一种基于谱聚类分析的物联网节点安全控制域划分算法

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摘　要：

物联网的多源异构性使其安全面临更多的挑战，为实现跨层安全控制，部署多层融合的安全控制策略，提出了一种基于谱聚类的节点安全域分类算法。通过对物联网感知节点在历史安全事件中的波及状态统计，确定感知节点与攻击事件之间的相关性，进而利用谱聚类方法将节点划分为若干个安全控制域。基于事件相关性的谱聚类节点安全域划分，将为部署域内和域间的安全控制策略提供依据，从而整体提升物联网安全防护水平。

关键词：物联网；安全控制；谱聚类；节点安全域

A Security Domain Division Algorithm of the Internet of Things Based on Spectral Clustering

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Abstract:

In the Internet of Things(IoT), the property of multi-source and heterogeneity bring more challenges to its security. In order to attain cross-layer security control and deploy multi-layer combined security control strategy, an algorithm based on spectral clustering is proposed to divide nodes into several security domains. In the algorithm, through statistics about which sensor nodes are involved in history security events, correlations of sensor nodes to history events are calculated and then nodes are divided accordingly using spectral clustering method. The dipartition can serve strong support for deployment of security control strategy within domain and between different domains, thus improve overall security level of IoT.

Keywords: Internet of Things; Security control; Spectral clustering ; Node security domain

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