

Network Capacity Planning

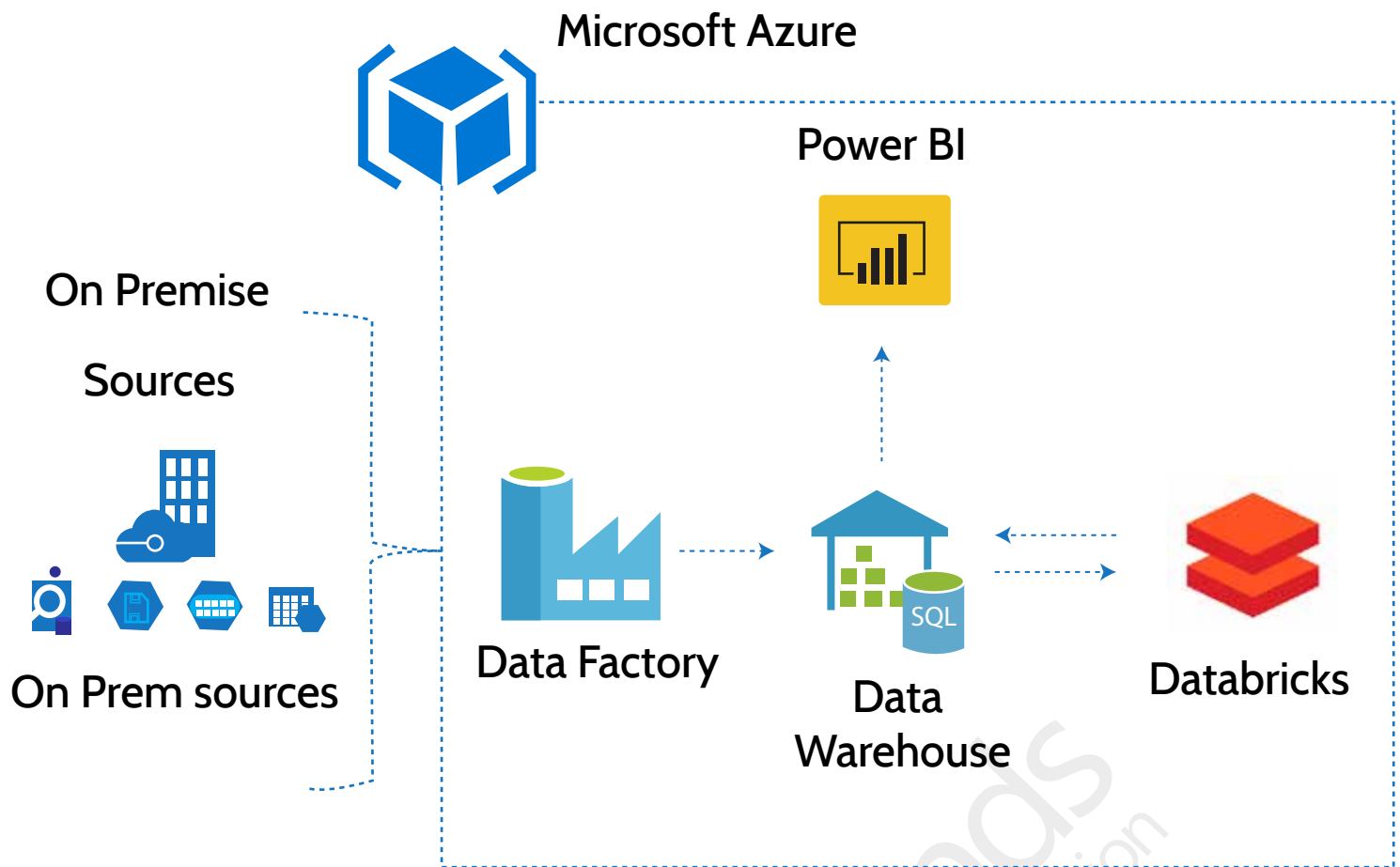
Business challenge

Our client had thousands of servers spread across the globe carrying internet traffic. The main challenge was managing these servers at optimal utilization. We had to make sure that the servers were not under-utilized and we also had to make sure that we did not lose revenue due to overutilization and traffic loss. To achieve this goal, the client needed to constantly monitor the utilization of these servers, upgrade over-utilized servers and re-allocate under-utilized ones. The bigger challenge however, was hardware upgrades that needed its own lead time and had to be planned well in advance, this was the key to control utilization. They required knowledge of expected traffic in future and needed to ensure the estimates were reliable. Performing this for thousands of servers manually was not an option.

Approach and Solution

Our approach was to analyze traffic patterns in all the existing servers based on historical data and use machine learning to forecast the traffic trends in future.

We analyzed the traffic patterns every 5 minutes in all the servers and identified peak and lean timings, and traffic trends. Based on the analysis, we built time series forecasting models to forecast the future trends in traffic. While designing the models, we ensured that the results were consistent, and the anomalous spikes and dips were not considered in the capacity planning process. We then set thresholds in forecasted traffic based on server capacity to estimate the number of days it takes to reach the threshold. This helps us estimate the milestone dates in the entire capacity planning process like: watch, initiate capacity augmentation/removal, place new orders etc.



Benefits

- Improved resource utilization reducing CAPEX.
- Timely augmentation of capacities thereby avoiding any traffic congestion which helps:
 - a) Arrest revenue loss due to lost traffic.
 - b) Improve customer experience.