

RTP SIMULATION UNDER OMNeT++: PROBLEMS AND SOLUTIONS

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Motivation

- RTP is one of the most important protocols for multimedia streaming
- it was implemented in the INET framework for use with OMNeT++ however its implementation status had been termed 'incomplete' for a long period of time
- not possible to run RTP-based simulations because many errors appear during the respective build phase

Problems and solutions (1)

- We studied the relevant code, determined the essential problems and wrote the necessary code amendments
- RTP implementation became functional
- The actual RTP implementation in v4.0 of the OMNeT++ package is composed of many files
- We describe now the problems and solution in each file

Problems and solutions (2)

- **'RTP.ned'**: input gate names were wrongly used by the dependent files. We modified these names in a uniform way
- **'RTP.cc'**: we changed the gate names as in 'RTP.ned'
- **'RTPProfile.h'**: we modified the code for `SSRCGate(uint32 src)`, because `findSSRCGate(uint32 ssrc)` searches for an object of type `SSRCGate`. However, the `SSRCGate` constructor creates an object with no name, hence it cannot be found during the search.
- **'RTPProfile.cc'** : error in the line `'rtpPayloadSender->initialize();'`, which should be modified to `'rtpPayloadSender->callinitialize();'`, because we need to initialize not only the module from where we call this, but also all the respective submodules.

Problems and solutions (3)

- **'RTPLayer.ned'**: several gate names have to be modified.
- **'RTPHost.ned'**: hosts capable of RTP traffic generation and consumption. Such hosts represented here as compound modules, cannot be automatically assigned IP addresses from the 'flatNetworkConfigurator'. We had to include the '@node' attribute and make some changes in several gate names.
 - This is not enough, since we need to make the necessary modifications in dependent files that implement 'RTPApplication'.

Conclusion

- After inclusion of the amendments we were able to perform simulations using RTP without problems.