knocked the websites of the U.S. Justice Department and the Federal Bureau of Investigation offline.(AFP)

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هل تريد أن تزيد من  
دخلك الشهري؟

تعلم كيفية اغتنام الفرص في السوق  
الأكثر ربحاً

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HACKERS BRIEFLY TOOK  
DOWN THE WEBSITE OF  
THE CIA YESTERDAY...



WHAT PEOPLE HEAR:

SOMEONE HACKED  
INTO THE COMPUTERS  
OF THE *CIA!!*



WHAT COMPUTER  
EXPERTS HEAR:

SOMEONE TORE DOWN  
A POSTER HUNG UP  
BY THE *CIA!!*



"The President reserves the right to respond using **all necessary means** to defend our Nation, our Allies, our partners, and our interests from hostile acts in cyberspace. Hostile acts may include **significant cyber attacks** directed against the U.S. economy, government or military. As directed by the President, response options may include using cyber and/or **kinetic capabilities** provided by DoD."



"Right now, China, the government, can disconnect parts of its Internet in a case of war. We need to have that here, too."

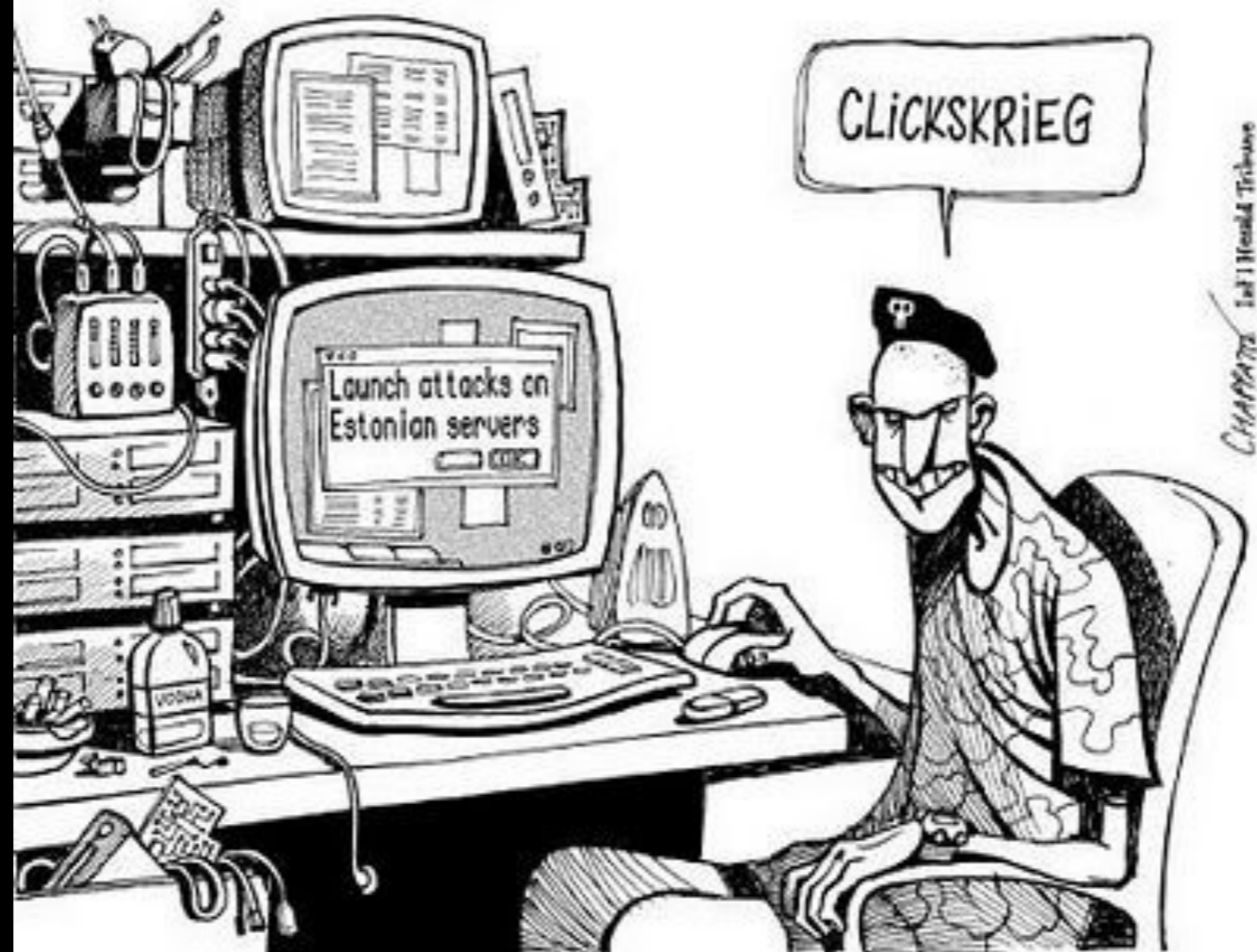
- Sen. Joe Lieberman



"We need the capacity for the president to say, Internet service provider, we've got to disconnect the American Internet from all traffic coming in from another foreign country, or we've got to put a patch on this part of it."

- Sen. Joe Lieberman

# A new form of Warfare:



"There is no cyberwar.  
I think that is a  
terrible metaphor and  
I think that is a  
terrible concept."

Howard Schmidt,  
former US  
Cyber-Security  
Coordinator



# WARGAMES

MISSILE WARNING

SUB-LUNCH DETECTION



CHESS

POKER

FIGHTER COMBAT

GUERRILLA ENGAGEMENT

DESERT WARFARE

AIR-TO-GROUND ACTIONS

THEATERWIDE TACTICAL WARFARE

THEATERWIDE BIOTOXIC AND CHEMICAL WARFARE

GLOBAL THERMONUCLEAR WAR





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