

Cyber Crime and Digital Forensics in Japan



Tetsutaro UEHARA

Academic Center for
Computing and Media Studies,
Kyoto University

uehara@media.kyoto-u.ac.jp



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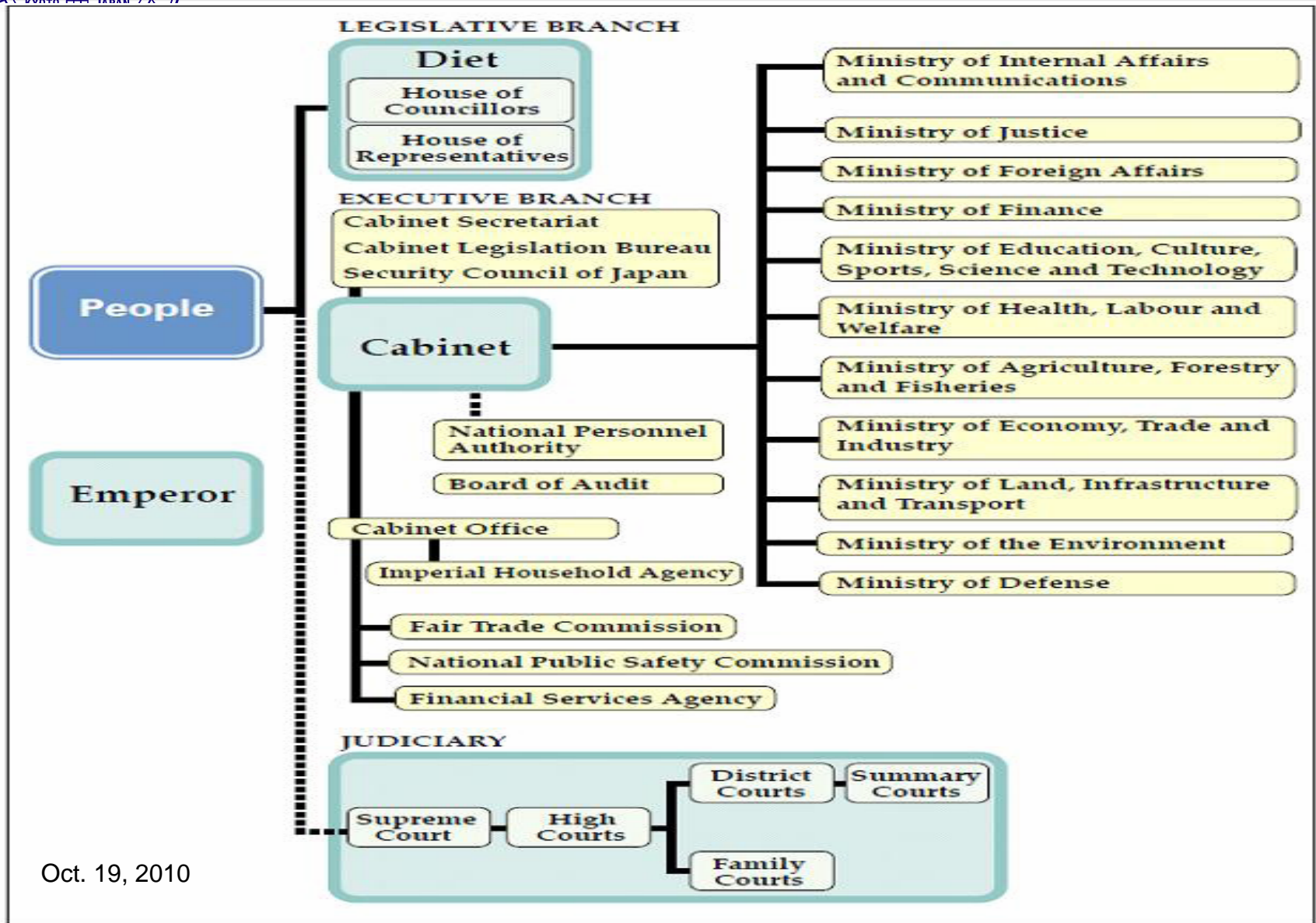


Introduction

- ❑ Computer security problem has been one of major problems to maintain the stability of the information society;
- ❑ Computer security technology cannot solve the cyber crime problems by itself;
- ❑ Digital forensics has been playing an important role in catching as well as convicting the cyber criminals who either used computers or targeted computer systems in their criminal activities ;
- ❑ In addition to helping law enforcement, digital forensics also assists us in solving privacy, internal affairs, labor disputes, and other civil conflict issues.



Japanese Political System



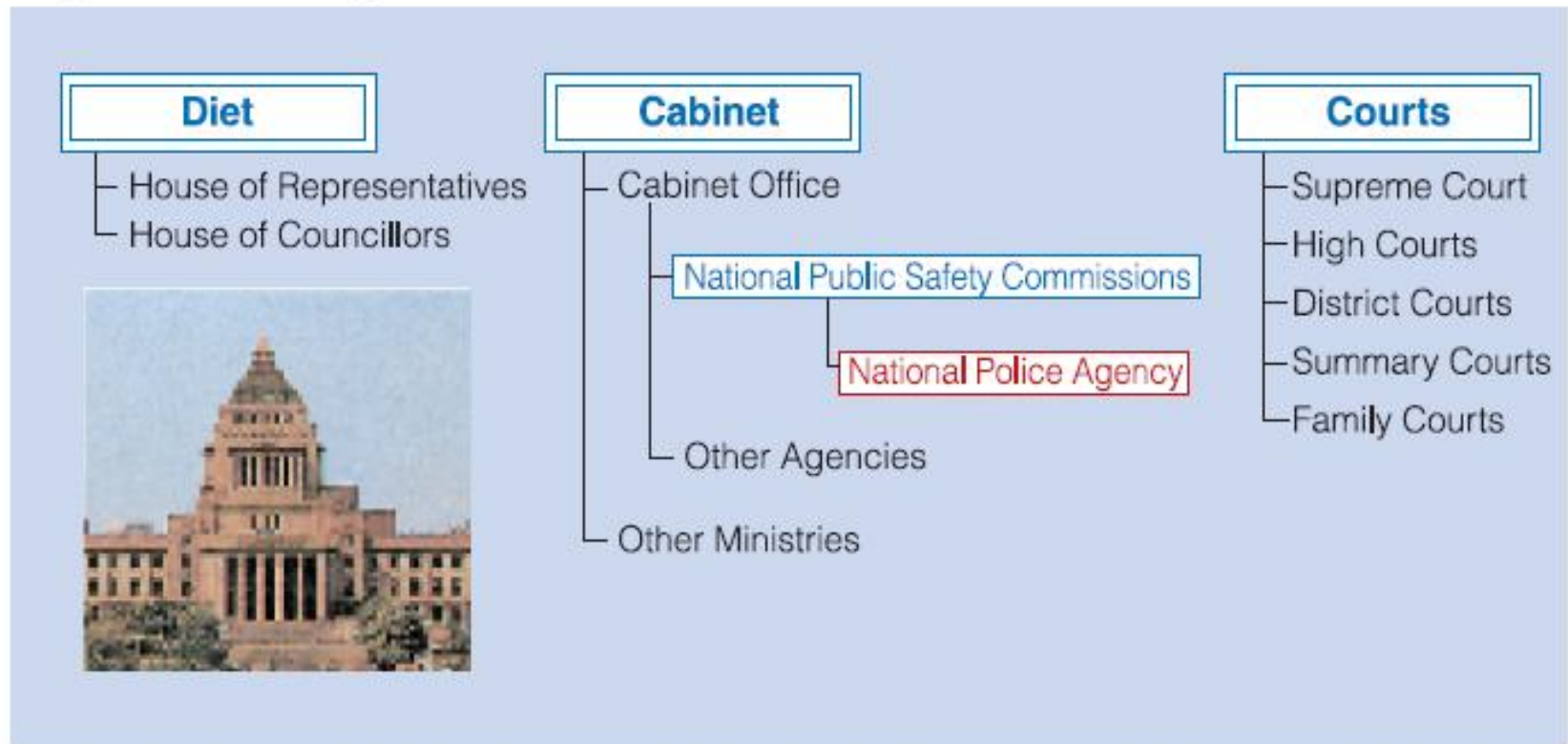
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Japanese Political System

- A simplified chart for the Japanese political system: (NPA will be discussed in next section)

Organization of Japanese Government





Japanese Political System

- ❑ A democratic government with three branches, namely, legislative, judicial, and executive branches;
- ❑ There are 47 prefectures in Japan, each prefecture government has its own legislatures and executive branches. It also has its own law enforcement (prefectural police) but the court belongs to the national court system.
- ❑ There are about 1800 cities, towns and villages in Japan. Each of them also has its own legislatures and executive branches. But its judiciary relies on prefectural and national government.



Japanese Political System

- ❑ The Japanese judicial system consists of the Supreme Court, High Court, District Court, Family Court, and Summary Court; The country is divided into eight jurisdictional districts and each has a high court;
- ❑ The high courts are mainly handling the appeals from either district or family courts, or the appeals directly from summary courts for some criminal cases;
 - In 2005, a new high court on intellectual property cases was established as a branch of the high court in Tokyo. Since then, all intellectual related cases have been handled by this special court.



Japanese Political System

- There are 47 prefectures (states) in Japan, each has a district court except for Hokkaido, which has four district courts, one for each of its four sub regions; therefore, there are totally 50 district courts in Japan;
- District courts are mainly handling felony cases as well as the civil cases in which more than 1.4 million yens are involved;
- District courts are also handling the appeals from summary courts on civil cases;
 - There are totally 438 summary courts which can handle the civil cases in which less than 1.4 million yens are involved in the disputes, or criminal cases as long as the verdict is less than three years in prison.



Japanese Political System

- Family courts are quite unique in Japan;
 - “The family court has, in the first place, jurisdiction over all disputes and conflicts that take place within the family, as well as all related domestic affairs of legal significance.”
- Family courts can also handle criminal cases if the defendants are under 20 years of age;
 - About 30% of the suspects accused of “unauthorized computer access law” are teenagers.
- There is a family court for each district courts plus 200 branches all over the country.



Japanese Political System

In summary:

- ❑ A cybercrime related case can start at either a summary court, a family court, or a district, or even a high court, depending on the impact of the case, the age of the defendant, or whether a dispute on the intellectual property is involved;
- ❑ An appealed cybercrime related case can reach a district court, a high court, or even the supreme court;
- ❑ Since a cybercrime case can appear at all levels of courts in Japan, digital forensics professionals should prepare their services for each level of courts.



Japanese Political System

But...

- ☐ In the case of civil cases, discovery procedures are not forced to either of defendants or complainants. They must prepare all of the evidences by their own.
- ☐ In the case of criminal cases, judges must evaluate all of evidence by their own. There are no procedure for the judges to ask for expert witness. It is called “principle of free evaluation of evidence”.



Japanese Law Enforcement System

NPA central office and Tokyo Metropolitan Police located by the Imperial Palace

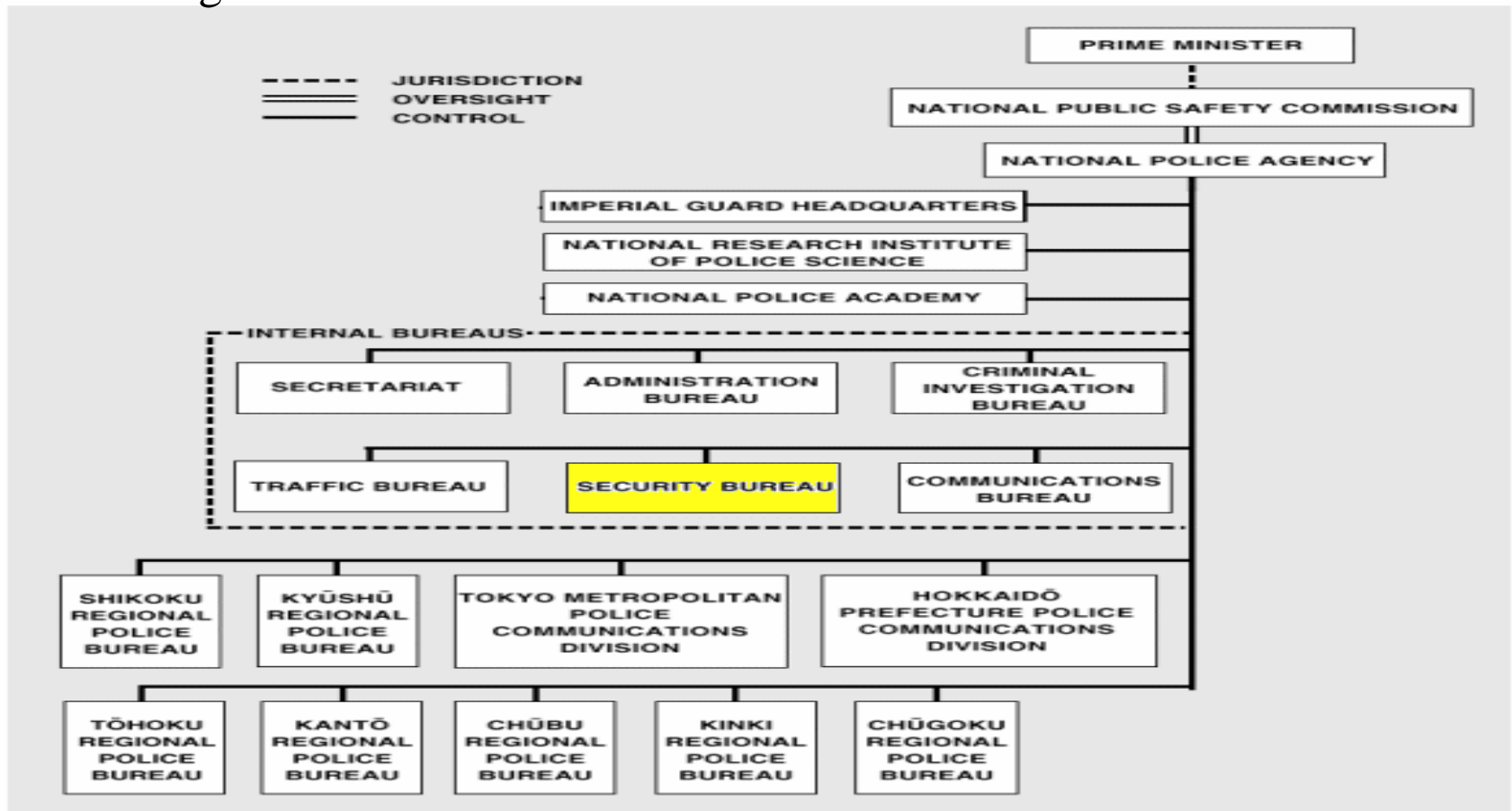


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Japanese Law Enforcement System

- NPA organization chart:



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Japanese Law Enforcement System

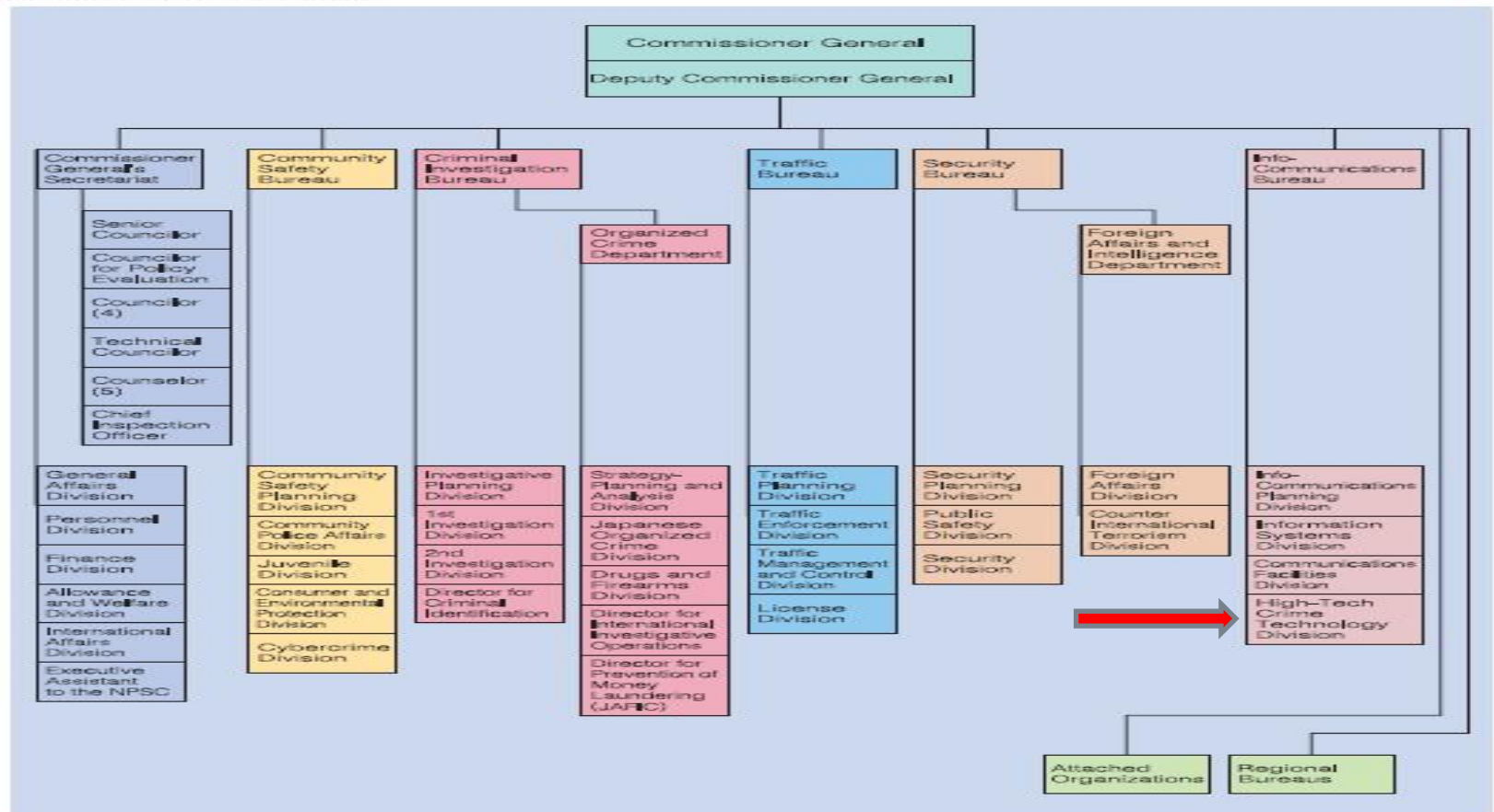
- ❑ All criminal cases (including cybercrimes) have been handled by prefectural polices. National Police Agency supervises the prefectural polices.
- ❑ After 2006, the cybercrime cases have been supervised and supported by the High-Tech Crime Technology Division under the Info-Communication Bureau within the NPA;
- ❑ The National Police Agency reports to the National Public Safety Commission, which is directly responsible to the Prime Minister;
- ❑ The National Police Agency is divided into seven regional police bureaus plus the Metropolitan of Tokyo and the island of Hokkaido;
- ❑ Each regional police bureau is responsible for a number of prefectures;



Japanese Law Enforcement System

- High-Tech Crime Technology Division within the NPA:

Organization of NPA (2007)

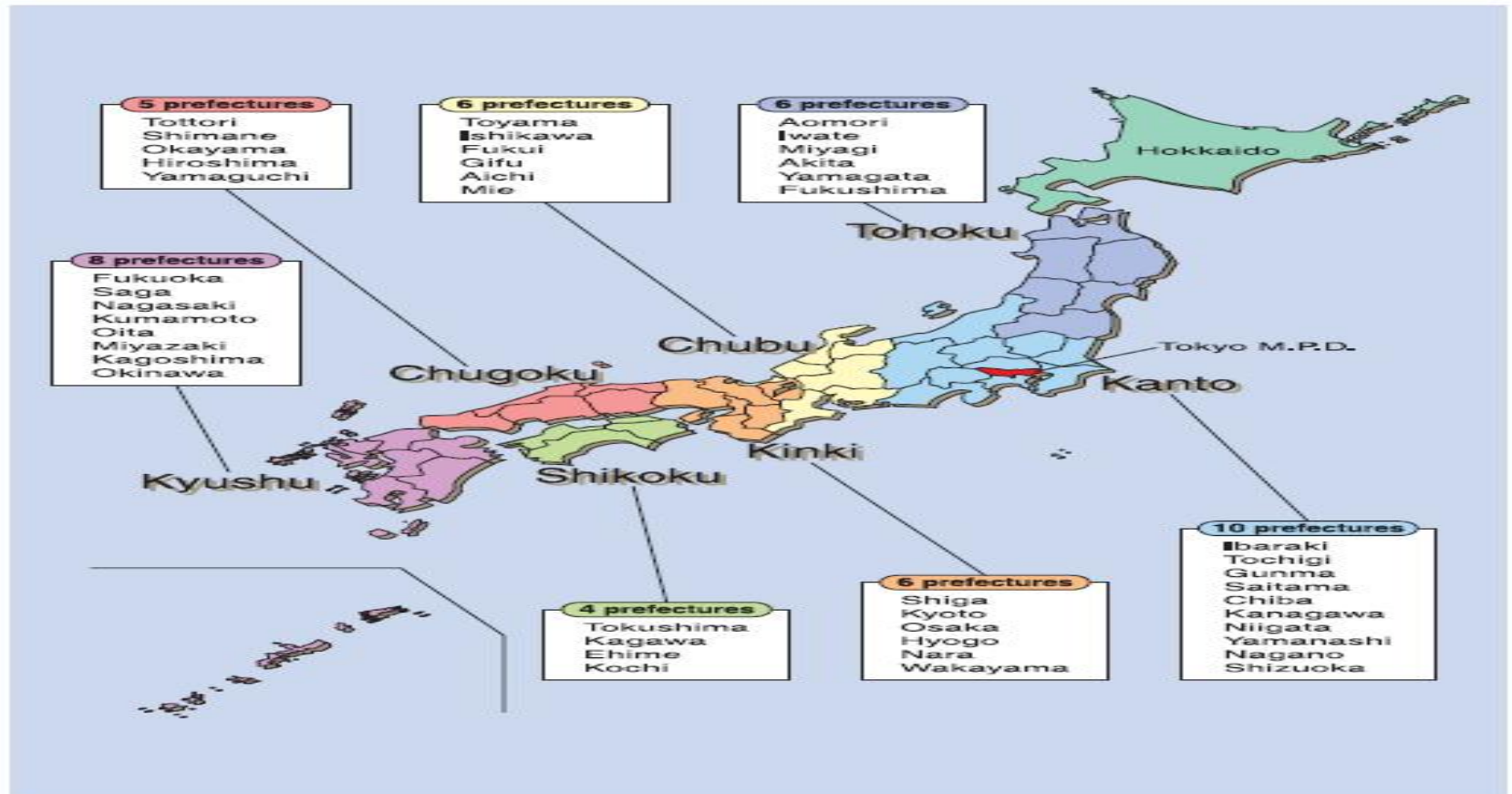




Japanese Law Enforcement System

- The seven police regional bureaus:

Regional Police Bureaus



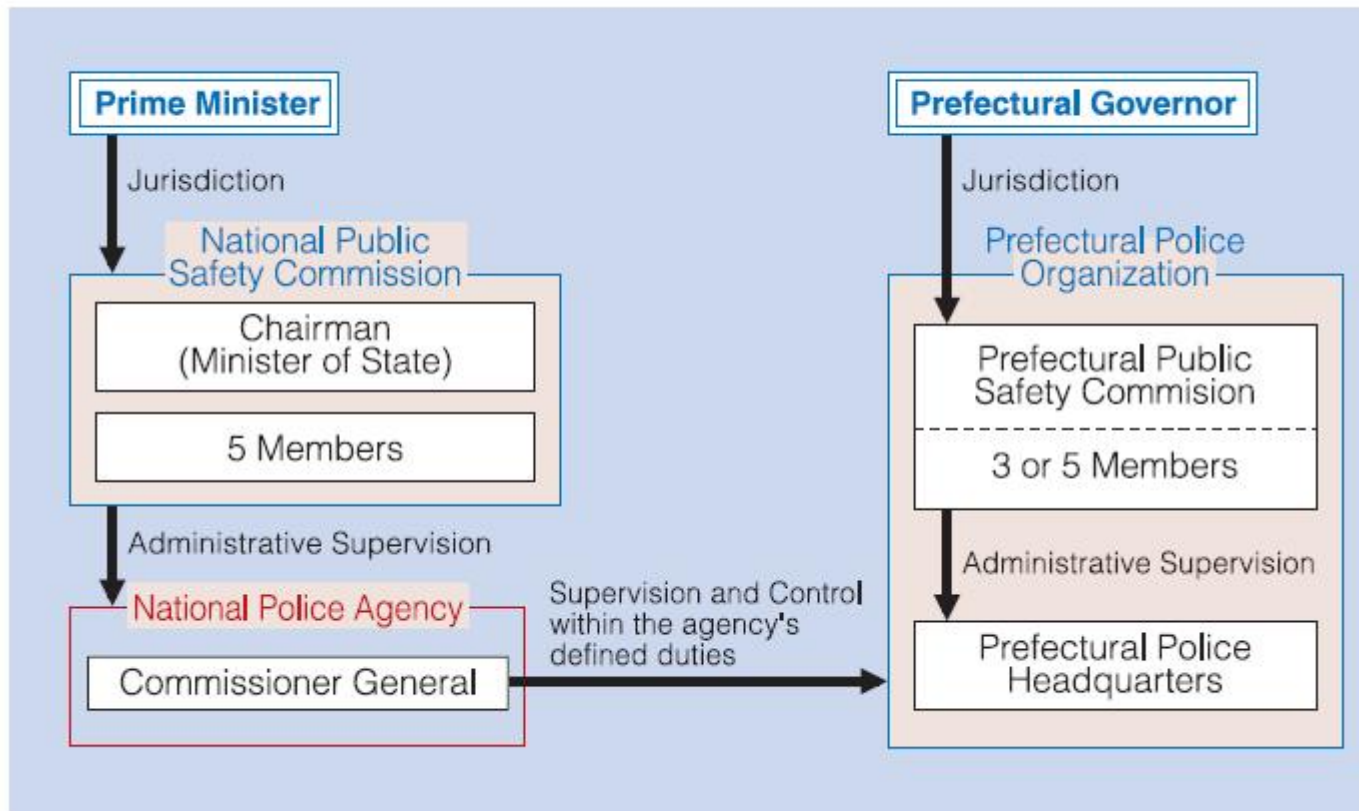
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Japanese Law Enforcement System

- The relationship between the central NPA and local prefecture police dept.:

System of Public Safety Commissions

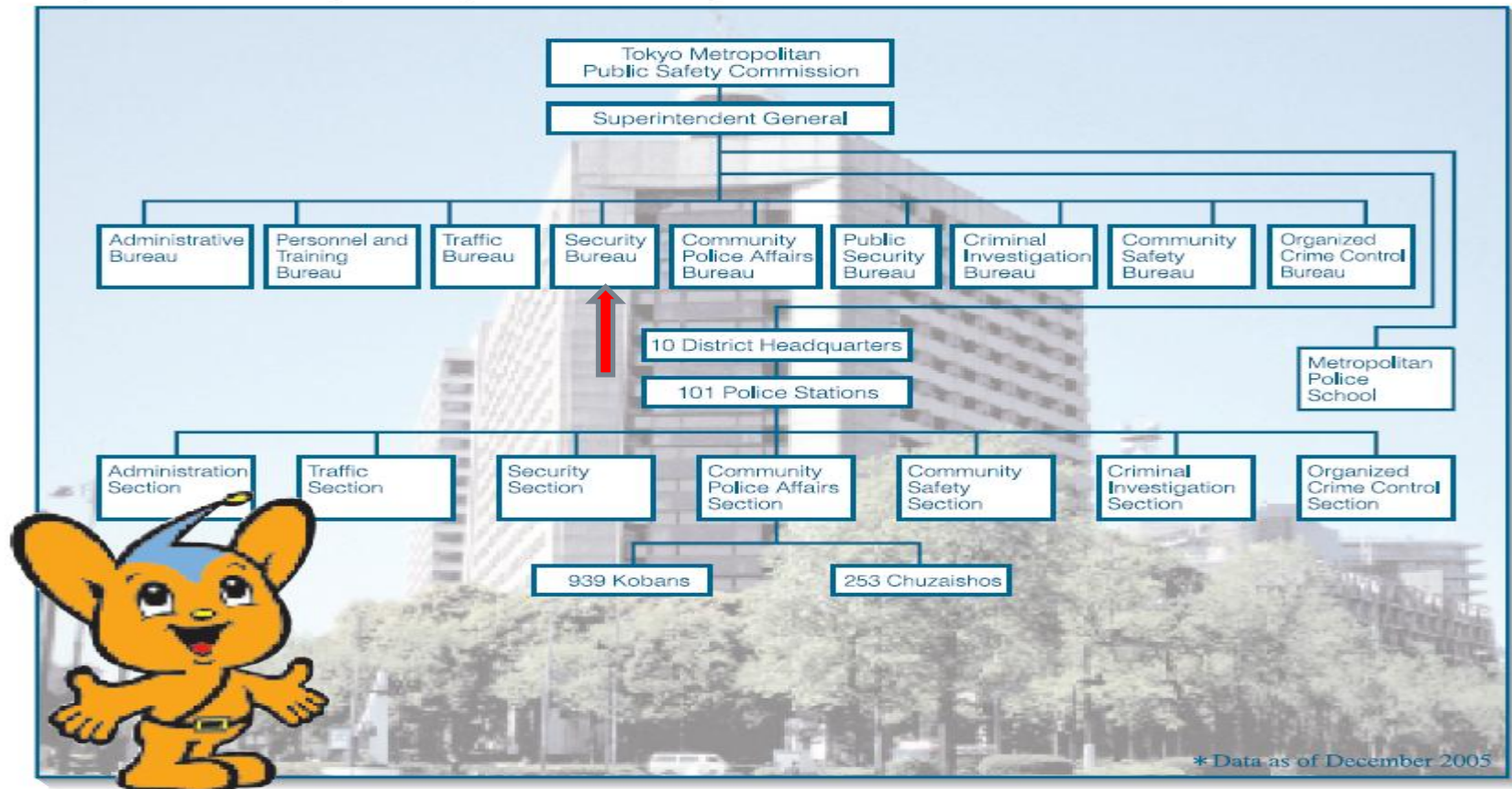




Japanese Law Enforcement System

- The organization chart for Tokyo Metropolitan Police Department (2006):

Organization of Tokyo Metropolitan Police Department



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Japanese Law Enforcement System

- The legal proceedings chart:

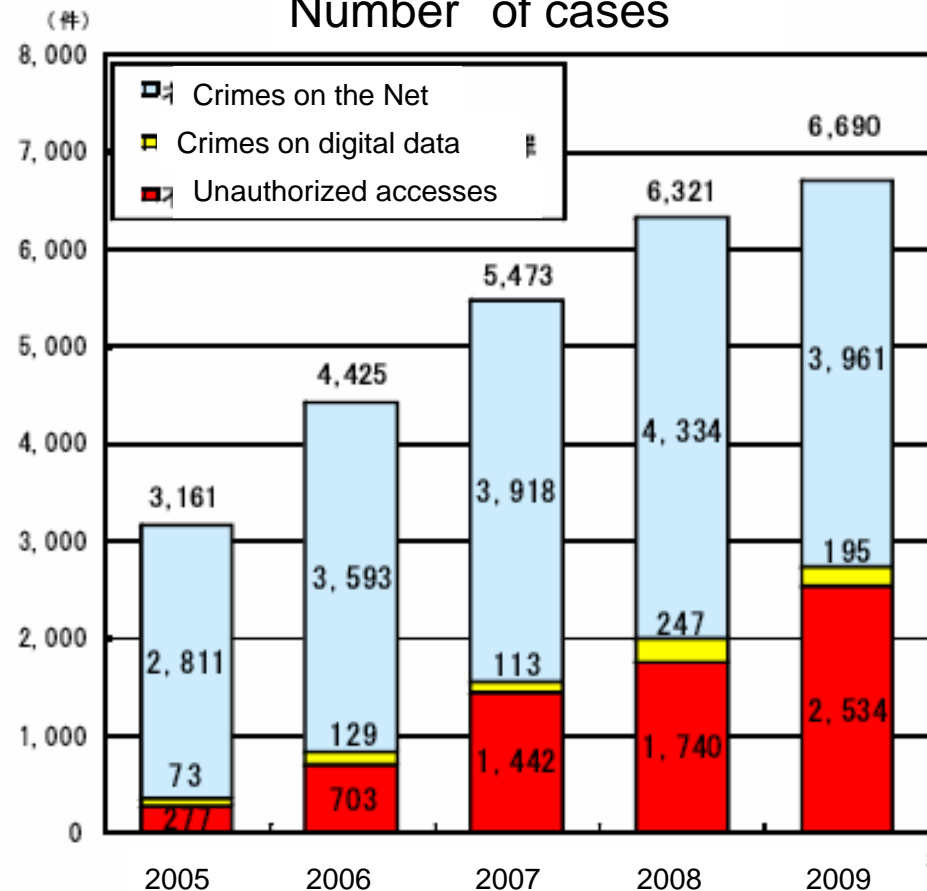




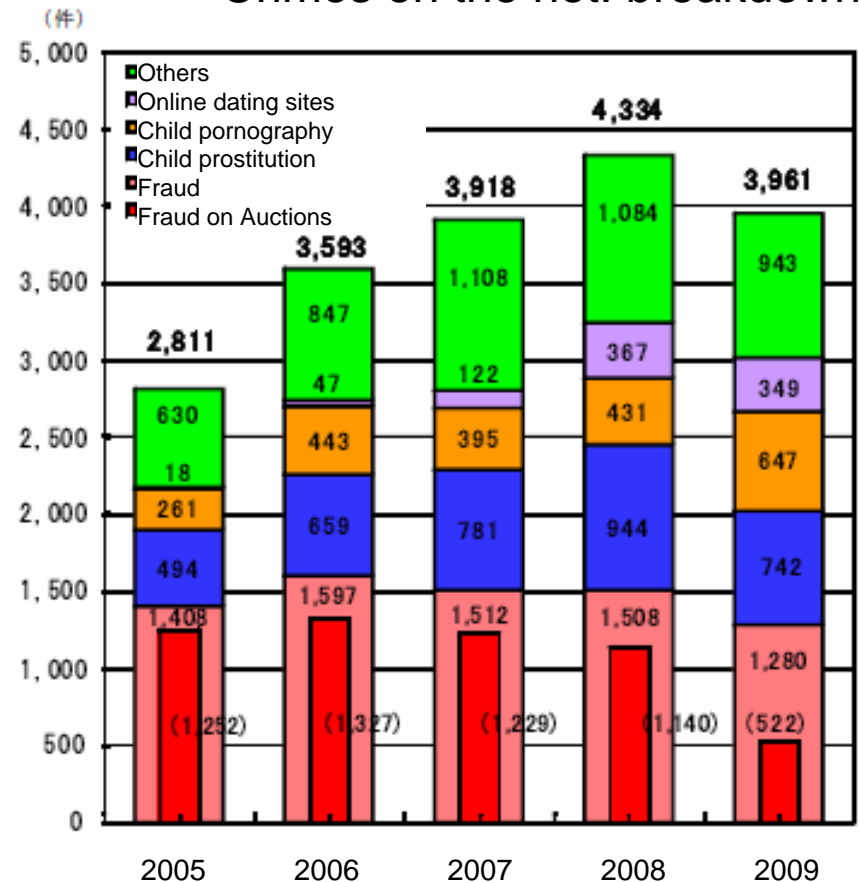
Current Situation

- Cybercrimes have been steadily increased recently in Japan.

Number of cases



Crimes on the net: breakdown





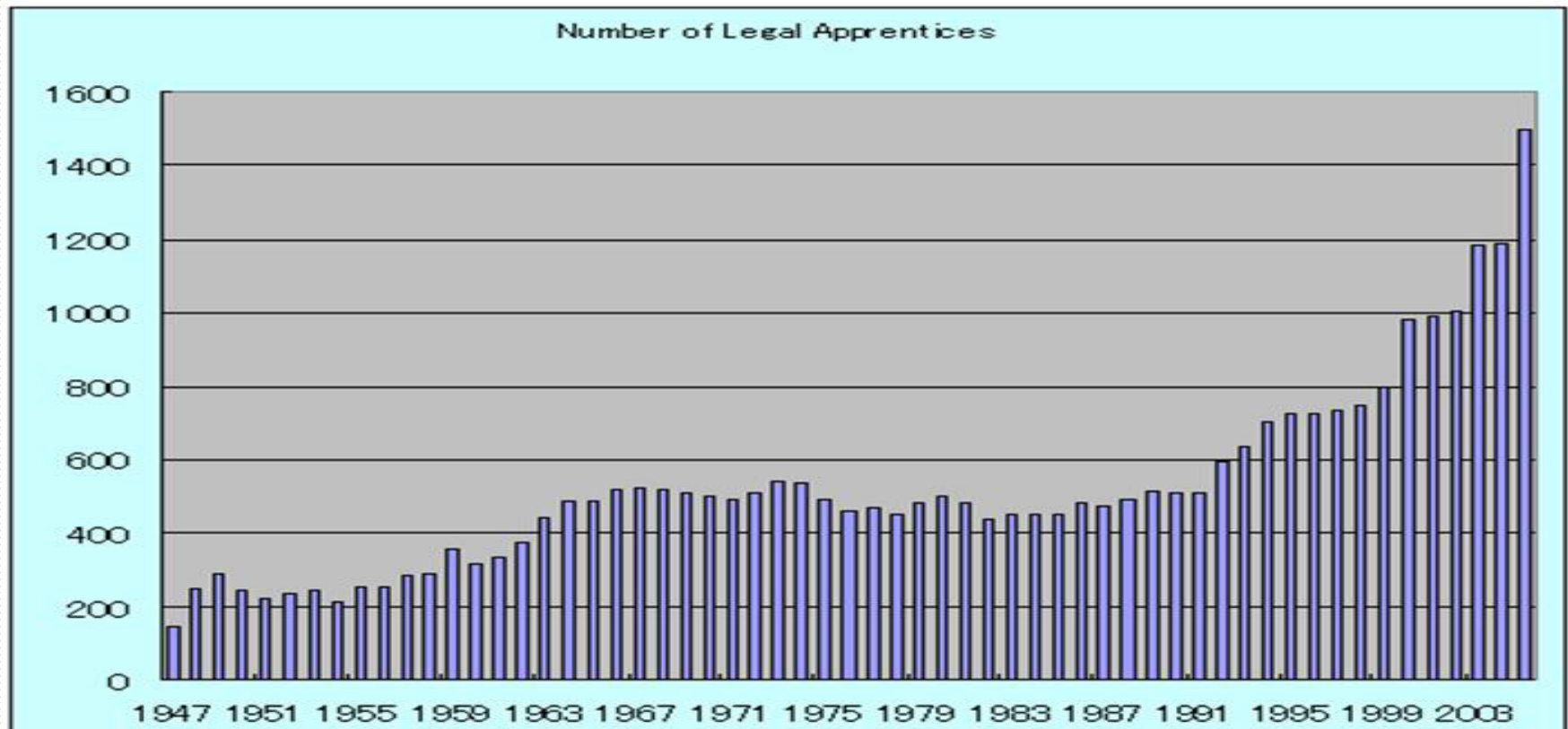
Current Situation

- ❑ Fraud (using the Internet) and Fraud using Internet auction have been the largest portions of cybercrimes but the number is decreasing;
- ❑ The violation of the copyright and patent are 188 and 126 in 2009, respectively. The numbers are slightly increasing;
- ❑ The most alarming situation is the continuing incline in the cases on child prostitution and juvenile protection, which increased by 91% from 2005 to 2008 at 944 cases. The number was slightly decreased in 2009.
- ❑ Distribution of obscene materials and child pornography is recently increasing at 647 cases in 2009.



Current Situation

- Training in the Japanese legal system has been intensified lately as shown in the figure below:



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Current Situation

- ❑ Japan has joined the international police organization in fighting against cyber crimes since 2001;
- ❑ IFIP 11.9 Working Group on Digital Forensics held their annual conference at Kyoto University, Kyoto, Japan, in Jan. 2008. It was the first conference held outside of U.S.
- ❑ FIRST, an international technical training conference on incident response, held its 21st annual conference in Kyoto, Japan, in June, 2009 (Since it started 20 years ago, this was the first time FIRST holds its conference in Japan)
- ❑ The Second International Workshop on Digital Forensics was held at Fukuoka, Japan in March 2009 .



Discussion and Consideration

- Computer Forensics awareness in Japan:

	Domain				Percentage		
	ac.jp	go.jp	co.jp	.jp	ac %	go%	co%
English	64	9	625	1670	3.8	0.5	37.4
Japanese	53	15	1820	3660	1.4	0.4	49.7

- a. Key words = "Computer Forensics" ; numbers of hits per domain; percent of their hits

	Domain				Percentage		
	ac.jp	go.jp	co.jp	.jp	ac %	go%	co%
English	35	8	176	399	8.8	2.0	44.1
Japanese	42	4	706	1200	3.5	0.3	58.8

- b. Key words = "Digital Forensics" ; numbers of hits per domain; percent of their hits

	Domain				Percentage		
	ac.jp	go.jp	co.jp	.jp	ac %	go%	co%
English	8	2	29	83	9.6	2.4	34.9
Japanese	12	2	60	139	8.6	1.4	43.2

- c. Key words = "Forensic Computing" ; numbers of hits per domain; percent of their hits

	Domain				Percentage		
	ac.jp	go.jp	co.jp	.jp	ac %	go%	co%
English	2	5	67	117	1.7	4.3	57.3
Japanese	1	5	311	409	0.2	1.2	76.0

- d. Key words = "Cyber Forensics" ; numbers of hits per domain; percent of their hits

	Domain				Percentage		
	ac.jp	go.jp	co.jp	.jp	ac %	go%	co%
English	1970	600	4480	11600	17.0	5.2	38.6
Japanese	1920	614	10800	22900	8.4	2.7	47.2

- e. Key words = "Computer Security" ; numbers of hits per domain; percent of their hits



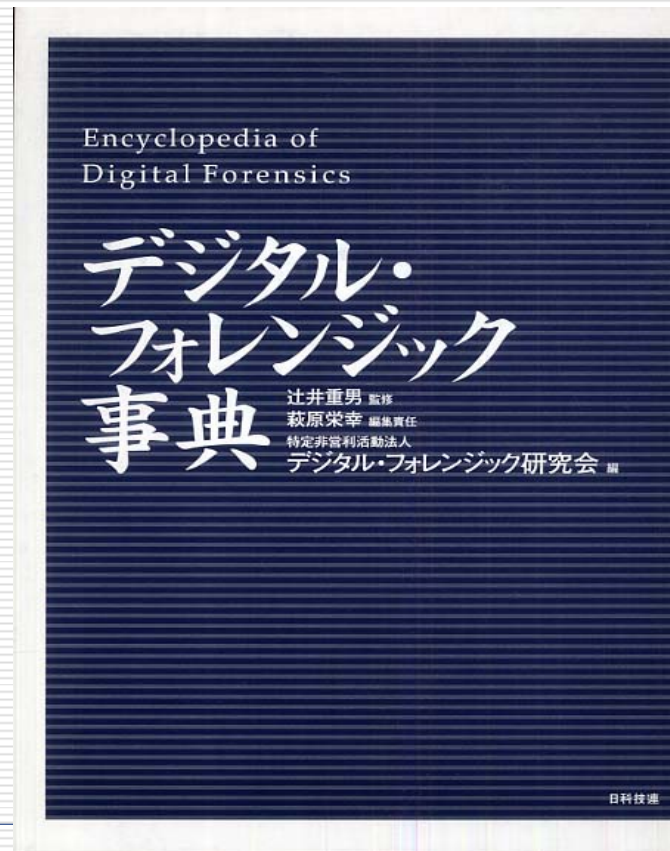
Discussion and Consideration

- ❑ The number of the hits for “computer forensics” is more than the number of hits for either “Digital Forensics,” “Forensic Computing,” or “Cyber Forensics;”
- ❑ The number of hits for “computer security” is 30 times more than the number of the hits for “computer forensics,” which indicates the awareness of “computer forensics” is far behind the awareness of “computer security” in Japan;
- ❑ The training on computer forensics has been mainly organized within the law enforcement and the computer security divisions within the non-law enforcement sectors;
- ❑ So far, we have not found a single academic program, either a degree program or a certificate program, in computer forensics or digital forensics in Japan.



Discussion and Consideration

- This very first book on Digital Forensics in Japanese was published in Dec. 2006.





Discussion and Consideration

- As the legal reform in Japan continues, the shortage of lawyers has emerged as one of the critical problems;
- Although Japan has been enjoying one of the world lowest crime rate for decades, the number of lawyers per capita is significant low comparing with other developed countries.

	Japan	The US	Great Britain	Germany	France
Populations(m)	127	300	59	82	60
# of lawyers	20,000	941,000	83,000	111,000	36,000
Lawyers/capita	5,789	289	510	597	1,402
# of yearly Bar Passers	1,000	57,000	4,900	9,800	2,400



D i s c u s s i o n a n d C o n s i d e r a t i o n

- If the assumption holds true, the US needs at least 50,000 computer forensics professionals for its 1 million lawyers, which means one computer forensics professional for every 20 lawyers;
- If Japan wants to have the same ratio between its lawyers and computer forensics professionals as the one in the States, the demands for computer forensics professionals over the years are

Year	# of Lawyers	# of Computer Forensics Professionals
2005	26,076	1,303
2018	50,000*	2,500
2036	100,000*	5,000
2056	135,465*	6,750

* Predicted in [5]



Conclusion and Future Work

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- Japanese law enforcement is fully supported by its government with its dedicated network, research organization, and training facility, and is one of the critical forces in fighting against cybercrimes domestically as well as globally;
 - Public awareness, academic research, and curriculum development in computer forensics will become more important to Japan as its legal system reform continues;
 - IDF, Institute of Digital Forensics, has been playing a critical role in promoting computer/digital forensics in Japan since 2004;
 - A comparative study between Japan and the US on various issues in computer forensics is an interesting subject to pursue.



Workshop on Digital Forensics

Questions ???

Contact Information

Tetsutaro Uehara : Uehara@media.kyoto-u.ac.jp

Thank you very much for your attention!