

Three Facets of Future Internet

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Abstract —*the future of the Internet is not only limited to connecting people but beyond that it connects all the things or objects around us, using technology Internet of Things. In this paper it visualized that future Internet is based on three facets like Internet of Things, Cloud Computing and Big Data are complementing each other.*

Keywords- *Internet of Things (IoT), Cloud Computing, Big Data.*

I. INTRODUCTION

It is new technological revolution where exchange of data between all objects and us is possible. Internet is incredible infrastructure, on the top of it, information communicates between various things, and that information is sensed by various sensors. IoT deals with communication of devices and exchange of information between them, so one should arise a question of storing that information. The answer of that question leads to another technology, referred as Cloud Computing.

Cloud computing, provides storage as well as real time analysis of stored information. Cloud computing provide storage resources, computational resources, communication resources and new capabilities of operating with varieties of protocols [1]. Today cloud computing is already used by us, but by integrating it with IoT, it will open up a new disruptive technology, as CloudIoT paradigm in our life[2].

Internet provides excellent infrastructure for information exchange and cloud provide services to assist them, and due to IoT, enormous amount of data of different being exchanges every second needs to be handled by Big Data.

II. Working Together

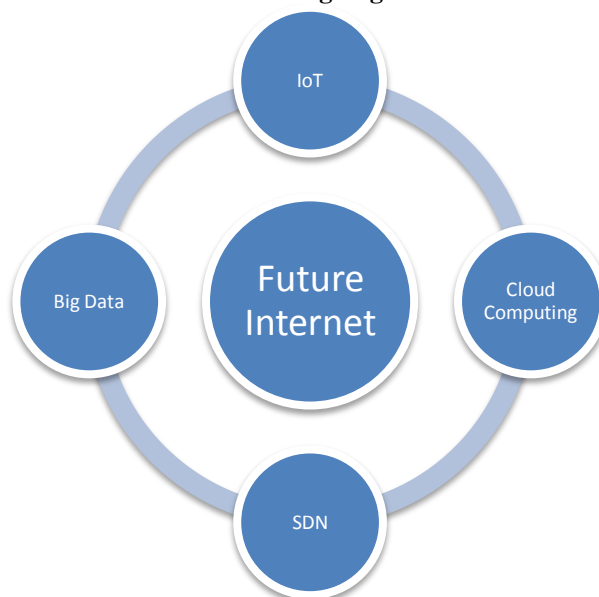


Figure 1 Future Internet Working - Technologies

- Working of Future Internet will be comprised of mainly four technologies: IoT, Cloud Computing, Big Data, and Software Defined Network.
 - As Shown in Figure 1, Internet is excellent infrastructure over which all things around us will be connected and controlled by us, that is IoT.
 - To store such monitored object information Cloud Services will used. This all monitoring and control information exchange possible due to Radio Frequency Identification (RFID). RFID tags attached to all objects and using radio waves that information is exchanged.

- *Big Data is the technology, where all different types of data, whether structured, semi structured or unstructured, generated from RFID tags, stored and processed.*
- *Software Defined Network (SDN) is new emerging technology, where network is defined using programmed interface, no need to deal with lower level vendor specific configuration [3]. It provides Operating System level virtualization, so that network resources management becomes efficient and easier [4].*

III. Applications

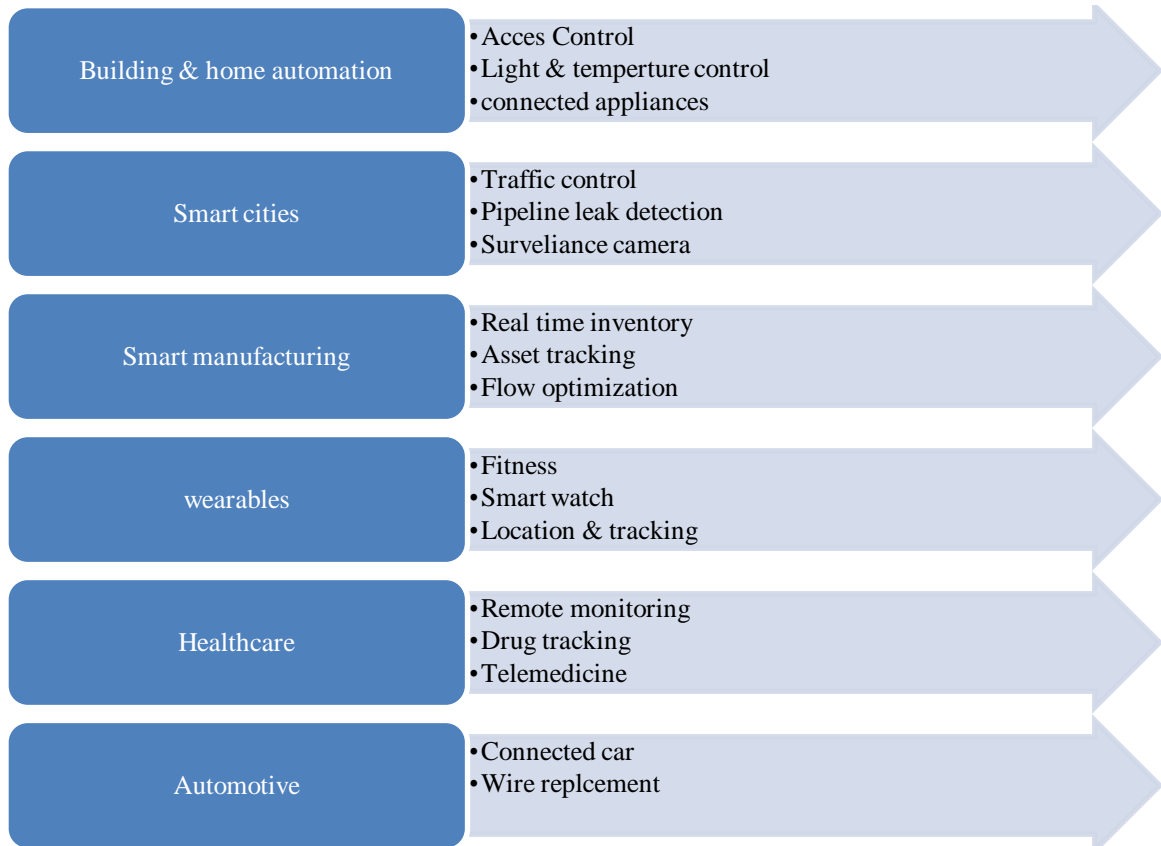


Figure 2 Glimpses of Applications

Figure 2, shows only glimpses of applications of future Internet but it can plenty, beyond the scope of this peper.

IV. Challenges

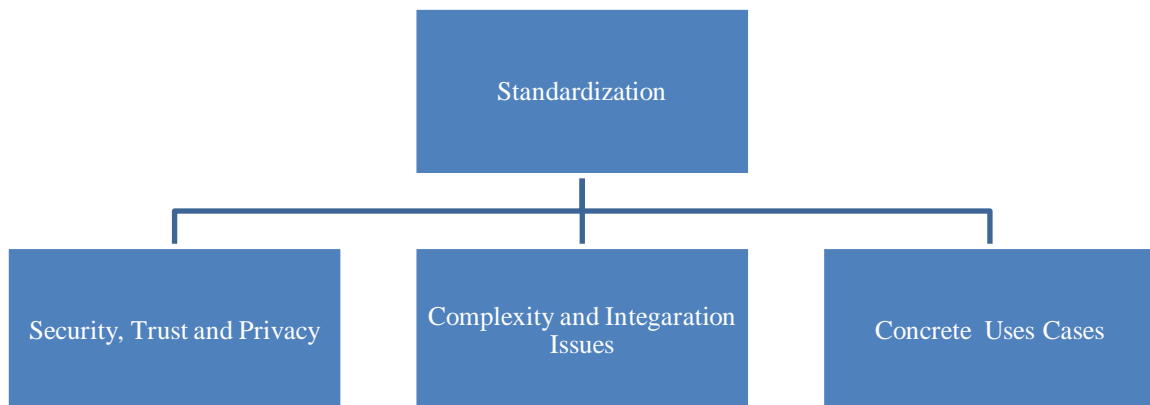


Figure 3 Challenges of Future Internet

4.1 Standardization: It is the parameter needs to be designed for every challenge.

4.1.1 Security, Trust and Privacy:

- IoT is connects more and more device to Internet in decentralized way, creates also an entry points for intruders.
- Devices with control information connected to other machines with all new middleware APIs, increase security risks.
- As it is also related with BigData, the data are being analyze online and security questions raised.
- As IoT is network of various things connected together, via which control information exchange carried out, that ownership of data must be preserved.

4.1.2 Complexity and Integration:

- With multiple protocols, variety of platforms and numbers of APIs, creates confusion in order to IoT system iteration and testing, so standardization is required.
- The first thing should any organization first decide about requirement of it and the level of implementation needs to be preserved also.

4.1.3 Concrete Use Cases:

- Clear need should be discovered for adoption of IoT, so that value proposition is added to the business.
- If clear needs could not be identified than any organization may gets shut down also.

V. Conclusion

Cloud Computing, Internet of Things and Big Data are three main facets of future Internet. This future Internet will make our life easy and efficient enough, so that all our devices becomes smart and even smarter and controlled by us using single tip. Though there are certain parameter needs to be considered, like implementation standard, security, complex architecture etc. Even new concept of OpenIoT is coming in future, referes to open source IoT applications deals with interoperability and wide variety of APIs.

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