

An Incremental Refinement Approach to a Development of Dynamic Host Configuration Protocol (DHCP) Using Event-B

Authors : Rajaa Filali, Mohamed Bouhdadi

Abstract : This paper presents an incremental development of the Dynamic Host Configuration Protocol (DHCP) in Event-B. DHCP is widely used communication protocol, which provides a standard mechanism to obtain configuration parameters. The specification is performed in a stepwise manner and verified through a series of refinements. The Event-B formal method uses the Rodin platform to modeling and verifying some properties of the protocol such as safety, liveness and deadlock freedom. To model and verify the protocol, we use the formal technique Event-B which provides an accessible and rigorous development method. This interaction between modelling and proving reduces the complexity and helps to eliminate misunderstandings, inconsistencies, and specification gaps.

Keywords : DHCP protocol, Event-B, refinement, proof obligation, Rodin

Conference Title : ICCNC 2017 : International Conference on Computer and Network Communications

Conference Location : Paris, France

Conference Dates : November 20-21, 2017