

Annotated Bibliography

ASTo: A tool for security analysis of IoT systems

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2017 IEEE 15th International Conference on Software Engineering Research, Management and Applications (SERA)

Summary:

Internet of things or IoT is influencing our lifestyle from the way we react to the way we behave. From air conditioners that you control with your smartphone to Smart Cars providing the shortest route or your smartwatch which is tracking your daily activities. IoT is a giant network with connected devices. These devices gather and share data about how they are used and the environment in which they are operated. It's all done using sensors, sensors are embedded in every physical device. These sensors continuously emit data about the working state of the devices, but the important question is how they share this huge amount of data and how do we put this data to our benefit. IoT provides a common platform for all these devices to dump their data and a common language for all the devices to communicate with each other. In this paper, they introduced a software tool which analyzes the security in IoT devices. The name of the software tool which they introduced in this paper is ASTo which is developed in order to support the APPARATUS framework. In this paper it is basically divided into the four parts. Firstly, the authors of this paper started off with some related work that is made in the software tools of IoT. Next they introduced the architecture of the tool. In the next section they described the graphical user interface of ASTo and its functionality. Finally, they concluded, and the future work related to the paper was also explained. In the first section where they explained about the related work, they started by introducing the different tools related to IoT like ThingML, ASSIST, SenseSim etc. Later on, they explained the two metamodels which describe IoT systems. They explained the two models i.e. **Design Phase Metamodel** and **Implementation Phase Metamodel**. In the **Design Phase Metamodel** they explained the modules of it in a systematic approach. The modules include Design Network module, Design Social module, Design security module. In the Implementation Phase Metamodel they explained its modules. The modules include Implementation Network module, Implementation Social module, Implementation security module. Next they explained the GUI layout of ASTo. In this the main window of the tool was described elaborately. The tool is divided into three parts. The first part is a **Control Tab**. Further they what exactly happens with control tab. The second Part is the **Graph Tab** and its functionality was also explained in a systematic way. The Last part which was **Action Tab** was also explained along with its functionality. Finally, they concluded the paper with the Future work related to the tool. The future plan to improve the tool was to develop a security assistant bot for incorporating the tool.

Comments:

A strong and interesting paper on Internet of things. The way they explained that is in an order like from introduction to the future related work was clear and easy understandable. The explanation of the Architecture of the tool was the best part. The future related work was also clear, and it seems appropriate. The diagrammatic representations were very easy to understand. The way they explained the graphical user interface was also easy to understand. Overall according to me the paper was good and clear.

Simulation tools for cloud computing: A survey and comparative study

Fairouz Fakhfakh, Hatem Hadj Kacem, Ahmed Hadj Kacem

2017 IEEE/ACIS 16th International Conference on Computer and Information Science (ICIS)

Summary:

Cloud Computing is a technology which provides large amounts of computational and data storage resources for the users. Now-a-days cloud computing is making use of virtualization techniques. Instead of running everything on the computer, it is done in cloud. There are several simulation tools in order to know much about cloud. In order to do so we need to select a perfect simulator. In order to select a perfect tool a complete analysis of the tools is necessary. In this paper the authors first give an overview about the existing tools in cloud. Then analysis is done for all the tools based on few attributes. Finally, it introduces a new challenge that is to be addressed. In other words, it starts off with a description of simulation tools. Then comparative study of these simulation tools. Lastly, it highlights the future work of the paper. He explained each part in a detailed manner. The overview of the simulation tools started by introduction of CloudSim which is one of the simulation tools. The CloudSim and its Extensions was explained with a help of a communication flow diagram among CloudSim entities. The communication flow was sequentially explained. A brief intro regarding the extensions of CloudSim was also given. Few of its extensions that were explained - NetworkCloudSim, FederatedCloudSim, DynamicCloudSim, TeachCloud, FTCloudSim, WorkFlowSim etc. The other simulation tools which were included in the paper are Greencloud, Cloudsched, Mdcsim, Icancloud, Seccloudsim, Groudsim, Dcsim, Simic, Speci, Pics. Throughout the paper, they put forward an overview of the problems which the researchers face in order to choose the appropriate simulator for the research. Later on, the attributes for doing so were introduced. Some of the attributes which they described are Platform, Language, Availability, Graphical support, Communication model, Energy model, Federation model, SLA support, Cost model, Parallel experiments. In the paper they also mentioned about the need for dynamic change that will bring upon new challenges at the simulation level. As a result, it is necessary to evaluate policies that can handle the applications which are simulated. They have analyzed and compared the cloud simulators. Based on this experiment they came to a conclusion about the inability of the existing tools to deal with any changes of applications. This was one of the limitations of the existing simulators. The future work is explained, that is they are working on this limitation by providing an application model which observes any changes during execution based upon rules. This requires an enhance in existing simulator.

Comments:

The simulation tools were explained in a way which was easy to understand. The difference of the simulation tools based on few attributes like Platform, Language, Availability, Graphical support, Communication model, Energy model, Federation model, SLA support, Cost model, Parallel experiments was very clear as it was represented in a table. Analyzing the table was very easy. The flow in which the paper went was good. The only limitation which was described was the only drawback of the paper. Hope they will come back with the limitation solved that is by enhancing the existing simulator.

IoT's for Capturing and Mastering Massive Data for Online Learning Courses

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2017 IEEE/ACIS 16th International Conference on Computer and Information Science (ICIS)

Summary:

The growth in educational data mining is a happening field in the world of research which focuses on collection and analysis of data. Today the system of education has completely changed by the advent of internet, Information and communication technology, Internet of things etc. The learning environments have completely changed. That is, it has become virtual. The information which is analyzed tells the institutions how to improve their learning experiences and how to run the educational institution properly and efficiently. This paper mainly focuses on the value of Internet of Things in capturing and mastering massive data for online learning courses and help in identifying learning scenarios for learners. This paper has an objective of determining whether Internet of things does collection and storing of data of the students who are interacting with the online courses. The way by which this can be achieved is also explained in a very clear manner. Firstly, we need to connect the smart objects in the schools or institution's Local area network. Secondly, we need to create a database in order to store the data which is collected. Finally, we need to propose a model to implement for helping the students with the information required. The paper also explains the outputs which are expected. Firstly, the experiment should determine the areas where the learners are interested by interaction with the learning management system. Secondly, it should measure the effect of information which is provided by connecting smart objects and finally the developed model must integrate with the online learning management system. The paper also explains the related work of the paper. In order to achieve all the outcomes, they also explained their methodology in getting results. They will establish a three-level connection in the institutions. The connection will have a set of different sensors. These sensors will collect the data. Then the data is sorted and stored in the database. The data is the database is analyzed and an algorithm is developed which helps institutions get an efficient learning and teaching methodology. A feedback for learners is also provided. In order to get data from the sensors is a very challenging task which requires a lot of resources. They also mentioned other challenges which are being noted to as future work. One of them is how to determine the count of the number of sensors that are to be connected.

Comments:

As the education system in olden days was a traditional classroom method and now that it has totally changed this paper seems to be interesting. The methodology which they implemented was impressive. Though it had few challenges the effort they have shown in changing the education system was clear. Hope it will overcome all the challenges and propose a new model for capturing and mastering massive data online for learning courses. The idea of integrating smart things inside the classroom that measures the concentration is the best part.

Applying Parallel Programming and High-Performance Computing to Speed up Data Mining Processing

Ruijian Zhang

2017 IEEE/ACIS 16th International Conference on Computer and Information Science (ICIS)

Summary:

This paper mainly deals with the improvement of quality of water assessment and its prediction by applying Parallel Programming and High-performance Computing for better accuracy and also reduce the execution time. In order to do so simulation models are employed for quality of water and its prediction. But this method of implementation is complex and has few limitations. In order to overcome these limitations, data mining has become an alternative way by which the water quality and its prediction can express the very complex behavior of Lake Michigan region. Data mining is nothing but the processing of extracting patterns from a set of data. This paper or project made use of data mining technologies like clustering, classification etc. When compared to data mining methodologies High-performance computing helped them address this problem very effectively. For initial study this methodology worked by giving good results on a sixteen-processor high-performance computation system which achieved good water quality prediction and also reduced the execution time by 10 times better. To conduct this, experiment the author used a decision tree classification tool C5. In order to do this project a collaboration was made with SAVE THE DUNES CONSERVATION FUND'S WATER program. Their responsibility was to monitor the quality of water and providing values at seventeen sites in Salt Creek area. The data provided by "save the dunes conservation fund's water" was not complete and was inconsistent. Even some values were missed, and some values were invalid. So, by taking these values we need to perform data cleaning, normalization, missing data treatment, data preprocessing etc. For doing so they have considered only five attributes of water namely water temperature, dissolved oxygen, pH value, specific conductivity, turbidity. Data of same type was made into groups called clusters and experiments were carried out in order to get to know about the water quality and its prediction. At first, an algorithm was designed which has designated the quality of water by three levels. Good, fair, poor were the three clusters of levels of quality. Then there was an extension up to five levels i.e. good, poor, fair, excellent and very bad. The algorithm designed was a NP hard problem. The complexity of the problem was order of n^k . This algorithm was not that effective i.e. it was taking much time to execute. Thereby, parallel programming along with High-performance computing was used which reduced the execution time to a level which was acceptable. The program was written in C++ and was executed on Purdue university's high-performance cluster Falcon. It consists of eight nodes, 32 CPU's. Further, implementation was done on a decision tree-based tool c5. This was repeatedly performed and thus the quality of water was achieved along with its execution time less when compared to the previous experiments.

Comments:

The way the project improved the efficiency of the algorithm and calculating the quality of water I mean the methodology was the best part. The project expressed the importance of High-Performance computing in reducing the time and giving an efficient algorithm. The way it showed how results apply data mining models on HPC is very efficient. Overall the paper was informative and was expressed in a very clear and easy to understand manner.

Recognition and Intensity Estimation of Facial Expression Using Ensemble Classifiers

Hiroki Nomiya, Shota Sakaue, Teruhisa Hochin

2016 IEEE/ACIS 15th International Conference on Computer and Information Science (ICIS)

Summary:

Facial Expression Recognition is a remarkable and demandable problem which has variety of applications such as image retrieval, video retrieval, robotics, health center etc. This is the main reason why it attracts attention and is been a research topic which is mainly researched on the improvement of accuracy and efficiency. Facial Expression Recognition (FER) can quickly recognize facial expressions and handle any kind of difference in facial expressions. In order to do that we need to get feature values. Getting these feature values is a challenge. The paper also discusses the related works. In this paper they proposed a method by which we can determine the facial features effectively for facial expression recognition. This method firstly selects facial features based on the facial feature points. Facial feature points are nothing but eyebrows, mouth, eyes etc. A facial feature is designated by a two-dimensional space. As discussed, we need to know the feature value which is defined on the basis of the angle which is in between two-line segments which consists of three facial feature points. The method to obtain this is very fast and efficient. Getting a single feature is very easy. For this reason, we get to ensemble learning which basically combines many numbers of facial features. This is done by combining all possible ways of facial feature points. Then selection among these facial feature points is done in order to get useful facial features among all the facial features. Then a facial expression recognition model is constructed for each individual facial feature. This is done on the basis of Bayes classifier. Finally, the facial recognition models of all the facial features selected will be combined into a single facial expression recognition model by means of a voting. Most of the Face expression recognition models existing can only differentiate six types of facial expressions namely anger, happiness, disgust, fear, surprise, sadness. Along with differentiation estimation of intensity of facial expressions is very crucial. In order to do this estimation of intensity of expressions of face they utilized the weight of classifier. For doing this no additional cost was needed. Overall the proposed model can be summarized into three steps- Facial Feature Points, Feature values, Feature selection. The facial recognition model can also be summarized two steps- Construction of weak classifiers, Construction of a strong classifier. The experiment can be summarized as follows- Data set of 12 video clips, Settings for the experiment, Accuracy of facial expression recognition, Efficiency of facial expression recognition, Estimating the facial expression intensity.

Comments:

The way they proposed the facial recognition method and its estimation for intensity was clear and it was easy to understand. The best part was the proposed method's selection of useful facial features automatically. The way they experimented in order to differentiate and predict the intensity of smiles was amazing. The only drawback of the paper was they calculated or estimated the intensity with only one facial expression which is smile. It would be better if the intensity was estimated for few other facial expressions. And one more drawback which I felt was the experiment was carried out only on males. It would be much better if was done of various gender people. Hope they come up with these changes in their future work. Apart from these challenges the paper was good enough. It was informative.

Application of Deep Learning in Object Detection

Xinyi Zhou, Wei Gong, WenLong Fu, Fengtong Du

2017 IEEE/ACIS 16th International Conference on Computer and Information Science (ICIS)

Summary:

Object detection is one of the computer vision technique which is used for locating objects within an image or a video. It is a technology which is crucial in building applications like video surveillance and advanced assistance systems. Object detection technique mainly use Machine Learning, Deep Learning or computer vision techniques to locate objects within an image or a video. There are many other techniques for object detection namely YOLO v2, R-CNN, Fast R-CNN, Faster R-CNN, Template matching etc. Object detection has been a great research topic. The main reason for object detection to make a progress is because of convolution neural network. It has made its progress in such a way that it started off with a single object recognition and landed off on multi-object recognition. There are many algorithms for object detection. Among them one algorithm was formed by Deep Learning based on RCNN. In this paper they firstly summarized some algorithms of object detection which are related to deep learning and then apply one among all these algorithms to verify the applications of it. Firstly, the paper started off with introducing the main components of Deep Learning. The two components discussed are Dataset and Neural Network. Dataset and neural network are important as their change will affect the accuracy. Later they introduced us with the commonly used datasets in computer vision namely ImageNet, Pascal VOC, COCO. Each of the data sets are described briefly. Then they explained what exactly neural network is and how it is related to the object detection. Various techniques such as R-CLVLV, SPP-Net, Fast R-CNN, Faster R-CNN. They then explained the application of Faster R-CNN on any new data set. It was a sort of experiment. In this experiment they took a VOC data set format. Then they created a football game image dataset. This dataset consists of four objects namely player, football, soccer goal, corner flag. Each object is differentiated by using different colors. Then by means of few attributes they got few annotated messages. These annotated messages are saved in an xml format. After some sort of processing they concluded that the football dataset consists of 5357 images. Then on this data set faster r-CNN network will be working on. Later on, they have provided us with the conclusions drawn from the dataset that the values of the objects have low mAP. The reason behind them was also explained. The two reasons explained were uneven quantity, uneven size.

Comments:

The paper mainly expresses the importance of applications of Deep Learning and its impact on the dataset through faster. The paper was informative. A strong and interesting paper on object detection. The examples were clear and east to understand. The paper was explained in a sequential manner. That is, they started off with what is object detection and then came into the topic of deep learning algorithms which are used for object detection. The drawback was some of the topics where left incomplete. There was a sort of discontinuation. I felt that it would me better if there would be more diagrammatic representation of the object detection.

A “No Data Center” Solution to Cloud Computing

Tessema Mengistu, Abdulrahman Alahmadi, Abdullah Albuali, Yousef Alsenani, Dunren Che
2017 IEEE 10th International Conference on Cloud Computing (CLOUD)

Summary:

Today cloud computing services are following the ‘data center’ approach. In that many servers are setup in order to provide services. But in order to set up a data center, it involves more money and also many expert people maintenances are also required. As all the servers are put together, we need high power for cooling the servers. Apart from this there are huge numbers of Personal Computers owned by individuals and organizations. Many researches done by researchers say that most of the time these CPU’s are idle. This led to a provision model of cloud namely “Credit Union Cloud Model”. The main characteristic of Credit Cloud Model is “No data Center” approach to provide services for organizations. Safety and security are major obstacle for the public clouds which are provided by vendors. If the data is very important for any organization, it is usually better if we go for an on-premise private cloud. Moreover, setting up a huge data center for private cloud is also cost involved. This paper starts off with credit cloud model. Next it provides the implementation part of the credit union cloud model demonstrated in a cuCloud. It later provides the results and analysis of the experiment and in the last section provides with the related works and outlines the future work. To start off with what exactly is Credit union cloud model, it is basically a cloud provisioning model that mainly focuses on computers which are idle. For personal computers to join with the cloud credit union CU plays a major role. These PC’s are referred to as member or volunteer nodes. Credit union cloud model follows the basic client server architecture with PC’s which are referred as volunteers will be acting as clients and management machines as servers. The servers are further classified into different components namely Interface, Authentication and Authorization module, resource manager, resource allocator, virtual machine manager, security, monitoring and management. Each components description and functionality are clearly mentioned. One major software installed is membership collector which basically lives in the CU cloud system. The functionality of the membership collector is also clearly specified. The components for the membership collector such as sensor, reporter, virtual environment monitor etc. are also explained briefly. Later on, the implementation part has been elaborated and clearly explained. The experimental part was also explained by elaborating on the five scenarios on which the cuCloud was conducted. Later on, they introduced us with a related work or call a noticeable work of ad-hoc cloud. The one which is proposed that is the infrastructure consists of several parts and among them the work of one part is to create or destroy the cloud elements. The other one monitors the effects and other one carries out the QoS issues. The last one executes the tasks. They also introduced us with the topic of V-BOINC, which is basically a server. Its components include cloud interface, job service, VM service. The author concluded with the future works related to **“No Data Center” Solution to Cloud Computing.**

Comments:

The paper was good and has some flaws. One among them is that the author doesn’t give an actual implementation of the ad-hoc cloud system. The author he has just mentioned about elasticity, multitenancy which are the characteristics of the system. It would be better if he would elaborate on them. Apart from this the paper was good.

A European Hybrid High Performance Satellite-AIS system

Remi Challamel, Thibaud Calmettes, Charlotte Neyret Gigot

2012 6th Advanced Satellite Multimedia Systems Conference (ASMS) and 12th Signal Processing for Space Communications Workshop (SPSC)

Summary:

The two main approaches in order to improve the Quality of service of Automatic Identification System data collection from space are- first is the introduction of way in the space based Automatic identification system concept which mainly enables the change of quality of service in dense areas. The second is introduction of third frequency which is dedicated to AIS. Both these approaches are basically for improvement in quality of service. This paper mainly focusses on these two approaches that is how do they actually improve the quality of service, their implementation and their limitations. The paper also analyses how a medium SAT-AIS system and high SAT-AIS system improve the capacities. Automatic Identification System is mainly used for tracking of ships. How does the automatic identification system tracks? The answer for this is also mentioned in the paper. This is done by the capture of automatic identification signals from satellites. Thus, enabling the navigate information regarding the ships. The information basically includes ships position, where the ship is heading towards, what is the speed of the ship, what is the destination of the ship? By answering to all these questions, it basically improves the surveillance capacities. This is done along with giving useful information for some of the domains. The Domains include Fleet management, Environmental information, Maritime Safety, Law enforcement, Piracy and Maritime security. Later on, the paper takes us through the architecture of SAT-AIS system. The basic components for the SAT-AIS architecture are the maritime segment, coastal automatic identification system infra-structure, airborne maritime patroller segment, IT system and AIS segment. All of these components were not explained in the paper. Only the space based Automatic identification system was only explained. The flow is also explained that is the data which is transmitted is collected. Collected Data is processed. Processed Data that is AIS messages are then sent to the data processing center which does some processing. Later on, it is sent to control center station where it handles all the data. Then the paper explained about the innovative approach of improving the SAT-AIS quality of service. The two ways of improving the quality of service were mentioned in the paper. While explaining these two ways he introduced the approaches by starting off by asking a question why today SAT-AIS system will not offer satisfactory QoS? The answer to this was satisfactory. Later on, he started with the two approaches which improve the quality of service. The first approach was high-end SAT_AIS processing chain and the second approach was additional AIS frequencies with optimized protocol. The two approaches were clear and the explanation was acceptable. Then the author drove us through a European road map for high performance SAT-AIS systems. In this he explained about the final ideal hybrid solution, Incremental approach, performances of the hybrid system. Then he concluded the topic by explaining the solutions offered by the two approaches i.e. high performance by the first step and safe and incremental approach by second step.

Comments:

The paper didn't explain about SAT-AIS architecture completely. It was left incomplete as it didn't explain all the components. From maritime segment, coastal automatic identification system infra-structure, airborne maritime patroller segment, IT system and AIS segment, the author only explained about space based AIS segment. It would be nice if he explained all the components. And I couldn't understand few topics as they were incomplete. Apart from these the paper was good and informative.

Devices and Sensors Applicable to 5G System Implementations

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2018 IEEE MTT-S International Microwave Workshop Series on 5G Hardware and System Technologies
(IMWS-5G)

Summary:

This paper mainly focuses on the technologies of the 5G ecosystem. The three device technologies are examined. As a result, they will enhance, and they enable system implementation. The three devices are state-of-the-art RF MEMs switch, Energy Harvester, RF SAW filter. Internet of things or IoT is influencing our lifestyle from the way we react to the way we behave. From air conditioners that you control with your smartphone to Smart Cars providing the shortest route or your smartwatch which is tracking your daily activities. IoT is a giant network with connected devices. These devices gather and share data about how they are used and the environment in which they are operated. It's all done using sensors, sensors are embedded in every physical device. These sensors continuously emit data about the working state of the devices, but the important question is how they share this huge amount of data and how do we put this data to our benefit. IoT provides a common platform for all these devices to dump their data and a common language for all the devices to communicate with each other. The goal of IoT and 5G together bring advancements in the technologies. In this paper the author gave a detailed explanation of the three technologies. In the RF MEMS Switch he explained about the active open MEMs device and RF Performance. He explained these with some equations. Later on, he explained about the Thermoelectric Energy Generator. They basically reduce operating expense and battery replacement for this also is cost effective. The main role of Thermoelectric Generator is to convert heat energy into electrical energy by using Seebeck effect. These Generators have some advantages namely they have small device area of about 10mm, they are cheap, Microfabrication is allowed, it has high device thermal resistance, it enables high output voltage. The current model used is combining low power sensors, power management and radio module with these thermoelectric energy machines. They basically monitor the machine health. Then the author explains about what exactly RF SAW Filter is and its functionality. The diagrammatic representation was elaborated and explained.

Comments:

The paper outlines the three technologies state-of-the-art RF MEMs switch, Energy Harvester, RF SAW filter in a very nice manner which few diagrams which were informative and easily understandable. Overall the paper was interesting to go through, as it is always fascinating to know about new technologies. The paper was clearly explained so that a person who is not a part of the computer industry would even be able to understand them. The way the paper has presented the information about these technologies stimulates interest for an individual to try and see whether he can attempt to approach these technologies. It does help in raising the question about the entire topic and helps in making us more involved and so I found it to be very good paper.

Making Knowledge Discovery Services Scalable on Clouds for Big Data Mining

Domenico Talia

2015 2nd IEEE International Conference on Spatial Data Mining and Geographical Knowledge Services (ICSDM)

Summary:

This paper mainly focusses on how to analyze data services and also introduces us to Mining Cloud Framework. This Mining Cloud Framework is mainly designed in order to develop and execute distributed data analytics. With the Mining Cloud Framework developers can use datasets, algorithms, tools, knowledge models. These will be implemented on single services. Each service can be executed on cloud. This paper also describes figures of scalable data analysis applications. The paper is organized in such a way that first he introduces cloud computing concepts. Next the author drives us through how clouds are used in order to implement Knowledge discovery applications. Then the Data mining cloud framework is explained. Finally, he provided with some related works and future investigations. The paper later on describes the key features of clouds namely on-demand self-service, ubiquitous network access, pay per use. He gives a formal definition for what exactly is cloud computing. Then he explains what are the delivery models which are included in the cloud. The delivery models were explained in a very clear and easy to understandable way. The delivery models discussed are IAAS-Infrastructure-as-a-model, PAAS-Platform-as-a-service, SAAS-Software-as-a-service. The author explained each one delivery model in a very nice manner. According to him in Infrastructure-as-a-model is basically if your business needs a virtual machine opt for this kind of model as it provides the basic computing infrastructure. We use Pay-as-you-go methodology. Then he explained Platform-as-a-service model which is basically provides your business a platform to run your applications. It is mainly used by IT providers. Then he explained what exactly is SAAS-Software-as-a-service which is basically a ready-made model. Everything will be done and given to us. Best example for this is End users. Next the author explained what is Big Data Analysis on clouds. He then explains how Big Data Analysis is done with the three service models namely Data analysis as SAAS where everything is ready-made, Data analysis as PAAS where we get a platform to run everything, Data analysis as IAAS where we get the infrastructure built. Then the author introduces us with the framework for data analysis. In this he explained how Data mining Cloud Framework allows users to implement single-task applications, parameter-sweeping applications, worliflow-based applications. Then the visual workflows in the framework include types of nodes. These were explained elaborately. That is Data node, Tool node. He finally concluded with remarks and research topics. He included the topics that need future research. Included ones are High level software tools and programming languages for big data analytics, Data formats and tools interoperability and openness, service-oriented workflows on multi-clouds, metadata tools, provenance and annotation mechanisms etc. needs more investigation.

Comments:

The paper was very interesting. Basically, all the cloud topics were explained in a very nice manner. The explanation of the service models was the best part. I expected much diagrams, it would be better if there were more diagrams. The paper was clearly explained so that a person who is not a part of the computer industry would even be able to understand them. Overall the paper was interesting to go through, as it is always fascinating to know about cloud technologies