Security and Privacy in Next-Generation Networks

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Abstract:- A next-generation network (NGN) is a packet-based network which can provide services including Telecommunication Services and is able to make use of multiple broadband, quality of Service-enabled transport technologies and in which service-related functions are independent from underlying transport-related technologies. It offers unrestricted access by users to different service providers. It supports generalized mobility which will allow consistent and ubiquitous provision of services to users.

Keywords: Next generation Internet, Cloud computing, LTE advanced, Machine-to-Machine network.

I. INTRODUCTION

A Next-Generation Network (NGN) is the term given to describe a telecommunications packet-based network that handles multiple types of traffic (such as voice, data, and multimedia). It is the convergence of service provider networks that includes the public switched telephone network (PSTN), the data network (the Internet), and, in some instances, the wireless network as well.

- The NGN system offers key convergent multimedia services using a shared network characterized by several essential elements:
- A unique and shared core network for all types of access and services.

II. BODY AREA NETWORK (BAN)

Power generated in power stations pass through large and complex networks like transformers, overhead lines, cables and other equipment and reaches at the end users. It is fact that the unit of electric energy generated by Power Station does not match with the units distributed to the consumers. Some percentage of the units is lost in the distribution network.

Figure showing Body area wireless sensor network

A body area network (BAN), also referred to as a wireless body area network (WBAN) or a body sensor network (BSN), is a wireless network of wearable comp BAN devices may be embedded inside the body, implants, may be surface-mounted on the body in a fixed position Wearable technology or may be accompanied devices which humans can carry in different positions, in clothes pockets, by hand or in various bags. Whilst, there is a trend towards the miniaturization of devices, in particular, networks consisting of several miniaturized body sensor units (BSUs) together with a single body central unit (BCU).larger decimeter sized (tab and pad) sized smart devices, accompanied devices, still play an important role in terms of acting as a data hub, data gateway and providing a user interface to view and manage BAN applications, in-situ. The development of WBAN technology started around 1995 around the idea of using wireless personal area network (WPAN) technologies to implement communications on, near, and around the human body.

III. LTE ADVANCE

The LTE format was first proposed by NTT DoCoMo of Japan and has been adopted as the international standard.[2] LTE standardization has matured to a state where changes in the specification are limited to corrections and bug fixes. The first commercial services were launched in Sweden and Norway in December 2009[3] followed by the United States and Japan in 2010. More LTE networks were deployed globally during 2010 as a natural evolution of several 2G and 3G systems, including Global system for mobile communications (GSM) and Universal Mobile Telecommunications System (UMTS) (3GPP as well as 3GPP2).

The work by 3GPP to define a 4G candidate radio interface technology started in Release 9 with the study phase for LTE-Advanced. Being described as a 3.9G (beyond 3G but pre-4G), the first release of LTE did not meet the requirements for 4G (also called IMT Advanced as defined by the International Telecommunication Union) such as peak data rates up to 1 Gb/s.

IV. CLOUD COMPUTING

Cloud computing means storing and accessing data and programs over the Internet instead of your computer's hard

drive. The cloud is just a metaphor for the Internet. It goes back to the days of flowcharts and presentations that would represent the gigantic server-farm infrastructure of the Internet as nothing but a puffy, white cumulonimbus cloud, accepting connections and doling out information as it floats.

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