



## IBM

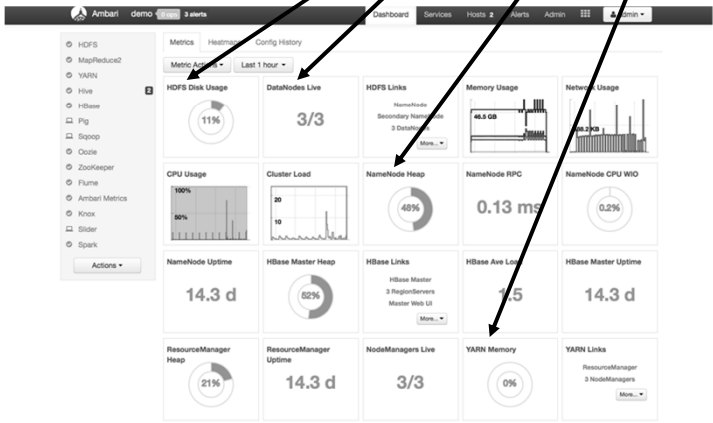
### ❖ IBM

- International Business Machines Corporation
- Founded in June 16, 1911 in NY USA
- Rankings
  - 1<sup>st</sup> in Big Data Corporations
  - 4<sup>th</sup> in Big Data Software
  - 2<sup>nd</sup> in Big Data Hardware
  - 1<sup>st</sup> in Big Data Professional Services

IBM

❖ IBM's Main Service

- IBM BigInsights      HDFS, DataNode, NameNode, YARN,...



IBM

❖ IBM's Main Service

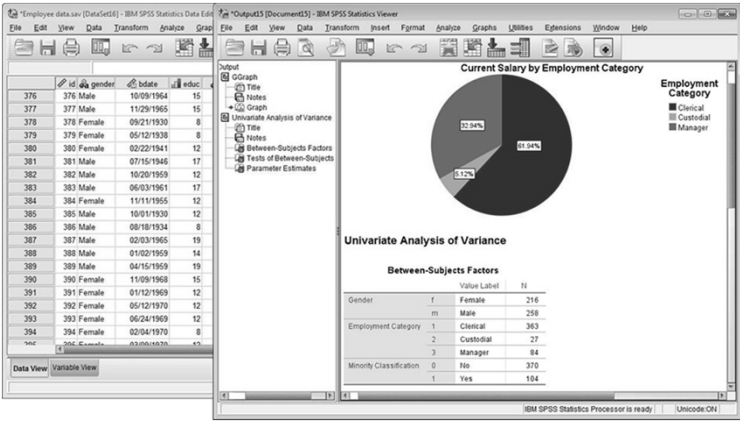
- IBM BigInsights
  - IBM's enterprise platform that combines Hadoop and Spark
  - Enables fast and accurate Big Data analysis
  - Solutions are provided for Spark, SQL, text analytics, etc.



IBM

❖ IBM's Main Service

- IBM SPSS Statistics ➔ Project



IBM

❖ IBM's Main Service

- IBM SPSS Statistics
  - Through a single integrated interface, users can execute descriptive statistics, regression, advanced statistics, etc.
  - Specialized extensions enable users to enhance the SPSS Syntax with R and Python



- For product/service integration and Big Data analysis, solutions are provided for Spark, SQL, text analytics, etc.



IBM

❖ IBM’s Main Service

▪ Power System



SFF (Small Form Factor) ≈ 2.5" disks  
LFF (Large Form Factor) ≈ 3.5" disks  
HDD (Hard Disk Drive)  
SSD (Solid State Drive)

IBM Power System S822LC for Commercial Computing

- 2.7x transactions per second per core vs.Intel
- 40% better price performance vs. Intel
- 2-socket, 2U
- Up to **20 cores** (2.9-3.3 GHz)
- **1 TB** memory (32 DIMMs)
- **230 GB/sec** memory bandwidth
- **2X SFF (HDD/SSD), 2 TB** storage
- 5 PCIs slots, 4 CAPI enabled, IB add-in

IBM

❖ IBM’s Main Service

▪ Power System



IBM Power System S824L (with NVIDIA technology)

- 2-socket, 4U rack-optimized
- Up to **20 cores** (2.9-3.3 GHz)
- 32 GB to **2 TB** memory (Min/Max)
- **192 GB/sec/socket**, memory bandwidth
- **18 SFF bays for HDD/SSD** plus 8 1.8-inch bays for SSD Include one x8 PCIe slots must contain a **1Gb Ethernet LAN** available for client use Eleven PCIe Gen3 slots : four x16 plus seven PCIe Gen3x8
- Up to two NVIDIA adapters available
- Two CAPI adapters per processor module

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❖ IBM's Main Service

- Storage



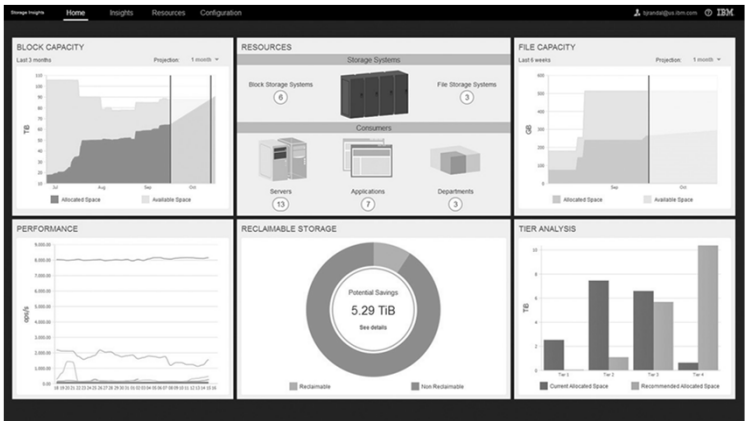
IBM DS8880

- **Host adapters** : 2/ 8 host adapter pairs 4- and 8- port 8 Gbps, or 4- port **16 Gbps** Fibre Channel/ IBM FICON
- **Host ports** : 8/128
- **Maximum physical storage capacity** : **4,608 TB (HDD/ SSD) + 1,459.2 TB (flash cards)**
- **Device adapters** : Up to 16 4- port, **8 Gbps** Fibre Channel paths
- **Dry bulb temperature** : 16°C – 32°C
- **Relative humidity** : 20% – 80%
- **Power supply** : Configurations: single- phase 50/ 60 Hz

IBM

❖ IBM's Service

- IBM Spectrum Storage Suite



## IBM

### ❖ IBM's Service

- IBM Spectrum Storage Suite
  - Provides unlimited access to licensing a family of software
  - Easy-to-use UI (User Interface)
- Costs are flat and cost-per-TB basis
- Pricing easy to understand
- Predictable costs for expansions

## IBM

### ❖ IBM's Service



- IBM Watson Analytics
  - Provides smart data analysis solutions
  - Helps to visualizes data analyzed in the cloud
  - Automated data prep, predictive modeling, and data visualization services provided
  - Searcher for insights
  - Instant answering
  - No training needed
  - Anyone can start to use it for free

➔ More details are in my course "Deep Learning for Business"

Big Data

SAP



SAP

❖ SAP

- System, Application, Products in Data Processing
- Founded in 1972 in Germany by five former IBM engineers
- Rankings
  - 2<sup>nd</sup> in Big Data Corporations
  - 1<sup>st</sup> in Big Data Software

## SAP

### ❖ SAP

- Product platform: SAP S/4 HANA
- Has the largest market share in business application software
- Big Data Services
  - SAP Cash App
  - SAP Fraud Management
  - SAP Service Ticketing
  - etc.

## SAP

### ❖ SAP's Main Service

- SAP S/4 HANA
  - HANA is an advanced RDBMS (Relational Database Management System)
  - Combines functionality of OLAP (On-Line Analytical Processing) & OLTP (On-Line Transaction Processing) into a single in-memory database
  - Supports immediate, intelligent, and integrated ERP (Enterprise Resource Planning)



## SAP

### ❖ SAP's Main Service

- SAP S/4 HANA
  - ACID (Atomicity, Consistency, Isolation, Durability) compliant
  - In-memory columnar database functionality
  - Stores compressed data
  - Offers parallel processing across multiprocessor cores
  - Supports SIMD (Single Instruction Multiple Data) commands

Big Data  
**Reference**

## References

- <https://www.ibm.com/us-en/?lnk=m>
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- <https://www.cisco.com/>
- [https://aws.amazon.com/free/?nc1=h\\_ls](https://aws.amazon.com/free/?nc1=h_ls)