

Analysis of Multilayer Traffic Engineering strategies for optical networks:

Synopsis

Today, the amount of traffic on networks and the speed at which data has to be transmitted, always keeps growing. The deployment of Optical Transport Networks has proven to be a very promising solution for this. One serious issue we are still confronted with when it comes to optical networking, is the need for manual intervention when setting up light paths. Setting them up may take too much time, and not tearing them down when no longer needed, wastes bandwidth on these rather expensive optical media. Therefore, research is being done on Intelligent Optical Networks and Multilayer Traffic Engineering: techniques which allow us to automate the process of setting up light paths and to manage the available bandwidth.

From previous research, it has become clear that choosing the underlying strategy with these techniques is often more difficult than actually implementing them.

This final work has been achieved as part of a research project on Multilayer Traffic Engineering at Hanoi University of Technology in Vietnam. In this final work, two possible strategies are examined: one proactive and one reactive strategy. The analysis of the proposed strategies is done by evaluating their performance on an example network, transporting mostly Internet traffic, which is highly unpredictable.

From the analysis of these strategies can be concluded that both have their own advantages and disadvantages, and that a combination of both would offer a better solution. However, one must take into account that some properties of both strategies are contrary to each other, and therefore cannot be applied together.