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论文

矿井应急救援WMN修正分级信道分配策略

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摘要：

针对矿井应急救援无线Mesh网络，提出了一种修正分级信道分配策略。为满足矿井应急救援WMN对实时性与稳定性的需求，兼顾其长距离中继传输的通信特点，该策略采用了分布式静态信道分配方式，并针对应急救援网络链路带宽需求分布不平衡的特点，采用了基于链路预期负载的信道分配优先级机制。该机制根据数据流的网关汇聚性，利用链路距离网关的跳数，反比计算出链路的预期负载。仿真结果证明采用所提信道分配策略的矿井应急救援WMN传输性能稳定，具有较好的网络容量，且其业务传输的实时性得到了有效提高。

关键词： 矿井；应急救援；无线Mesh网络；信道分配

A modified and classified channel allocation scheme for underground mine emergency rescue WMN

Abstract:

A modified and classified channel allocation (MCCA) strategy for underground mine emergency rescue wireless Mesh network (U-WMN) was proposed.To satisfy the application requirements on real-time transmission and stability of U-WMN, and with consideration of its long distance relay transmission characteristic, MCCA employs distributed and static channel allocation pattern, and assigns channels for each link using a link-expected-load (LEL)-based channel allocation priority scheme, so as to meet the unbalanced bandwidth requirements of U-WMN links.In the priority scheme, the LEL of each link was firstly calculated in inverse proportion of the hop distance between the link and gateway, and then been randomly modified before being as the unique channel allocation priority for the link.Simulation results prove that U-WMN using MCCA has a stable transmission performance, and its network capacity and real-time property are effectively improved.

Keywords: mine tunnel； emergency rescue； wireless mesh network (WMN)； channel allocation

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