

论文

空间通信网中音视频传输的应用层QoS控制与测试方法

曾欢¹, 张灿^{1,2}, 陈德元¹

1. 中国科学院研究生院信息科学与工程学院, 北京 100049;
2. 中国科学院研究生院信息安全国家重点实验室, 北京 100049

摘要:

分析了无线局域网、因特网和Ku频段卫星通信网的互联互通及服务质量(QoS)性能参数,采用视频帧率、分辨率自适应算法,提出了一种空间通信网中音视频传输的应用层QoS控制与测试方法.仿真实验结果表明,该方法提高了网络利用率,并具有良好的QoS自适应帧率调整能力.

关键词: 空间通信网 音视频传输 互联互通 服务质量

Application-layer QoS control and testing method for audio/video delivery over space network

ZENG Huan¹, ZHANG Can^{1,2}, CHEN De-Yuan¹

1. School of Information Science and Engineering, Graduate University, Chinese Academy of Sciences, Beijing 100049, China;
2. State Key Laboratory of Information Security, Graduate University, Chinese Academy of Sciences, Beijing 100049, China

Abstract:

We analyze the interconnection among WLAN, Internet, and Ku-band satellite communication networks. In order to meet the QoS requirements of the audio/video delivery, we have proposed an application-layer QoS control and testing method by using a frame rate and resolution adaptive modification algorithm. The simulation results show that the proposed method enhances the network utilization rate and has great QoS control capability of modifying the frame rate adaptively.

Keywords: space communication network audio/video delivery interconnection QoS

收稿日期 2010-04-15 修回日期 2010-05-07 网络版发布日期

DOI:

基金项目:

国家自然科学基金(61032006,60773137,60972067)、国家科技重大专项(2009ZX03001-009)和中国科学院研究生院院长基金(O85101HM03)资助

通讯作者:

作者简介:

作者Email: zenghuan07@mails.gucas.ac.cn

参考文献:

[1] Zheng W, Meng X, Jiang L Z. Research on QoS for space-ground networks //2008 International Conference on Intelligent Computation Technology and Automation. 2008: 1002-1006.

[2] Braden R, Clark D, Shenker S. Integrated services in the internet architecture: an overview . RFC 1633, 1994 . <http://tools.ietf.org/rfc/rfc1633.txt>.

[3] Blake S, Black D, Carlson M, et al. An architecture for differentiated services . RFC 2475, 1998 . <http://tools.ietf.org/rfc/rfc2475.txt>.

[4] Rosen E, Viswanathan A, Callon R. Multiprotocol label switching architecture . RFC 3031, 2001 .

扩展功能

本文信息

- ▶ Supporting info
- ▶ PDF(OKB)
- ▶ [HTML全文]
- ▶ 参考文献[PDF]
- ▶ 参考文献

服务与反馈

- ▶ 把本文推荐给朋友
- ▶ 加入我的书架
- ▶ 加入引用管理器
- ▶ 引用本文
- ▶ Email Alert
- ▶ 文章反馈
- ▶ 浏览反馈信息

本文关键词相关文章

- ▶ 空间通信网
- ▶ 音视频传输
- ▶ 互联互通
- ▶ 服务质量

本文作者相关文章

PubMed

<http://tools.ietf.org/rfc/rfc3031.txt>.

[5] Yavatkar R, Hoffman D, Bernet Y, et al. SBM (subnet bandwidth manager): a protocol for RSVP-based admission control over IEEE 802-style networks . RFC 2814, 2000 .

<http://tools.ietf.org/rfc/rfc2814.txt>.

[6] Floyd S. Connections with multiple congested gateways in packet-switched networks Part 1: one-way traffic

[J]. ACM Computer Communication Review, 1991, 21(5): 30- 47.

[7] Floyd S, Handley M, Padhye J, et al. Equation-based congestion control for unicast applications //SIGCOMM 2000. 2000.

[8] Floyd S, Handley M, Padhye J. A comparison of equation-based and AIMD congestion control . .ACIRI, 2000. <http://www.aciri.org/tfrc/aimd.pdf>.

[9] Mahdavi J, Floyd S. TCP-friendly unicast rate-based flow control . . Note sent to end2end-interest mailing list, 1997.<http://www.psc.edu/networking/papers/tcp-friendly.html>.

[10] Handley M, Padhye J, Floyd S, et al. TCP friendly rate control (TFRC): protocol specification . .Internet Draft. 2002. <http://www.ietf.org/rfc/rfc3448.txt>.

[11] Miyabayashi M, Wakamiya N, Murata M, et al. MPEG-TFRCP: video transfer with TCP-friendly rate control protocol //Proceedings of IEEE International Conference on Communications (ICC' 01). 2001 (1): 137- 141.

[12] Akyildiz I F, Akan O B, Chen C, et al. Interplanetary internet: state of the art and research challenges

[J]. IEEE Communication Magazine, 2004, 42(7): 108-118.

[13] Almes G, Kalidindi S. One-way delay metric for IPPM: USA. RFC 2679. 1999 .<http://www.ietf.org/rfc/rfc2679.txt>.

[14] Schulzrinne H, Casner S, Frederick R, et al. RTP: A transport protocol for real-time applications . IETF RFC 3550, 2003 . <http://www.ietf.org/rfc/rfc3550.txt>.

[15] Almes G, Kalidindi S. One-way packet loss metric for IPPM: USA . RFC 2680, 1999 . <http://www.ietf.org/rfc/rfc2680.txt>.

[16] ITU-T Rec, Y1541. Network performance objectives for IP2 based services, telecommunication standardization sector of ITU . 2006 . <http://www.itu.int/itudoc/itu-t/aap/sg13aap/history/y1541/y1541.html>.

[17] Li D, Chen D Y, Tu G F. Space network measurement and visualization technique of measurement results

[J]. Journal of Graduate School of the Chinese Academy of Sciences, 2009, 26(5): 670- 680(in Chinese). 李栋,陈德元,涂国防. 空间通信网QoS性能测量与可视化

[J]. 中国科学院研究生院学报,2009, 26(5): 670- 680.

本刊中的类似文章

1. 宋浒, 杨寿保, 刘晓茜, 郭良敏. 网格市场中服务质量驱动下的任务调度算法[J]. 中国科学院研究生院学报, 2011,28(1): 86-93
2. 李芳, 陈德元, 涂国防, 侯秀红. 基于DiffServ over MPLS的深空通信网络QoS控制方法[J]. 中国科学院研究生院学报, 2009,26(6): 803-811
3. 李栋, 陈德元, 涂国防. 空间通信网QoS性能测量与可视化[J]. 中国科学院研究生院学报, 2009,26(5): 670-680