

# Security management in the Internet era

---

11<sup>th</sup>: Cyber military superpower and its problem  
December 16, 2010

Jun Murai  
Keio University

Suguru Yamaguchi  
Nara Institute of Science and Technology

# Schedule

---

01st (09/30) Course Description

02nd (10/07) Internet becomes infrastructure (1)

03rd (10/14) Internet becomes infrastructure (2)

04th (10/21) Internet becomes infrastructure (3)

05th (10/28) Diversity of risks & countermeasures about Information Systems

06th (11/04) Guest Lecture

07th (11/11) Security of individuals and the society (1)

08th (11/25) Security of individuals and the society (2)

09th (12/02) Midterm Presentation

10th (12/09) Midterm Presentation

11th (12/16) Cyber military superpower and its problem

12th (01/06) Final Presentation

13th (01/13) Final Presentation

# Cyber military superpower and its problem

---



# Question

---

- Do you need military power in the Internet?
  - Why do or don't you need it?

# Why military part want to intervene in the Internet

---

- The Internet become an infrastructure.
  - many infrastructure depend on the internet (in lecture 3)
  - industrial computing (in lecture 4)
  - increasing of economy in the internet\*1
    - BtoC 6.7 trillion yen
    - BtoB 205 trillion yen
- National security
  - Cyber attack for critical infrastructure
  - Intelligence
  - Terrorism
    - analyze terrorist information

# What's purpose?

---

- Military power can be divided into two categories: operational capacity and intelligence.
  - operations
    - Offense
      - attack enemy's system in the wartime
    - Defense
      - defend military, government system from the enemy's attack
  - Intelligence
    - Intelligence uses publicly available information for their 98% work.
      - The Internet has turned to be a very good source of information.
      - e.g. CIA, NSA

# US Force Action

---

- May 22, 1998. PDD63
  - Critical Infrastructure Protection
- 2008. Operation Buckshot Yankee
  - In the middle east, US force base system are broken by malware.
    - That malware sent a confidential information to the another country.
    - US force opposed this crisis by “Operation Buckshot Yankee”.
    - This crisis is turning point for US direction.
- Jun, 2009  
US forces set up Cyber Command with NSA.
  - This command aim is defend a government network and internet infrastructure.

# Trends in Other Countries

---

- Japan
    - 2011
      - JSDF will set up Cyber space defense command.
        - This party aim is defend a government network.
  - United Kingdom
    - GCHQ is preparing the cyber command.
  - China
    - Jul. 2010
      - China people's army set up the information security base.
        - This action response to the US cyber command.
  - South Korea
    - Jan. 2010
      - Ministry of National Defense set up the cyber command.
- **Cyber command become the deterrence force such as the nuclear weapon.**



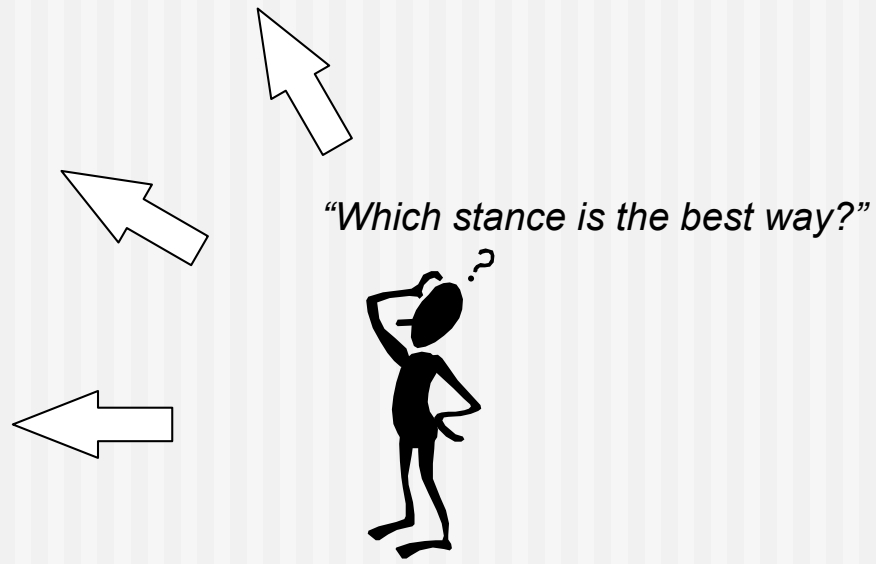
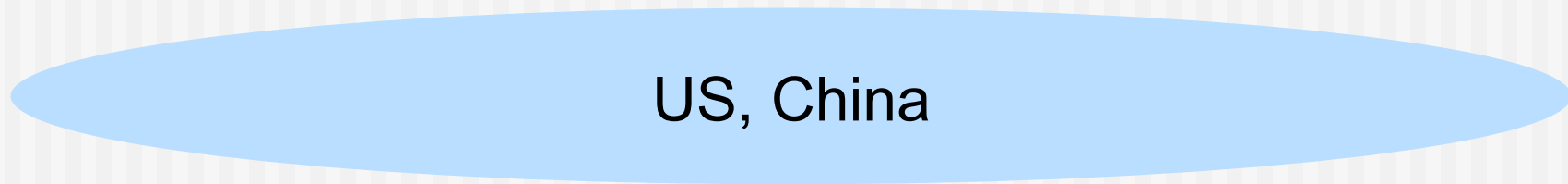
# Coverage area of each country

---

Military

Government

Private



# Characteristics of The Internet

---

## ■ Operation

- The internet infrastructure are operated by private company in the almost country.
  - ISP, IX

## ■ Equipment

- The infrastructure is constructed of various equipments available in the open market.
  - Router, Switch, Server
- In physical space, the force can use special weapon.
  - Missile, Gun, Warship, Tank and more

# Cyber attacks

---

- There are many attacks in the Internet.
  - DDoS, XSS, Phishing, BGP hijack, stuxnet
    - We have already discussed these attacks in this class.
- Private company has solution for these attacks.
  - e.g. Security appliance, Encryption technology

# Is cyber attack effective?

---

- There are some serious case.
  - Apr. 2008 Estonia
    - A large amount of access to their information systems.
      - Target : Government, ISP, Financial. Media
  - Sep, 30. 2010 Stuxnet
    - The computer virus infected the nuclear power plant system.
    - This virus infected to SCADA on an nuclear power plant.
- *These serious case demonstrate the effectiveness of that cyber attack for the critical infrastructure.*

# Summary

---

- The internet become critical infrastructure
  - That grow in importance in the society.
  - Cyber attack is critical risks for the infrastructure.
- Many countries set up a cyber command.
  - This force become deterrence power in the world.

# Questions

---

- Do you finally think we need the military power in the cyber space?
  - If we need that, which policy is appropriate for society?
  - How to cooperate together with other nations about the cyber space policy?
  - Which stance is the best way?
    - military area
    - military and government area
    - military, government and private area

# Final Presentation

---

- Submission deadline
  - 4 Jan. 2011 23:59 (JST)
- Material
  - Format : ppt
  - Language : english and japanese
  - sig2010@sfc.wide.ad.jp
- Presentation schedule
  - 6 Jan. Final Presentation
    - Group 1 and 2
  - 13 Jan. Final Presentation
    - Group 3 and 4