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REVIEW OFVERTICAL HAND OFF PROCESS

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Abstract :

The process of transferring connection from one network to another network is called vertical switching. This is based on various parameters. The process of vertical handoff is discussed here.

Key words: Bandwidth, CDMA.RSS

Introduction : The process by that a Mobile Handoff that's within the wireless fidelity topographic point leaves the realm and is connected to the code division multiple access is vertical switching system. . Because Mobile Terminal is out of wireless reliability AP (Access Point), power of received signal from access point sporadically gets weaker, when the strength falls below edge price, then Cellular card of CDMA is energized in synchronization for arranging Handoff.

Handoff Procedure : T he handoff decision algorithm is executed when the mobile terminal gets continuous beacon signals less than threshold value. Then mobile terminal transmits a Route Update Message to Base Station to ask for allocation of traffic channel. After that, registration is performed. The handover procedure specifies the control signaling used to perform the handover and is invoked by the handover decision algorithm.

Purpose of Handoff

In communications there are different reasons which can be considered to implement the Handoff: are given below

a. To avoid termination of call if phone moves exterior to assortment of first cell and it is moving a far from vicinity covered by one cell and taking entry in neighborhood of other cell, call is shifted to second cell.

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Vol-22-Issue-34-December -2019

b. When capacity for giving connections to new calls of a given access point is consumed and present or new call from a mobile phone, that is present in an area covered by another cell, is shifted to that cell.

c. To avoid the interference in non Code Division Multiple Access systems when frequency used by mobile phone gets interfered by another mobile phone having same channel in different cell, the call is shifted to different channel in the same cell or to dissimilar channel in different cell in sequence.

d. When user behavior changes in non Code Division Multiple Access systems for example when a user moving with fast speed and connected to large, umbrella cells, stops then call may be shifted to smaller macro access point or to a micro cell to free the capacity on these types of cell for other fast traveling subscribers and to reduce interference to other access points or subscribers. Reverse is also applicable that the call can be shifted to a larger umbrella cells to reduce frequency of handovers due to this movement when subscriber is found to be moving with more speed than a defined threshold.

e. To minimize the interference to smaller neighboring access point because of "near-far" effect present in Code Division Multiple Access systems a switching is induced.

Handoff Performance Metrics

Switching is the essential process in wireless systems to ensure continuity, efficient, and elastic services throughout a mobile station (MS) quality. Switching numeration, rate of Handoff, likelihood of Handoff are necessary parameters to determine performance of handoff. This numeration gives the amount of operations of handoff throughout a vigorous decision affiliation. Rate of handoff gives the desired variety of switching operations throughout a vigorous decision, or equally, typical switching numeration. Switching likelihood is the procedure Mobile Station can perform a Handoff before completion of decision. Attenuation channel isn't covered in explanation of these parameters. There is specific relationship between the switching parameters and therefore the characteristics of physical layer, e.g., frequency of carrier, most Doppler frequency, fade margin. Performance metrics of handoff are given below:

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a. Cell blocking probability – It is the chance of new call to be blocked
b. Probability of call dropping – It is the chance that a call is terminated due to switching
c. Probability of call completion – It is the chance that admitted call is not dropped before it terminates.
d. Probability of handoff blocking – It is the chance that switching cannot be successfully completed.
e. Probability of handoff – It is the chance that handoff occurs before termination of call.
f. Duration of interruption – It is the time during switching in which a mobile is not connected to any base station
g. Delay of handoff – It is distance the mobile terminal moves from the point at which switching should occur to the point at which it actually occurs.

Requirement for Handoff Mechanism

Some of the important parameters which are required for handoff are given below:

a) Bandwidth

Bandwidth may be alive of the dimension of a variety of frequencies. To supply flawless switching for service quality in wireless surroundings, requirement of managing information measure of mobile node throughout its motion. Information measure is usually referred to as link capability in an exceedingly network. Larger offered information measure gives lower decision dropping and decision obstruction chances; therefore better turnout. Handling of bandwidth ought to be important component of any Handoff practice.

(b) Consumption of Power

In fourth generation networks, there should be methods to enhance power potency. Energy isn't solely absorbed by user terminal however conjointly related to base station components. Energy is additionally absorbed throughout mobile change or switching. Throughout switching, frequent interface activation will result in respectable battery consumption. Problem of saving of power conjointly arises in network discovery as a result of unneeded interface activation will increase power

ISSN:0971-1260
Vol-22-Issue-34-December -2019

consumption. Therefore it's conjointly necessary to include consumption of power issue throughout switching of call.

(c) Cost of Network

A multi criteria algorithmic rule for Handoff ought to conjointly think about the network price issue. The price should be reduced throughout Vertical Handoff. Innovative decision influx charge as well as switching decision are often calculated to reduce price. Future Generation heterogeneous networks will mix the individual blessings on coverage area and information rates, providing top Service quality to mobile users. In this type of surroundings, multi interface terminals ought to flawlessly switch from one network to a different so as to get improved performance or a minimum of to keep up never-ending wireless association. Therefore, network choice price is vital in selections of handoff.

e) Preferences of User

During relinquishment occurrence, the subscribers have a lot of choices for varied networks. Choices of user can be most popular systems, function of user necessities service superiority (may be group of technologies for managing traffic of network in efficient way to reinforce experiences of user for. Preferences of user may be thought of for Vertical Handoff in fourth generation wireless networks.

f) Throughput of Network

Network turnout means the typical rate of booming information or delivery of message on a particular link.

g) Balancing of Network Load

Load of network should be thought about throughout effective switching. To reduce deterioration in services quality it is necessary to balance load of network. Variations within the traffic masses among cells can cut back the information carrying capability. To reinforce elevated information capability the area unit variations in traffic, load of network should be considered.

i) Strength of l (RSS)

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Between mobile node (MN) and access point (AP), wireless signal strength in every direction gives entire quality of system information measure obtainable on that affiliation. RSS depicts the facility during a received signal. A signal should be robust enough to take care of quality of signal at the receiver. The strength of receiver signal shouldn't be lower than a definite threshold value during network throughout transfer of call.

(j) Speed

Speed of the host ought to thought-about throughout Handoff call. As a result of overlaid design of varied networks, switching off to associate network is discouraged, which has tiny cell space, during moving at high speeds since switching back to first network occurs terribly after that shortly.

Necessary parameter required for handoff have been explained however different parameters like conditions of network, capability of network and error rate may be thought-about throughout Handoff in vertical technique. Dynamic conditions need embrace strength of received signal, speed, throughput, preferences of user parameters whereas non dynamic needs embrace price of network, consumption of power, security of network information measure features. A decent mechanism of Handoff call design ought to have each of these parameters. This is necessary to think about most variety of non dynamic and dynamic needs throughout vertical handover however it is tough to incorporate all parameters in an exceedingly one call design attributable to complexness of algorithms and contradictory problems with many parameters.

OVERVIEW IN VERTICAL HANDOFF PROCESS

It is the process in which a mobile terminal changes from its present connection point to another access network it is method of keeping user's active communication. This consists of various stages like: Initiation of handover, decision of handover and Execution of handover.

Handoff Prioritization

In the mobile communication system, the Handoff is needed to be enforced once initiation of Handoff takes place however prioritizing issue has to be compelled to think about. Totally various systems have various strategies for conducting and organizing request of handoff. A few networks treat switching in same method as they treat new originating decision. In these systems chances that Handoff won't be fulfilled is adequate due to interfering chance of latest originating decision.

ISSN:0971-1260
Vol-22-Issue-34-December -2019

However the decision is terminated suddenly within the middle of process which is bothersome than new producing call is fruitless. Therefore to avoid the sudden extinction of current decision Handoff request priority should be provided to new decision. It is referred to as prioritization of handoff. Two methods are available for handoff prioritization.

a) Concept of Guard Channel

Some part of total available channel in a cell is kept in reserve exclusively for request of handoff from ongoing calls which may be switched into the cell in this technique.

b) Queuing

Queuing of handoffs is possible due to the time difference between the period the level of received signal falls below threshold of handoff and the time the call gets terminated due to insufficient level of signal. The size of delay is calculated by pattern of traffic of particular service area.

1.6.1 Advantages of Queuing priority schemes

a. Queuing priority schemes effectively scale back forced terminations, at the expense of redoubled new decision block.

b. The likelihood of incomplete necessitates first in first out and MBPS is slightly below that for NPS.

c. Queuing priority schemes add hardware /software complexness for each BSs and MSs to manage the waiting queues.

d. The sub rating theme has the smallest amount forced termination likelihood and therefore the likelihood of incomplete calls when put next with the opposite schemes.

This profit is gained at the expense of the additional hardware/ code complexness needed to substrate a channel.

Conclusion :In this paper vertical handoff process has been discussed. The purpose of handoff and some important parameters required of handoff are discussed.

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Vol-22-Issue-34-December -2019

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