

論文名稱：在延時容忍隨意移動網路的零知識路由方法 頁數：135

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論文提要內容：

近來，許多學者已投入許多時間在DTN的研究上面。有許多有趣的路由已被發展。但是，對於零知識路由的發展，則不但沒有突破性的發展，甚至連新的想法都很少被提出。特別是在資源受限而且訊息複製量也要限制的情況。因為沒有足夠的知識作為選擇路徑的策略。所以顯得特別的困難。

在本篇論文，先對隨意移動網路的現況與發展作探討，接著討論更具挑戰性的延時容忍網路(DTN)。最後，再嘗試由生活中有趣的例子，來做為發展的靈感。而提出在零知識的場景下，新的路由方法。我們知道，在奧林匹克運動會場上，四百公尺接力賽的平均個人速度往往比單人跑百米的速度更快！本人試著將這種特性引入到零知識的路由場景中：藉著「接力傳遞消息」應該會比「單一人傳遞消息」會有更好的效果，來提昇訊息投遞率，並且減少重覆訊息的數量！本文已發展出一個有趣的方法，稱為「OOPFE」，而且已經用NS2模擬器來驗證。結果顯示，新的路由特別適合在網路場景較大，或是源節點的移動速度較慢的場景。更進一步，本人也研究此路由在遇到封包丟失問題時，對路由效能的影響情形。並且，也應用佇列派翠網路(QPN, Queueing Petri Net)的工具，塑造路由方法的模式，來觀察DTN路由方法，在隨意移動模式下，兩個重要的評估尺度。

關鍵字：隨意移動網路，延時容忍網路，路由協定，網路模擬器，派翠網路，佇列派翠網路，隨意選擇目的移動模式。

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Abstract:

Recently, many scholars have invested a lot of times in a hot research topic, DTNs. There are many interesting routing protocols be developed. However, about zero-knowledge routing, fewer breakthroughs can make their ways for novel developments. Especially in resource-restricted and limited the amount of replication messages, there are extremely difficulties to design routing strategies for selecting a suitable path based on insufficient knowledge. In this paper, we observe the situation in daily life to get an inspiration for development idea. In the 400-meter relay race of the World Olympic Game, the average speed is faster than that of the individual 400-meters race. I have tried to use the characteristics and further research by the way of "relay-delivering message" to tackle the tradeoff for increasing the delivery ratio and decreasing the number of duplication in the zero-knowledge scenarios. I have developed an interesting method, named "OOPFE", and have used NS2 simulator to verify. Furthermore, I have studied the reasons of impact routing performance about packet drop problems. The results show that the new routing method suitable for the size of network scenarios is bigger or the speed of source node is slower. At last, I also use the tools of "Queueing Petri Net" to build the model of the different routing method and to observe two important metrics for random waypoint mobility in DTNs.

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