# **Securing the Edge**

# Fortifying Connectivity at the Frontier

**Britto Sidhan** IoTSF Meetup | July 2024

Public

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Life Is On Schneider General Manager – Global Security Lab

- Leading a team of ICS/OT Offensive Security Experts ullet
- **Product Security Technology and Innovation** ullet

ë Electrifier Level 2 Cybersecurity Domain





Note: This presentation solely represents the views of author and by no means of Schneider Electric

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## IoT Devices

### END DEVICES









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### EDGE DEVICES









#### EDGE COMPUTING







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### IoT Devices

Devices & Sensors	Edge Gateway	Cloud Infrastruct
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#### Analytics



## Our Agenda

- Some useful tips on securing IoT Edge
- Navigating unique challenges at Edge
- Some essentials of secure remote access for IoT Edge Securing IoT Edge is just a walk in the park, right?

### Some sneaky IoT attack statistics you might have missed

### Top source countries of

brute-force IoT activity



Source Bulletproof Annual Cyber Security Report 2019

#### RUSSIA CHINA ERAZIL UNITED STATES Source **NFTSCOUT**

## Threat Report – IoT Cyber Attacks

Once plugged into the internet IoT devices are attacked within



### and targeted by specific exploits in



Source NETSCOUT

# 5 Exploring IoT Applications Across Industries

### **Transportation**

- Fleet management
- Vehicle telematics
- Smart traffic management

### Healthcare

- Track medical assets
- Manage inventory
- Monitor patients

### Logistics

- Supply chain management
- Asset tracking
- Route optimization

#### Utilities

Gas metering
Solar sensors
Energy infrastructure monitoring

#### **Smart Buildings**

Smoke detectors	•	•	•	•	•	•	•	•	•	•
Home automation	•	•	•	•	•	•	•	•	•	•
Alarm systems	•	•	•	•	•	•	•	•	•	•
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# Strategies for Edge Security

- 1 Secure Boot & Firmware Signing
- 2 Access Control
- 3 Data Encryption
- 4 Securing Applications

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# Secure Remote Access for IoT Edge

#### Challenges

- Private Networks: IIoT devices are typically positioned in private networks
- Legacy Systems: often lack the necessary interoperability
- Mobile Networks: devices connected via 4G/LTE lack public IP addresses
- Connectivity Cost: expense of maintaining reliable & high-bandwidth

#### Traditional Solutions

- SSH Connections: susceptible to password cracking & MITM attacks
- Proxy interc

- Port F risks
- VPN Connections: overhead & configuration challenges

- Proxy Connections: susceptible to
- interception & MITM attacks
- Port Forwarding: complex & security



# Secure Remote Access for IoT Edge







## Polling Question

What are the primary challenges in securing IoT Edge?

- Edge computing resource constraints
- **Deployment and Management Complexity**
- Network connectivity and Protocol vulnerabilities
- **Device authentication and Identity management**
- **Storage and Privacy**



## **Customer & Manufacturer Perspectives**

Deployment Environment

### Customer Security View

Data Protection

Custom Policies Industry Best Practice Common Threats

### Manufacturer Security View

Product Lifecycle



A Casino Gets Hacked Through a Fish-Tank Thermometer Are your fish tanks secure? BY GENE MARKS JUN 1, 2021 Mathew J. Schwartz (Seuroinfosec) • May 13, 2024 🗩

Mirai Botnet Exploits Ivanti Connect Secure Flaws for Malicious Payload Delivery

🛗 May 09, 2024 🚨 Newsroom



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# Answer to Securing IoT Edge





### Requirements will vary for each deployment!

