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Comparative Analysis of Real Time Analytics for Numerous Software Applications

***Srinivash Ramaiah Chandrasekaran *Justin Samuel**

Abstract : Everyday Enormous software applications have been introduced in different fields of organization. And those applications are running successfully without any problem. However, in today's competitive world when an application is running smoothly is not sufficient. One also needs to keep a track of the usage of the applications, frequent activities being performed by the users on the application and look for the various areas where improvement is required. Also, it is becoming clear that such data analytics needs to be carried out in real time for the business success. Although it is easier to track and analyze applications. In this paper, a Comparative Analysis of real time analytics for numerous software applications is proposed which would help one perform such real time data analytics for any software applications. The performance and accuracy of the analytics model is evaluated with the help of a case study. The experimental results demonstrate that this analytics model effectively helps provide real time data insight for any applications.

Keywords : Data Analytics Frequently used Data Management (DFDM)

1. INTRODUCTION

Nowadays when one talks about applying intelligence to Business with Big Data, Internet of Things (IoT) few more services can be thought of offering through the cloud which are: Data as a Service (Data management as a Service), Analytics as a Service. Further, now a days since the organizations are interested in real time data. So, analytics as a service can be further extended to Real time analytics as a service. As defined by Gartner, one can classify cloud computing model on the basis of the target audience as [8]: Based on the Gartner's Priority Matrix for Emerging technologies it has been found that analytics is one of the most emerging technologies. The organizations are in dire need of getting the real time data analytics so that they can get the insight of the data and better plan and get maximum benefit from that Organizations are providing enormous software solutions to solve real world problems. Real-time analytics is an expression used to recommend to the analytics which are able to be recovered as they arise into a system. In different words, the word analytics is utilized to define data patterns that offer meaning to a business or other unit, where analysts gather valuable information by classifying through and analyzing that data. While the term real-time analytics suggests practically prompt access and use of analytical data, some specialists offer a more concrete time frame for what institutes real-time analytics, such as implying that real-time analytics includes data used in a time frame of one minute of it being entered into the system.

2. REAL TIME ANALYTICS FOR BANKING APPLICATION

Understanding and utilizing the power of real time analytics has become imperative in every field. Potential applications of an effective analytics program are nearly limitless. When implementing in different fields (Bank,

* Department of Information Technology, Sathyabama University Jeppiaar Nagar, Rajiv Gandhi Salai, Chennai, India srinivashrc@gmail.com, drsjustin@gmail.com

Automobile, Aerospace, Health care) must follow a structured approach and ensure that specific needs are kept in mind, proper stakeholders are involved, and a long term strategy is determined. Those that to do, will achieve a significant competitive advantage selling the right product to the right customer at right time.

3. APPLICATION CHALLENGES THAT MAKE ANALYTICS AN IMPERATIVE IN BANKING SECTOR

In the absence of robust analytics solution, many application grapple with numerous challenges, some of them are :

1. Evolving nature of their competitive environment
2. Regulations
3. Disruptive technologies

Example : Environment, Customers, strategic, tactical, technology, competition, regulatory

4. BENEFITS OF ANALYTICS IN BANKING APPLICATION

1. Improved Customer Acquisition
2. Improved profitability
3. Maximize Interest Revenue
4. Maximize for Revenue
5. Increased Cross-Sell Revenues
6. Reduced Non- Credit losses
7. Enhanced Credit Risk management
8. Improved decision making support
9. Enhanced customer value
10. Reduced customer attrition

5. REAL TIME ANALYTICS FOR HEALTH CARE APPLICATION

Today Proactive treatment, Highly personalized care, diagnosis of life threatening health condition are done very easily with the help of cloud based real time analytics, profile building for each patient's personal data and efficient storage of healthcare image's on Cloud makes the job simple and powerful. Example: Application will process the data based on Social networking like facebook, Twitter data, we might be able to find spreading rate of flu and prediction. Cloud based frameworks are introduced in healthcare to realize the potential usage of real time data analytics as a service.

6. APPLICATION CHALLENGES THAT MAKE ANALYTICS AN IMPERATIVE IN HEALTH CARE SECTOR

Driving informed decision for any clinical outcomes is primarily have following challenges :

1. Exponential Data Growth
2. Continuing cost pressure
3. Rapidly evolving Technology
4. Capturing more information than the traditional database
5. Integrate different data source
6. Update more frequently
7. Performance and security issues
8. High Power Consumption and Cooling capacity

7. BENEFITS OF ANALYTICS IN HEALTH CARE APPLICATION

1. Conservation of Natural Resources
2. Reducing the number of Disks
3. Less Human Support
4. Reduced Storage Cost
5. To perform analytics anywhere and anytime
6. And Balancing Legal Risk
7. Provide real-time analytics and insight that drive more informed decisions that leads to improved performance
8. Timely Decisions

8. REAL TIME ANALYTICS FOR AUTOMOTIVE APPLICATION

Automotive Industry grounded with Internet of Things, Artificial Intelligence and Big Data analysis – all sort of real time prediction services are offered to a greater extent to connect a car, alert the traffic density and offer traffic less roadside assistance through the Real time Analytics. This system and services (Automotive as a Service, Vehicle as a Service) transforms new generation of automotive industry

9. APPLICATION CHALLENGES THAT MAKE ANALYTICS AN IMPERATIVE IN AUTOMOTIVE SECTOR

Grand challenges are always there in automotive sector. Some of them are :

1. Tight budget and an unrealistic schedule
2. New technology adoption issue and regulatory governance
3. A deeper understanding of the technology and setting up the right strategy
4. Influence of geometry scatter, material and failure
5. Dynamic crash analysis
6. Fatigue
7. Self-healing patch on dynamic basis
8. Acoustic analysis and Design optimization

10. BENEFITS OF ANALYTICS IN AUTOMOTIVE APPLICATION

1. Predictive Maintenance
2. Real Time Alerts with other data points
3. To identify trends like location, and transit conditions
4. Predict machine health
5. Increase efficiency, save money, and create new business models
6. Manage and reduce fuel consumption and costs, by routing through the optimized path and reducing the wait times
7. Tires as a Service
8. Cloud based real time analytics

11. REAL TIME ANALYTICS FOR AEROSPACE APPLICATION

Real Time Data Analytics is being integrated with aerospace industry to collect aircraft data (like altitude, speed, fuel, tires strength, stability and other details) from engines and multiple other systems and integrate it to offer service as a strategy (forecast) to aerospace industry

12. APPLICATION CHALLENGES THAT MAKE ANALYTICS AN IMPERATIVE IN AEROSPACE SECTOR

It is always difficult to understand why the plane crashes? Aviation safety and administration concentrates more on the predictive real time analytics to find the solutions. Some of the common challenges are,

1. Pilot Error
2. Design flaws
3. Inclement weather conditions and lightning strikes
4. Sabotage/ Explosive devices
5. Bird Strike
6. Air Traffic Control Error
7. Cabin fire
8. Fuel Starvation

13. BENEFITS OF ANALYTICS IN AEROSPACE APPLICATION

1. Advanced prognostic tools
2. Mathematical model for prediction of faults
3. Dynamic health care monitoring
4. Shared data center service
5. Navigation Suggestion
6. Environment forecast and impact simulation

14. COMPERATIVE ANALYSIS OF REAL TIME ANALYTICS FOR DIFFERENT APPLICATION

In Today's business dynamics, collecting and analyzing huge volume of data to foresee market trends and to improve the organizational strategy and performance is a vital business activity. Here we discussed some of the techniques and framework to perform such real time analytics.

Table 1. Comparative Analysis of Real Time Analytics for Different Applications

Techniques	Framework \ Technologg used	Mertis	De-merits
Automatic identification and capture (AIDC)	AIDC systems tracking the informative things based on the qualtive and quantitive characters of certain data item.	To manage inventory, delivery, assets, security and documents. Sectors that use AIDC systems include distribution, manufacturing, transportation, medicine, government and retail, among many others	Frequency of the data can be dynamic in nature, when compare to previous tracking techninques.
Efficient Deployment of Predictive Analytics through Open Standards and Cloud Computing	Predictive Model Markup Language (PMML)	Predictive Model Markup Language capabilities have been used to allow models to be easily deployed between analytical applications.	The existing models needs to be represented in PMML to use this deployment approach.
Experience in Continuous analytics as a Service (CaaaS)	Cycle-Based Framework, PostgreSQL	Works on the framework which eradicates the limitation of store first and analyze later approach by querying data stream chunk by chunk rather than querying static table.	Connection management, privacy, security related issues are not taken into consideration.
Near Real-time Data Analysis of Core-Collapse Supernova Simulations With Bellerophon	Bellerophon	Helps to provide near real-time analysis for supernova events at petabyte level to CHIMERA's geographically dispersed group of people.	This application has been built to support and perform near real time analysis for only one application, CHIMERA
Soft Real-Time GPRS Traffic Analytics for Commercial M2M Communications	Spark, Spark SQL and Spark Streaming	Provides soft real time analysis for applications running over wireless sensor network or using M2M communication.	The framework can be used only for applications running over wireless sensor networks.
Real Time event processing with Microsoft Azure stream analytics	Microsoft Azure	Serves as a blueprint for designing and deploying real time event processing solutions with Microsoft Azure.	Solution can only be used with Microsoft Azure. Cannot be leveraged with some other cloud provider.
Real-time Web Analytics	Ruby, Rack, Ruby on Rails web framework, MongoDB	Helps to track every minute happening over internet in real time.	The solution helps to track only the web based applications and has no technique to track non web based applications.

15 DISCUSSION AND CONCLUSION

Hope this helps, Real time analytics is a powerful commodity for competitive business so it's worth using it wisely. We think that this can be a best contribution for professional and research members, to inspire the team and define directions and area of improvement for their business. It was more of a comparison of the two extreme ends of the spectrum "which Data analytics vs. why data analytics" that is main reason we analyzed all these stuffs in detail. Therefore success in business will come to organizations that leverage the analytics in the right direction and have the ability in understanding and selecting the right Trending Tools and Technology, Security, Performance and deeper understanding of Business dynamics and other factors. This move will ensure that the Business will deliver the right product to the right customer in right time.

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