# Handoff Execution Technique through NS2: A Review

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***Abstract*: Handoff technology is a technology connected to a basic network, and different nodes are out of scope for the purposes of two remote connections. The unpredictability of the delivery selection process led to a traditional validation and remote system example to confirm the delivery selection calculation. Traditional techniques use reception signal measurements, optional fading, or sleep time to determine switch selection. In any case, the deterioration of the signal level is an irregular process, and random selection of the contract can lead to the effects of table tennis, so some back-to-back transfers can reduce the management provided by the system. In the recent lack of mobile network infrastructure due to government directives, there must be a limited number of base stations. As demand for mobile devices grows, the same height is required in the base station to control the signal. Note that the mobile node moves to another block in one group and is disposed of. Therefore, this paper discusses only the implementation of the switching technique in NS2 and similar results of in-depth research.**

***Keywords*: Handoff, Handoff Decision Algorithms, NS2**

## 1. Introduction

In the past decade, many wireless networks have emerged in cities and inland areas to complement traditional cellular networks. The services provided by these networks are geographically selective. Therefore, when moving from one location to another, the wireless station must be connected to multiple login points and possibly to multiple networks. A method of making a mobile connection between networks using different networks having the same terminal is generally referred to as a heterogeneous or heterogeneous technology network. [1]

### 1.1 Handoff issues

To ensure regular access to the mobile device's network, service providers need to create a network to deploy multiple logon points. In cellular and mobile data networks, these points of contact are referred to as base stations (BSs) and in wireless local area networks (WLANs) as access points (APs) (Fig. 1). Since there are more BS/APs available for mobile users, the overall performance of the network is better connected to each BS/AP mobile station when accessing the services provided by the network. These points of contact are the most appropriate point of contact for a particular application at a particular location, depending on the specific criteria that fully meet the QoS requirements for that particular application. One of these standards is that the mobile station selects the BS/AP that provides the maximum received signal level. Moreover, if the signal degradation does not deteriorate further, this selection can improve the quality of the connection. [2]

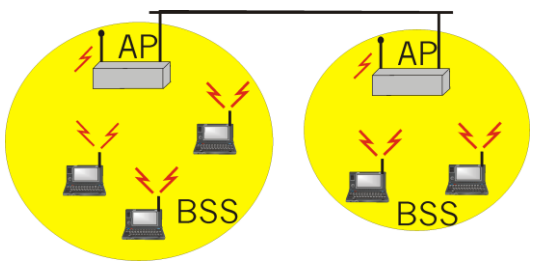


**Fig. 1.** Cellular and WLAN network architectures

### 1.2 Handoff Process

When the client starts to move from one cell and then moves to the next cell, in order to maintain correspondence between client groups, the client channel must be exchanged from one BS and switch to the next cell without interfering with the call. That is, at this point, MS moves to another phone session that still exists, and MSC normally converts the call to the new FDD channel without interfering in the discussion. This process is called interchange. Exchange setup is an important task in any telephony framework. Changes must be made efficiently and will not be recognized by the customer. Once the level of flag is set to a very good level of good speech quality, a slightly higher amount is determined as a changeable limit (PrH).

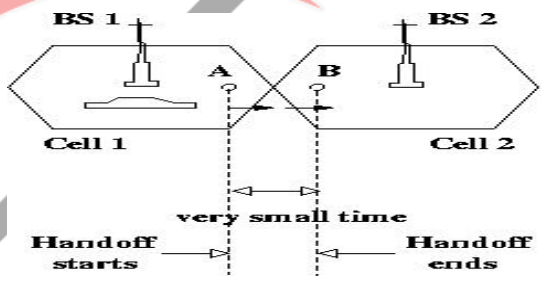


**Fig 2:** Handoff Technique

Handoff scenario at two adjacent cell boundary.

$$\Delta = P r_H - P r \min$$

This is a critical parameter amid the exchanging procedure since the edge D is neither too vast nor too little. On the off chance that Δ is too little, there may not be sufficient time to finish the exchange, and the call might be lost regardless of whether the client crosses the phone limit. Then again, if Δ is too vast, the MSC needs to expect the pointless exchange. This is on the grounds that MS does not expect to enter different cells. In this manner, it ought to be carefully guaranteed imperceptible change and to achieve different objectives. [4]

## 2. Review of Literature

M. Antoniou, M.C. Boon, P.N. Green, P.R. Green studied wireless industrial sensor networks in 2009, and describes us to explore the applications of wireless sensor networks in industrial processes. Introduced term challenges including communication, ad hoc networks in harsh environments, computing platforms, imaging, detection, miniaturization, compliance, MEMS and power collection. These issues are common to industrial processes, but the current activity is to monitor the storage of cereals. A requirement to provide an estimate of the position of the local ship and the progress of the document describes the use of RF signal strength for this purpose in the network. Qian Dong Waltenegus Dargie studied and investigated mobile wireless sensor networks and MAC-aware mobility-aware protocol, and noted that the wireless sensor network, a node can be static, can be moved, depending on the application requirements. Manipulation of mobility may pose some daunting challenges for protocol design, especially the link layer. These difficulties need to move the adaptive algorithm to locate the mobile node and the prediction quality can be established with their links. This article investigates the state of the art in handling mobility. First describes existing models and models and analyses the challenges posed by mobility of the link layer. Then, it provides a comparative study of several MAC aware mobility protocols. Shantidev Mohanty and Ian F. Akyildiz in October 2006 to study cross-layer state-of-the-art wireless (3 + Tier 2) switch management protocol, and pointed out that the next generation of wireless systems (NGWS) integrates various wireless networks , each Network is optimized for certain services and coverage to provide omnipresent communication for mobile users. Shantidev Mohanty and Ian F. Akyildiz study based on mobile IP, TCP-Migration technology and SIP switching performance, and highlights the mobility management protocol in the protocol stack running different classical layers (for example, in recent years it was proposed link, network, transport and application layer.to switch protocol different properties for different types of applications. As used here, the mobile application is divided into five different categories according to the mobility management requirements, a class from class E. Rosy Pillay Narrainen Fambirai Takawira research and analysis of soft handover performance in CDMA cellular network in November 2001, a unique feature noted and multiple access code division code (CDMA) is the use of soft transfer between cells. typically soft mode can increase the system transfer capacity, because although the weak link between mobile station and a base station, but can be better between a mobile station and other base stations in the same work presents a type of traffic DS-CDMA cellular networks Models, including soft and soft handoffs, then calculate the performance of the network based call barring. Gayathri Vijay, Elyes Ben Ali Bdira and Mohamed Ibnkahla studied cognition in wireless sensor networks. They are committed to providing intelligent communication paradigms to build an intelligent network that can handle applications that evolve from user needs. The main contribution of this paper is to provide the vision and advantages of the overall cognitive approach in sensor networks, which can be achieved by combining learning and reasoning at the upper level and opportunistic spectrum access at the physical layer rather than providing a comprehensive survey of cognitive architectures for sensor networks, this article provides readers with a knowledge- and cognitive-based framework that can help achieve end-to-end goals for a specific application sensor network. Jeremiah O. Abolade, Olasebikan A. Fakolujo and Abidemi Orimogunje studied handovers in mobile wireless communication networks. Wireless communication is now taking place throughout the world because it provides the ability for users to communicate on the go. This is done by transferring users from the radio network to another network. This process is called switching. Switching occurs through cell crossover or deterioration of signal quality of the current channel. Continuous calls are a key feature in cellular systems. A brief overview of handovers, handover types, common handover parameters, some of the methods used in the literature, and propose a convergence point in the field of mobile wireless communication handover. Y. Zaki conducted research and presented a paper on mobile communication systems and made comments on this. The specification was finally completed in the late 1990s, and the system is called International Mobile Telecommunications-2000 (IMT-2000). The 3-GPP then completed the first version of their mobile communication system after GSM, which is known as the Universal Mobile Telecommunications System (UMTS). In 2004, 3GPP began researching the next mobile system called Long Term Evolution (LTE). By definition, a mobile radio communication system includes a telecommunications infrastructure that serves mobile (i.e., mobile) users. Charu Chawla, Dr. Dinesh Arora and Dr. Hardeep Singh studied the handover technology of cellular mobile networks and pointed out that it is convenient to transfer active calls from one cell to another during cellular system handover. When the user moves around, the handover is a process of signal transmission conversion from one base station to a geographically adjacent base station. In this paper, they focus on the basic technologies of cellular mobile networks and different handover process technologies.

## 3. Simulation Tools

The simulation for hand off technique is executed in NS2. The proposed layout is designed in NS2 that facilitate the mobile nodes in a cluster. The desired process is that the mobile node enter into one cluster from other cluster. This paper focus on the implementation of hand off in NS2. The result coming out in graphical pattern which represents the basic technique of Hand off.

## 4. Conclusion

It is exciting area of research and is attracting a great interest in the automotive and telecommunications industry. Mobile communications has attracted a lot of research driven by public and private organizations, but mainly oriented to enhance safety in the mobile network. Nowadays there is lack of dense infrastructure for base station (Mobile tower), so this will be an issue to deploy new mobile towers for enhancing the current drop in signal due to hand off. So the proposed idea work is to investigate the simulation that has lack of in fracture and provide the same kind of situation that we are facing it today.

## References

[1] M. Antoniou, M.C. Boon, P.N. Green, P.R. Green et.al. (SAS-2009), “Wireless Sensor Networks for Industrial Processes”, University of Manchester, Manchester, UK.

[2] Qian Dong, Waltenegus Dargie (2013), "A Survey on Mobility and Mobility-Aware Mac Protocols In Wireless Sensor Networks" IEEE Communications Surveys & Tutorials, Vol. 15, No. 1.
[3] Shantidev Mohanty and Ian F. Akyildiz (OCTOBER 2006), "A Cross-Layer (Layer 2 + 3) Handoff Management Protocol for Next-Generation Wireless Systems", IEEE Transactions On Mobile Computing, Vol. 5, No. 10.
[4] Shantidev Mohanty, Member, IEEE, and Ian F. Akyildiz (JULY 2007), "Performance Analysis of Handoff Techniques Based on Mobile IP, TCP-Migrate, and SIP", IEEE Transactions On Mobile Computing, VOL. 6, NO. 7.
[5] Rosy Pillay Narrainen and Fambirai Takawira (NOVEMBER 2001), "Performance Analysis of Soft Handoff in CDMA Cellular Networks", IEEE Transactions on Vehicular Technology, Vol. 50, NO. 6.
[6] Gayathri Vijay, Elyes Ben Ali Bdira, Senior Member, IEEE, and Mohamed Ibnkahla (March 2011), "Cognition in Wireless Sensor Networks: A Perspective", IEEE Sensors Journal, Vol. 11, NO. 3.
[7] Jeremiah O. Abolade, Olasebikan A. Fakolujo, Abidemi Orimogunje (Sep- 2017), "Handover in Mobile Wireless Communication Network, Vol-3, Issue-9.
[8] Y. Zaki, Future Mobile Communications, Advanced Studies Mobile Research Center Bremen, DOI 10.1007/978-3-658-00808-6_2, © Springer Fachmedien Wiesbaden.
[9] Charu Chawla, Dr. Dinesh Arora, and Dr. Hardeep Singh ((May, 2014), "Hand-Off Techniques for Cellular Mobile Network-A Review", Vol. 1, Spl. Issue 2.