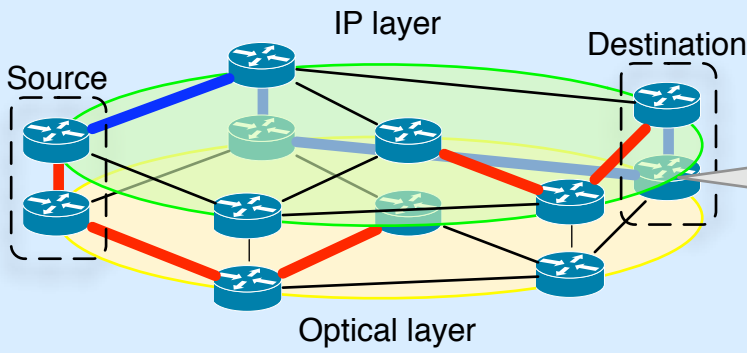


Design Method for Optical Networks

Objective

Routing problem in GMPLS networks



Coordination between IP and optical layer

Routing based on Multiple metrics

Frequent change of link-state information

➔ Complexity of path calculation become high in GMPLS networks

Objective

Speed up a shortest path calculation
Enhance a scalability of a shortest path calculation

Approach

Search for all routes in parallel simultaneously



Conventional approach

Neumann processor
+
Dijkstra's algorithm

Proposed approach

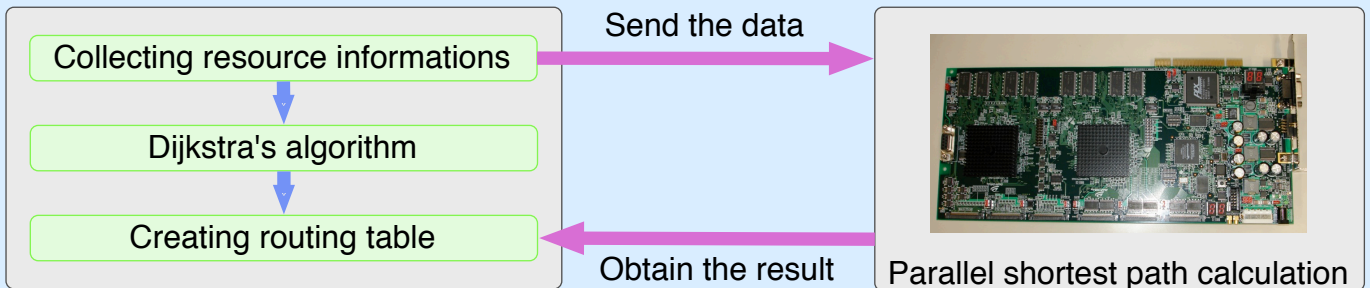
Reconfigurable Processor
+
Multi-route Parallel Search Algorithm

Hardware off-loading for the shortest path calculation

Software router (e.g. Zebra, Quagga)

Hardware off-loader

(Implemented on IPFlex DAPDNA-2)



➔ Conventional approach

➔ Our proposed approach

Demo System

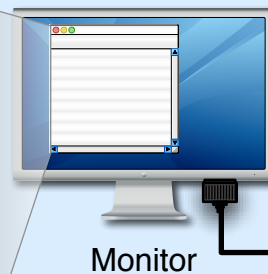
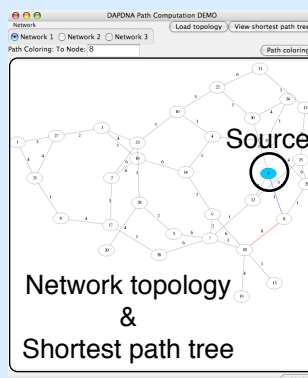
Function

Show topology

Compute the shortest path

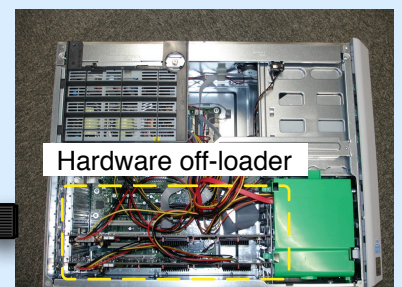
Show the shortest path tree

Demo



Monitor

Linux PC



Hardware off-loader