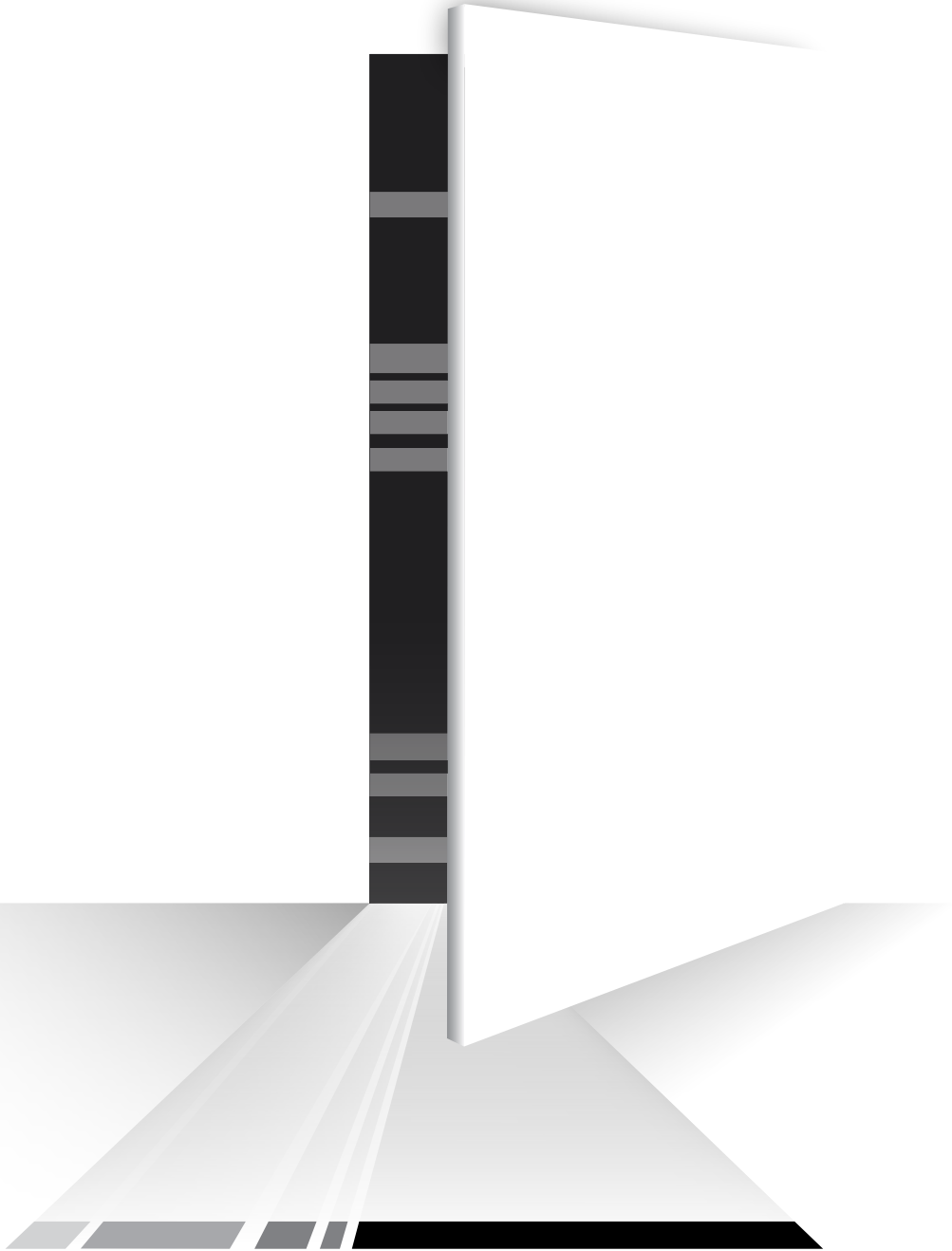
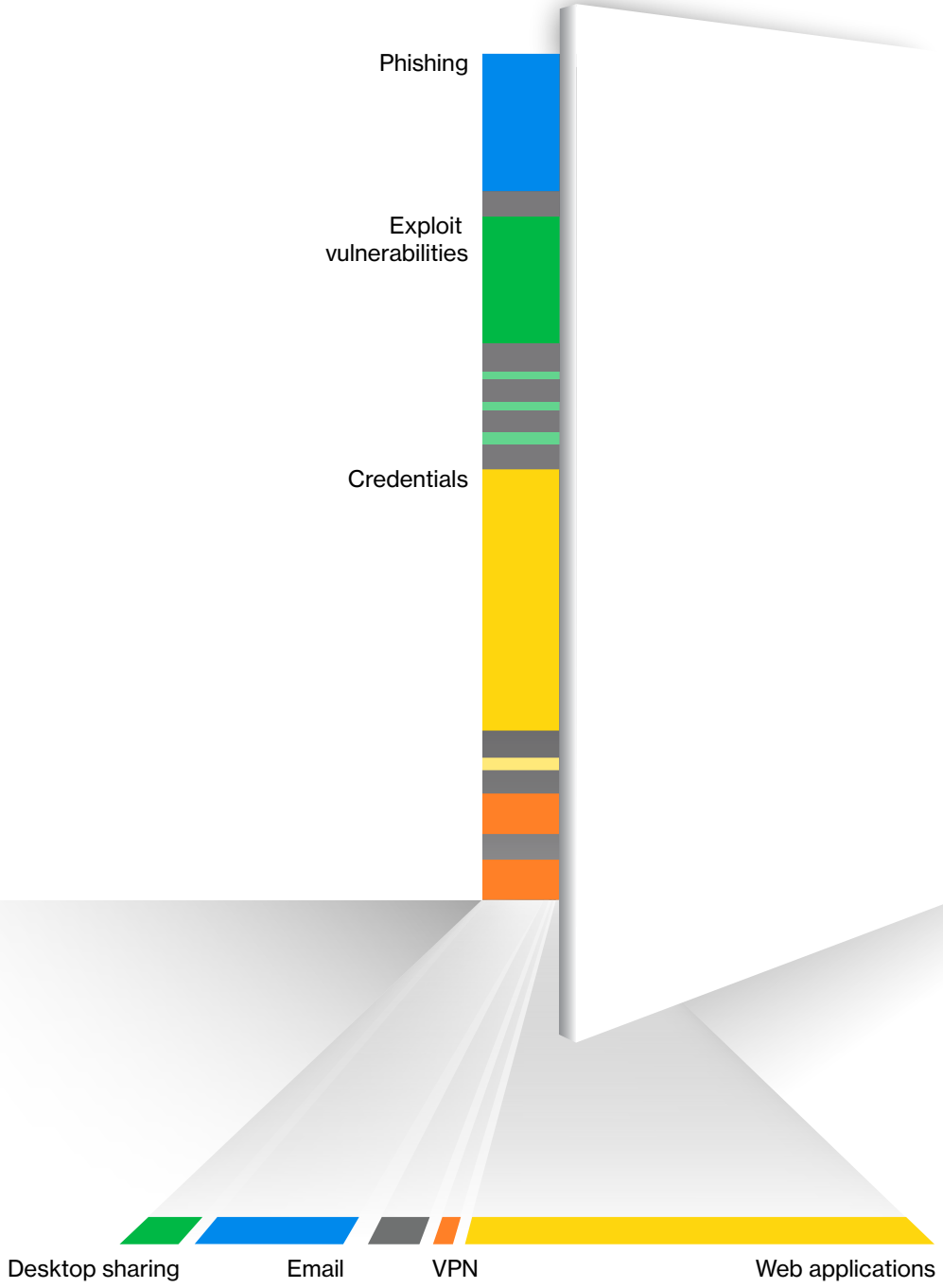


2024 Data Breach Investigations Report

Manufacturing Snapshot



verizon^v
business



About the cover

This year, the report is delving deeper into the pathway to breaches in an effort to identify the most likely Action and vector groupings that lead to breaches given the current threat landscape. The cracked doorway on the cover is meant to represent the various ways attackers can make their way inside. The opening in the door shows the pattern of our combined “ways-in” percentages (see Figure 7 of the full report for a more straightforward representation), and it lets out a band of light displaying a pattern of the Action vector quantities. The inner cover highlights and labels the quantities in a less abstract way. Hope you enjoy our art house phase.

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Welcome

Hello, and welcome to the Verizon Data Breach Investigations Report (DBIR) Manufacturing Snapshot.

The DBIR aims to provide security professionals with an in-depth analysis of data-driven, real-world instances of cybercrime and how cyberattacks play out across organizations of different sizes as well as from different verticals and disparate geographic locations. We hope that by doing so, we can provide you with insight into what particular threats your organization is most likely to face and thereby help prepare you to handle them in the best possible manner.

As in past years, we will examine what our data has to tell us about threat actors and the tools they employ against enterprises. This year, we analyzed 30,458 real-world security incidents, of which 10,626 were confirmed data breaches (a record high!), with victims spanning 94 countries.

This data represents actual, real-world breaches and incidents investigated by the Verizon Threat Research Advisory Center (VTRAC) or provided to us by one of our global contributors without whose generous help this document could not be produced. We hope you can use this report and the information it contains to increase your awareness of the most common tactics used against organizations at large and your specific industry. It offers strategies to help protect your company and its assets. Read the full report for a more detailed view of the threats you may face today at [verizon.com/dbir](https://www.verizon.com/dbir).

About the 2024 DBIR incident dataset

Each year, the DBIR timeline for in-scope incidents is from November 1 of one calendar year through October 31 of the next calendar year. Thus, the incidents described in this year's report took place between November 1, 2022, and October 31, 2023. The 2023 caseload is the primary analytical focus of the 2024 report, but the entire range of data is referenced throughout, notably in trending graphs. The time between the latter date and the date of publication for the report is spent in acquiring the data from our global contributors, anonymizing and aggregating that data, analyzing the dataset, and finally creating the graphics and writing the report.

Industry labels

This snapshot highlights important takeaways for the Manufacturing (NAICS 31–33) sector, which includes establishments engaged in the mechanical, physical or chemical transformation of materials, substances or components into new products.

In the DBIR, we align with the North American Industry Classification System (NAICS) standard to categorize the victim organizations in our corpus.

The standard uses two- to six-digit codes to classify businesses and organizations. Our analysis is typically done at the two-digit level, and we will specify NAICS codes along with an industry label. For example, a chart with a label of Manufacturing (NAICS 31–33) is not indicative of 31–33 as a value. “31–33” is the code for the Manufacturing sector. Detailed information on the codes and the classification system is available here:

<https://www.census.gov/naics/?58967?yearbck=2012>

30,458

security incidents investigated

10,626

confirmed breaches

Summary of findings

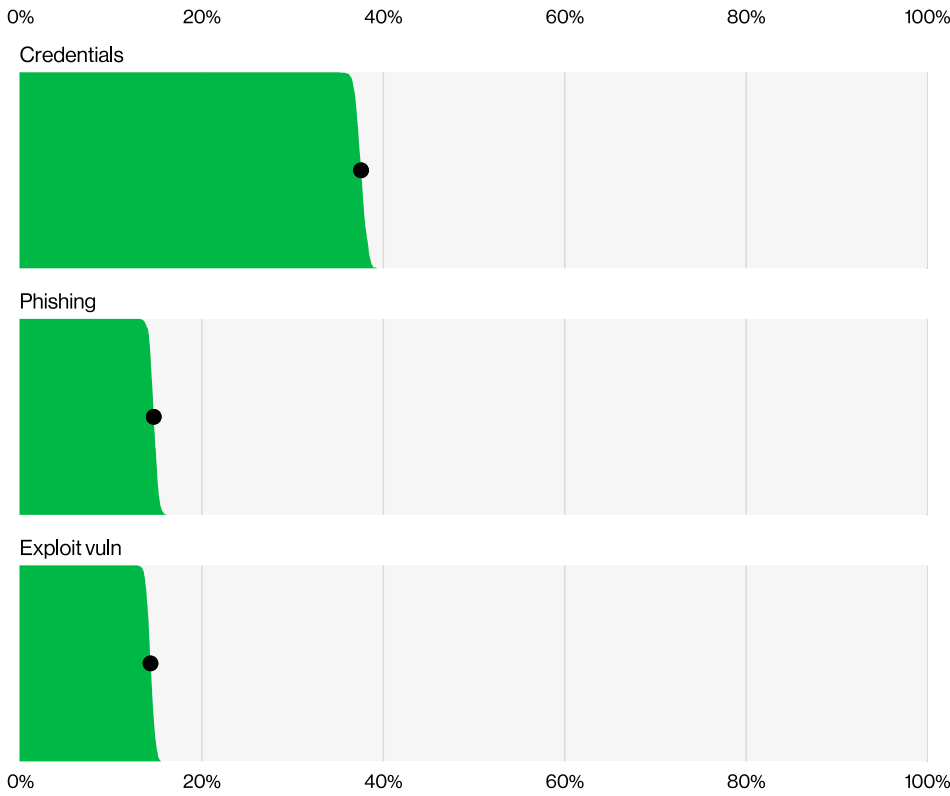


Figure 1. Select ways-in enumerations in non-Error, non-Misuse breaches (n=6,963)

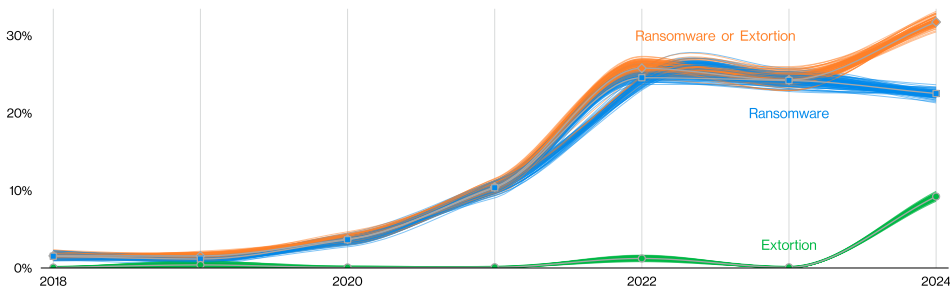


Figure 2. Ransomware and Extortion breaches over time

They're exploiting our vulnerabilities.

Our ways-in analysis witnessed a substantial growth of attacks involving the exploitation of vulnerabilities as the critical path to initiate a breach when compared to previous years—almost tripling (180% increase) from last year. This was largely due to the effect of MOVEit and similar zero-day vulnerabilities, primarily leveraged by ransomware and other extortion-related threat actors using Web applications as their initial entry points.

Ransomware and Extortion are significant threats.

Roughly one-third of all breaches involved Ransomware or some other Extortion technique. Pure Extortion attacks have risen over the past year and are now a component of 9% of all breaches. Ransomware actors have moved toward these newer techniques, resulting in a bit of a decline in Ransomware to 23%. However, when combined, they represent a strong growth to 32% of breaches. Additionally, Ransomware was a top threat across 92% of industries.



We've identified the most common ways in.

We have revised our calculation of the human element in breaches to exclude malicious Privilege Misuse to provide a clearer metric of what security awareness can impact. For this year's dataset, the human element was a component of 68% of breaches, roughly the same as the previous period described in the 2023 DBIR.

In this issue, we are introducing an expanded concept of a breach involving a third party to include partner infrastructure being affected and direct or indirect software supply chain issues—including when an organization is affected by vulnerabilities in third-party software. In short, these are the breaches an organization could potentially mitigate or prevent by trying to select vendors with better security track records. We see this figure at 15% this year, a 68% increase from the previous year, mostly fueled by the use of zero-day exploits for Ransomware and Extortion attacks.

Our dataset saw a growth of breaches involving Errors, now at 28%, as we broadened our contributor base to include several new mandatory breach notification entities. This validates our suspicion that errors are more prevalent than media or traditional incident response-driven bias would have us believe.

Figure 3. Select key enumerations in breaches

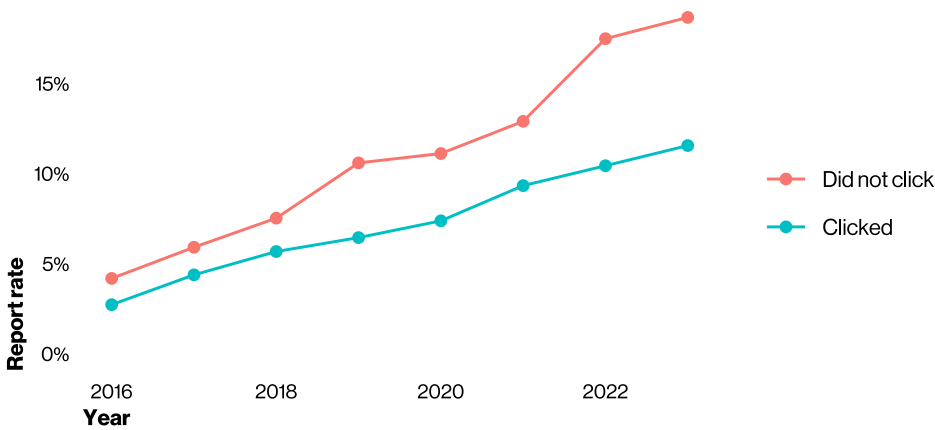


Figure 4. Phishing email report rate by click status

Falling for Phishing happens fast.

The overall reporting rate of Phishing has been growing over the past few years. In security awareness exercise data contributed by our partners during 2023, 20% of users reported phishing in simulation engagements, and 11% of the users who clicked the email also reported. This is welcome news because the median time to click on a malicious link after the email is opened is 21 seconds and then only another 28 seconds for the person caught in the phishing scheme to enter their data. This leads to an alarming finding: The median time for users to fall for phishing emails is less than 60 seconds.

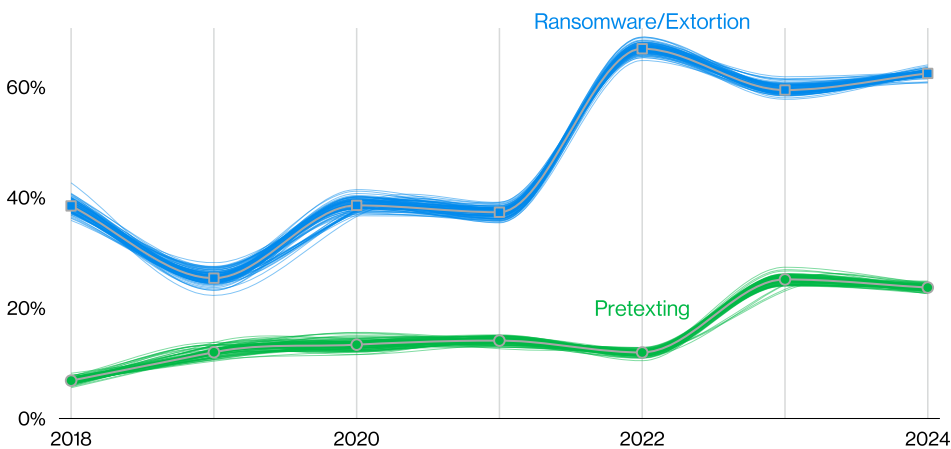


Figure 5. Select action varieties in Financial motive over time

They go where the money is.

Financially motivated threat actors will typically stick to the attack techniques that give them the most return on investment.

Over the past three years, the combination of Ransomware and other Extortion breaches have accounted for almost two-thirds (fluctuating between 59% and 66%) of those attacks. According to the FBI’s Internet Crime Complaint Center (IC3) ransomware complaint data, the median loss associated with the combination of Ransomware and other Extortion breaches has been \$46,000, ranging between \$3 (three dollars) and \$1,141,467 for 95% of cases. We also found from ransomware negotiation data contributors that the median ratio of initially requested ransom and company revenue is 1.34%, but it fluctuated between 0.13% and 8.3% for 80% of the cases.

Similarly, over the past two years, we have seen incidents involving Pretexting (the majority of which had Business Email Compromise [BEC] as the outcome) accounting for one-fourth (ranging between 24% and 25%) of financially motivated attacks. In both years, the median transaction amount of a BEC was around \$50,000.

Incident Classification Patterns

The DBIR first introduced the Incident Classification Patterns in 2014 as a useful shorthand for scenarios that occurred very frequently. In 2022, due to changes in attack type and the threat landscape, we revamped and enhanced those patterns, moving from nine to eight—the seven you see in this report and the Everything Else “pattern,” which is a catch-all for incidents that don’t fit within the orderly confines of the other patterns.

These patterns are based on an elegant machine-learning clustering process, equipped to better capture complex interaction rules, and they are much more focused on what happens during the breach. That makes them better suited for control recommendations, too.

Here are our key findings for each pattern:

System Intrusion

These are complex attacks that leverage malware and/or hacking to achieve their objectives, including deploying ransomware.

Ransomware attacks continue to drive the growth of this pattern as they now account for 23% of all breaches and 70% of the incidents within System Intrusion.

- Ransomware (or some type of Extortion) appears in 92% of industries as one of the top threats.
- Analyzing the FBI Internet Crime Complaint Center dataset this year, we found that the median adjusted loss (after law enforcement worked to try to recover funds) for those who did pay was around \$46,000.
- Traditional Ransomware’s prevalence declined slightly to 23%. However, roughly one-third (32%) of all breaches involved some type of Extortion technique, including Ransomware. The meteoric growth of Extortion attacks made this combined threat stand out in our dataset.

Social Engineering

This attack involves the psychological compromise of a person that alters their behavior into taking an action or breaching confidentiality.

More than 40% of incidents involved Pretexting, and 31% involved Phishing. Other tried-and-true tactics include attacks coming in via email, text and websites.

- Phishing and Pretexting via email continue to be the leading cause of incidents in this sector, accounting for 73% of breaches.
- The median time for users to fall for phishing emails is less than 60 seconds.
- More than 20% of users identified and reported phishing per engagement, including 11% of the users who did click the email.
- Over the past two years, roughly one-fourth (between 24% and 25%) of financially motivated incidents involved Pretexting, the majority of which resulted in a Business Email Compromise (BEC). In both years, the median transaction amount of a BEC was around \$50,000.¹

1. According to the FBI’s Internet Crime Complaint Center ransomware complaint data

Basic Web Application Attacks

These attacks are against a web application, and after the initial compromise, they do not have a large number of additional Actions. It is the “get in, get the data and get out” pattern.

Financially motivated external actors continue to target credentials and personal information.

- Over the past 10 years, stolen credentials have appeared in almost one-third (31%) of breaches.
- Our dataset shows just over 8% of breaches in the Basic Web Application Attacks pattern.
- After examining postings from marketplaces dedicated to selling and reselling credentials and cookies collected from password stealers, we found that 65% of these credentials were posted for sale on criminal forums less than one day from when they were collected.
- There is no substantial difference between large organizations (55%) and small organizations (47%) in the Basic Web Application Attacks pattern.

Miscellaneous Errors

Incidents where unintentional actions directly compromised a security attribute of an information asset fall into this pattern. This does not include lost devices, which are grouped with theft instead.

More than 50% of errors were the result of Misdelivery, continuing last year’s trend, while other errors, such as Disposal, are declining.

- Misconfiguration is the next most common error and was seen in approximately 10% of breaches.
- Classification errors, Publishing errors and Gaffes (verbal slips) are all relatively tightly packed in order of mention. Disposal errors continue to decline ever so slightly (as has been the general trend for the last several years) and accounted for just over 1% of the cases in this pattern.
- End-users now account for 87% of errors, emphasizing the need for universal error-catching controls across industries.

Denial of Service

These attacks are intended to compromise the availability of networks and systems. This includes both network and application layer attacks.

Denial of Service is responsible for more than 50% of incidents analyzed this year.

- Our ongoing analysis of content delivery network (CDN)-monitored, web application-focused Denial of Service attacks shows that even though the median attack size has reduced slightly from 2.2 gigabits per second (Gbps) to 1.6 Gbps, the 97.5th percentile of those attacks increased to 170 Gbps from the previous high of 124 Gbps.
- Subject matter experts (SMEs) continue to report the growth of low-volume, persistent attacks on high-interaction services such as Domain Name System (DNS).

Lost and Stolen Assets

Incidents where an information asset went missing, whether through misplacement or malice, are grouped into this pattern.

Devices are still much more likely to be lost than stolen. Laptops continue to be a risk for loss in particular.

- This year we saw a higher percentage of incidents involving Assets in this pattern causing confirmed data breaches, with last year showing about 8% confirmed breaches and this year showing a surprising 91%.

Privilege Misuse

These incidents are predominantly driven by unapproved or malicious use of legitimate privileges.

In our prior report, we saw collusion—multiple actors working in concert to achieve the goal of the breach—at 7%, which, while nowhere near the highs we saw back in 2019, was still a surprise. This year, things seem to have gone back to normal, and we are seeing collusion dropping to less than 1% of breaches.

- Employees are largely taking Personal data—this is likely about taking customers' information.
- Internal actors are again largely working on their own in this pattern. The Financial motivation remains in ascension, while Espionage is a distant second. Personal data is still the main targeted data type.
- We saw Internal data show a bit of a spike this year as well, which would include sensitive plans and intellectual property that would attract the Espionage-motivated employee.
- Finally, Banking data is remaining mostly steady over time as a targeted data type.

Table 1. Incident Classification Patterns key findings

Insights for Manufacturing

NAICS
31-33

Frequency	2,305 incidents, 849 with confirmed data disclosure
Top patterns	System Intrusion, Social Engineering and Miscellaneous Errors represent 83% of breaches
Threat actors	External (73%), Internal (27%) (breaches)
Actor motives	Financial (97%), Espionage (3%) (breaches)
Data compromised	Personal (58%), Other (40%), Credentials (28%), Internal (25%) (breaches)
What is the same?	Two of the top patterns from last year are still in place. Financial motivation continues to be the driver behind most attacks.

Summary

Manufacturing has seen an increase in Error-related breaches. The installation of malware after hacking via the Use of stolen credentials is somewhat commonplace.

This year's model

This year's Manufacturing model comes with a new and improved feature: Errors! As in most other industries, Misdelivery is the error du jour, accounting for almost half (48%) of error-related breaches. As we have mentioned elsewhere, this is in part the result of contributor bias, but nevertheless, sending things to the incorrect recipient does appear to be somewhat widespread regardless of vertical. Loss and Misconfiguration round out the top three error varieties, and they account for approximately 20% and 18% of breaches, respectively.

System Intrusion continues to hold on to the top spot in Manufacturing. This is probably related to the still very effective combination of hacking via Use of stolen credentials (present in 25% of manufacturing breaches) to gain access to the environment and then the liberal application of Ransomware (involved in 35% of breaches in this vertical). It's hard to keep the gadgets rolling off the assembly line when your data is locked up tight and someone else holds the keys.

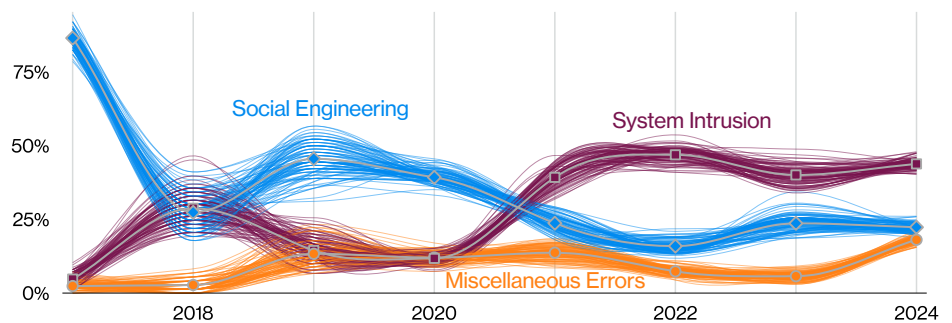


Figure 6. Top patterns over time in Manufacturing industry breaches

It's your asset on the (manufacturing) line

Social Engineering remains steady with regard to breaches in this vertical due to action varieties such as Phishing (55%) and Pretexting (42%). Apparently, consumer feedback branded the Basic Web Application Attacks pattern as so 2022, and it now languishes near the bottom of the pattern rankings with the likes of Privilege Misuse. In fact, the asset of Server-Web app has been on a slightly downward trajectory. Figure 67 illustrates this decline and also shows the corresponding rise of Server-Mail. This makes sense when, as mentioned above, one considers that Phishing remains prevalent in the Manufacturing vertical. Of course, the credentials typically obtained via phishing are those that afford the criminal a foothold into the organization via the email account of the victim.

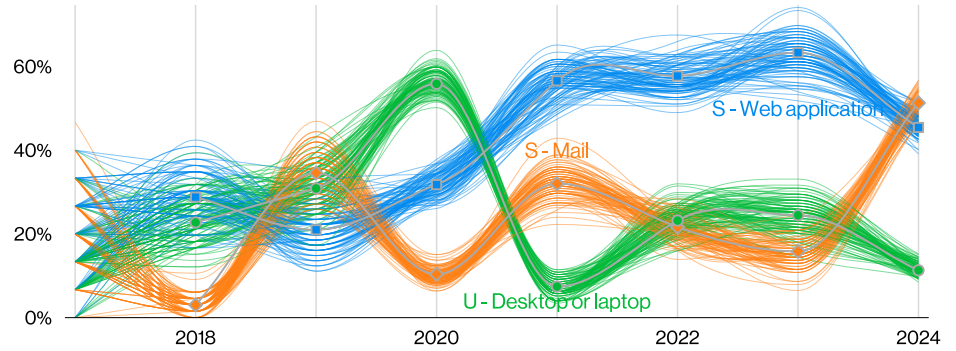


Figure 7. Top Asset varieties over time in Manufacturing industry breaches

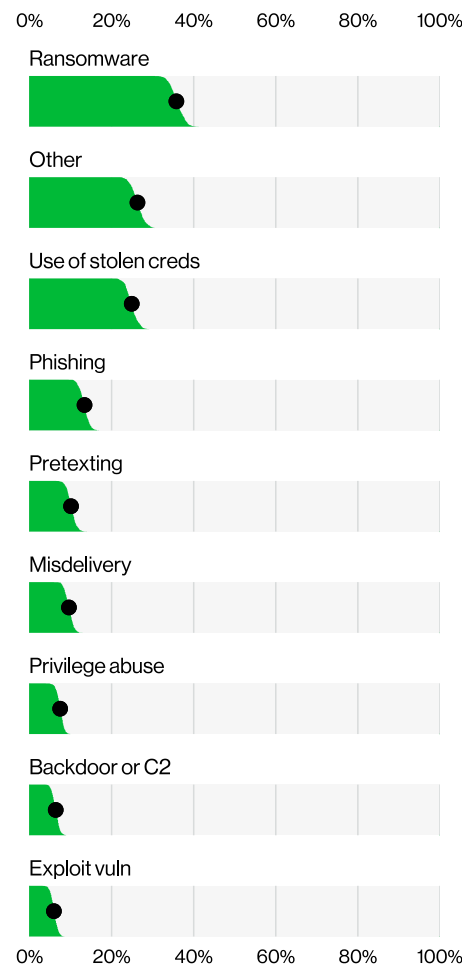


Figure 8. Top Action varieties in Manufacturing industry breaches

Stay informed and threat ready.

Facing today's threats requires intelligence from an authoritative source of cybersecurity breach information.

The full DBIR contains details on the actors, actions and patterns that can help you prepare your defenses and educate your organization. Read the full 2024 DBIR at verizon.com/dbir.

**Questions? Comments? Concerns? Love to share
cute pet pictures?**

Let us know! Send us a note at dbir@verizon.com, find us on LinkedIn, tweet [@VerizonBusiness](https://twitter.com/VerizonBusiness) with #dbir. Got a data question? Tweet [@VZDBIR](https://twitter.com/VZDBIR)!

If your organization aggregates incident or security data and is interested in becoming a contributor to the annual Verizon DBIR (and we hope you are), the process is very easy and straightforward. Please email us at dbircontributor@verizon.com.

