

Securing the Internet of Things

why your next toaster could be turned against you

The Internet of Things



what it is

the need to secure

special challenges

current proposals

new approaches

What is the Internet of Things (IoT)?

(and can anyone come up with a better name?)

Things, not just
people, connected
to the **Internet**

furniture

planes, trains & automobiles

medical devices

apparel

food

power grids

agriculture

pharmaceuticals

what will connect

entertainment

manufacturing

infrastructures

sports equipment

appliances

law enforcement

commerce

Number of IP addresses
IPv6 makes possible:

Number of **IP addresses**

IPv6 makes possible:

340,000,000,000,000,
000,000,000,000,000,
000,000,000

The Internet

. . . of Things

Ubiquity
(everywhere)

Universality
(everything)

Threats to IoT Security

(as impervious as air)

furniture

planes, trains & automobiles

medical devices

apparel

food

power grids

agriculture

pharmaceuticals

vulnerabilities

entertainment

manufacturing

infrastructures

sports equipment

appliances

law enforcement

commerce

Everything can be
connected.

Anything connected
can be **hacked**.

Everything . . .

can be hacked.

**How does
securing the IoT
differ from
cybersecurity?**

Special challenges to IoT security

two scoops of
Vulnerabilities in
every node

security tradeoffs

**lack of industry
standards**

jurisdictional
ambiguity/
indeterminacy

Current proposed approaches

(and why they're inadequate)

proposed cybersecurity legislation

(e.g., CISPA, etc.)

rules designed
for **computers** will
not work for
Things

**must address
security at the
design stage**

**New solutions for
tomorrow's problems**

(too late for today's)

the *Meh* strategy

1996 Telecom Act
re: Internet services

convergence
happens

so where can
we **intervene?**

**what are the
right questions?**

“[O]ur old institutions like the law and so on aren’t keeping up with the rate of . . . technology. . . . Law can’t be right if it’s 50 years old. Like, it’s before the Internet.”

-Google CEO Larry Page