

Credibility Evaluation of Trust Models based on Fuzzy Quantization and AHP in Ad hoc Scene

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Abstract—Varied trust management models for Ad hoc network had been proposed recently. However, there are rare method to evaluate these models making it is difficult to develop the most appropriate trust models in theory, and also it is difficult for a decision maker to choose an optimal trust model to implement in a concrete scene. In this paper, credibility evaluation of trust models based on fuzzy quantization method and AHP (Analytic Hierarchy Process) in ad hoc scenarios was performed. Some attributes were extracted from the trusted request of a concrete scene in ad hoc network, and some traditional ad hoc trust models were analyzed qualitatively. Then the fuzzy theory and the AHP method were applied to calculate the overall evaluated values of the hierarchical attributes of the candidate trust models quantitatively, and the optimal one is selected based on the sorted evaluated results. Finally, analysis and experimental simulation were performed. The results show that the proposed method is reasonable, and effective compared with the previous algorithms.

Keyword—Network security; Trust models; Trust model evaluation; AHP; fuzzy quantization



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