

# IP Optical Networking

## Resource separation and autonomic management & control in Multi-layer networks

### Overview

- **Virtual networks** are provided on-demand in **L1~L3 multi-layer networks**.
- **Several virtual networks are simultaneously provided** by assigning different kind of resource in multi-layer networks to each virtual network.
- Virtual networks are **reconfigured** according to network changes.
- **GPMLS-nodes** configure multi-layer networks in order for on-demand virtual networks. **Good balance between resource utilization and performance** are achieved by IP optical server communicating with multi-layer networks and optimizing resource allocation to virtual networks.

### Features

- **Virtualization of L1 networks:** Provision of mutually-independent virtual networks is possible. Definitive bandwidth guarantee and high-level security/reliance are realized.
- **Automatic optimization of topology and route:** Routing/topology automatic optimization are achieved according to environment changes such as traffic characteristics and network failures.
- **Optical plug and play:** Network configuration are automatically identified just as cables are connected to optical switches and routers.

### Use Cases

- Multi-layer VPN services
- Virtual backbone infrastructure networks
- Action for serious disaster
- Traffic optimization

