Data Backup and Recovery Plan for CSH Security

CTS 220 Honors Project

Spring 2024

Instructor –

Mrs. Kim Green

Presentation by –

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Introduction

My instructor:

Mrs. Kim Green

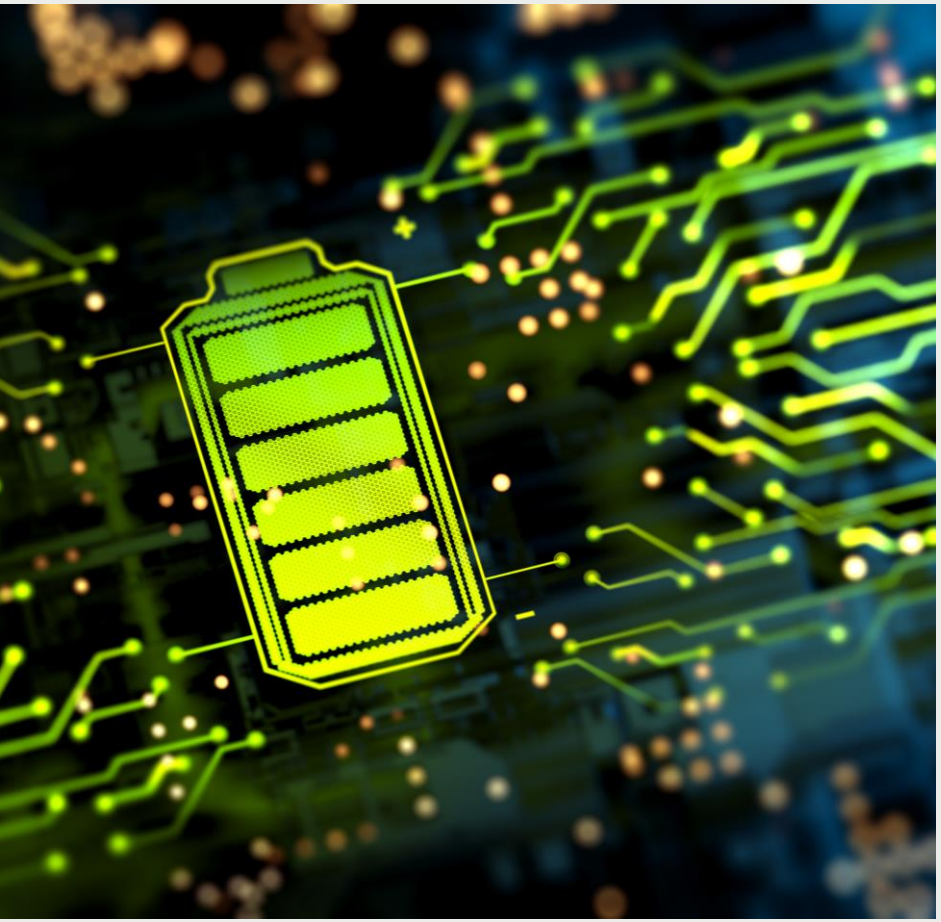
Course:

CTS 220-170 Spring 2024

Topic:

Data Backup and Storage Plan Design and Implementation for CSH Security

DURHAM TECH



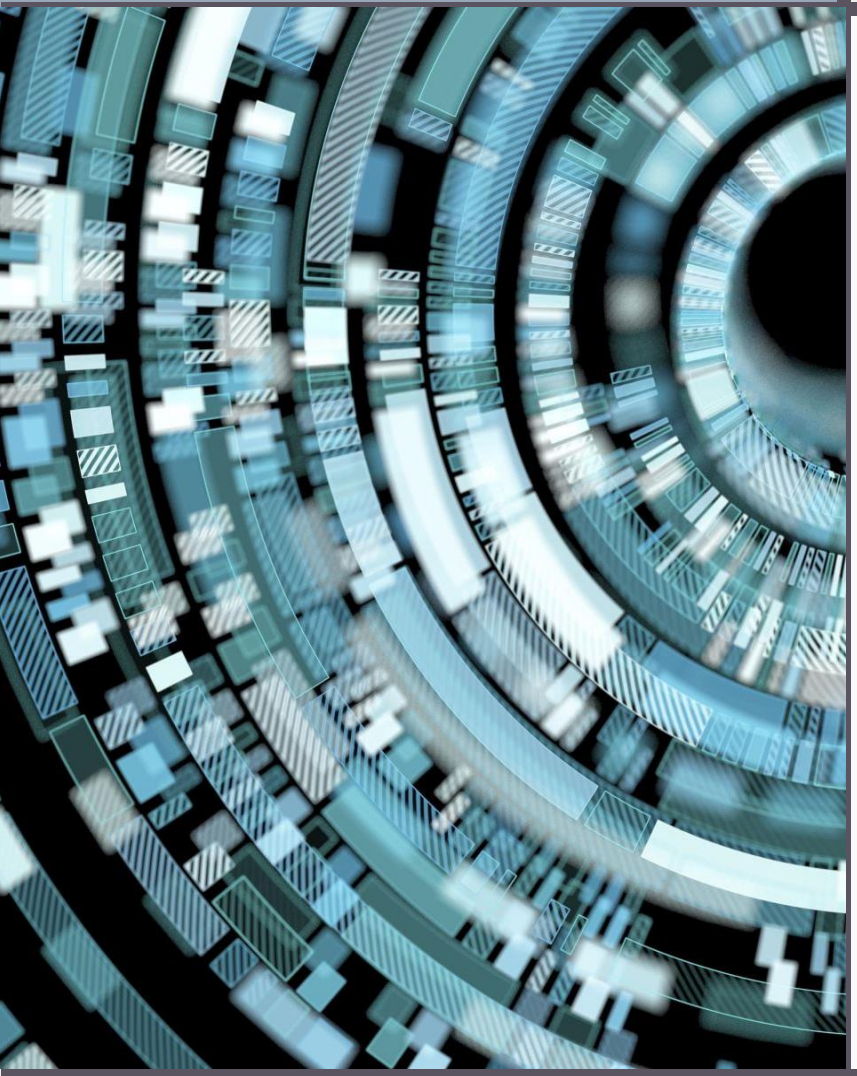
Overview of the Project / Scope

CSH Security gets a Data backup and recovery plan overhaul

To do this the following tasks must be met:

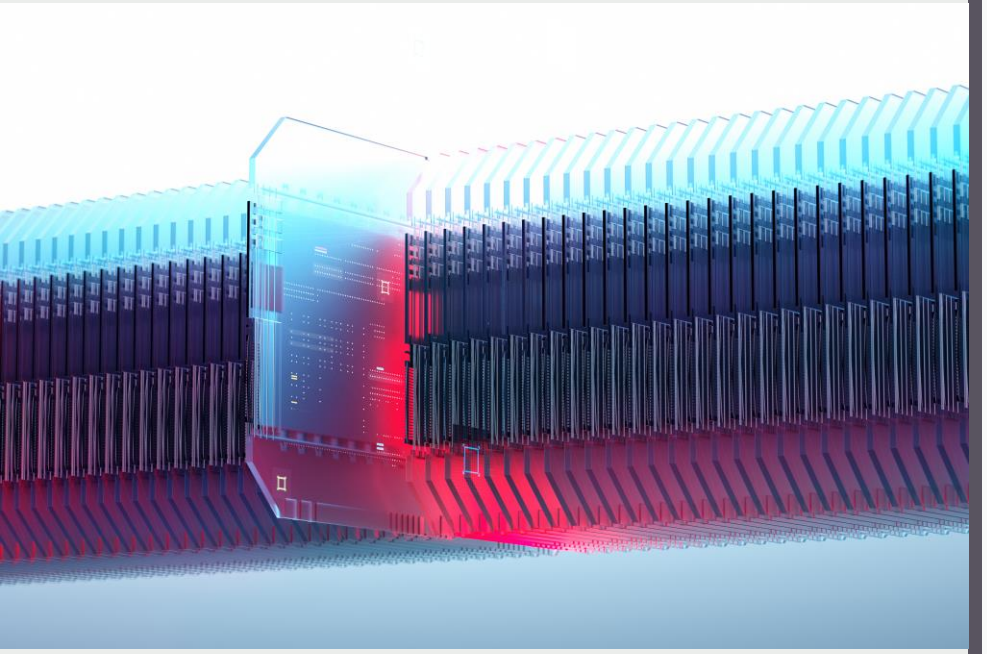
- *Identify the weaknesses or vulnerabilities in their backup plan*
- *Develop a comprehensive backup plan tailored to their needs*
- *Assess user capabilities and accessibility to the data*
- *Any and all budget constraints.*

Assessment of Current Data Backup Procedures



- Current network system comprises a server and a portable USB hard drive
- Existing procedures were commendable but had several weaknesses to be improved.
- Included a non-structured policies and single location storage.
- These created a single point of failure scenario

- NOT Sustainable!



Regulatory and Industry Requirements

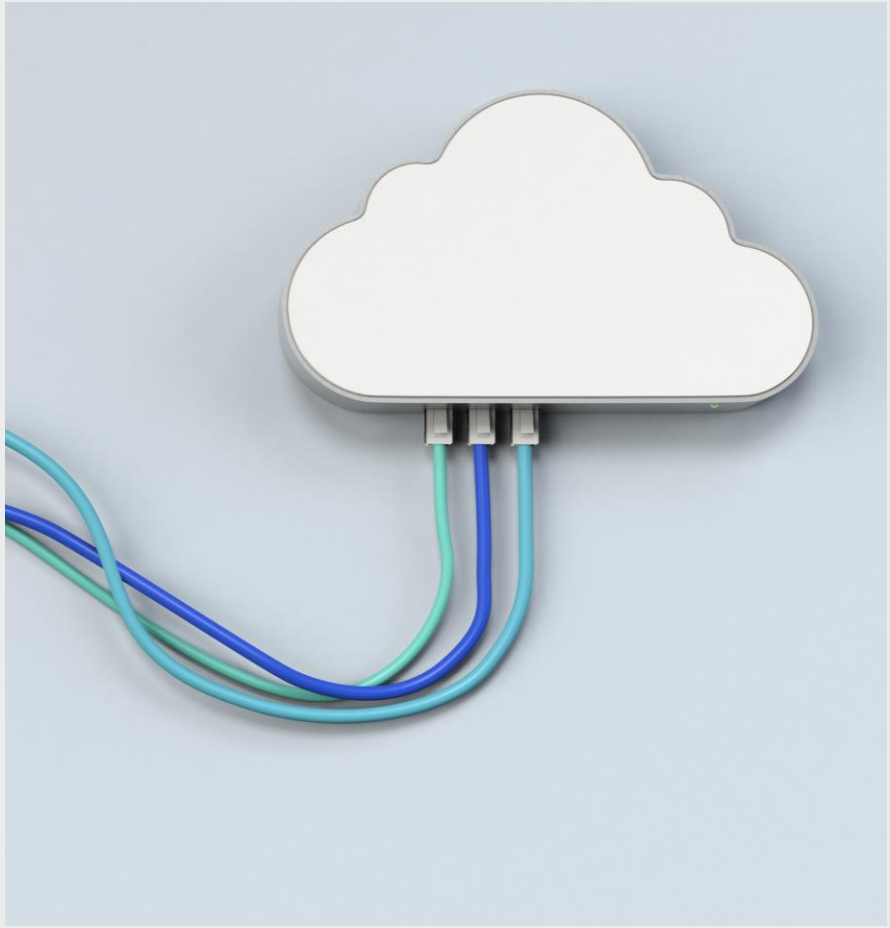
Ensured the plan's compliance with the following regulations and standards:

Data Protection and Confidentiality Focused:

- General Data Protection Regulation (GDPR)
- Health Insurance Probability and Accountability (HIPAA)

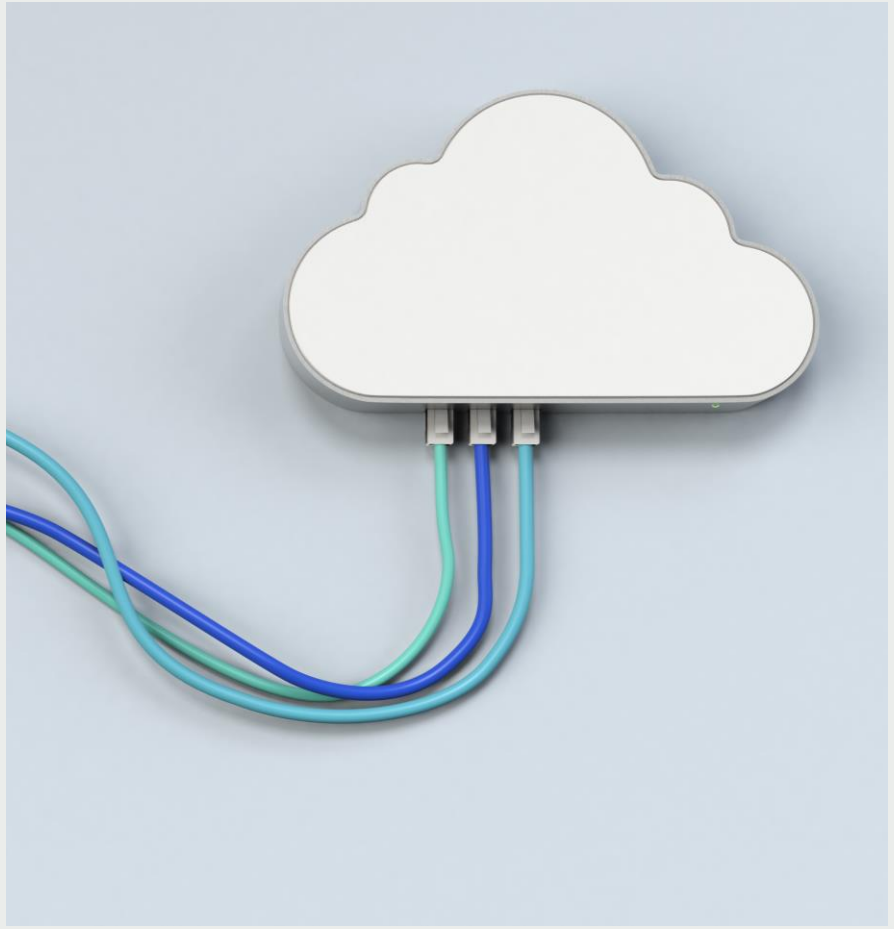
Data Backup Policies and Testing Focused:

- National Institute of Standards and Technology (NIST)



Designing and Implementing the Hybrid Data Backup Strategy

- Hybrid Data Backup Plan was the best solution for CSH Security
- Hybrid storage – data stores located both on premises and in the cloud
- Followed the 3-2-1 methodology



Designing and Implementing the Hybrid Data Backup Strategy

Implemented the Grandfather – Father – Son (GFS) methodology into the 3-2-1 strategy

- **Hot Storage** – *Frequently Accessed Data*
- **Cold Storage** – *Seldom Accessed Data*
- **Archive Storage** – *Emergency Recovery use only / Rarely Accessed Data*

Selection of Backup Technologies, services, and solutions

- **Hot Storage** – ***Frequently Accessed Data***
  - Portable USB Drive
  - Used for
    1) *Daily backups of critical files*
    2) *File Transportation*
    3) *Ensuring immediate access to essential data*

Selection of Backup Technologies, services, and solutions

- **Cold Storage** – ***Seldom Accessed Data***
  - Intuit QuickBooks Data Protect Cloud Service
  - Data stored off-site in the Cloud
  - Subscription-based service
  - Secure and easily accessible anywhere
  - Stores all QuickBooks financial data

Selection of Backup Technologies, services, and solutions

- **Archive Storage** – ***Emergency Recovery use only / Rarely Accessed Data***
  - TrueNAS Custom built NAS system
  - Small footprint, massive storage capabilities – 10 TB!
  - Free use client service
  - Very user friendly and easy to navigate
  - Offers room for future company growth
  - Storage is increased by adding more NAS hard drives

Selection of Backup Technologies, services, and solutions

- **Windows Backup & Recovery and TrueNAS -**
  - **Each Stored on their own *Separate Partitions***
- **History Duration of all backup files:**
  - **6 months before deletion**

Windows Backup and Recovery

- ***Handles Incremental backups and ISOs***
- ***Scheduled to Backup Monthly***

TrueNAS CORE 13

- ***Handles Differential Backups***
- ***Backup Occurs Weekly***
- ***Data accessed via OpenVPN***

Pricing Table for Equipment and Labor

- *Currently owned equipment and TrueNAS CORE 13 are free/already paid for and do not incur a cost here.*
- *Estimated 6 hours for install and configuration of new systems*

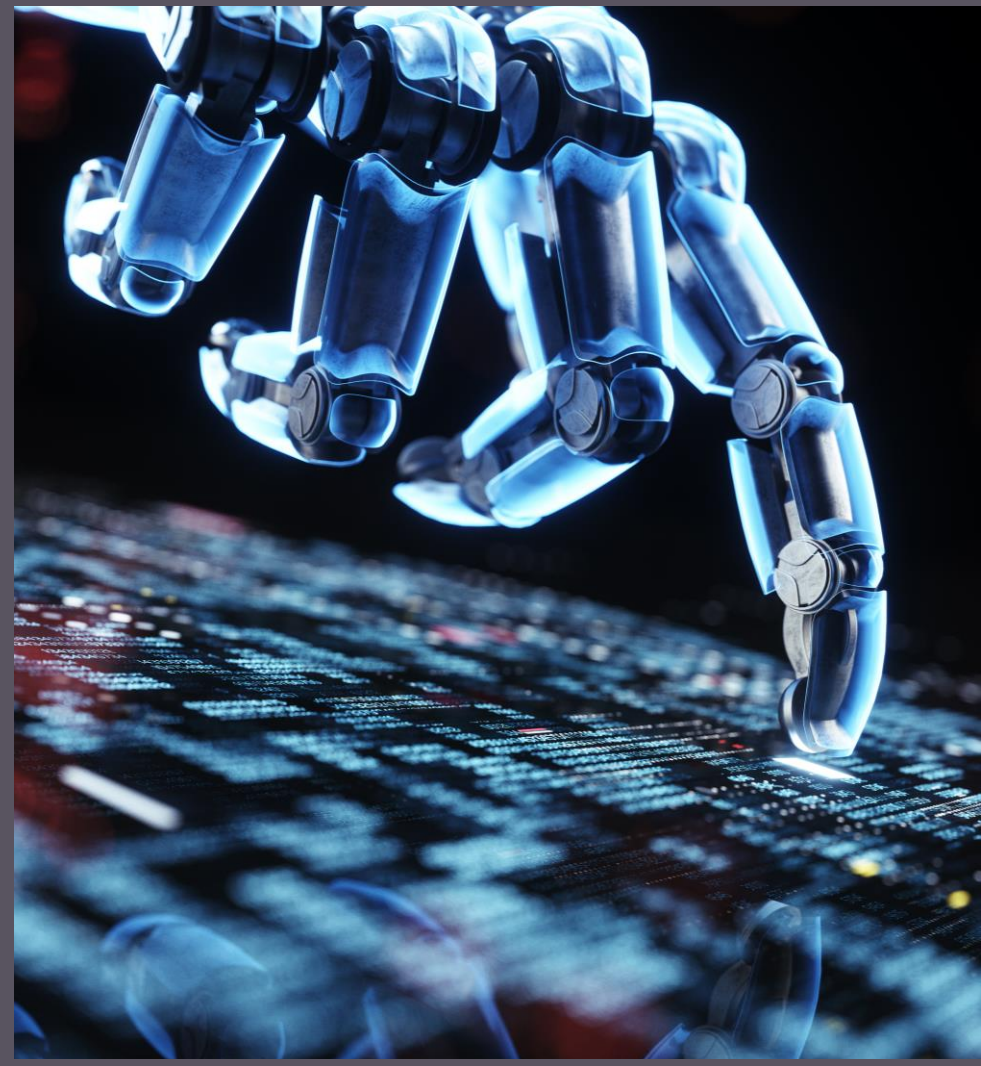
Name	Quantity	Price	Total Price	Source	Use
Currently owned Equipment					
External USB 2 TB HHD	1	$ -	$ -	CSH Security	Currently owned
Dell Poweredge 420 Server	1	$ -	$ -	CSH Security	Currently owned
Monthly Fees					
Intuit QuickBooks Data Protect Cloud Service	1	$ 9.99	$ 9.99	Intuit QuickBooks	this is a per month subscription
NAS System					
64 GB USB Drive	1	$ 5.00	$ 5.00	Amazon	NAS System
Cat7 Ethernet Caable 25'	1	$ 8.99	$ 8.99	Amazon	NAS System
TrueNAS CORE 13	1	$ -	$ -	Amazon	NAS System
Client Desktop – Dell Optiplex 3040 Small Form Factor Desktop PC w/ 1Gbit Networking card	1	$ 50.00	$ 50.00	Reconditioned	NAS System
10TB WD Red Plus NAS Internal Hard Drive HDD - 7200 RPM, SATA 6 Gb/s, CMR, 256 MB Cache, 3.5" - WD101EFBX	1	$ 199.99	$ 199.99	Amazon	NAS System
Contractor Costs					
Time and labor to install, configure, and test new systems (in hours)	6	$ 100.00	$ 600.00		
Total Initial Cost (Taxes not included)			***$ 873.97***		

Documentation and Training

- Comprehensive Documentation is ***Critical!***
- Documentation must Includes at least:
    - *Backup procedures and policies*
    - *Disaster recovery plans*
    - *Vital to regularly audit and update*
    - *Must clearly reflect all changes*
- *Training includes operation of all backup and recovery systems and plans.*
    - *Training and practice is just as crucial as documentation!*

PROCEDURES FOR TESTING AND VALIDATION

- Proper maintenance includes
- Regularly scheduled intervals
- Various methods of testing used by checking:
    - *backup file for data corruption*
    - *disk storage capacity used*
    - *disk health and operation*
    - *network connectivity*
    - *scheduling*
    - *physical condition of storage devices*



Conclusion

Important notes:

- All businesses benefit from a strong data backup and recovery plan.
- Revamped and integrated new technologies into the backup plan for CSH.
- New backup plan ensures business continuity regardless of majority of disruptions that occur.
- The plan follows industry regulations and policies.
- Simple and affordable to maintain and scale with future company growth.
- Proper documentation, training, testing and validation is essential for best outcome.

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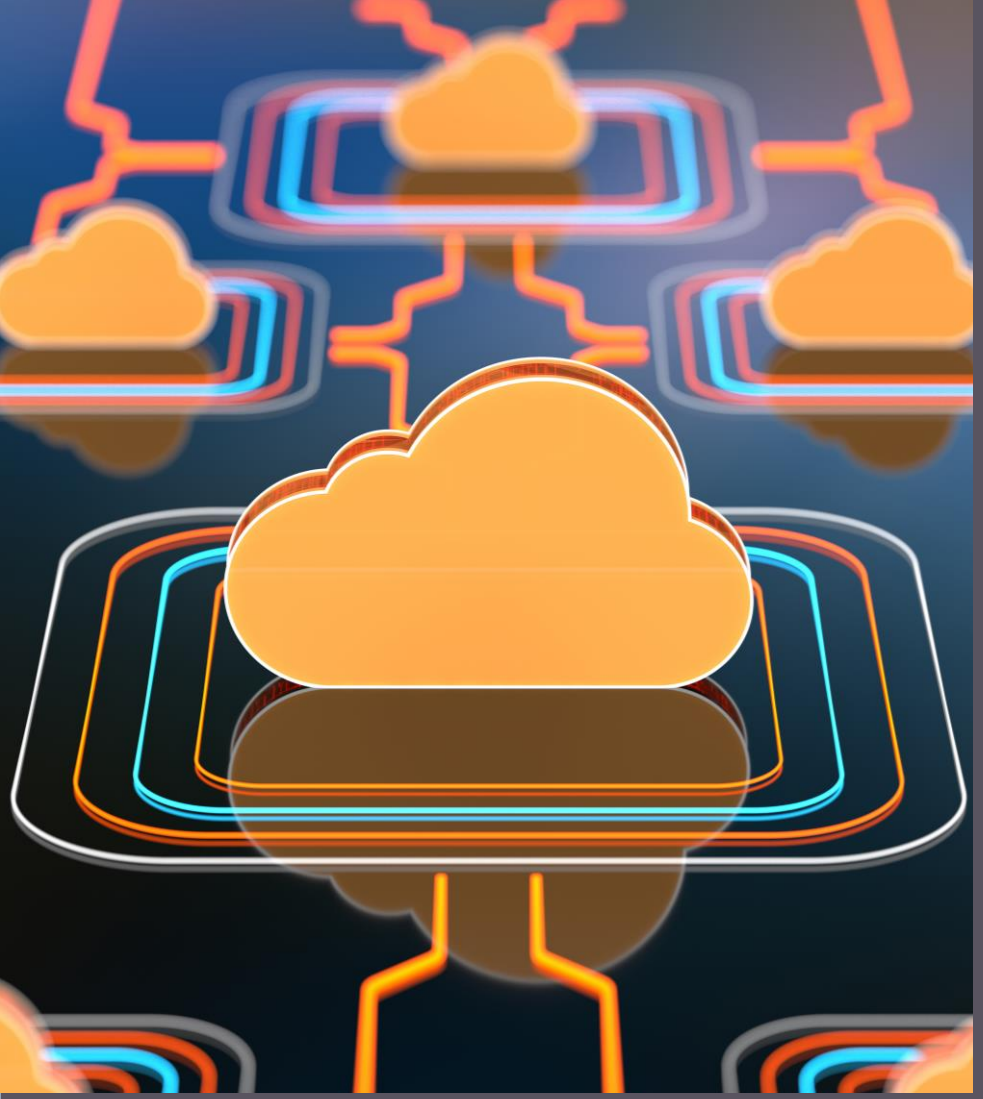

THANK YOU AND Q&A

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