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Future of Communication~Next Generation Network (NGN Network)

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Abstract*: The Next Generation Network is not a overnight transformation, it brings the architectural change in telecommunication network, which has been elaborate in this paper. The basic idea behind this network is to transfer all PSTN, Internet, Mobile & other information services into IP packets.NGN based on four layers: Access Layer, Core Layer, Control Layer & Service Layer. And is based on IP (Internet Protocol) & MPLS (Multiprotocol Level Switching) internet technology. The technological advancements in telecommunication is forcing a trend towards unification of network & services, setting up a stage for the emergence of Next Generation Network -NGN. The Relocation to NGN diminishes arrange and operational multifaceted nature bringing about better and dependable assistance. NGN is a Self network& is used for future generation for better transport technologies, systematic service creation, High modularity, high reliability, security & QoS support. To discuss the fundamental of NGN for future aspect is the aim of this paper.

Keywords : NGN, PSTN, IP & MPLS, Qos.

I. INTRODUCTION

Presently a day's communication, the web, and the cell versatile system keep on being distinctive area, every ha its own conventions and administrations, Like PSTN, or Telecommunication has different protocols than the Satellite communication. NGN, Next Generation Network specific or perticular idea is that the one single network ship all type of data (Voice, data and all sorts of media such as video) as shown in figure1, in IP packets form.

Since, it has given the name "All IP". And provide services by encapsulating these data used on the internet. NGN as, it spelled is for our next or upcoming generation. i.e. Future Internet. When we talk about the communication, we think of PSTN or Telecommunication, Satellite Communication, etc. Basically to transfer our data we need a medium to communicate, either it is a wired medium or wireless. To see this net everywhere, we need to find a simplified or a single way that sorts or gives a easy solution from this bulk net. Economic and technical aspects both comprises by the introduction of NGN.

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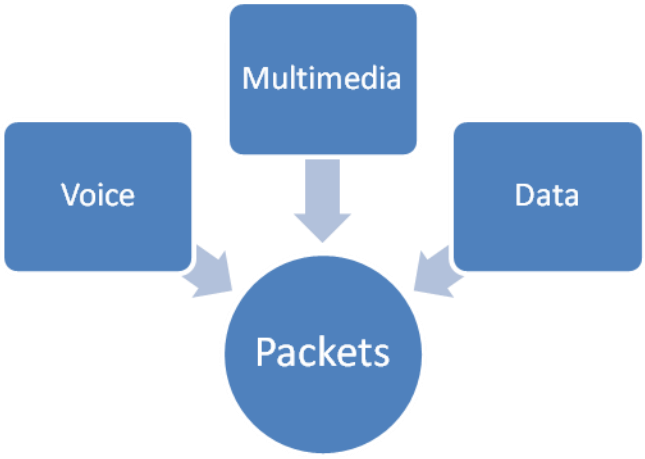

Figure1. Data in packets.

Monetarily, by making new use dependent on client inclinations and identified with voice and information administrations (e.g., voice over IP, texting, nearness, spilling, and push to talk), NGN permits expanding efficiency. It likewise allows decreasing expenses for framework support, with just one kind of transport organize rather than explicit ones for each entrance arrange. So as to characterize and present new administrations effectively, NGN makes the system engineering adaptable in fact. To come over this NGN presented. It is a parcel based system which can meet administrations together with media transmission administrations and transport related method in sound information or video information and so forth. NGN are by and large or in a typical manner manufacture or worked around the Web Convention (IP), thus the term all IP is likewise here and there used to portray the change toward NGN.

II. CHRACTERISTICS

The characteristics of a network tell us the importance of the network that how much capable it is..?

- NGN, Next Generation Network has Unified Global Networking Platform.
- NGN has packet based transmission of information.
- The data transport in this is through IP networking.
- It also endue/provides telecommunication services to customers or users.
- NGN is a QoS- enabled Intercommunication service or transport technology.
- Unfettered access for customers to Network and Services.

- NGN services are independent of transport technologies.
- It has less delay, high throughput and more reliable network than another.

- Summed up motility which grant applicable and universal arrangement of administrations to clients or clients, call handover is promptly done.
- These are some of the characteristics of NGN network.

III. CONVERGENCE TOWARDS NGN

The present system separated into: The PSTN (Open exchanged Phone System), Portable system and The bundle exchanged systems (eg. The web).
Presently, for NGN we blend all these with parcel exchanged system. We additionally referenced this in a way that Intermingling is the procedure of interconnection of conventional exchanged circuit arranges (the PSTN and versatile systems) and parcel exchanged systems directed on the web convention (IP) for steering. For NGN institutionalization there are some key players which assume significant job in it, ITU-T (ITU Media transmission Institutionalization Area), ATIS (Union for Telecom Industry), ETSI (European Telecom Standard Organization) and 3GPP (third Era Association Venture). Mean while there are additionally a few issues and issues identified with it on which the institutionalization organizations are as yet working:

- The existing network .migration towards NGN network.
- Need more development in the field of access technologies.
- Connecting other networks to IP network.
- Interworking of signaling system.
- Roaming a mobility.
- Interworking in the area of addressing.
- Regulation of services and groeth & evolution of new ones.

IV. COMPARISSION

	Internet	PSTN/IN	NGN
interactive media Service	YES	NO	YES
Network Intelligence	NO	YES	YES
QoS support	NO	YES	YES
Intelligent terminal equipment	YES	NO	YES
Integrated Surveillance & control	NO	YES	YES
Reliability	LOW	HIGH	HIGH
Simplicity Of Service use	HIGH	MEDIUM	HIGH
Service Creation	AD-HOC	COMPLEX	systematic
Modularity	MEDIUM	LOW	HIGH
Openness of architecture	HIGH	SMALL	HIGH
Time of Service Introduction	SHORT	LONG	SHORT
			RT

There are various aspects on which we can say that NGN is much better than the PSTN & the Internet. Either is network intelligence, QoS or terminal equipment and Multimedia services, NGN provides best. NGN is such a network which has high openness of architecture within less time. The time taking is less just because of systematic service creation and is highly reliable.

V. NGN ARCHITECTURE

A key tectonics/engineering was characterized containing system internal quality requested for the arrangement of traditionary Communication administrations. Every component includes disconnected job inside the system and is organized to incorporate on a level plane with new components in the regular layer, just as vertically with the capacity based components of the variation layers. The NGN engineering depends on four layers:
Access Layer, Core Layer, Control Layer & Service Layer.

1. Access layer constituent associate/incorporate discontiguous media section that help association with and from the entrance connect with the center system. Fixed, Information, Remote, Link, Versatile, Satellite and so on.
2. Transport piece is the system continuing/taking care of met administrations dependent on IP. Transmission bundle arrange, VOIP, Media entryways, Flagging door and Center parcel organize.
3. Control drop/layer is the consider server that present call check capacities and furthermore gives the control of the Media Passages.
4. Service flake is an IT platform that pastime the role of an IN-SCE (Intelligent Network Service Creation Environment) extending their functionality in order to involucre the new network scenarios

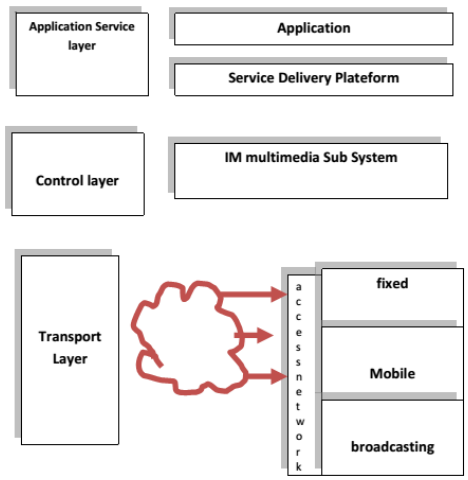

Fig. Lay out of NGN Structure

utting edge System look for new conventions to face merged systems. H.323, Taste (Meeting Inception convention), MGCP (Media Entryway Control Convention), SIGTRAN are a few conventions which utilized in NGN.

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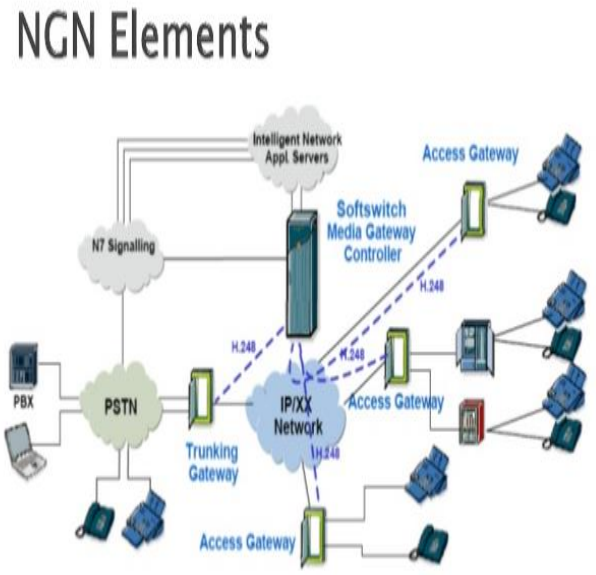
Lift/Backing for inheritance PSTN interworking, Relocation or Transference plan from heritage to NGN, High accessibility, Adaptability and Life saver administrations are bolstered by it.

VI. NGN ELEMENT

The inwardness of NGN is defined as follows.

- Accesses Gateway
  - Consent the conveying connection or association of Endorser of the parcel exchanged system.
  - Access entryway essentially convert the overwhelming traffic stream of simple sign to bundle exchanged system.

- Trunking portyal
  - Allows interworking or inter networking between TDM i.e. Time Devision Multiplex telephony network to packet-based network.
- Soft Switch
  - Soft switch referred to as (MGC) Media gateway Controller which controls the I/O of data or Call Agent.
  - Soft switch also provides the service delivery control inboard the network via H.248 protocol and SIP protocol.
  - Soft switch satisfy or perfoms signaling inlet functionality for interworking with PSTN N7 signaling network.
  - Link Connection to Intelligent Network or Applications Server (AS) to propose another service also provided by Soft switch.



VII. SERVICES

NGN environment has several services that will be important to driver are:

A. *1.Voice Telephony: Call waiting, Call forwarding and 3 way calling.*

2.Voice Protocol: Data like news, climate, stock statements, and record adjusts all are anything but difficult to get/get to a guest with anyplace, whenever access to utilizing basic voice directions and any phone.

3.Data Services: Bandwidth on demand depends on connection reliability.

4.Multimedia Services: This modus of service allows users/customers to converse with each other while displaying visual vedio information.

5.Integrate Messaging: It bolsters the conveyance of voice message, email, fax mail, and pages through basic interfaces.

6.Public Network Computing: Businesses and consumers get public network based computing services.

7.E-Commerce: Permits buyers to buy products and ventures electronically over the system.

8.Interacting Gaming: Offers purchasers an approach to meet on the web and build up intelligent gaming meetings.

9.Call Center Services: By tapping on a website page connect, a supporter could ring a call community operator to defeat from his/her difficulty.

10.Home Manager: These administrations could screen and control home security frameworks, vitality frameworks, home theater setups, and other home apparatuses with the assistance of computer based intelligence.

VIII. CONCLUSION

Cutting edge Systems are a PSTN substitution or substitution as well as a base they should give the identical voice quality trait and dependability of the present PSTN.

Before long, another scope of mixed media applications that exploit the highlights or attributes of the broadband system and the "consistently on" ability will be made by the NGN System.

The making of the NGN is no medium-term adjustment or change, however it is an advancement or the development that is as of now in progress in numerous nations then a few nations like Japan as of now assemble it or accomplish it. From independent application explicit systems to a solitary system equipped for conveying any administrations, The NGN is moved.

REFERENCES

1. "European 7th Frame work Programme project SARDANA," http://www.ict-sardana.eu.
2. R. S. Tucker, Optical Packet- Switched WDN Networks: a Cost and Energy Perspective, http://people.eng.unimelb.edu.au/rtucker/talks/files/Tucker_ OMG1 (2).pdf.
3. W. V. Heddengen, M. D. Groote, W. Vereecken, D. Colle, M. Pickavet, and P. Deemester, "Energy- Efficiency in telecommunications networks; Link-by-Link versus End-to-End Groomin.g," ONDM2010, Kyoto, Japan, Feb. 2010, and presentation documents by D. Colle. http://www-mura.ist.osakau. ac.jp/ondm2010/ pdf/invited3.pdf
4. H. Takeshita, D. Ishii, S. Okamoto, E. Oki, N. Yamanaka, "High Energy Efficient Layer-3 Network Architecture based on Service Cloud and Optical Aggregation Network," IEICE transactions on communications, Vol.E94-B, No.04, pp.894-903, Apr. 2011.
5. K. Wakayama, C. Hasegawa, D. IShii, N. Yamanaka, "Evaluation of Prototype for 10Gbps Active Optical Access System", OECC2010, No.8A4-3, Sapporo. Japan, Jul. 2010.
6. Y. Zhang, P. Chowdhury, M. Tornatore, B. Mukherjee, "Energy Efficiency in Telecom Optical Networks," IEEE Communications Surveys & Tutorials, Vol.12,No.4, Fourth Quarter 2010.
7. tsbedh. "NGN NetWorking definition". www.itu.int. Archived from the original on 2005-09-11.
8. Next-generation networks: the MSAN strategy Archived 2009-07-25 at the Wayback Machine Retrieved on 2009-08-28.
9. "Archived copy". Archived from the original on 2017-01-06. Retrieved 2017-01-06.
10. TeleGeography. "MakTel completes IP migration". telegeography.com. Archived from the original on 2014-02-22.

11. "China Telecom Expands Coverage of CN2 Network; Cisco Routers Deployed to Enhance Network Potential and Business Opportunities | Business Wire". www.businesswire.com. Archived from the original on 2016-03-07. Retrieved 2016-03-07.

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