Same Threat, Different Day: Minimizing Insider Threats and Risks

(Or, why hope is NOT a strategy!)

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Notices

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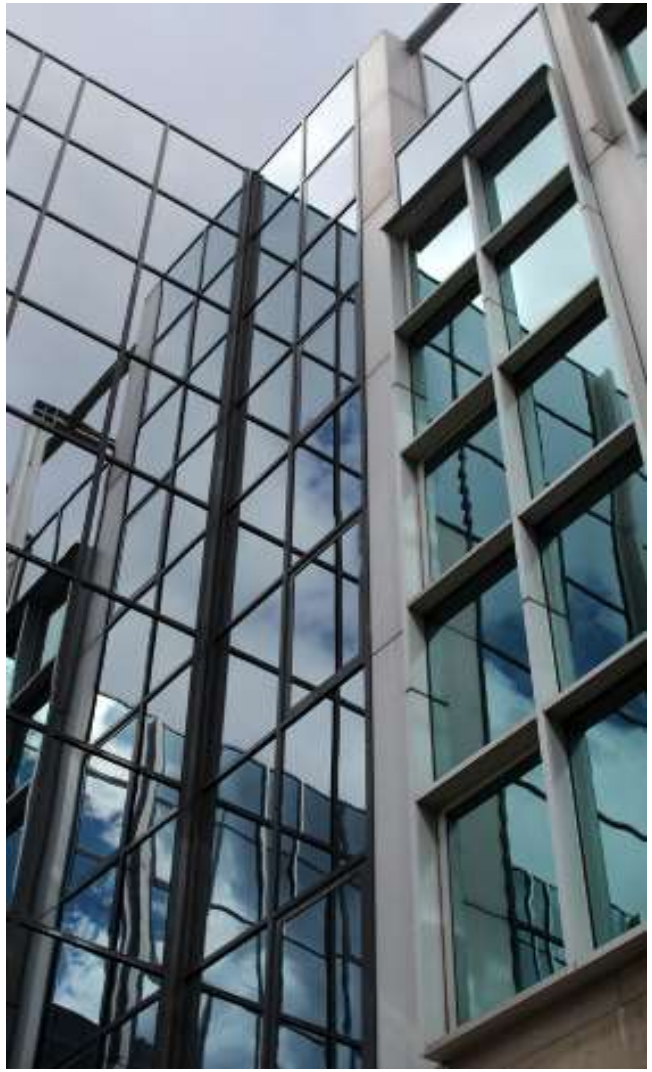
The National Insider Threat Center



Center of insider threat expertise

Began working in this area in 2001 with the U.S. Secret Service

Mission: enable effective insider threat mitigation, incident management practices, and develop capabilities for deterring, detecting, and responding to evolving cyber threats

Action and Value: conduct research, modeling, analysis, and outreach to develop & transition socio-technical solutions to combat insider threats

About Insider Threat

There is not one “type” of insider threat

Threat is to an organization’s critical assets

- People
- Information
- Technology
- Facilities

Based on the motive(s) of the insider

Impact is to Confidentiality, Availability, Integrity

Cyber attack = Cyber Impact

Kinetic attack = Kinetic Impact

Cyber attack = Kinetic Impact

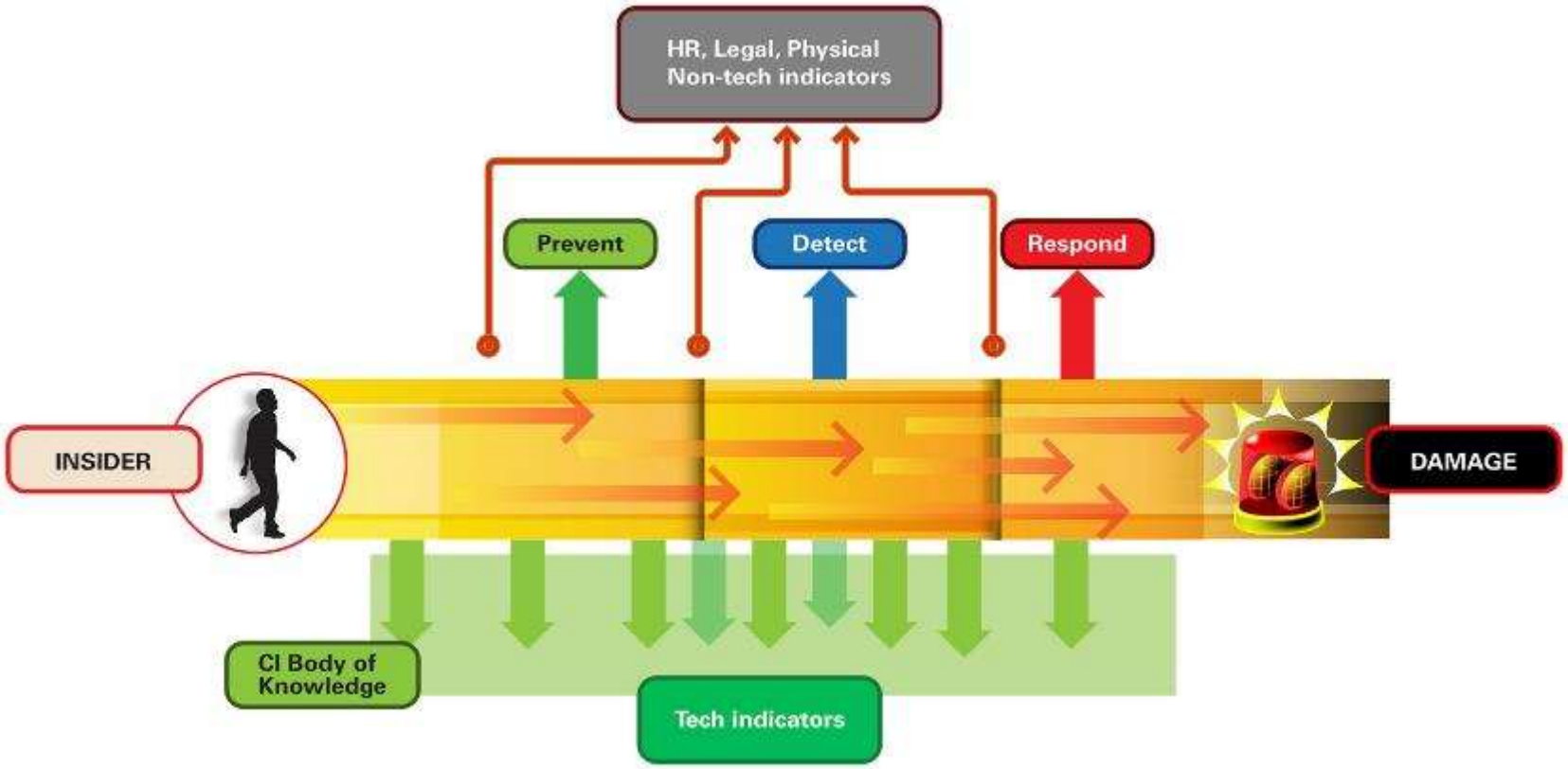
Kinetic attack = Cyber Impact

What / Who is an Insider Threat?

The potential for an individual who has or had authorized access to an organization's assets to use their access, either maliciously or unintentionally, to act in a way that could negatively affect the organization.

What / Who is an Insider Threat?

Goal for an Insider Threat Program



Opportunities for prevention, detection, and response for an insider incident

Types of Malicious Insider Incidents

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Types of Insider Activities - 1

Insider IT Sabotage

An insider's use of IT to direct specific harm at an organization or an individual

- Deletion of information
- Bringing down systems
- Website defacement to embarrass organization

Insider Theft of Intellectual Property

An insider's use of IT to steal intellectual property from the organization

- Proprietary engineering designs, scientific formulas, etc.
- Proprietary source code
- Confidential customer information
- Industrial Espionage and Trade Secrets

Types of Insider Activities - 2

Insider Fraud

An insider's use of IT for the unauthorized modification, addition, or deletion of an organization's data (not programs or systems) for personal gain, or theft of information which leads to fraud

- Payroll
- Reimbursement
- Unauthorized acquisitions

Theft and sale of confidential information

- SSN, PII, etc.
- Credit card numbers

Modification of critical data for a fee

- Driver's license records
- Criminal records
- Qualification for welfare, etc.

Unintentional Insider Threat (UIT)

An insider whose actions or lack of action without malicious intent causes harm or the possibility of harm

Types of Insider Activities - 3

Insider National Security Espionage

- The act of communicating, delivering or transmitting information pertaining to the national defense of the United States to any foreign government or faction, with intent or reason to believe that is to be used to the injury of the United States or to the advantage of a foreign nation
  - Volunteers
  - Recruited in Place
  - Dispatched

Insider Miscellaneous

- Unauthorized disclosure (information insider believed should be in the public domain)
- Providing address of a person to an acquaintance who physically harmed the individual
- Accessing records of high-profile individuals

Types of Insider Activities - 4

UIT - Four Categories:

DISC - accidental disclosure (e.g., via the Internet)

- sensitive information posted publicly on a website, mishandled, or sent to the wrong party via email, fax, or mail

PHISHING/SOCIAL - malicious code (UIT-HACKing, malware/spyware)

- an outsider's electronic entry acquired through social engineering (e.g., phishing email attack, planted or unauthorized USB drive) and carried out via software, such as malware and spyware

PHYS - improper/accidental disposal of physical records

- lost, discarded, or stolen non-electronic records, such as paper documents

PORT - portable equipment no longer in possession

- lost, discarded, or stolen data storage device, such as a laptop, PDA, smart phone, portable memory device, CD, hard drive, or data tape

Are There NYC Incidents?

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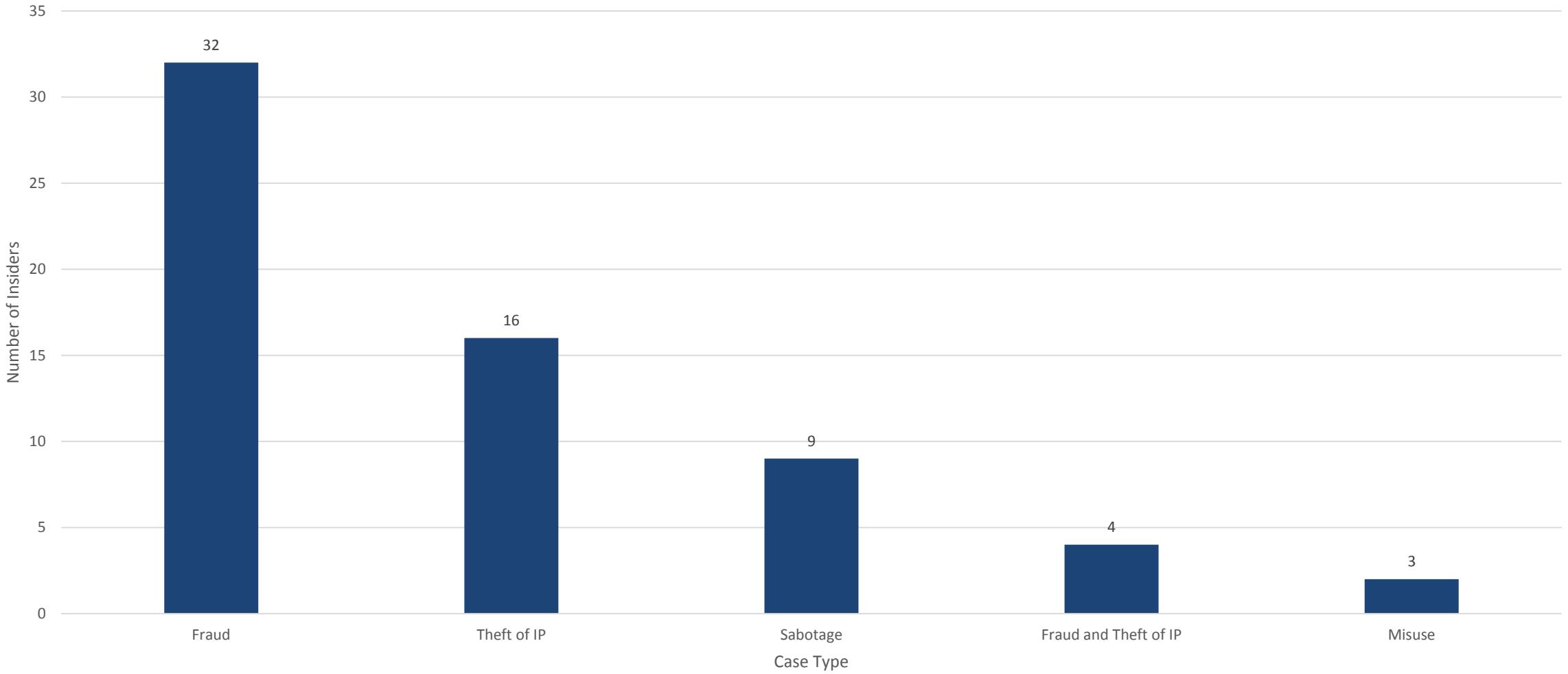
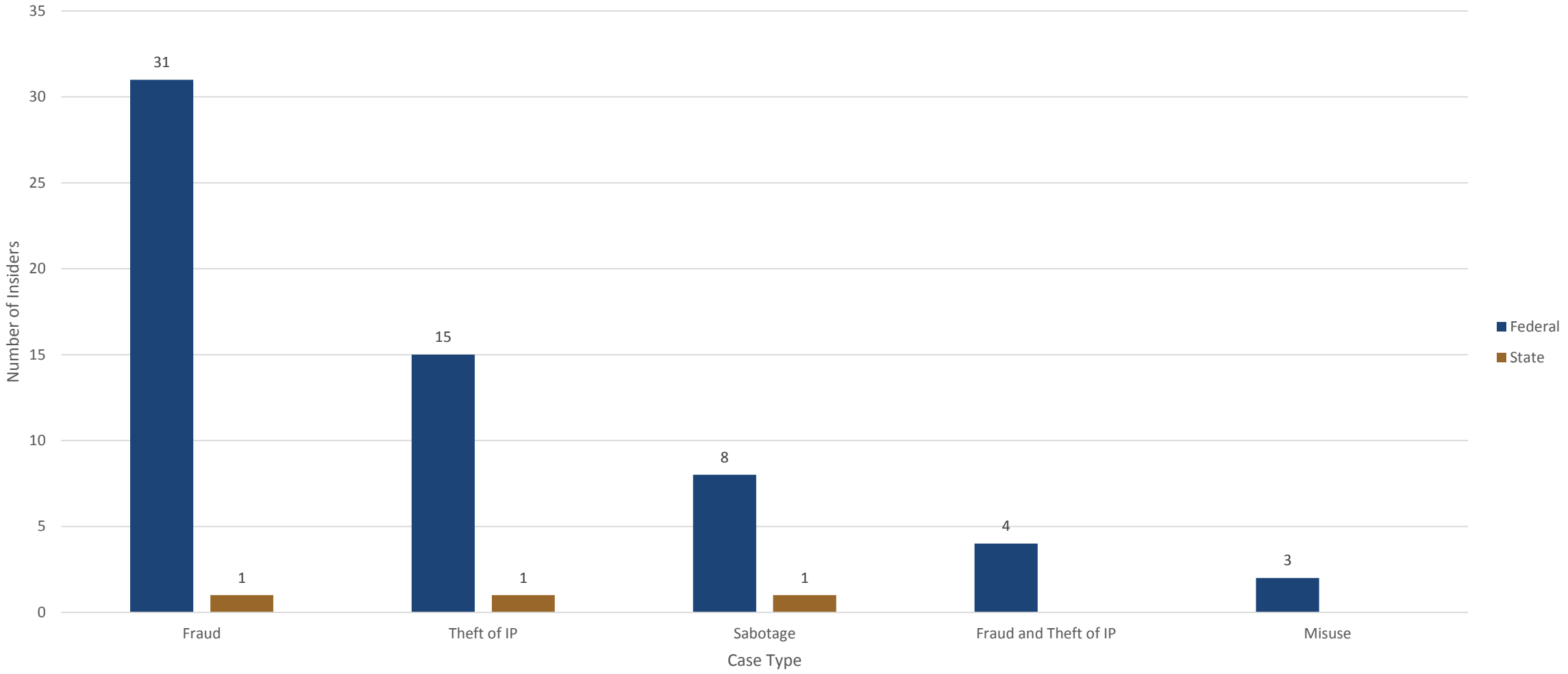
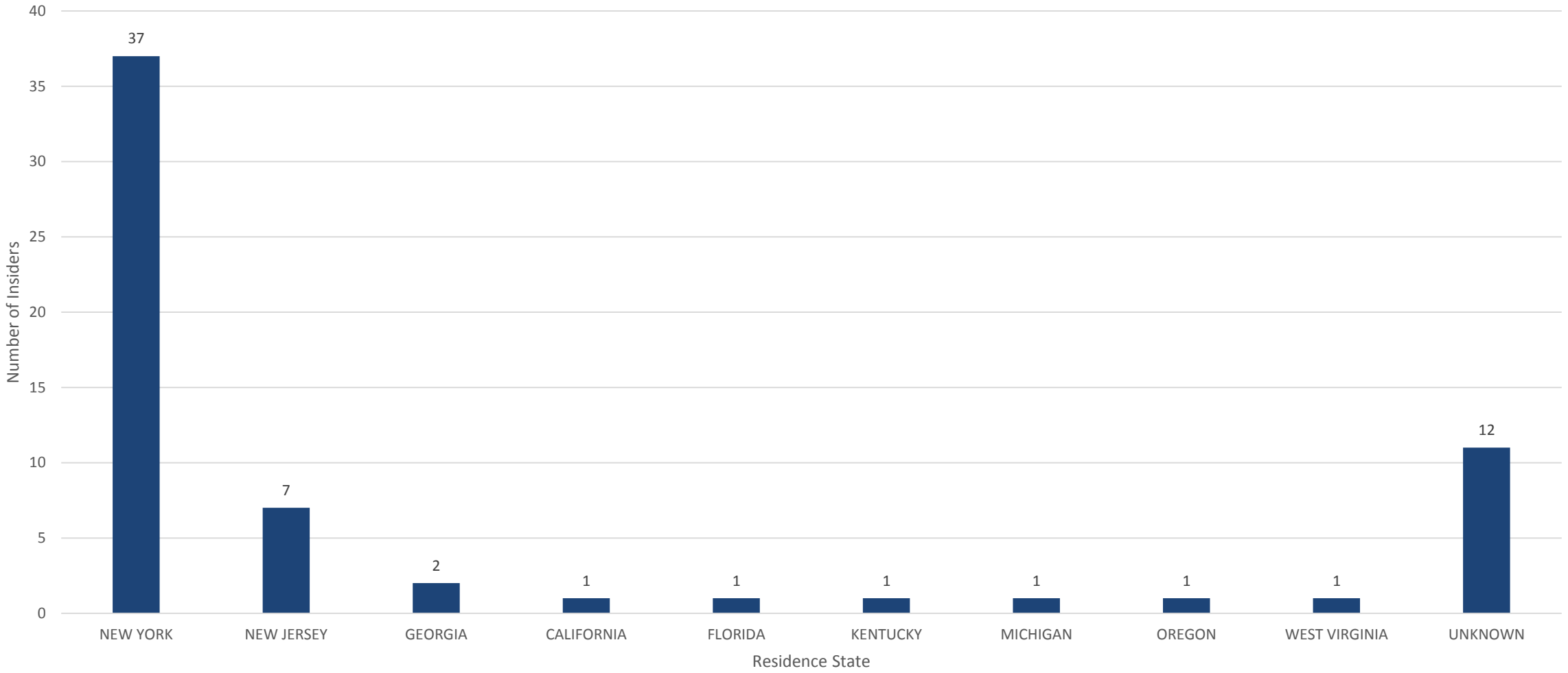
Case Type



Case Type by Level of Prosecution

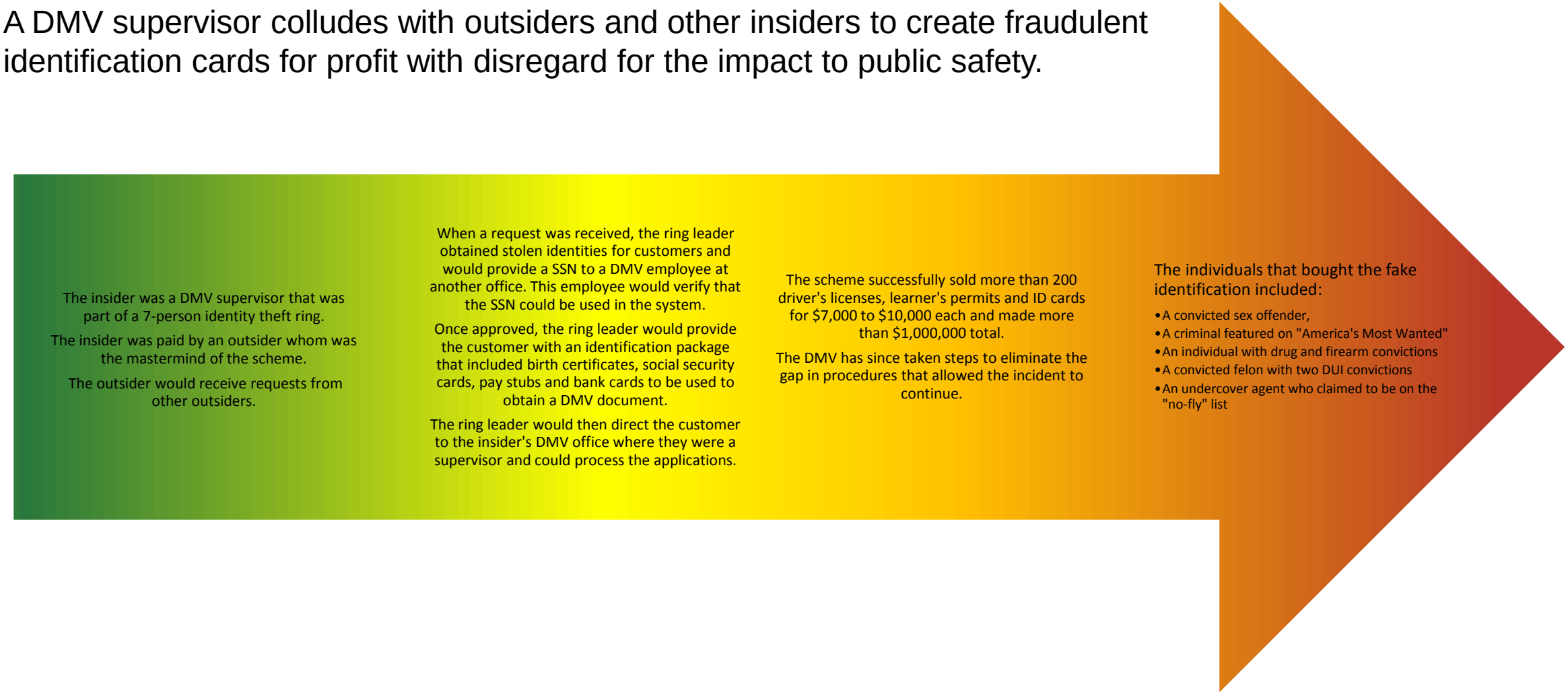


New York Incidents by Insider Residence



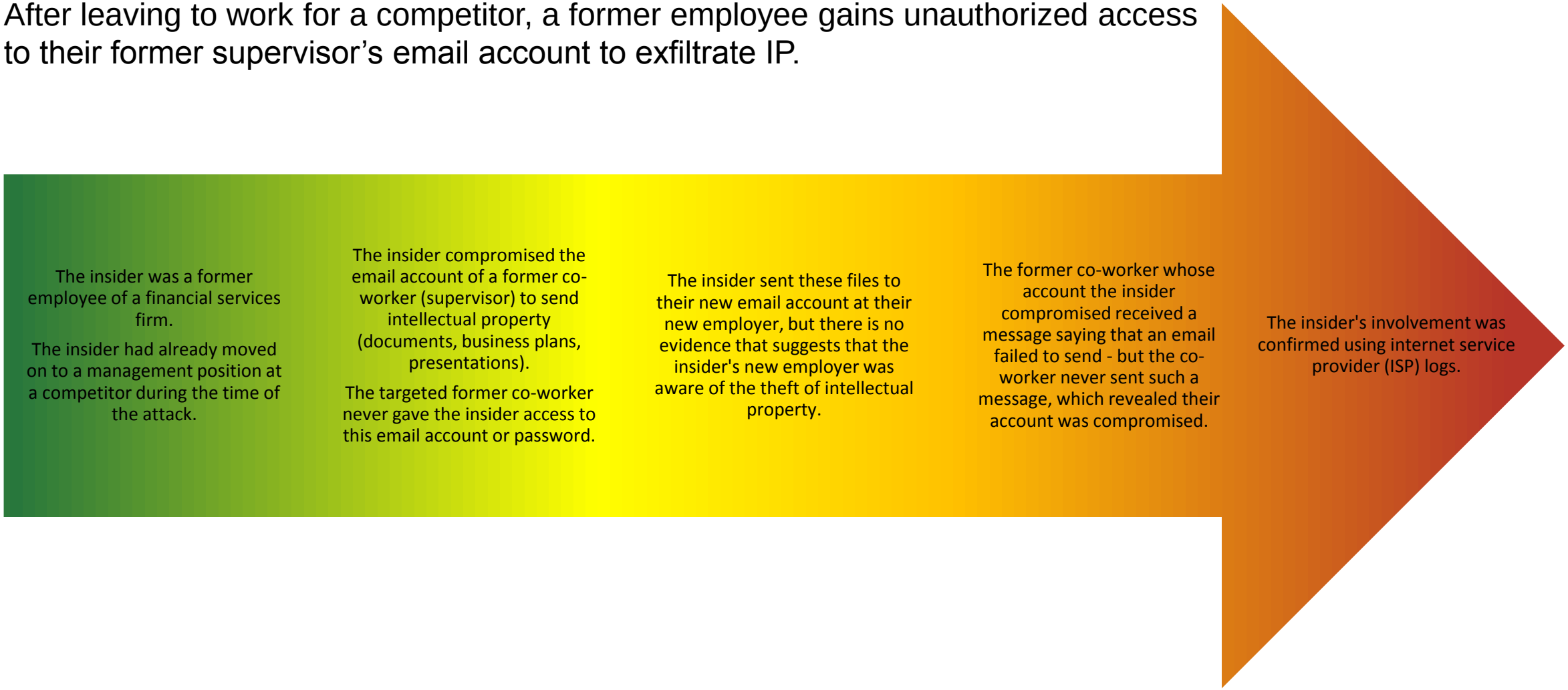
Fraud

A DMV supervisor colludes with outsiders and other insiders to create fraudulent identification cards for profit with disregard for the impact to public safety.



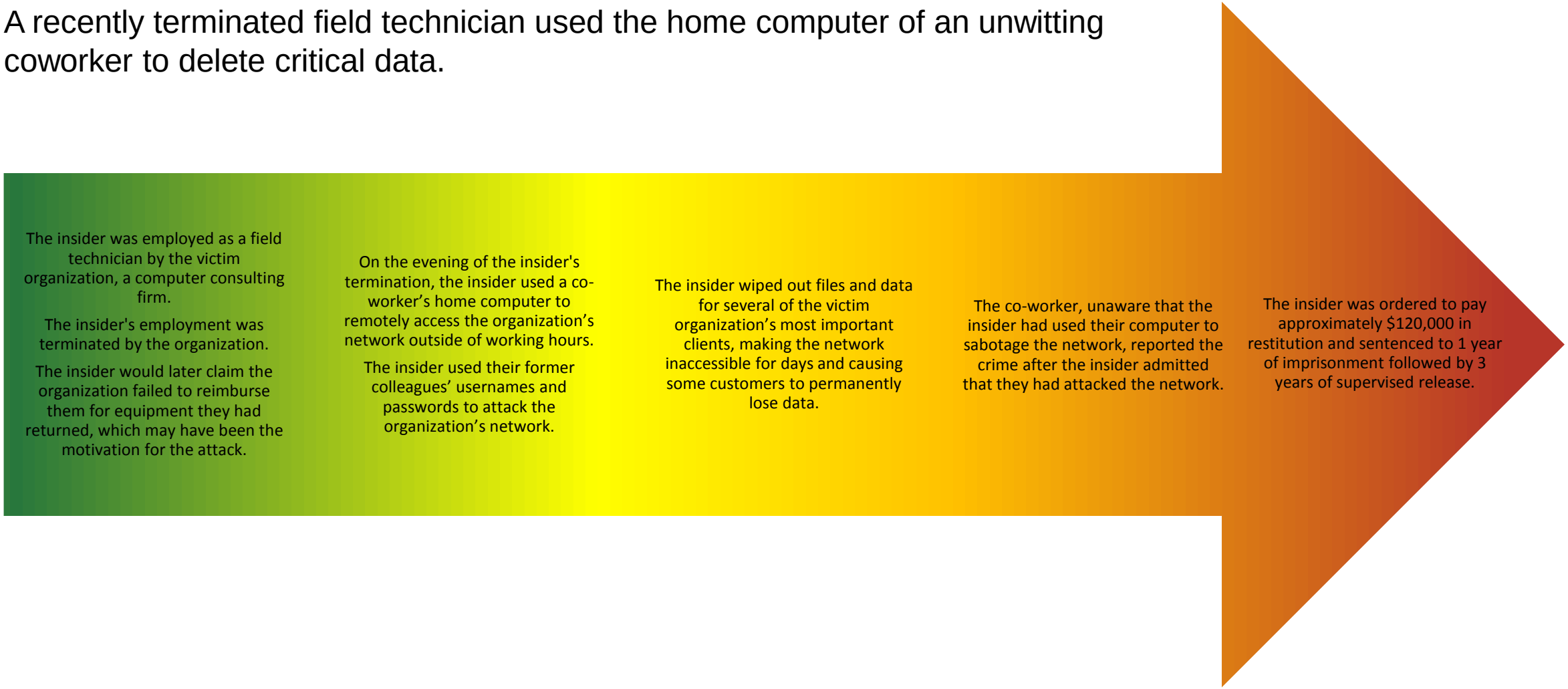
Theft of IP

After leaving to work for a competitor, a former employee gains unauthorized access to their former supervisor's email account to exfiltrate IP.



IT Sabotage

A recently terminated field technician used the home computer of an unwitting coworker to delete critical data.



Common Sense Guide, Sixth Edition

A Mitigation Strategy

CSG, Sixth Edition

- Incorporates updated information based on analysis of ~2,500 insider threat incidents
- Provides new information on how GDPR might affect some of the BPs
- New Aspects of workplace violence and aggression tips added to BPs
- Key research publication was used to derive a new best practice (*The Critical Role of Positive Incentives for Reducing Insider Threat, Moore, et al.*)
- New mappings to other standards

CSG, Sixth Edition – A New BP

	Best Practice	Best Practice Number from Version 5
1	Know and protect your critical assets.	1
2	Develop a formalized insider threat program.	2
3	Clearly document and consistently enforce policies and controls.	3
4	Beginning with the hiring process, monitor and respond to suspicious or disruptive behavior.	4
5	Anticipate and manage negative issues in the work environment.	5
6	Consider threats from insiders and business partners in enterprise-wide risk assessments.	6
7	Be especially vigilant regarding social media.	7
8	Structure management and tasks to minimize insider stress and mistakes.	8
9	Incorporate malicious and unintentional insider threat awareness into periodic security training for all employees.	9
10	Implement strict password and account management policies and practices.	10
11	Institute stringent access controls and monitoring policies on privileged users.	11
12	Deploy solutions for monitoring employee actions and correlating information from multiple data sources.	12
13	Monitor and control remote access from all end points, including mobile devices.	13
14	Establish a baseline of normal behavior for both networks and employees.	14
15	Enforce separation of duties and least privilege.	15
16	Define explicit security agreements for any cloud services, especially access restrictions and monitoring capabilities.	16
17	Institutionalize system change controls.	17
18	Implement secure backup and recovery processes.	18
19	Close the doors to unauthorized data exfiltration.	19
20	Develop a comprehensive employee termination procedure.	20
21	Adopt positive incentives to align the workforce with the organization.	–

A New Best Practice – BP 21

HR	Legal	Physical Security	Data Owners	IT	Software Engineering
✓	✓	✓	✓	✓	✓

Best Practice: Adopt positive incentives to align workforce with organization.

Attracting employees to act in the interests of the organization through positive incentives reduces the baseline insider threat risk. Positive incentives that align the workforce values and attitudes with the organization's objectives form a foundation on which traditional security practices that rely on forcing functions can be built to improve the effectiveness and efficiency of the insider threat defense.

This practice is related to Practice 5, "Anticipate and manage negative issues in the work environment," and Practice 8, "Structure management and tasks to minimize insider stress and mistakes." The difference is that this practice focuses on the use of positive incentives to improve employee attitudes independent of whether a specific negative issue or insider stress exists or is even identifiable. The detection of negative work issues or insider stress is not necessary in order to gain value by adopting positive incentives to reduce insider incident frequency.

1. Protective Measures

Insider threat is unique in the realm of cybersecurity defense in that the potential threat agents–the

CSG, Sixth Edition - Mappings

Best Practice	NIST 800-53 Rev. 4	National InT Policy & Min. Standards	NITTF InTP Maturity Frame-work	GDPR	CERT-RMM	ISO 27002	NIST CSF	CIS v7
1 - Know and protect your assets.	CP-2 CM-2 CM-8 PM-5 PM-8 RA-2	P-B-2 MS-G-1-b MS-G-1-c	ME8 ME11	Article 9 Article 32 Article 35	Asset Definition and Management Enterprise Focus	7.1.1 Inventory of Assets	ID.AM 1-6 ID.RA 1-6 ID.RM 1-3 PR.DS 1-7 PR.MA 1-2	Control 1 Control 2

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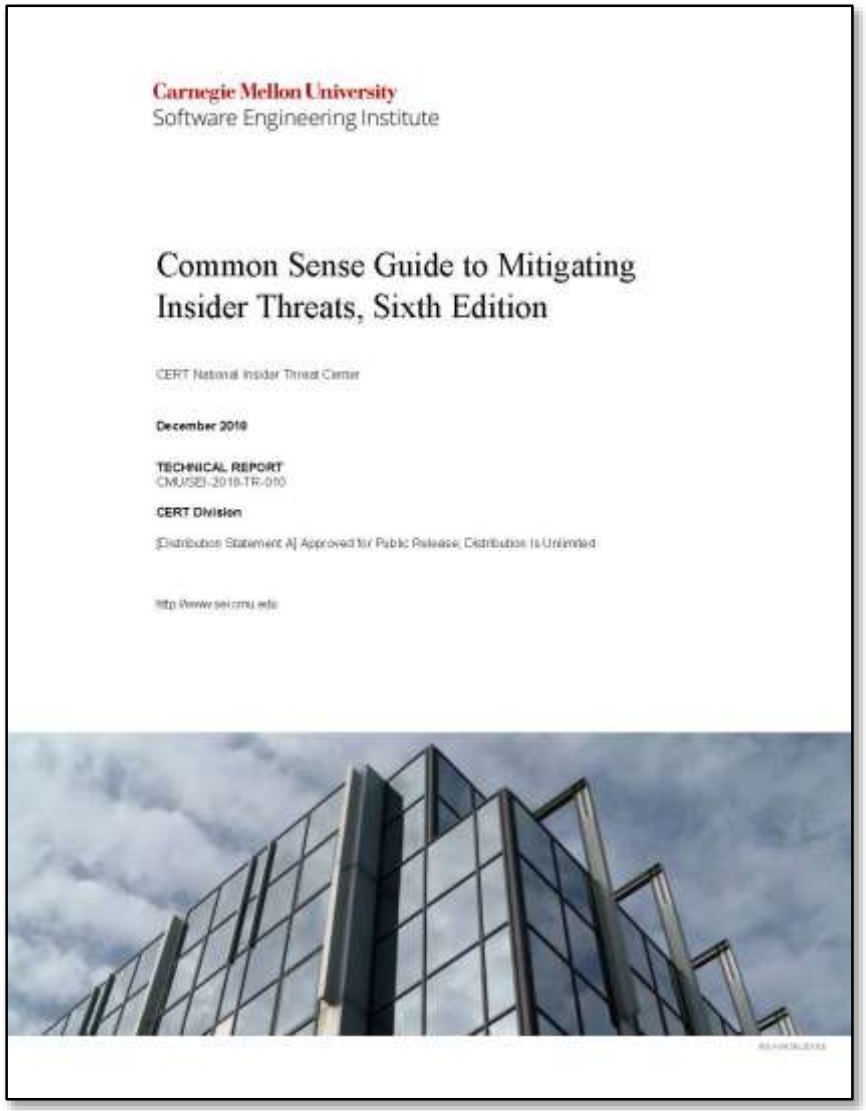

CERT's Common Sense Guide to Mitigating Insider Threats, Sixth Edition https://resources.sei.cmu.edu/library/asset-view.cfm?assetid=540644

Spring 2019 OSIT In-Person Meeting Updates

Questions?

Contact Information

CERT National Insider Threat Center

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