# FSP Network Hypervisor

State-of-the-art management interface for SDN

Today's internet applications are continually evolving and advancing, creating ever-changing traffic patterns between data centers. Now, you can take complete control of the optical transport bandwidth between data centers with our SDN solution, the ADVA FSP Network Hypervisor.

Data centers with their servers, switches and routers are today managed by specialized management apps controlling the assignment of memory, CPU and bandwidth to hosted applications. It's also desirable to complement the network with flexibility in the optical domain and allow for dynamic bandwidth SDN interfaces for transmission devices. But – unlike switches or routers – the optical domain requires some special handling to deal with analogue effects on the signal in the fiber. Our Network Hypervisor can handle all the limitations of optical transmission and provide transport services control. Based on the proven knowledge of our optical control plane function, it provides the capability of an optical network orchestrator.
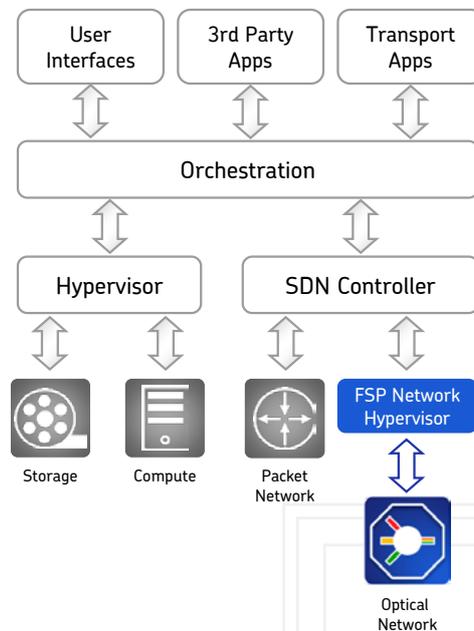
Your benefits

☑ **Control of optical network**
Cope with churn in bandwidth demand by adding or diverting transport capacity

☑ **Higher availability**
Outages of router ports or fiber links can be overcome by coordinating actions between packet and transport networks

☑ **Lower cost on IP network**
The transport network provides connection flexibility by using ROADM technology. This allows the size of routers to be reduced, both in port count and matrix capacity

☑ **Better status view**
The status of all network subsystems are known to the orchestration layer. This gives visibility in case of congestion or outage

☑ **Simplified operations**
Transport networks are managed with the same tools as data centers; all data is visible in one dashboard

☑ **Timed bandwidth allocation**
Transport networks allow data center services to be available wherever necessary

Protocols and models

Protocols provided	• Implementation according to "RESTCONF protocol", draft-ietf-netconf-restconf-07, A. Bierman et al., July 2015 or • Implementation according to "Network Configuration Protocol (NETCONF)", RFC 6241, R. Enns et al., June 2011
Models used	• Topology retrieval according to "YANG Data Model for TE Topologies", draft-ietf-teas-yang-te-topo-01, X. Liu et al., July 2015 • Configuration management according to "A YANG Data Model for MPLS Traffic Engineering Tunnels and Interfaces", draft-ietf-teas-yang-te-02, T. Saad, October 2015
Fully bidirectional	• Client-initiated protocol operations (like <get>, <edit-config>, <close session> or GET, PUT, DELETE) • Server-initiated status updates (like <notification> according to prior subscription to event streams)

Applications in your network

Bandwidth calendaring

- Traffic in data centers "follows the sun"
- Scheduled backups requiring temporary bandwidth

Cloud bursting

- Temporary "outsourcing" of local applications in periods of high load (e.g., sale)
- Distribution of huge data (e.g., distribution of high-quality 4K films to many cinemas)

Workload balancing

- Balancing in case of unexpected load (e.g., on newsfeed servers with headline event)
- Distributed defense of DDOS attack

Secure multi-tenancy

- Provides tenants with power to re-connect their assigned ports
- In-house automation (allows IP group to request bandwidth on WDM network on demand)

ADVA™
Optical Networking