

CYBER-SECURITY THREATS OF INDUSTRY 4.0 TECHNOLOGIES

IoT has quite positive influence on the manufacture industry such as the smart factory. Despite traditionally industrial networks had to be insulating from other environments, at present they have been *interconnected* with external networks. The connectivity can be risky for the for security and augment the issues on the software.

Main cyber security threats:

Industrial Internet of Things

- + Being connected to machines
- Shortage of resources

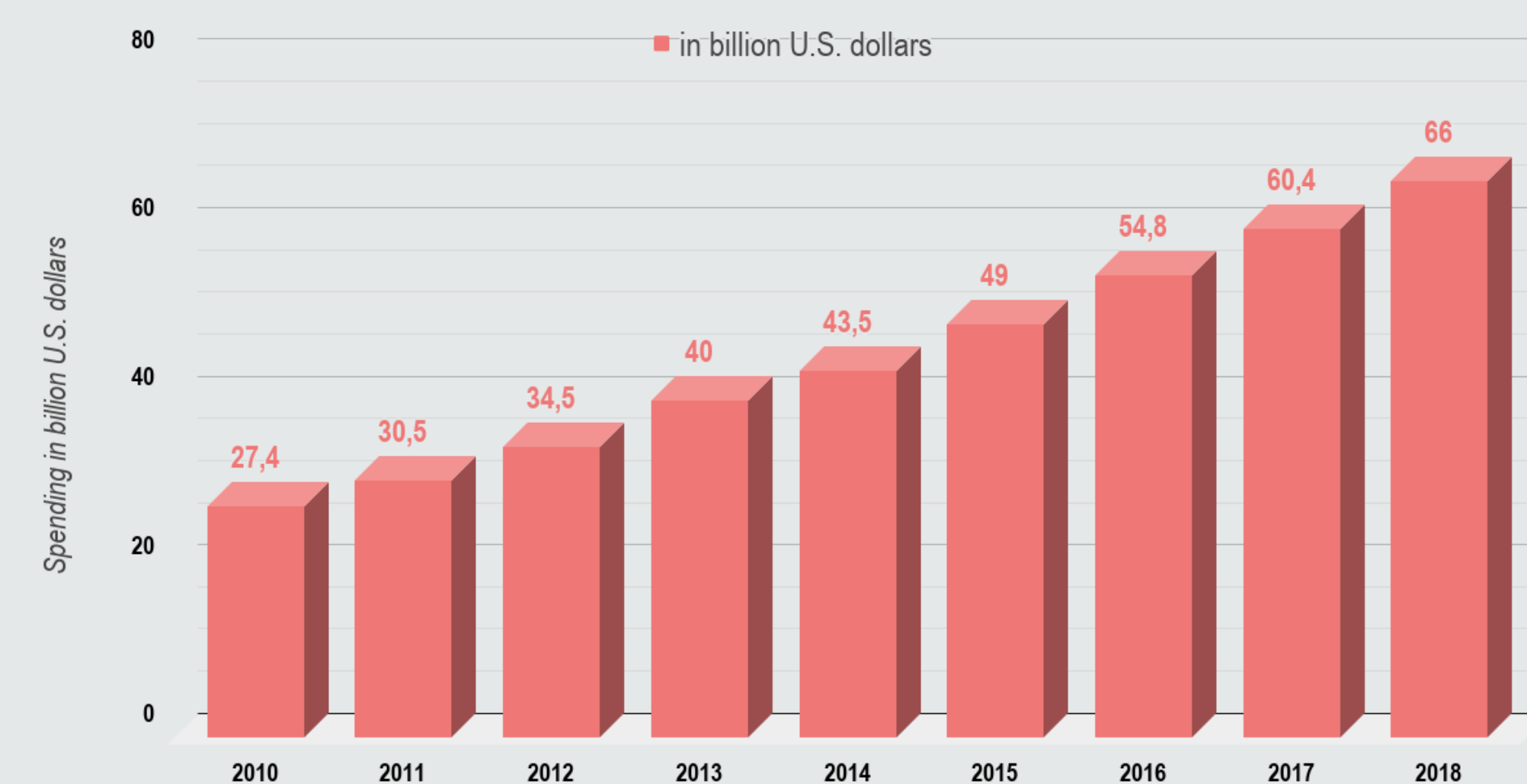
Cloud Computing

- + Processies data and accessibilty
- Distributed Denial-of-Service (DDoS) attacks infrastructure against availability

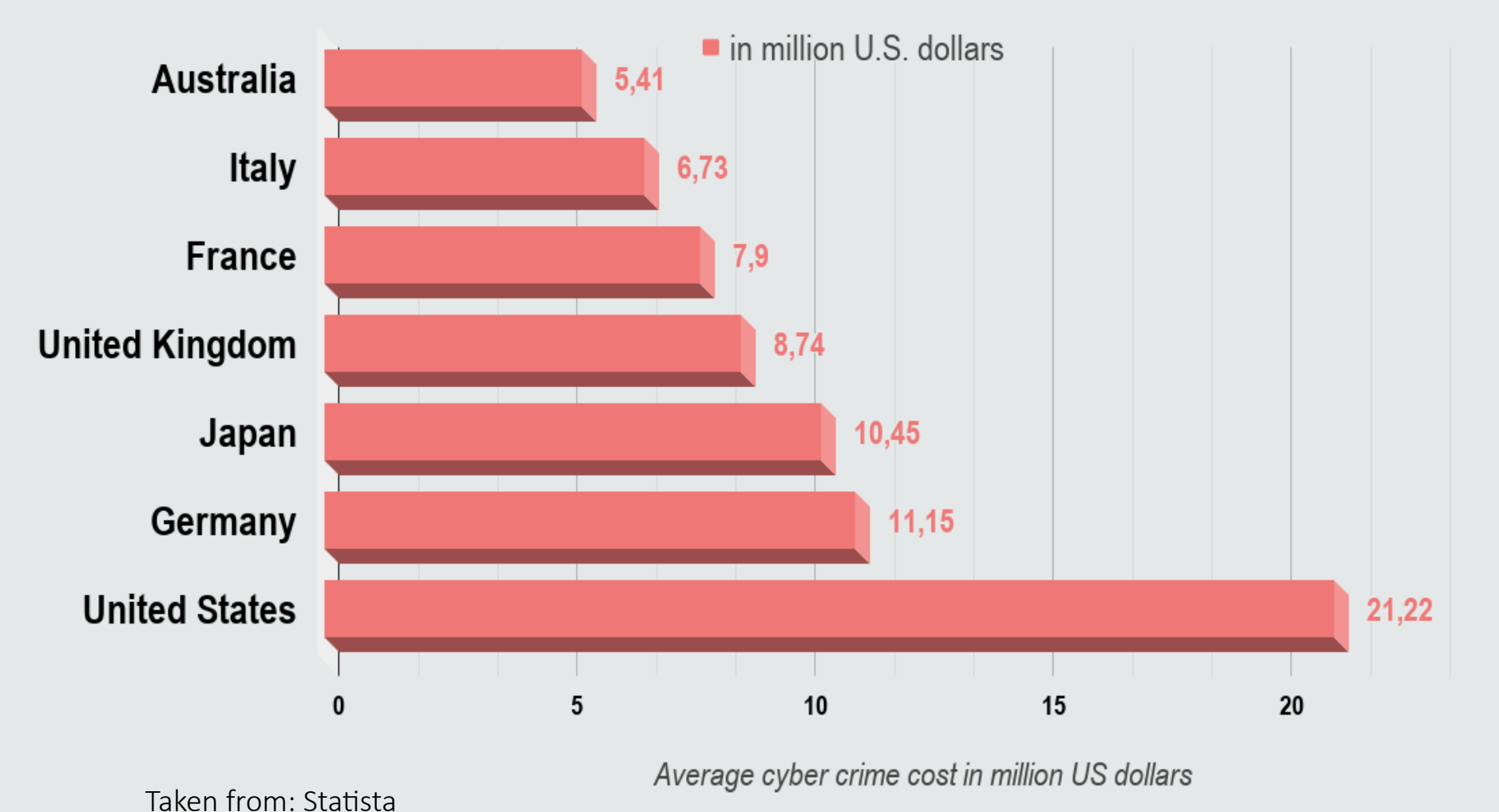
Big Data

- + Analyzation of the informarmation obtained by industrial network
- Crucial and rough to provide the security of all components and nodes

Spending on Cybersecurity in the United States from 2010 to 2018
Source: TIA



Average Annualized Cost of Cyber Attacks on Companies in Selected Countries of August 2017
Sources: Ponemon Institute; Accenture

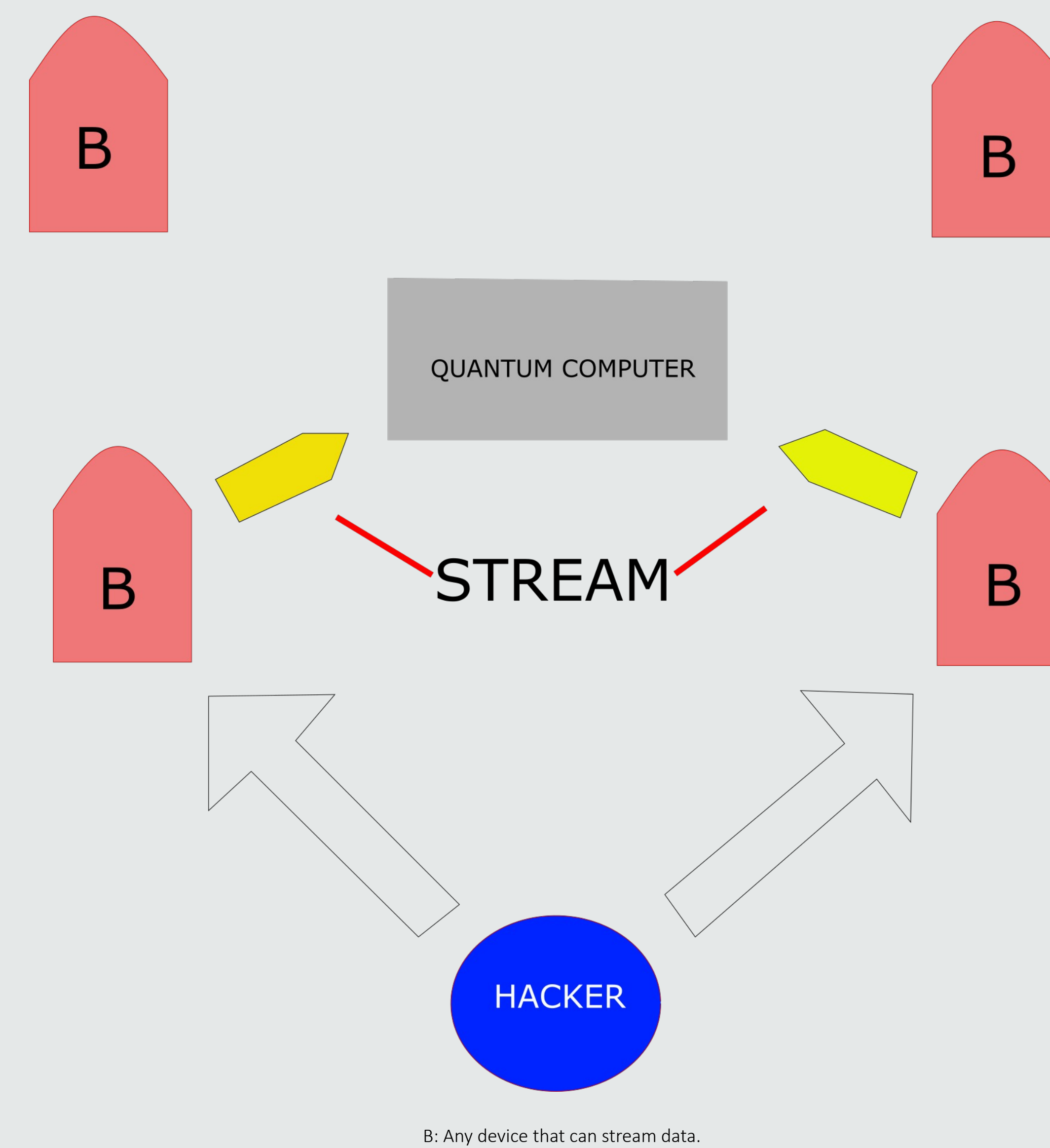


IMPLEMENTATION

In our system we aim to maintain a property from CIA(Confidentiality Integrity Availability) Triad, availability, of industries using Quantum Computing Technology. As the technology being improved the complexity and productivity of industries are improved. So do the hackers and their power.

The system uses centralized security system All the communication between machines, sensors and computers pass from our quantum computer and being transmitted.

Since the computation power of quantum computer is very high in contrast to regular ones whenever our system is attacked, quantum computer handles all the traffic easily. It means that the process can be overloaded, cut down or slowed, with cyber attacks like DDoS and DoS attacks or else. Which means cyber attacks do not damage heavily our systems.



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PREVIOUS DISASTERS



WannaCry Forces Honda to Take Production Plant Offline

In an example of just how persistent modern cyber threats can be, automaker Honda Motors had to temporarily stop production at its Sayama plant in Japan this week after being hit by WannaCry, a malware threat the company thought it had mitigated just one month ago.

eBay

The online auction giant reported a cyberattack in May 2014 that it said exposed names, addresses, dates of birth and encrypted passwords of all of its 145 million users. The company said hackers got into the company network using the credentials of three corporate employees, and had complete inside access for 229 days, during which time they were able to make their way to the user database.

For more information:

<https://www.csoonline.com/article/2130877/data-breach/the-biggest-data-breaches-of-the-21st-century.html>

ETHICS

Quantum computers would quickly be able to crack the systems that keep our online information secure. For these reason, it will be difficult to determine if the computers should be released to the consumer market or only used for governments and corporate businesses. This also creates an ethical dilemma.

Another ethical problem is the Intellectual Property clause in the Stanford Ethical Guide. This creates a problem because people want to own and patent certain mathematical equations and software. People are presently developing a quantum algorithm and when they do, if they put a patent on it, it would basically monopolize the entire quantum computing field. Then no one would be able to use the software without purchasing it first. This is a significant matter because it would restrict other people from improving upon his algorithm and inventing new software.

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