Japanese Government Cyber Security Strategy

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Agenda

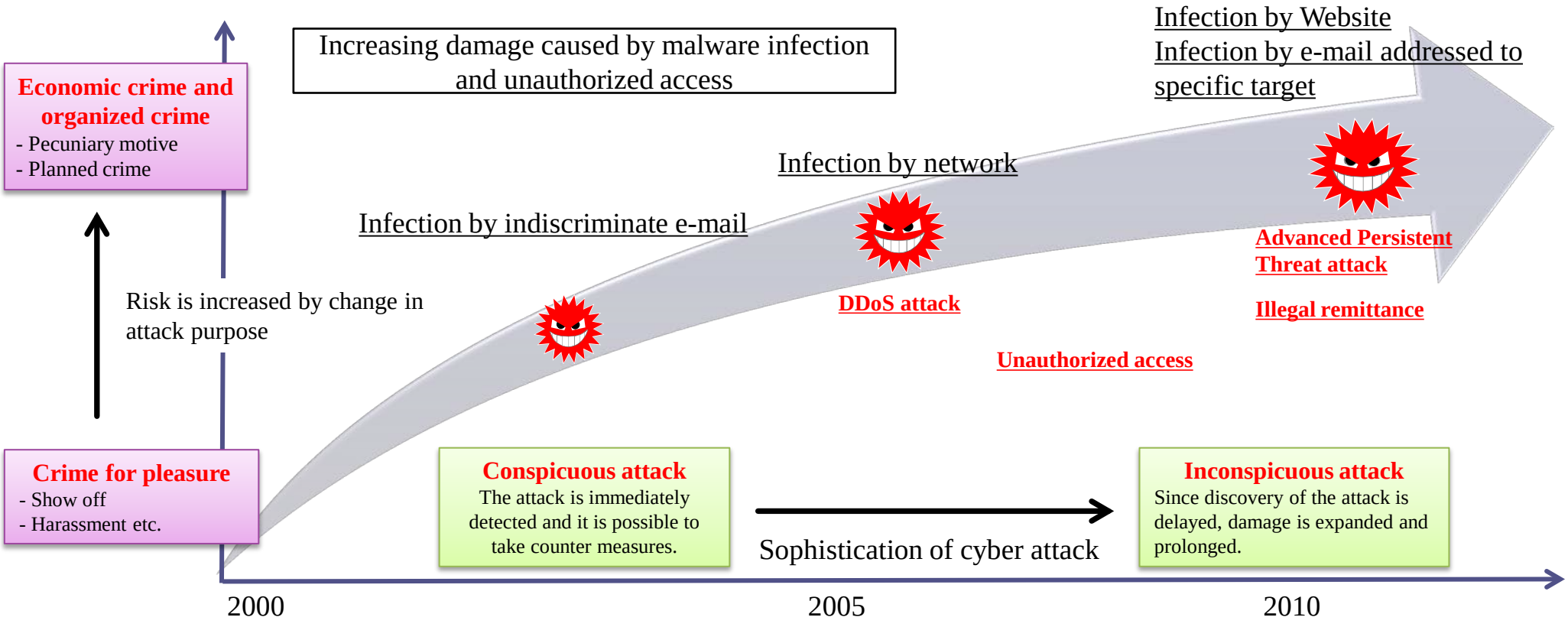
1. ICT Security Trend
2. ICT Security Measures of the Japanese Government
3. ICT Security Measures of MIC

1. ICT Security Trend

Increase of ICT Security Threat 1

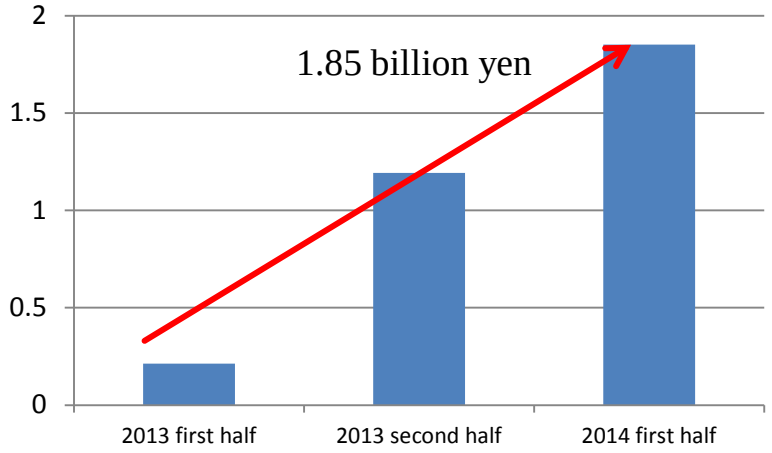
ICT technologies such as the Internet form the base of social economic activities as well as a key to each country's growth.

However, damage to ICT technologies is more serious because threats to information security are now smarter and more complicated.

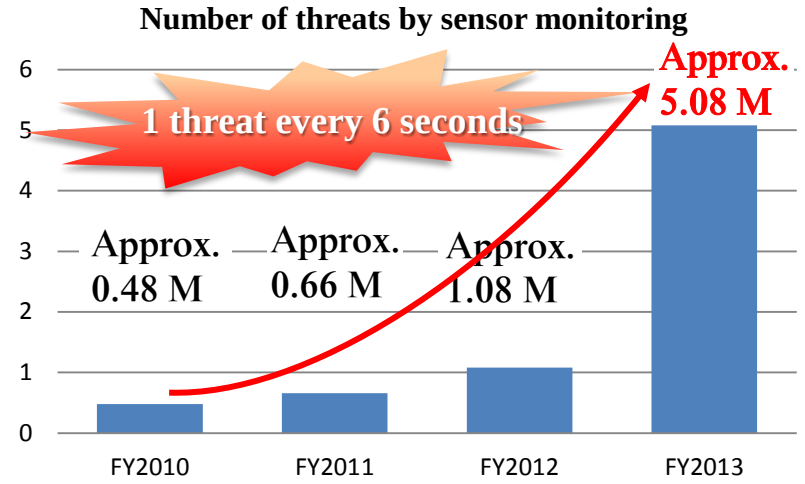


Increase of ICT Security Threat 2

Illegal remittance damage



Number of threats to government agencies and critical infrastructure



Observational data by NICTER (Network Incident analysis Center for Tactical Emergency Response)

Year	Total annual number of packets observed	Number of IP addresses observed
2005	Approx. 0.31 billion	Approx. 16 thousand
2006	Approx. 0.81 billion	Approx. 100 thousand
2007	Approx. 1.99 billion	Approx. 100 thousand
2008	Approx. 2.29 billion	Approx. 120 thousand
2009	Approx. 3.57 billion	Approx. 120 thousand
2010	Approx. 5.65 billion	Approx. 120 thousand
2011	Approx. 4.54 billion	Approx. 120 thousand
2012	Approx. 7.79 billion	Approx. 190 thousand
2013	**Approx. 12.88 billion**	Approx. 210 thousand

Observed by NICT(National Institute of Information and Communications Technology)

Top 10 countries (hosts)

Country name	Number of hosts	Percentage
中国(CN)	43,346	50%
韓国(KR)	6,384	7%
アメリカ(US)	4,861	6%
日本(JP)	3,083	4%
台湾(TW)	2,988	3%
ブラジル(BR)	2,376	3%
ロシア連邦(RU)	2,314	3%
香港(HK)	1,978	2%
インド(IN)	1,614	2%
タイ(TH)	1,422	2%

Top 10 countries (hosts)

Country name	Number of packets	Percentage
中国(CN)	1,214,956	37%
アメリカ(US)	555,109	17%
台湾(TW)	209,114	6%
ロシア連邦(RU)	142,925	4%
オランダ(NL)	122,770	4%
インド(IN)	95,948	3%
カナダ(CA)	94,760	3%
韓国(KR)	93,522	3%
フランス(FR)	89,051	3%
アイスランド(IS)	64,056	2%

Attack source (Time September 4, 2014)

2. ICT Security Measures of the Japanese Government

Promotion Framework for ICT Security Measures in Japan

MIC

ICT Security Office

◆ Promoting attack detection and prevention, and reducing virus infection, from the viewpoint of protecting the telecommunication network through collaboration with ISPs (Internet Service Providers).

- NICT (National Institute of Information and Communications Technology)
- Telecom ISAC Japan

MOFA

◆ **Strengthening international cooperation**

METI

◆ **Promoting security measures of control systems such as electricity and gas, and software/hardware.**

- IPA (Information-technology Promotion Agency)
- JPCERT/CC (Japan Computer Emergency Response Team Coordination Center)

National center of Incident readiness and Strategy for Cybersecurity (NISC)

◆ Formulating the "Cybersecurity Strategy" and leading comprehensive coordination of each ministry

◆ Conducting monitoring of government network by operating GSOC (Government Security Operation Coordination team)

MOD

◆ **Strengthening capacity and preparations of the Self-Defense Forces in cyber space**

◆ **Cyber defense Corps (approx. 100 members) was installed**

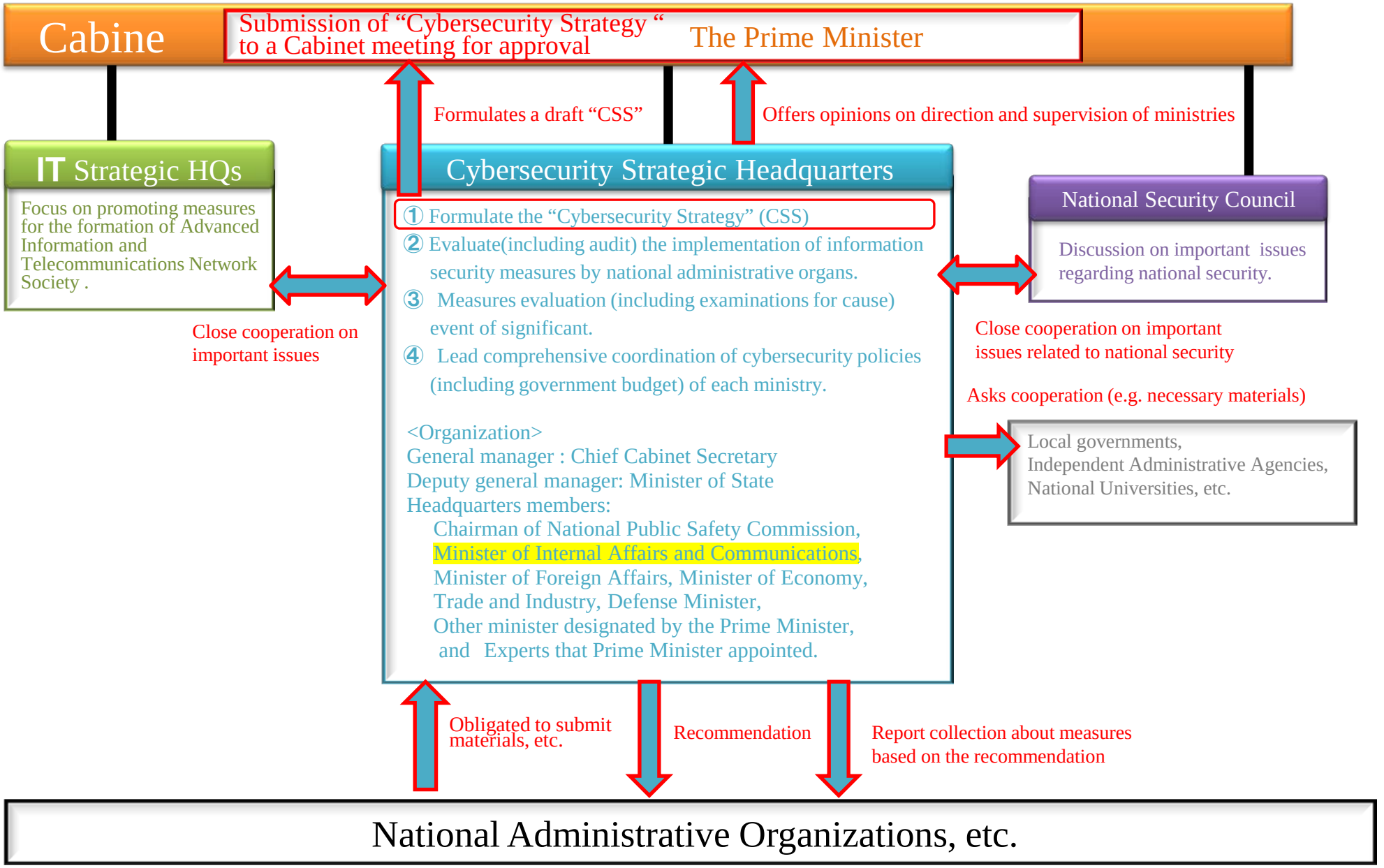
NPA

◆ **Promoting crackdown on cyber crime, cyber attack, etc.**

Ministries and agencies having jurisdiction over critical infrastructure

FSA (Finance), MIC (ICT, Local government), MHLW (Medical care, Water), MLIT (Aviation, Railway, Logistics), METI (Power, gas, credit, petroleum, chemical)

Cybersecurity Basic Act



Main Points of Draft “CYBERSECURITY BASIC ACT” (Outline)

1. General Provisions

1 Objectives
2 Definitions: Cybersecurity
3 Basic principles
4 Responsibilities of the central government
5 Responsibilities of local government
6 Responsibilities of critical infrastructure providers
7 Responsibilities of cyber-related businesses and other businesses
8 Responsibilities of education and research institutions
9 Endeavors of citizen
10 Legal measures
11 Development of administrative organs

2. Cybersecurity Strategy

12 Cybersecurity Strategy

3. General Policy

13 Assurance of cybersecurity at national administrative organs
14 Promotion of voluntary measures of cybersecurity at critical infrastructure providers
15 Promotion of voluntary activities of private enterprises and educational organizations
16 Cooperation with multiple stakeholders, and so forth
17 Cybercrime control and prevention of damage spread
18 Response to matters of great concern to national security
19 Enhancement of industrial development and international competitiveness
20 Promotion of R&D
21 Reservation of human resources
22 Promotion and development of Education/ learning
23 Promotion of international cooperation

4. Cybersecurity Strategic Headquarters

5. Miscellaneous

New Information Security Human Resource Development Program (established in May 19, 2014)

Subject shown on the Cybersecurity Strategy

To handle increasing serious risks and improve the level of information security,

- **It is important to raise the skill level of cybersecurity professionals within a nation and discover and cultivate exceptional personnel in the field.**
- **A framework is necessary for practical application of training throughout all of society.**

Shortage of human resource

employed in information security
Appx. 265,000

Qualitative shortage 160,000

Quantitative shortage 80,000

Measure Plan

Create the virtuous circle of demand and supply of human resource to improve the level of information security,

【Demand】Awareness Reform of Executive Management

【Management of organization】

- Promoting reform of management's awareness and efforts to let them recognize information security as business strategy.
- Encouraging investment in an organization through public requirements about information security of products & services.

【Leaders of workers】

- Improvement of communication ability about information security from the view point of the business strategy.

【Supply】Quantitative Increase and Qualitative Improve of Human Resource

- Encouraging existing ICT engineers to recognize information security as an essential ability, and Reviewing to make training materials and to arrange the evaluation criteria, qualification, etc. (ICT engineer with security)
- Discovery and development of human resources with **high expertise and outstanding ability**, and taking them active roles.
- Arrangement of an environment to study through international experiences and sharing information to develop **global level human resources**.
- Leading Strengthening of recruitment and development of officers that can respond to risks in governmental organization.
- **Enhancement practical ICT education in educational institutions**, and improvement of teachers' skill of information security.

3. ICT Security Measures of MIC

Overview of MIC's ICT Security Measures

Looking ahead to holding a safe and secure Tokyo Olympic and Paralympic Games in 2020, MIC promotes multi-lateral Cyber security projects.

○ Conducting the following projects from perspectives such as network defense and enhancement of ICT security for users.

ICT security measures for organizations

Conducting "CYDER" project to develop skills through experiences of practical cyber defense for public office and organizations such as critical infrastructure providers since FY2013.

ICT security measures for internet users

Conducting "ACTIVE" project to prevent malware infection by collaborating with major ISPs for general internet users since FY2013.

Promotion of international cooperation

Conducting "PRACTICE" project to make predictions and quick response to cyber-attacks through collaboration with ASEAN states and other countries since 2010.

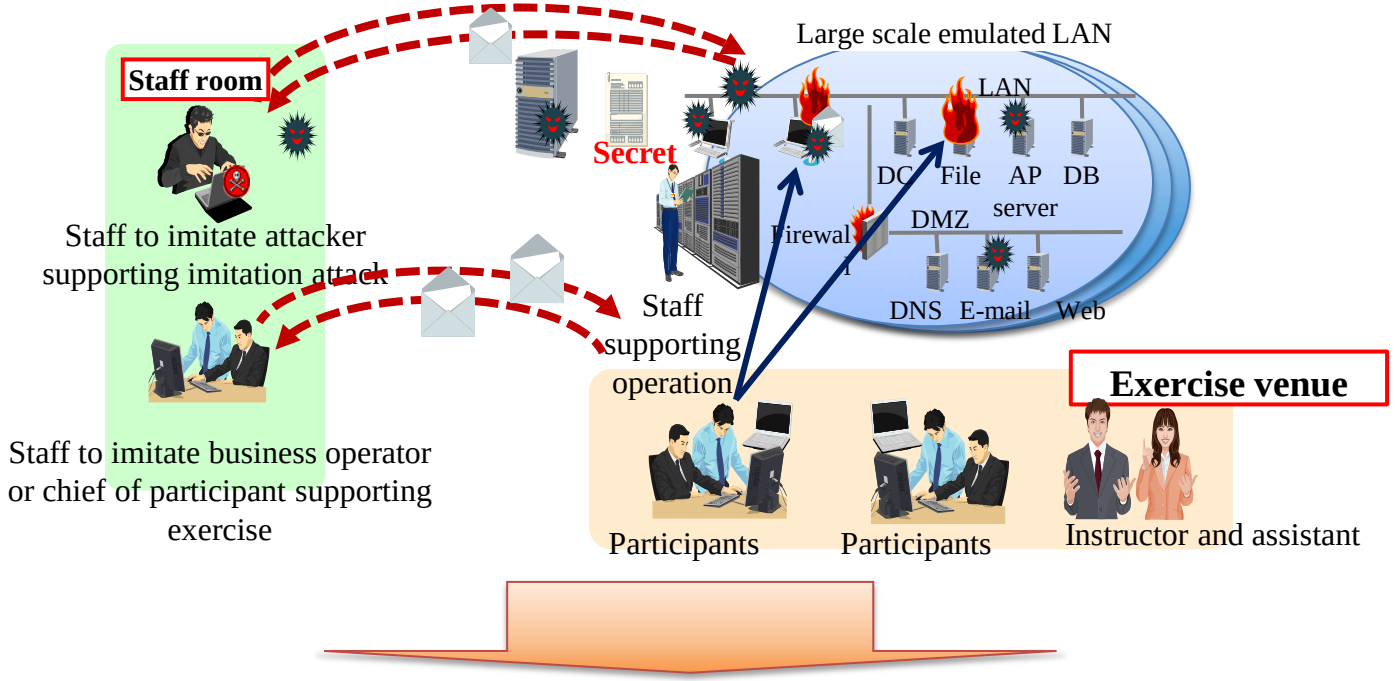
○ In the future, promoting IT security measures by responding ICT environmental change such as the full-fledged spread and expansion of Internet of Things (IoT), also looking ahead to Tokyo Olympics in 2020.

ICT security measures for M2M

*M2M security demonstration projects: Newly requested in budget FY2015

MIC's project for strengthening cyber-security capability in Japan

- Practical large-scale cyber exercises for LAN administrators in government agencies and critical information infrastructure providers.
- Strengthening ability to tackle Advanced Persistent Threat
- 215 people from 62 organizations such as national government agencies(e.g., MOD, NISC, MOFA, MOJ), incorporated administrative agencies and private businesses (critical infrastructure sectors), etc. participated in groups of three or four people through fifteen CYDER session.

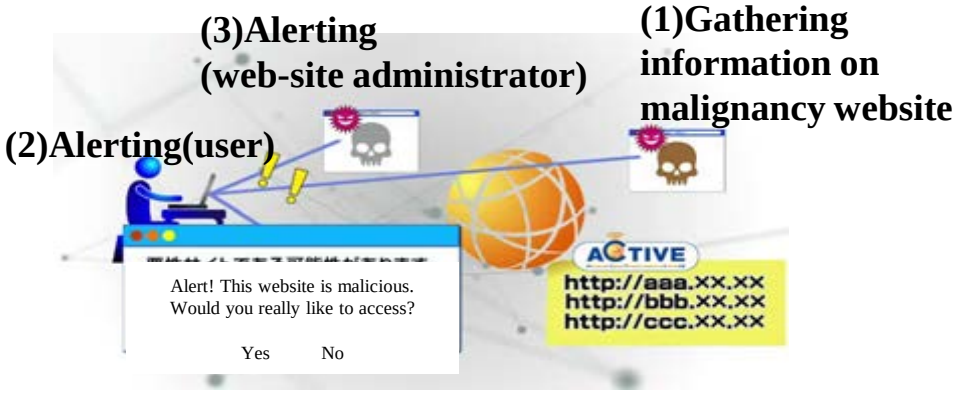


Plan to share our experiences with international partners

ACIVE Project overview

- “ACTIVE(Advanced Cyber Threats response InitiatiVE)” is a project of providing comprehensive countermeasures against malware by collaborating with ISPs, anti virus vendors, and so on.
- Aiming at preventing malware infection and cleansing malware, ACTIVE will alert Internet users who don’t recognize malware infection.

(i)Approach for preventing malware infection

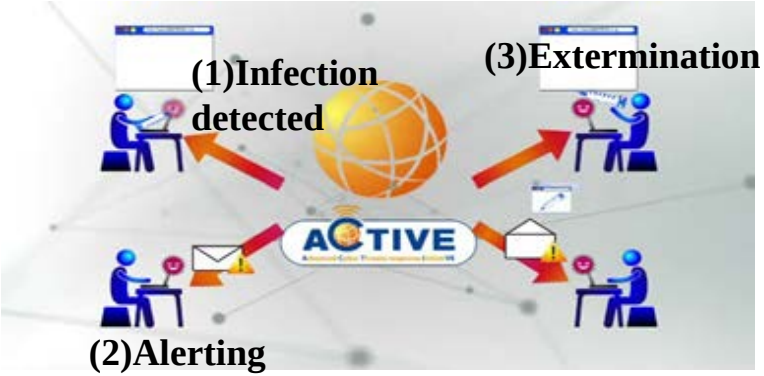


(1)Listing information on malignancy websites.

(2)Alerting users when they are accessing malignancy websites.

(3)Alerting administrator of malignancy websites.

(ii)Approach for malware extermination



(1)Identifying user’s PCs infected by malware.

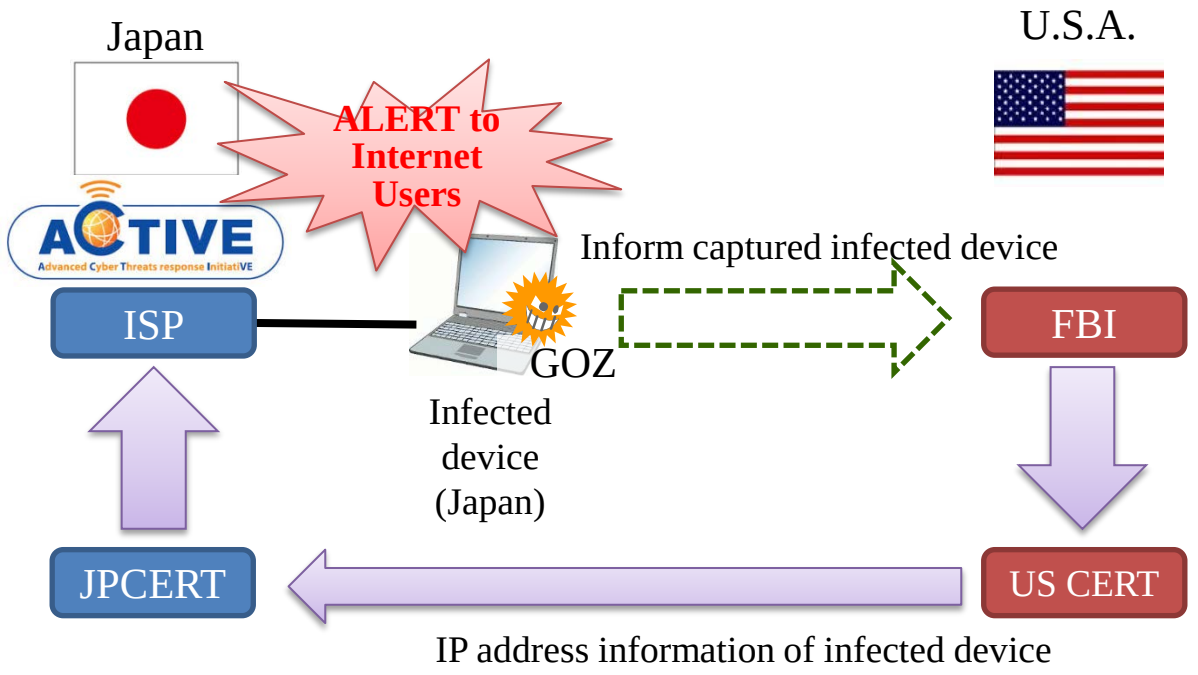
(2) Sending an alert email to the users to make them aware of current infected condition.

(3)Exterminating malware by complying with instructions in the email.

Utilization of ACTIVE for International Cleansing Malware Strategy

- A malware called “GameOver Zeus (GOZ)”, which is designed to steal money by unauthorized money transfer from internet banking, has widely spread in the world.
- Japan has been collaborating with Federal Bureau of Investigation (FBI) and Europe Police Union (EUROPOL) to cleanse GOZ malware since June 2014.
- By using ACTIVE project, it alerts internet users who have devices infected by GOZ malware within Japan.

Conceptual Diagram



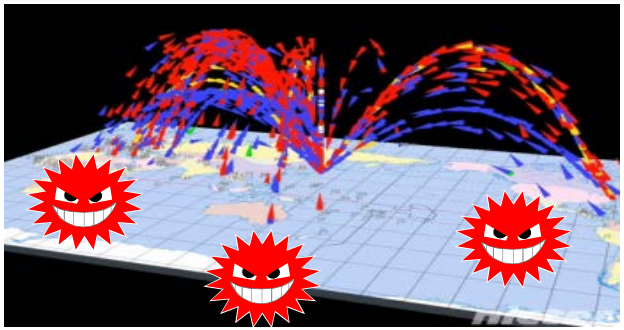
PRACTICE Project Overview

➢ R&D for catching symptoms and quick response to cyber-attacks, based on international collaboration.

R&D

Global Monitoring

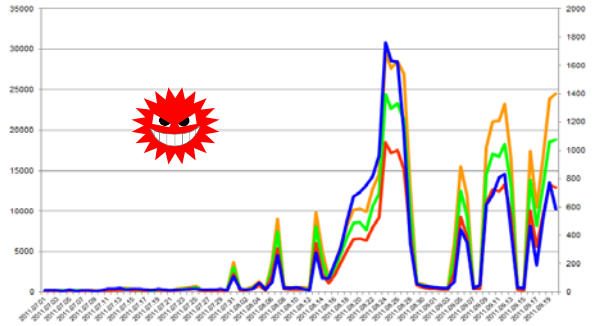
Real-time capturing of attack traffic by using “darknet sensors” located in many foreign regions.



As of Jan. 2015, 8 foreign countries have participated in the PRACTICE project. It is expected to cover more than 10 countries by the end of 2015.

Analysis

Based on data-mining and correlation technologies, collected data/traffic is deeply analyzed.

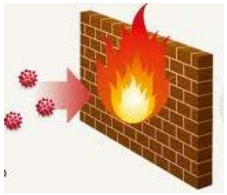


We have succeeded in finding some symptoms of Cyber-Attacks through R&D of analyzing Cyber attacks such as DDoS.

Field Trial

Quick Response

Symptoms and new malware behavior will be an effective trigger of quick response.



Symptoms will be utilized in the actions taken by ISPs for their Early Response. The actions will be direct action (e.g. Filtering / Port Blocking) and/or being connected with ISP readiness against Cyber-Attacks among international participants.

MIC's International Cooperation Status with ASEAN Member States

Cooperation with ASEAN member states

● The ASEAN-Japan Ministerial Policy Meeting on Cybersecurity Cooperation（Tokyo, September 2014）

- The first Ministerial level meeting among ASEAN-Japan on theme of security.
- Japan proposed a cooperation on the following projects:

①JASPER (Japan-ASEAN Security Partnership)

i) PRACTICE: a project for capturing cyber attack symptoms by using sensors located in cooperating countries and Japan.

ii) DAEDALUS: a project for alerting to cooperating countries when it captures traffic from a device infected with a virus within the cooperating countries.

②ASEAN-Japan Cybersecurity Capacity Building Initiatives

● ASEAN Japan Information Security Policy Meeting

- Held the first meeting in 2009, and held the seventh meeting in Tokyo on October 7th, 8th last year.
- Discussed the concretization of the agendas from the ASEAN-Japan Ministerial policy meeting.

Technical Collaboration(JASPER)

PRACTICE	DAEDALUS
3 countries (September, 2013)	Start of program (September, 2013)
5 countries (September, 2014)	5 countries (September, 2014)

Next step

Plan to share findings and feedback of analysis

Capacity Building

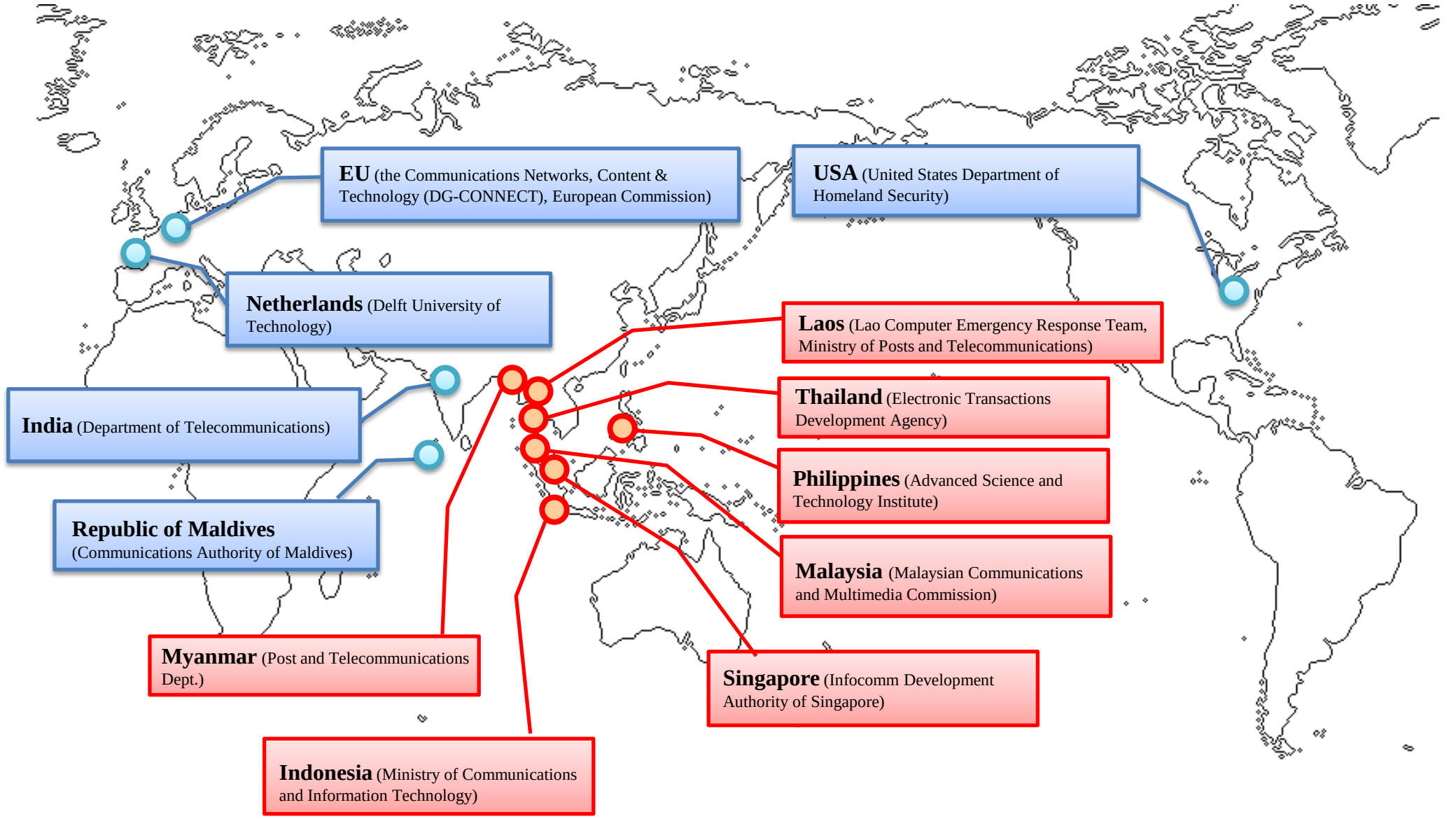
ASEAN-Japan Cybersecurity Capacity Building Initiatives

◆ Experts arrived in Indonesia (By September 2014)

◆ Training

・The ASEAN-Japan Information Security Workshop 2014 for ISPs (October 1st and 2nd 2014)

Cooperation status with other countries



MIC's ICT Security Measures for Tokyo 2020 Olympic and Paralympic Games

Promoting IT security measures looking ahead to ICT environmental changes in 2020 and contributing to achieving the safe and secure operation of Tokyo 2020 Olympics and Paralympic Games etc.

Experience in London 2012 Olympics, Paralympics

◆ Captured a large number of cyber attacks targeting London Olympic Games.

- During the games, there were **approx. 200 million malicious access,** and DDoS attack of approximately 11 thousands access per second against the official Olympics website.
- Based on prior information which indicated a **cyber attack targeting the power supply monitoring control system of the opening ceremony stadium,** operator had changed the control system from network operation to manual.

Efforts for Tokyo 2020 Olympics, Paralympics

◆ By 2020 when Tokyo Olympic Games will be held, ICT environmental changes such as the spread of IoT (Internet of Things) are expected to occur. Hence, we need to consider ICT security measures based on the assumption of appearance of new methods of attacks.

◆ To prepare for ICT environmental changes, we are conducting the following activities:

- Enhancement of respose framework for cyber attack（Sharing information of incidents status and symptoms of cyber attacks among ISPs and relevant organizations for cooperative response to cyber attack etc.
- Promoting IT security projects such as solving problems in Machine to Machine (M2M) systems（Conducting R&D and field experiment projects against cyber attacks in the area of M2M systems）.

Thank you for your kind attention.