KEMENTERIAN KOMUNIKASI DAN INFORMATIKA
REPUBLIK INDONESIA

BRTI

Indonesia National Cyber Security : Toward a Holistic Approach

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The Indonesian Telecommunication Regulatory Authority (BRTI)

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CYBER WARFARE/ATTACK

Russia-Georgia
Cyber warfare 2008

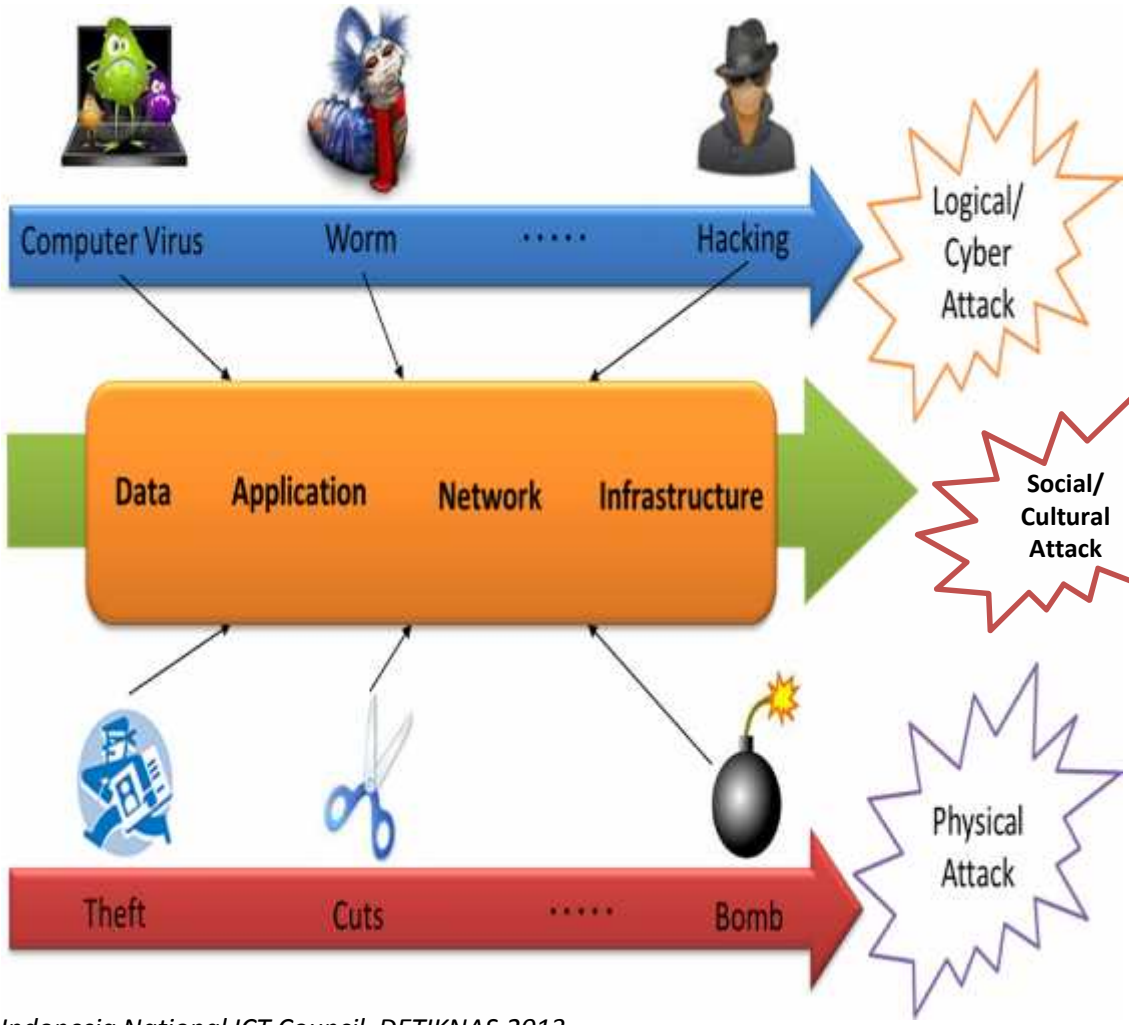
Wikileaks

STUXNET

Estonia Cyber Attack 2007

And many more…

THREE DIMENSIONS OF CYBER THREAT/ATTACK



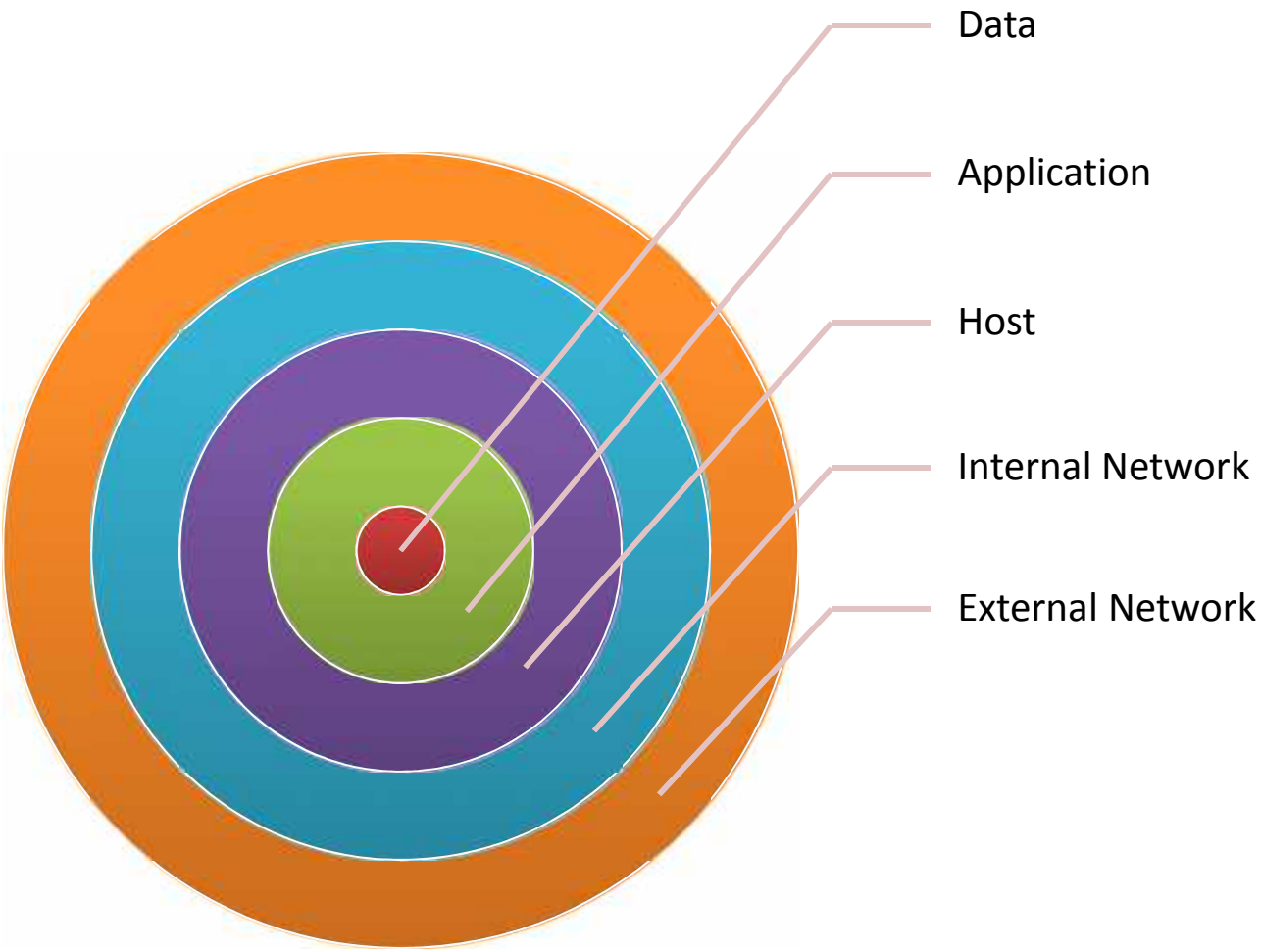
- Cyber threat/attack can be divided into three dimensions.
- These threats potentially destroying the economy and destabilize the country's security.

Sources: Indonesia National ICT Council, DETIKNAS 2013

CYBER SECURITY

GENERAL	ITU	NATO
Cybersecurity is the body of technologies, processes and practices designed to protect networks, computers, programs and data from attack, damage or unauthorized access. In a computing context, the term security implies cybersecurity. Ensuring cybersecurity requires coordinated efforts throughout an information system. Elements of cybersecurity include: • Application security • Information security • Network security • Disaster recovery / business continuity planning • End-user education.	"Cybersecurity is the collection of tools, policies, security concepts, security safeguards, guidelines, risk management approaches, actions, training, best practices, assurance and technologies that can be used to protect the cyber environment and organization and user's assets. The Global Cybersecurity Agenda: 1) Legal Measures => cybercrime legislation 2) Technical and Procedural Measures => End users and businesses (direct approach); and Service providers and software companies 3) Organizational Structures => highly developed organizational structures, avoid overlapping, 4) Capacity Building & User's education => public campaigns + open communication of the latest cybercrime threats 5) International Cooperation => Mutual Legal Assistance of the LEA's	National Cyber Security (NCS): Defined 'The focused application of specific governmental levers and information assurance principles to public, private and relevant international ICT systems, and their associated content, where these systems directly pertain to national security.' The 5 Mandates (Different interpretations of NCS & common activities) • Military Cyber • Counter Cyber Crime • Intelligence and Counter-Intelligence • Critical Infrastructure Protection and National Crisis Management • Cyber Diplomacy and Internet Governance + 3 'Cross Mandates': • coordination, • Information exchange and data protection, • research & development and education The 3 Dimensions: Different stakeholder groups in NCS • Governmental (central, state, local) – 'coordination' • National (CIP/contactors, security companies, civil society) – 'co-operation' • International (legal, political and industry frameworks) – 'collaboration' The 5 Dilemmas: • Balancing the cost and benefits of NCS • Stimulate the Economy vs. Improve National Security • Infrastructure Modernisation vs. Critical Infrastructure Protection • Private Sector vs. Public Sector • Data Protection vs. Information Sharing • Freedom of Expression vs. Political Stability

Layers of Cyber Security



- Implementation of cyber security technologies and processes performed at each layers.
- Cyber security at every layer is called defense in depth.
- Defense in Depth strategy is to achieve the main objectives of security, namely Availability, Integrity, Confidentiality (AIC Triad).

Industries most frequently targeted by cyber attacks in Q3 2014

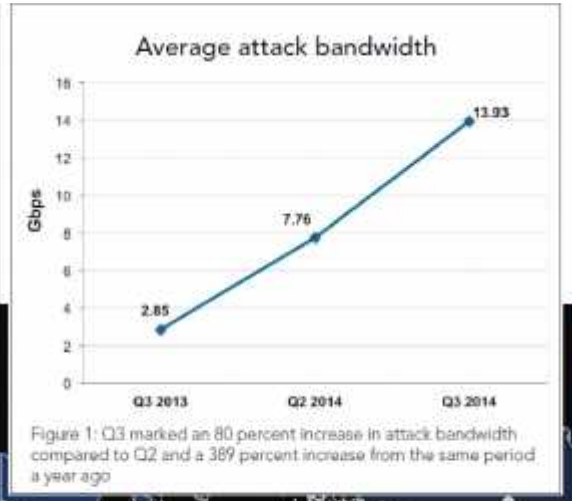
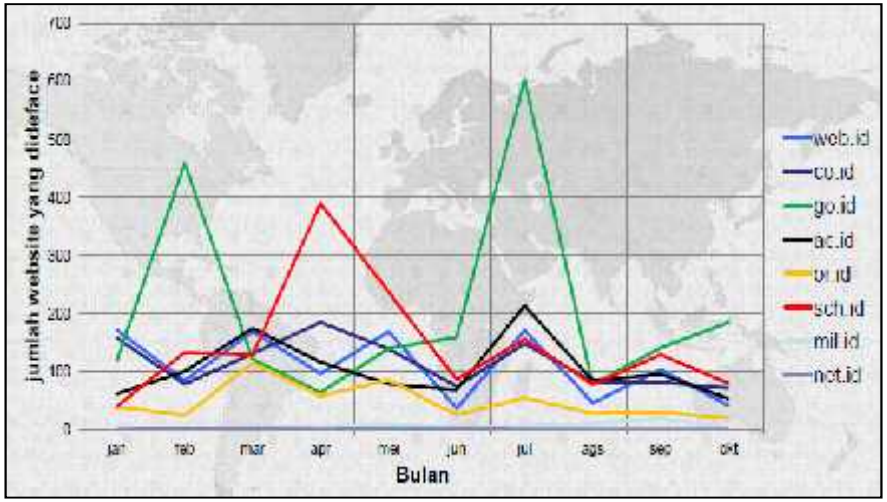


Figure 1: Q3 marked an 80 percent increase in attack bandwidth compared to Q2 and a 389 percent increase from the same period a year ago

SITUASI *CYBER* GLOBAL

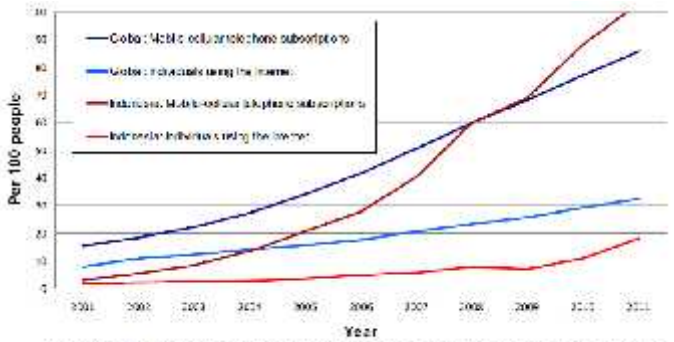
IS INDONESIA UNDER ATTACK???

- Over the last three years, Indonesia was attacked 3,9 millions in cyber space. (Sources: Minister of ICT, April 3rd, 2013).
- During January-October 2012, The most attacked website is Government websites/domain: go.id (Sources: ID-SIRTII, 2012).



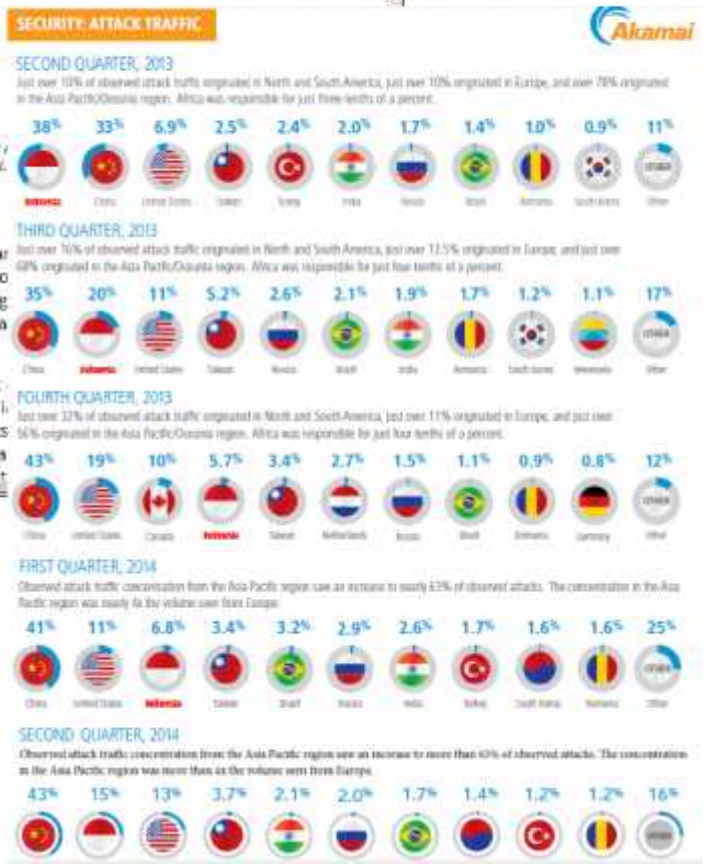
Sources: ID-SIRTII

Sources: Detikinet, 2013



Growth in Internet and mobile usage in Indonesia and the world

Source: ITU World Telecommunication / ICT Indicators database.



2. Country/Economy Profiles

Indonesia

	Rank (out of 143)	Value (1–7)
Networked Readiness Index 2014	**64**	**4.0**
Networked Readiness Index 2013 (out of 144)	76	3.8
A. Environment subindex	63	4.0
1st pillar: Political and regulatory environment	68	3.7
2nd pillar: Business and innovation environment	62	4.1
B. Readiness subindex	65	4.9
3rd pillar: Infrastructure and digital content	85	3.0
4th pillar: Affordability	37	6.0
5th pillar: Skills	61	5.2
C. Usage subindex	69	3.7
6th pillar: Individual usage	95	2.9
7th pillar: Business usage	36	4.0
8th pillar: Government usage	49	4.3
D. Impact subindex	72	3.5
9th pillar: Economic impacts	86	3.1
10th pillar: Social impacts	63	3.6

SITUASI *CYBER* REGIONAL

Victimisation rates and estimates of cyber crime cost in Indonesia

Victimisation rate:	25%	50%	75%
Estimated number of victims:*	15.7m	31.5m	47.3m
Estimated low cost:**	USD 788m	USD 1,575m	USD 2,363m
Estimated average cost:**	USD 3,099m	USD 6,199m	USD 9,298m

*Sources: *Based on usage estimates from APJII. **Based on Norton estimates.*

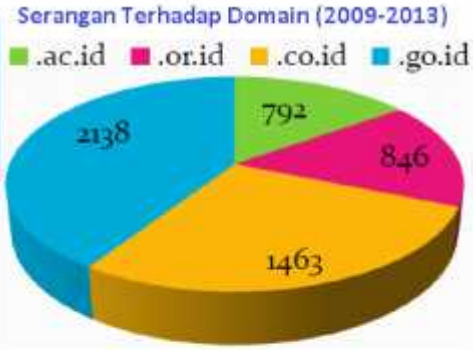
Estimates of cyber crime cost in the world and Indonesia

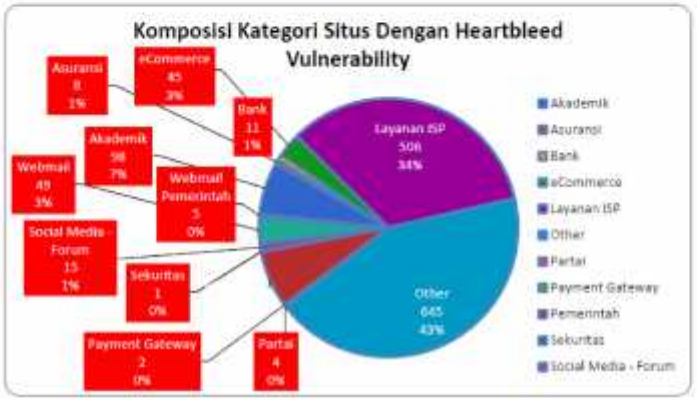
	Global	Indonesia
GDP:*	USD 71, 620bn	USD 895bn
Per cent of global GDP*:		1.20%
Cost of:**		
Genuine cybercrime:	USD 3,457m	USD 43m
Transitional cybercrime:	USD 46,600m	USD 582m
Cybercriminal infrastructure:	USD 24,840m	USD 310m
Traditional crimes becoming cyber:	USD 150,200m	USD 2,748m

*Sources: *CIA World Factbook. **Based on Anderson, et al, model.*

Laporan Kejahatan Cyber Crime di Indonesia

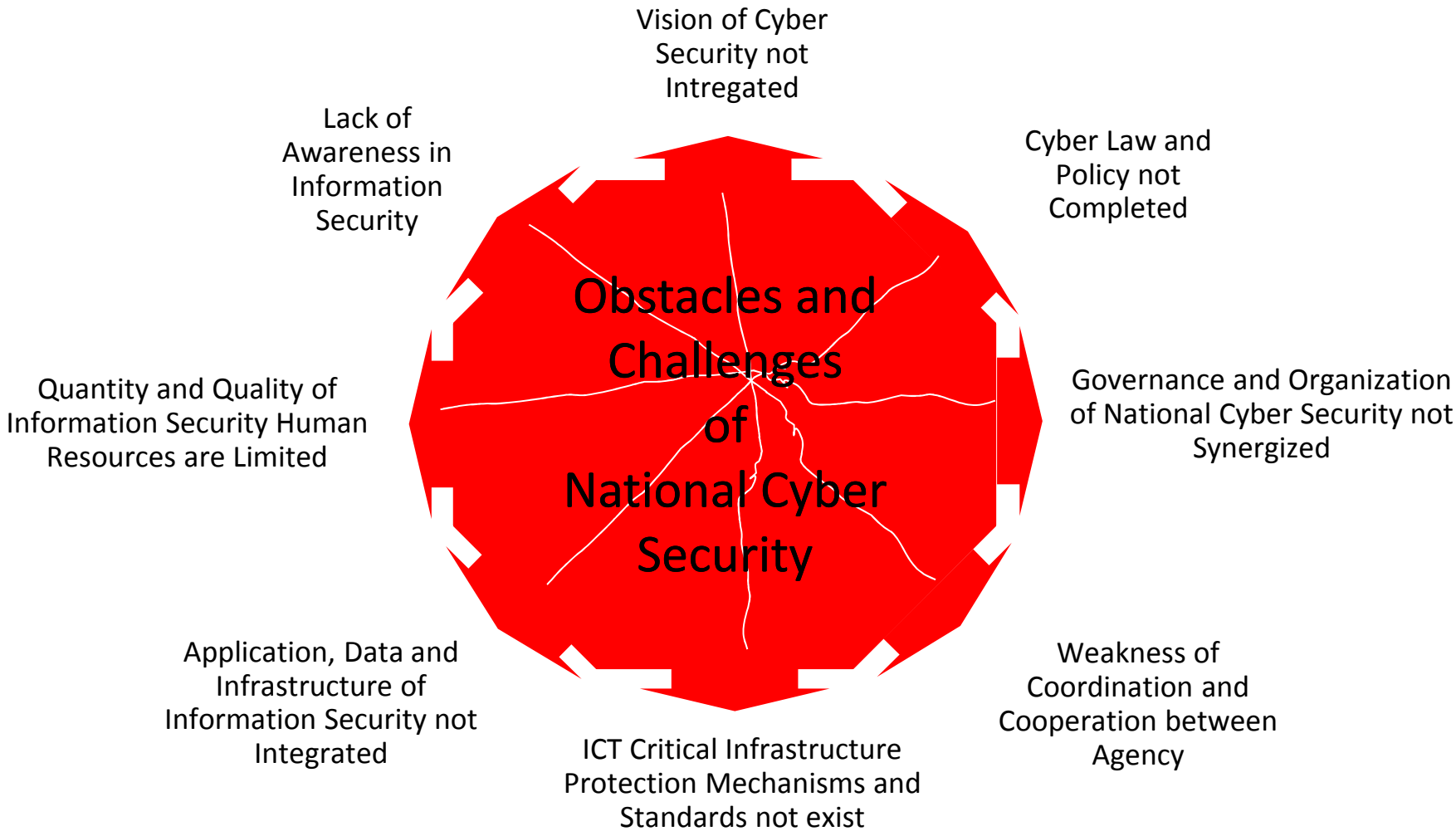
Kategori Industri	Jumlah
Akademik	98
Asuransi	8
Bank	11
eCommerce	45
Layanan ISP	506
Other	645
Partai	4
Payment Gateway	2
Pemerintah	106
Sekuritas	1
Social Media - Forum	15
Webmail	49
Webmail Pemerintah	5
Grand Total	**1495**





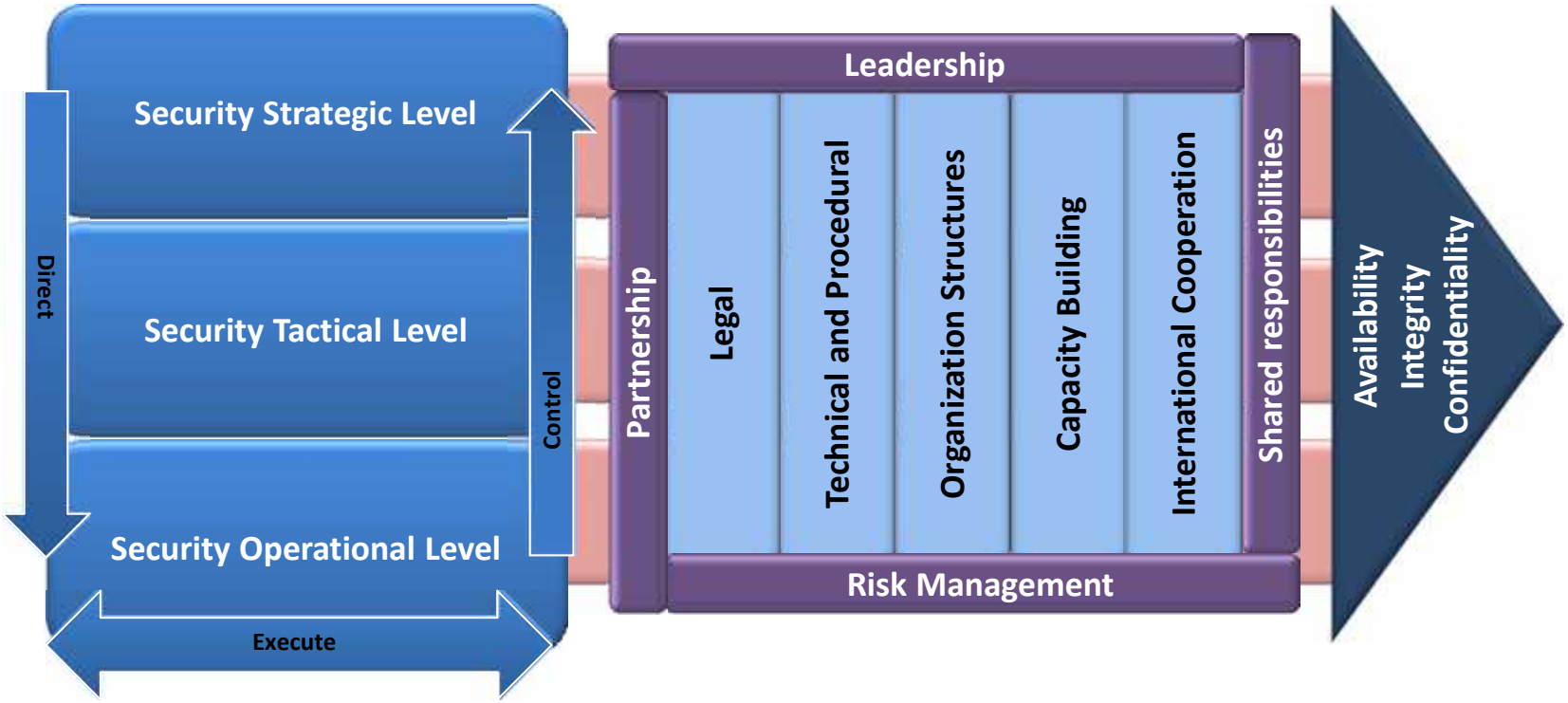
SITUASI *CYBER* NASIONAL (*CYBER ATTACK*)

OBSTACLES AND CHALLENGES OF INDONESIA NATIONAL CYBER SECURITY



Sources: Indonesia National ICT Council, DETIKNAS 2013

Indonesia National Cyber Security Conceptual Framework (INCS)



Sources: Indonesia National ICT Council, Detiknas 2012

6 Strategic Priority of Indonesia National Cyber Security

Sources: Indonesia National ICT Council, DETIKNAS 2013

THE CONCEPT OF NCS ORGANIZATION STRUCTURE

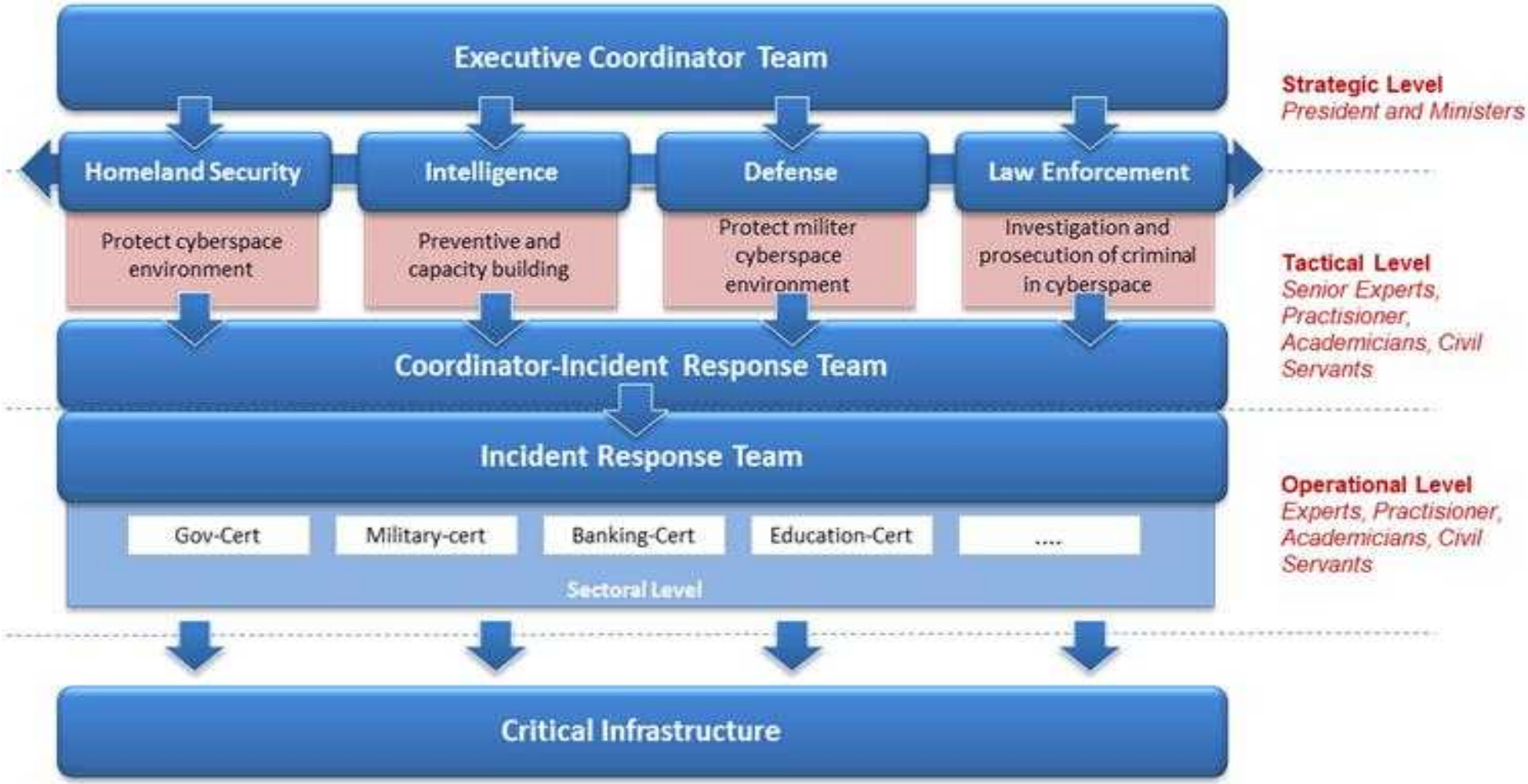
- The Concept of Indonesia NCS organization structure consists of multi-organization.
- INCS organization contains of skilled, proficient, and experienced employees with prosperous information security knowledge inside their parts of specialization.

Sources: Indonesia National ICT Council, DETIKNAS 2013

COMPARISON OF CYBER SECURITY ORGANIZATION

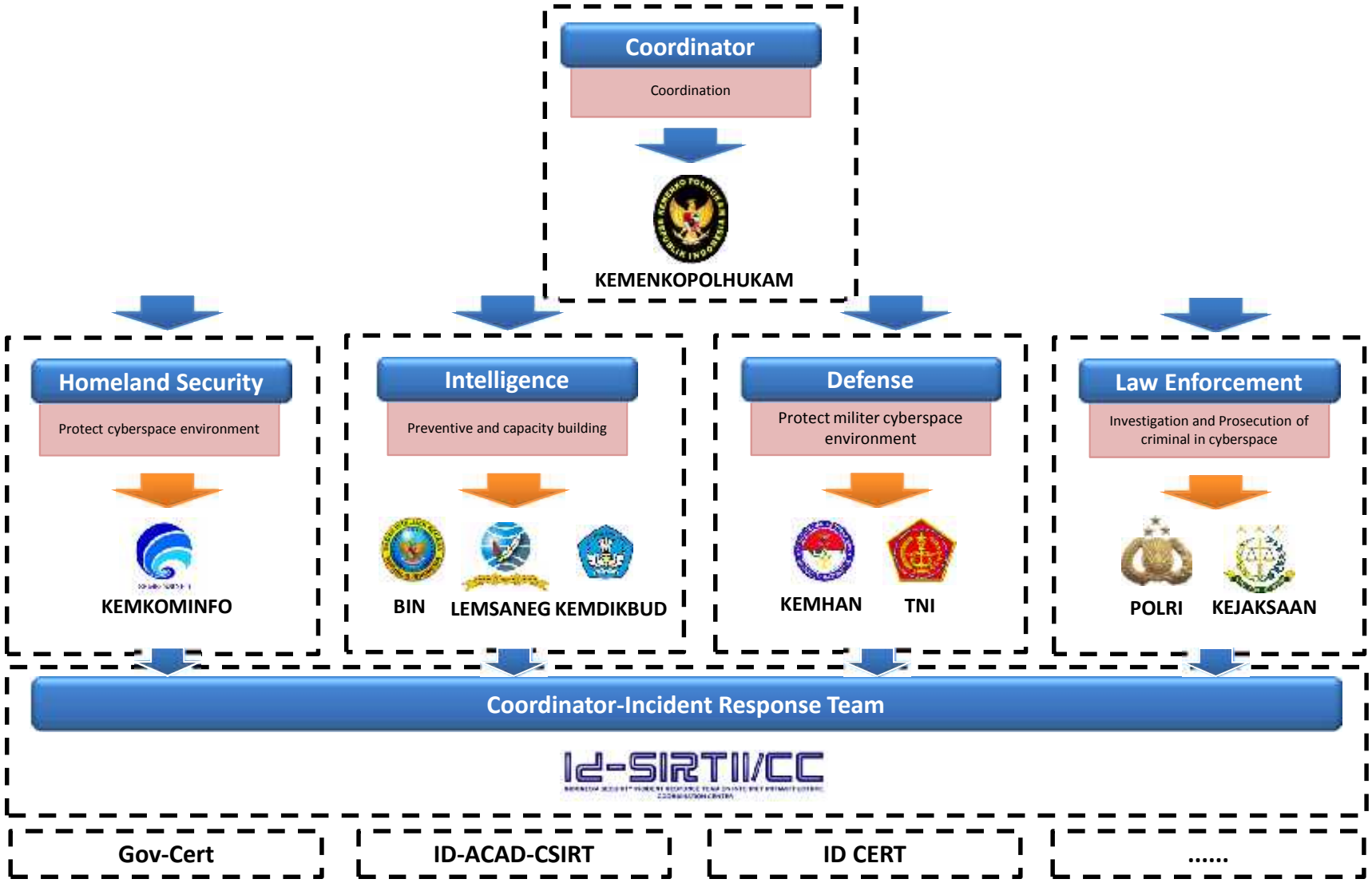
Level	Australia	UK	Indonesia
Strategic	Cyber Security Policy and Coordination Committee (Lead Agency: The Attorney-General's Department) Function: interdepartmental committee that coordinates the development of cyber security policy for the Australian Government.	Office of Cyber Security (OCS) function: to provide strategic leadership for and coherence across Government;	BCN - Badan Cyber Nasional (Office of National Cyber Security)
Tactical	Cyber Security Operations Centre (CSOC) (Under Directorate: Defense Signals Directorate) Function: provides the Australian Government with all-source cyber situational awareness and an enhanced ability to facilitate operational responses to cyber security events of national importance.	Cyber Security Operations Centre (CSOC) Function: actively monitor the health of cyber space and co-ordinate incident response; to enable better understanding of attacks against UK networks and users; to provide better advice and information about the risks to business and the public.	Cyber Security Operations Centre (TBD)
Operational	CERT Australia	GovCertUK	ID-SIRTII GovCert ID-Cert

INDONESIA NATIONAL CYBER SECURITY ORGANIZATION STRUCTURE FRAMEWORK

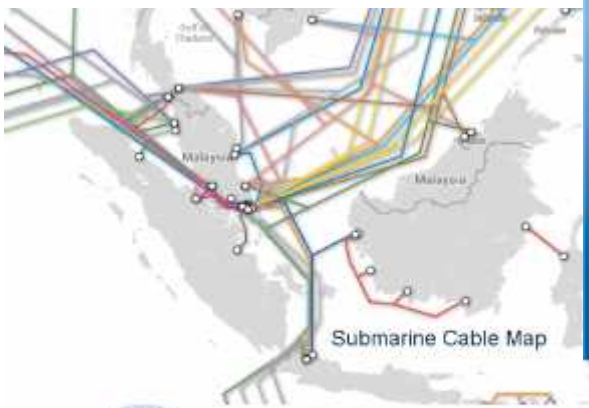


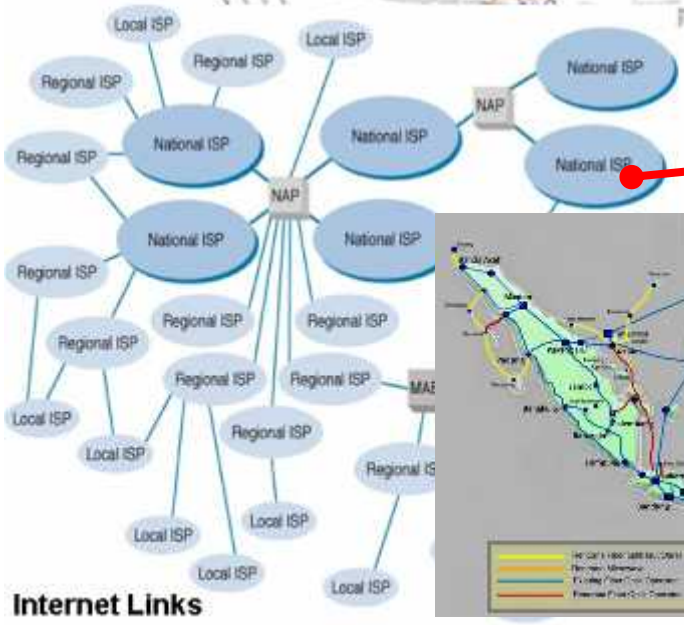
Sources: Indonesia National ICT Council, DETIKNAS 2013

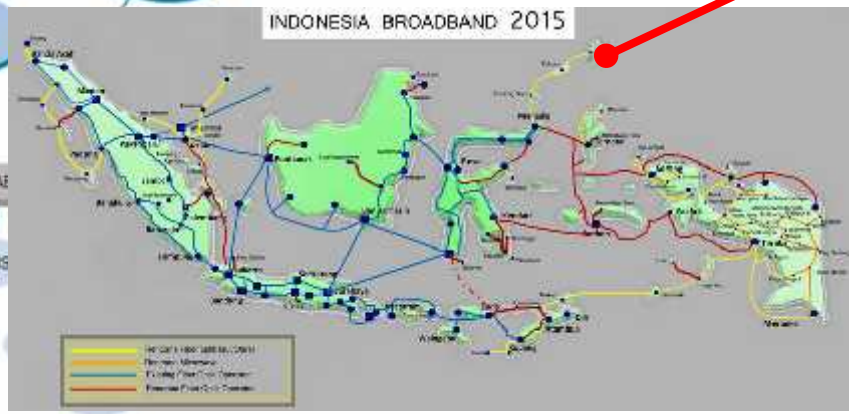
ORGANIZATION MAPPING RECOMENDATION



Sources: Indonesia National ICT Council, DETIKNAS 2013







Cyber Crime | Cyber Security

Cyber Attack

Cyber Threat

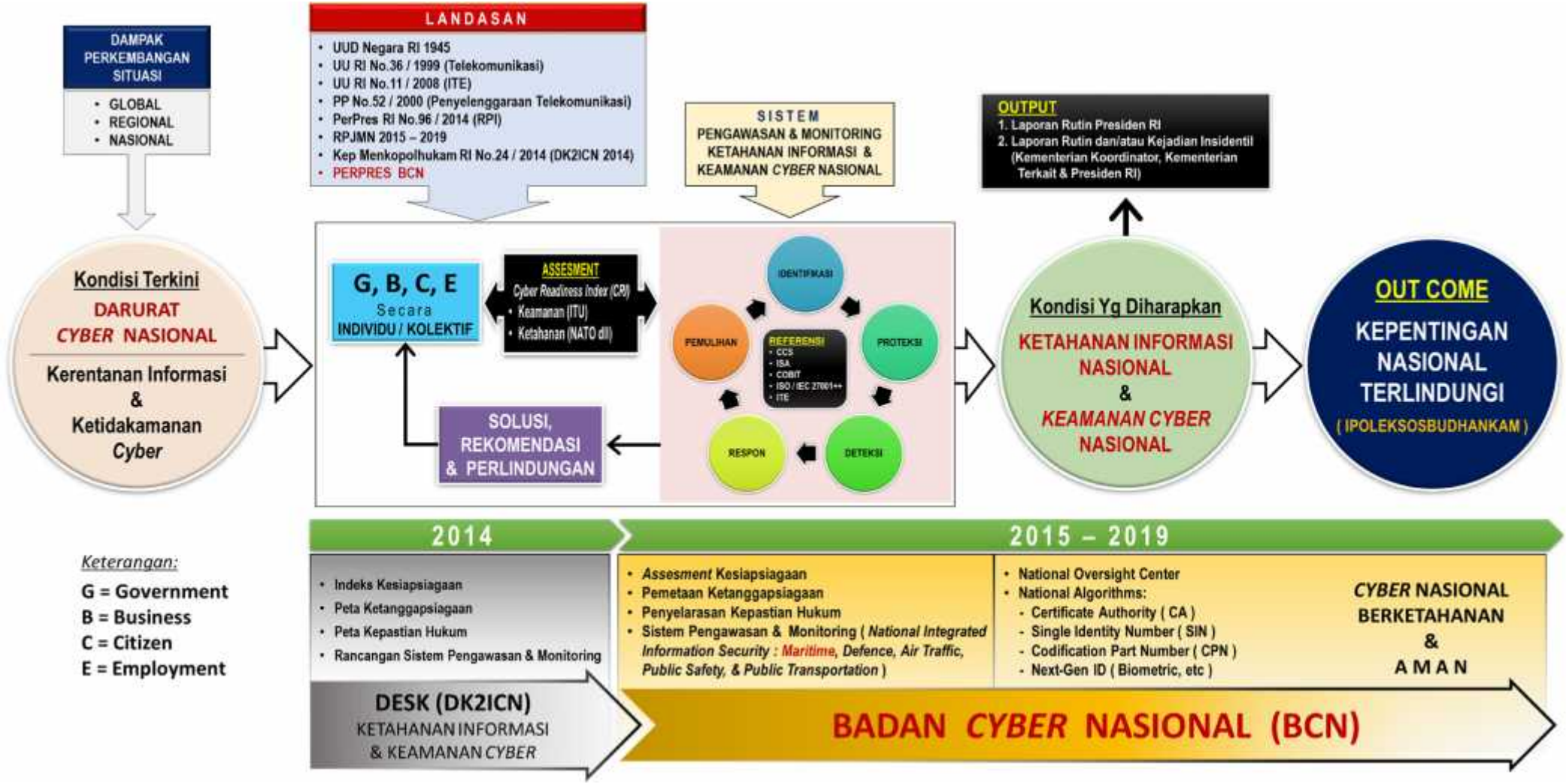
Cyber Defence | Cyber Resilience

BADAN *CYBER* NASIONAL

SITUASI *CYBER* NASIONAL (*OVERSIGHT CENTER*)

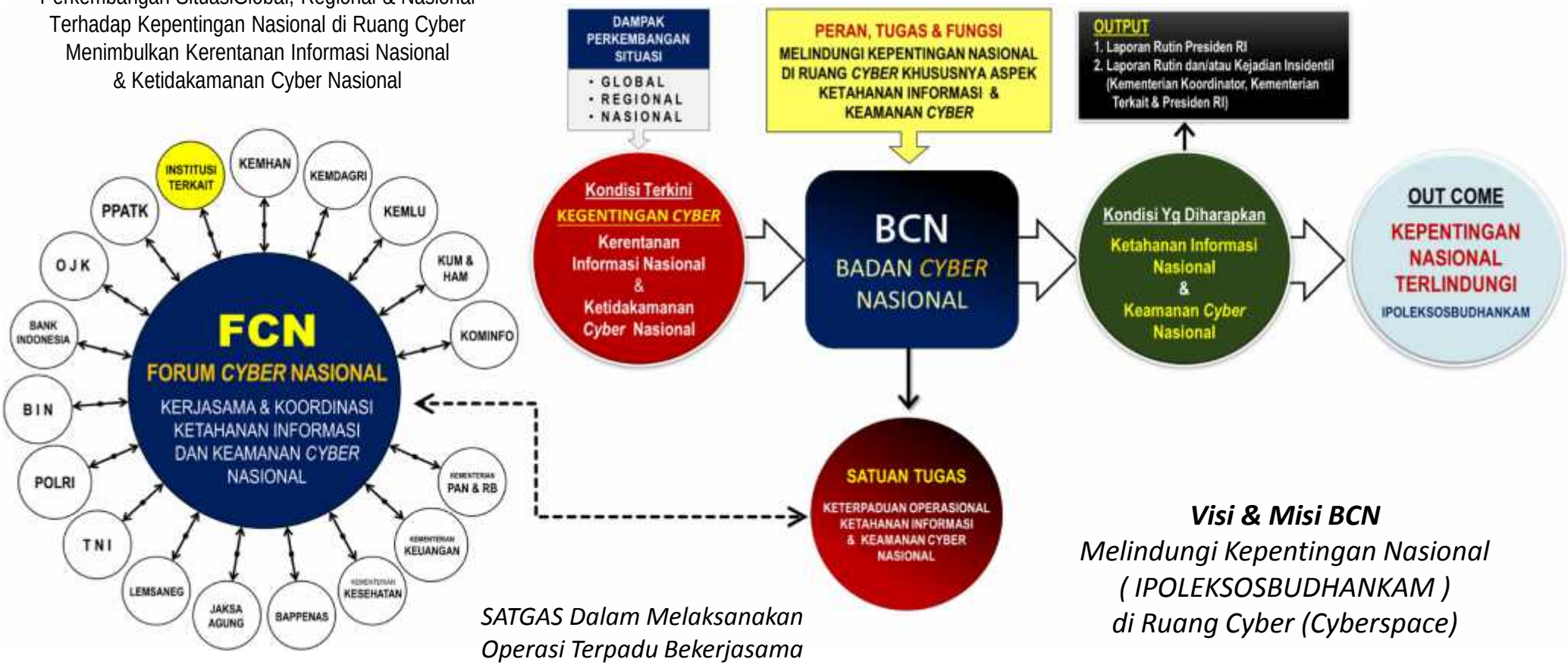

NETWORK DESK KETAHANAN & KEAMANAN INFORMASI CYBER NASIONAL
KEMENKOPOLHUKAM RI 2014
Legend:
1) Red Line: Virtual Private Networks
2) Blue Line: Internal Private Netrowks
3) Green Line: Public Networks
PRESIDEN
MENKO POLHUKAM
MENKO PEREKONOMIAN
MENKO KESRA
MENKO MARITIM
DEFENCE & SECURITY INFRASTRUCTURE
CRITICAL INFRASTRUCTURE
PUBLIC INSTITUTION INFRASTRUCTURE
TNI AU
TNI AL
LEMSANEG
TNI AD
MABES TNI & BAIS
POLRI
BIN
KEMHAN
DLL
PPATK
BNI
BRI
MANDIRI
BI & OJK
BRI
BANK LAIN
PAJAK
DLL
TELKOM
PLN
PERTAMINA
KEMENDAGRI
KEMENPU
KEMENPAN
LEMBAGA PEMERINTAH LAINNYA, PUSAT DAN DAERAH
KEMENKOMINFO
DLL
KEMENKEU
OUTSIDE NETWORK
Created by Dr. Ir. Munawar Ahmad, Assisted by Ir. Tri Aji Nugroho, 2014

FRAMEWORK & *ROADMAP* BADAN *CYBER* NASIONAL (BCN) 2015 – 2019



PERAN, TUGAS & FUNGSI

Dampak
Perkembangan SituasiGlobal, Regional & Nasional
Terhadap Kepentingan Nasional di Ruang Cyber
Menimbulkan Kerentanan Informasi Nasional
& Ketidakamanan Cyber Nasional



SATGAS Dalam Melaksanakan
Operasi Terpadu Bekerjasama
& Berkoordinasi Dengan FCN

Visi & Misi BCN
Melindungi Kepentingan Nasional
(IPOLEKSOSBUDHANKAM)
di Ruang Cyber (Cyberspace)

CONCLUSIONS

- Securing Indonesia Cyberspace is essential to create conducive and sustainability environment.
- Indonesia has a national cyber security strategy in order to focus on the development cyber security program.
- National Cyber Security is a very complex problem, collaboration and cooperation with all stakeholders are needed.

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BRTI

Twenty years from now you will be more disappointed by the things you didn't do than by the ones you did do. So sail away from the safe harbour. Catch the trade winds in your sails. Explore. Dream. Discover.

- Mark Twain