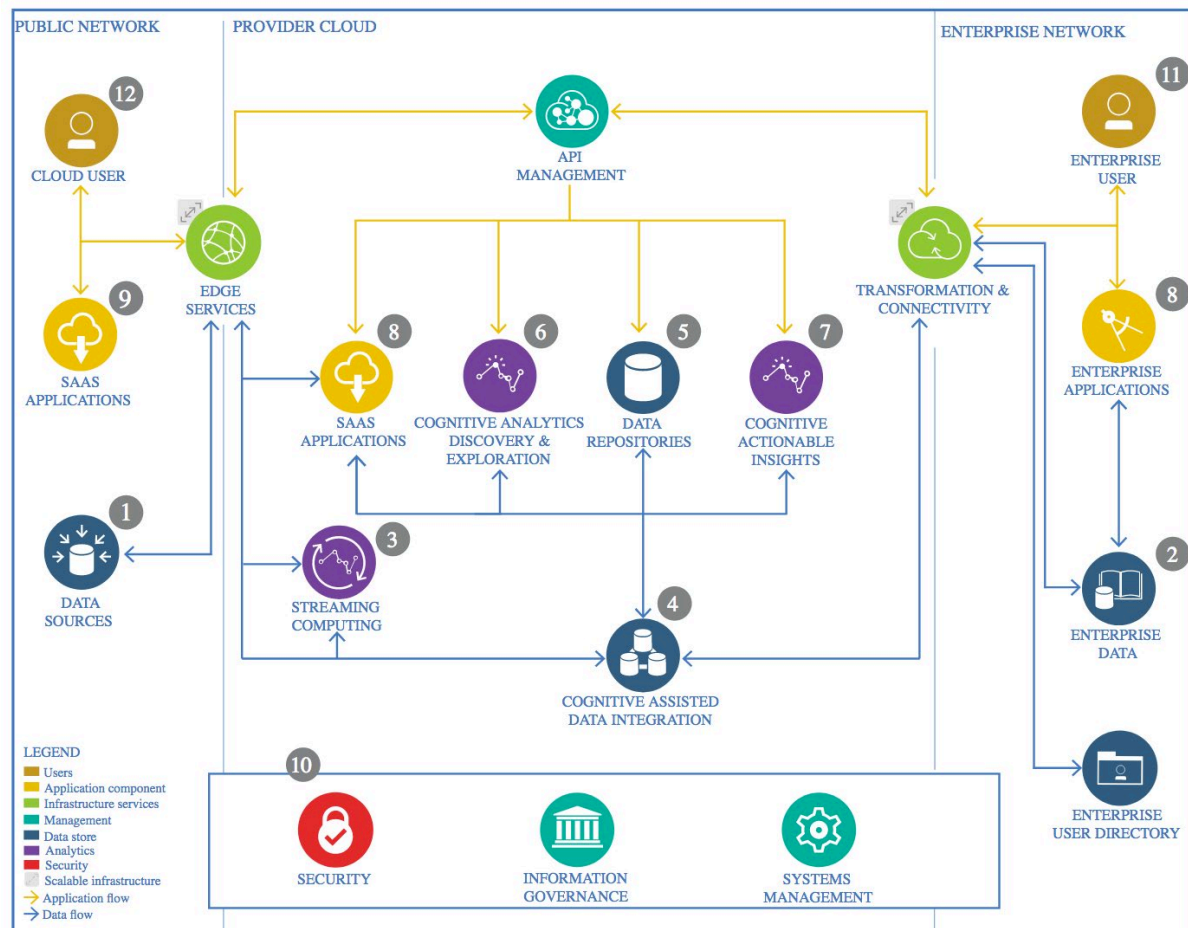# The Lightweight IBM Cloud Garage Method for Data Science

Architectural Decisions Document Template

1   Architectural Components Overview

IBM Data and Analytics Reference Architecture. Source: IBM Corporation

1.1   Data Source

1.1.1   Technology Choice
Wine Quality dataset from UCI. Found at: archive.ics.uci.edu

1.1.2   Justification
The dataset contains multivariate features and can be used for multiple purposes (either regression or classification). It can also be directly imported to python without having a physical file or set of files on your local computer.

1.2   Enterprise Data

1.2.1   Technology Choice
GitHub Repository

1.2.2   Justification
It allows easy version control of the project with sequential updates.

1.3   Streaming analytics

1.3.1   Technology Choice
N/A – No streaming analytics tool was used.

1.3.2   Justification
N/A

1.4   Data Integration

1.4.1   Technology Choice
N/A – No data integration tool was used.

1.4.2   Justification
N/A

1.5   Data Repository

1.5.1   Technology Choice
Python Pandas Repository

1.5.2   Justification
Easy to handle and transform.

1.6   Discovery and Exploration

1.6.1   Technology Choice
Mainly data science python libraries such as pandas (data storing), numpy (mathematical operations and list handle), matplotlib and seaborn (data visualization) and scikit-learn (data science transformations).

1.6.2   Justification
Accessibility to functions

1.7 Actionable Insights

1.7.1 Technology Choice
Mainly data science & AI python libraries. Pandas for sorting the data, scikit learn for the non-deep learning evaluated models and Torch for the deep learning models.

1.7.2 Justification
Accessibility to the algorithms in case of scikit and in case of torch, the easy-use tools it provides for creating neural network models.

1.8 Applications / Data Products

1.8.1 Technology Choice
Jupyter Notebook report.

1.8.2 Justification
Sufficient as no application is being developed and we just care about numeric results.

1.9 Security, Information Governance and Systems Management

1.9.1 Technology Choice
N/A – Not security management has been developed.

1.9.2 Justification
N/A