基于非线性状态估计的长时延丢包网络故障检测算法

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摘　要：由于传统故障检测技术缺少状态评估机制，造成检测误差较大，提出了基于非线性状态估计的长时延丢包网络故障检测技术可降低检测误差.根据检测原理，设计非线性网络故障状态估计流程，以此构建长时延故障状态评估机制，根据评估结果分析长时延信号特征；设定合理分析规则，构建丢包故障状态评估机制，结合服从伯努利分布信息，分析丢包信号特征.根据信号特征分析结果完成对故障的检测.由实验结果可知，该技术检测误差最低达到0.1，能够满足实际误差指标约束条件.

关键词：　非线性状态；估计；长时延；丢包；网络故障；检测

Fault detection algorithm for long delay packet loss network based on nonlinear state estimation

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Abstract：Due to the lack of state evaluation mechanism in traditional fault detection technology and the large detection error, a fault detection technology based on nonlinear state estimation and long delay packet loss network is proposed, which can reduce detection error. According to the detection principle, the design of nonlinear network fault state estimation process, so as to construct a long delay fault condition assessment mechanism, according to the analysis of long time delay signal feature evaluation results; set reasonable analysis rules, construct the packet loss fault state evaluation mechanism, combined with obeys Bernoulli distribution information, analysis of packet loss signal characteristics. The fault detection is completed according to the result of signal characteristic analysis. The experimental results show that the detection error of the technology is up to 0.1, and it can satisfy the constraints of the actual error index.

Key words：　nonlinear state; estimation; long delay; packet loss; network fault; detection

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