

IoT Security in Schools



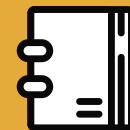
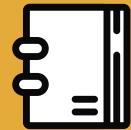
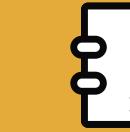
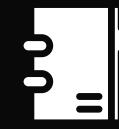
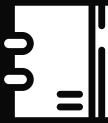


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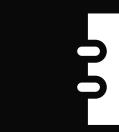
What are we talking about?

- **What is IoT**

Devices with sensors, processing ability, software and other technologies that connect and exchange data with other devices and systems over the Internet or other communications networks.

- **IoT devices used by schools**

Sensors, HVAC, RFID tags, Camera, Access control systems, Smart lights...



IoT devices in Schools

Pros



- Enhanced learning: Interactive and innovative educational tools.
- Improved safety: Advanced security systems and emergency response mechanisms.
- Resource management: Better energy and resource usage monitoring.

Cons



- Privacy concerns: Risks of data breaches and unauthorized data access.
- High costs: Expensive to implement and maintain.
- IT dependency: Need for continuous technical support and updates.

Cyberattacks “trends” in Schools

DDOS ATTACK

Attackers flood a school's network with excessive requests, causing it to become unresponsive or crash.

RAMSOMWARE

Cybercriminals encrypt a school's data, making it inaccessible, and demand a ransom for decryption.

DATA BREACHES

Unauthorized individuals access and potentially copy, steal, transmit, change, or view sensitive data

PHISHING

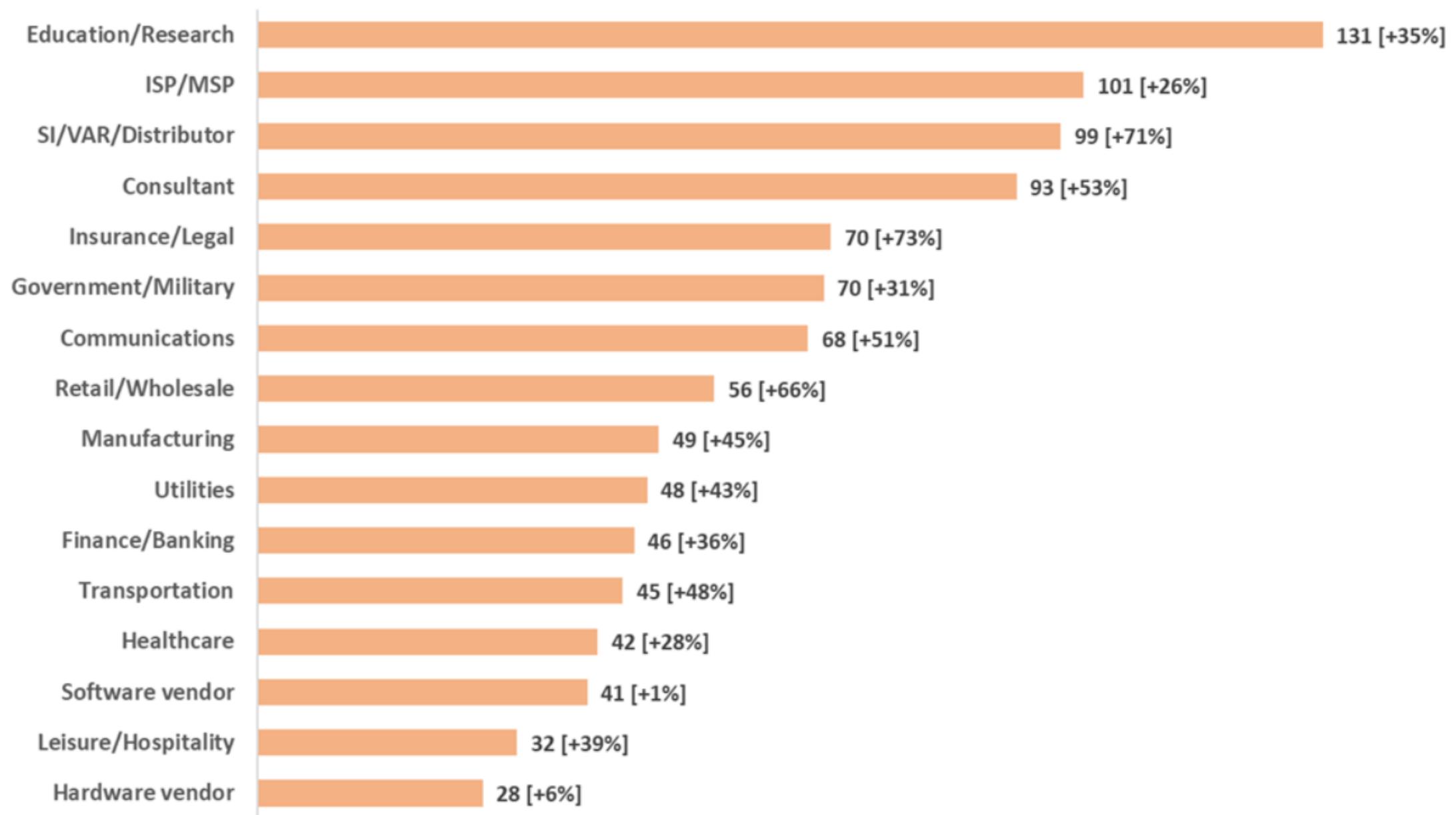
Trick emails to steal sensitive information or deliver malware

SQL INJECTION

Exploiting vulnerabilities in databases to steal or manipulate data

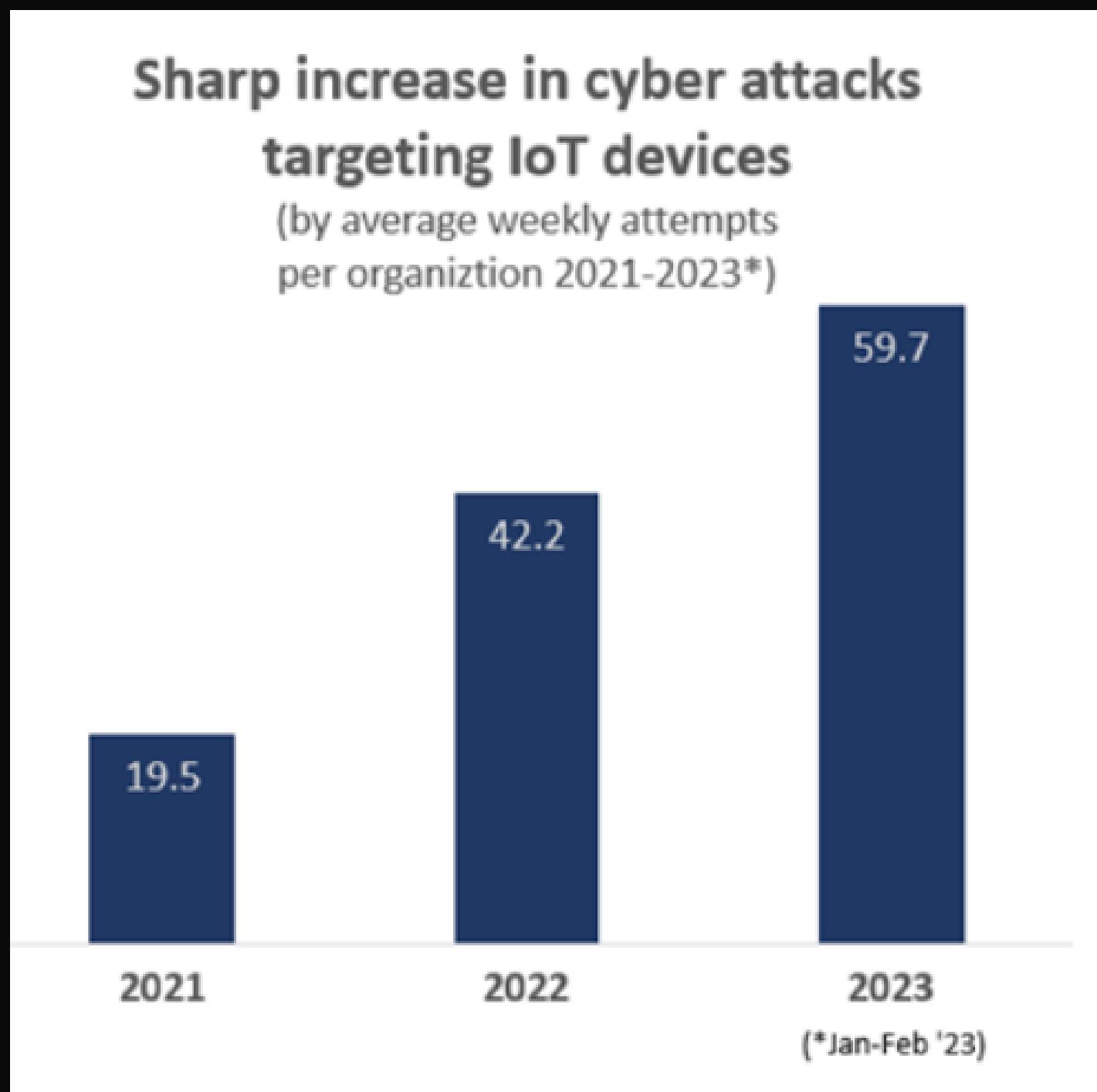
Some numbers:

Average weekly IoT cyber attacks per organization by sector - Jan-Feb 2023 vs. 2022



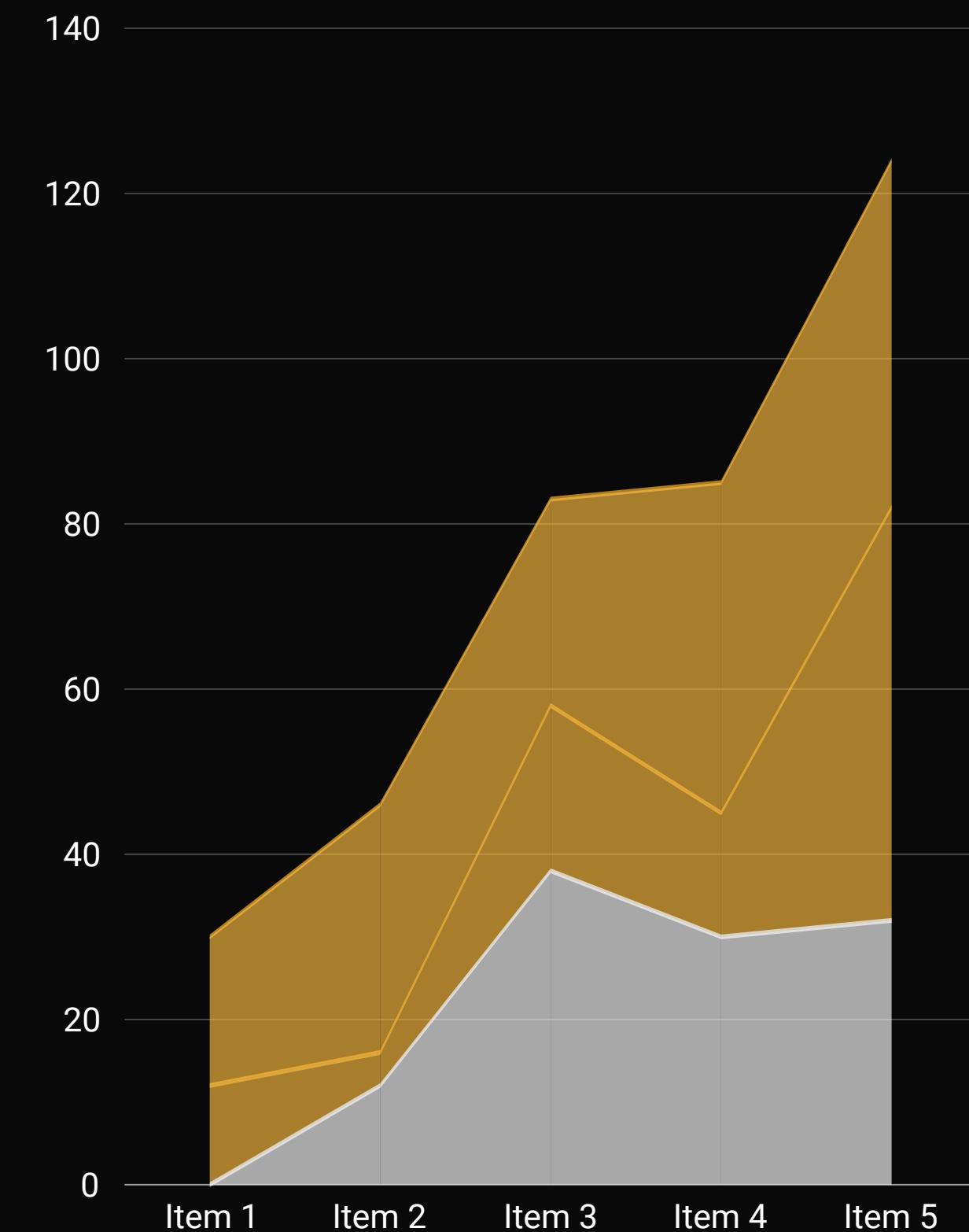
Sharp increase in cyber attacks targeting IoT devices

(by average weekly attempts per organization 2021-2023*)



How can we avoid this Cyberattack trends?

"Since 2005, K-12 school districts and colleges/universities across the US have experienced 2,691 data breaches, affecting nearly 32 million records"





General Data Protection Regulation (GDPR)

- Student Data Protection
- Parental Consent
- Data Access and Control
- Data Breach Protocols
- Staff Training
- Data Minimization

FERPA vs GDPR

- Scope

GDPR is a data protection regulation for EU citizens, applicable globally. FERPA is specific to educational records in the U.S.

- Data Types

GDPR covers a wide range of personal data, while FERPA is specific to educational records.

- Rights Granted

GDPR provides broader rights like data erasure and data portability. FERPA focuses on rights to review and correct educational records.

- Consent

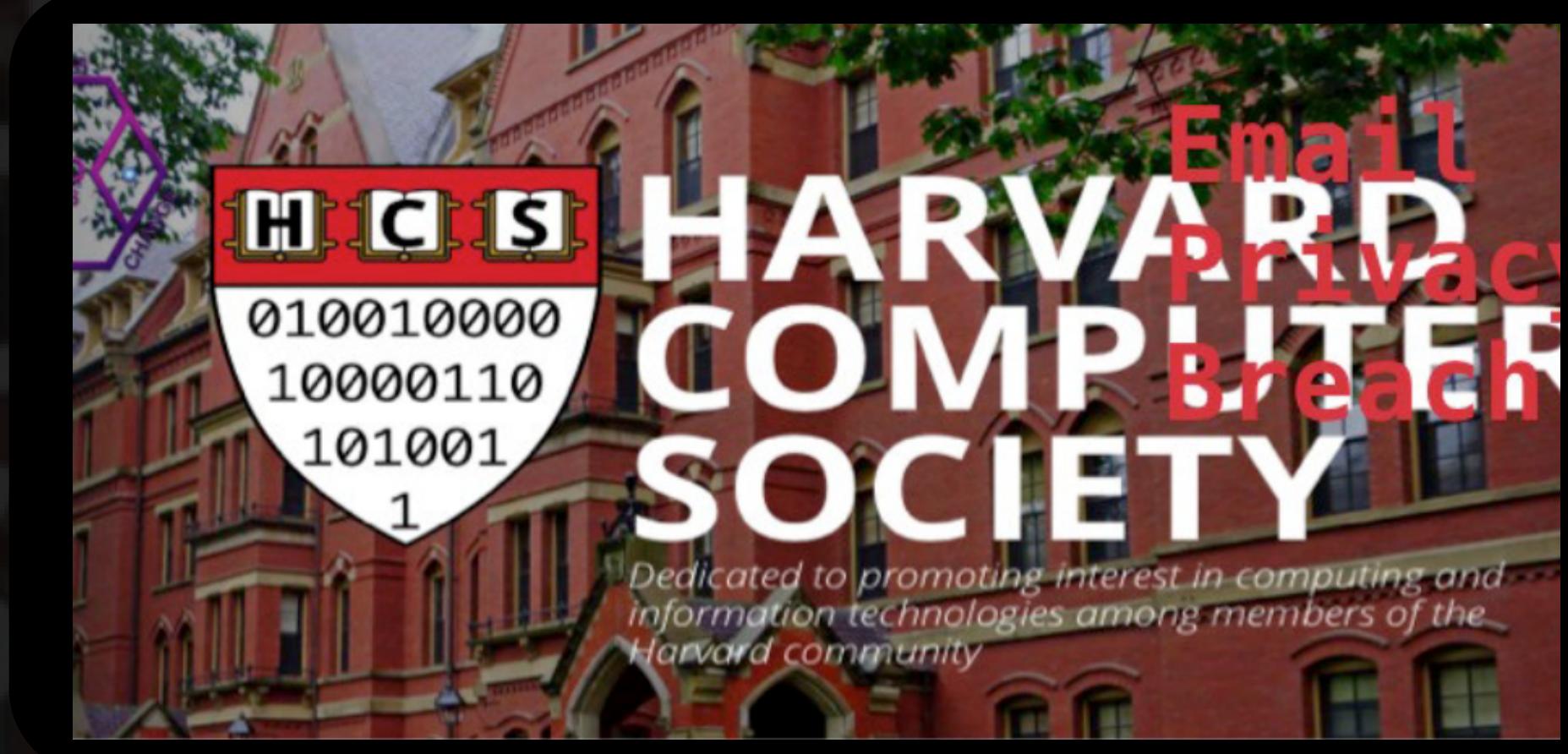
GDPR requires explicit consent for data processing. FERPA primarily deals with rights to access educational records and conditions under which these records can be shared.

- Enforcement and Penalties

GDPR has stringent enforcement mechanisms with significant penalties, whereas FERPA's enforcement is primarily through the U.S. Department of Education with different penalties for non-compliance.

Study-Case: Harvard Computer Society Email Privacy Breach

- What happened?
- Why?
- How they managed
- Total damage



**What do you think
about the use of
IoT in schools?**





**What's the biggest risk for
schools using IoT?**

Thanks for the attention!!!

