Network security procedures

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# Introduction

In today's interconnected world, network security has become a paramount concern for individuals, organisations, and governments alike. As our reliance on digital information and communication grows, so does the potential for cyberattacks and data breaches. Network security encompasses the strategies, tools, and practices employed to protect the integrity, confidentiality, and availability of data and resources within a network. It aims to safeguard against unauthorised access, malicious attacks, and accidental disruptions, ensuring the secure and reliable operation of networks. This is a documentation about the network security of the company INVU. This documentation will be assessing and addressing the network security issued faces in the company and will give suggestions to improve accordingly.

# INVU

INVU is a leading data storage company that was founded on March 9 2008. Built on a promise of unwavering security and unparalleled customer experience. INVU offers a comprehensive suite of secure and reliable data storage solutions for individuals, businesses, and organisations of all sizes.

INVU offers:

* On-Premises Solutions: Tailored physical and virtual storage solutions for organisations requiring data sovereignty and customised infrastructure.
* Hybrid Data Storage: Combine the flexibility of the cloud with the control of on-premises storage for a solution that caters to your unique needs.

As the company handles data it guarantees that you will get:

* User-Friendly Interface: Our intuitive and user-friendly interface simplifies data management and streamlines workflows for a seamless user experience.
* Dedicated Customer Support: Our team of experts is available 24/7 to provide comprehensive support and answer any questions you may have.

# Company infrastructure

## Main Infrastructure

INVU has state of the art server technology for speed and efficiency of storage of clients data. Uses multiple Hard Disk Drives for its servers. Users can store their data on the cloud using their website and application. Employees that work at the company have to follow a guideline imposed by the company. They audit their servers but not so regularly. The company has a small team of people that analyse the risk to data security. The network security they use is not up to date. They have very little security features and this is something that they have to improve on.

## Flagged features of the company

Frequent data loss: The company experiences frequent data loss events, leading to lost or corrupted files. Mainly due to the lack of a firewall. This can have devastating consequences for businesses that rely on their data for operations.

Inadequate data backup: The company fails to maintain adequate data backups, making it impossible to recover lost data. This can cause significant financial losses and reputational damage.

Poor data security: The company's data storage systems are poorly secured, making them vulnerable to cyberattacks. This can result in data breaches and expose sensitive information to unauthorised individuals. So far five cases of poor data protection have been reported. (viruses and hackers)

Poor physical security: The company is run in a small building with minimal security to their servers. This makes the servers vulnerable to physical attacks and natural disasters.

Inexperienced network security team: They audit the data regularly and find errors in their systems but do not know how to fix them

# Improvements to be made to infrastructure

For data Loss: For the frequent loss of data ensure that the system used has data protection features and that the connection between the servers and the clients (through the internet) is optimal for file transfer. Improve the connection quality from your ISP so that when your servers receive the data it won't get lost or corrupted.

Inadequate data backup: Add more storage space to your infrastructure and have Cloud backups of your clients data in another region or so. Use a secure connection such as a reliable VPN for the data transfer over the network to the offshore data backup storage. A VPN will make sure that your connection is secure from others trying to get into your network.

Poor data security: Use firewalls to monitor incoming and outgoing traffic in the network. When your employees are working make sure they are connected to a proxy server. A proxy server is a server application that acts as an intermediary between a client requesting a resource and the server providing that resource. It improves privacy, security, and performance in the process. Imbed IPSec (IP security) protocols in your servers. Have a good encryption method to your clients data so in a case of a breach the privacy will be ensured. Use anti hacking softwares to protect your clients data. Anti hacking software prevents hackers from intercepting the data in the first place.

Poor Physical security: Move your infrastructure to a better secured place. If not able to have a good physical security system in place in your current building.

(firas #)

# More Pointers On Security

## Audit and intrusion detection systems:

Use IPS. IPS stands for “intrusion prevention system” and it does what it says on the tin—it prevents intruders from accessing your network and causing irreparable and expensive harm through financial losses and data breaches.

It’s a network security system that analyses network traffic flows to detect, flag, isolate, and prevent malicious activity and code from harming networks. Often situated behind a firewall, IPS provides an additional, in-depth layer of analysis that further inspects web traffic—often performing a deep dive into IP packets and signatures to find any anomalies. Anything deemed malicious is isolated, resolved, and flagged with IT teams for further inspection. Some solutions also come with the ability to detect any vulnerabilities within the network, which can also be highlighted for admins to investigate. (Lightfoot)

## Router Safety

Schedule routine reboots to clear the system memory and refresh all connections. Rebooting the router may disrupt any potential malware that may have been implanted.

Disable remote access management, if possible, to prevent unauthorised people from remotely accessing your router and tampering with it.

Disable Simple Network Management Protocol (SNMP) to reduce risk of threat actors collecting basic system configuration information about your network.

Set up each router administrator with their own login username, unique password and appropriate privilege level. If event logging is enabled, then the login information will be important for auditing and incident investigation purposes.

Use Media Access Control (MAC) filtering to choose which trusted devices connect to your network.

Enable port filtering. (“Routers cyber security best practices - ITSAP.80.019”)

## Have a more robust security protocol for your networks

* Audit the network and check security controls.
* Revisit and communicate security policies.
* Update antimalware software regularly or as needed
* Set appropriate access controls and employ multi factor authentication
* Establish and communicate a security governance structure
* Educate end users
* Have a maintenance system for security infrastructure.

(Larsen)

## Reliable VPNs to use for your company

1. [Perimeter 81](https://www.comparitech.com/go/perimeter-81/l/list/) Our #1 choice VPN for business. Servers are capable of fast and stable connections that can handle all kinds of network traffic including SSH, RDP, VNC, and Telnet. You can even set up site-to-site VPNs.
2. [NordLayer](https://www.comparitech.com/go/nordlayer-business-vpn/l/list/) Specialist business VPN popular with small and medium sized organisations.
3. [Twingate](https://www.comparitech.com/go/twingate-business-vpn/l/list/) Business VPN which caters to remote teams with SSO support, split tunnelling, zero-trust access, and private gateways.
4. [Windscribe](https://www.comparitech.com/go/windscribevpn-business-vpn-list/) Budget business VPN option with top security features, easy to use apps and centralised billing option. Good documentation but lacks 24/7 support.
5. [CyberGhost](https://www.comparitech.com/go/cyberghost-business-vpn/l/list/) Great value service with secure apps that are easy to install and get started. Some of the fastest servers we have tested.
6. [IPVanish](https://www.comparitech.com/go/ipvanish-business-vpn/l/list/) Fast servers with secure and reliable connections. User friendly apps. Would prefer 24hr support.
7. [ExpressVPN](https://www.comparitech.com/go/expressvpn-business-vpn/l/list/) Extensive network of fast servers. High-grade encryption and even works great in China and the UAE. Not the cheapest option on this list.

(“7 Best VPNs for Business in 2023 and some to Avoid”)

## Physical Security measures

* Monitoring and Surveillance
* Keep the Network Devices in the Secured Room
* Use Rack-Mount Servers for added Physical Protection
* Keep a Check on the Work Space Security
* Use Case Locks
* Protect the Portable Equipment
* Save the Backups
* Disable the Ports
* Protect Your Output

(“10 Physical Security Measures Every Organization Should Take”)

# Conclusion

INVU is a decent data storing company. With the improvements mentioned above the company will have greater reliability and a much wider customer base. The most important thing is to ensure your networks are safe. Ensure that they are safe from hackers and viruses and malware and such.

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