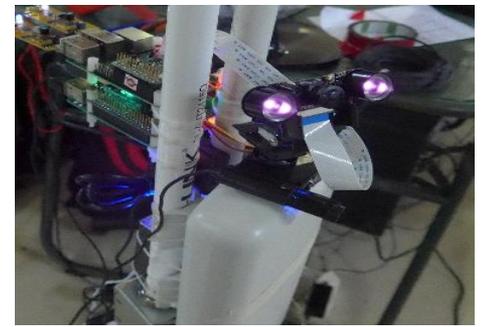


Information Security Governance on National Cyber Physical Systems

The Agency of Research and Human Resources Development
Ministry of ICT, Indonesia



Cyber-Physical Systems (CPS)



- Cyber-Physical Systems (CPS)/IoT : Intelligent System that Covers both Interaction Network Physical Component Engineering and Computing
- IoT devices 2010 : 50 Million, 2020: 26 Billion (Gartner)



CPS security expenditure (Gartner)

- Hewlett Packard (HP) study in year 2014, 70 % CPS products are critical

Threat of CPS

Security

Safety

Reliability

**Predictability
Timing**

**Energy
Efficiency**

**Human and
Social
Problems**

Laws Problem

**Dinamic
System**

Heterogeneity

**Multidiscipline
Sciences**

**Problem
Verification**

**Unappropriate
System
Number**

**Sampling
Interval
election**

Zeno Behavior

Cyber-Physical Systems (CPS)

Problem Statements

- CPS information security breaches impact on system performance and financial losses
- The absence of comprehensive and integrated security guidance on National CPS
- It required the security guidelines design for National CPS

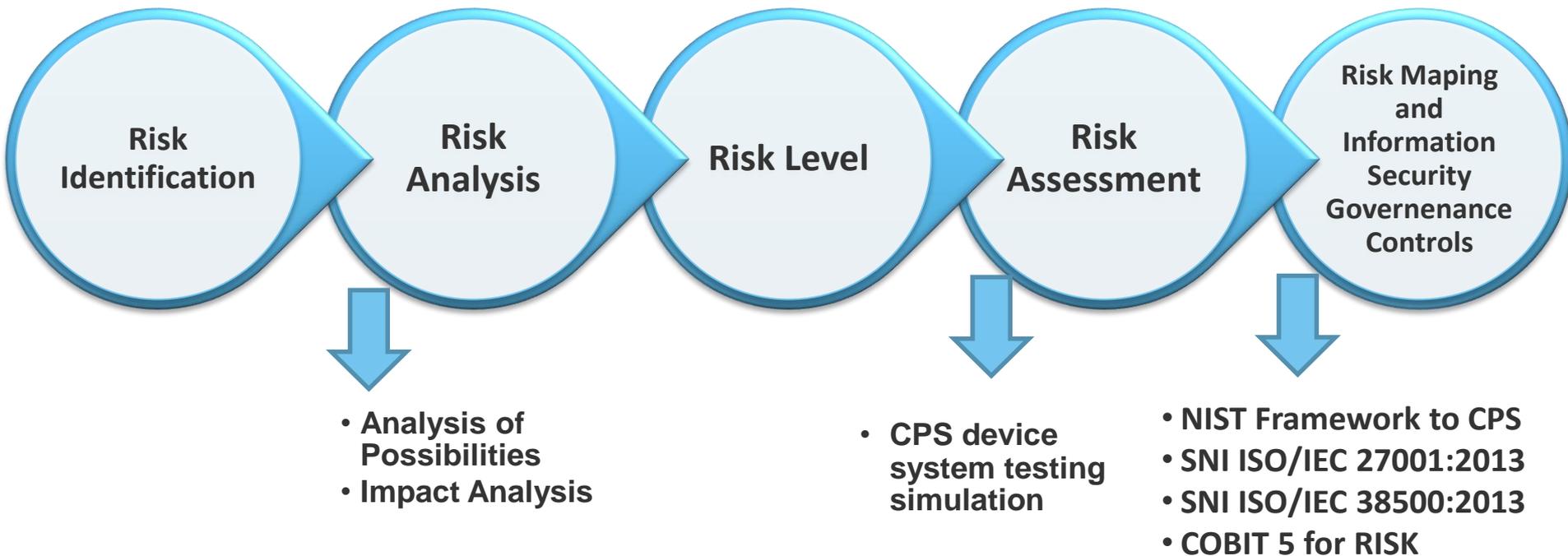
The aim of research

To develop a secure CPS devices system testing / simulation to the development of a secure CPST framework. This will include also ministerial guidelines for implementing secured CPS.

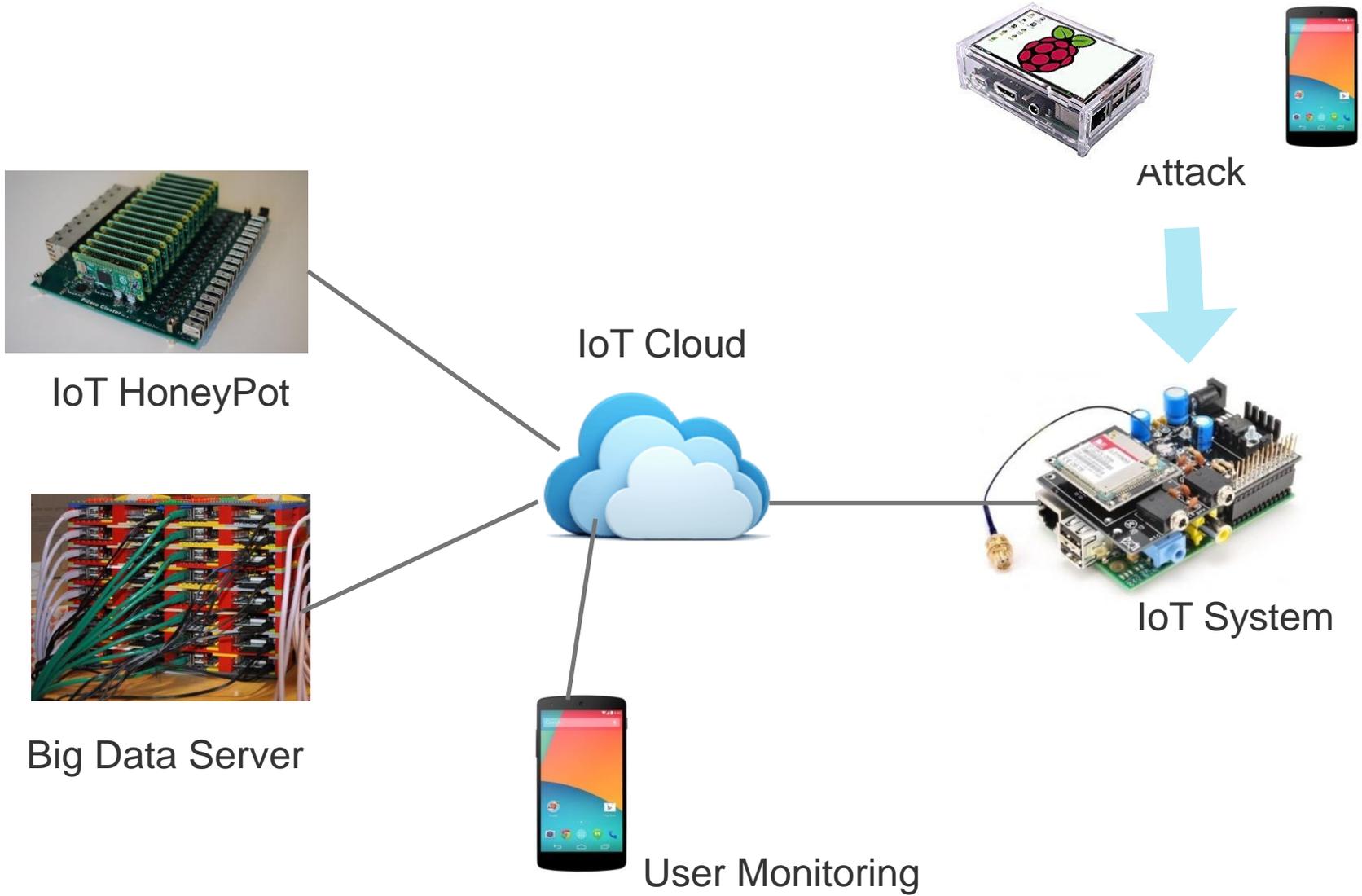
Question:

Is there a design guideline for Indonesia CPS security? and how the design of cyber security guidelines framework for National CPS through developing a secure CPS device system testing simulation?

CPS Risk Management Process



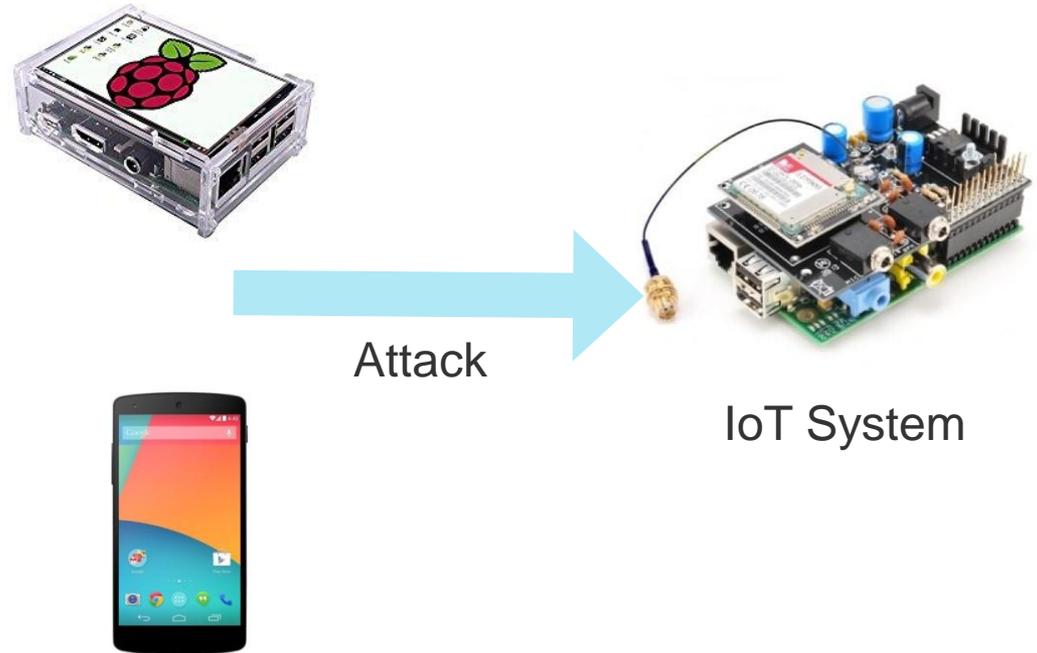
scheme



Scheme

Side Channel Attack:

- Cache attack
- Timing attack
- Power-monitoring attack
- Electromagnetic attack
- Acoustic cryptanalysis
- Differential fault analysis
- Data remanence
- Row hammer



Simulation Tools

- Big Data Server, 1 unit cluster raspi 3/zero
- IoT Honeypot, 1 bush cluster raspi 3/zero
- IoT System (raspi 3/arduino), monitoring smart home, etc
- User Monitoring, 1 unit Smartphone Nexus 5 for system monitoring
- Attack test simulation: smartphone nexus 5 (1 unit) and Raspi 3 (with LCD) 1 unit
- Local computer networking / internet or LORA networking (IoT Networking)

Thank You



Indonesia Honeynet Project