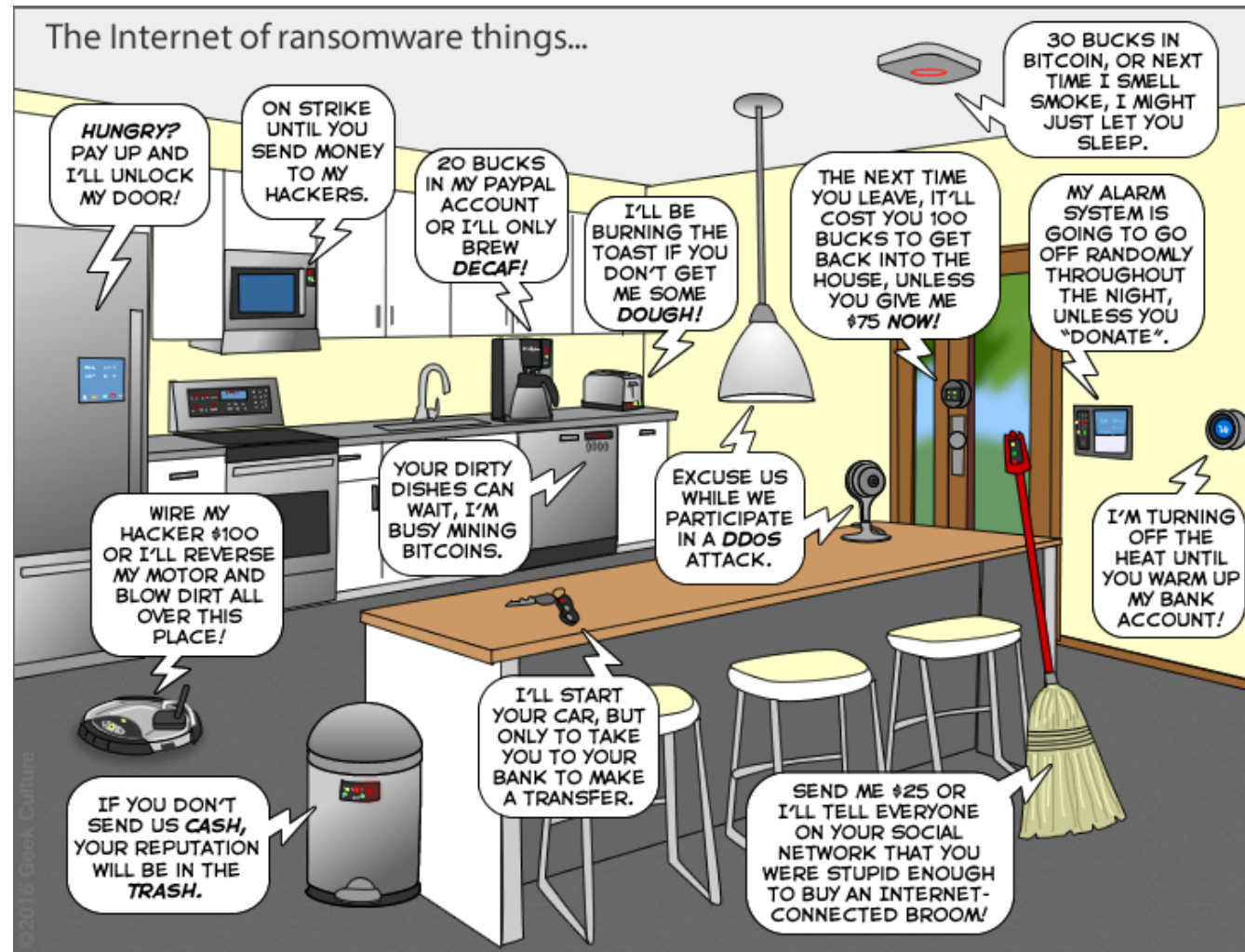


Security Services for Home Networks (SSH)

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4TU Cyber Security Master Kickoff

Motivation



Source: <http://www.geekculture.com/joyoftech/joyimages/2340.png>

Technical Content

- Services that secure home networks in the IoT, for instance to mitigate IoT-powered DDoS attacks such as the ~1 Tbps attack on DNS operator Dyn of Oct 2016
- Measurement-based functions that these services require, such as detection of botnet traffic, device scanning, network topology mapping, and automatic device blocking
- Key design choices, such as deployment models (in-home, cloud, hybrid), where to monitor IoT devices (network or application-level), and level of user configurability

Learning Outcomes

- Understand the technical functions that security services for home networks require and possible ways to design them, able to analyze a few selected solutions
- Able to create a sound design of a security service by applying and modifying the different solutions discussed during this course
- Understand the operational business of DNS service providers and the impact the IoT and insecure home networks may have on them (industry perspective)
- Further enhance skills to independently carry out research projects and to develop services and systems

Format

- ONLY 10 students
- Student presentations of peer-reviewed academic papers
- Plenary technical discussions
- Hands-on data assignment
- Design assignment

Preliminary Schedule

Lecture ^(a)	Topic
1	IoT concepts ^(b)
2	IoT-powered DDoS attacks
3	Emerging security systems for home networks (part 1)
4	Emerging security systems for home networks (part 2)
5	Home network topology mapping
6	Discovering device compromises
7	Discovering DDoS attacks
8	Hands-on data session

(a) One lecture will be given by an industry expert
(b) Prof. Havinga will give part of Lecture 1 based on his broader course on the IoT, while we will provide part of the last lecture in his course based on SSH.

Questions and Feedback

<https://www.4tu.nl/cybsec/en/course-program/ssh/>

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