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Securing the Internet of Things

Internet Society

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The number of IoT devices and systems connected to the Internet will be more than **5x the global population** by 2022 (IHS).

As more and more devices are connected, privacy and security risks increase.

And most consumers don’t even know it.

Nonintuitive Security Perspective

Inward Security

Focus on potential harms to the health, safety, and privacy of device users and their property stemming from compromised devices and systems.

Outward Security

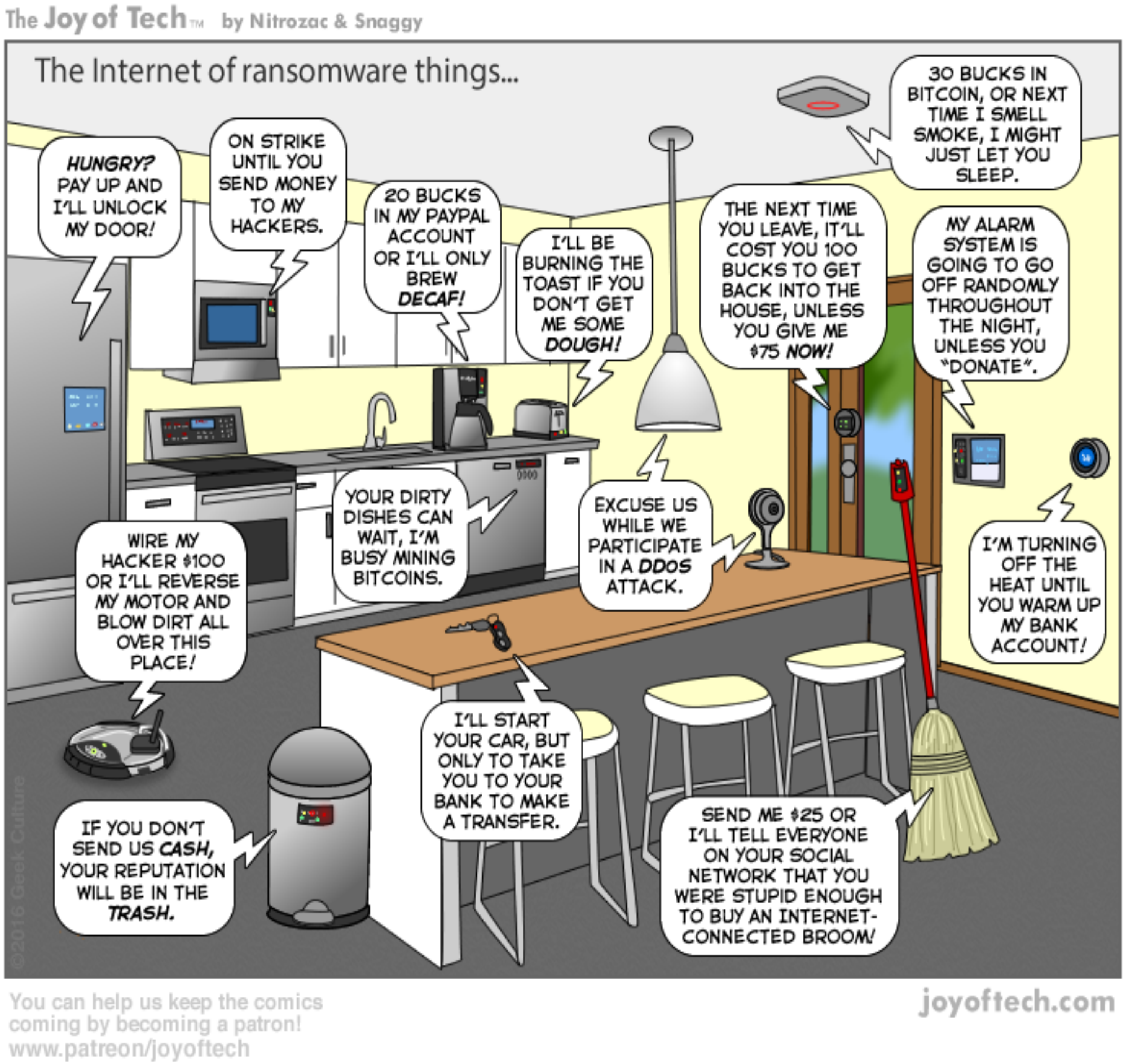
Focus on potential harms that compromised devices and systems can inflict on the Internet and other users.

What type of risks?

Unlocking doors, turning on cameras, shutting down critical systems and theft of personal property.

People's safety or the safety of their family might even be at risk.

Large IoT-based attacks, such as the Mirai botnet in 2016, have crippled global access to high-profile Internet services for several hours.


The Joy of Tech™ by Nitrozac & Snaggy
The Internet of ransomware things...
HUNGRY? PAY UP AND I'LL UNLOCK MY DOOR!
ON STRIKE UNTIL YOU SEND MONEY TO MY HACKERS.
20 BUCKS IN MY PAYPAL ACCOUNT OR I'LL ONLY BREW DECAF!
I'LL BE BURNING THE TOAST IF YOU DON'T GET ME SOME DOUGH!
THE NEXT TIME YOU LEAVE, IT'LL COST YOU 100 BUCKS TO GET BACK INTO THE HOUSE, UNLESS YOU GIVE ME $75 NOW!
30 BUCKS IN BITCOIN, OR NEXT TIME I SMELL SMOKE, I MIGHT JUST LET YOU SLEEP.
MY ALARM SYSTEM IS GOING TO GO OFF RANDOMLY THROUGHOUT THE NIGHT, UNLESS YOU "DONATE".
WIRE MY HACKER $100 OR I'LL REVERSE MY MOTOR AND BLOW DIRT ALL OVER THIS PLACE!
YOUR DIRTY DISHES CAN WAIT, I'M BUSY MINING BITCOINS.
EXCUSE US WHILE WE PARTICIPATE IN A DDoS ATTACK.
I'M TURNING OFF THE HEAT UNTIL YOU WARM UP MY BANK ACCOUNT!
IF YOU DON'T SEND US CASH, YOUR REPUTATION WILL BE IN THE TRASH.
I'LL START YOUR CAR, BUT ONLY TO TAKE YOU TO YOUR BANK TO MAKE A TRANSFER.
SEND ME $25 OR I'LL TELL EVERYONE ON YOUR SOCIAL NETWORK THAT YOU WERE STUPID ENOUGH TO BUY AN INTERNET-CONNECTED BROOM!
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The challenges we face

A connected world offers the promise of convenience, efficiency and insight, but creates a platform for shared risk.

Many of today’s IoT devices are rushed to market with little consideration for basic security and privacy protections.

New devices, new vulnerabilities

The attributes of many IoT devices present new and unique security challenges compared to traditional computing systems.

- Device Cost/Size/Functionality
- Volume of identical devices (homogeneity)
- Long service life (often extending far beyond supported lifetime)
- No or limited upgradability or patching
- Physical security vulnerabilities
- Access

- Limited user interfaces (UI)
- Limited visibility into, or control over, internal workings
- Embedded devices
- Unintended uses
- BYOIoT

IoT Trust by Design

1

Work with manufacturers and suppliers to adopt and implement the OTA IoT Trust Framework

2

Mobilize consumers to drive demand for security and privacy capabilities as a market differentiator

3

Encourage policy and regulations to push for better security and privacy features in IoT

A collective responsibility

IoT vendors and their supply chain

Distribution channels

Policymakers and governments

Consumer testing and product review organizations

Consumers and enterprises

Online Trust Alliance (OTA) IoT Trust Framework

- Provides a set of actions to raise the level of security for IoT devices and related services to protect consumers and the privacy of their data
- More than 100+ stakeholders from industry, government and consumer advocates contributed to the Framework
- Stands apart from other IoT-related Frameworks with its comprehensive focus on security, privacy and lifecycle issues, as well as a holistic view of the entire system

https://otalliance.org/iot/

Actionable principles in eight categories for manufacturers, developers and service providers

- Authentication
- Encryption
- Security
- Updates
- Privacy
- Disclosures
- Control
- Communications

Actions for Policymakers

Governments have the opportunity to guide the IoT marketplace:

- Stimulate security and privacy best practice adoption
- Strengthen accountability through well-defined responsibilities and clear consequences
- Support industry adoption of the best practice principles from the IoT Trust framework

Thank you.

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