WORD PRESS WEBSITE MIGRATION PROJECT

Case study on how to migrate Word Press website onto Azure cloud

Abstract

We help clients to move to the cloud from their existing system landscape. For this particular case study we helped the client to move to website hosted in WordPress to Azure.

In this white paper, you will learn how we helped the client to migrate to Azure cloud with a cost effective, flexible cloud migration path. Make use of all the tools and resources provided by Azure and at a minimum cost you could move your website to Azure and if you have a good standing reputation and a wide user base you may also qualify for a migration incentive from Azure which can cover all your costs.

Read on more to find below:
• An overview of what we did in the project
• Steps on how we discovered the client's infrastructure and requirement
• Right questions to ask to the client before start of any integration project
• Digging deeper to discover more questions
• Login and Authentication using Auth0
• Setting up Azure services
• Maintain DNS settings from GoDaddy
• Testing scenarios
• Conclusion
• Related readings

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Requirement

Migrate WordPress website hosting from HostGator, to Azure cloud platform.

Asking the right questions?

It is important to understand the expectations and end to end flow of this entire process to get the big picture of the assignment one is given.

This not only helps one to understand the things in an efficient manner but only make one capable of thinking out of the box and identify issues which are beyond the scope but can hamper this solution.

So, following were the key questions on which we required clarity.

- What is the plan for Data backup of the existing website?
- User migration of the website?
- Existing domains have to be maintained?
- How to manage traffic?
- Any rules for traffic based on area or region?
- Are there any subdomains which have to be managed for the website?
- Who is the audience for this website?
- What is the test or admin user access for both the systems to view and confirm the system versions and create dummy data?

How we Dug deeper to build to understand the requirement

Having done Migrations projects before even if you have the answer to the above questions, there may be some more which you find are specific to a client or specific to the migration you are trying to do. This also helps you discover any changes in your process once the information from client is provided. So, here is that information which we found useful from the client.

- The website is currently hosted in Host.
- It has to be migrated to Azure cloud.
- The website would have 2 domains which shall be resolved to, based on the origin of the traffic.
- India specific traffic must be routed to a specific domain (.co.in) and for the rest of the world's traffic it has to be routed to another domain (.co.nz).
- However, for end user they should start with ".com" domain and internally it will be routed accordingly.
- Users can register in this website.
- Apart from normal registration, it will have the facility to login via social media accounts like google, Facebook, Instagram and twitter.
- User should also have an option of changing their password if they want to or even if they forget their password.
- Entire website data also has to be migrated.
- It has to be a secured website that is should have security certificate (for https).

Journey towards Final Solution:

1. Initial Kick off

At first it looked to be to be an easy migration as there is a plugin available for creating a package from one's existing WordPress website which can be used as it is in Azure for migration. However, as we moved forward, we came across the extra stuff and the things that we had to take care of in order to complete the end to end migration.

- We started with package creation from a WordPress Duplicator plugin.
- We copied this package in Azure Wordpress website using Kudu and ran Restore option from Duplicator plugin.
- At first, we simply added this package in the Azure Kudu console editor. As we completed this process, we noticed that the existing plugins of the website were not present after the import. So, we started adding them all.
- But then we realised that it is a problem as with new installation of each plugin, the existing customization of all those plugins will be overridden, which will be a problem for us so we removed our installed package from the Azure.
- After investigation we realised that the root folder where we deployed our package contains some files which should not be present. Due to this only our plugins were not installed properly.
- So, we first deleted those existing files, emptied our root folder and then performed the above step and it worked
- All our plugins were present after the package import but were in disabled state, which was expected, we enabled them one by one.
- During this process, we had to install the Website's database as well in Azure.

- For this 1 change we made which is changing the .SQL file of the Database and changed the database name.
- Till now Step 1 of the entire work was done.

2. Time to Configure User Registration / Login Process

After our website installation things started working out. The next part to it was to configure the user registration / login process.

For that we installed "Auth0" plugin.

- Auth0 provides authentication and authorization as a service.
- Auth0 gives developers and companies the building blocks they need to secure their applications without having to become security experts.
- One can connect any application (written in any language or on any stack) to Auth0 and define the identity providers they want to use (how they want their users to log in).
- Based on their's app's technology, choose one of the SDKs (or call API), and hook it up to one's app.
- Now each time a user tries to authenticate, Auth0 will verify their identity and send the required information back to their's app.


- For this we created an Auth0 account which we have to link with our website. We used the Name, Domain, Client Id and Client Secret to populate the in the Auth0's setting for our website.
- After this we moved ahead to configure social media accounts. Configuring google and Facebook account was very easily however for Twitter and Instagram we had to create an app both of the social media sites with our dev accounts and then used the client id and its secret in order to configure it.
- If we don't provide these values (like for Google and Facebook) it will use Auth0's dev keys which doesn't work for IG and twitter. Without doing this, user with their Twitter and IG account won't be able to login into our website.
- With this Step 2 of the entire work was done.

3. Setting up Azure services

Now we have to pick up the work of segregating the incoming traffic based on the originating region and send it to respective website subdomain.

- First, we have created the resource group for our website specific changes & then created App services for hosting your websites.
- Now we added an Azure Traffic manager to balance the load for your website traffic. We are balancing our load based on the geographic location of the traffic origin and then creates the endpoints then map your Azure traffic manager with the existing domain.
- When a region or a set of regions is assigned to an endpoint, any requests from those regions gets routed only to that endpoint. Traffic Manager uses the source IP address of the DNS query

to determine the region from which a user is querying from – usually this is the IP address of the local DNS resolver doing the query on behalf of the user.
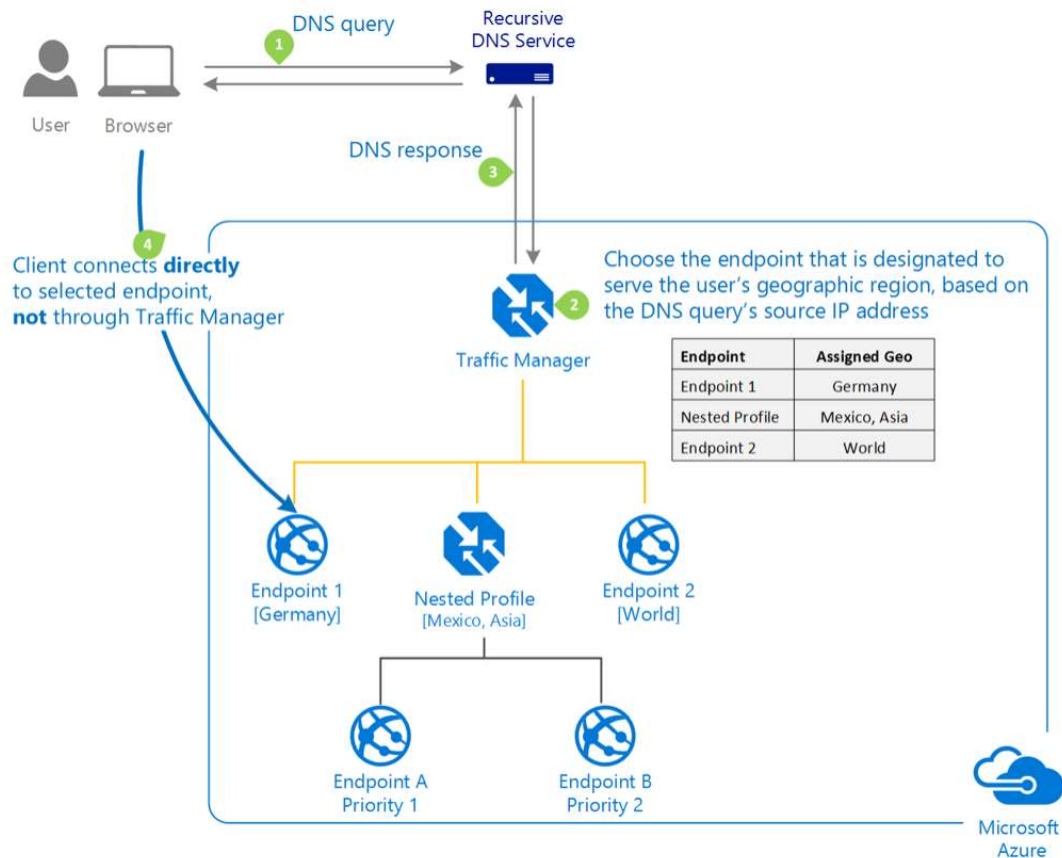
- Then we added custom domains in your App services for your website. For this one we had to upgrade our current subscription. It has to be above F1 only then you would be allowed to add custom domains.
- Also, we needed to configure our DNS entries first in order to set up custom domains which we are doing to talk about in next section.

4. Interaction with GoDaddy for maintaining DNS settings

In this section we dealt with setting up our entire website's DNS settings.

- We started with adding CNAME entries for our domain, subdomain & WWW endpoint. It was straight forward.
- After doing this we added the custom domains as mentioned above and things really started working out with our new domain names and end to end flow.
- However here comes the next challenge. In this we noticed that our naked domains were not routing properly, and they were failing.
- We spent quite some time to understand what's happening and then realised that this is because azure traffic manager doesn't support routing of naked domains.
- However, thanks to GoDaddy, we can handle these situations by adding a forwarder rule with our DNS provider's account.
- With this rule we forwarded all our naked domains traffic to "www" endpoint which routed to traffic manager using the entries that we added in the 1st step of this section.

- Then we configured our region-specific websites DNS setting which will point to specific web app services.
- By now our website was able to work end to end without any glitches. But still something was left. Our site was not secured till now. We were yet to add a security certificate to it.
- For this we purchased an SSL certificate, and activate the SSL credit.
- However to complete the above process we had to generate a certificate signing request (CSR) for the website's domain name (or "common name") before you can request the SSL certificate.
- For CSR we used IIS Manager which helped us in getting the SSL certificate. Here is a point to note that one has to add all Subject Alternative Names (SAN) so that the generated certificate can work for all those names / subdomains.
- We face a lot of problem to get this done as sometimes main domain name was incorrect & sometimes not all SANs were not added in CSR.
- Also if there is a problem with the downloaded certificate or if you want to make a modification in the exiting certificate then we have to again apply for CSR and download the certificate.
- This is because the downloaded certificate in not in a form of ".pfx" file which is needed in Azure. And in order to get then one has to complete their CSR request again via IIS manager.
- If we change something in our existing certificate, then old CSR request won't work.
- Once you complete the process the CSR for your certificate, we added this certificate in Microsoft Management Console (MMC) & import the .PFX file to bind that certificate with our Azure apps.
- And after adding this to azure apps our security problem is also sorted now.

5. Test Scenarios

As this solution provides only 1 website there wasn't any much tests around this. Still below are some which we identified to unit test:

- Based on Incoming traffic from different region, the traffic was route to right website subdomain.
- Users from different social networking sites can login into the website.
- Password reset option is working properly.
- Entire site's content is properly migrated.

Conclusion – Summary

Migration projects always have an exploratory phase where you need to confirm the details from the customer on the expected result but cannot solely rely on that. It is important the 3rd party APIs which are interacting with our system are working as expected and that the systems are not restricted in terms of count or access.

Also, it is important to understand the client's requirement and source and target system mapping for migration to work seamlessly. Migration projects serves more than just moving the data from one place to another.

Related Reading

[1] Details more about Auth0
https://auth0.com/docs/getting-started/overview

[2] Details more about how to create a resource group.
https://docs.microsoft.com/en-us/azure/azure-resource-manager/manage-resource-groups-portal

[3] Details more about how to create an app service.
https://docs.microsoft.com/en-us/azure/app-service/overview
https://docs.microsoft.com/en-us/azure/app-service/

[4] Details more about how to create a traffic manager & to create endpoints for Geographic routing.
https://docs.microsoft.com/en-us/azure/traffic-manager/quickstart-create-traffic-manager-profile
https://docs.microsoft.com/en-us/azure/traffic-manager/traffic-manager-overview
https://docs.microsoft.com/en-us/azure/traffic-manager/traffic-manager-configure-geographic-routing-method
https://docs.microsoft.com/en-us/azure/app-service/web-sites-traffic-manager-custom-domain-name

[5] Details more about how to create map existing custom domain with the azure app service.
https://docs.microsoft.com/en-us/azure/app-service/app-service-web-tutorial-custom-domain#map-a-cname-record

[6] Details more about what is CNAME record.
https://docs.microsoft.com/en-us/azure/cloud-services/cloud-services-custom-domain-name-portal#understand-cname-and-a-records

[7] Details more about how to create CSR via IIS Manager.
https://in.godaddy.com/help/iis-10windows-server-2016-generate-csrs-certificate-signing-requests-27348
https://www.digicert.com/csr-creation-ssl-installation-iis-10.htm

[8] Details more about how to add certificate in Microsoft Management Console (MMC) & import the .PFX file.
https://in.godaddy.com/help/manually-install-an-ssl-certificate-on-my-iis-10-server-27349

[9] Details more about how to bind certificate with our Azure apps.
https://docs.microsoft.com/en-us/azure/app-service/app-service-web-tutorial-custom-ssl

ABOUT PERITOS

Peritos is an international provider of innovative software solutions in multiple area.

We are a small, yet constantly growing business firm located in India and New Zealand started in 2015. We at Peritos believe in breaking the technology barriers and spearheading developments as a team across different technologies and solutions.

At Peritos Solution we are committed to providing clients and business partners out of box IT solutions and support throughout their life cycle.

Our constant endeavour is to reach out to small to medium business owners and use IT as a powerful means to help solve business problems. If you choose to work with us we assure you will be thrilled to see our infectious enthusiasm and personal interest and commitment to not just excel in our work but you can also be rest assured as we provide an end to end support services as well. The work we have done has been a pioneer in building a great relationship we have with our existing long-term clients.

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