Securing IoT Networking with ICN

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Overview

- Introduction
- Related work in the area IoT networking
- Structure of the report
- List of References
- Tentative schedule
- Open Questions

Introduction

- The TCP/IP[1] model did not include security and privacy abstractions in its initial design in the early 1980s
- Thus creating several layer extensions to existing protocols and data overheads in todays applications to provide secure functionalities

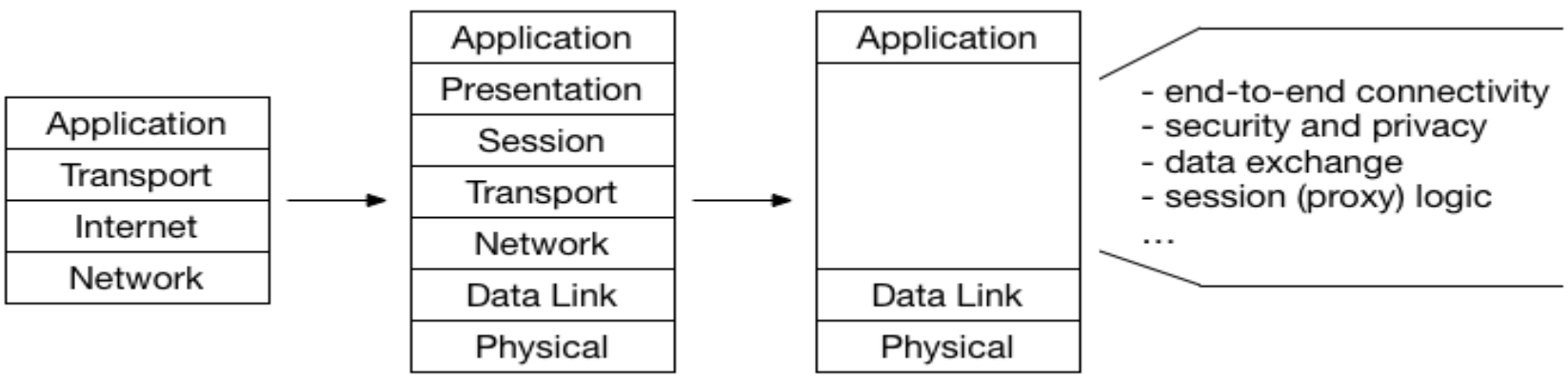

Figure: TCP/IP Layers and its functionalities.

[1] Transmission Control Protocol/Internet Protocol

Introduction

- ICN[2] offers an alternative to networking in a secure and private manner that reduces the technical overhead of TCP/IP model
- It focuses on transmitting and accessing named content instead of the traditional host-based IP data

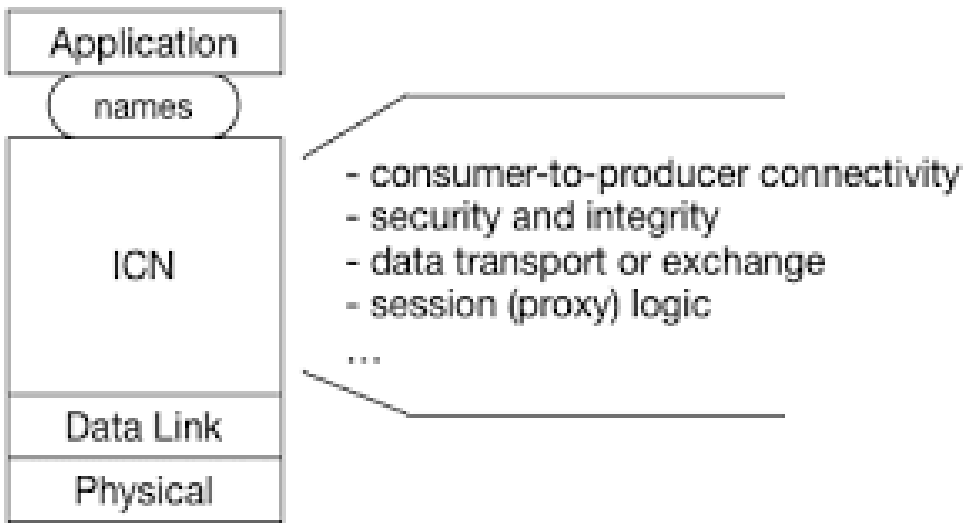

Figure: ICN Stack layers.

[2] Information-Centric Networking

Related work in the area IoT networking

- Security improvement in IoT based on Software Defined Networking (SDN)
- The virtus middleware: An xmpp based architecture for secure iot communications

Structure of the report

1. Introduction
   The ICN protocol stack will be introduced.
2. Networking in IoT
   The ICN middleware architecture will be explained in detail.
3. Secure Functionalities
   The services provided by this architecture withh be explained.
4. Discussion
   The topic will be further discussed.
5. Conclusion
   The conclusion will be drawn.

List of References

1. A Secure ICN-IoT Architecture
2. Why IoT with ICN?
3. Do we need a holistic approach for the design of secure IoT systems?
4. Information centric networking in the IoT: experiments with NDN in the wild

Tentative schedule

- By 18.11.2018: Section Networking in IoT
- By 30.11.2018: Section Secure functionalities
- By 09.12.2018: Sections Discussion and Conclusion
- By 16.12.2018: Revise and improvements

Thank you for your attention.