Formal Modeling of Generalized Sliding Window Protocol in Promela using Spin Root Model-Checker

Abstract

Sliding Window Protocols are an essential means of packet-form data transmission over the network. Having fixed window widths, it suffers from certain drawbacks which can be improved using concept of generalization of Sliding Window protocol. The generalized approach of sliding window protocol can have any combination of window sizes between Go-back-N and Selective-Repeat protocols. This paper presents the formal model checking of both Go-Back-N and Selective-Repeat protocols in ProMeLa using SPIN Root model-checker tool which would ultimately proceed in the verification of generalized version of sliding window protocol.

References


7. Andreas Bauer, Martin Leucker, Christian Schallhart, Runtime Verification for LTL and TLTL, ACM Transactions on Software Engineering and Methodology (TOSEM), v.20 n.4, p.1-64, September 2011


**Index Terms**

Computer Science 
Networks

**Keywords**

Sliding Window Protocol, ProMeLa, SPIN Model-Checker tool, Internet, Data transmission, Formal Methods, Process Algebra, π-Calculus, Mobility Workbench