Payatu

Hardware Security Assessment for Smart Home Appliances

Payatu Casestudy

Problem

Our client, a German company and one of the domestically largest smart kitchen appliance manufacturers, wanted to assess their product's security.
The company offers food processors on a subscription model that uses predesigned recipes. The users register on the company's cloud system and can use the device to download the recipes from the internet. The device is self-sufficient to cook based on these recipes. Users have to supply only the ingredients.

The company reached out to the Payatu team to assess the overall security of the equipment. The challenge with this subscription model was safeguarding intellectual property. The manufacturer faced the below challenges:

- Users trying to manipulate the appliance to extract recipes, which are proprietary to the company,
- Users trying to use their own recipes and bypass the subscription model to avoid monthly payments, and
- Competitors could sneak away with the device's design (IP) illegally.

Solution

Payatu team did a thorough assessment of the food processor and identified these issues:

1. We got into the device and extracted encryption keys from the hardware, which were hardcoded on the device. These keys unlocked access to the device's intellectual property that included subscribed recipes.
2. The device used to download the firmware as a zip file into an external USB storage. We replaced this file with a malicious zip file and were able to execute code and escalate our privileges to gain root privileges on the device.

The loopholes we discovered were the possible entry points to execute several attacks on the device's ecosystem.

Benefits

An IP theft poses a substantial financial loss to any company. Bypassing the subscription model by the users of a company also translates to recurring revenue loss.

With Payatu's assessment, the company mitigated the risk of financial losses and nasty attacks. This project was completed within 4 weeks.

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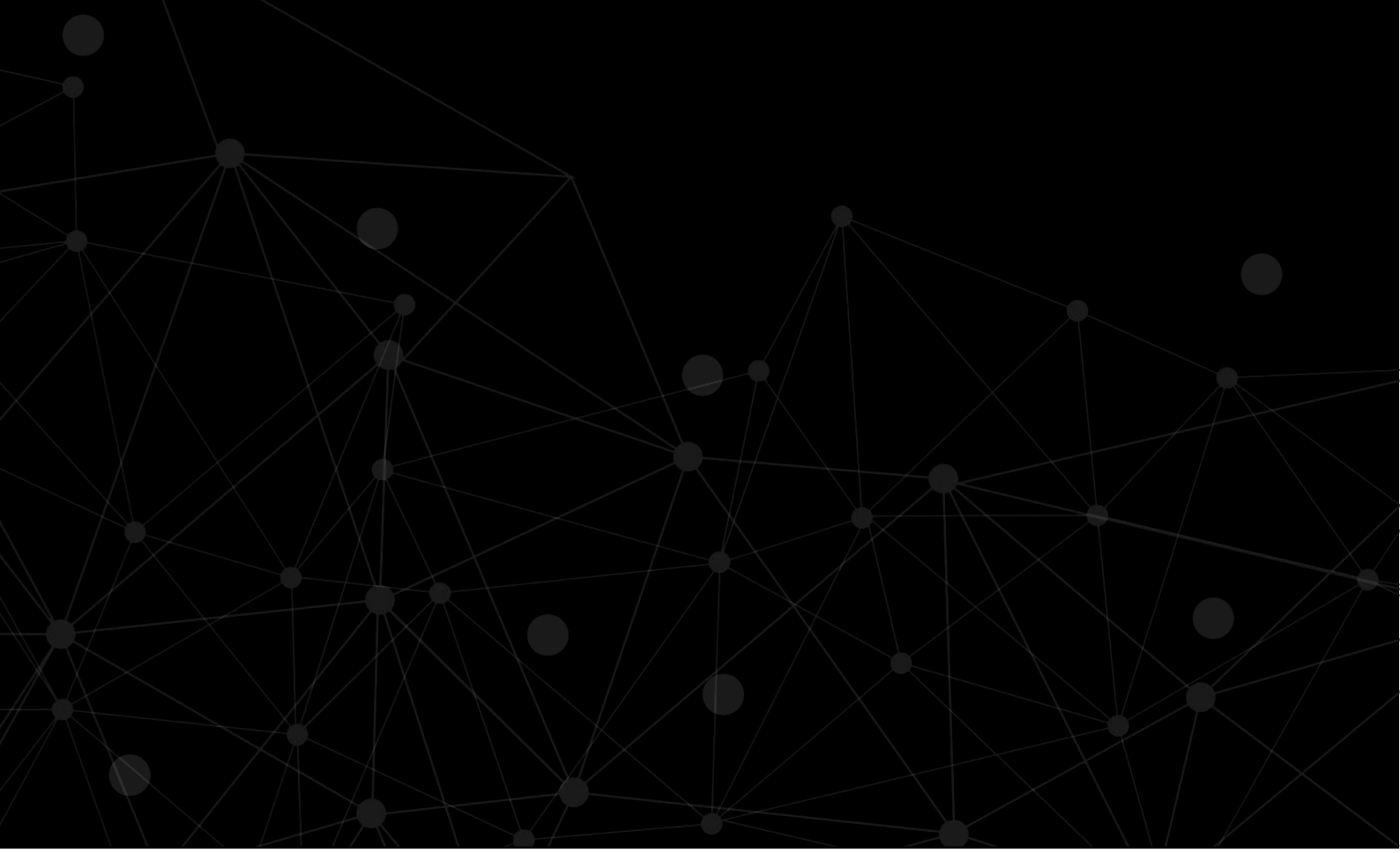
About Payatu

Payatu is a Research-powered cybersecurity services and training company specialized in IoT, Embedded Web, Mobile, Cloud, & Infrastructure security assessments with a proven track record of securing software, hardware and infrastructure for customers across 20+ countries.

Our deep technical security training and state-of-the-art research methodologies and tools ensure the security of our client's assets.

At Payatu, we believe in following one's passion, and with that thought, we have created a world-class team of researchers and executors who are willing to go above and beyond to provide best-in-class security services. We are a passionate bunch of folks working on the latest and cutting-edge security technology.



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