SIES Graduate School of Technology
RISE WITH EDUCATION

Techscience IT Magazine

Cloud Computing

Like real clouds which are the collection of water molecules, the term _cloud‘ in cloud computing is the collection of networks. The user can use the modalities of cloud computing boundlessly whenever demanded. Instead of setting up their own physical infrastructure, the users ordinarily prefer a mediator provider for the service of the internet in cloud computing. The users have to pay only for the services they had used . The workload can be shifted to reduce the workload in cloud computing. A load of service is handled by the networks which forms the cloud that's why the load on local computers is not heavy while running an application . So the requisition of hardware and software at the user side is decreased. All we need to have a web browser to use cloud computing. All we need to have a web browser like chrome to use cloud computing. Following are the key features of cloud computing: I.I Resource Pooling and Elasticity I.II Self-Service and On-Demand Services I.III Pricing I.IV Quality of Service There are three services provided by cloud computing that are Software as a Service (SaaS), Platform as a Service (PaaS) and Infrastructure as a Service (IaaS) . The basic examples of cloud computing which are used by general people in daily life are Facebook, YouTube, Dropbox, and Gmail etc. It offers scalability, flexibility, agility, and simplicity that's why its use is rapidly increasing in the enterprises.

Figure 1:Network Cloud

Components Of Cloud Computing :

Nowadays each and every person is using the services of cloud computing in their daily life. For example Google Photos, Google Drive, and iCloud etc. In future cloud computing will become the basic need of IT Industries.

I Client Computers: The end user can interact with the cloud using the client computers.

II Distributed Servers: The servers are distributed among the different places but acts like they as working with each other.

III Data Centers: Data centers are the compilation of servers.

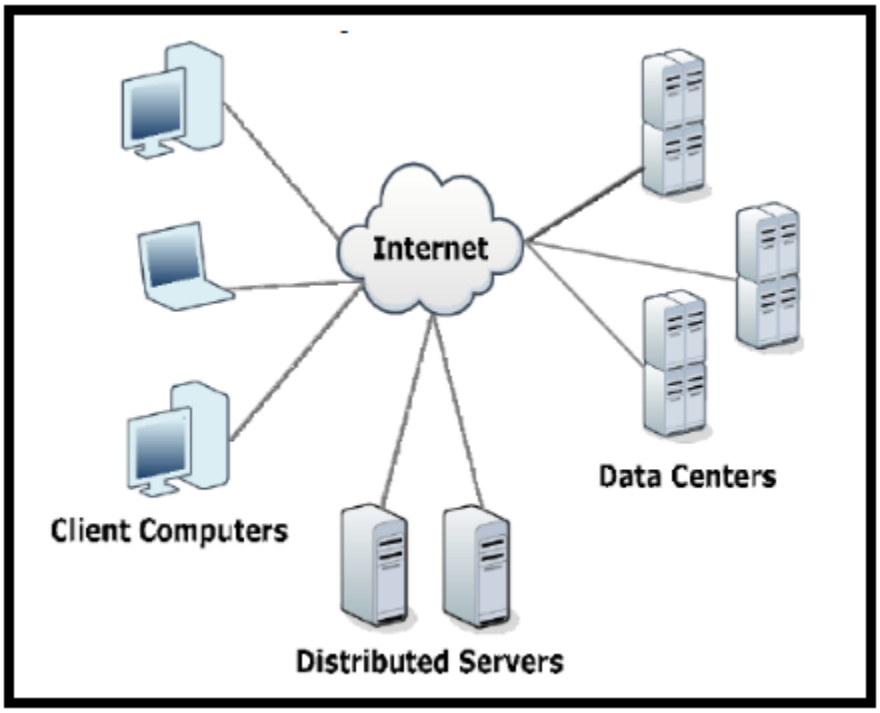

Figure 2:COMPONENTS OF CLOUD COMPUTING

Types Of Cloud Computing

I Public Cloud: The public cloud is a computing service supplied by the third party providers atop the public internet . These services are available for any user who wants to use them and they have to pay only for the services they consumed.

II Private Cloud: The computing services provided over the internet or private network come under the private cloud and these services are offered only to the selected users in place of common people . A higher security and privacy is delegated by private clouds through the firewall and internal hosting.

III Hybrid Cloud: Hybrid cloud is the combination of public cloud and private cloud. In the hybrid cloud, each cloud can be managed independently but data and applications can be shared among the clouds in the hybrid cloud .

Benefits Of Cloud Computing

I Cost Saving: In cloud computing users have to only pay for the services they consumed. maintenance cost is low as user do not need to purchase the infrastructure .

II Flexibility: Cloud computing is scalable. The rapid scale up and down in the operations of your business may require quick adjustment of hardware and resources so in order to manage this variations cloud computing provide flexibility.

III Enhanced Security: Cloud computing provide high security by using the data encryption, strong access controls, key management, and security intelligence.

Real World IoT Applications in Different Domains

The **Internet of Things** (**IoT**) is a system of interrelated computing devices, mechanical and digital machines, objects, animals or people that are provided with unique identifiers (UIDs) and the ability to transfer data over a network without requiring human-to-human or human-to-computer interaction IoT applications promise to bring immense value into our lives. With newer wireless networks, superior sensors and revolutionary computing capabilities, the Internet of Things could be the next frontier in the race for its share of the wallet. The Internet of Things refers to the ever-growing network of physical objects that feature an IP address for internet connectivity, and the communication that occurs between these objects and other Internet-enabled devices and systems.

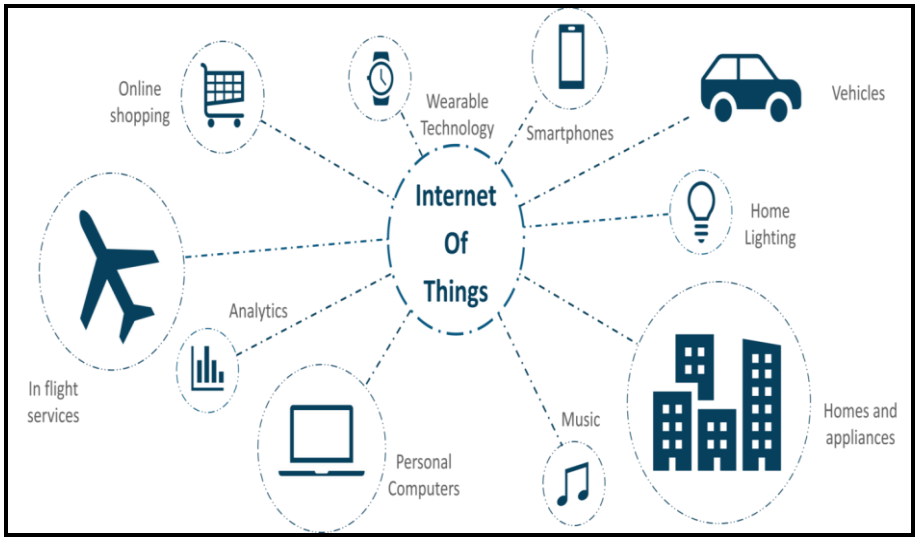

Figure 3: IoT in Everyday life - IoT Applications

Don’t think so? Well, here’s a thought.

Imagine an intelligent device such as a traffic camera. The camera can monitor the streets for traffic congestion, accidents, weather conditions, and communicate this data to a common gateway. This gateway also receives data from other such cameras and relays the information further to a city-wide traffic monitoring system.

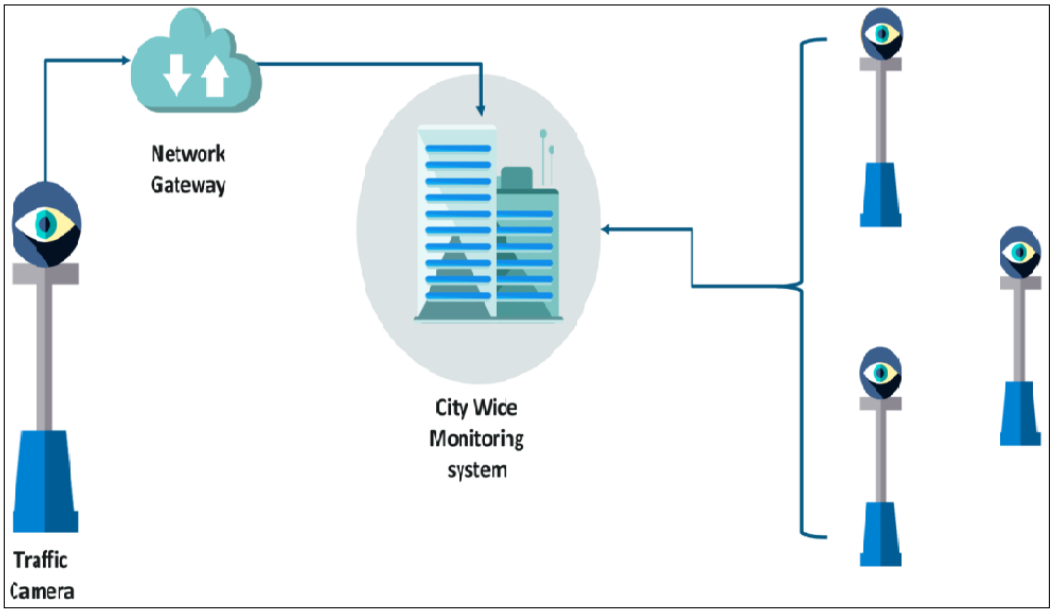

Figure 4: IoT in Smart Traffic - IoT Applications

Now, take, for instance, the Municipal Corporation decides to repair a certain road. This may cause a traffic congestion on the way to a national highway. This insight is sent to the city-wide traffic monitoring system.

Now, considering this is a smart traffic system, it quickly learns and predicts patterns in traffic, with the use of Machine Learning. The smart system can, thus, analyze the situation, predict its impact and relay the information to other cities that connect to the same highway via their own respective smart systems.

The Traffic Management System can analyze data acquired and derive routes around the project to avoid bottlenecks. The system could also convey live instructions to drivers through smart devices and radio channels. Meanwhile, the city schools and workplaces near the project could also be called to adjust their schedules. This creates a network of self-dependent systems which leverage real-time control. This is just one example of IoT Applications.

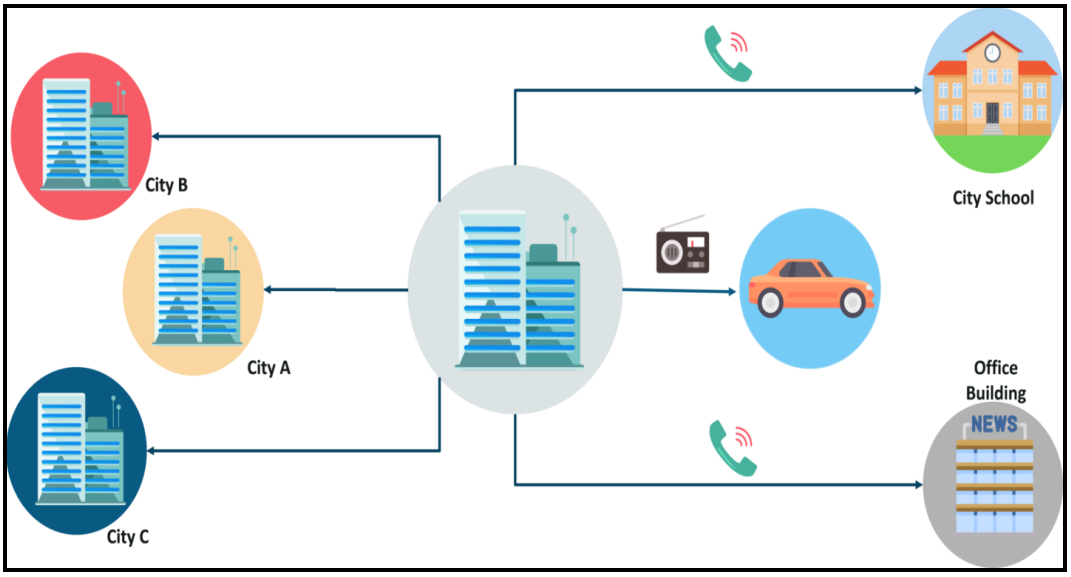

Figure 5: IoT in Smart Traffic Management System

Blockchain technology innovations

Digital world has produced efficiencies, new innovative products, and close customer relationships globally by the effective use of mobile, IoT (Internet of Things), social media, analytics and cloud technology to generate models for better decisions. Blockchain is recently introduced and revolutionizing the digital world bringing a new perspective to security, resiliency and efficiency of systems. While initially popularized by Bitcoin, Blockchain is much more than a foundation for crypto currency. It offers a secure way to exchange any kind of good, service, or transaction. Industrial growth increasingly depends on trusted partnerships; but increasing regulation, cybercrime and fraud are inhibiting expansion. To address these challenges, Blockchain will enable more agile value chains, faster product innovations, closer customer relationships, and quicker integration with the IoT and cloud technology. Further Blockchain provides a lower cost of trade with a trusted contract monitored without intervention from third parties who may not add direct value. It facilitates smart contracts, engagements, and agreements with inherent, robust cyber security features. It is an effort to break the ground for presenting and demonstrating the use of Blockchain technology in multiple industrial applications. A healthcare industry application, Healthchain, is formalized and developed on the foundation of Blockchain using IBM Blockchain initiative. The concepts are transferable to a wide range of industries as finance, government and manufacturing where security, scalability and efficiency must meet.