Project Proposal for Unified Approach to Verification and Validation
Protocol Verification using Model Checking
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Problem Definition:

Model checking is one of the most used verification and validation techniques. Model checking is used to validate whether the model conforms to selected properties. Protocol verification is one of the areas in which model checking is used. This project aims to demonstrate how model checking is used to verify protocols. This would be achieved by doing a case study of the Lightweight Directory Access (LDAP) protocol. LDAP operations would be used to analyze the protocol and verify it. The results which we get would then be presented.

Reference materials to be used:

- http://ti.arc.nasa.gov/people/pcorina/presentations/ConcreteMCwAbs_CAV05.ppt
- http://pi.informatik.uni-siegen.de/niere/lehre/SS04/SeminarFinal/6_sun/Folien.pdf
- http://www.isi.edu/~annc/classes/grid/lectures/amrish.ppt
- http://www.ietf.org/rfc/rfc2254.txt
- Paul Ammann, Paul E Black, Wei Ding - “Model Checkers in Software Testing”
- http://www.geocities.com/model_based_testing/online_papers.htm
- K. Havelund, N. Shankar “Experiments in Theorem Proving and Model Checking for Protocol Verification”

Expected Results:

The LDAP protocol would be verified using a model checker and results obtained would be analyzed to present the protocol verification.

Schedule (Date mentioned is estimated time of completion):

- Study the LDAP protocol: Oct 22
- Identify protocol properties to verify: Nov 2
- Apply the model checker on the protocol properties: Nov 18
- Analyzing and documenting the result: Nov 25
- Preparing the presentation to be given: Nov 30