Bruise Now So You Don't Bleed Later

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Student Privacy Policy Office
Privacy Technical Assistance Center

SPPO Resources

SPPO Resources

Responding to Ransomware Attacks

Cybersecurity Best Practices for Schools and Districts

Cybersecurity and Incident Response Webinar

Student Privacy Helpdesk

- Have a question? Call us: 1-855-249-3072
- Send us an e-mail: https://studentprivacy.ed.gov/contact or PrivacyTA@ed.gov
- As a reminder, due to the size of this webinar we will not be addressing questions – if you have one that we do not address during the session – please reach out to us.

Disclaimer

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Why Incident Response is Important?

Education: THE Most Targeted Sector

- 30% increase in cyberattacks on schools
- ~650k students impacted in 2021 alone
- Targeted more than healthcare and government

FORBES > LEADERSHIP > EDUCATION

The Top Target For Ransomware? It's Now K-12 Schools

Frederick Hess Senior Contributor

I write about policy and practice in K-12 and higher education.

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Schools Are the Most Targeted Industry by Ransomware Gangs

Posted on September 20, 2023 by Dissent

Waqas reports that based on research by Sophos, the education sector is the most vulnerable and targeted by ransomware attacks.

KEY FINDINGS

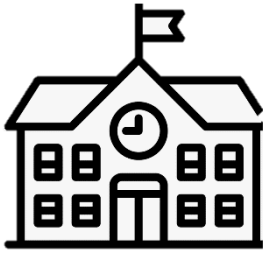
- 80% of lower education providers and 79% of higher education institutions reported ransomware attacks in the last year.
- Education is the most targeted industry by cybercriminals, primarily motivated by the high percentage of schools choosing to pay the ransom.
- The recovery costs from ransomware attacks have remained steady at around $1.59 million in 2023 and 2022 for lower education providers, while recovery costs in higher education have decreased significantly from the $1.42 million reported last year to just over $1 million in 2023.
- Education providers lack the funds that large corporations have to invest in robust cybersecurity measures and even staff training, leading to many loopholes sophisticated hacker groups can exploit.
- The Biden-Harris Administration has announced a $200 million initiative over three years to bolster cyber defences in K-12 schools.

Read more at HackRead.

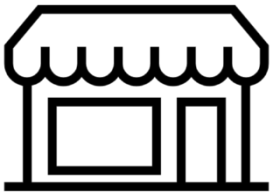
Cliff's Notes: You're Gonna Get Hit

- Education == Retail and Finance
- **Employees** and **Staff** are going to be the way in
- If it isn't Ransomware, its going to be DDoS
- Spend **Time** and **Resources** on **training**
- Response plans and processes better be tailored to meet these threats

Schools are not JUST Schools

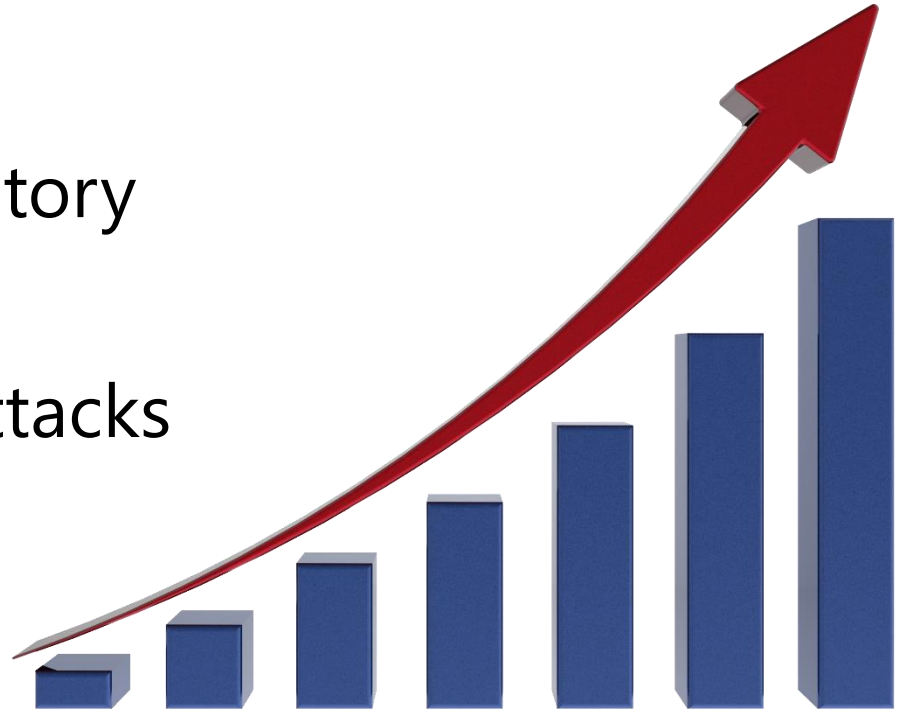


- More than just student data
- Health, family, financial data
- Employee data
- Sensitive Research data
- Other agencies' data
- Payment / Commerce data



Data Breach Impacts to Education

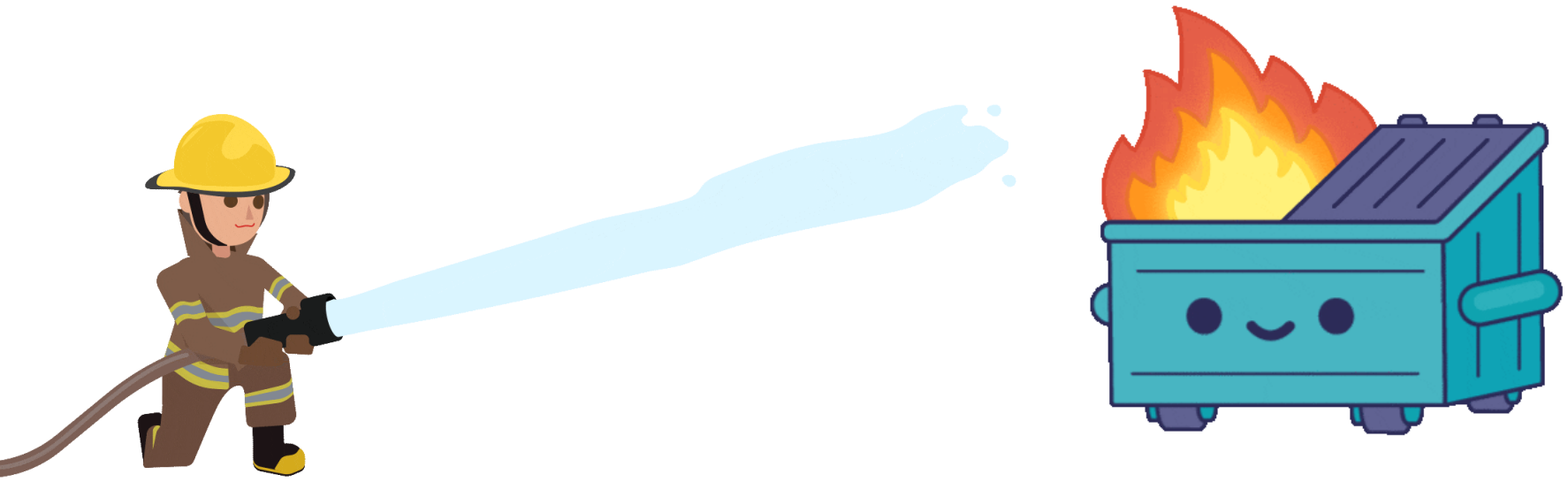
- Billions of dollars in costs
- Downtime from days to weeks
- Legal liabilities & regulatory penalties
- Further targeting and attacks
- Reputational harm



Many Laws May Apply

- FERPA
- IDEA
- Higher Education Act (HEA)
- GLBA implications & other applicable financial laws
- State Laws

Building Robust Incident Response Capabilities

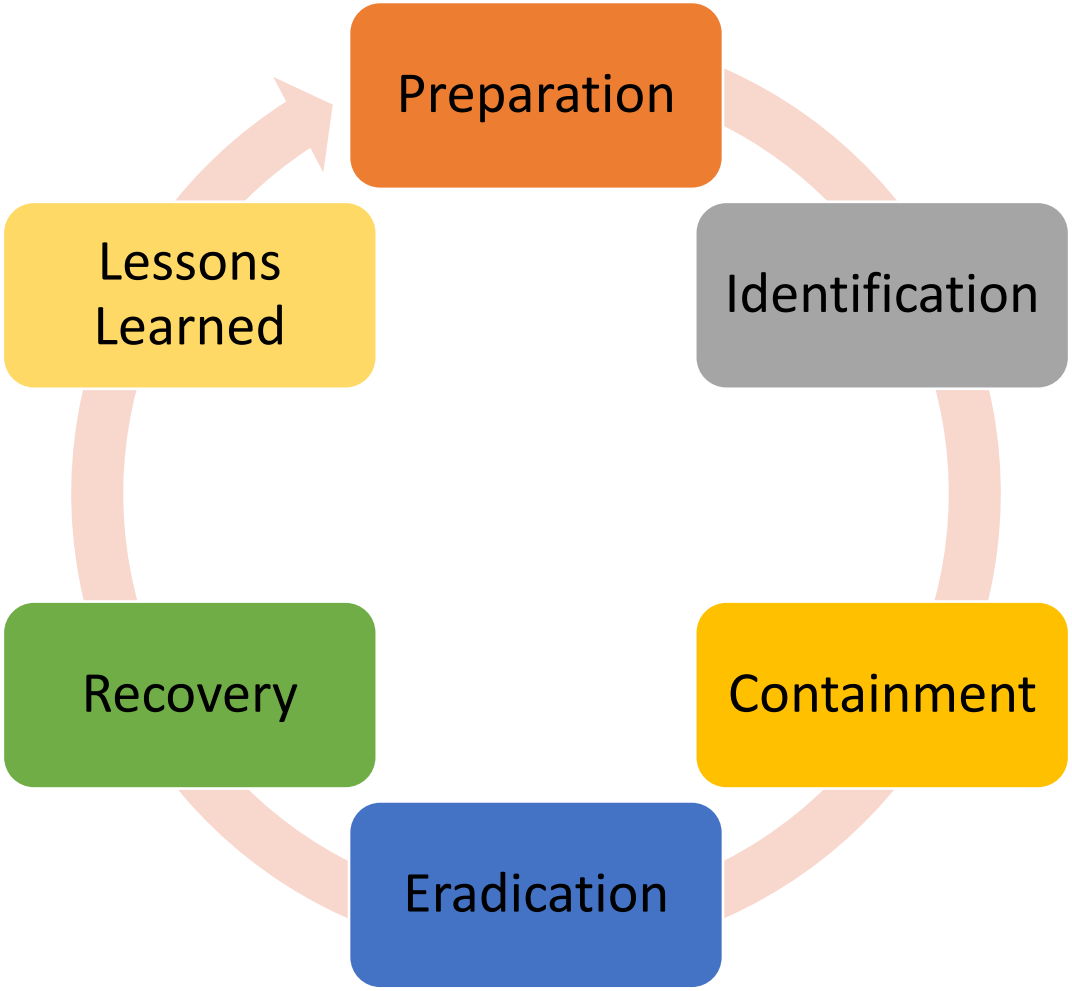


Incident Response: What's Inside the Box?

Key phases typically include:

1. **Preparation**: Defining the response team, roles and responsibilities, developing communication plans, and resourcing
2. **Identification**: Detecting and determining the nature of the incident.
3. **Containment**: Containing the incident, mitigating further damage
4. **Eradication**: This involves removing the threat from the affected systems
5. **Recovery**: Restoring and returning systems and networks to normal operations
6. **Lessons Learned**: Post-mortem analysis and lessons learned for process improvement

The Process


Preparation
Identification
Containment
Eradication
Recovery
Lessons Learned

Rule #1: Have a Plan

Failure to plan is planning to Fail…

You Need an Incident Response Plan

Incident Response Plans

"An Incident Response Plan is a written document, formally approved by the senior leadership team, that helps your organization before, during, and after a confirmed or suspected security incident." -CISA

- *Defines the Purpose / Mission*
- *Identifies Roles & Responsibilities*
- *Sets organizational priorities*
- *Determines response thresholds*
- *Outlines response processes*
- *Creates standards for documentation & metrics*
- *Establishes compliance & review timelines*

Putting a Plan Together

- Determine the “Musts”
- Define your Stakeholders
- Obtain leadership buy-in
- Understand what you have
- Evaluate the threat
- Perform a risk-assessment

Perform Annual Risk Assessments

"The process of identifying the risks to system security and determining the probability of occurrence, the resulting impact, and the additional safeguards that mitigate this impact."

-National Institute of Standards and Technology (NIST)

What is a Risk Assessment?

Formal organizational process involving leadership, IT, and organizational stakeholders

Four stages:

- **Identification** – *finding, documenting, and categorizing risks*
- **Analysis –** *ascertaining the nature of the risks and determining their potential impact and effects*
- **Evaluation –** *applying organizational risk tolerance and existing controls to the risk to determine significance*
- **Control –** identifying and applying mitigating controls to reduce the risk based on analysis

Continuous Re-Assessment

- Incident response plans are tailored to threats
- Threats change over time
- Risk-assessments drive understanding of the threat
- Periodically perform risk assessments and leverage the results to enhance incident response
- Tie these processes together with training and awareness to supercharge your preparedness and resilience

Incident Response Teams

There are two key success factors to good Incident Response Team performance.

The right Team

&

Somebody in-charge

Incident Response Team

Incident Response Teams are groups tasked with the response, management, and recovery of security and privacy incidents.

CORE

- Leadership
- Legal
- Communications / PA
- IT

AD-HOC

- Vendors / Partners
- Law Enforcement
- Facilities
- State Agencies

Incident Response Team Responsibilities

- Assess, analyze, and manage incidents from initial reporting to out-brief
- Speed recovery, ensure threat data flow, contain the incident
- Coordinate with stakeholders, decisionmakers, regulatory bodies, and communicate
- Documentation & reporting of response actions
- Post-incident analysis, prevention, education, and training

Who's in Charge Here?
The Role of the Incident Manager

Acts as the coordinator and focal point for the response efforts

Key Responsibilities Include:

- Incident Coordination & Mgmt
- Communication
- Decision Making
- Strategy & Planning
- Resource Allocation
- Post-Incident Review
- Compliance Considerations
- Process Improvement
- Training & Awareness

Let's Talk IR Secret Sauce

Secrets to *less Painful Incident Response:

- Not Owned by IT
- **Includes Legal Counsel & Public Affairs**
- Starts with Validation
- Continuous review & testing
- Incorporates lessons learned

Privacy & IT Security Training

- Annual threat awareness training for all employees, faculty, administrators, students
- Focusing on cyber-hygiene, social engineering awareness, and threat reporting
- Great time to revisit AUP and employee expectations for security

Leadership Involvement

- Formal policy & plan
- Publicized and socialized throughout the organization
- Supported by reporting & feedback mechanisms
- Policy should assign roles and responsibilities, including leadership presence on IRT
- Absolutely NOT just an IT thing!

Legal Eagles

Legal Counsel is a huge benefit in incident response. This could be your local counsel, outside counsel *(or even cyber-insurance company).*

- Often confusing legal requirements
- Need to protect organizational interests
- Interfacing with Law Enforcement & State entities

Communications is KEY

Think about including Public Affairs / Communications representatives in your IRT. Message is the often the hardest part of a response

- Ransomware & DDoS require some ‘splaining
- Need concise, clear, consistent messaging both internally and externally
- Frees up critical response resources
- Consistency of messaging conveys reassurance that the response is under control

Would you like to play a game?

Threats evolve, so should your Incident Response plan!

- *Periodic risk assessments*
- *Annual IR exercise*
- *Involve third-parties, vendors, and partners*
- *Use as an opportunity to talk to law enforcement, cyber-insurance reps, contractors, etc.*

Tabletop Exercises

Simulated incident response based on carefully selected scenarios, where the IRT sits down and walks through a response.

- Build IRT cohesiveness and confidence
- Establish lines of communication
- Identify problem areas and streamline the IRP
- Ensure process and plans are extensible to the widest spectrum of incidents

Speaking of Tabletop Exercises

Scenario Background

Your University is involved in a cutting-edge pilot program initiated by the State to increase the matriculation of students into postsecondary institutions in order to improve outcomes for students in the state, and to retain more highly educated residents in the State.

The aim? To simplify the enrollment process by automatically accepting qualifying students directly from high school upon graduation. Here's how it works:

The participating universities, including your own, collaborate with high schools through this system, maintained by the State Department of Education, to receive certain student achievement data that qualifies them to be accepted at that school.

Scenario Background

The postsecondary institutions create a profile of student requirements for acceptance, and the high school administrators transmit certain student information such as name, email address, GPA, specific course completion information, extra curricular activities, and discipline information to the system. The system then matches the student's information with the participating school's acceptance criteria and generates an acceptance email, notifying each student that they would be welcome at your institution if they choose to attend.

For many students, this is a fantastic, efficient way to streamline their transition from high school to college.

Scenario Background

One morning, your university receives an alert from the State Department of Education. They inform you that it appears that one of the school's employees has abused their access to the system to download the sensitive information about any student that matched the school's acceptance criteria.

The Department claims that John Smith, the school registrar, was the person they detected launching attacks against the system's database application.

What do we know?

- The University is part of a pilot program run by the state to match students with schools they would be accepted to
- You were notified by the State Department of Education that one of your employees was detected abusing the system to download PII
- The person in question is the school's registrar

What is the best course?

1. Conta lment
   syste ta breach
   and re ccounts for
   suspic
2. Conve onse team
   to con including
   assess he state
   syste e's IT
   securi
3. Tempo access to
   the st oyee to
   reset t

The Plot Thickens

In response, you convene the incident response team. The incident response team speaks with the John, the Registrar, and finds out that John was not at the school at the time of the access. During the ensuing investigation the Department of Education provides access logs that indicate that the IP address that the connection originated from was not in the country.

The incident response team finds that John, who holds a significant role within the university, was granted an exemption from the school's mandatory MFA rule due to his unique needs around travel and his requirement to work from several campuses. This exemption, although convenient, has apparently become a vulnerability.

The Plot Thickens

Digging deeper, the team discovers that John fell victim to a phishing attack. The attacker, posing as the State Department of Education, sent a realistic email prompting the employee to log in and review recent updates. The login page looked legitimate but was, in fact, a fake designed to capture credentials.

The Plot Thickens

Armed with this access, the attacker infiltrated the state system posing as John, and was able to use this access to launch an authenticated privilege escalation attack against the system to download all available data related to students who matched the University's acceptance criteria.

This included sensitive details shared by high schools for the pilot program, potentially exposing a significant amount of personal data.

What do we know?

- It appears that John was not the culprit of the attack after all
- The Registrar fell victim to a targeted phishing attack that stole his login info
- Because of his unique employment needs, John was granted a waiver from the requirement to use Multi-Factor Authentication

What is the best course?

1. Immediately notify the media about the breach to show transparency and control of the situation, reassuring the public that an investigation is underway
2. Inform John of the phishing attack so he can notify other colleagues to avoid similar scams, and ask him to reset his passwords immediately
3. Contain the breach by suspending John's access across ALL systems, investigating the specific data affected, and preparing a structured response plan in coordination with legal, IT, and communications teams

Forging Ahead

The team works closely with IT and the Department of Education's staff to review system logs, trace any suspicious data movements, and verify what information may have been exposed.

It is determined that the attackers were able to download several thousand records including student names, birthdates, home addresses, and high school identifiers, as well as GPA, standardized test scores, and extracurricular or program participation details.

For dually-enrolled students, there are additional records consisting of college course completion data from the schools they attended.

Forging Ahead

With John's access in question, IT thoroughly reviews all the systems John had access to in order to identify any additional potential attacker actions within the school's own systems as a result of the compromised account.

The team finds no additional evidence of compromise within the school's data systems.

Forging Ahead

Along with the Department of Education's incident response team, we have identified all of the affected students and yet have not notified them as yet.

What do we know?

- The joint effort with the Department's incident responders allowed you to identify all of the impacted students
- The investigation gives the school's network and data systems a clean bill of health, it appears the damage was contained to the enrollment system
- We feel that we have a good idea of what occurred at this point

How do we wrap this up?

1. Collaborate with legal and communications to prepare compliant notifications, implement MFA for all school employees, and coordinate with the State Department of Education to require MFA on their system as well
2. Work with IT to set up additional monitoring on John's activity and require only high-access users to enable MFA
3. Notify the students affected by the breach and set up a new account for John with added protections

Things to consider

- What are some of the potential complications here? What does FERPA have to say about this?
- Are there any issues that come to play for students who are dually-enrolled?
- Whose data breach is this? Can you simply wash your hands of it because its not your system?

Data Breach Resources

Downloadable Data Breach Training Kits

https://studentprivacy.ed.gov/resources/data-breach-scenario-trainings

Feedback Loops

"The most neglected part of the incident response plan is the part where you remember all the mistakes you made and fix them for next time"

-Me

Feedback Loops

Every organization should document their process and capture important data for process improvement:

- *What worked well?*
- *What didn't work at all?*
- *Did we miss something?*
- *What can we do better?*

Final Food for Thought

- You should have an incident response plan in place and train to it
- Data privacy & security awareness training for all employees, as well as contractors, researchers, and other 3rd parties
- Clearly understand the legal requirements for compliance with all applicable federal, state and local laws
- Consider calling PTAC, we can help!!!

PTAC Resources

- **Data Breach Response Checklist**
  https://studentprivacy.ed.gov/resources/data-breach-response-checklist
- **Downloadable Data Breach Training Kits**
  https://studentprivacy.ed.gov/resources/data-breach-response-training-kit
- **PTAC Student Privacy Training**
  - ***Videos*** - https://studentprivacy.ed.gov/content/guidance-videos
  - ***Online Training Modules*** - https://studentprivacy.ed.gov/content/online-training-modules

CONTACT INFORMATION

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