Secure-By-Design

Cultivating a Security-First Mindset

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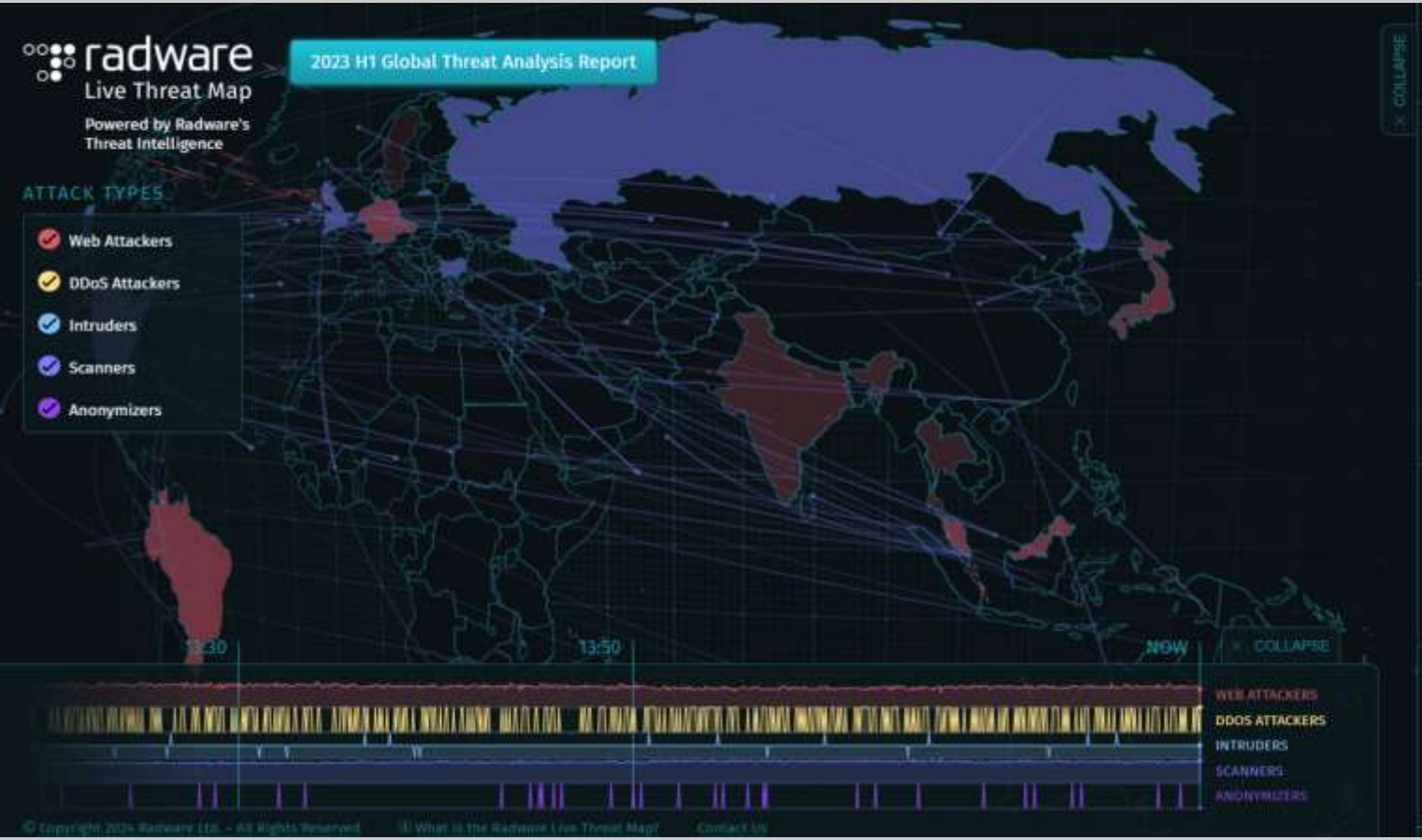
BUZZ

Believe your business is cyber-safe with just firewalls and passwords?

THINK AGAIN !

By 2027, global cost of cyber crime is expected to reach $23.84 TRILLION.

Source:
Statista's Cybersecurity Outlook



Don’t take my word for it.

Here’s A Glimpse…

…Decide For Yourself.

Network Vulnerability

Oct, 2023

Aadhaar details of 81.5 cr people leaked in India's 'biggest' data breach

Phishing & Supply Chain

Oct, 2023

Okta Breach Impacted All Customer Support Users—Not 1 Percent

Okta upped its original estimate of customer support users affected by a recent breach from 1 percent to 100 percent, citing a "discrepancy."

Social Engg & Supply Chain

Oct, 2023

Casino giant MGM expects $100 million hit from hack that led to data breach

SQL Injection & Supply Chain

May, 2023

The Biggest Hack of 2023 Keeps Getting Bigger

Victims of the MOVEit breach continue to come forward. But the full scale of the attack is still unknown.

Password Reuse

Dec, 2023

Data Breach at 23andMe Affects 6.9 Million Profiles, Company Says

Hackers were able to obtain access because some customers reused old passwords, the genetic testing company said.

Network & Database

Sept, 2023

Mixin halts withdrawals as network suffers $200M loss in hack

Attackers gained unauthorized access to the Mixin Network's cloud service provider's centralized database

SIM Swap & MFA

Jan, 2024

Twitter: SEC's Account Was Hijacked Through a SIM-Swap Attack

Twitter also says @SECGov neglected to use two-factor authentication.

Network

Nov 2022

AIIMS Delhi: Held to ransom by cyber attack

The perpetrators held around 4 crore patient profiles at ransom – including sensitive data and medical records of VIPs.

Zero Day & DDOS

Dec, 2023

Cloudflare, Google, and Amazon explain what's behind the largest DDoS attacks ever

Legacy Server & Password Spray

Jan, 2024

Microsoft breached by Russian APT behind SolarWinds attack

Several email accounts belonging to Microsoft senior leadership were accessed as part of the breach, though Microsoft found 'no evidence' of customer environments being accessed.

Exposure Mishap

Mar, 2023

GitHub's Private RSA SSH Key Mistakenly Exposed in Public Repository

GitHub hastens to replace its RSA SSH host key after an exposure mishap threatens users with man-in-the-middle attacks and organization impersonation.

Exposure Mishap

Jan, 2024

Mercedes Source Code Exposed by Leaked GitHub Token

A leaked token provided unrestricted access to the entire source code on Mercedes-Benz's GitHub Enterprise server.

Supply Chain

Feb, 2024

Infosys Discloses 57,000 Bank Of America Customers Impacted By 2023 Breach

Put it all together

Jan, 2024

Mother of all breaches' data leak reveals 26 billion account records stolen from Twitter, LinkedIn, more


There is a cyber attack every
39 seconds.
NOW YOU
KNOW.

Common Attack Vectors Exploited

Let's Secure-By-Design

BUT...

There's deadlines to meet.

Customers to please.

Not enough budget.

No buy-in.

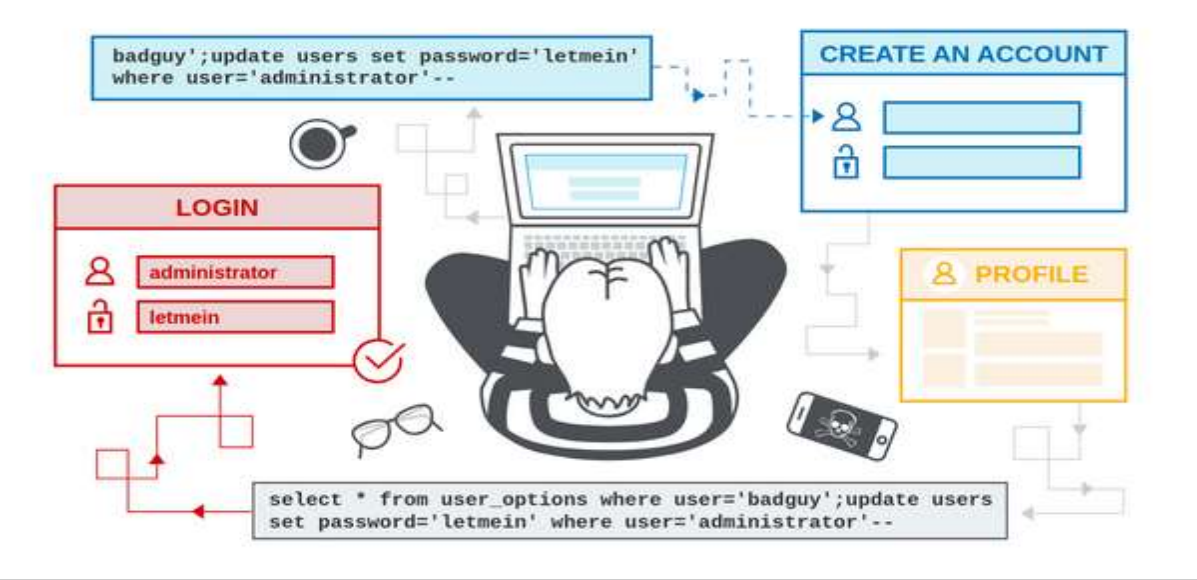
Don't have the skills.

We'll just do it when there's a breach!

We're not big enough.

Is it really that hard to start thinking about security from the start?

SQL Injection



Input Validation

Use Parameterized Queries

Whitelisting Allowed Values

Indirect Object Reference - IDOR

`https://insecure-website.com/customer_account?customer_number=132355`

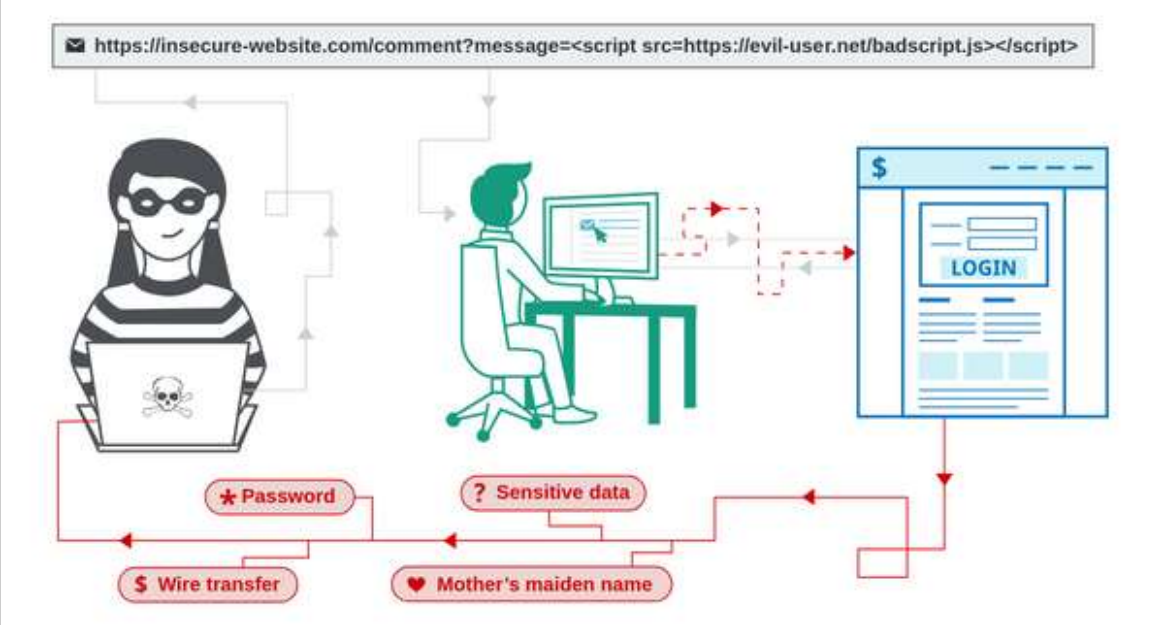
`https://insecure-website.com/static/12144.txt`

Input Validation

Avoid direct object references

Implement GUIDs

Cross Site Scripting - XSS



Input Validation

Encode Data on Output

Use HTTP Headers

Default Credentials In Devices/Services

PostgresDB **'postgres'**

Wordpress - **'admin'**

Routers **'admin/admin'**

MySQLDB - **'root'**

Force Username Change

Add Strong Passwords

Enforce Policies

API Access Control

```
GET /api/v1/profiles/{userId}
```

```
POST /api/v1/transactions/sendMoney
{
  "fromAccountId": "123",
  "toAccountId": "456",
  "amount": 1000.00
}
```

Deny by Default

Control Access with JWT/OAuth/API Tokens

Add Rate Limiting to Prevent DDoS

Stack Traces

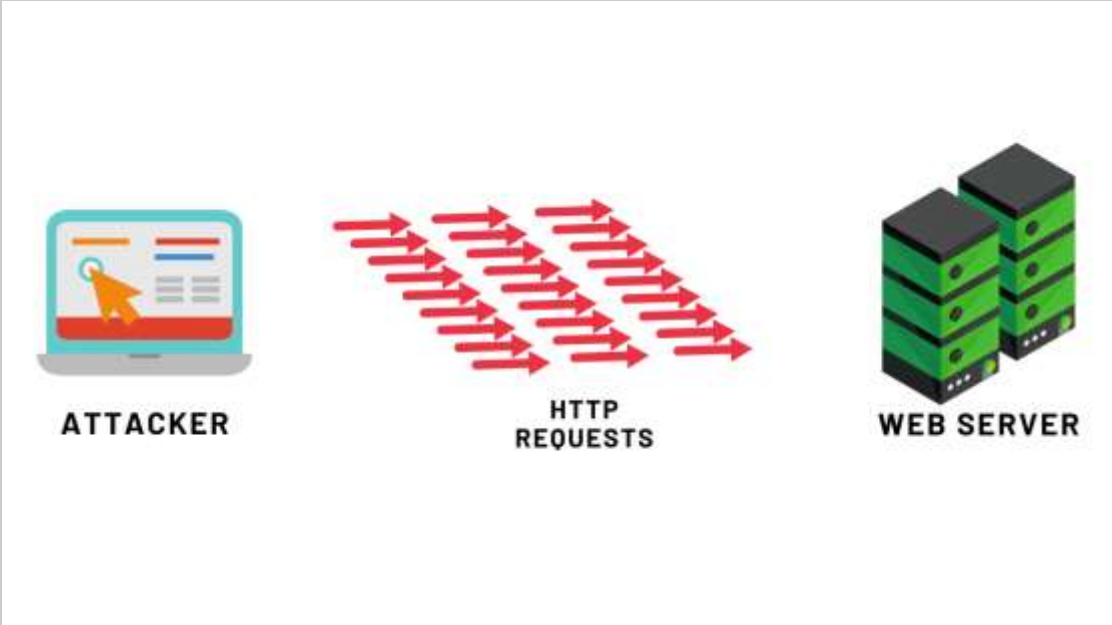
```
java.sql.SQLException: Access denied for user 'appUser'@'10.100.10.20' (using
password: YES)
    at com.mysql.jdbc.SQLError.createSQLException(SQLError.java:1075)
    at com.mysql.jdbc.MysqlIO.checkErrorPacket(MysqlIO.java:4096)
    at com.mysql.jdbc.ConnectionImpl.<init>(ConnectionImpl.java:794)
    at com.mysql.jdbc.JDBC4Connection.<init>(JDBC4Connection.java:47)
Caused by: java.sql.SQLException: Unable to connect to database.
    application.database.ConnectionManager.getConnection(ConnectionManager.java:23
    at application.user.UserDAO.getUserDetails(UserDAO.java:58)
User Details Query Failed: SELECT * FROM users WHERE user_id = ?
```

Log, Don't Display

Use Error Handling Frameworks

Custom Error Pages

Rate Limiting



Captcha + OTP

Account Locking

API Limiting

Sensitive Data

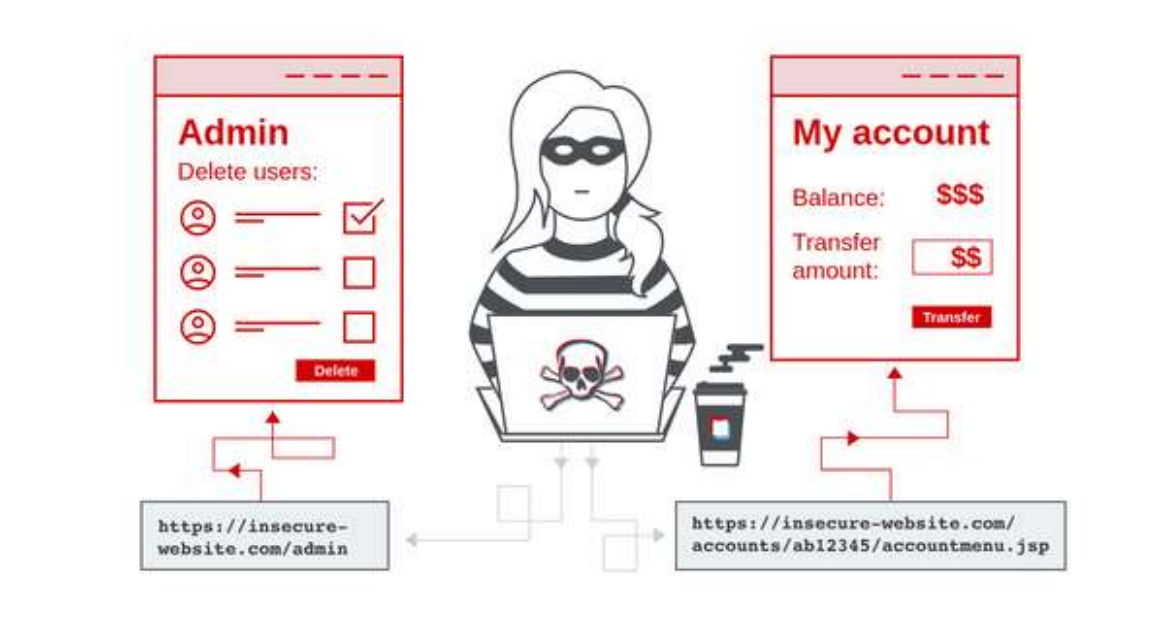
ID	Name	Date of Birth	PAN Card	Account Number	Bank Name	IFSC Code
1	John Doe	1985-07-24	ABCD1234E	123456789012	Bank A	IFSC000123A
2	Jane Smith	1990-05-16	EFGH5678F	987654321098	Bank B	IFSC000456B

Encrypt sensitive data

Enforce Access Controls

Perform Regular Data Audits

Access Control

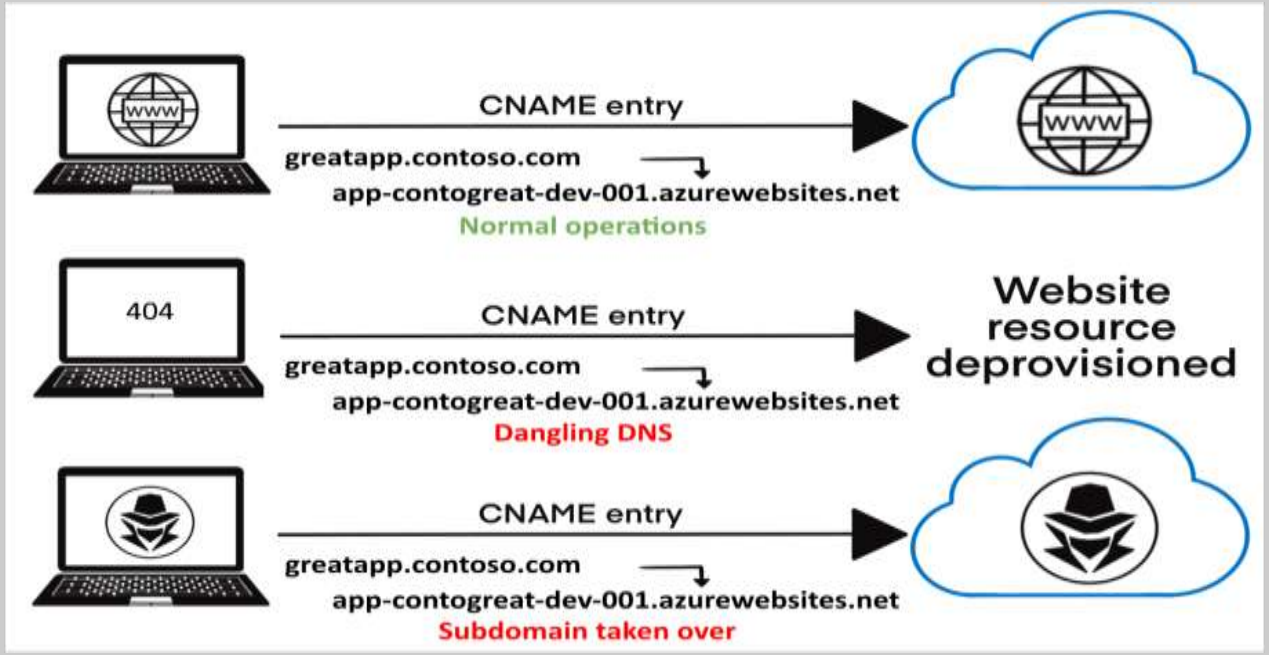


Deny by Default

Create Single Access Control Method

Perform Regular Audits

Dangling SubDomains



Subdomain Inventory

Good DNS Habits

Regular Audits

Stronger Passwords

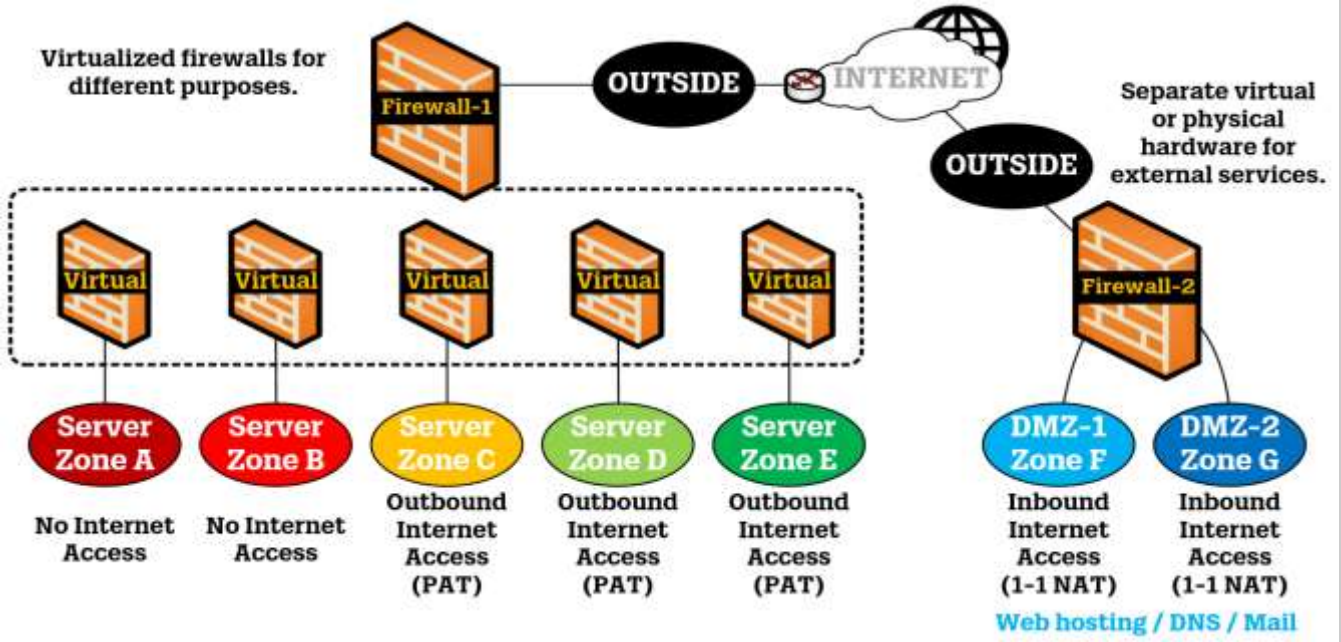
RANK	PASSWORD	TIME TAKEN TO CRACK	NUMBER OF TIMES USED
1	123456	< 1 Second	4,524,867
2	admin	< 1 Second	4,008,850
3	12345678	< 1 Second	1,371,152
4	123456789	< 1 Second	1,213,047
5	1234	< 1 Second	969,811
6	12345	< 1 Second	728,414
7	password	< 1 Second	710,321
8	123	< 1 Second	528,086
9	Aa123456	< 1 Second	319,725
10	1234567890	< 1 Second	302,709

Make Them Complex

Use a Longer Password

Opt for MFA

Network Segmentation

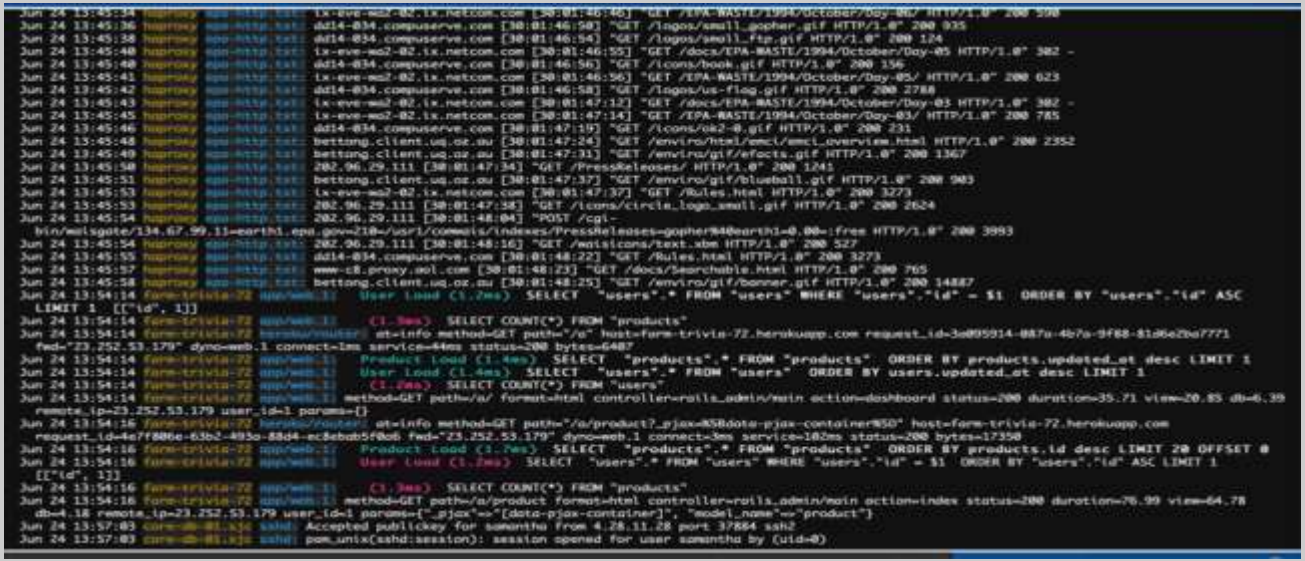


Isolate Critical Systems

Control Access

Monitor Traffic

Logging

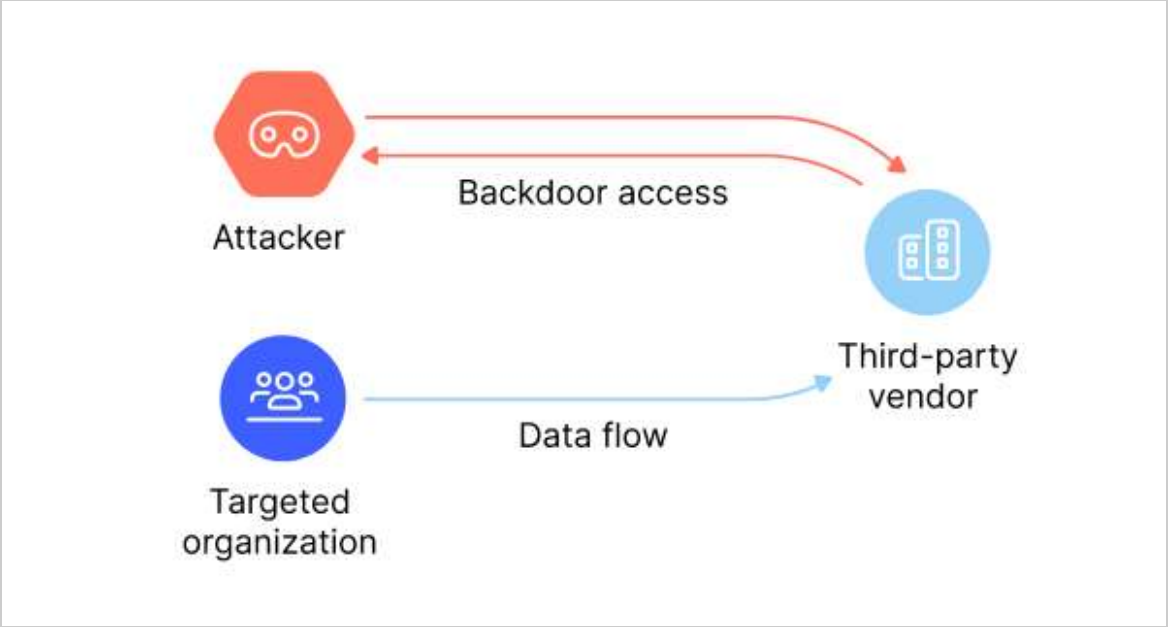


Full Log Coverage

Troubleshooting

Tamperproof Logs

Supply Chain



Least Privilege Access

Network Segmentation

Identify Critical Asset

Too Much To Do.

Start with these 5.

And - then just check regularly!

Authentication
Test authentication. Add MFA.

Validate Input
One bad input is all you need.

Access Control
Authorize. Deny by default.

Secure PII Data
Encrypt sensitive data. Isn't data what it's all about!

Secure Network
One misconfigured firewall, one extra port can be it.

Looking Ahead.

#1. AI Threats and Defense

#2. Spike in Third-Party Data Breaches

#3. Cyber Expertise in the Boardroom

#4. Identity and Access Management

#5. Nation-State Cyber Operations

STILL ON THE FENCE?

Perhaps, this will give you some joy.

https://haveibeenpwned.com/

BUZZ

Time to BUZZ?

REACH OUT!