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Brief Note on Optic Nerve

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Editorial Note

Optic nerve is a bunch of more than 1 million nerve fibers. Also called as the second cranial nerve or cranial nerve II, it is second of several set of cranial nerves. It transmits sensory information for sight in the form of electrical impulses from the eye to the brain. Damage to an optic nerve can cause sight loss. The type of sight loss and how acute it is depends on where damage occurs. It may effect on one or both eye.

Structure

The optic nerve is actually an extension of the central nervous system (brain). It is not surrounded by Schwann cells with first sensory bipolar cell body located peripherally in retina. Their central processes bond on ganglion cells (type of neuron located near the inner surface of the retina of the eye) on the vitreous surface of the retina and their central processes pass *via* the optic disc out of the globe and form optic nerve proper.

Connection provisioning in Wavelength Division Multiplexing (WDM) networks needs to account for a number of crucial parameters. On the one hand, operators want to secure the connection availability requirements clarified in Service Level Agreements (SLAs). This is addressed by picking a significant amount of backup assests and recovery strategies for the connections over which services are provisioned. Essentials can be routed over unprotected lightpaths. Services with more strict obtainability requirements are provisioned over protected lightpaths in order to cope with feasible failures in the network.

The optic nerve is ensheathed in all three meningeal meningeal layers (dura, arachnoid, and pia mater) rather than the epineurium, perineurium, and endoneurium found in peripheral nerves. Fiber tracts of the mammalian central nervous system have only limited regenerative capabilities compared to the peripheral nervous system.

Other important aspect to consider during the provisioning process is energy capability. Green strategies leverage on setting network apparatus in Sleep Mode (SM) or Active Mode (AM) depending on whether or not they needed to accommodate traffic. However, frequent power state exchanges lauch thermal fatigue which in turn has an obstructive effect on device lifetime. Eventually, in multi-period traffic scenarios, it is important to minimize the number of reconfigurations of lightpaths previously setuped in the network in order to keep away from feasible traffic disruptions at higher layers. The work presented in this paper tackles the relation provisioning paradigm in an optical backbone network with a multiperiod traffic scenario. More especially the paper looks into the interplay among (i) energy efficiency, (ii) thermal fatigue, and (iii) lightpath reconfiguration aspects. To this end, the Energy and Fatigue Aware Heuristic with dispensable Reconfiguration Avoidance (EFAH-URA) is initiated, showing that it is possible to balance the three aspects raised above in an efficient way. When balanced to the pure energy-aware strategies, EFAH-URA significantly betters the average relation availability for both unprotected and protected relations. On another hand, it is done at the expense of lowered energy reserving.