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A solution model of integrating cells of PCS to switches in wireless ATM network

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Abstract

In this paper, we investigate the optimal assignment problem of cells in PCS (Personal Communication Service) to switches on a ATM (Asynchronous Transfer Mode) network. Given cells and switches on an ATM network (whose locations are fixed and known), the problem is to group cells into clusters and assign these clusters to switches in an optimum manner. This problem is modeled as a complex integer programming problem. Since finding an optimal solution of this problem is NP-hard, a heuristic solution model consists of three phases (Cell Pre-Partitioning Phase, Cell Exchanging Phase, and Cell Migrating Phase) is proposed. Experimental results show that Cell Exchanging and Cell Migrating Phases can really reduce total cost near 44% on average.

Key words：Cabling cost;Cell assignment;Handoff cost;Heuristic algorithms;Wireless ATM