**AZURE CLOUD ADOPTION**

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# **Original description of the situation**

**Scenario**

Swift Tyres Inc. is a large manufacturer of tires. They operate several production plants, have 12 office locations and about 1000 dealers across the globe. Their mission is to build the best & longest-lasting products for every market they are operating in.

While the company is still leading when it comes to product development, many of their supporting IT systems have received little attention in the past few years. They see migrating as many of their systems to the cloud as feasible as an opportunity to modernize their infrastructure and improve the quality of their internal services.

**Solution Concept**

Out of the assessment of existing workload, the first wave for migration has been defined which consists of 3 applications:

* Order management system
* Customer management system
* HR management system

**Existing Technical Environment**

All the three applications are hosted at the company HQ in Germany but accessed by employees from all office locations.

**Application**

1. Order management System:
   1. deployed on 4 web application servers with 4 Cores, 32 GB RAM running on MS Windows 2016
   2. off-the-shelf software
   3. integrated with Active Directory
2. Customer management System
   1. deployed on 2 web application servers with 4 Cores, 16 GB RAM running on MS Windows 2016
   2. off-the-shelf software
3. HR management system
   1. deployed on 2 web application servers with 2 Cores, 8 GB RAM running on MS Windows 2016
   2. in-house developed software
   3. integrated with Active Directory

**Database**

1. Order management system and Customer management system are using shared database:
   1. SQL Server 2014 R2 Enterprise.
   2. running on single server with 64 Cores, 256 GB RAM and 2x 4 TB HDD (RAID 1)
2. HR management System
   1. PostgreSQL 9.5
   2. single server with 8 Cores, 32 GB RAM and 1x 8 TB HDD

**Cloud Environment**

**﻿**IT network department has used HUB and spoke network topology. In this regard, there is a hub subscription which includes:

* vNet which is connected to on-premise through ExpressRoute;
* internal facing firewall with DMZ;
* external facing firewall with DMZ.

and a spoke subscription which you’re supposed to create the infrastructure for migration of applications inside it.

**Technical Requirements**

* Encrypt data on the wire and at rest.
* Support multiple private connections between the production data center and cloud environment.
* All migrated VMs need to remain in their original domain and keep their original on-premise name

**Executive Statement**

Our competitive advantage has always been our superior manufacturing process. However, our aging IT systems are becoming a hindrance for our employees and impact the quality of the service we can offer to our customers.

Our goal is to modernize all of our IT systems and transition as many as possible to the cloud before our next hardware refresh cycle. Migrating the order management system shall serve as a proof of concept for our ability to move our infrastructure to the cloud.

**Questions**

You are to perform the migration of the order management system to Microsoft Azure.

1. How would you design and implement resource groups for current migration and upcoming ones?
2. How would you design and implement an RBAC model on the infrastructure level?
3. Would you recommend micro-segmentation? Why would argue for or against it?
4. How would you design and implement the traffic flow for the Order Management System based on the above?
5. What kind of approaches and methodologies would you choose and implement to cover high availability for the Order Management system?
6. How would you handle logging and monitoring of migrated workload?
7. As mentioned in the technical requirements, the VMs need to keep their original on-premise name. Since you’re using Azure Migrate for replication and migration of VMs, you cannot control naming of the resources. Write a PowerShell script which can be used for renaming the migrated VMs.

**Your deliverable**

We expect you to write a document that answers questions (1-6) and a PowerShell script for the last one. You may include diagrams to make your answers easier to grasp. You should submit your document as a PDF file.

**We will evaluate your solution based on**

* Correctness & completeness.
* Quality of the documentation & script

# Solution description

## Current architecture

According to the original description, the current infrastructure and applications depicted in the Figure 1



Figure 1 Current infrastructure and applications

## Proposed solution and answers for questions

The entire solution depicted in the Figure 2



Figure 2 Proposed architecture

### Satisfying the technical requirement “encrypt data on the wire and at rest”

<https://docs.microsoft.com/en-us/azure/vpn-gateway/site-to-site-vpn-private-peering>

### Satisfying the technical requirement “support multiple private connections between the production data center and cloud environment”

### Satisfying the technical requirement “all migrated VMs need to remain in their original domain and keep their original on-premise name”

### Answer the question “1” How would you design and implement resource groups for current migration and upcoming ones?

### Answer the question “2” How would you design and implement an RBAC model on the infrastructure level?

### Answer the question “3” Would you recommend micro-segmentation? Why would argue for or against it?

### Answer the question “4” How would you design and implement the traffic flow for the Order Management System based on the above?

### Answer the question “5” What kind of approaches and methodologies would you choose and implement to cover high availability for the Order Management system?

### Answer the question “6” How would you handle logging and monitoring of migrated workload?

### Answer the question “7” As mentioned in the technical requirements, the VMs need to keep their original on-premise name. Since you’re using Azure Migrate for replication and migration of VMs, you cannot control naming of the resources. Write a PowerShell script which can be used for renaming the migrated VMs.