

论文

## 基于贝叶斯网络的通信网告警相关性和故障诊断模型

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摘要

该文采用贝叶斯网络建立告警相关性和故障诊断模型。首先介绍了基于贝叶斯网络推理的基本概念。提出了通信网功能分层结构的思想,建立不同网络层次间的故障传播模型。详细讨论了从故障传播模型中构造贝叶斯网络,以及分布式告警相关性模型的实现框架。最后结合SDH over DWDM系统,具体分析了基于贝叶斯网络的告警相关性分析过程及实验结果。实验证明利用贝叶斯网络能够准确定位通信网根故障点。

关键词 [故障管理](#) [告警相关性](#) [故障传播模型](#) [贝叶斯网络](#)

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### Bayesian Networks Based Alarm Correlation and Fault Diagnosis in Communication Networks

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Abstract

This paper proposes the alarm correlation and fault identification based on Bayesian networks in communication networks. At first, the basic concepts of Bayesian networks are introduced. Then the paper presents an approach for modeling large communication networks that are divided into their constituting sub-networks. And the causal relation is used to model the functional relationship among the sub-networks. The paper discusses how to construct Bayesian networks from the causal relation and presents a distributed alarm correlation framework based on CORBA. Finally, the realization and results of alarm correlation and fault identification is discussed in SDH over DWDM systems. The experimentation has proved that using Bayesian network based alarm correlation is benefit to detect and localize the root faults in communication networks.

Key words [Fault management](#) [Alarm correlation](#) [Fault propagation model](#) [Bayesian networks](#)

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