Internet of Things in Cloud Computing

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Abstract—Internet of Things (IOT) is one of the modern technologies in the current epoch; but its Application areas still not been fully analysed. After the widespread use of the Internet of Things, the subject of security and privacy has attracted a lot of attention to itself and the issue has become controversial in this area. Protection of IOT is complex and difficult activity. Internet of Things requires mechanisms of confidentiality, integrity, authentication of identity, and accurate access control. Current Internet continuously faces to multiple attacks due to technical, legal and human problems. Internet of Things considering as future innovation in the field of wireless technologies. This phenomenon will create hundreds of new security challenges that they need to examined in detail. Another challenge that became propounded in this area is that the Internet of Things will enhance and deepening the digital chink. In this article we will have brief review on the security issues ahead of the technology and the impact of this technology on the digital chink.


I. INTRODUCTION

All manuscripts Today's world is a world which information comes first and so that we can predicate them on virtual gold; IOT is also based on the information, by knowing that important issue and it expanded that to all objects of our environment. Internet of Things technology plays very important role in the entrepreneur’s world. Several businesses have launched on this technology's pivot, while the concept and the technology are in its infancy, and increasingly changes and new developments have occurring every day.

In the space of IOT, tools and equipment that used in our daily life, including TV, fridge, heating and cooling, lighting, etc. connected to the Internet and they will be controllable through smart mobile devices.

These days we hear a lot about the Internet of Things, Microsoft, Google, Samsung, Qualcomm, LG and other active companies in the field of technology trying to reach a comprehensive platform before the rest of. However, the Internet of things for most people is ambiguous; in this article we intend to assess various aspects of the technology.

The internet is a global network that connects all users to interact with each other, but the structure of the network is changing. We all use laptops, tablets and smartphones to communicate with our friends. The most part of information between us and friends exchanged via servers that are responsible for the task of opening the website and e-mail soft wares. Finally, we can say that the Internet formed by users, client devices and the server, but now a member is adding to the collection. This new participant is not a user and it's known as «Things» or objects, this word taken from «The Internet of the Things» phrase. Perhaps an "object" be addressed to any device that has sensors to transfer data. Examples of such sensors include temperature sensors, traffic sensors and sensors that measure energy; for instance, a temperature sensor can place in a thermostat, the sensor that measures the amount of electricity used in homes and traffic sensors take in traffic signals. All these sensors send information to the destination device till these devices, according to this information make decisions. It’s not happened yet, or may even have occurred, but in the near future many things between people will be exchange via the Internet by using smart devices. Smart devices such as smart phones, the Internet, email and social networking has changed personal affairs and the way we work. Clearly we can say that the Internet of Things will have an effect on the lives of all users.

In general, IOT is the network of embedded physical objects with electronics, software, sensors and connections to them are able to expose more value and services by exchanging information with the manufacturer, operator or other devices. Each IOT member singly is able to detect by embedded system in itself, and can also interact with the existing Internet infrastructure. Internet of Things is a Computing concept to describe the future in which physical objects connected to the internet One after another and have connection with other objects. In this technology anything awarded a unique ID and an IP that can send data to the specified database.

Another important concept is machine-to-machine IOT or
M2M. This concept shows a way that a machine chooses to communicate with another machine. Internet of Things also shows how to communicate a smart device with the cloud service and it even shows how to connect the devices to each other. Data transferring via Wi-Fi, Bluetooth and email are examples of how to make the devices together. In the area of machine to machine on the Internet of Things, limited resources such as processing power, memory and so on are important.

II. ARTICLES DIVISIONS

Internet of Things, connects the Internet of computers to all over the world and via the world-wide web creates a global platform for storing, sharing resources and providing services. In recent years, advances in information technology cause Accelerate to the development of the virtual world. The web-based technologies such as Semantic Web, network processing, service-oriented computing and cloud computing not only has made world of network to a platform research / services, but also has converted them to a conducive environment for global communications with communities, associations and Different virtual organizations [8].

Many scientists believe that development of wearable computing and embedded revolution will Figure out digital technologies in the future and will entail increased of the safety, efficiency, security, convenience and wide range of useful information for units and organizations. The challenges in range of personal privacy, intricacy of the technology and creation of digital divide will have discussed. According to the Pew Research Center reports in May of 2014, the Internet of Things will have significant growth until 2025[1].

Although activity in the field of Internet technology objects from the early 90s began, but the so-called "Internet of Things" Kevin Ashton presented in 1999. Internet of Things is a new concept in the world of ICT. In short, the Internet of Things is a technology in which is provided ability to send data via communications networks, including the Internet or an intranet for every creature (human, animal or objects). According to Gartner, more than 50% of connections between IOT that in 2011 their number estimated at more than 15 billion and it anticipated by 2020 to 30 billion units [2], also like Figure 1 the value of IOT nodes addressing market from less than $ 1 billion in 2015 reach 48 billion dollars in 2025[3].

Embedded technologies such as Auto-detect radio, technology for wireless communications, sensor networks, embedded equipment of the network and the Stimulus Network (SEA- network) forms the technology of the Internet of Things. Web of things is created by the Internet of Things. WOT works based on technologies such as Internet protocols, sensor technologies and smart phones and RFID technology. According to the rapid developments in itinerant communications, wireless sensor networks and RFID, IOT different mechanisms along together in any place, any time and in any way be united [4].

Thus, the data sending process in the internet of things technology is that the subject in question accrues a unique identifier and an Internet protocol that sends necessary data from relational databases. That Data will be visible by various devices such as mobile phones and a variety of computers and tablets. Data sending process in the Internet of things technology doesn't need “man to man” or “human-computer” reactions and the data will have sent automatically based on the settings and on Specified time (is usually permanent and instantaneous).

At the moment the use of various technologies Internet / Web and Internet of things such as Web 2, Web 2, the smart world, green computing and so on accelerate integration of the social, physical and virtual. One can suggest that the Cyber world made up of computers, the social world made up of units and objects in the physical world will composed in the future. In other words, global cloud of IOT / WOT formed and establishes profound influence on the life and work of units [6]. The Internet of Things shows us new challenges and gives us chances and if this technology properly used, creates new and great change to the next life and work.

III. SECURITY IN INTERNET OF THINGS

There are dangers on the Internet of Things and that's why cannot know its security a hundred percent. In the IOT, devices sending data and receiving commands, so hackers penetrate and their abuse is not unexpected. Recently, Intel, McAfee Labs have released a security report in which the dangers that threaten IOT devices, noted.

The report said that with the increase number of connected devices to the Internet of Things, also increases the risk of hackers penetrate, some devices may not secure. White hat hacker conference in 2013, security researchers showed how security cameras are easily hacked [5]. Once breached the hackers can steal your recorded video and penetrate to camera's entire network. In 2014, hackers were able to penetrate the cameras in the children's room and in this way they have created fear and terror for them. BBC Network recently published an article about the children's camera hacked. All of these events make users frightened and concerned.
IV. CHALLENGES OF INTERNET OF THINGS

There are many challenges for the Internet of Things. One of these challenges, is technical issues around devices that exchange our information; this challenge to embrace both hardware and software problems. Battery life, maintenance and safeguarding, and compatibility are parts of these problems. In fact, many problems are around big data that they are shared by smart devices. Also, there are problems with security and privacy above all, no one wants its smart home be hacked! Or even a completely intelligent hospital could be remotely breached. As we move from smart homes to smart cities that have smart transportation system, these problems become much more complex and will be difficult to fix them. This happened when Samsung's managing Announced that all its products, will have the internet of things up to 2 years. If 2020 year seems far for you, Samsung has less of the range and said that at least till 2017 about %90 of this company's products, enter the internet of things. Samsung plans included all its products like washing machines, air conditioning units and even gas stoves and microwave.

Samsung's managing pointed out that the Internet of Things should integrate for the user, said: IOT’s integration, we must create an open ecosystem for the technology and in the near future all products and our equipment are fitted to this new system and we will ensure that all customers connect to the ecosystem.

V. ARCHITECTURE AND STRUCTURE OF THE INTERNET OF THINGS

The word «Thing» points to total devices that monitoring or windows that have sensor and temperature monitoring devices. These devices transfer their information to development devices. This advanced device may be a smart phone, or a dedicated control unit such as smart thermostats or specific device that is the Internet gateway.

Specific devices are also known as gateway of IOT's devices. These devices are very important because a sensor may not have a direct connection to the Internet. These devices, relation done via connections such as Bluetooth and ZigBee with low power consumption.
example of smart home, in smart city used in intelligent traffic control, intelligent street lighting control, etc.

VI. FUTURE OF IOT

Internet of Things is a technology that different companies are developing their own platforms daily. Until a few years, perhaps anticipating that this technology is advancing, was impossible. So it seems that in the not too distant this technology will have established and all will benefit from it soon. Pew Research Institute has collected reports about the internet of things that, based on which by 2025 will widespread; So that by the time many users' devices will connected to the internet and this technology will have considered commonplace. Believes of this development is not unexpected, because in 2008, for the first time, the number of Internet-connected devices were more than the number of people on the earth. The number of online devices grows every day with this account, the Internet of Things will have quick progress. In the future, the ability to control objects, household appliances, automobiles and other devices will have provided by this technology.

VII. CLOUD SPACE OF THINGS

The main characteristics of cloud storage or the cloud is that all information stored on the server and not a computer or any other device. Suppose some information is private and extremely important for you and never want to lose this information, while you do not know any for keeping this information secure (smart phone, tablet, computer, laptop, etc.) Then you realize that the best way for you to store information is through the cloud. By creating your own cloud account, you can store all data on your personal cloud user interface and the time that you can delete all data from miscellaneous devices untroubled and whenever you want and anywhere you access to your cloud storage and use your stored information by the internet.

VIII. CONCLUSION

The Internet of Things emerged and is no longer want to leave, this technology has come to invade. The proof of this claim is various projects related to the field that increasingly encourage more companies to collaborate and implementation on them. The pulse of the Internet of Things in "communicating via the Internet", a world where machines interact by smart sensors through the web and are able to exchange information, but to implementation these goals more efficiently, the cloud computing should take, also with the completely correct manner. Cloud of objects In fact, is a word that describes the machine's way of our digital data (free of any device or platform limitations) to communicate with each other.

In fact, Claude space of things Accommodate the digital information related to each object in its and saves all conceptual communication between objects and patterns. Claude space objects can influence the overall concept of cloud computing as a stimulus to connect the Internet of Things or the Internet through Internet services to create a communication platform and useful cooperation, admitted that exploit from all sources of information for smarter cities and help them grow and economic development and overcoming challenges such as energy management. The goal of Claude space objects is creating, deploying and managing user axial applications and finally utilizing Internet technology objects.

REFERENCES