

# Cellular Proximity Services for Alert in V2V Communication

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**Abstract**-Vehicle to Vehicle (V2V) communication is a unique amongst the most exciting point in now-a-days. D2D communication is one of the fundamental highlights of Third Generation Partnership Project (3GPP) Release 12. In this paper we described an outline for Proximity alert in Device-to-Device (D2D) communication has been consider as a possible enabler for V2V applications. The number of vehicles on the road increase harmfully in the current years. It cause to Accidents that are the actual reason for death in the greater part of the nations. D2D communication an access to service through directly or indirectly association way with nearby devices with or/and without ENodeB (eNB) help. We examine the Proximity alert in V2V communication and high level communication model at both client and server side.

**Keywords**-Third Generation Partnership Project, Long term evaluation, Proximity services, Proximity requests, Proximity alert, Device to Device Communication.

## I. INTRODUCTION

In recent years, Device to Device communication is one of the developing topics in LTE Advanced mobile communication technology [1]. D2D communication is new technology that offer wireless peer-to-peer services and improve spectrum utilization in LTE-advanced network. Here, new interest is inspired by several factors, with the popularity of proximity-based services, explained on a large scale by social networking applications. Vehicles combined to one another over an ad hoc structure create a wireless network called Vehicular Ad Hoc Network.

V2V dedicated in DSRC. In April 2014 it was represented that U.S. Controllers were close supporting V2V tools for the U.S. promote, and that foundations were preparing for the development to end up necessary by 2017. Current contribution responses for V2V correspondences are adhoc trades over the 802.11p standard and backend based exchanges over the Long Term Evolution (LTE) cell standard. The design of V2V communication is to stop accidents by permitting vehicles in transfer to

send position, speed data and alarm news to everyone over an ad hoc mesh network.

There are many technologies achieving D2D communication, with Rel-13 (latest). Proximity Requests/Alerts are explaining in our paper. In this work, we study about Proximity alert, User Equipment-A (UE-A) can send alert request to ProSe Function, periodically, at least UE-B is sending their location to UE-A through ProSe Function the UE-B is in the given range. ProSe Function will alert the UE-A when UE-B is in proximity. Both UE-A and UE-B will be sending their locations each other on.

## II. USER EQUIPMENT (UE) REGISTRATION

To discovery ProSe service [2] a UE wants to register with the ProSe Function.

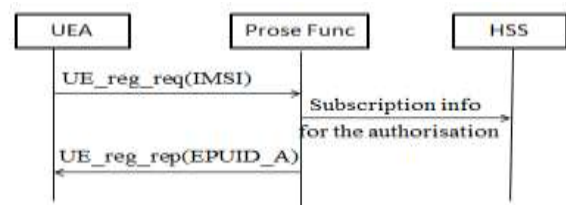


Figure 1: User equipment registration

UE A registers with Prose Func by transfer a UE Registration Request [3] (IMSI) message. Prose Func A may attach with the HSS keeping in mind the end goal to validate the client, get the client's profile and check whether the client is approved for ProSe. Prose Func A creates an UEA (EPUID\_A), stores the EPUID\_A together with client's IMSI and reacts to UEA by sending a UE Registration Response (EPUID\_A) message.

## III. APPLICATION REGISTRATION

To initiate the Prose Func [3] to get a particular application.

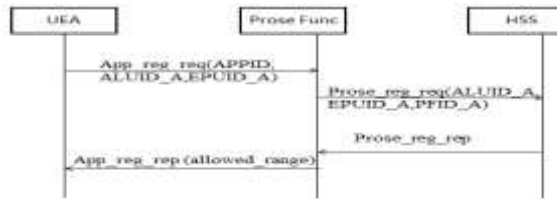


Figure 2: Application registration

The UE A sending an APPLICATION\_REGISTRATION\_REQUEST message by including UE A's EPUID A, the Application ID is to be registered and UE A's Application Layer User ID A for the application that is to be registered. Prose Func A uses EPUID\_A to upgrade user's profile, verifies that the applied app is on the saved file of approved AppID's and transmits a ProSe deregistration Request (ALUID\_A, EPUID\_A, PFID\_A) message to the AppServer denoting that a user of this app (ALUID\_A) has required to use ProSe for that app. PFID\_A is the Prose Func ID of Prose Func A. If the App Server receive the request, it saves the UE's of ALUID\_A and EPUID\_A collected with the PFID\_A. The App Server forwards a ProSe Registration Response message to Prose Func A denoting that the registration was successful (or not). Prose Func A sends App Registration Response (Allowed Range) message to UEA. The permitted Range parameter includes the fixed of collection classes that are permitted for this application.

IV. PROXIMITY REQUEST PROCEDURE

The resolve of the proximity request procedure [3] is UEA send a request to get an alerted when UEB is in proximity.

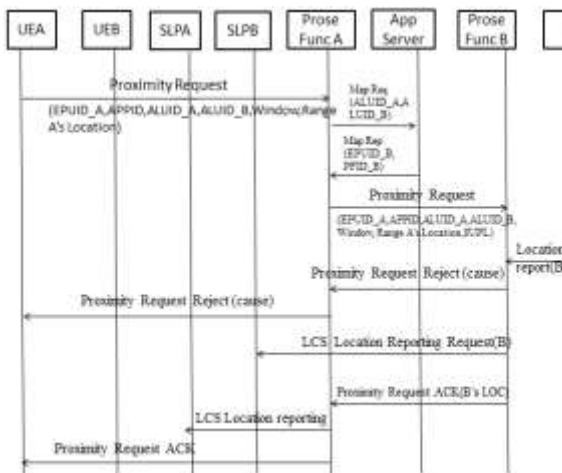


Figure 3: Proximity Request

UE A starts with proximity request procedure by sending a PROXIMITY\_REQUEST message to ProSe Func A by UE A's EPUID, Application ID for that particular application for which the request is ended, UE A's ALUID A, ALUID B of UE B, a

allowed range classes for that particular application, UE A's current location and Time interval which the application is valid. Prose Func A examine that UE A has before registered with the application ID in the PROXIMITY\_REQUEST message and the desired range class is allowable for that application.

If the examine is good then Prose Func A connects with the Application Server receive the identifiers of Prose Func B that allows the EPUID B. The current location of UE A involved in PROXIMITY\_REQUEST message can be used by Prose Func B to specify where the proximity request is allowed or not. If the proximity request is allowed by the B-size, Prose Func A saves ALUID S, ALUID B, EPUID B, allowed range class and time window in UE A's text recognized with EPUID A. Therefore Prose Func A will introduce location analyzing for UE A and send a PROXIMITY\_REQUEST\_RESPONSE message.

V. PROXIMITY ALERT PROCEDURE

The aim behind the Proximity Alert Procedure [3] is when the two UE's comes into proximity.

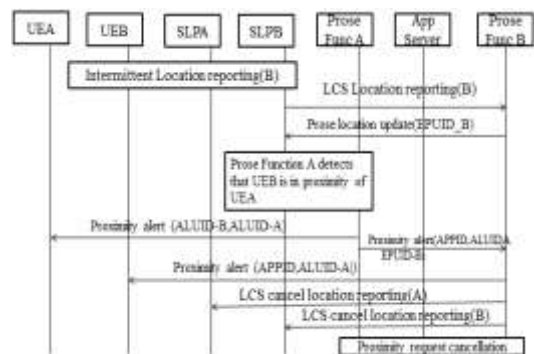


Figure 4: Proximity Alert

At the aim then the UE's travel into Proximity, the procedure invents the Proximity Alert method. Whenever Prose Func A describes that UE A and UE B are in proximity, it erases the location informing for UE A with the SUPL Location base and gives a PROXIMITY\_ALERT message to UE A with the Application ID, ALUID A and ALUID B. Since shifting the PROXIMITY\_ALERT message to UE A and alerting request to the B-side, the Prose Func cancels the data relative to this particular Proximity Request in UE A's text. When Prose Func B is alerted that UE A and UE B are in proximity, it deletes the location informing for UE B and shall transmit a PROXIMITY\_ALERT message to UE B with the Application ID, ALUID A and ALUID B.

VI. RESULTS

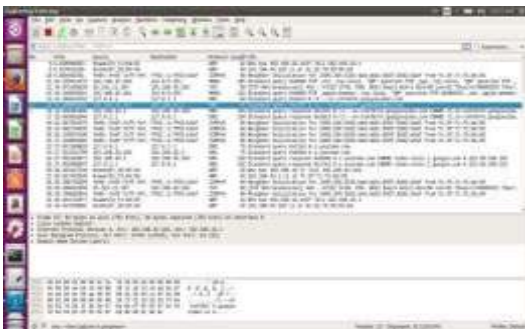
Most of Windows just similarly on a close kind of platforms however open source Wireshark runs on

many platforms with Windows, OS X, Linux and Solaris.



Figure 5: Capture signals

Figure 5 These are the capture signals shown in Wireshark with current IP address of client and server. Wireshark provides operators the ability of capture the packet of traveling over the entire network. On a specific interact at a specific



time one of the essential tools is the capture tool.

Figure 6: Wireshark action

Figure 6 Wireshark action it can monitor exchange of nodes temporary packets. Other analytical tools are the packet boat outline and protocols arrange tools.

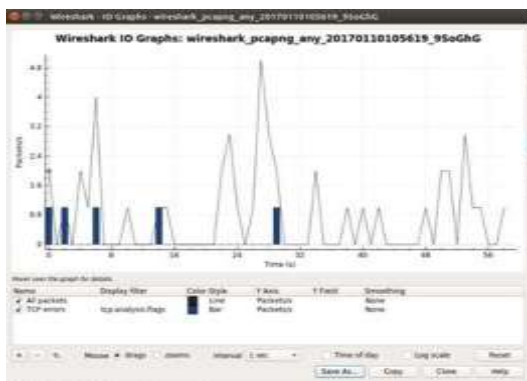


Figure 7: IO graph

Figure 7 shows the main drive is the analytical IO graph these graphs can indicate moving of traffic over the public network in complex or for certain protocols only.

## VII. CONCLUSION

D2D Communication is of the major effect on the present day Public Safety. D2D communication is a direct communication between two devices. Communication between user and server through pc3 interface. In Proximity alert, UE-A can send alert request to ProSe Function, when the UE-B is in the given range. ProSe Function will alert the UE-A when UE-B is in proximity. Both UE-A and UE-B will be sending their locations each other periodically, at least UE-B is sending their location to UE-A through ProSe Function.

## VIII. REFERENCES

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