Photonic Network Communications

Start Date of Review/Analysis: Jan. 2004; Analyst: Rajesh Roy

2010
April:
- "Path protection WDM networks with impaired-transmission" by R. A. Rosa, A. C. Drummond and N. da Fonseca : introduces two novel algorithms for shared path protection in WDM networks that take into consideration the Polarization Mode Dispersion, Amplifier Spontaneous Emission, and homowavelength cross-talk physical impairments during path selection; may be of interest to Avishek

February:
- "Virtual topology design and flow routing in optical networks under multihour traffic demand" by P. Marino, R. Pardo, B. Garcia-Manrubia and N. Skorin-Kapov : addresses the problem of finding a static virtual topology design and flow routing in transparent optical wavelength division multiplexing networks under a time-varying (multihour) traffic demand; may be of interest to Pulak
- "A novel shared-link protection algorithm with correlated link failure probability for dual-link failure" by X. Jun, C. HuiYou, X. Chang and Y. Yang : analyzes the reliability of conventional shared-link protection (SLP) based on correlated link failure probability and differentiated reliability; may be of interest to Ferhat

2009
December: Nothing related/interesting
October:
- "OSNR model to consider physical layer impairments in transparent optical networks" by H. Pereira, D. A. R. Chaves, C. J. A. Bastos-Filho and J. F. Martins-Filho : propose a model that considers several physical impairments in all-optical networks based on optical signal-to-noise degradation; may be of interest to Avishek

August:
- "Solving virtual topology reconfiguration problem on survivable WDM networks by using simulated annealing and genetic algorithms" by D. Din : studied the *Virtual Topology Reconfiguration Problem* (VTRP) in survivable WDM networks with a *reconfiguration constraint*; may be of interest to Chaitanya

June:
- "On dimensioning optical grids and the impact of scheduling" by C. Develder, B. Dhoedt, B. Mukherjee and P. Demeester: presents a phased solution approach to dimension network resources, and use it to evaluate various scheduling algorithms in two European network case studies; may be of interest to Yi

April: Nothing related/interesting.

February:

- "Routing scalability in multi-domain DWDM networks" by Q. Liu, C. Xie, T. Frangieh, N. Ghani, A. Gumaste and N. S. V. Rao : GMPLS-based hierarchical routing framework is proposed for multi-domain DWDM networks with wavelength conversion.

2008

December:

- "Shared partial path protection in WDM networks with shared risk link groups" by X. Shao, L. Zhou, X. Cheng, C. Saradhi, Y. Wang and J. Li : present a partial path protection scheme where SRLG-disjoint backup paths may only cover part of the working path. Full path protection becomes a special case of partial path protection, in which the backup path covers the full working path ; may be of interest to Ferhat

October: Nothing related/interesting.

August:

- "Design of grooming architectures for optical WDM mesh networks: limited grooming with electronic wavelength conversion" by M. Sivakumar and K. M. Sivalingam : have shown the benefits of limited grooming switch architectures, where only a subset of wavelengths in a network are equipped with expensive SONET Add Drop Multiplexers (SADM) that provide the grooming functionality ; may be of interest to Sifat

June:

- "An AWG-based WDM-PON architecture employing WDM/TDMA transmission for upstream traffic with dynamic bandwidth allocation" by K. Han, W. Yang, D. Datta and Y. Kim : examine a candidate architecture for WDM-PONs using multiple stages of AWGs; may be of interest to Lei

April:

- "Reducing vulnerability of shared-path protection subject to double-link failures in WDM mesh networks" by X. Shao, L. Zhou, T. Y. Chai, C. Saradhi and Y. Wang : present three policies that can reduce network vulnerability by reducing backup sharing in shared-path protection; may be of interest to Chaitanya

February: Nothing related/interesting.

2007

December:

- "Improving survivability for multi-link failures with reprovisioning in WDM mesh networks" by L. Guo, X. Wang and L. Li : proposes a new heuristic algorithm, called Shared Multi-sub-backup-paths Reprovisioning (SMR), to improve the survivability for multi-link failures in WDM mesh networks; may be of interest to Ferhat

October:

- "Multiple link failure recovery in survivable optical networks" by X. Cheng, X. Shao and Y. Wang : a greedy algorithm is presented to reserve backup bandwidth considering multiple ($F > 2$) link (SRLG) failure scenarios; may be of interest to Ferhat

- "Some studies on path protection in WDM networks" by Y. Aneja, A. Jaekel and S. Bandyopadhyay : propose two novel ILP formulations, which drastically reduce the number of integer variables compared to existing ILPs; may be of interest to Ferhat

August: Nothing related/interesting

June:

- "A novel backup multiplexing scheme for surviving double-link failures in mesh optical networks without wavelength conversion capability" by C. Chen and G. Fan : propose a backup-multiplexing scheme with 100% recovery guarantee.

April:

- "Impairment aware optimal diverse routing for survivable optical networks" by S. Wang and L. Li : Impairment Aware Optimal Path Pair problem, are proposed, and their performance is evaluated through extensive simulations; may be of interest to Avishek

January:

- "Multi-tiered service survivability in next-generation SONET/SDH networks" by N. Ghani and S. Park : presents a novel tiered survivability scheme that leverages this feature to support multiple levels of service survivability and higher load carrying capability and service resiliency; may be of interest to Ananya

2006:

December:

- "Hybrid protection in WDM networks with shared risk link groups" by X. Shao, G. Xiao, L. Zhou, X. Cheng and Y. Wang : propose a novel hybrid protection scheme, with the objective of combining the high-average capacity efficiency of shared-path protection with the fast recovery and simple trap avoidance of shared-link protection; may be of interest Chaitanya

- "Connection provisioning with guaranteed recovery time in survivable WDM optical networks" by Y. Ouyang and Q. Zeng : propose a new shared-segment protection algorithm, called AGBSP-QoP, to provision connection requests according to their differentiated recovery-time requirements;

- "Routing pre-configuration for fast and scalable path restoration in DWDM networks" by D. Gao and H. Zhang : presents Routing Pre-Configuration (RPC) scheme for fast and scalable path restoration in WDM networks, using pre-failure configuration and post-failure signaling.

September:

- "Comparison of failure dependent protection strategies in optical networks" by S. Ramasubramanian and A. S. Harjani : evaluates and compares the performance of three failure dependent strategies: (1) failure dependent path protection; (2) link protection; and (3) Diversion—a variant of the segmented path protection approach; may be of interest to Ferhat

July:

- "Distributed Restoration in Optical Networks using Feed-forward Neural Networks" by D. G. Karpat and S. Bilgen : new method is proposed for determining protection paths in an optical network where users have different characteristics in terms of reliability needs and security restrictions.

May:

- "Design of Optical Content Distribution Networks for Video on Demand Services" by T. Wauters, D. Colle, M. Pickavet, B. Dhoedt and P. Demeester : proposed Ethernet-based WDM network architecture is decentralized and consists of independent regional ring networks with locally deployed video servers; may be of interest to Sayeem

March:

- "Protection Schemes for IP-over-WDM Networks: Throughput and Recovery Time Comparison" by N. S. C. Correia and M. C. R. Medeiros : presents a novel protection approach using Generalized Multi-Protocol Label Switching (GMPLS); may be of interest to Chaitanya

- "Design of Logical Topology with Effective Waveband Usage in IP-over-WDM Networks" by Y. Fukushima, S. Arakawa and M. Murata : propose a heuristic algorithm for the design of a logical topology with as few optical fiber amplifiers as possible; may be of interest to Sifat

January:

- "Survivability Performance Evaluation of WDM Networks with Wavelength Converters" by M. Keshtgary, A. H. Jahangir, F. A. Al-Zahrani and A. P. Jayasumana : An algorithm is proposed to carry out the steady state availability analysis of a network even when the available paths between a pair of nodes are non-disjoint; may be of interest to Ferhat

- "Link-State-Based Algorithms for Dynamic Routing in All-Optical Networks with Ring Topologies" by R. Mêwanou and S. Pierre : proposes two heuristic algorithms based on former algorithms to improve network throughput and reduce blocking probabilities of data transmitted in all-optical networks with regard to connection costs.

2005:

November: Nothing related/interesting

September:

- "Capacity Planning of Survivable Mesh-based Transport Networks under Demand Uncertainty" by D. Leung and W. D. Grover : considers both the cost of initial design construction and the expected cost of possible augmentations or "recourse" actions required in the future, adapting the network to accommodate different actual future demands; may be of interest to Rajesh

- "Multihop Virtual Topology Design in WDM Optical Networks for Self-Similar Traffic" by S. Ghose, R. Kumar, N. Banerjee and R. Datta : consider the problem of designing virtual topologies for multihop optical WDM networks when the traffic is self-similar in nature.

July:

- "Ethernet-over-SONET(EoS) over WDM in Optical Wide-Area Networks (WANs): Benefits and Challenges" by K. Zhu, J. Zhang and B. Mukherjee : investigate the benefits and challenges of using next-generation SONET/SDH techniques—namely SONET/SDH virtual concatenation (VCAT) and link-capacity adjustment scheme (LCAS)—to support Ethernet-based data services in intelligent optical WDM wide area networks ; may be of interest to Chaitanya

May:

- "Performance Evaluation of Multi-Layer Traffic Engineering Enabled IP-over-ION Networks" by Q. Yan, D. Colle, S. D. Maesschalck, B. Puype, I. Lievens, M. Pickavet and P. Demeester: focus on analyzing the influence of MTE configuration scheme on MTE behavior, and evaluate network performance by studying simulation results obtained from a realistic IP-over-ION network.

- "Fractional Lambda Switching for Flexible Bandwidth Provisioning in WDM Networks: Principles and Performance" by D. Grieco, A. Pattavina and Y. Ofek : shown how the approach, Time Driven Switching, behaves in terms of call blocking when the basic parameters of the scheme are varied; may be of interest to Chaitanya

March:

- "High-Performance Hybrid-Switching Optical Router for IP over WDM Integration" by W. Wei, Q. Zeng, Y. Ouyang and D. Lomone : present and study the performance of a terabit optical router with an optical-electrical hybrid-switching fabric; may be of interest to Chaitanya

- "Dynamic Virtual Topology Reconfiguration Algorithms for Groomed WDM Networks" by S. Sinha, N. Rammohan and C. S. Murthy : present a simple and flexible framework to evaluate the gain achieved by reconfiguration, based on the two conflicting objectives of increasing throughput and reducing disruption;

- "Efficient Online Algorithms for Dynamic Shared Path Protection in WDM Optical Networks" by T Li and B. Wang : proposed and studied efficient online algorithms for shared path protection under dynamic traffic in survivable WDM optical mesh networks; may be of interest to Ferhat

January:

- "Shared-Risk Logical Span Groups in Span-Restorable Optical Networks: Analysis and Capacity Planning Model" by J. Doucette and W. D. Grover ; provide a model for capacity planning any span-restorable network in the presence of a known set of such shared-risk spans and study the relationship between capacity requirements and the number and placement of such situations; may be of interest to Ferhat

- "Capacity Optimization for Surviving Double-Link Failures in Mesh-Restorable Optical Networks" by W. He, M. Sridharan and A. K. Somani : use the double-link failure recovery methods available in literature, employ backup multiplexing schemes to optimize capacity utilization, and provide 100% protection guarantee for double-link failure recovery. We develop rules to identify scenarios when capacity sharing among interacting demand sets is possible; may be of interest to Chaitanya

2004:

November:

- "Shared Sub-Path Protection Algorithm in Traffic-Grooming WDM Mesh Networks" by R. He, H. Wen, L. Li and G. Wang : investigate the problem of dynamically establishing dependable connections in wavelength division multiplexing (WDM) mesh networks with traffic-grooming capabilities; may be of interest to Ferhat

- "Cost Effective Shared Path Protection for WDM Optical Mesh Networks with Partial Wavelength Conversion" by T. Li and B. Wang : study routing and wavelength assignment of connection requests in survivable WDM optical mesh networks employing shared path protection with partial wavelength conversion while 100% restorability is guaranteed against any single failures.

September:

- "Capacity Efficiency and Restorability of Path Protection and Rerouting in WDM Networks Subject to Dual Failures" by D. A. Schupke and R. G. Prinz : formulate mixed integer linear programming models for dedicated path protection, shared (backup) path protection, and path rerouting with and without stub-release; may be of interest to Ferhat

June:

- "An Architecture for Differentiated Protection Against Single and Double Faults in GMPLS" by F. Ricciato, M. Listanti and S. Salsano : present a dynamic distributed model supporting five different classes of protection, including protection against single and double fault, with and without sharing of backup bandwidth; may be of interest to Ananya

May:

- "Optical Virtual Private Networks: Applications, Functionality and Implementation" by S. French and D. Pendarakis : present Optical virtual private networks (O-VPNs) which represent the next step in the evolution of VPNs and provide similar underlying benefits as other VPN technologies to carriers;

- "Virtual Topology Design and Reconfiguration of Virtual Private Networks (VPNs) over All-Optical WDM Networks" by J. Zheng, B. Zhou and H. T. Mouftah : studies the virtual topology design and reconfiguration problem of virtual private networks (VPNs) over all-optical WDM networks;

March:

- "Design and Dimensioning of a WDM Mesh Network to Groom Dynamically Varying Traffic" by N. Srinivas and C. S. Murthy : address the traffic grooming problem in WDM mesh networks when the offered traffic is characterized by a set of traffic matrices—a variant of dynamically changing traffic; may be of interest to Rajesh

January:

- "An Innovative Solution for Dynamic Bandwidth Engineering in IP/MPLS Networks with QoS Support" by A. Bosco, E. Manconi, R. Sabella and L. Valentini : reports an original module for effectively handling bandwidth resources in a multi-service MPLS network.