HACKERNE KOMMER…

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Alexandra Instituttet er en **almennyttig** virksomhed, der arbejder med **anvendt forskning**, **udvikling** og **innovation** inden for it

Vi er sat i verden for at skabe **værdi**, **vækst** og **velfærd** i det danske samfund.

ALEXANDRA OG REALDANIA

Kvotehuset

Tree.0

PIXLPARK - Roskilde

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HACKERNE KOMMER

- Verden set med den pessimistiske hat på… En blanding af virkelige angreb (”in the wild”) og proof of concept angreb.

- (Der er også IoT producenter der gør det godt og som har stort fokus på sikkerhed. Blandt andet visse danske producenter.)

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VEJEN TIL HELVEDE ER BROLAGT MED IOT

- Virker min IoT-brandalarm, hvis der er ild i min WiFi router?
- Virk … artphone

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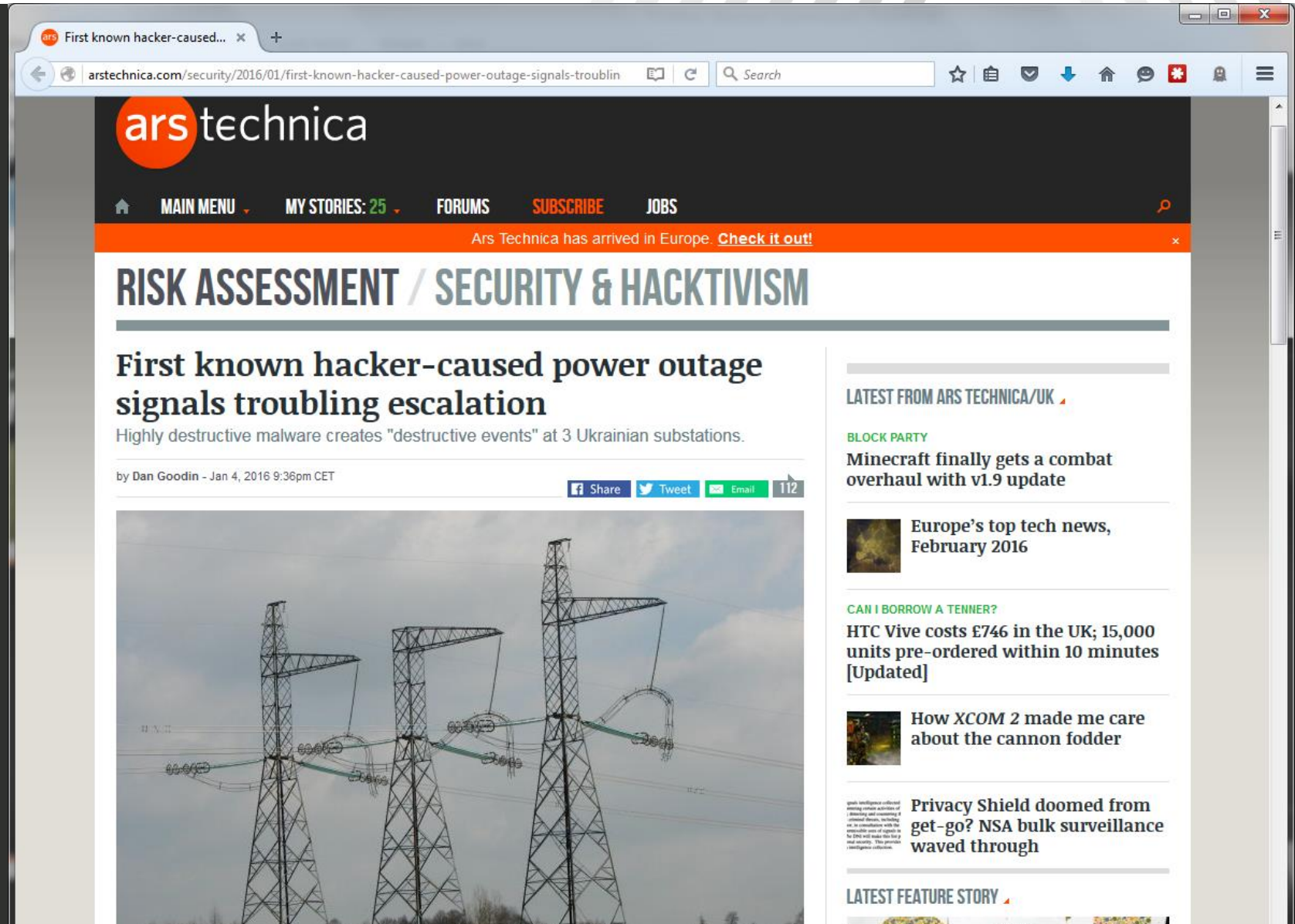
ANGREB PÅ DEN FYSISKE VERDEN

- Ukraine 2015
- Ukraine 2016

- Finland oktober 2016
  - Boligblokke uden varme pga. hackerangreb (DDoS angreb) på DNS



ALTING BLIVER EN COMPUTER

IoT Goes Nuclear: Creating a ZigBee Chain Reaction

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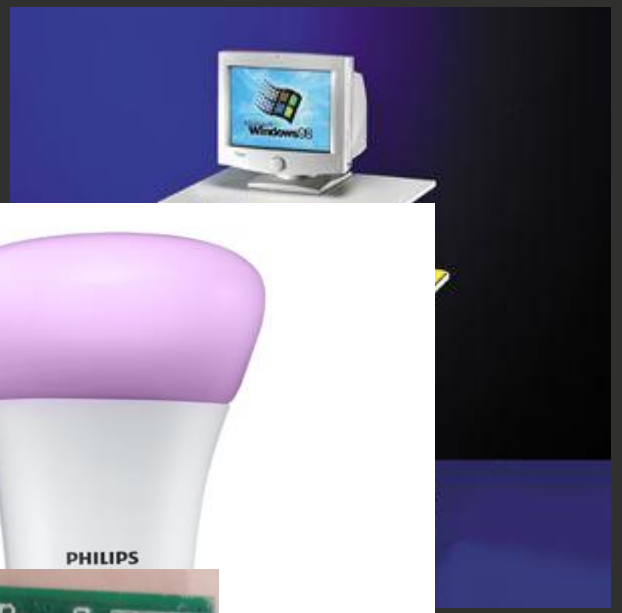
***Abstract*—Within the next few years, billions of IoT devices will densely populate our cities. In this paper we describe a new type of threat in which adjacent IoT devices will infect each other with a worm that will rapidly spread over large areas, provided that the density of compatible IoT devices exceeds a certain critical mass. In particular, we developed and verified such an infection using the popular Philips Hue smart lamps as a platform. The worm spreads by jumping directly fro one lamp to its neighbors, using only their built-in ZigB wireless connectivity and their physical proximity. The atta can start by plugging in a single infected bulb anywhere the city, and then catastrophically spread everywhere with minutes. It enables the attacker to turn all the city lights or off, to permanently brick them, or to exploit them in massive DDOS attack. To demonstrate the risks involved, use results from percolation theory to estimate the critical ma of installed devices for a typical city such as Paris whose ar is about 105 square kilometers: The chain reaction will fizz if there are fewer than about 15,000 randomly located sma lamps in the whole city, but will spread everywhere when t number exceeds this critical mass (which had almost certain been surpassed already).

To make such an attack possible, we had to find a way

the next five years more than fifty billion "things" will be connected to the internet. Most of them will be cheaply made sensors and actuators which are likely to be very insecure. The potential dangers of the proliferation of vulnerable IoT devices had just been demonstrated by the massive distributed denial of service (DDoS) attack on the Dyn DNS company, which exploited well known attack vectors such

new communication medium to spread infectious malware



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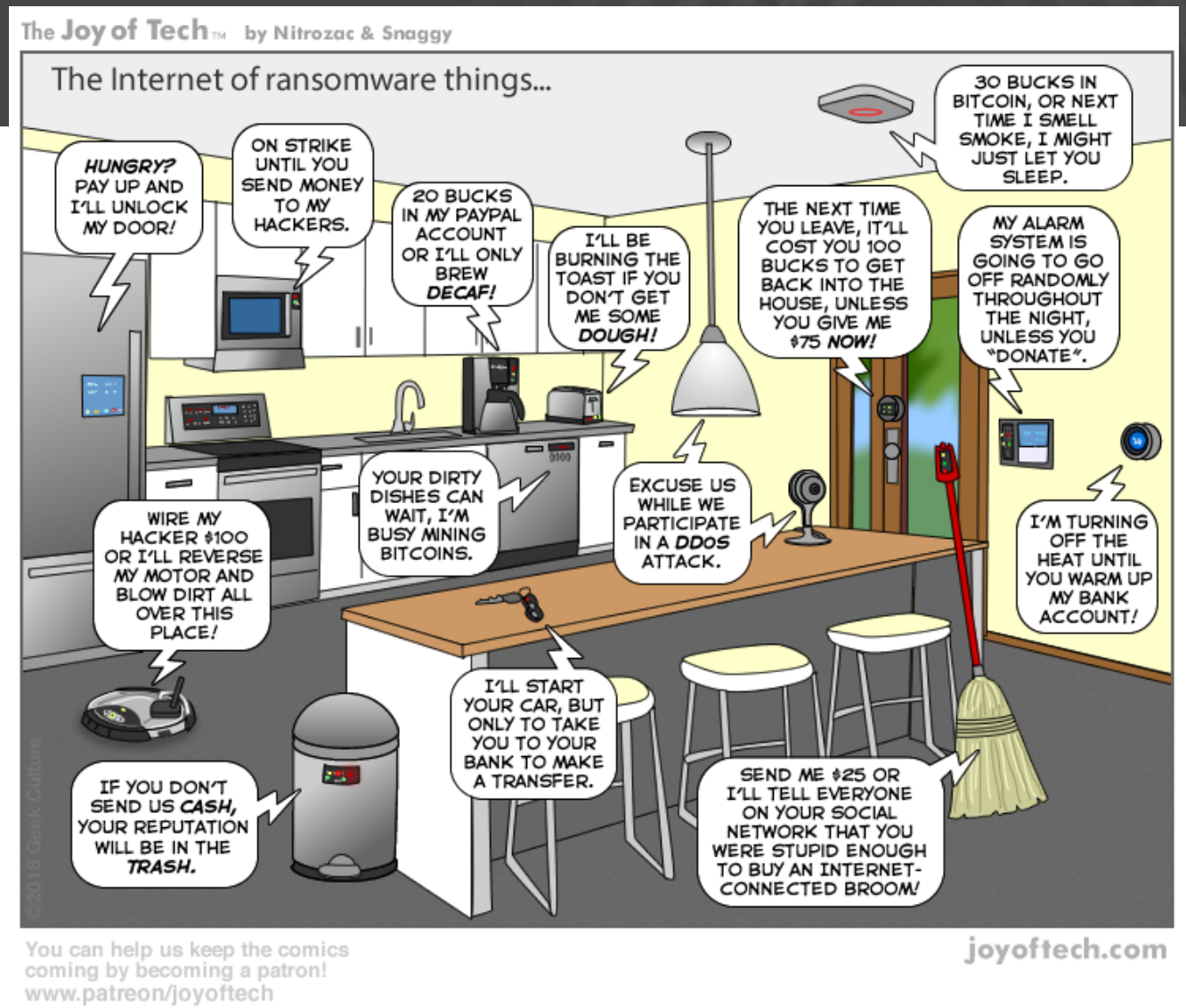
RANSOMWARE IoT ER FREMTIDEN

RANSOMWARE…

- WannaCry, ramte computere der styrede fysiske ting – dog stadig Windows computere - måske ikke Windows næste gang



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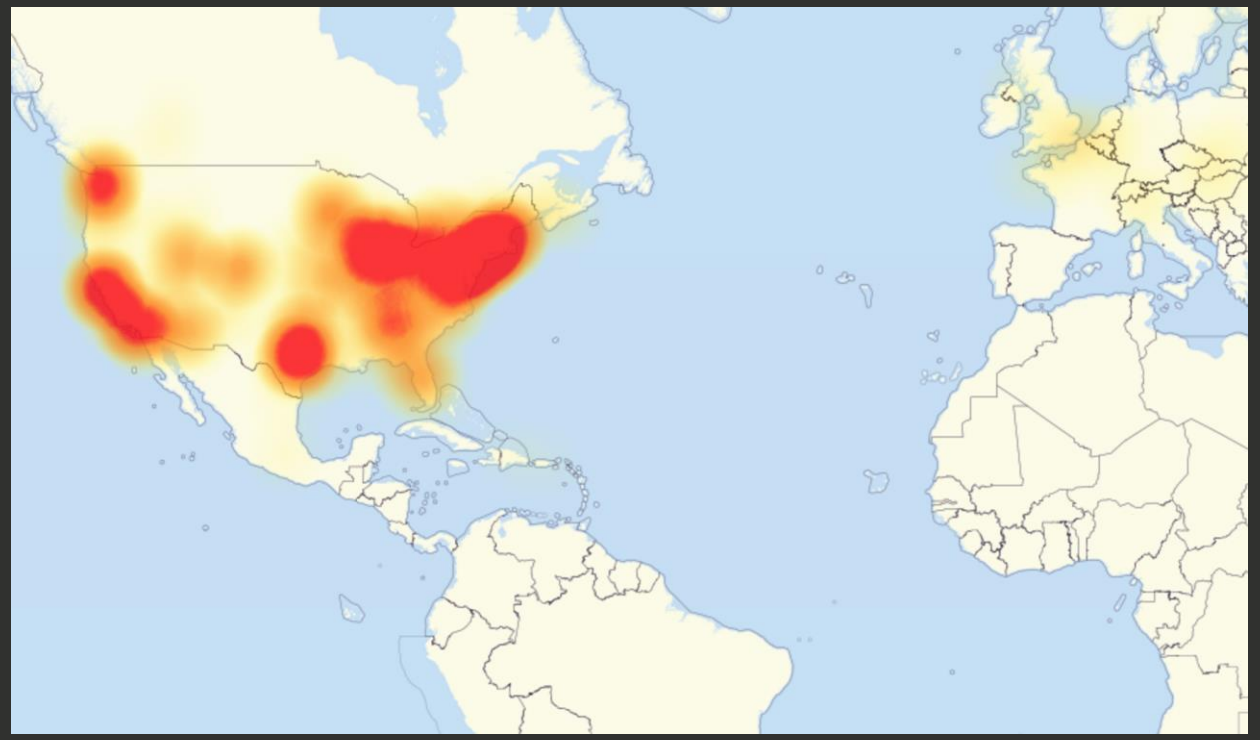
MIRAI ANGREBET I 2016

- Massive DDoS angreb fra IoT-enheder
- Angreb på Internet infrastruktur
- Problemer for:
  - Airbnb
  - Amazon
  - BBC
  - CNN
  - Twitter
  - Netflix
  - …

- Problemet var alt for simple standard-kodeord, på billige IoT enheder.



DownDetector

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HVAD SKAL VI SÅ GØRE?

Vi skal som samfund kunne udnytte de fordele som digitalisering bringer, *men* have styr på sikkerheden

- Producent:
  - Tage IoT-sikkerhed alvorligt
  - Security by Design
  - Risikoanlyser
  - …
- Kunde/forbruger
  - Stil krav til leverandørerne/producenterne
  - Sikkerhed som konkurrenceparameter.
  - Undersøg om der er en uvildig undersøgelser produkter

- "Sikre løsninger er fremtidens konkurrenceparametre"

- Danske virksomheder er kendte for produkter af høj kvalitet
  – det brand skal vi bære med over i den digitale Verden.

Alexandra Instituttets næste nyhedsbrev har fokus på IoT sikkerhed: www.Alexandra.dk, eller følg os på LinkedIn

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Tak for opmærksomheden!

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