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.