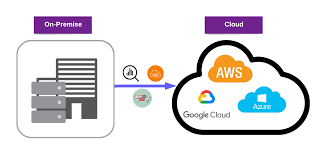
Plan for testing and cost estimation



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# Overview of current situation

At this moment we have to migrate the current on-prem infrastructure of Fonteyn Vacation park to the cloud network and we need to decide how to host the website/server and what we have wanted to try is to do a couple of different things and see how they work and in the end we will tell the client what is viable and what is not. We have to also do a couple of other things. We need to migrate the backup so that we can be more protected in the case of any problems/variables. We need to decide whether we will rehost, refactor, replat form or replace existing parts of the application/logic and make it work more seamlessly in Azure.

After we do that and calculate costs for each scenario later in this document we will ask our client for further guidance and see what they want in terms of functionality to budget ratio.

# Why did we chose Microsoft Azure over AWS?

First of all, Hybrid Cloud Capabilities:

Azure provides strong hybrid cloud capabilities, allowing businesses to integrate on-premises infrastructure with cloud services. Azure's Azure Arc, for example, extends Azure management and services to any infrastructure, enabling a consistent environment across on-premises, multi-cloud, and edge deployments.

Better availability:

Azure has a widespread global presence, with data centers in many regions. Depending on an organization's geographical distribution, Azure's data center locations might align better with their needs, which provides low latency while working in different regions.

Enterprise Agreements:

Microsoft has a long history of working with enterprise customers, and Azure's Enterprise Agreements provide flexible licensing options and discounts for large organizations. This can make Azure more cost-effective for certain enterprise scenarios.

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# Part 1 - App Services

Cost

App Services generally offer a scalable pricing model based on usage, including features like autoscaling and tier-based pricing. However, costs can increase as traffic and resource demands grow.

If we select the basic plan the cost per month will be around 12 euros(11.97) and we can directly deploy the website, after which we can do some quick reworking of the website so it is more compatible with Azure and works better in the future.

## Possible Problems

Scaling Challenges: Sudden spikes in traffic might require adjustments to the chosen tier or manual intervention for scaling.

Resource Constraints: Higher usage might lead to increased costs or performance issues.

## Is it the Correct Choice in Our Opinion?

App Services are ideal for straightforward web applications that require easy deployment and management. If the website has predictable traffic and doesn’t require complex configurations, App Services can be a suitable choice.

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# Part 2 - Container Instances

Cost

Container Instances are billed per second, which can be cost-effective for short-lived workloads. However, costs can accumulate if instances run continuously.

If we select the basic plan we find ourselves paying around one(1.02) euro for a day with Linux containers, 1GB of memory, 1 container group and that will end up being around 30(30.60) euros a month.

## Possible Problems

Resource Management: Continuous running of instances might lead to higher costs than initially estimated.

Complexity: Managing multiple containers might require additional tooling or expertise.

## Is it the Correct Choice in Our Opinion?

Container Instances are beneficial for microservices-based architectures or when you need more control over the runtime environment. However, for a simple website migration, it might add unnecessary complexity.



# Part 3 - Azure Functions

Cost

Azure Functions are billed based on execution and resource consumption. This serverless model can be cost-effective for sporadic workloads.

Also it is free for the first million requests and 400000gb after which it costs around 0.18 euros per million requests and after 4 million requests (at a rate of 1024 mb per request) it costs around 15 cents for 1000gb, but it is uncertain whether it will work well or work at all even.

## Possible Problems

Cold Start Issues: Initial latency might occur due to the time taken for a function to start running.

Limited Execution Time: Long-running processes might be constrained by execution time limits.

## Is it the Correct Choice in Our Opinion?

Azure Functions excel in event-driven scenarios and for specific functionalities of the website that can be compartmentalized into functions. For a simple website, using functions for specific tasks or serverless components might be advantageous.

# Final conclusion and TCO

Maintaining an on-premises for a machine with 36 GB memory, 800 GB storage and , Intel(R) Xeon(R) CPU E5530 @ 2.40GHz 2.39 GHz (2 Processors), we need to consider various factors such as hardware costs, electricity, cooling, maintenance, and potential downtime costs.

1. **Hardware Costs:**

RAM (36 GB): $150 per 16 GB module.

Storage (800 GB): $0.05 per GB, the total cost would be $40.

Processor (Intel Xeon E5530): $200 per processor.

Total Hardware Cost: $150 (RAM) + $40 (Storage) + $200 (Processor) = $390

1. **Electricity Costs:**

Cost per kWh: $0.12 per kWh.

Monthly Electricity Cost: (200W / 1000) \* 24 hours \* 30 days \* $0.12 = $17.28

Yearly Electricity Cost: $17.28 \* 12 months = $207.36

1. **Cooling Costs:**

Cooling costs are typically around 20-30% of the electricity costs.

Monthly Cooling Cost: $17.28 \* 0.25 = $4.32

Yearly Cooling Cost: $4.32 \* 12 months = $51.84

1. **Maintenance Costs:**

Maintenance costs is around 2-3% of the hardware costs per month.

Monthly Maintenance Cost: $390 \* 0.02 = $7.80

Yearly Maintenance Cost: $7.80 \* 12 months = $93.60

1. **Total Cost**: $419.40 per month, $5032.80 per year

For the next five years price of maintaining will be 25,164 + 2516,4 ≈ 27680,4$

# Cost of migration and estimation for next 5 years

We calculated that 1 vm will cost 11.97$ per month, and 1 container also 11.97$.

For five years of maintaining this infrastructure + inflation of 10% it will be 1436,4 + 143,64 (inflation) ≈ 1580,04 euro

We will proceed to finish the cost estimation document when we have tested the possibilities, we have presented to you and seen how they would work/react in the real situation.

# References

https://azure.microsoft.com/en-us/pricing/details/container-instances/