



Convergence Networks, Current Trends with its Challenges and Benefits for Complete Digital Age: An Overview

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ABSTRACT

The Convergence Network refers to the easy provision of video, telephone and data communication services within a Single Network. It's said to be a Convergence Network. In different words, one company provided for all forms of a communication through a Single Media. The main purpose of convergence network is provided to better service in a lower rate to the clients. Convergence Network is a primarily driven by development of technology and need and the practices it follows. Ideally suited Convergence Network offer the service providers and option to selected and adopt new models for business, taken into consider a new innovation services and also enter into absolutely new markets. The Convergence Network is said to be a blend of telecommunication, Internet and Broadcasting network services. In earlier days transformed of data is limited to just two way send and received of the data or Text Messages. But now a day's even telephone networks are transmitted data up and down, and also cable networks can be supply services for the voice messages.

Keywords: Telephone, Tele-Communication, Network Convergence, IP Convergence, Quality of Service, Quality of Experience.

Oxford Dictionary provided the definition of Convergence as "Coming Together". This Idea, in our Mind we starting point for the exploration. In this world of Network, Convergence Network means we are conclude that is a mechanism in which Tele-Communication, Internet service, Broadcasting integrated together [1]. Convergence Network are provided difference type of channels, paths to transmit Audio, Video and Text signals and data to homes and business. It's restricted to either communicating people

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by wire line or watching broadcast programming at a time the same schedule. Convergence Network is a Single network but used multiple devices. It's most important Information and Communication Network in world [Fig. 1]. One or Two-way communication is limited to voice and text by the limitedly availability of the Bandwidth. Broadcasting media have been restricted by their One or Two-way character and by the availability of spectrum. Now a current days networking technology development, ferocious competition, and more deregulation have transforming several distinct communicational service markets into a create technical converged market. The convergence network, different forms of information and commutations technique can be a create re-engineer to provide better solution more than many technique and more flexible services to the people. For instance, Telephone or Tele networks can transmit data and video and cable networks are capable to provides voice service [2].

In current days in shops or markets, the convergence network get unlimited and sound position because of extraordinary technical development in the Technology, world largest competition among the Tele-Communication companies and various deregulation. The Tele-Communication companies are more money investment in this sector and And they can earn a lot of money from this telecommunication sector.

Convergence network and its emergence is noticeable since internet inception due to user demands. The main reason for the utilization of Convergence network is include also following (but not limited to)—

- Quality of Service.
- Quality of Experience.
- It is soundness and less cost effective.
- It is with standards compatibility of modification.
- It also with the benefits of upgrading including the aspects of security, privacy.

Further, the freedoms from the malware are the demands of users from every sectors. QoE is a measure of the overall level of the customer satisfaction with a vendor.

QoE (Quality of Experience) is related but differs from Quality of Service (QoS), and practically it related with the Software and Hardware feature can be a measured, develop and likely guarantee. In contrast, QoE expresses user satisfaction both objectively. This is often used in the Information Technology (IT) and consumer electronics.

Objective

The main aim and objective of this study is includes:

- To know basic about information and it's relation with networking field.
- To know basic knowledge of Convergence Networking and Convergence Networking Environmental issues.

- ❑ How can we solve the problems of Network access through good and reliable convergence network?
- ❑ Designing interactive and possible procedures for convergence network.
- ❑ To learn about the main Advantages of Convergence Networking.
- ❑ To learn about the main Disadvantages of Convergence Networking.
- ❑ Affordable access to a universal service specified in terms of Telephone, Broadcasting and its better communication of convergence network.
- ❑ To learn about mainly focus on Consumer protection and privacy.
- ❑ Convergence networks same important challenges and its same benefits.

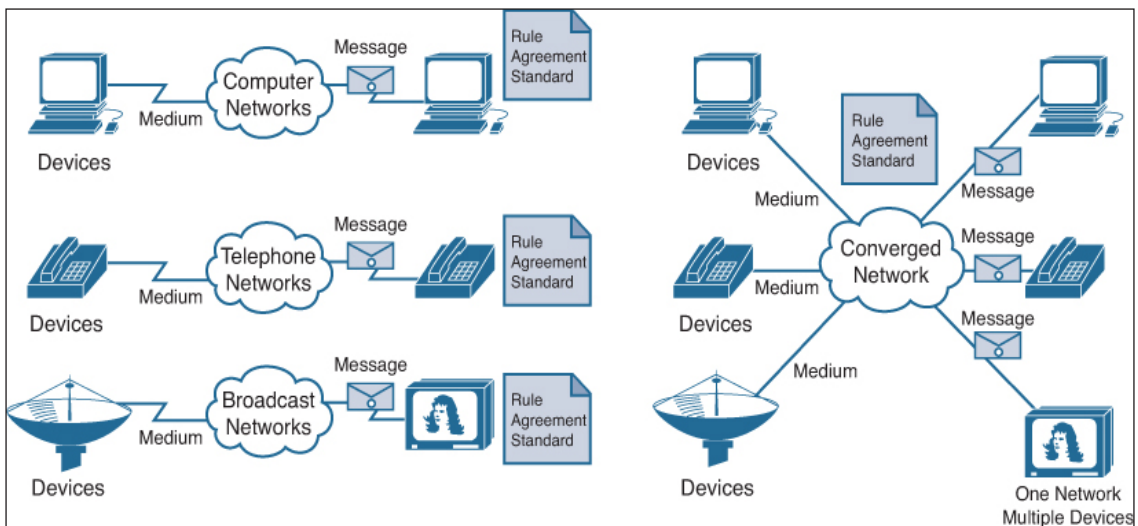


Fig. 1: Single Network Multiple Devices [1]

Function of Convergence Network

The function of Convergence Network is the skilled is kind of combination of various medium viz. telephone, video, data communication within a single network; it is about the services with new ways of doing business and interacting with society [2][3]. The functions of the convergence network are given as follows—

- ❑ Web searching is exploring a sequence of web sites in a random, unplanned way, or simply using the web to looking for something in a searching way.
- ❑ Online gaming is the running of specialist application known as electronics games or Video games on the game console like X-Box and Play station or on Desktop Computer.

- Data services over all Digital Broadcasting platforms.
- Voice over Internet Protocol (VoIP) is the transmission and multimedia content over Internet Protocol (IP) networks.
- E-mail, data and World Wide Web access over mobile phone networks, and the use of wireless links to homes and businesses to connect them to the fixed telecommunications networks.
- A video conference application is a visual, live connection between two or more peoples residing in separate locations for the purpose of communication.
- E-commerce sites is a buying and selling of goods and it's services, or the transmitting of founds or data , over an electronic network and the primarily the Internet.

Types of Convergence Network

Convergence Network is about inventing a new way to do good business and also interacting with the society. The very common type of Convergence is said to be a network convergence.

1. The combination and connection across platforms and networks, in which allows different type of networks to connected with each other within certain common standard and protocols.
2. It is the Telecommunication Convergence Network service. In such Convergences it generally allows the providers to just use one single network to provide different service for communication technology which would earlier require separate channels for all of them. It can also be called as a multi play.
3. Market Convergence, the Convergent Network will stimulating the mergers, take over's and collaborations between corporations.

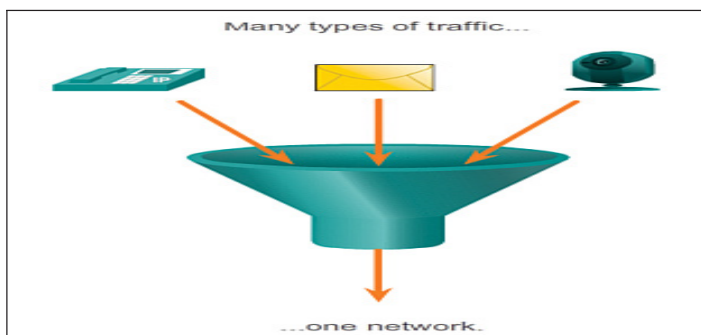


Fig. 2: Manufacturing of Convergence Network [IV]

Now a days the main benefit to these types of networks helps to provide people to enjoy the fun of using the new technologies and new devices which can be used to share photos, video on demand, can use interactive television, can use the new PDA's [Personal Digital Assistant] etc.

Technological Tools for Convergence Network

A good way to evaluate the important of convergence technological tools is to consider innovation from previous generations. Now a current day many technological tools used in the world. So, among them, Smartphone’s are one of the best technological tools. Smart Phones now are integration of lot number of electronic devices.



Fig. 3: Convergence in Smart Phone [V]

Advantages of Convergence Network

The Convergence Network is a most important advantage is Cost. In many buildings there is cabling, telephones equipment rooms, and staff to engineer, maintain, budget, plan, manage change etc., to support the voice infrastructure. Then there is cabling, routers, switches, computers equipment rooms and staff to engineer, maintain, plan budgets, plan strategy, manage change, etc., to support the data infrastructure. If these two environments, voice and data, could be provided over the same infrastructure, the savings would be immense. Moving voice and data services to a common network allows enterprises to access data faster.

Internet Protocol (IP) Convergence

Converged IP Network today refers to the unified Computer Network [LAN, based on IP] that uses multiple media (with Wire or Wireless) to carry a variety of traffic type –Data, Voice, Video etc on a single network without the need for separate network for each of them [18]. The standardized set of

rules is what allows computers to communicate across networks. It's what makes the Internet possible. You may have encountered a term called IP convergence.

Convergence Network for Unique Challenges

Convergence Networks present unique technical Challenges. The storage network has been founded as a primary material of the IT Infrastructure. Some valuable Unique Challenges are—

1. Convergence Network encompasses a mix of computer networking sector, communication protocol, Network topology and storage devices. Its various standards, file system, communication, and interface buses exist to the connected hosts to storage devices and storage network or LAN.
2. We are some important challenges are face to face by Network developers as the Network Convergence evolves over time. And design installation and maintenance of sufficient hardware is the key for effective convergence network.
3. The convergence networks are over time communication there is need of proper standards for proper operations with different platforms.
4. Virtualization enables one-to-many relationships. Data center operators used network partitioning at the adapter level (NPAR) or Switch Independent Partitioning to resolve the one-to-many relationships by enabling each physical port to be logically divided into four logical ports with flexible allocation of 10GbE bandwidth.
5. This eliminates the cost of installing multiple, physical networking and storage adapters that are dedicated to specific server applications or other tasks.
6. Convergence is the basis for cloud computing and paves the way to harness, scale, and dynamically allocate any resource – including routing, switching, security services, storage systems, appliances and servers – without compromising performance.
7. Always when there is change and new technologies emerged, they will be bringing new communication and new demands concern to all components.

Benefits of the Convergence Network

Convergence Network at whatever levels has been many benefits. For instance, convergence intensifies competition since it takes place across delivery platforms and between services [13]. This benefit is given below—

1. Reduced Capital investment.
2. Resource and time requirements are minimized, reducing implementation Costs.
3. Speed is rapidly deployment of productivity an application.

4. Reliability is converge network availability is increased.
5. Optimal performance.
6. Improved Security posture.
7. Reduces the costs of telecommunications service.

Disadvantage of Convergence Network

The Convergence Network is a most important disadvantage is Interdependency. It can be present a problem in one data asset and impact another asset in ways not addressable or predictable from a network management and design perspective for instance, a surge in the Data volume from one asset (Voice Mail) causes of another asset to slow down (Real time process control monitoring) in which causes a third application to start producing more data (CCTV, as operators try to see why the process control data is not available) and push the converge infrastructure to its limits.

CONCLUSION

Convergence Network is very much important part of networking area. Its Single task, multiple user [its Single Network multiple devices]. This network use of networking areas for benefits of all people throughout the world.

We have studied the Convergence Network and Its Challenges and Benefits with advantages and disadvantages or similar network fields. We can conclude that the convergence network technologies are properly aligned depending on the challenges and its benefits of network it will avoid the problems in IT fields. We can minimize the traffic and manage it well by the planning and utilizing proper resources.

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