Task 1

1. Make a critical assessment of the as-is infrastructure regarding the NIST "five essential characteristics"! Focus on elasticity and availability!

Develop a strategy on operation of the infrastructure for the future! (Own server hosting, server colocation, hosting service provider)

2 As-is situation

The lead **enterprise architect** of the **Awesome Cloud AG** (your employer) gives you the following **as-is** application landscape for the **LowTech GmbH** with the technical details listed below.

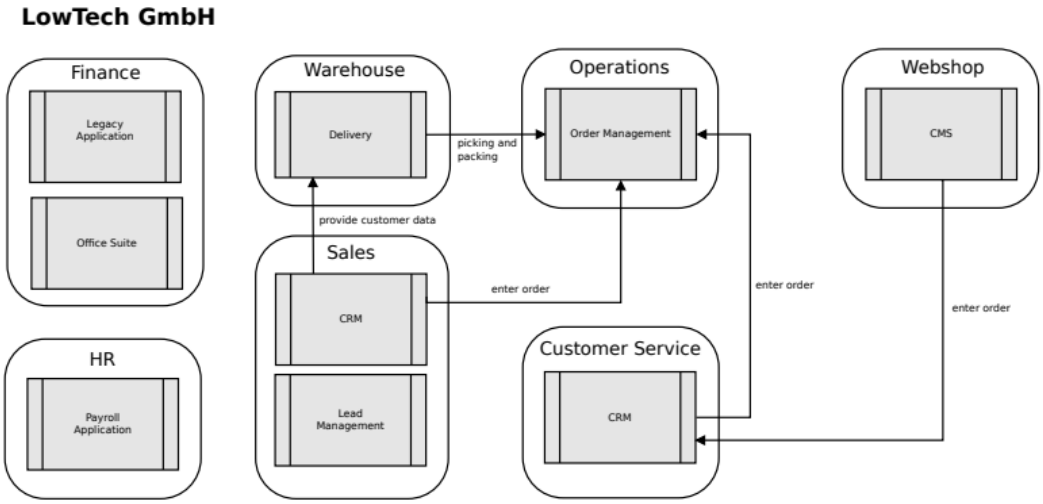

Figure 1: Application landscape of LowTech GmbH

<u>Definition of Elasticity and Availability as per NIST</u>

Rapid elasticity(Elasticity): Capabilities can be elastically provisioned and released, in some cases automatically, to scale rapidly outward and inward commensurate with demand. To the consumer, the capabilities available for provisioning often appear to be unlimited and can be appropriated in any quantity at any time. [1]

Broad network access(Availability): Capabilities are available over the network and accessed through standard mechanisms that promote use by heterogeneous thin or thick client platforms (e.g., mobile phones, tablets, laptops, and workstations). [1]

Critical Assessment of As-is infrastructure(Elasticity)

- According to As-is infrastructure we have servers hosted on premise for 7 different departments with different specifications.
- In order to meet the high demand, we need to add more servers which is not possible in the current scenario as we have a limitation of 19-inch rack, and for the low demands, resources of servers are underutilized.
- Currently, there is no virtualization of servers which cannot meet the dynamic customer requests.

Critical Assessment of As-is infrastructure(Availability)

- As there is no virtualization and each application hosted on an individual server, if any of the server goes down, there is no other way to provide the access to the application, which results in unavailability of business services and operations.
- If server goes down during the peak time, it would be impossible to carry out operations successfully as there are no server virtualization or redundant servers.

Task 4

Develop a strategy on operation of the infrastructure for the future! (Own server hosting, server colocation, hosting service provider).

The strategy below is developed considering the **scalability, availability and security** of the operation of infrastructure.

Own server hosting

If we are going with this option, we need to consider the following points;

1. Identify those application which are crucial for the business operations.

2. Replace the current seven servers with modern servers (purchase new servers) with higher specifications and virtualization supported for the optimal utilization of the servers (server consolidation) [3].

3. Implement server virtualization to achieve **elasticity** and **availability** of the business application carry out day to day operations smoothly. [4]

4. Implement security measures on the servers to ensure **security** of the IT infrastructure by implementing firewalls. [6]

5. To implement servers on premise would require high skilled IT staff and a server room. It requires higher cost but gives the complete **control** and **security** of the server. [2]

6. For clients and laptops, we will implement a thin client architecture, where we have laptops and clients machine with less configuration and high specifications server which can handle the processing. With this we can have more secure, cost efficient, manageable and scalable infrastructure. [7]

Server Colocation

Below points should be considered if proceeding with server colocation strategy;

1. As compared to server colocation, where we have to provide entire hardware and the colocation company or data centers provides server rack space, electricity, cooling and internet connection and charge a rent against these services. [5]

2. In this case, our team member has to travel to the location where our servers are collocated in order to do any changes, fixing issues, as we have a specification for the maximum downtime we can afford is 4 hours in a year, the travelling time would not allow us to match the availability requirement. [5]

Hosting Service Provider

Below points should be considered if proceeding with server colocation strategy;

1. As compared to server colocation and on premise server infrastructure, hosting service provider gives a cost efficient, omnipresent, scalable, secure, and flexible solution but we do not have a control over resources and software. [8]

2. Also there is less control in this option as compared to on premise as the provider manages the infrastructure, we are dependent on the provider.[8]

3. We can do only limited customization as it gives us less control on the hardware and software.[8]

4. We might have a data privacy issue as it depends upon the providers' policies. [8]

As per our requirements of security, availability, and scalability **on premise implementation** of servers would suffice the needs of the current infrastructure.

References

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