



Course material

Course:

## Understanding the digital supply chain and its stakes for humanitarian actors

Video:

### 1.3.4 Case n2 - The Extra Grain in the Chip

Concepts (extracted from automatically generated subtitles):

**Tech companies. Huge success. Clever algorithm. Particular specification of cpu. Extreme solution. Special servers. Rigorous security audit of alice. Bob's algorithm. Carol. New hardware. Alice. Classic case. Manufacturing facility. Case study. Acquisition offer alice.**



[to video sequence search](#)

(within Understanding the digital supply chain and its stakes for humanitarian actors.)



[to video](#)

Center for Digital Education. More educational support material here:

<https://www.epfl.ch/education/educational-initiatives/cede/educational-technologies-gallery/boocs-en/>

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# THE HARDWARE AND SOFTWARE SUPPLY CHAINS

## Hardware Supply Chain Case Study 2 The Extra Grain in the Chip

**Shweta Shinde**

Assistant Professor  
Secure & Trustworthy Systems Group  
ETH Zurich



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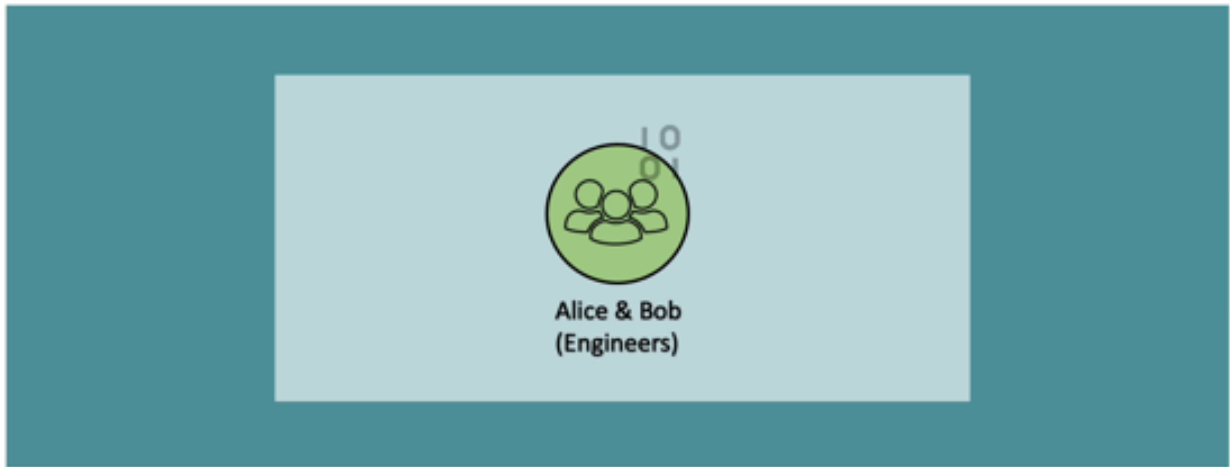
notes

summary

0m 0s



## Case n°2: The Extra Grain in the Chip



Next up is what I like to call the extra grain in the chip. Alice and Bob are smart engineers.

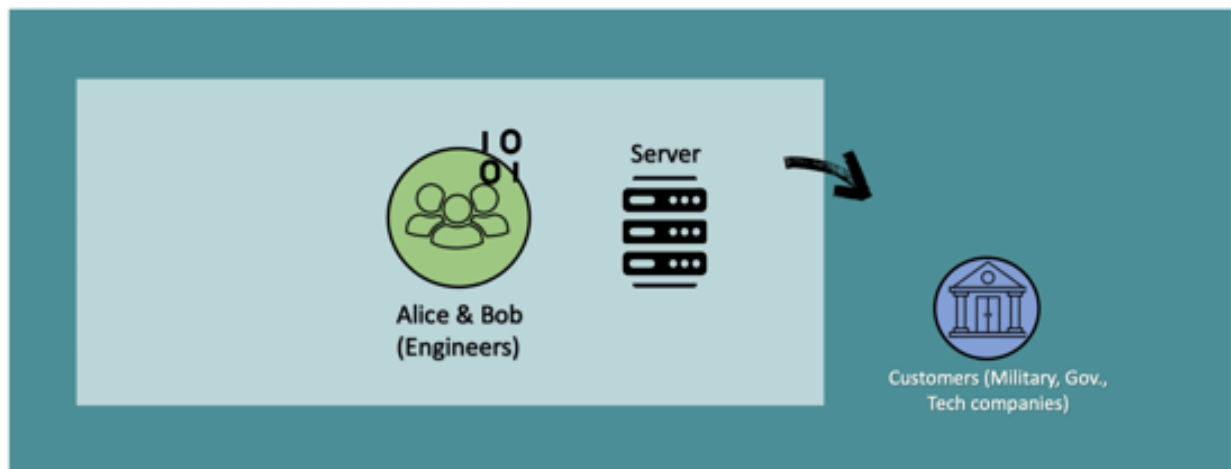
notes

summary

0m 4s



## Case n°2: The Extra Grain in the Chip



They have come up with a clever algorithm to do fast video streaming, so they built special servers to maximise the potential of their algorithm and started lining up customers. Governments, military, tech companies, everyone lined up to buy these servers. Alice and Bob's algorithm didn't need new hardware, it just needed to be a particular specification of CPU, memory, network, so on and so forth.

### notes

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### summary

0m 13s



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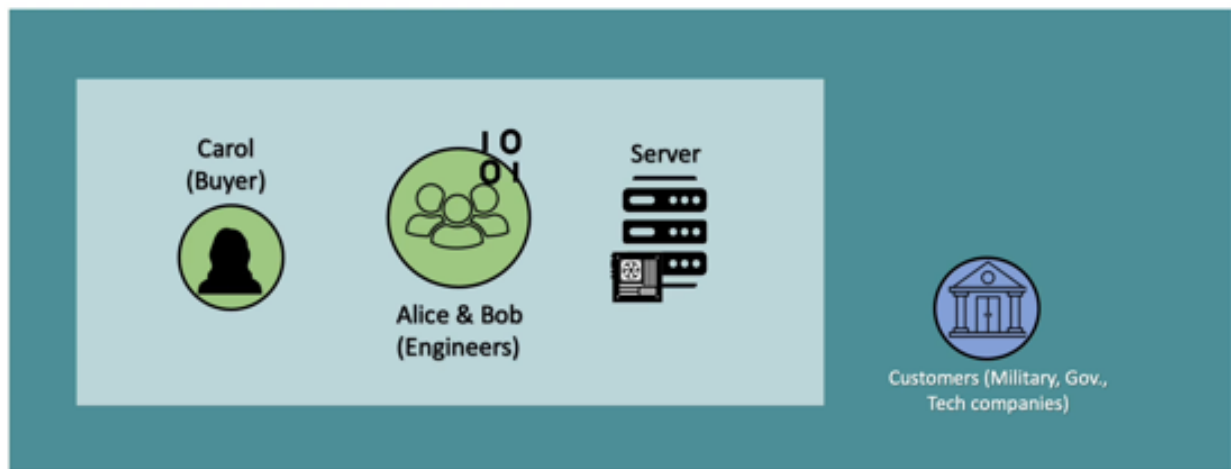
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## Case n°2: The Extra Grain in the Chip



Alice and Bob quickly put together several orders by using motherboards from another company to build their service. The company was a huge success, and Carol made them an acquisition offer Alice and Bob could not refuse.

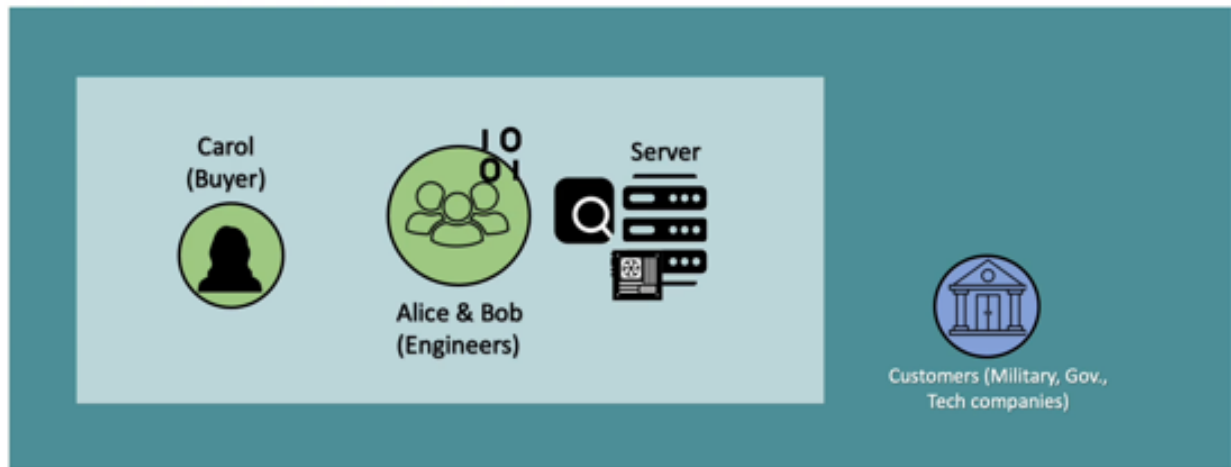
notes

summary

0m 37s



## Case n°2: The Extra Grain in the Chip



All that hard and smart work was finally going to pay off. But there was one more step before they could celebrate. Carol wanted to perform a rigorous security audit of Alice and Bob's company, everything from servers to employees. Due diligence, good for Carol.

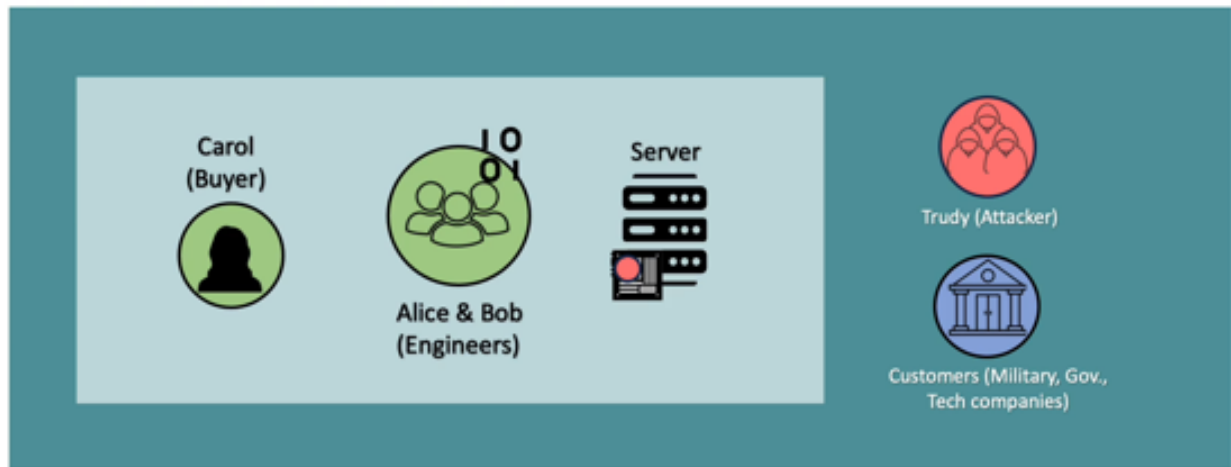
notes

summary

0m 52s



# Case n°2: The Extra Grain in the Chip



To everyone's surprise, Carol found out that the servers were sending all the customer data to a suspicious receiver named Trudy. Who is Trudy?

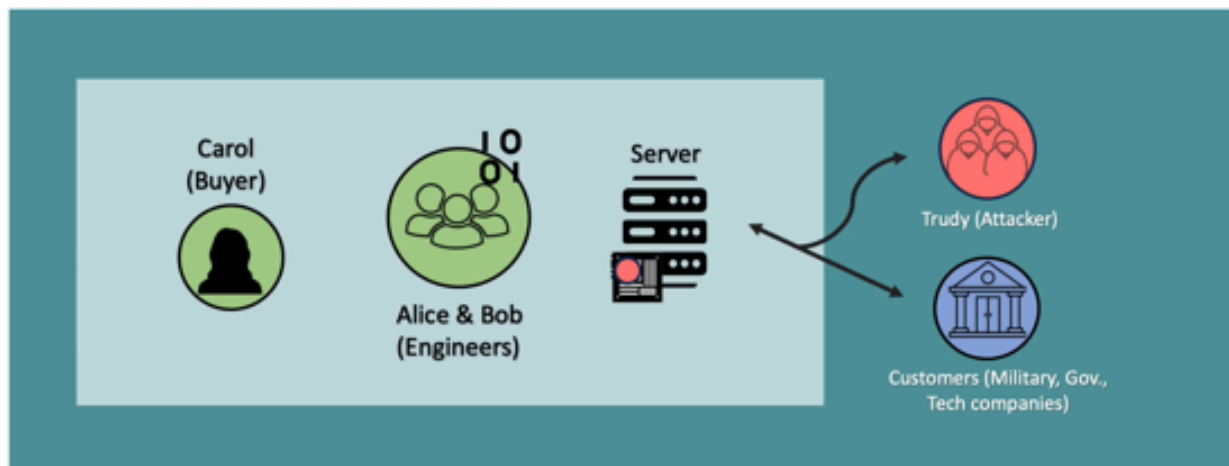
notes

summary

1m 13s



## Case n°2: The Extra Grain in the Chip



Carol was alarmed and started a deeper investigation of the server system. Lo and behold, Carol found a backdoor on the motherboard. Turns out, Trudy had gone and infiltrated the manufacturing facility, which was used to produce the motherboards. In particular, she had managed to tamper the production to place a rice grain size chip on the motherboard. This way, she could control what was happening on the motherboard. And just like that, she had a backdoor chip on every server sold by Alice and Bob. This chip would connect to Trudy's network, the attacker,

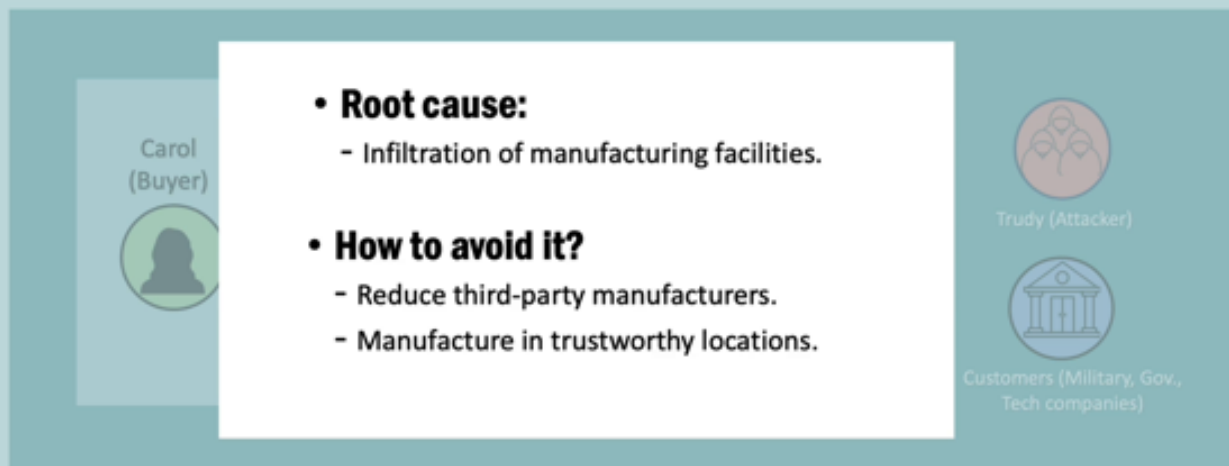
### notes

### summary

1m 22s







notes

2m 4s



# Case n°2: Analysis



Carol  
(Buyer)



- **Root cause:**

- Infiltration of manufacturing facilities.

- **How to avoid it?**

- Reduce third-party manufacturers.
- Manufacture in trustworthy locations.



Trudy (Attacker)



Customers (Military, Gov.,  
Tech companies)

in trustworthy locations. This way, Alice and Bob could vouch for the integrity of the manufacturing process of the motherboards.

notes

summary

2m 49s





And that is the story of Alice and Bob.

notes

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summary

2m 59s



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