## 0.1 Data Virtualization

Data Virtualization is a modern approach of data integration.Denodo is a data virtualization platform [5] which provides agile, high performance data integration and data abstraction capabilities.Denodo platform [5] acts as a logical abstraction between disparate data sources and consuming applications.Denodo allows [5] intelligent caching for real-time performance.By becoming single virtual layer Denodo Platform [5] reduces redundancy and resolved quality issues by imposing data model governance.Denodo platform can be used for many use cases covering operational and analytics functions.

## 0.2 SpagoBI

SpagoBI is an open source business intelligence and big data analytics platform.The software is completely free, but paid user support, maintenance, consulting and training are available for purchase.It includes tools for [6] reporting, multidimensional analysis (OLAP), charts, location intelligence, data mining, ETL and more.It also integrates with [6] popular in-memory processing engines and enables real-time processing.SpagoBI allows analysis of [7] unstructured data, such as as audio files, videos and images.It can also access different types of [7] databases and analytical applications (such as Teradata), NoSQL databases (such as HBase) and HDFS (Hadoop) or distributions (Hortonworks)

## 0.3 Alluxio

Alluxio is open source project under Apache License 2.0. [1] Applications only has to connect with Alluxio to access data stored in any underlying storage systems.Alluxio is Hadoop compatible.In the big data ecosystem, Alluxio [1] lies between computation frameworks or jobs, such as Apache Spark and various kinds of storage systems, such as Amazon S3.It provides fault-tolerance and effective data management across different storage systems through the mount feature.in also has a web-UI for browsing file systems.Alluxio [1] connects the gap between big data applications and traditional storage systems , and expands the set of workloads available to utilize the data.

## 0.4 Apache SystemML

Apache SystemML is an [8] open-source language and compiler that makes it dramatically easier to build custom machine learning solutions.Apache SystemML is [8] flexible, scalable and optimal for Big Data that enables automatic optimization.SystemML's enables [8] algorithm customizability via R-like and Python-like languages.It also has [2] multiple execution modes, including Spark MLContext, Spark Batch, Hadoop Batch, Standalone, and JMLC.it characteristics includes [2] automatic optimization based on data and cluster characteristics to ensure both efficiency and scalability.

## 0.5 ConnectTheDots

ConnectTheDots is a Microsoft Open source Technology project which makes it possible to [4] connect IoT devices and sensors to the Microsoft Azure cloud.It includes a variety of [3] code samples and guides, including a sample end-to-end weather alert solution that uses an Arduino board, a Raspberry Pi and several Azure services. Operating System can be Windows or Linux.Azure IoT

Hub coverts the JSON string from Sensors and displays a chart.ConnectTheDots [3] provides a Multi-protocol Gateway to collect data from devices that cannot, or should not, target the cloud directly

## References


[1] *Alluxio Open Source*. URL: https://www.alluxio.org/docs/1.7/en/index.html (cited on page 1).

[2] *Apache SystemML Blog*. URL: https://blogs.apache.org/foundation/entry/the-apache-software-foundation-announces13 (cited on page 1).

[3] Azure. *Azure/connectthedots*. June 2017. URL: https://github.com/Azure/connectthedots (cited on pages 1, 2).

[4] *Azure-IoT*. URL: https://msdn.microsoft.com/en-us/magazine/mt694088.aspx (cited on page 1).

[5] *Data Virtualization Overview*. Aug. 2015. URL: https://www.denodo.com/en/data-virtualization/overview (cited on page 1).

[6] *spagobi*. URL: http://www.spagobi.org/product/ (cited on page 1).

[7] *SpagoBI Open Source*. URL: http://www.stratebi.com/en_GB/spagobi#big-data (cited on page 1).

[8] Apache SystemML. *Apache SystemML*. URL: http://systemml.apache.org/ (cited on page 1).