

ARUNAI ENGINEERING COLLEGE

CODE:5104

DEPARTMENT OF INFORMATION TECHNOLOGY

Disaster Recovery With IBM Cloud Virtual Server

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Introduction

Disaster recovery is a critical aspect of any modern business's IT strategy, ensuring that essential data and systems can be rapidly restored in the event of unexpected disruptions. IBM Cloud Virtual Server offers a robust and reliable platform for implementing a comprehensive disaster recovery solution. In today's interconnected world, businesses rely heavily on their digital infrastructure, making data loss and downtime potentially catastrophic.





Recovery Time Objective

Recovery Time Objective (RTO) is a critical metric in disaster recovery and business continuity planning. It represents the maximum acceptable downtime for a system, application, or service following a disruption. In other words, RTO defines the time within which a system must be restored to avoid significant business impact.

Source Code

```
import time

# Simulate system recovery (replace this with your actual recovery process)

def recover_system():

    print("Recovering the system...")

    time.sleep(5) # Simulating recovery time (5 seconds in this case)

if __name__ == "__main__":

    start_time = time.time()

    recover_system()

    end_time = time.time()

    recovery_time = end_time - start_time
```

```
print(f'Recovery Time: {recovery_time} seconds')

# Compare recovery_time to your defined RTO and take appropriate actions

defined_rto = 10 # Replace with your actual RTO

if recovery_time <= defined_rto:

    print("Recovery within RTO")

else:

    print("Recovery time exceeded RTO")
```

Output :

Recovery within RTO

Recovery Point Objective

Crucial metric in disaster recovery and data protection. It represents the maximum tolerable amount of data loss that an organization can accept in the event of a system failure or data disruption. In other words, RPO defines the point in time to which data must be successfully restored after a disruption.



Source Code

```
from datetime import datetime
# Define the time of the last backup and the time of the disaster/data loss event
last_backup_time = datetime.strptime("2023-10-15 15:30:00", "%Y-%m-%d %H:%M:%S")
disaster_time = datetime.strptime("2023-10-16 10:00:00", "%Y-%m-%d %H:%M:%S")
# Calculate the RPO in seconds
rpo_seconds = (disaster_time - last_backup_time).total_seconds()
# Convert the RPO to a more human-readable format (e.g., hours and minutes)
rpo_hours = int(rpo_seconds // 3600)
rpo_minutes = int((rpo_seconds % 3600) // 60)
print(f'Recovery Point Objective (RPO): {rpo_hours} hours and {rpo_minutes} minutes')
```

Output:

Recovery Point Objective (RPO): 18 hours and 30 minutes



On-premises virtual machines

Setting up regular backups for on-premises virtual machines is crucial for data protection and disaster recovery. You can achieve this using backup tools or scripts. Below is a simplified example using a Python script for creating backups of a virtual machine. In practice, you would likely use dedicated backup software or cloud services for a more robust and automated solution.

Summary

In summary, disaster recovery with **IBM Cloud Virtual Server** combines robust technology, scalability, and security to provide a comprehensive solution for protecting your critical data and applications. By leveraging **IBM's** expertise and infrastructure, businesses can enhance their disaster recovery capabilities, reduce the risk of downtime, and ensure business continuity in the face of unforeseen events.





Thank You