

Welcome to Research

Table of contents

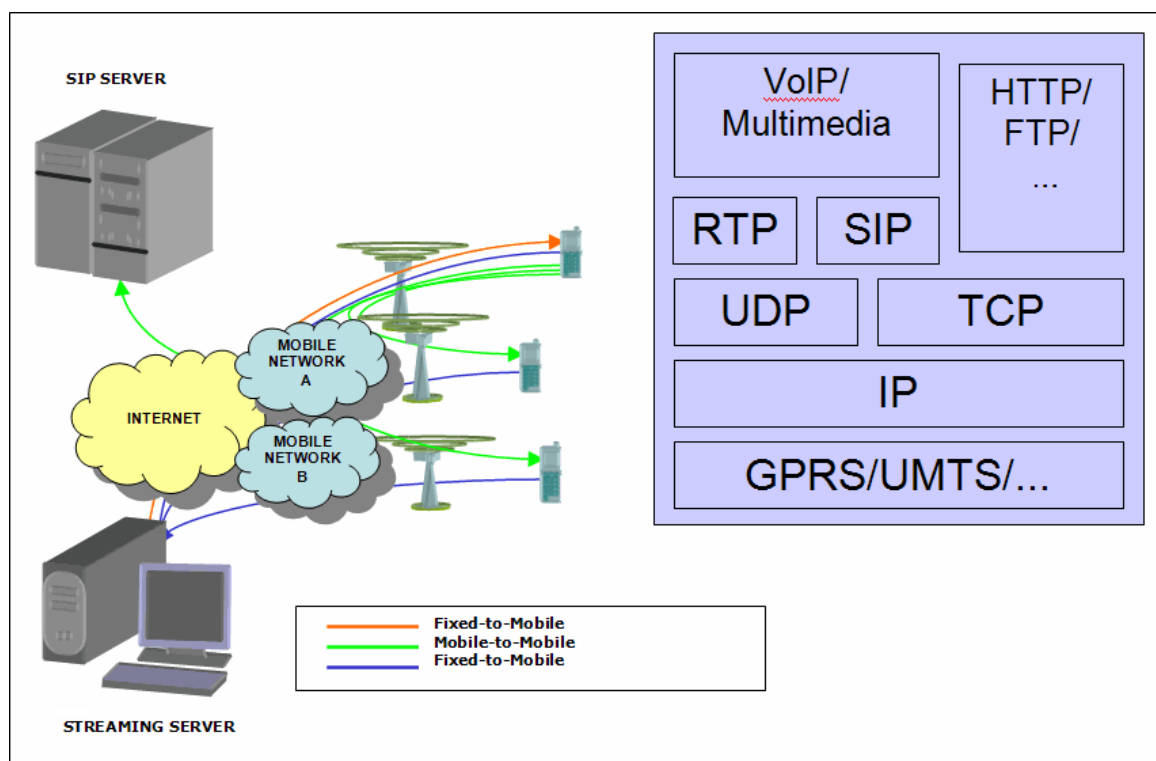
1 Video Streaming performance over GPRS/UMTS networks.....	2
1.1 Tool Chain.....	2
1.2 Scenario #1 Fixed-to-Mobile video streaming session: GPRS cell-reselection	3
1.3 Scenario #2 Fixed-to-mobile scenario: Handover.....	3
1.4 Scenario #3 Fixed-to-Mobile static scenario: Sequence errors.....	3
1.5 Scenario #4 Fixed-to-Mobile staci scenario: Packet losses, low bit rate video.....	3
1.6 Scenario #5 Mobile-to-Mobile static scenario: Packet losses on the source side....	3
1.7 Scenario #6 Mobile-to-Mobile static scenario: Packet losses on the receive side...	3
1.8 Scenario #7 Mobile-to-Mobile static scenario: Packet losses, low bit rate video...	3
1.9 Scenario #8 Mobile-to-Mobile static scenario: Sequence errors.....	3
1.10 Scenario #9 Mobile-to-Mobile vehicular scenario: Packet losses, low bit rate video.....	3
1.11 Scenario #10 Mobile-to-Mobile vehicular scenario, low bit rate video: Jitter.....	3
2 FUTURE RESEARCH: Simulation with OPNET	4

SymPA for Symbian 9 is now available in Software section!!!

[SymPA v1.0 for Symbian 9](#)

1. Video Streaming performance over GPRS/UMTS networks

We propose a non intrusive methodology based on mobile devices real measurements. Our objective is to provide a more realistic test environment using actual mobile devices in real conditions of network load radio propagation while taking into account the intrinsic mobility of mobile subscribers



Case of Use

1.1. Tool Chain

In order to analyze the RTP traffic performance in mobile networks we have used tool chain shown in figure. Test starts with the video transmission from the Darwin Streaming Server to a streaming client located in the mobile device. We use [SymPA](#) tool for capturing incoming traffic in the mobile client and network monitoring. Traffic captured is converted to tcpdump format and it is analyzed with the well-known network protocol analyzer Wireshark (previously known as Ethereal). We have used a modified version of Wireshark. The code has been modified in order to add the capacity of analyzing RTP flows established using RSTP protocol. Using the information about network collected by

SymPA and the traffic analysis obtained from Wireshark we analyze IP level performance of RTP streams.

Tool Chain

1.2. Scenario #1 Fixed-to-Mobile video streaming session: GPRS cell-reselection

graphic_1

1.3. Scenario #2 Fixed-to-mobile scenario: Handover

handover

1.4. Scenario #3 Fixed-to-Mobile static scenario: Sequence errors

sequence error ftm

1.5. Scenario #4 Fixed-to-Mobile static scenario: Packet losses, low bit rate video

packet losses vehicular low bit rate

1.6. Scenario #5 Mobile-to-Mobile static scenario: Packet losses on the source side

source side

1.7. Scenario #6 Mobile-to-Mobile static scenario: Packet losses on the receive side

packet losses

1.8. Scenario #7 Mobile-to-Mobile static scenario: Packet losses, low bit rate video

packet losses low bit rate

1.9. Scenario #8 Mobile-to-Mobile static scenario: Sequence errors

sequence error mtm

1.10. Scenario #9 Mobile-to-Mobile vehicular scenario: Packet losses, low bit rate video

packet losses vehicular low bit rate

1.11. Scenario #10 Mobile-to-Mobile vehicular scenario, low bit rate video: Jitter

jitter

2. FUTURE RESEARCH: Simulation with OPNET

Our future research activities include the use of OPNET simulator in order to compare the practical results obtained using our testing methodology with the results obtained from simulations.

The results obtained will also be published in the following web page:

<http://www.lcc.uma.es/~pedro/mobile/Research/opnet.html>