



POLITEKNIK NEGERI Batam

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Network and Hardware Technology (NHT) Road Map: 2015-2019

P2M Politeknik Negeri Batam

NHT

OUTLINE

INTRODUCTION

RATIONALE, VISION & MISSION

MAIN ACTIVITIES & SERVICE COVERAGE

RESEARCH AREA, FRAMEWORK & TOPICS

OUTPUT, PERFORMANCE INDICATOR

ROAD MAP, RESOURCES, MEMBER



Introduction

- **NHT** is one of research & study center under Center of Research and Community Services State Polytechnic of Batam that concern to study computer networking and hardware technology and its implementation.
- It was established in 2011

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Introduction : What is Computer Networking

- A computer network is a group of computer systems and other computing hardware devices that are linked together through communication channels to facilitate communication and resource-sharing among a wide range of users. Networks are commonly categorized based on their characteristics on different level of analysis (product, firm, industry, industry cluster, and nation)
- Networks are used to:
 - Facilitate communication via email, video conferencing, instant messaging, etc.
 - Enable multiple users to share a single hardware device like a printer or scanner
 - Enable file sharing across the network
 - Allow for the sharing of software or operating programs on remote systems
 - Make information easier to access and maintain among network users

(<http://www.techopedia.com/definition/25597/computer-network>)



Introduction : What is Hardware Technology

- Hardware Technology in this term is the technology about computer hardware technology, embedded system, and its programming.
- Specific areas of research include:
 - Design Methods-methods and techniques specific to the creation of an embedded system that integrates both software and hardware to fulfill a set of requirements.
 - Systems Software Development - device driver development, multiprocessing control systems, and the software necessary to directly access and manipulate hardware.
 - Real-Time High-Reliability and High-Availability Processing-methods and techniques necessary for understanding, evaluating and addressing quality attributes most often associated with embedded systems such as real-time deadlines, high availability, survivability, and safety.
 - Data Communications-methods and techniques for developing distributed systems within embedded environments that use physical or wireless networking.

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Rationale

- The Internet is a relatively new communication media in Indonesia, an archipelago that includes more than 17,001 islands. Several Internet access services are available in Indonesia, ranging from ADSL to mobile Internet. Telephone line-based service was among the first Internet access services in Indonesia with PT Telkom as a main player who controls most fixed-line telephone networks.
- According to eMarketer, in 2014 Indonesia has 83.7 million users (in sixth place behind Japan), but Indonesia is predicted to surpass Japan in 2017, because Indonesian internet growth is in the double digits, while Japanese internet growth is slower.
- According to Akamai Technologies, Indonesia, with 9 connections to undersea cables, had in Q1 2014 an average Internet connection speed of 2.4 Mbit/s, which is an increase of 55 percent from a year earlier. Just 6.6 percent of homes have access to 4 Mbit/s or higher speed connections. But in Q4 2014, the average internet connection speed is 1.9Mbps or drop about 50 percent from Q3 2014 with 3.7Mbps.
- Based on the Indonesia Internet Service Providers Association, in Q4 2013 there are 71.19 million Internet users in Indonesia or about 28 percent of Indonesia's population.[4] According to Cisco's Visual Networking Index, in 2013 Indonesia had the world's second fastest growth of IP traffic and has become an of "Internet of Everything" country.
- Based on Communication Ministry data, at end of June 2011, there were 45 million Internet users in Indonesia, which 64 percent or 28 million users on the age of 15 to 19.

(<http://indonesianew.com/the-fact-about-indonesia-internet>)



Vision & Mission

- Vision

Become as credible research & study center that provide contribution to increase Indonesia's technology advances, in the field of computer networking and hardware technology.

- Mission

- Publishing a research and study related to computer networking and hardware technology.
- Producing research that would be impacted to technology advances at Kepulauan Riau and Indonesia as a global goal.

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Activities & Services Coverage

Activities

- Research & Study
- Experiment
- Guest/Visiting Lecturer
- Community Services

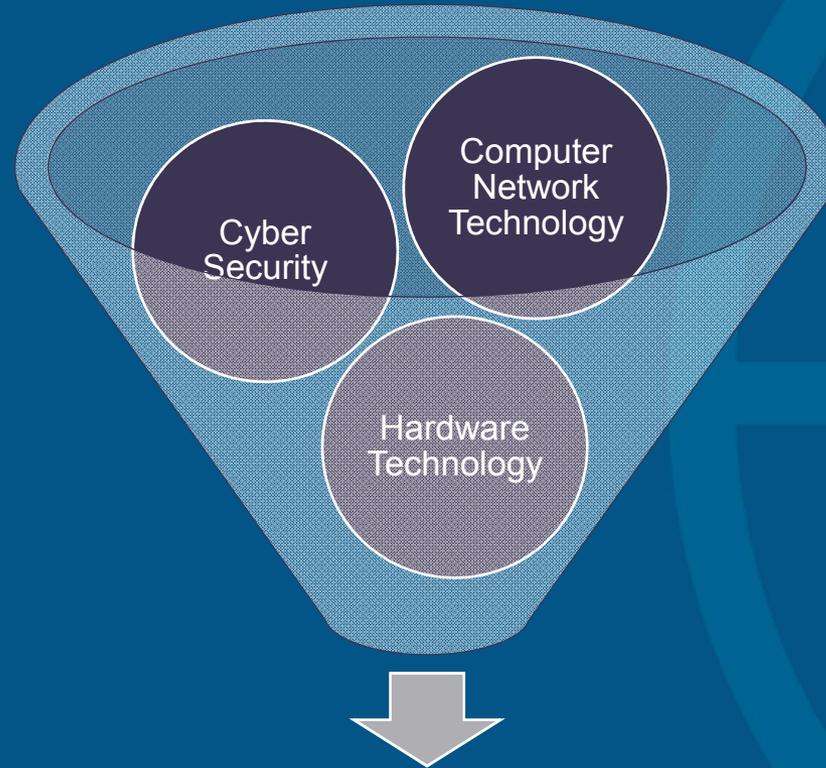
Services

- Joint/Partnership Research
- Seminar/Conference/Workshop Organizer
- E-Journal Publisher

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Research Area



Internet of Things

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Research Topics

Strategic Issues	Concept/Idea/Solution	Research Topic	Expertise/Competency
Computer Network Technology	New concept or idea which can be advancing computer network performance	<ul style="list-style-type: none">• Hybrid networks (N1)• Grid/Cloud network (N2)• Ad hoc network formation (N3)• Self aware and self organizing network (N4)• Self organising wireless mesh networks (N5)	ICT/Network Engineer

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Research Topics

Strategic Issues	Concept/Idea/Solution	Research Topic	Expertise/Competency
Cyber Security	Develop technologies that will protect information systems and networks into the future.	<ul style="list-style-type: none">• Combatting insider threats (C1)• Combatting malware and botnets (C2)• Survivability of time-critical systems (C3)• Situational understanding and attack attribution (C4)• Privacy-aware security (C5)• Scalable trustworthy systems (C6)	ICT/Network Engineer

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Research Topics

Strategic Issues	Concept/Idea/Solution	Research Topic	Expertise/Competency
Hardware Technology	New concept to develop hardware technology which can support all human activities.	<ul style="list-style-type: none">• Mobile Technology (H1)• Sensor Technology (H2)• Computer Vision (H3)• New embedded system (H4)	ICT/Network Engineer Software Development Engineer.

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Output

- Research Report
- Presentation paper for Publication in Seminar/Conference (National, International)
- Scientific Paper for Publication in Journal (National, International)
- Working paper for Policy Recommendation
- Reference Journal
- Reference Books

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Performance Indicator

No	Output	Indicator					
		2015-2017	2017-2019	2019-2021	2021-2023	2023-2025	
1	Journal Publication	International	1	2	3	4	5
		Accredited National	1	2	2	2	2
		Local	1	2	2	2	2
2	Seminar Publication	International	1	2	3	4	5
		National	1	2	3	3	3
		Local	1	2	2	2	2
3	Reference Journal (e-Journal)		1	1	1	1	
4	Reference Book		1	1	1	1	
5	Research Grant	International			1	2	2
		National	1	1	2	2	2

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Road Map of Research



Annotation : The code research refer to “Research Topics”

Resources

Human resources

- Principal Researcher
- Associate Researcher
- Assistant Researcher
- Administration Staff

Facilities

- Office Space
- Computer and storage
- Printer
- E-Journal
- Data Banks
- LCD Projector
- Embedded System Hardware
- Webcam
- Sensor system hardware
- Mobilephone peripheral

Budgeting (in Million Rp)

- 2015: 10
- 2016: 25
- 2017: 75
- 2018: 100
- 2019: 150
- 2020: 200
- >2020: 300

- Source of Fund:
 - Research Grant
 - Operational

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Member

Open Vacancy

Associate
Researcher

Min Master Degree; min 4
persons

Assistant
Researcher

Min Applied
Bachelor/Bachelor Degree;
min 4 persons

Admin Staff

Min Diploma 3 Degree, 1
persons

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