CASE STUDY

Energy Organization relies on Perpetuuiti to make informed decisions in the case of any disaster

About the Client

The client organization is a government-controlled energy holding company based in Abu Dhabi, United Arab Emirates. The company currently operates in 11 countries across four continents.

The origins of the organization lie within Abu Dhabi's 1998 government initiative to privatize the Emirate's water and electricity sector, following the establishment of the Abu Dhabi Water and Electricity Authority (ADWEA). The organization was founded in June 2005 pursuant to the provisions of an Emiri Decree as a public joint stock company. ADWEA served as the founding shareholder, holding 51% of the company.

In May 2006, the organization appointed Peter E. Barker-Homek, an American businessman, as its first CEO. The organization expanded quickly under his guidance, making several key acquisitions in Africa and North America. In Canada, the company acquired Northrock Resources Ltd. (US$2 billion), Pioneer Natural Resources Canada Inc. (US$540 million), and PrimeWest Energy Trust (US$5 billion).

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In 2008, the organization acquired several North Sea assets from Shell U.K. Limited and Esso Exploration and Production (UK) Limited. The purchase included all equity, associated infra-structure, and production licenses relating to the Tern, Eider, Cormorant North, South Cormorant, Kestrel, and Pelican fields, along with related sub-sea satellite fields.

Their Challenges

Manual Disaster Recovery (DR) Drill Activities

The client had to manually perform several tasks related to disaster recovery drills, which were time-consuming and prone to errors. Key activities included:

Switchover (Planned DR)

This is a controlled process that involves transferring the production environment to the disaster recovery site. It is typically done during a DR drill or when significant work, such as major upgrades, is being performed at the production data center. This process may involve planned downtime, allowing the client to continue operations from the DR site while data is replicated back to the primary site.

Switchback (Planned Fallback)

This planned activity allows the client to revert operations from the disaster recovery site back to the primary/production site once the DR drill or other maintenance tasks are completed.

Failover (Unplanned DR)

This unplanned activity occurs suddenly in response to a disaster, with the aim of shifting operations to the DR site to ensure business continuity. It involves rapid recovery of critical IT infrastructure and is triggered by unforeseen events.

Complexity of Manual Processes

The manual nature of these disaster recovery (DR) activities involved a series of intricate steps, each requiring specific checks and validations. These checks ensured that all components were functioning correctly and that there were no outstanding issues. Due to these complexities, the time required to complete DR drills was substantially longer.

Dependency Challenges

The manual execution of DR drill activities created a dense web of dependencies among stakeholders, requiring coordinated efforts to ensure success. This interconnec edness slowed down operations and hindered efficiency.

Visibility Concerns

In a large-scale infrastructure, it is crucial to maintain clear visibility for effective coordination during DR processes. Manual processes complicated this by requiring different stakeholders to execute tasks independently, leading to potential issues if anyone was unavailable due to geographical constraints or other reasons.

Challenges with SO/SB/FO Processes

The manual approach to the Switchover, Switchback, and Failover (SO/SB/FO) processes increased the risk of errors and contributed to longer Recovery Time Objec-tives (RTOs).

Lack of Real-Time Visibility

The absence of real-time visibility into the Recovery Point Objectives (RPOs) and Recovery Time Objectives (RTOs) across the entire IT environment created uncertainty from a DR perspective. This also affected the monitoring of business service availability during DR activities.

Dependency on SME Coordination

The success of DR drills relied heavily on the coordination and availability of Subject Matter Experts (SMEs), especially if drills were conducted during off-peak hours.

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Absence of Automation

The lack of automation in the DR process necessitated significant manual effort, which led to inconsistencies, longer processing times, and a higher chance of human error.

Limited Impact Analysis

The inability to conduct real-time impact analysis resulted in longer Mean Time to Recovery (MTR).

Inability to Perform Parallel DR Recoveries

The manual approach lacked the ability to incorporate parallelism in DR drill procedures, preventing multiple recovery operations from being conducted simultaneously.

Human Intervention in Conducting Recovery Drills

The dependence on stakeholder availability for conducting DR drills introduced significant human intervention, which slowed down the process and increased the risk of errors.

Problem Statement

The client organization, with a large IT infrastructure, needed an automated solution to manage disaster recovery (DR) for various business-critical applications.

The existing DR processes were entirely manual, requiring extensive coordination among various IT teams and application stakeholders to execute both planned and unplanned DR drills. This manual approach created several challenges, including slow response times, increased risk of human error, and dependency on key personnel for successful execution.

In the existing setup, DR drills were conducted manually, with Recovery Time Objectives (RTO) and Recovery Point Objectives (RPO) determined through discussions with process/service owners and technical teams.

Another key challenge was the inability to conduct DR drills at any time due to the need to coordinate among different teams and ensure the availability of key personnel.

The client needed a solution that would automate these processes, reduce manual intervention, improve monitoring and visibility, and enable more flexible and efficient DR processes.

Our Solution

Perpetuuiti deployed Continuity Patrol™ 4.5 to implement IT DR automation.

Centralized Monitoring and Dashboard

By configuring all in-scope applications within Continuity Patrol™, our client gained the ability to monitor all infrastructure components from a single, centralized dashboard. This included components from both the Primary Data Center (DC) and Disaster Recovery (DR) sites across multiple operating systems (Linux, Solaris, Windows), Oracle database instances, application services, and more.

Continuous System Integrity Monitoring

Continuity Patrol™ continuously monitors infrastructure components at both the Primary and DR sites to ensure system integrity from a DR automation perspective. This included real-time checks for server availability, database status, and business service performance.

Real-Time Visibility into DR Readiness

Continuity Patrol™ offered real-time visibility into the DR readiness, and respective Recovery Point Objectives (RPOs) and Recovery Time Objectives (RTOs) for all configured business services, with automated notifications via email/SMS when deviations occurred. This proactive alert system kept stakeholders informed and enabled prompt response.

One-Click DR Automation

The PSE could now automate the entire Disaster Recovery process with a single click, leveraging Continuity Patrol's advanced monitoring capabilities. The solution provided both a Business View for high-level insights via the CxO Dashboard and a detailed IT View for granular information via the IT View dashboard.

Custom Workflow Automation

Continuity Patrol™ enabled the client organization to create custom workflows that automated various tasks, includinpre-flight/post-flight checks, application services, database services, and network-related activities (like DNS modifications). This comprehensive automation reduced the need for manual intervention and minimized the risk of human error during DR processes.

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Reduced Recovery Time Objectives (RTOs)

With the capability for parallel workflow execution, the client significantly reduced RTOs, allowing faster and more efficient recovery operations.

Effective Management of Application Interdependencies

By configuring application interdependencies within workflows, our client managed dependencies during the recovery process, leading to a smoother overall recovery experience.

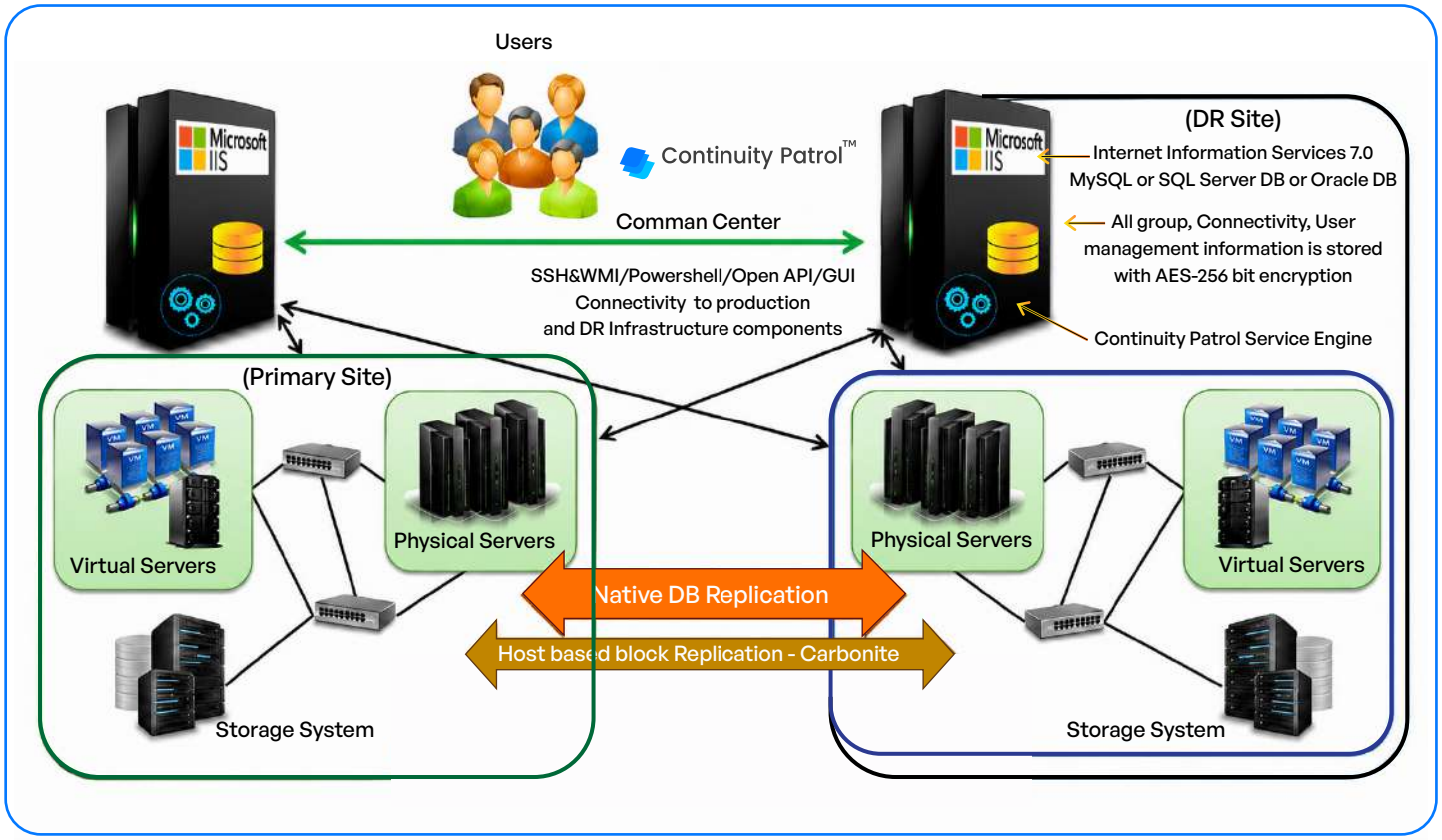
Runbook Development through ITDR Consultancy

Our ITDR consultancy included developing runbooks for each of the business applications in scope, providing the client with a clear and structured approach to DR drills and recovery processes.

Solution Diagram

Continuity Patrol™ has been strategically deployed to ensure optimal disaster recovery (DR) readiness and resilience for the client organization. The system is hosted as an active instance within the DR datacenter, providing continuous monitoring and automation capabilities for disaster recovery activities. This primary setup ensures that critical DR processes are managed and controlled from the designated recovery site.

Additionally, an inactive instance of Continuity Patrol™ is maintained at the Primary datacenter.



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Technology Landscape

- 18 Oracle Databases
- 116 SQL DB Packs
- 248 App/Web VMs (Including management consoles)
- Carbonite Integration
- KVM, G42/ MS Azure Integration

Results And Benefits To Business

Automation of Manual Procedures

The manual procedures for in-scope applications have been successfully automated. This shift from manual to automated processes has reduced the time and effort required to execute disaster recovery (DR) activities, while also minimizing the risk of human error.

Development of Runbooks

Comprehensive runbooks have been prepared for each application, providing detailed guidance on DR procedures. These runbooks ensure that all stakeholders have clear instructions on the steps to take during switchover, switchback, and failover events.

Successful Switchover, Switchback, and Failover

The switchover, switchback, and failover processes for all in-scope applications have been completed successfully. This achievement demonstrates the effectiveness of the automated workflows in managing planned and unplanned DR activities.

Creation of Automated Workflows

Switchover, switchback, and failover workflows were designed and implemented to ensure smooth transitions during DR drills or actual events. The workflows cover a comprehensive range of activities, including pre-flight and post-flight checks, ensuring seamless operation with minimal human intervention.

MS SQL Workflow Configuration and Execution

Continuity Patrol™ successfully configured automated workflows for switchover, switchback, and failover for Microsoft SQL Server databases. The workflows were designed to handle various DR scenarios efficiently, ensuring a smooth transition between the primary and disaster recovery sites. These workflows were tested, and successful switchover and switchback operations were carried out, demonstrating the system's reliability and effectiveness.

Oracle Workflow Configuration and Execution

Similarly, automated workflows for switchover, switchback, and failover were configured for Oracle databases. These workflows address the unique requirements of Oracle environments, providing a seamless and efficient transition process during DR drills or actual recovery scenarios. The successful execution of switchover and switchback operations for Oracle databases underscores the robustness and flexibility of Continuity Patrol™ in managing a variety of database environments.

MS Exchange Workflow Configuration and Execution

Successfully configured workflows for switchover, switchback, and failover for Microsoft Exchange databases. This automation capability ensured seamless transition and recovery during DR drills or real-life failover situations. The workflows were designed to minimize downtime and maintain the integrity of Exchange-related services, contributing to smoother communication continuity.

Application Services Workflow Configuration and Execution

Automated workflows for switchover, switchback, and failover were also configured for the application services within the scope of this project. This included various business-critical applications that required reliable disaster recovery operations. The successful execution of these workflows for both switchover and switchback demonstrated the robustness and adaptability of the solution in handling complex application environments.

Monitoring of Application and Database Services

Continuity Patrol™ provided comprehensive monitoring capabilities for application and database services. This constant surveillance ensured early detection of issues and allowed for proactive measures to maintain service continuity. The monitoring tools enabled the client to keep track of the health and performance of key services, thus contributing to the overall reliability and efficiency of the disaster recovery process.

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Integration with Hypervisor Platforms

Continuity Patrol™ has been integrated with leading hypervisor platforms, including VMware and vSphere, allowing the client to manage virtualized environments effectively.

Replication Solutions Monitoring

The platform provides real-time monitoring of data replication, ensuring consistent data synchronization between primary and disaster recovery sites.

Reduced SME Dependency

With automated workflows for Switchover, Switchback, and Failover (SO/SB/FO) drills, the need for SMEs to be physically present during DR operations is significantly reduced.

Automated SO/SB/FO Drills

Continuity Patrol™ has automated the SO/SB/FO processes, requiring minimal human intervention. This automation not only reduces the likelihood of human error but also speeds up the execution of DR drills, ensuring a more rapid and reliable response during planned and unplanned events.

Unified Dashboard for Real-Time Monitoring

The platform provides a unified dashboard that gives the client instant visibility into the entire IT environment. This dashboard displays business service availability and real-time metrics for Recovery Point Objectives (RPOs) and Recovery Time Objectives (RTOs). With this centralized view, stakeholders can monitor the status of disaster recovery operations and quickly respond to any issues that arise.

Streamlined Resource Coordination

Continuity Patrol™ reduces manual effort by automating resource coordination during disaster recovery (DR) operations. Alerts, information, and updates are automatically sent to stakeholders, ensuring a smooth and efficient recovery process.

Optimized Recovery Time Objectives (RTO)

Automated and parallel execution of DR drills, with the flexibility to add logical constraints, enables optimized RTO. The orchestration of DR procedures is more efficient, reducing recovery times.

Business Service Continuity and Availability Management

Continuity Patrol™ automates key aspects of business service continuity, ensuring consistent service availability during DR drills and recovery operations.

Unique Features for DR Automation

The platform offers several unique features to enhance DR automation:

- Pre-flight/Sanity Checks: Ensures that all systems are prepared for DR operations.
- DNS/NAT Automation: Streamlines network-related changes during recovery.
- Password Change Management: Automates security updates and password rotations.
- Out-of-the-Box and Custom Reports: Provides ISO-compliant reports and the capability to generate custom reports, useful for audits and compliance checks.

1-CLICK RECOVERY INVOCATION

UPTO 80% REDUCTION IN RTO

50% REDUCTION IN OPERATIONAL COSTS

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READY FOR YOUR OWN SUCCESS STORY?

Get in touch with our automation experts and learn how you can fast-track your digital transformation initiatives.

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About Perpetuuiti

Perpetuuiti empowers people and businesses alike. We deliver the world's most-comprehensive and urbane automation platforms making work more human. Our platforms deliver leading-edge automation solutions for modernizing resiliency management, and turbocharging the performance of your applications, IT and business operations at speed and scale to drive exponential efficiencies.

For more information, **visit www.ptechnosoft.com**

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