

Design and develop the Azure dashboard web page for performance parameters

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Abstract

Microsoft Azure is a distributed computing administration made by Microsoft for structure, testing, conveying, and overseeing applications and administrations through a worldwide system of Microsoft-oversaw server farms. It facilitates SaaS, PaaS and IaaS. SaaS stands for software as a service. PaaS stands for platform as a service. IaaS stands for infrastructure as a service. It supports a huge number of programming languages, frameworks and tools.

PaaS is a stage that is given to customers to create and convey programming. The customers can concentrate on the application advancement as opposed to stressing over equipment and framework. It likewise deals with the greater part of the working frameworks, servers and systems administration issues. IaaS is a managed service that gives unlimited oversight of the working frameworks and the application stage stack to the application designers. It gives the client to get to, a chance to manage and screen the server farms without anyone else.

Modern approach to the traditional on-premises datacenter is provided by the cloud computing. Cloud environments will help you to experience the online portal, which in turn encourages the users for managing, computing, storing and networking. The best example is the Azure portal. Here users will create a virtual machine which is configured by specifying the VM size, the operating system, any pre deployed software, configuration related to network, and the VM location. Azure dashboard is a web application that provides insight about VM infrastructure in Azure, which includes the information

related to the backup and recovery, High Availability and Disaster Recovery.

Key Words: Microsoft Azure, Azure dashboard, High Availability, Disaster Recovery, Backup and recovery.

1. INTRODUCTION

Azure Dashboard has three performance parameters. They are high availability, backup and recovery and disaster recovery.

The high level requirement for high availability is to design a dashboard which should provide information about the VM's which are configured for the High Availability, whether they are currently ready for the High Availability exercise and the last High Availability exercise date and last snapshot dates. High Availability are the arrangement of advances that limits IT disturbances by giving business congruity of IT administrations through repetitive, fault tolerant, or failover-secured parts inside similar server farm. In our scenario, the data center resides within one Azure region. Azure provides high-availability features for the virtual machines. It's not necessarily for Azure to high availability features for SQL Server running on the virtual machine. Azure support the storage node on which the blobs are stored fails. There are four kinds for redundancy. They are Locally Redundant Storage, Geo-Redundant Storage, Read-Access Geo-Redundant Storage, and Zone-Redundant Storage. Azure Storage provides high availability by maintaining three

copies of all data for LRS. GRS makes three synchronous copies of the data in the primary region for high availability.

The high level requirement for backup and recovery is to design a dashboard which should provide information about the VM's, Databases and File Shares. It will check whether they are configured for the backup. The details backup methods, retention policies, types of backup and last successful backup etc. Azure Backup is a backup as a service that offers protection for physical or virtual machines. It has several components. They are backup agent, system center data protection manager, backup server, and backup [VM extension] that together works to protect several servers and workloads. It will make use of a recovery services vault to store the backup data. A vault is backed by storage (blobs) that makes it a very efficient. We can select the machines to back up and then define a backup policy based on the vault. The best example is that when snapshots are taken and for how long they will be stored. Azure Backup and Azure Site Recovery share the same kind of Azure portal experience. They are different services and have different value propositions. Azure Backup is about the backup and restore of data on-premises. In the cloud they keep your data safe and recoverable. Azure Site Recovery is for replication of virtual or physical machines. It keeps your workloads available in an outage. Azure backup has many applications. Native support for virtual machines, both Windows and Linux, files and folders on Windows OS machines either physical or virtual, popular Microsoft server workloads, windows 10 client machines.

The high level requirement for disaster recovery is to design a dashboard which should provide information about the VM's, Database, File Share which are configured for the Disaster Recovery and the methods of the DR. Disaster Recovery is a technology that minimizes IT services disruption and their recovery. There might be a case such that across various data centers will be hundreds of miles away from one another. In our scenario, the data centers will reside in different Azure regions within the same geopolitical region or in locations as established by you as a customer.

Three asynchronous replicas in a paired region for disaster recovery for GRS.

2. RELATED WORK

In the last few years, there has been extensive research activity in data backup and disaster recovery. Issues are becoming fundamental in networks since the importance and societal value of digital data is continuously increasing [1]. Cloud computing offers a business model that abstracts computing resources as commodities that can be offered on-demand. Many enterprises are still reluctant to adopt this model, due to the fact that the Cloud paradigm is still evolving [2]. Disaster protection and recovery of cloud hosted enterprise applications both at the cloud infrastructure level and at the application level [3].

3. PROPOSED SYSTEM

This paper applies the implementation of the Azure dashboard. Azure Dashboard has three performance parameters. They are High Availability, Disaster Recovery and Backup solutions

The Azure Dashboard will use the Active Directory authentication for user login. LDAP stands for Lightweight Directory Access Protocol. It is a protocol that defines a series of operations via which you can access information that is part of a directory. A directory is a tree that contains a set of attributes associated with a unique identifier or primary key. The primary key is usually a name. This means that LDAP is suitable as a user information database. Most of the time LDAP is used as a user directory. It can also work as a generic information sharing service.

High Availability solution will help you to check the virtual machine configuration against last snapshot date and time based on the owner name. There are two options for providing the input. Input can be given by either entering the virtual machine name in textbox or selecting the virtual

machine name from dropdown list and on clicking the status button, azure authentication occurs and snapshot data will be fetched. It will check whether the last snapshot date and time equivalent to the current date and time is. Then High Availability configuration information will be displayed on the screen.

Disaster Recovery Solution will help you to check the virtual machine configuration against last replication date and time based on the owner name. There are two options for providing the input. Input can be given by either entering the virtual machine name in textbox or selecting the virtual machine name from dropdown list and on clicking the status button, azure authentication occurs and replication data will be fetched. It will check whether the last replication date and time is equivalent to the current date and time. Then Disaster Recovery configuration information will be displayed on the screen.

Backup Solution includes Storage account, Azure File Share, Virtual Machine and SQL database.

Advantages:

1. Access to only high availability, disaster recovery and backup solution by connecting to Azure.
2. Read-only rights can be given to all the employees.

Objectives:

- To design and implement the Azure dashboard by using active directory authentication for login and logout.
- To ensure that the updated information is collected from database administrators.
- To ensure that the all the virtual machines and owner information is loaded to the database.
- To ensure the up to date information is fetched from Azure environment.
- To design and develop a simple and efficient user interface to view the performance parameters information.

4. METHODOLOGY

The flowchart of Azure dashboard is shown in Fig below

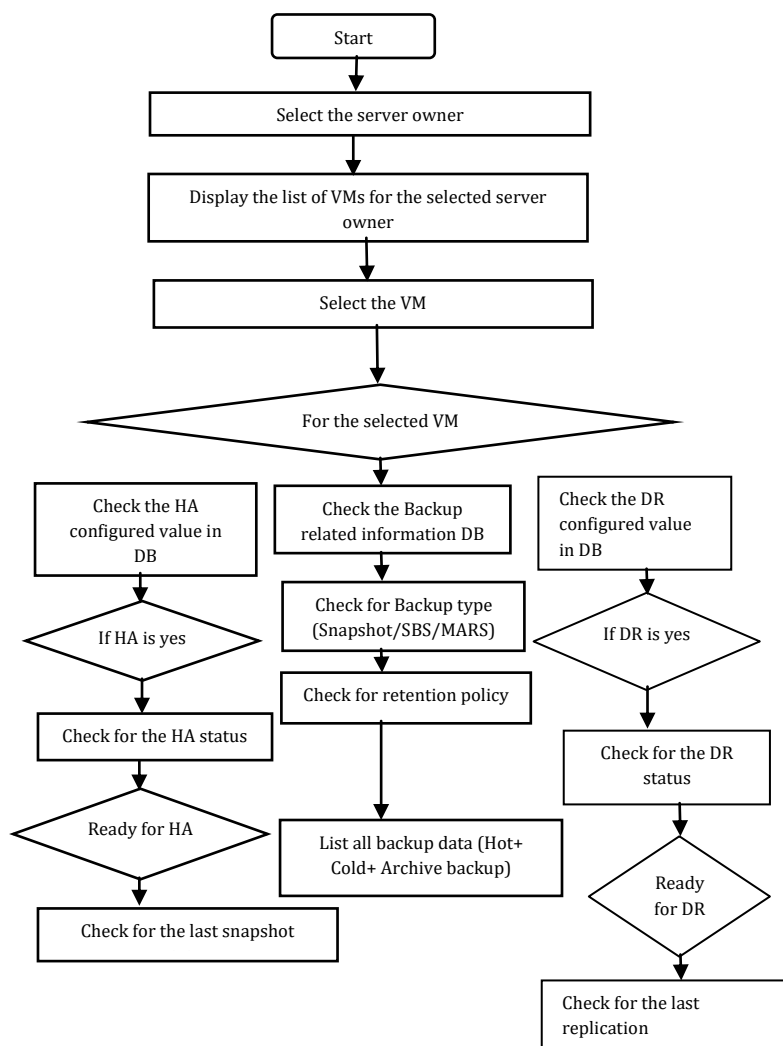


Fig. 1: The flowchart of Azure dashboard

An application has to be registered in the Azure by giving App name, URL. Object ID, application ID will be created for the registered application. In order to check the HA or DR status in Microsoft Azure, OAuth 2.0 authentication has to happen. OAuth 2.0 authentication requires application ID, Secret key, tenant ID and subscription ID. Tenant ID is a unique ID which is given to particular organization. Azure Active Directory (Azure AD) uses OAuth 2.0 to authorize access to web applications and web APIs in your Azure AD tenant. It is used to perform authentication and authorization in most application types, including web applications and natively installed

applications. Registration of your application with your AD tenant has to be done.

4. CONCLUSION

This paper describes the implementation of the Azure dashboard for performance parameters. Users will login to the application using the Email ID and password and authentication happens via active directory. High availability, disaster recovery and backup features will be displayed on the screen. In order to connect to the Microsoft Azure, OAuth 2.0 authentication has to be successful.

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