

介質存取控制協定之通用模擬平台 設計法則

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摘 要

近來，在通訊領域中，多媒體傳輸已儼然成爲熱門的話題。不管是何種網路，系統的頻寬都是有限的。爲了滿足多媒體服務（包括語音、數據及影像），一個有介質存取控制協定是必要的條件。

本篇論文，我們從許多不同的介質存取控制協定中發現，其實這些協定中包含不少相同的積木。我們定義各種積木去符合不同協定的需要。只要定義好所有的積木，適用於介質存取控制協定的通用模擬平台是可以完成的。最後，我們完成一個簡易的通用模擬平台來證明我們的設計法則。

Modularized Design of a Universal Simulation Testbed for Medium Access Protocol

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Abstract

Multimedia transmission is a hot topic in communication areas in recent years. No matter what kind of networks is considered, the system bandwidth is unavoidably bounded by a certain amount. In order to satisfy the huge service (e.g., voice, data and video) demands and fulfill the multimedia requirements with a limited bandwidth, an efficient Multiple Access Channel (MAC) protocol is required. In the literature, there are quite some MAC protocols proposed to fulfill different demands for a variety of networks. Often, their performances are evaluated by specifically written simulation programs. Thus, comparisons among them as well as modifications, may require a nontrivial effort of re-programming.

We found that these MAC protocols in fact compose of common Building Blocks, and hence, can be simulated by proper reorganization of these building blocks if the code corresponding to each building block

is available. This motivates us to the research of this thesis, which is to define a series of Building Blocks that can be used to constitute these MAC protocols. Based on the well-defined Building Blocks, a universal simulation test-bed that can be used to simulate different kinds of MAC protocols is presented. Finally, a trial implementation of some of our defined building blocks is done to test the feasibility of our idea.