Harbinger Systems

Question and Answers

Q: Why is IPV6 so significant for IoT to term it as Backbone for it?

Every device on the Internet must be assigned a unique IP address in order to communicate with other devices. With the ever-increasing number of new internet of things devices being connected to the Internet, there was a definite need for more addresses than IPv4 is able to accommodate. Internet Protocol version 6 (IPv6) is the latest revision of the Internet Protocol (IP), the communications protocol that provides an identification and location system for computers on networks and routes traffic across the Internet. IPv6 uses a 128-bit address, allowing approximately more than 7.9×1028 times as many addresses as IPv4, which uses 32-bit addresses.

Q: Major Challenges/ Barriers in Wide Spread Adoption of IoT?

Interoperability- One major barrier for the widespread adoption of the Internet of Things technology is the absence of governance. Every organization is promoting its own standard.
This has resulted in IoT applications being developed in isolation and for a specific issue. To achieve a truly global "Internet of Things" standardization is pivotal which would result in interoperability amongst devices and systems which will be accepted by states, organizations and the consumer.

Security- The data being sought and shared between the devices can be of sensitive nature especially in the field of healthcare. Ensuring data security is of prime importance for widespread acceptance of IoT.

Power- The current energy supply is not adequate to power the plethora of devices in IoT. Manufacturers are coming up with solutions where sensors, actuators microprocessors etc. can run up to 20 years without the need of a recharge.

Q: What's the difference between the "Internet of Things" (IoT) and "Machine to Machine" (M2M)?

Machine to Machine (M2M) can be simply termed as the communication between machines, device or a computer. M2M is about connecting devices to the cloud, managing of that device and collecting machine and sensor data.

IoT is bigger than M2M; The IoT can be defined as connection of things, people, systems, Machine – to-Machine (M2M) interactions and data over the public/private IP network.

- **Things** can be Machines, Devices, Sensors, vehicles, Wearable's etc.

- **Systems** can be enterprise systems, business applications, big data analytics systems etc.

- Consumers, Employees, Partners and Customers form the **People** in IoT

So in short M2M is a subset of the Internet of Things.

Q. What are the enablers for the IoT? Do we need to wait for nanotechnology, free wifi, 5G?

In my personal opinion, the internet will be the key enabler in terms of being the means of communication between various 'things' as part of the IoT solutions. Though there will be few systems / solutions developed that might not require the usage of internet but ultimately to derive the required outcome from such solutions, internet will be required at some point of time.

Other enablers apart from the capabilities of M2M / M2H interactions, Governing bodies as well as the standardization of protocols, following with be the enablers:

- RFID - To identify and track the data of things
- Sensors - To collect and process the data to detect the changes in the physical status of things
- Nano Tech - To enhance the power of the network by devolving processing capabilities to different part of the network.
- Smart Tech - To make the smaller and smaller things have the ability to connect and interact.
- Machine-to-machine interfaces and protocols of electronic communication
- Microcontrollers
- Wireless communication
- Energy harvesting technologies
- Location technology and many more…

As far as free Wi-Fi is concerned, it will be a welcome thing but I don't think it will be actually 'free'. The service providers will require some revenue model to provide this ever increasing infrastructure called Internet.

Nano technology is and will automatically evolve and dominate the world of IoT as they will be more resource and energy efficient. And with ever increasing number of devices, it will help if they are as small as possible.

Q. How can our infrastructure cope with the future demand on the wired/wireless internet?

The demand for bandwidth would surge with billions of devices connected to the grid and constantly sending and receiving data. The Internet industry is already gearing up for this surge in the demand

and we have seen the transition from 2G to 3G, 4 G, 4G LTE (Long Term Evolution) to WiMAX - Worldwide Interoperability for Microwave Access, and many more faster options to evolve.

Also attempts are being made to enable local processing of data at the sensor level so as to reduce the back and forth data transfer over cloud or wired network. For Example, if the parts of a jet engine are configured to report continually whether they are in good condition and send this data to a device located in the jet itself, which can collect and analyze data from various such sensors. Now if any data represents an anomaly then the device could report back to the cloud over a 3G or satellite link. This would save the bandwidth from being used to send a million "I am Ok" messages.

Q. What is the role of Communication Service providers in the IOT space?

According to me, Communication Service Providers (CSPs) have an active and pivotal role to play in internet of things. With embedding of sensors and measuring device son equipments, objects, a communication service provider becomes part of the value chain for the industry. For example in retail industry replenishing of shelf items when they are below the threshold by sensors through communicating over the grid enables the retail outlet to continually provide its services to the consumers.
Also a CSP has the opportunity to develop specific packages and solutions aimed at the retail industry, enabling the latter to maximize the possibilities offered by connecting things.

Q. Will you post the recording or presentation slides of this webinar?

Yes, you can view the recording and presentation slides of the webinar by visiting this link: http://www.harbinger-systems.com/landing-page/internet-of-things-driving-the-next-decade

If you have any further questions or would like more details about the webinar and our services or would like to get notified about our next webinar, please let us know at: hsplinfo@harbingergroup.com

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Team Harbinger

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