Future of IoT: A Succinct Study

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Abstract— **The capability of future Internet will be to connect & communicate with almost every virtual and physical objects around us to the Internet which is existing. The Internet of Things is a vision that allows a link among different kinds of virtual as well as physical objects to analyze how it can effect things and how life would change and to turn homes and cities smart. This way, IoT is an integral part of the 'Future Internet' that counsels individuals, private organizations as well as public organizations, research and also the educational institutions about how to make 'smart things' an active business participant. Therefore the 'smart things' are expected to process and exchange the sensed data, while reacting evenly to the events with or without any human manipulation and self configuring themselves. The IoT's domain application is being spread over the time. IoT would be revolutionizing fields such as tele medicine, irrigation, smart industries and buildings, auto vehicle systems, ecommerce, monitoring and surveillance etc. All these impressive and pleasing aspects of the Internet of Things can be in the daily life only if a 'well defined' standard is constituted that would deal with the size, time, complexity, privacy, security, cost, peaceful co-existence and better integration among the objects. The mentioned challenges could be dealt by the WSNs, WMNs, WPANs, RFID, and MANETs.etc.**

Index terms: **Internet of Things; Cyber risks**

I. INTRODUCTION

Internet of Things is the link of physical devices with software, sensors, electronics, actuators and connectivity.

It enables these things in a network to exchange data and creates opportunities for more direct integration of the physical world into computer based systems which results in improvement of efficiency, benefits economy and reduces human exertion.

Internet of Things involves extending internet connectivity beyond standard devices which includes laptops, smartphones, desktop to any non internet enabled or dumb devices. It takes in all the physical devices and everyday objects. These devices communicate and interact over the Internet and they are remotely monitored and controlled.

II. ILS SCHEMES FOR IOT

A. The adoption of ILS paradigm in the recent years has been increasing and emerging in the application with Internet of Things. It can be enhanced by adding upgraded cloud service capabilities that help redefine the information driven enterprise. It transforms manufacturing, natural resources, energy, transportation and retail transaction management having improved connectivity, competitiveness and reliability within remote locations, factories and across the entire supply chain.

III. IMPACT OF IOT CYBER RISK

Cyber risk has not been clearly analyzed through historical measures because of the fast changing of the risk environment. The common figure stated is a loss of $1 trillion to cybercrime, but estimates range from: 300bn and $1tn, $400bn to over $575bn, or $400bn to over $2tn. The difference among the figures shows that the numbers are rough estimates at best, and the real economic affect of cyber risk is still unknown. The main difficulties caused to calculate the economic impact of cyber risk is the lack of suitable data and the lack of universal standardized framework to assess cyber risk. Additionally, there is the need to quantify accumulated risk on a shared technology platform (such as cloud computing) and hyper-connectivity in the digital supply chain. Analyzing the economic impact of cyber risk is also complicated because of the impact on brand reputation, the cost of downtime, legal liability, cost of intellectual property loss, and many other variables. Merely the media coverage of cyber risk has created such significant economic impact that managing risk has become ‘imperative’.

IV. PROCESSOR MICRO/ ARCHITECTURES FOR IOT EDGE DEVICES

The goal is to provide micro architectural and supporting software or hardware architectural support for (a) simultaneous execution of processes where possible under processor resource constraints, (b) unified models of prioritized execution for all processes in a system including physical event handlers, and (c) prioritized execution of processes when simultaneous execution is

not possible due to disputes in the use of computational resources. In part, the approach targets to match the computational resources and demand for them by more and more processes, in effect becoming the sweet spot between conventional MCUs and multicore approaches. Taking over on the foundation of our everyday goals, the following design principles are energy efficiency, responsiveness to events, and minimal perturbation of existing software design too chains, processor level support of key crypto operations, and support of provably correct software design.

V. BUSINESS

The base line is a big inspiration for starting, operating and investing in any business, without any sound and solid business model for Internet of Things there is another illusion, and this model must be satisfying all the needs for every kind of e-commerce, vertical and horizontal markets and also consumer markets. But this category stays a victim of serving and legal scrutiny.

End to end solution providers which operate in vertical industries and delivering services with the help of Cloud analytics is going to be most successful at monetizing a large portion of the value in IoT. Many Internet of Thing applications are expected to attract fair revenue and some can even attract more than a moderate amount. For a little load on the existing communication infrastructure, the operators possess the ability to open up a remarkable source of new revenue with the technologies of the Internet of Things.

IoT can be divided into 3 categories based on usage and clients base:

Consumer IoT includes the connected devices such as smart cars, phones, watches, laptops, connected appliances, and entertainment systems.

Commercial IoT includes things like inventory controls, device trackers, and connected medical devices.

Industrial IoT covers such things as connected electric meters, waste water systems, flow gauges, pipeline monitors, manufacturing robots, and other types of connected industrial devices and systems.

- STAY ALERT AND CONNECTED: IOT CONTINUES ITS EXPANSION.

The technology leaders, development companies and enterprises are working towards extracting out the real applications of the techniques of the Internet of Things. As the business value increases, the outcomes will lead to increased no of sensors that are embedded into the digital products that are newly produced. Most of the industries will look at IoT as a magic wand to attract customers, develop brands and improve the user experience.

- SECURITY: A MOUNTING CONCERN THAT CLOUDS THE FUTURE OF IOT

The most welcoming security trend in the future is Data Protection as IoT continues to grow outspace of its security options. When a device is connected to Internet, it becomes liberating as well as dangerous. The vehicles that are autonomous, the infrastructure of smart homes and the devices that are wearable are among one of the top targets of robbers and brutal hackers which are made unguarded of splitting and violations. But this drawback can be a treasure trove for IoT startups who would be able to address this challenge. The block chain technology can cure this vulnerable issue in IoT.

- HOME AUTOMATION SYSTEM

It is not a genius thing to know what home automation requires. It's pretty much just the usage of smartphones and other computing gadgets that are easily available that automates and controls all the household items and devices from electrical appliances to lights to doors with the help of hardware that can be controlled remotely. Most of the home automation begins with the people with small steps that control simple binary devices. But it's when these devices are hooked up to the internet that they become truly smart and enter the realm of the Internet of Things. Nowadays most of the automation systems use their abilities which are internet enabled and they record and analyze usage patterns of devices, mostly lighting and heating systems and to reduce the overall energy expenditure and electricity bills.

- CONNECTED AND AUTONOMOUS VEHICLES (CAVS)

The Connected and autonomous Vehicles also known as Driverless Cars have all the eyes in the field of Internet of Things. But the broad implication of connected and Autonomous Vehicles and other novel forms of transportation are also firmly on the agenda that includes more smart and green cities and more well organized distribution of consignment and delivering to consumers.

To get an overview of a huge part of this subject area, it is fair to analyze Gartner's Hype Cycle and the status of technologies of 2017,which is related to connected vehicles and smart mobility.

A lot of things are done in the CAV market. According to a report which was published in October 2017 The Institution of Brookings collected reports on "investments and transactions attributable to autonomous vehicles or core technologies" between August 2014 and June 2017, and found more than 160 separate deals of some $80 million in amount. They were covered by microchips,

auto electronics, rideshare apps, digital mapping, AI/deep learning, non AI software, physical systems and sensors. The opinion of public about safety of autonomous vehicles seems to head in a positive direction. By 2020, the storage requirements of the connected vehicle could reach 1 terabyte. Memory system bandwidths of 300 gigabytes per second (GB/s) and beyond will be required to power full autonomous driving. As the memory and storage market leader in automotive, Micron (Nasdaq:MU) is uniquely positioned to help accelerate the industry's pace of innovation.

Already automotive grade low power DDR memories are being deployed to multiple automotive customers. This technology will enable overall system bandwidth of upto 100GB and will provide a foundation for the next generation of autonomous vehicle design.

VI. IoT IN FUTURE

With the help of 5G, the connected cars will be enabled to send and receive messages 10 times faster. A recent report shows that the global connected car market is expected to grow from 5.1 million units in 2015 to 37.7 million units by 2022.Adoption of telematics units and advances in technology with importance on driver and passenger experience with safety and cyber security hand in hand are guiding in a brand new era of growth for the globally connected cars. India is being expected to be emerging as a huge market for the completely autonomous vehicles. Today, less than 2% of the vehicles that are sold in India have some form of connectivity embedded in them. But the people's experience with smartphones have shown us that mass adoption of technology will take place fast as long as we are comfortable with the price tag.

ARE WE THERE YET?

Transportation is all about getting a technology-driven reboot-and not before time, considering the accident-prone, polluting, resource-guzzling and time-consuming nature of many of our current methods of moving people and things around.

VII. CONCLUSION

Currently most of the new transport technologies get tried out, and many vested interests are jockeying for position in the developing ecosystem. The details still take shape, but future transportation systems will for sure be connected, data driven and highly automated. In consequence to this, for all their potential benefits, it will be essential to keep privacy and security issues front and centre as these systems develop. The journey from here to there promises to be a fascinating one.

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