网络、通信与安全

基于MPLS的移动IPv6预测式快速切换方案

王红梅, 贾宗璞, 李 刚

河南理工大学 计算机学院,河南 焦作 454000

摘要　针对现有的多协议标签交换（MPLS）和IPv6融合方案存在建立标签交换路径（LSP）所需时延大、丢包率高和无错误恢复处理等问题, 提出了一种新的方案。该方案通过定义预测信息表和预测式MPLS移交切换算法, 使得移动节点（MN）在移交切换前, 根据自身需要选择目的接入路由器（TAR）, 以便TAR提前完成其与交叉路由器（CR）的LSP建设, 从而实现MN移交切换时延的最小化；另外, 所提预测式MPLS移交切换算法使得该方案具有错误恢复的能力；对LSP拓扑结构的改进和采用双播机制能够有效减少切换丢包率。理论和仿真分析表明, 所提方案的切换时延和丢包率小于现有方案, 且具有错误恢复的能力。

关键词　多协议标签交换（MPLS）　移动IPv6　预测信息　错误恢复　快速切换

分类号

Predictive fast handoff scheme for MPLS based mobile IPv6

WANG Hong－mei,JIA Zong－pu,LI Gang

School of Computer Science and Technology,Henan Polytechnic University,Jiaozuo,Henan 454000,China

Abstract

A novel scheme for integrating Multi－Protocol Label Switching（MPLS） with mobile IPv6 is proposed to solve the problems of long latency for Label Switching Path（LSP） establishment,high packet loss and no failure recovery in existing integration scheme.A new concept named Predictive Information Table is defined and a predictive MPLS handover algorithm is put forward,so that before MN hands over,MN can choose a TAR according to its specific demand and TAR can establish the LSP between itself and CR,which minimizes MN's handoff latency.Besides,the proposed algorithm has failure recovery function.In addition,the LSP topology is improved and bicasting mechanism is adopted,which can reduce the packet loss.Both theoretics and simulation analyses show that the handoff latency and packet loss in the proposed scheme are shorter than that in the existing scheme,and our scheme has failure recovery function.

Key words　Multi－Protocol Label Switching（MPLS）　mobile IPv6　predictive information　failure recovery　fast handoff

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通讯作者　王红梅 E-mail：wanghongmei530@yahoo．com．cn

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