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A remote attestation mechanism for the sensing layer nodes of the internet of things

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*Highlights (for review)

In this paper, a remote attestation mechanism for the sensing layer nodes in the Internet of Things is presented in this paper. Firstly, the formal description of the sensor nodes is given; secondly, based on the formal description, a real-time trust measurement for the sensing nodes is proposed and the real-time trust measurement for the sensing nodes is realized; thirdly by encapsulating the properties and trust value of sensing node, the real-time tracing of the trust of nodes are realized in data transmission process. The security of this mechanism is proved in the standard model, meanwhile, this mechanism will not expose the privacy of nodes in the process of attestation, and it can trace the untrusted nodes. The simulation experiment shows that this mechanism can resist the attacks to the sensing nodes and can effectively improve the trust rate of data transmission, and this mechanism has good dynamic adaptability to network environment. This mechanism is simple and efficient, meanwhile the mechanism is flexible and easy to implement.