Recent Advances in Technology and Engineering (RATE-2017)
6th National Conference by TJIT, Bangalore

International Journal of Science, Engineering and Technology
An Open Access Journal

Executing Disaster Recovery Plan using Site Recovery Manager

[1]Vishnu Vardhan Rallabhandi, [2]Menaka. A

Abstract

disaster recovery planning (DRP) is an integral part of the larger issue of business continuity planning (BCP). Both activities share many similarities. Both planning activities, are ongoing processes, are multi-disciplined in nature, require a high degree of integration across the organization, and must be constantly tested and updated to match current business realities. Defining the current state of DRP within the organization. Identify the internal and external customer's requirements with regard to regulatory and other legal responsibilities. Identify the resources within the organization and its parent company with DRP and/or BCP responsibilities including asset management records. In this project the user is creating the recovery plans using the "Site Recovery Manager." The user is creating the site wide recovery plan to protect the vCenter server. The user has to recover the whole site when the disaster is going to happen. We need to protect the virtual machine by creating the protection groups. While creating the protection groups user need to check whether the replication is from Region A to Region B.

Keywords—VMware, vCenter, RTO, RPO

Introduction

In this project, the user can quickly launch resources in vCenter Server to ensure business continuity. Disaster recovery (DR) is about preparing for and recovering from a disaster. Any event that has a negative impact on a company's business continuity or finances could be termed a disaster.

This includes hardware or software failure, a network outage, a power outage, physical damage to a building like fire or flooding, human error, or some other significant event. In the event of a hardware or software failure, multiple databases are corrupted. This eliminates downtime and the resulting lost productivity that's a significant cost of recovering from a past point-in-time backup to disk or tape.

Disasters are inevitable but mostly unpredictable, and they vary in type and magnitude. The best strategy is to have some kind of disaster recovery plan in place, to return to normal after the disaster has struck. To minimize disaster losses, it is very important to have a good disaster recovery plan for every business subsystem and operation within an enterprise.

VMware vCenter Site Recovery Manager is the industry leading disaster recovery management solution. Site Recovery Manager offers automated orchestration and non-disruptive testing of centralized recovery plans for all virtualized applications.

Overview

vCenter Site Recovery Manager is the market-leading disaster-recovery management solution. It provides automated orchestration and non-disruptive testing of centralized recovery plans to simplify disaster-recovery management for all virtualized applications. vCenter Site Recovery Manager integrates natively with vSphere Replication and supports a broad set of high performance array-based replication products to reliably copy virtual machines across sites according to business requirements.

By basing a deployment on vSphere and complementing it with vCenter Site Recovery Manager, you can dramatically lower the cost and complexity of disaster recovery through management and testing automation. vCenter Site Recovery Manager ensures fast and highly predictable recovery

point objectives (RPOs) and recovery time objectives (RTOs) by enabling automated, non-disruptive testing that can be performed as frequently as needed. [2]

RTO

RTO is the most importaant parameter for the disaster recovery. They provide guidance to the organisationfor choosing an optimal data backup plan. RPO defines th poiint-in-time, until when the business process can bee toleraby process keeping in the value of data lost in the interval.

RPO

RTO is the aamount of time of service level taken by a business which a business should be restored to avoid unexpectable circumstances associated with a break in continuity.

About Vmware And Vcenter

- VMware vSphere, which is a necessary component of the vCloud Suite for cloud computing, includes

- ESXi - abstracts processor, memory, storage, and other resources into multiple virtual machines (VMs).

- VMware vCenter Server - central control point for data center services such as access control, performance monitoring and alarm management.

- VMware vSphere Client - allows users to remotely connect to ESXi or vCenter Server from any Windows PC.

- VMware vSphere Web Client - allows users to remotely connect to vCenter Server from a variety of Web browsers and operating systems

Benefits

Upto 50% cost of disaster recovery

Setup a manage recovery plans using vCenter Server and error prone, manual runbooks.

Perform frequent, non-disruptive testing of recovery plans to ensure highly predictable recovery objectives.

Use vSphere Replication—included with vSphere at no extra charge or choose from a broad range of supported array-based replication solutions.[2]

Existing System

In this existing system, the user is creating the disaster recovery plan using Recovery Point Objective (RPO) and Recovery Time Objective(RTO).

Recovery Time Objective, or RTO, is the amount of time it takes to get your IT infrastructure up and running again, should your primary systems become unusable. It can vary tremendously, based on the disaster recovery services you use. [3]

On the timeline, RTO is the point in the future at which you will be back up and running full speed ahead. The gap between the disaster and the RTO is the timeframe for which your app will be down and non-functioning.

While in a perfect world every application would have an RPO of milliseconds and an RTO of milliseconds, that's not physically or financially feasible for the majority of the businesses in the world.

It is most expensive to plan disaster recovery using RTO and RPO.

Proposed System of SRM

In this project the user is recovering the data from the site A to Site B during the downtime when site A goes down then the idle site B will be acting as a primary datacenter.

And that implementation is done by using the VMware vCenter web client and that backing up of the data is done through the site B whatever the data is there in site A will be same replicated to Site B. When there is down time the site B which is kept idle acts as primary datacenter during the downtime of site A and stores all the data in Site B. It later updates the data to site A as well when there is uplink and this system helps in backing up of the data during the disaster time. This project shows How the data is been recovered and backed-up during the disaster time.

Site Recovery Manager integrates with VMware vSphere® through VMware vCenter Server™ and an underlying replication technology. It can integrate natively with vSphere

Replication™ or with a broad range of storage array-based replication solutions from leading storage vendors through storage replication adapters. Site Recovery Manager guides users through the process of configuring recovery plans. At the time of failover or testing, Site Recovery Manager automates execution of the recovery plan.

Architecture

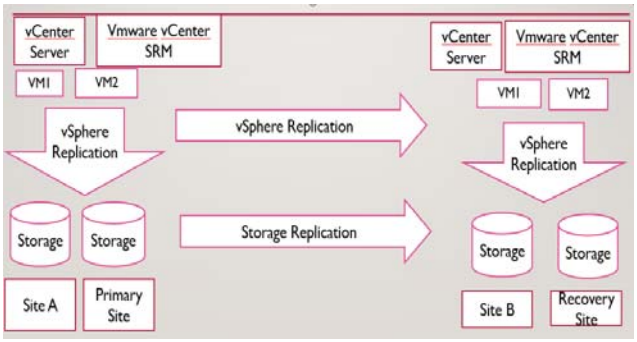

Figure 1 Executing disaster recovery plan

Innovativeness and usefulness

From data security breaches to natural disasters, there must be a plan in place in case of a catastrophe.

Not having a disaster recovery plan in place can put the organization at risk of high financial costs, reputation loss and even greater risks for its clients and customers.

The importance of a disaster recovery plan cannot be overstated. Regardless of industry, when an unforeseen event takes place and brings day-to-day operations to a halt, an organization needs to recover as quickly as possible and continue to provide services to its clients.

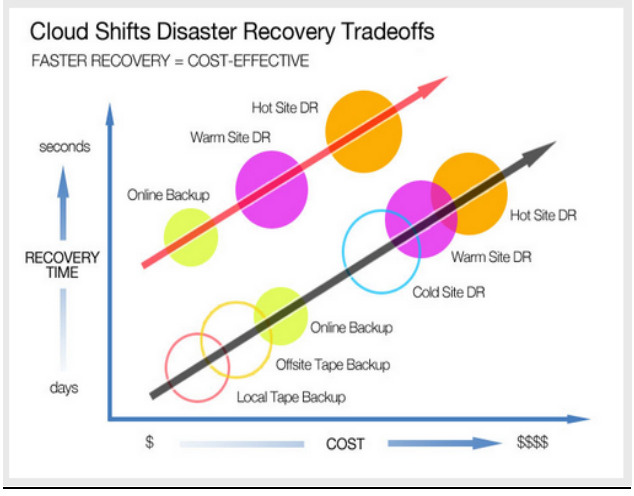

Figure 2 Disaster Recovery Trade Off

When introduced with the cost-effectiveness of online backup between data centers, tape backup no longer makes sense in the cloud. The cost-effectiveness and recovery speed of online, offsite backup makes it difficult to justify tape backup.

The cloud makes cold site disaster recovery antiquated. With cloud computing, warm site disaster recovery becomes a very cost-effective option where backups of critical servers can be spun up in minutes on a shared or private cloud host platform.

Creating Site -Wide Recovery Plan and testing

A protection group is a collection of one or more virtual machines that are failed over and failed back as a unit. In many cases, a protection group consists of multiple virtual machines that support a service such as an accounting system. For example, the accounting system consists of a database server, one application server, and one web server. In most cases, it is not beneficial to fail over part of a service (only one or two of the servers in the example). All three virtual machines would be included in a protection group to enable failover of the services.

VMware Site Recovery Manager is the industry-leading solution to enable application availability and mobility across sites in private cloud environments. [4] Taking full advantage of the encapsulation and isolation of virtual machines, Site Recovery Manager enables simplified automation of disaster recovery to meet recovery time objectives (RTOs), reduce costs associated with business continuity plans, and achieve low-risk and predictable results for recovery of a virtual environment.

Site Recovery Manager provides unique capabilities to create, maintain, and non-disruptively test disaster recovery plans without the need for manual runbooks. The ability to automate the disaster recovery planning, maintenance, and testing process enables significant operational efficiencies.

Using Site Recovery Manager we can creating protection groups, accounting protection groups and Site wide recovery plan and other recovery plans so that we can recover whole datacenter when the disaster event takes place.

The Site B will be located in different place different from Site A location. When we create the Site wide recovery plan , we need to follow the certain steps to create the site -wide recovery plan. we need to test the recovery from Region A01 by selecting some of the options, while creating the plan.

The recovery plan what user has created has to be test in Region A by testing the recovery plan and should be verified in the Site B.

Once the recovery plan is successful, we can say that the now we can recover the whole datacenter.

References

[1] Best Practices in Business Continuity and Disaster Recovery Whitepaper by Laura DuBois, February 2011, pp 2

[2] VMware vCenter Site recovery manager 5.5 datasheet by VMware.

[3] RPO, RTO, PTO and DRaaS: Disaster recovery explained by Diana Nolting, March 1st, 2013.

[4] VM hol-1705-sdc-1

Author's details

[1]Vishnu Vardhan Rallabhandi has completed his B.Sc (IT) from Kuvempu University in 2013. Pursuing MCA specialization in Cloud & Storage Technology, his area of interest Cloud and Storage.

[2]Ms. A. Menaka received B.Sc Industrial Electronics from Bharathidasan University, 2002, MCA (Master of Computer Applications from Avinashilingam Deemed University, 2005, and M.Phil Computer Science in Bharathiar University, 2014. She is MCP, MCSE, MCITP and MCT certified and has 5 years of experience in training field towards Microsoft certifications. She has 6+ years of teaching experience in academics and published varies research papers in field of networking. Her main area of interest is Networking, Cloud computing and infrastructure management.