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Application of ad-hoc network to emergency communication

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Background and Purpose

Wireless communication has been developed very much in recent years. Mobile phone, Wireless LAN and bluetooth is being widely used in the contemporary society. Ad-hoc network is taken notice with development of Wireless technology.

Ad-hoc network don't need router and wireless station. Ad-hoc network is a network that nodes connect mutually. And it have function of Multi Hop. A transmission node can connect with a reception node outside wireless range by Multi Hop. In that case, Multi hop that the data transmit to reception node from transmission node by delay node is done. Moreover, ad-hoc network correspond moving node. A topology of ad-hoc network is happened a sudden transformation by moving node. Therefor, Routing protocol that do establishment and maintenance of the route is very importance.

Ad-hoc network want to be used under emergency communication :the disaster such as earthquake:. A big earthquake: Great Han-shin earthquake, Niigata Chuetsu earthquake and Great Sumatra earthquake: happened frequently in recent years. A Information such as existence information and lifeline information: such as water and foods. etc.: is very importance in the disaster. But, communication infrastructure can't use by disconnection and breakdown of base station when these disaster happened. The ad-hoc network not needed existing infrastructure is taken notice. but, emergency communication doesn't realize by ad-hoc network now.

Therefor, a proper routing protocol can't be selected uses. Framework that be able to select routing protocol by the use constructs in this research. However, evaluation of the routing protocol is relative evaluation. Moreover, I extract the problem of the ad-hoc network under emergency communication. I consider requirement of good routing protocol under emergency communication.

classification and evaluation method of routing protocol

This paper give index and experiment parameter for evaluation of routing protocol used now. I classify this index and parameter into the performance of routing protocol. The performance of routing protocol define performance index. I compare routing protocol estimated by performance index and parameter need ad-hoc network by the uses. As a result, We can select proper ad-hoc network. Moreover, experiment environment for evaluation of this performance index is shown below.

Adjustment to emergency communication

Before ad-hoc network is applied emergency communication, we need to know network topology under emergency communication. Therefor, I consider ad-hoc network constructed under emergency communication. Afterwords, performance of ad-hoc network is considered under the emergency communication.

conclusion and Future work

In this research, I establish how to select ad-hoc routing protocol by use. I consider the definition of performance index that estimate routing protocol and experiment environment to estimate routing protocol. Moreover, I consider topology of ad-hoc network under emergency communication. And, I consider how to select routing protocol ad-hoc network. Various routing protocol need to be estimated by the performance index.