Abstract

The Ambient Network project aims at designing a future networking environment where today’s networks (cellular, wireless, fixed) are seamlessly integrated offering a richer and smarter networking experience to applications and users. An efficient resource management method to deal with different characteristics of the heterogeneous technologies is the need of the hour. IXP 2800 network processor is the high end device designed for 10 gigabit data rates with typical usage in high speed packet forwarding systems and ambient networks. This project aims at using network processors for solving resource management issues in ambient networks. The problem of fair allocation among contending traffic flows on a link has been extensively researched. Moreover, conventional resource scheduling algorithms depend strongly upon the assumption of prior knowledge of network parameters and cannot handle variations or lack of information about these parameters. In this paper a novel scheduler called the Composite Bandwidth and CPU Scheduler (CBCS). Which jointly allocates the fair share of the link bandwidth as well as processing resource to all competing flows. CBCS also uses a simple and adaptive online prediction scheme for reliably estimating the processing time of the packet.
Reference


[3] IXP2800 Framework developer manual, as provided with the Intel IXA SDK 3.5.


Index Terms

Computer Science

Computer Networks

Key words

Ambient Network

Network Processor

Scheduling

Distributed Applications

Packet-Switched networks