



Organizational Cybersecurity Evaluation

Part - 1

**BUSINESS ORGANIZATION CATEGORIZATION
REPORT**

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1. Executive Summary

In this report we are going to categorize business organizations into three categories, Small and Medium-Sized Business (SMB), Small and Medium Enterprise (SME), and Large Enterprise. We are taking some factors into account like number of employees, annual revenue, IT staff size and geographical location. Also we are making a comparison table which will compare these details in contrast to make it interesting.

I have chosen NVIDIA as a representative large enterprise and we will compare each category as we mentioned above the table will showcase the key factors used for classification. There may be differences in all the different organizations based on various factors but we will see some threats are common to all the organizations and the possibility of some threats to particular enterprise structures because of the differentiating factor can contribute to the threats.

Finally, the main objective of the report is to provide a structured framework for assessing organizations aiding cybersecurity professionals in evaluating security postures and potential threats.

2. Categorization of Organizations

We can split the organization into different categories, especially three based on various factors that make it a business in the first place. Some of the points I found from the resources are as follows.

2.1 Small and Medium-Sized Business (SMB)

- Annual revenue ranges from \$1 to \$50 million.
- SMB usually operates on one or few physical locations closer to each other.
- Usually has less than 100 employees if it is small and between 100 - 150 employees for medium sized businesses.
- If we take IT into consideration staff is limited may 1 or some will manage the whole IT team (admin work). Maybe some professionals are outsources for pentesting.
- Employees may collaborate a lot with other teams and try to exchange roles because of limited human resources.
- Examples: Small Marketing agencies and IT firms, also Small scale law firms etc.
- The SMB that is situated at Rochester would be "Province RIT". Has one or two locations across the locality and better place to stay for students.

2.2 Small and Medium Enterprise (SME)

- Annual profit ranges from \$50 million to \$1 billion.
- Maybe they have multiple locations with the state or country, but not global operators.
- Employees may range from 500 - 999 in the United States, but up to 250 employees in Europe.
- Usually they have IT teams and different departments, even security teams, but still they might outsource for some niche areas to be managed in the company.
- Employees still collaborate with other teams, but not necessarily exchange roles, but may require to some extent if it needs to.
- Examples: Regional software companies and some manufacturing firms.
- The SME called Mr. Cooper situated in Texas, helps families acquiring the home loans and two multiple branches across the state.

2.3 Large Enterprise

- Annual revenue exceeds \$1 billion and scales a lot for future investments.
- They will have a global presence holding several data centers and operations. They usually sell their products in different countries.
- Employees over 1000 and sometimes they can exceed more than 10,000.
- Have multiple IT teams and usually consider a lot of privacy and less outsourcing. Hire will be done for all areas and work together.
- Most work won't be shared with different departments. But overall executed together with all departments.
- Example: CPU manufacturers, Phone manufacturers etc.
- NVIDIA is the chosen Large enterprise for this report.

3. Factors Contributes to Categorization

The Table that differentiates the factors used to help determine the organization classification:

| Factor | SMB | SME | Large Enterprise |
|------------------------|---------------------------|-----------------------------|-----------------------------|
| Number of Employees | < 500 | 500 - 999 | 1000+ (Even 10000+) |
| Annual Revenue | \$1M - \$50M | \$50M - \$1B | \$1B+ |
| IT Staff Size | Minimal, often outsourced | Established, Moderate-sized | Large, dedicated teams |
| Geographic Presence | Local | Regional/National | Global |
| Data Security Measures | Basic | Moderate | Advanced, compliance-driven |

4. Selected Organizations

4.1 SMB (PROVINCE RIT)

The Province is an off-campus student housing complex in Rochester, New York that's close to the Rochester Institute of Technology (RIT). It offers fully furnished apartments, amenities, and shuttle services to the RIT campus.

Province was able to scale their business and made better profit because of their nearby location to Rochester Institute of Technology, where students find it easy to commute and the shuttle service offered by RIT and Province is a plus. They make money based on the apartment plan we choose and the service quality is great.

- **Industry:** Hotel and Housing Management.
- **Headquarters:** Rochester, New York
- **Employees:** < 300
- **Annual Revenue:** \$2M - \$5M Approx.
- **IT Security:** They have an admin team who manages the portal where students try to make payment for their monthly rent. I believe they should encrypt their payment portals and continuously monitor their HVAC systems and other electric lines that involve networking and IOT controls.

4.2 SME (MR. COOPER)

Mr. Cooper Mortgage is a mortgage lender and servicer that offers a variety of mortgage products. They were formerly known as Nationstar Mortgage,

They offer the following services:

- **Mortgage lending:** Mr. Cooper offers a variety of mortgage options, including conventional loans, FHA loans, VA loans, and investment property loans.
- **Mortgage servicing:** Mr. Cooper services mortgages for homeowners.
- **Real estate marketplace:** Mr. Cooper's real estate exchange, Xome, is an online marketplace for residential properties

Other services Private label subservicing, Master servicing, Correspondent lending, and MSR asset management.

How are accounts transferred?

Mortgage loans are often sold between servicers, which can cause accounts to be transferred to Mr. Cooper.

- **Industry:** Mortgage Industry
- **Headquarters:** Coppell, Texas
- **Employees:** 6800 (More than 1000 but based on revenue still under SME)
- **Annual Revenue:** \$424M
- **IT Security:** As they handle and scale their business across the state they have a good cybersecurity team called Secops and Optics (Operated from India). They have an active incident response team and IT managers, along with Information Security Analyst handling and monitoring the business and endpoints.

4.3 Large Enterprise (NVIDIA)

Nvidia is a technology company that designs and sells graphics processing units (GPUs), software, and systems for a variety of applications. Nvidia is a leader in the semiconductor industry and artificial intelligence (AI).

What Nvidia does:

- **Designs GPUs**
Nvidia designs GPUs for gaming, cryptocurrency mining, and professional applications. GPUs are better at rendering images than central processing units (CPUs), and are also more energy efficient.
- **Develops AI hardware and software**
Nvidia is a leading supplier of AI hardware and software. Nvidia's AI platform is used by companies for a variety of applications, including cybersecurity, medical imaging, and customer service.
- **Creates systems for specific applications**
Nvidia builds pre-configured systems for specific applications, such as NVIDIA Drive for autonomous vehicles, Clara for healthcare, and Maxine for unified communications.
- **Develops software libraries and programming languages**
Nvidia develops software libraries and programming languages, like CUDA, which serve as interfaces for their hardware.

They are key players in the GPU industry because Nvidia is a key player in the development of autonomous vehicles, AI, AR/VR, and other compute-intensive tasks. Also Nvidia's AI platform is used by many of the world's largest enterprises

- **Industry:** Technology, AI, Semiconductor
- **Headquarters:** Santa Clara, California
- **Employees:** 29600+
- **Annual Revenue:** \$114 billion approx. (FY 2024)
- **IT Security:** Highly advanced cybersecurity infrastructure with dedicated security teams, AI-driven threat detection, and compliance with major security regulations.

5. Security Risks Across All Business Categories

Even though there are various difference between the SMB, SME and LE, there are some common risks and threats as follows:

1. **Ransomware** - Business of any size could be a victim of ransomware attack which is data encryption attack.
2. **Insider Threats** - Employees who work for an organization always pose security risks, whether malicious or inadvertently.
3. **Phishing Attacks** - In today's world phishing emails are the entry points for most of the attacks so regardless of the size of the business, attacks try to steal the employee and customer credentials (maybe used for credential stuffing as well).
4. **Third-Party Risks** - Business models and Vendors can introduce unexpected threats and security vulnerabilities.
5. **Regulatory Compliance** - All organizations regardless of the size will need to meet some regulatory requirements and compliance to conduct business in the United States of America.
6. **Malware Attacks** - Regardless of the size, anybody can download malicious malware through XSS, and might steal web tokens etc.

6. Security Issues by Business Size

6.1 SMB Security Issues

- Usually Cybersecurity solutions are overlooked because of the scale, also the limited budget. But considering Province has student data (residents) they should have good cybersecurity posture to secure those data.
- Highly dependent on third party security services because of not owning different departments, teams, and cybersecurity tools for detective controls.
- Therefore Lack of in-house cybersecurity expertise, maybe one or two admin controlling the payment portal and the database. But still some departments for preventive controls.

6.2 SME Security Issues

- Attack surface can increase day by day because SME organizations always try to increase profit and increase their scale and sometimes the profit can make them overlook certain operations (prioritizing convenience over security).
- There is a chance of inconsistent security policies at some locations due to adaptation of new hires and teams as they try to expand their resources.
- Even though they have a better budget for cybersecurity than SMB, still there is a possibility of outsourcing for pentesting and also may work with third party businesses, which again increases the attack surface and dependency.

6.3 Large Enterprise Issues

- High risk due to exposure of the company and resources across countries.
- Compliance with multiple locations and countries which may highly vary depending on place of business.
- Possibility of encountering advanced threat actor groups due to higher reward possibility.
- There is a need for zero trust architecture due to the large number of employees and complex IT infrastructure.
- High chance of internal threats of selling resources to other large enterprises for higher prices.
- It is difficult to manage various departments and spread awareness of cybersecurity especially to employees not to click on phishing links and visiting malicious websites.

Conclusion

Organizations and businesses may vary based on various factors like size, locations, employees and their profit but they all must address the cybersecurity threats and risks especially when they handle sensitive information. This makes them responsible and comply with regulations to secure the customer data. Even if they fall victim to cyberattack, FTC has the right to penalize them if they overlooked the cybersecurity measures.

Also as we mentioned in the document large enterprises like NVIDIA have vast attack surface and high risk, therefore allocating and spending a lot of money into their cyber controls is invaluable. There is no perfect solution but having zero trust will highly reduce the probability of the attacks and having good access control restricts the access to the attackers.

Finally, this report provides a structured approach for assessing companies based on size and security risk, which can be leveraged for cybersecurity consulting, policy-making, and risk management.

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