Introduction to BI Architecture
Assignment Part 3

Cloud Architecture inspired on Kimball's

Student Name: Carlos Timoteo
Student id: 040905599
2018-03-01

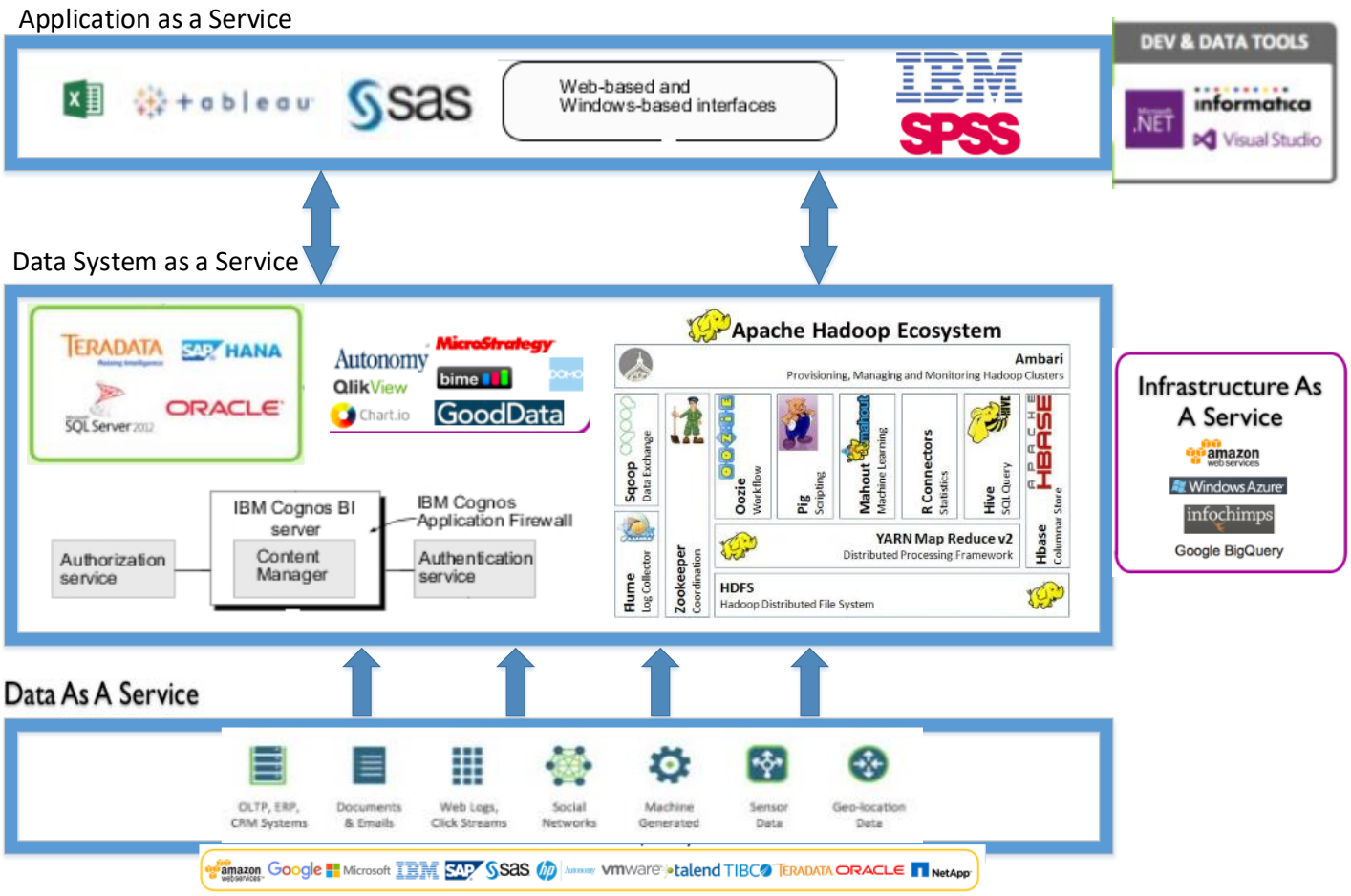

Figure 1 - Proposed cloud architecture

In the Figure 1, it is possible to identify the key components of the proposed cloud architecture to be used that is inspired in Kimball's architecture. It is divided in three layers, from bottom-up, the Data as Service layer which all kinds of data sources (structured, semi-structured and unstructured), pre-existing OLTP, ERP and CRM system. A few examples of solutions for this layer are Microsoft Azure services like Azure SQL or AWS services like S3 and DynamoDB.

The second layer is called Data Systems as a Service that provides IBM Cognos application services, data analytics and Hadoop environment to manage the complete data lifecycle, data access, data integration, ETL process, security and administration management, governance, batch, streaming and real-time processing on demand. This systems runs over distributed

architecture by using elastic containers (Windows and Linux), virtual machines and a virtual network infrastructure that makes it easy to deploy, scalable and cost-time efficient. A few examples of solutions for this layer are Microsoft Azure data services like SQL Server, SQL Data Warehouse, PowerBI, Microsoft AI solutions; IBM Cognos Analytics, IBM Data Warehouse and Watson Analytics; or even Amazon AWS Big Data solutions like RedShift Data Warehouse. In addition, we can cite the Hadoop environments like Databricks and Hortonworks.

The first top layer is called the Application as a Service that provides end-user applications to interact with the Data System as a Service layer and provides the environment to develop the required business solutions. Some features provided by the applications are predictive, prescriptive and descriptive analysis and a variety of data visualization and reporting solutions. A few examples of solutions for this layer are Tableau, Excel, IBM SPSS Modeler and Statistics, SAS and many customized solutions developed using open source programming languages (Python, R, Java, Scala, D3.js) or even .NET programming languages like C#.

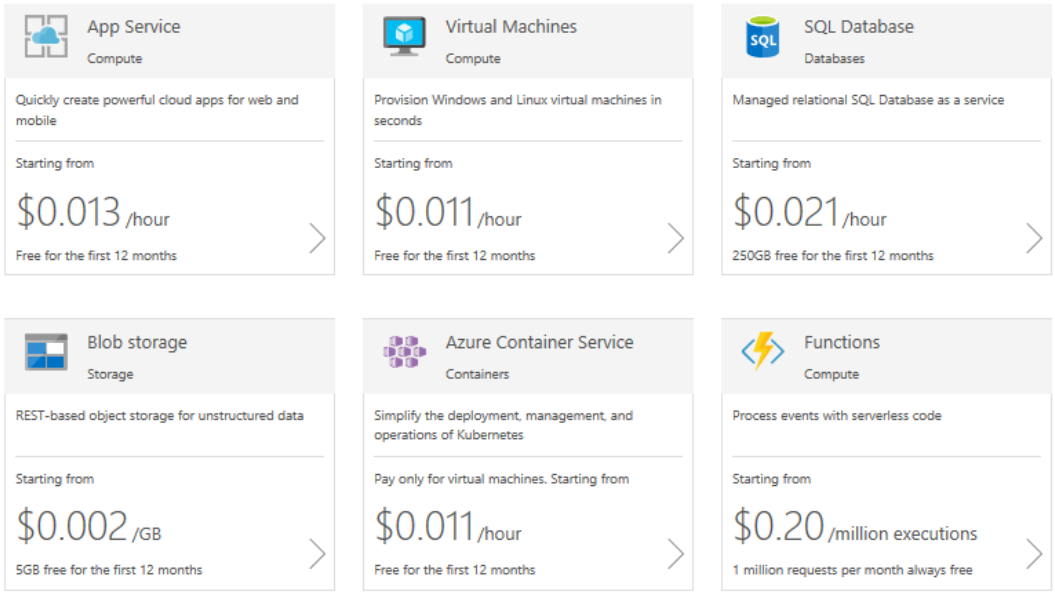

Figure 2 - Example Pricing for popular products

You can use the Pricing Calculator (https://azure.microsoft.com/en-us/pricing/calculator/) to simulate the desired scenario. In one simulation, it was included all services discussed in the architecture and the initial month cost was US$6,637.34. If you compare with the Total Cost of Ownership (TCO), it is too below (https://www.tco.microsoft.com/?correlationId=e7c46437-16d5-436f-badc-f1903a934fe1). You can perform your cost calculation in Amazon AWS as well (https://calculator.s3.amazonaws.com/index.html). But according with Figure 3, we can see AWS is the Cloud solution more adopted in the market.

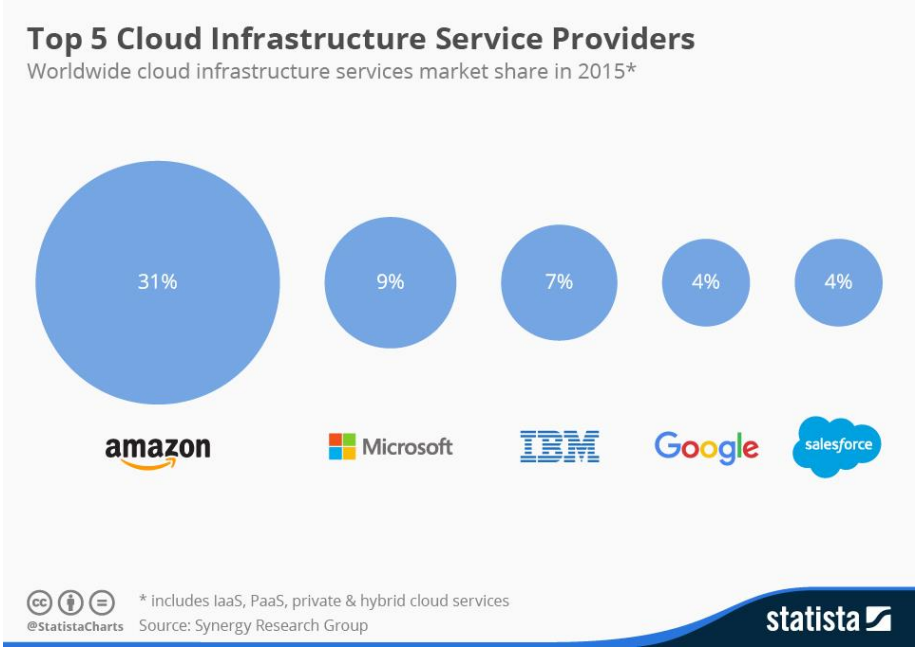

Figure 3 - Cloud providers market share