

## 一种直连网络智能路由算法

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收稿日期 修回日期 网络版发布日期 2007-7-10 接受日期

**摘要** 基于生物智能提出一种适合直连网络的智能路由算法. 该算法使用前向代理来收集当前结点到源结点的估计旅行时间, 并以此更新结点路由信息. 算法采用一个考虑多种时延(如发送时延、传播时延及等待时延等)的模型来计算前向代理携带的旅行时间, 同时考虑路由表中的历史路由信息和当前的链路状态, 因而路由决策更加正确. 在基于虚切交换的k-ary n-cube网络中对算法性能进行了仿真, 与传统的路由算法(如维序算法、Duato算法及GAL算法等)相比, 在不同的流量模式下这种直连网络的智能路由算法都取得较低的时延和较高的吞吐量.

**关键词** [直连网络](#) [路由算法](#) [负载均衡](#)

**分类号** [TN915.04](#)

## Intelligent routing algorithm in direct interconnection networks

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### Abstract

An intelligent routing algorithm FOA (Forward-only Agent) is proposed for the direct interconnection networks. In FOA, only forward agents are used to update the routing information related to their source node while traveling to their destination. A precise model considering various types of delay is used to calculate the trip time taken by the forward agent. Besides, packets are routed randomly based on the goodness of a neighbor which is measured by not only the routing information recorded in the routing table but also the current link condition so as to reach load balance. Simulations were carried out with OPNET software in the k-ary n-cube networks in which virtual cut through switching mechanism is used. The results show that FOA achieves a better performance than other popular algorithms such as DOR, Duato's algorithm and GAL with a lower delay and a higher throughput.  
<BR>

**Key words** [direct interconnection networks](#) [routing algorithm](#) [load balance](#)

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