Sustainable Smart Cities

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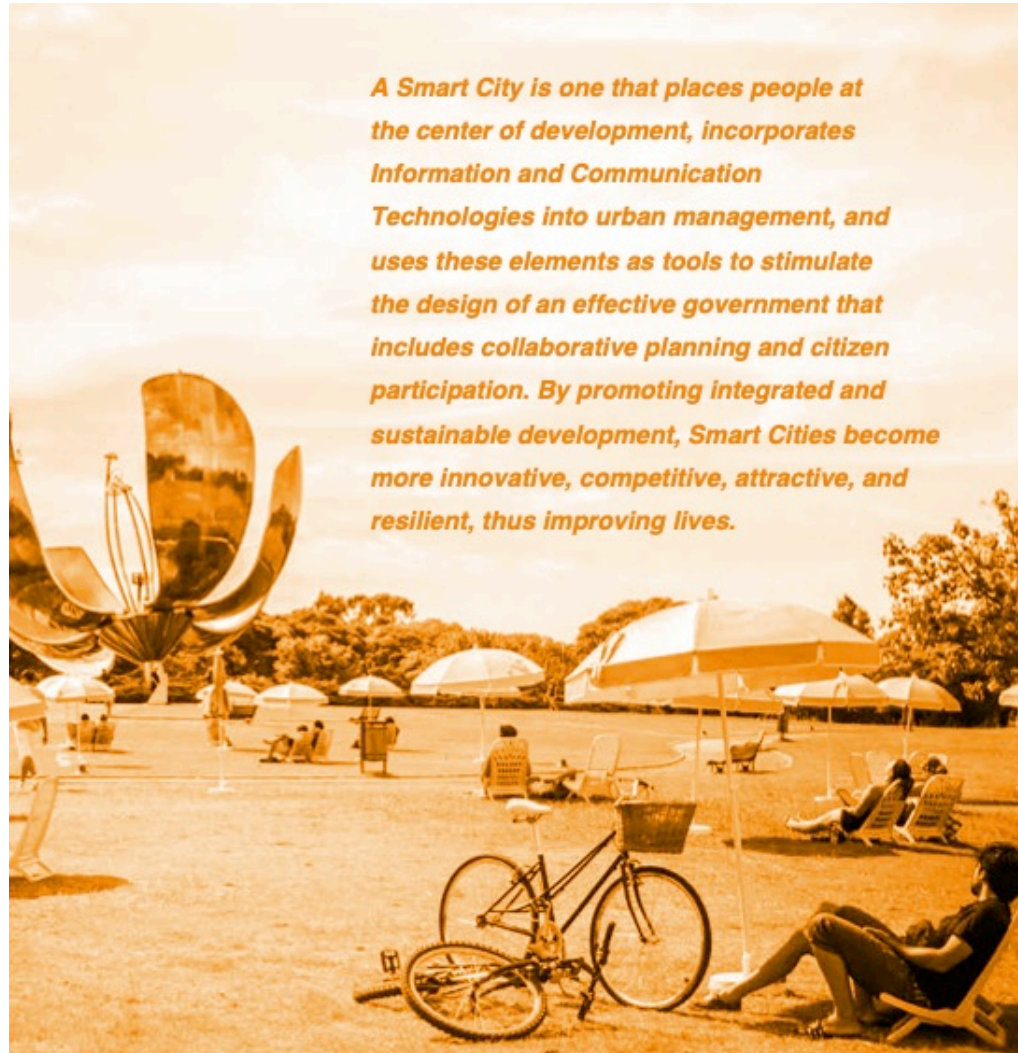
sustainable [suh-stey-nuh-buhl]

adjective

1. capable of being supported or upheld, as by having its weight borne from below.

2. pertaining to a system that maintains its own viability by using techniques that allow for continual reuse:
   sustainable agriculture. Aquaculture is a sustainable alternative to overfishing.

3. able to be maintained or kept going, as an action or process:
   a sustainable negotiation between the two countries.

4. able to be confirmed or upheld:
   a sustainable decision.

5. able to be supported as with the basic necessities or sufficient funds:
   a sustainable life.

https://www.dictionary.com/browse/sustainable

Smart City

A Smart City is one that places people at the center of development, incorporates Information and Communication Technologies into urban management, and uses these elements as tools to stimulate the design of an effective government that includes collaborative planning and citizen participation. By promoting integrated and sustainable development, Smart Cities become more innovative, competitive, attractive, and resilient, thus improving lives.

Sustainable Smart City

- People at the Center
- ICT into Urban Management
- Collaborative Planning and Citizen Participation
- Integrated & Sustainable Development
- Innovative, Competitive & Attractive

Source:
Inter-American Development Bank
www.iadb.org/SmartCities

Cisco
Annual Internet Report

The Future of the Internet

Global Metrics

By 2023…

01 Internet Users — There will be 5.3 billion Internet users (66% of global population)

02 Devices/Connections — There will be 29.3 billion network connections (3.6 connections per capita)

03 Internet of Things (IoT) — There will be 14.7 billion M2M connections (50% of all devices/connections)

04 Fixed Broadband Speeds — Average fixed broadband speed will more than double, reaching 110 Mbps

05 Wi-Fi Speeds — Average Wi-Fi speeds will triple, reaching 92 Mbps

06 Mobile (Cellular) Speeds — Average mobile speeds will more than triple, reaching 44 Mbps

07 5G Impact — 5G speed will be 13X faster than average mobile speed, reaching 575 Mbps

https://www.cisco.com/c/en/us/solutions/collateral/executive-perspectives/annual-internet-report/white-paper-c11-741490.html

Connected Home

- Home automation
- Building security
- Network equipment – printers +
- Network infrastructure – routers +
- White goods
- Tracking applications
- Household information devices

Connected Work

- Office building automation
- Building security
- Office equipment – printers +
- Routers +
- Commercial appliances

Connected Car

- Fleet management
- In-vehicle entertainment systems, emergency calling, Internet
- Vehicle diagnostics, navigation
- Stolen vehicle recovery
- Lease, rental, insurance management

Connected Health

- Health monitors
- Assisted living – medicine dispensers +
- Clinical trials
- First responder connectivity
- Telemedicine

Connected Cities

- Environment and public safety – closed-circuit TV, street lighting, waste removal, information +
- Public space advertising
- Public transport
- Road traffic management

Retail

- Retail goods monitoring and payment
- Retail venue access and control
- Slot machines, vending machines

Manufacturing and Supply Chain

- Mining and extraction
- Manufacturing and processing
- Supply chain
- Warehousing and storage

Energy

- New energy sources – monitoring and power generation support apps
- Smart grid and distribution
- Micro-generation– generation of power, by residential, commercial and community users on their own property

Other

- Agriculture – livestock, soil monitoring, water and resource conservation, temperature control for milk tanks +
- Construction: Site and equipment monitoring
- Emergency services and national security

Changing the Way We **Work**

Self-Driving Vehicles

Drone-Delivered Medicine Services

Smart Waste

Changing the Way We **Live**

Egg Minder & Alerter

Quirky Egg Minder

Nest Cam for Dogs & Remote Dog-Treat Dispenser
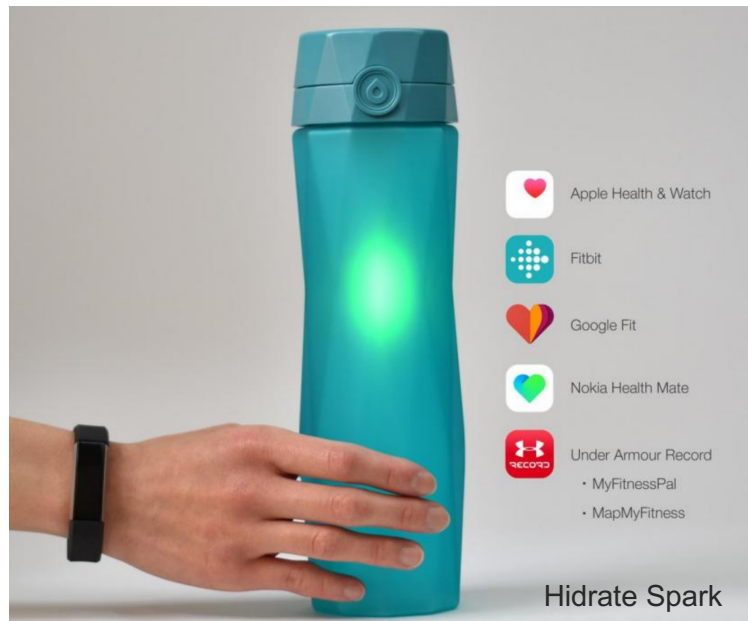

Wireless Diapers

24eight

Hotel Bed-Bug Catcher & Alerter
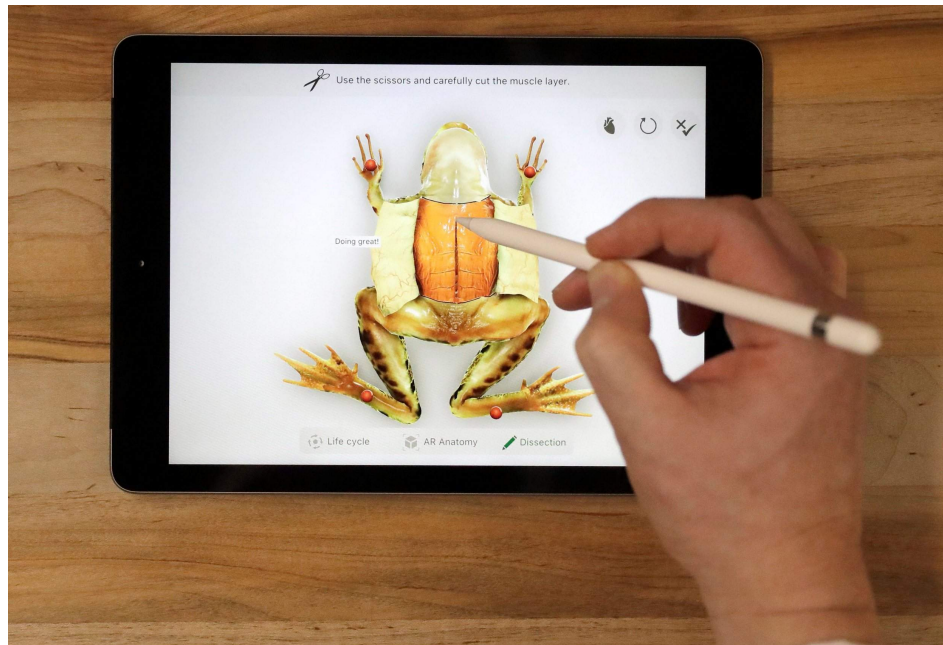

Valpas

Changing the Way We **Play**

Sports

Smart Water Bottles

Apple Health & Watch

Fitbit

Google Fit

Nokia Health Mate

Under Armour Record
- MyFitnessPal
- MapMyFitness

Hidrate Spark

Changing the Way We **Learn**

Smart Schools and Classrooms

Disability Accommodation

To be smart and sustainable, it must be secure, right?

So how secure are we?

Consumer IoT devices care about your privacy

True or False ?

Consumer IoT devices care about your privacy

The Impact of IoT

By installing just 12 IoT devices purchased off-the-shelf from well-known retailers, our personal information and other data began spreading across the globe.

False!

MEDIAMATH

AMAZON

AMAZON

COMCAST

OVH

GOOGLE

AMAZON

ALIBABA   SERVERS.COM

CHINA TELECOM

CHINANET

ALIBABA
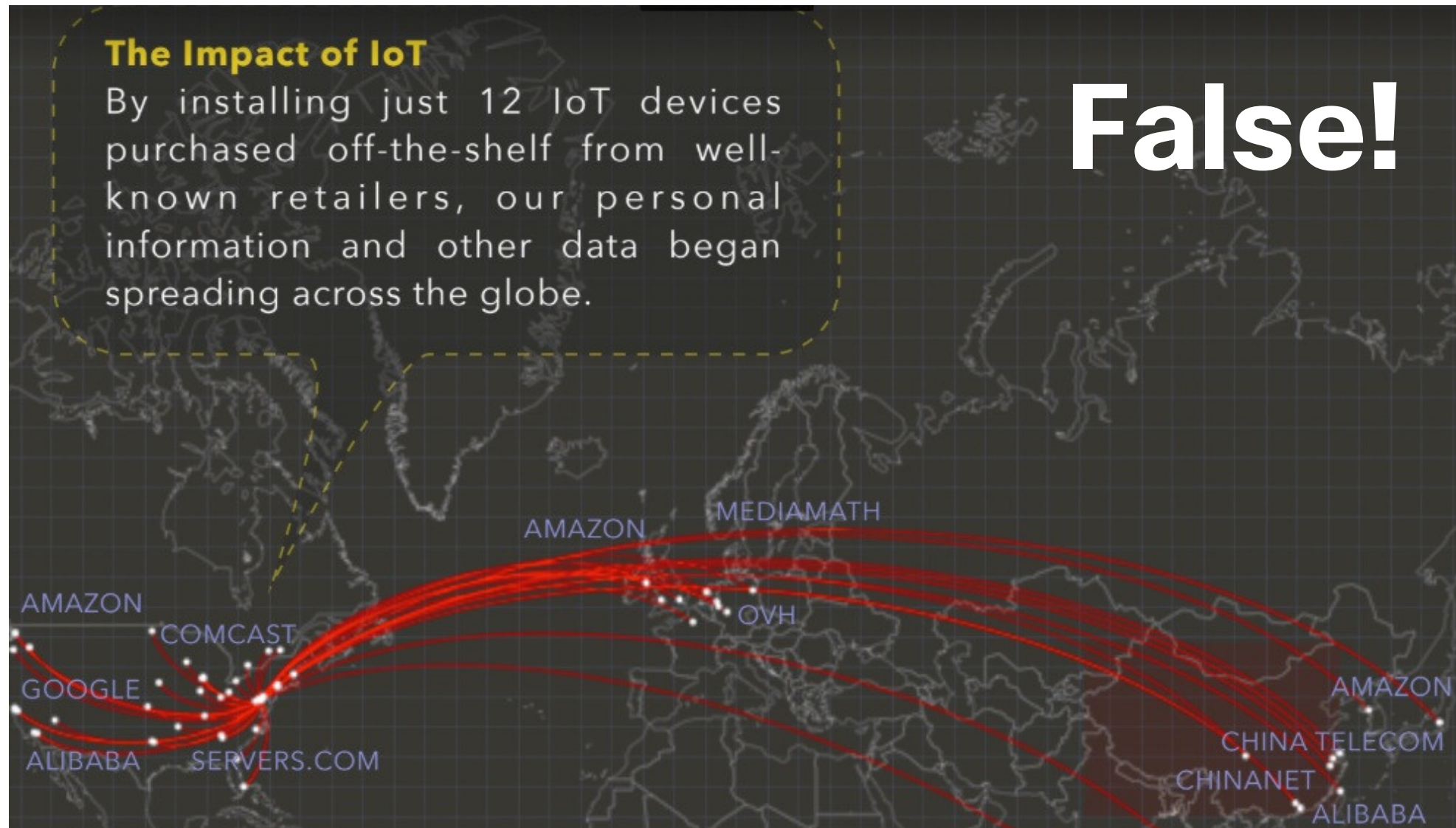
Hackers can Freeze You

**True
or
False
?**

Hackers can Freeze You

Security

Finns chilling as DDoS knocks out building control system

Hint: next time, buy a firewall *before* you're attacked

By Richard Chirgwin 9 Nov 2016 at 03:30   17 🗩   SHARE ▼

Residents in two apartment buildings in the Finnish town of Lappeenranta had a chill-out lasting more than a week after a DDoS attack battered unprotected building management systems.

True!

https://www.theregister.co.uk/2016/11/09/finns_chilling_as_ddos_knocks_out_building_control_system/

Hackers can Halt Your Operations

True or False ?

Hackers can Halt Your Operations

True!

Norsk Hydro disrupted by major cyber attack

⚡ 19th March 2019 - Author: Charlie Wood

A potential ransomware attack on Norsk Hydro, one of the world's largest manufacturers of aluminium, has forced the company to switch to manual operations in a bid to contain the breach.

Emerging reports indicate the Norway-based company's operations are being disrupted after unusual activity was spotted on its server by IT experts. It's understood that the attack disabled a key part of the company's smelting operations.

The firm's Chief Financial Officer Eivind Kallevik explained during a conference call that it does have cyber insurance in-force, however at this time it's not known how extensive the coverage is and how any claims would deal with cyber related business interruption.

https://www.reinsurancene.ws/norsk-hydro-disrupted-by-major-cyber-attack/

Your Car Can be Hacked

**True
or
False
?**

Your Car Can be Hacked and Remotely-Controlled

True!

https://www.kaspersky.com/blog/remote-car-hack/9395/

So we, and our Cities, are going to get even more connected, but how can we do it securely, and... sustainably?

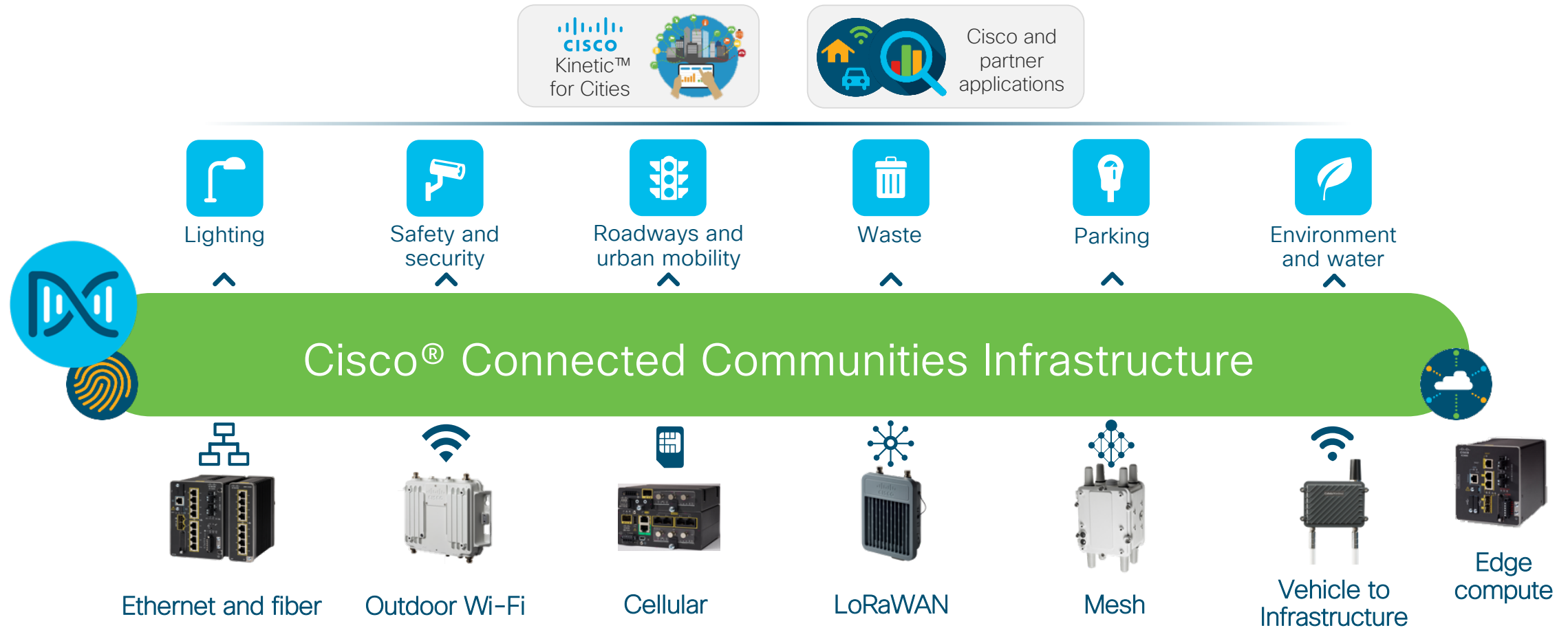# Step 1 - Low Power Network Devices

100 Watts

10 Watts

Step 2 - Low Power Protocols for IoT Devices!

Step 3 – Modular architectures

Cisco Kinetic™ for Cities

Cisco and partner applications

Lighting

Safety and security

Roadways and urban mobility

Waste

Parking

Environment and water

Cisco® Connected Communities Infrastructure

Ethernet and fiber

Outdoor Wi-Fi

Cellular

LoRaWAN

Mesh

Vehicle to Infrastructure

Edge compute

Step 4 – Data insights

https://co.vid19.sg/

Step 5 – Data driven use case
Coronavirus: Ontario transport agency shares user data with public health body

- Ontario's public transport agency Metrolinx said last week that, on request, it gave Toronto Public Health contact information associated with registered Presto payments cards used on specific trips, after a 40-year-old man was diagnosed with coronavirus (COVID-19).

- The data related to specific MiWay and GO trips taken between March 2 and 4.

- The case is one of a growing number which highlight how officials are faced with *finding the balance between long-term individual privacy and the common good* amid an urgent public health crisis.

https://www.smartcitiesworld.net/news/news/coronavirus-ontario-transport-agency-shares-user-data-with-public-health-body-5120

17 March 2020: Sarah Wray: Editor, SmartCitiesWorld

In conclusion

- Smart Cities must have people at the centre

- Cities will get increasingly connected, in more ways that we can imagine

- Bad actors will try to exploit any weakness in the infrastructure

- Technology is evolving, allowing sustainable connectivity and collection of data

- Data privacy is taking center stage

- We're only at the beginning of how data will lead to a sustainable city