

An Optimized Scheme to Organize Softswitch-based Next Generation Network¹

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Abstract: This paper outlines the network organizing in softswitch-based NGN. First, a non-linear programming scheme that aims to minimize the cost of organizing networks under the constraint of required reliability and delay is analyzed, and we present a heuristic algorithm to solve it. The reliability of the network is guaranteed with both the reliability of the links and that of the softswitch nodes considered, and ‘state-sharing’ is adopted to assure the node’s reliability. A design scheme of softswitch node supporting ‘state-sharing’ is presented. Finally, the evaluation for the heuristic algorithm is presented.

Keywords: NGN, softswitch, non-linear programming, heuristic algorithm

1. INTRODUCTION

Now it is a trend that the various networks running independently will converge to Next Generation Network (NGN), and softswitch-based scenario is one of the effectual schemes. Accordingly, organizing scheme and call routing become important issues to be researched.

However, few researches have focused on organizing technology and call routing of softswitch-based NGN so far. NGN is all-IP network, and is operates in a manageable and operable mode rather than the best-effort mode in current Internet. At the same time, while Public Switched Telephone Network (PSTN) has accumulated rich solutions in organizing networks, it is based on circuit-switch architecture whose service traffic doesn’t behave like that in the data networks. Up to now there is no determined scheme for softswitch-based NGN’s organizing in the related standards.

This remainder of the paper is organized as follows. In Section 2, we describe NGN’s objectives in organizing network, and analyze them from the economic view and the performance view. We present a model based on the foundation that the average delay in data networks is got through Kleinrock Approximation [1] and Jackson theorem. A heuristic algorithm and its related heuristic strategies are presented to

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