



# WDM Systems and Applications

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# ADVA Optical Networking



## Our History

- Two decades of innovation

## Our Markets

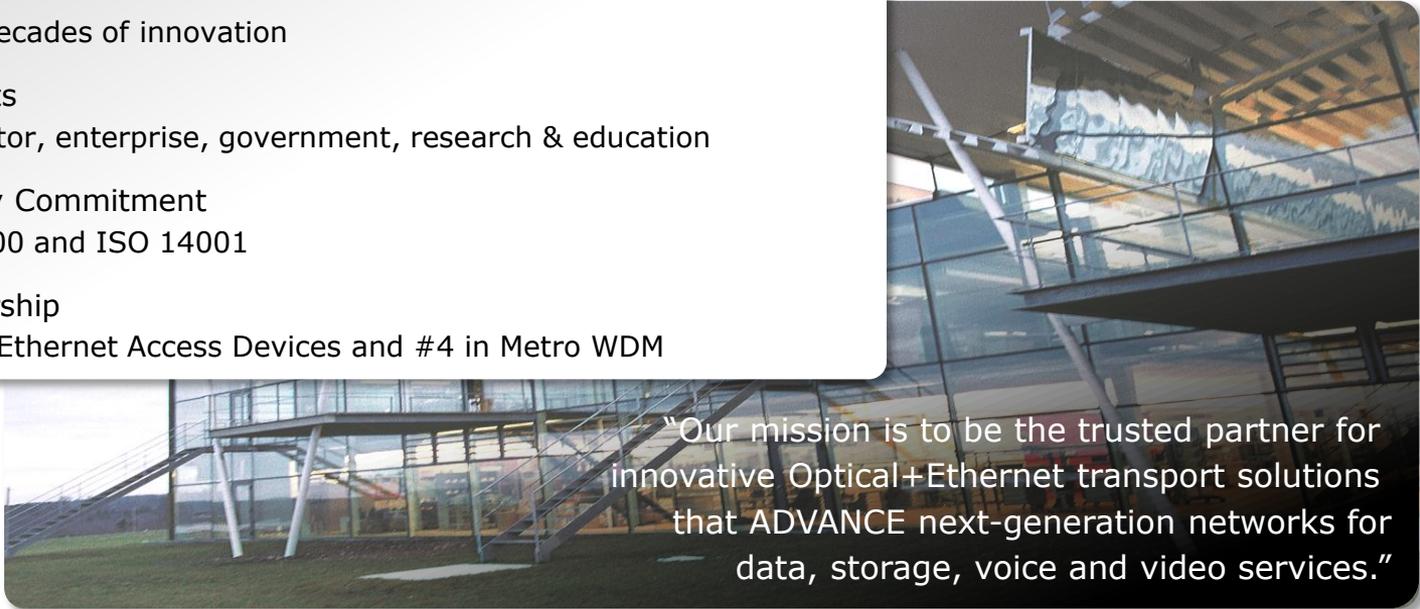
- Operator, enterprise, government, research & education

## Our Quality Commitment

- TL 9000 and ISO 14001

## Our Leadership

- #1 in Ethernet Access Devices and #4 in Metro WDM



“Our mission is to be the trusted partner for innovative Optical+Ethernet transport solutions that ADVANCE next-generation networks for data, storage, voice and video services.”

Your trusted partner for speed and innovation

# Our Global Presence



Richardson



Atlanta



Munich



Meiningen



Berlin



Singapore

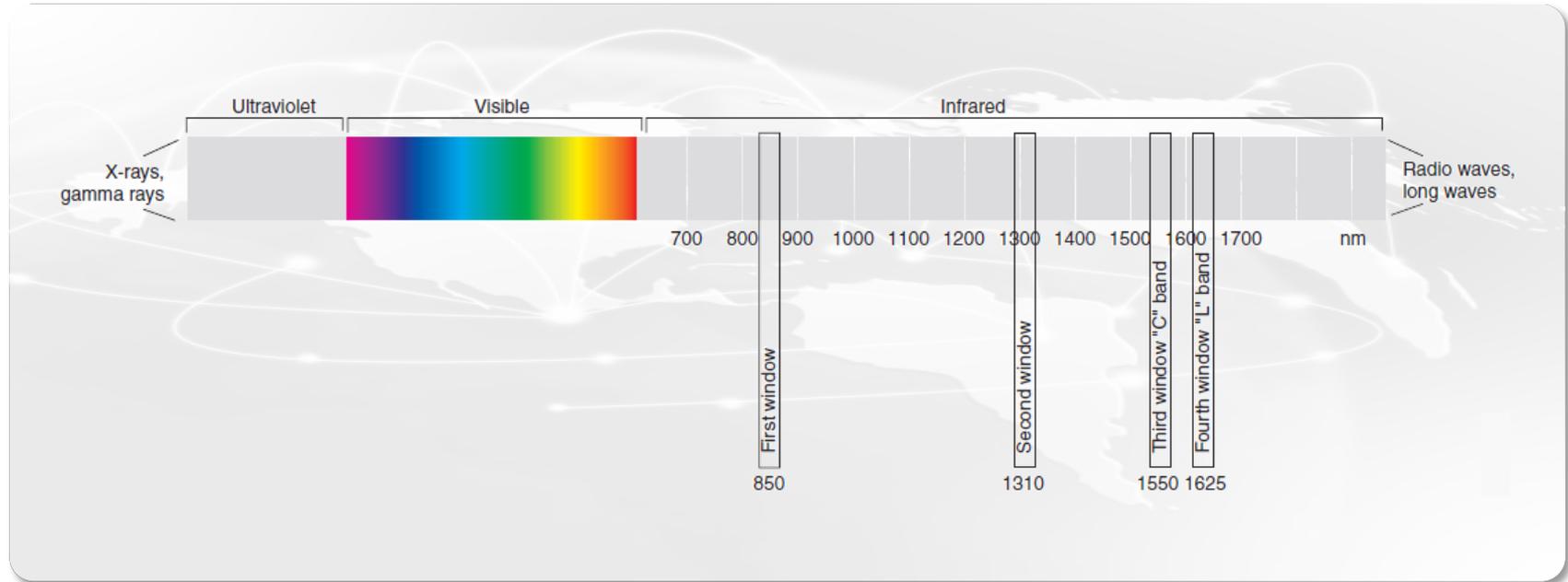


Shenzhen

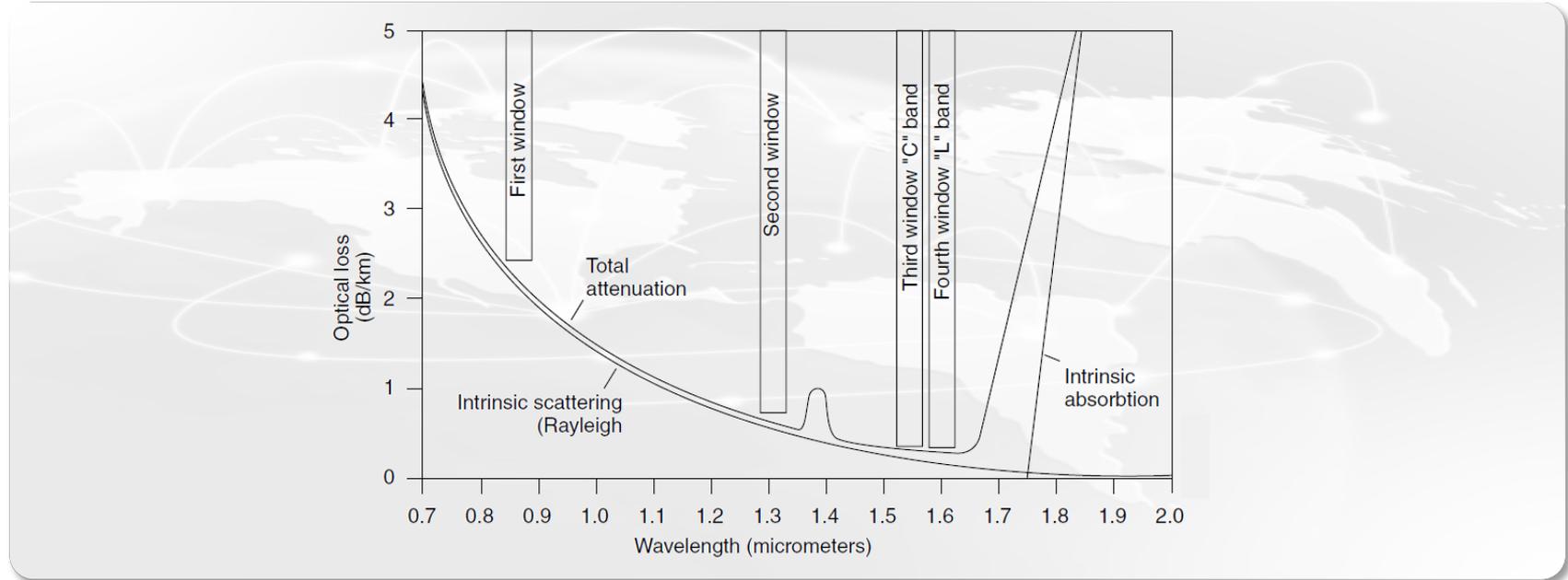
# WDM Networking Fundamentals



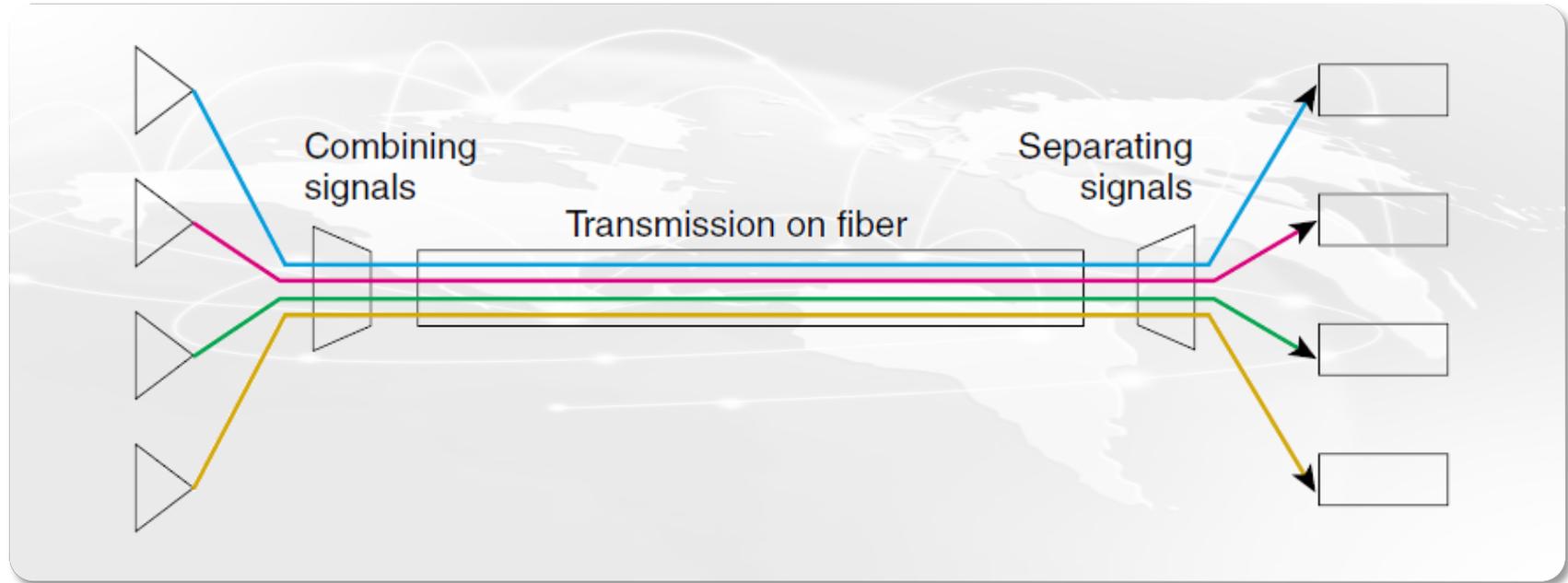
# Wavelength Regions



# Attenuation Curve



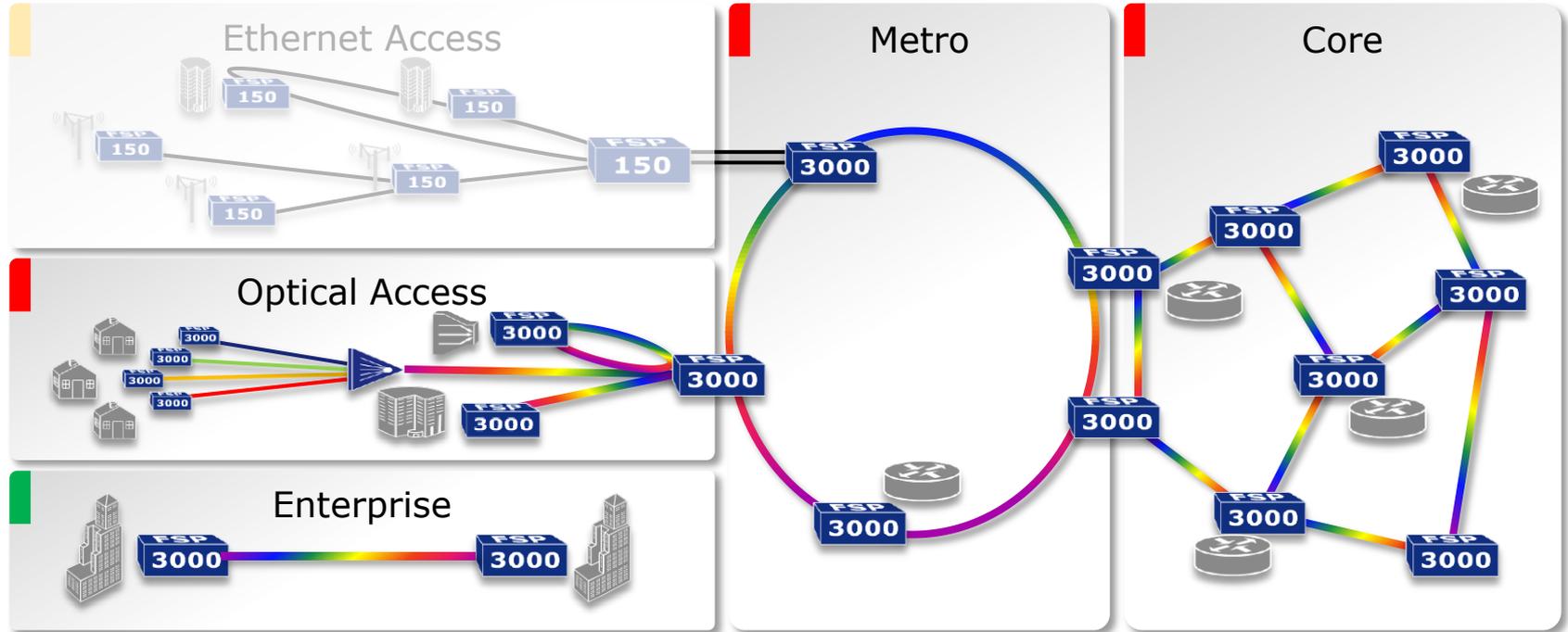
# DWDM Functional Schematic



# Our Implementation



# Our Solutions



# ADVA FSP 3000



Scalable optical transport from the access to the core

# Main WDM Components



Transponder



Muxponder



Switch/ADM



Amplifier



Static Filter



ROADM



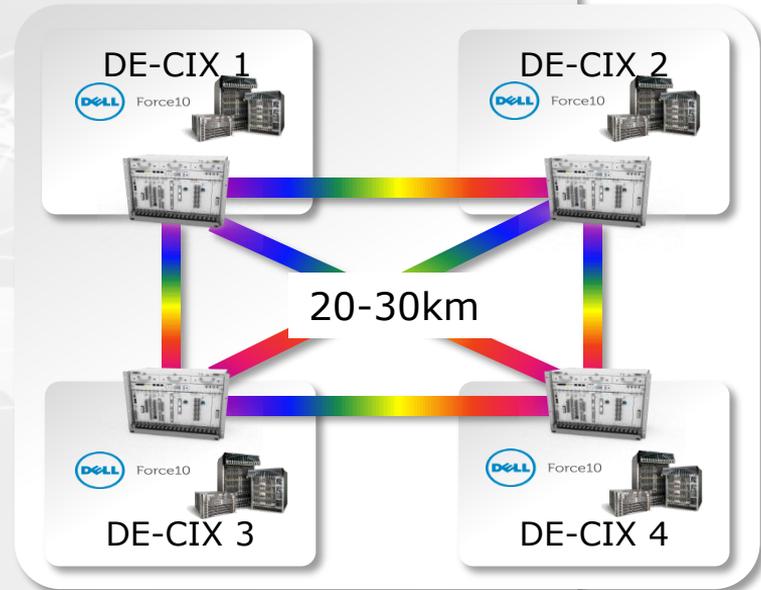
# Data Center Applications



# IXP Connectivity

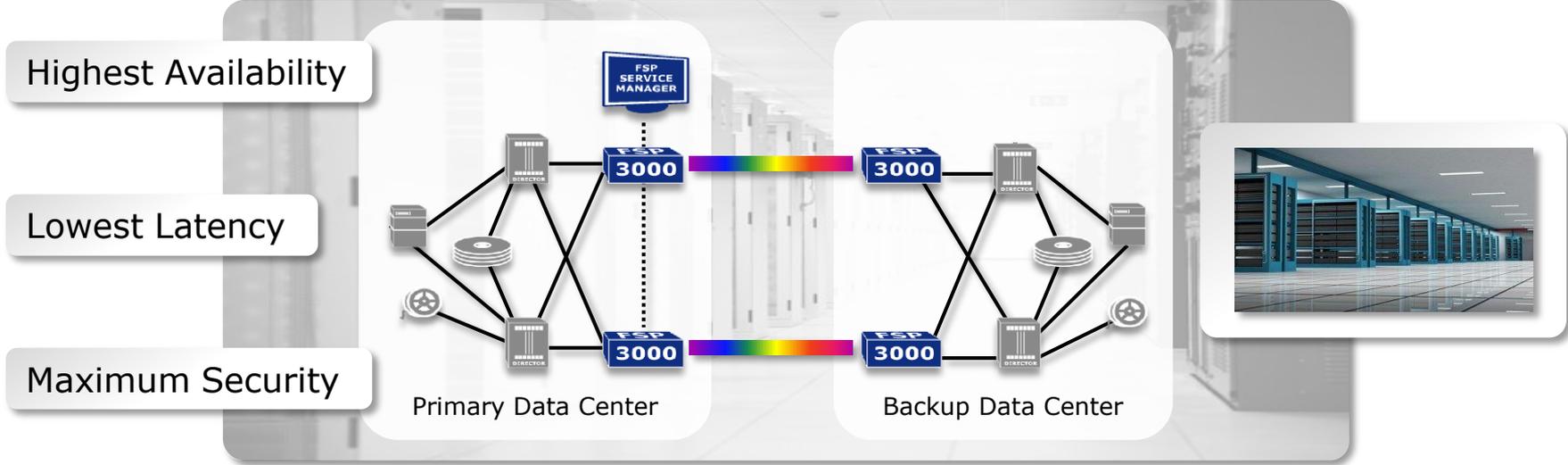


- Largest Internet exchange with multiple data centers
- More than 800 10G interconnects
- Four core sites will now be inter-connected with 100G
- More than 50 100G links



Power and heat dissipation are critical resources

# Disaster Recovery



High performance data center interconnection

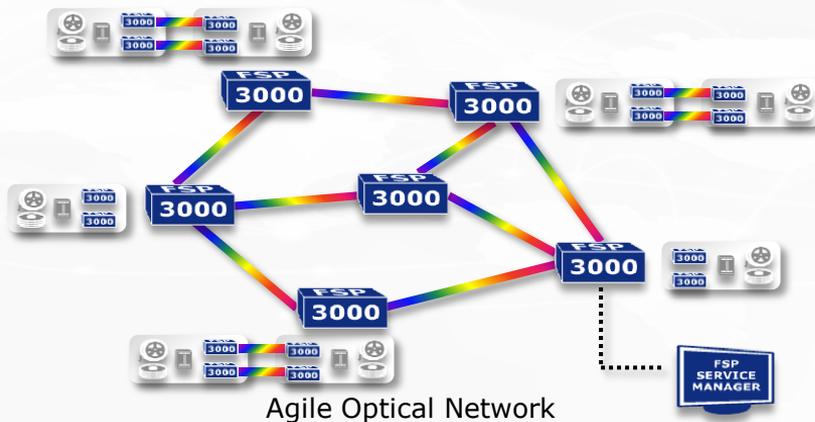
# Agile Data Center Connectivity



Virtualization

Scalability

Automation

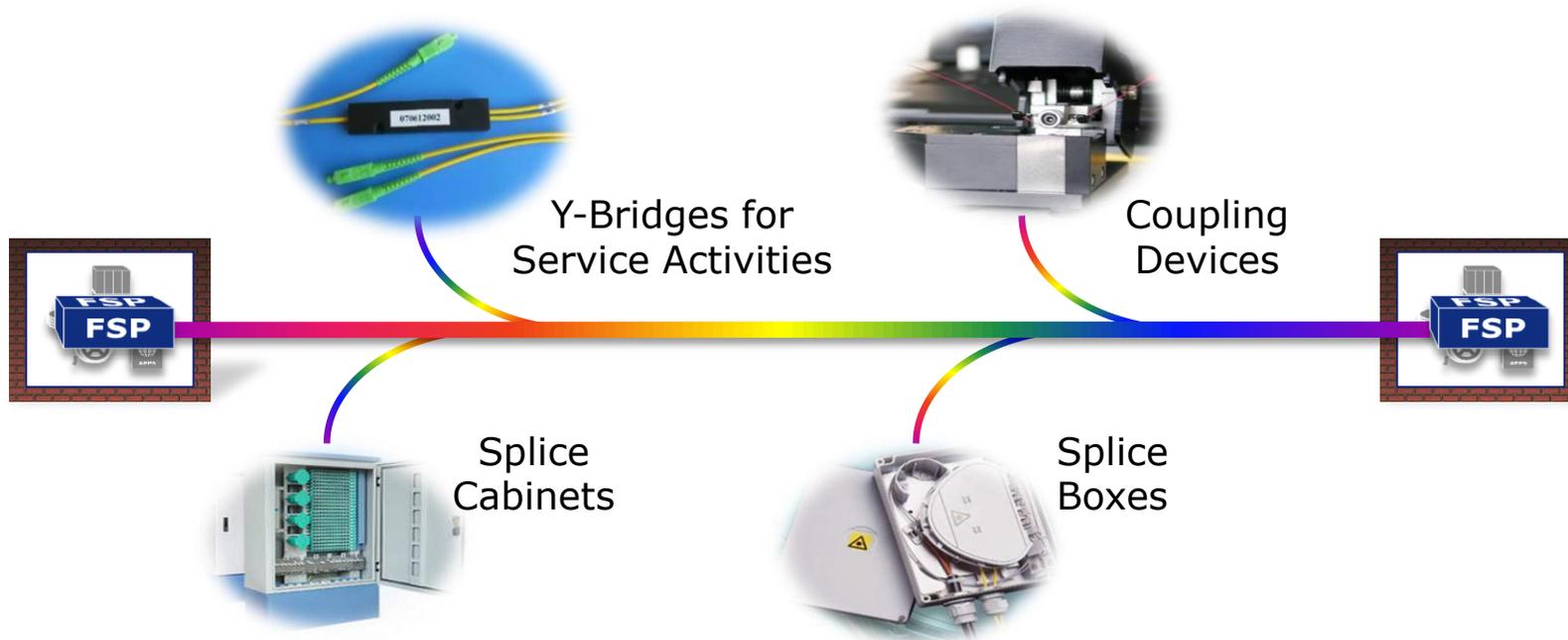


Flexible and dynamic infrastructure for better cloud efficiency

# Going Beyond Optical Connectivity



# Potential Security Leaks



Multiple alternatives to gain access to fiber infrastructure

# Network Security



## Comprehensive

- Encryption and fiber surveillance

## Robust

- AES-256 encryption, Diffie-Hellman key exchange



5TCE-PCTN-10G

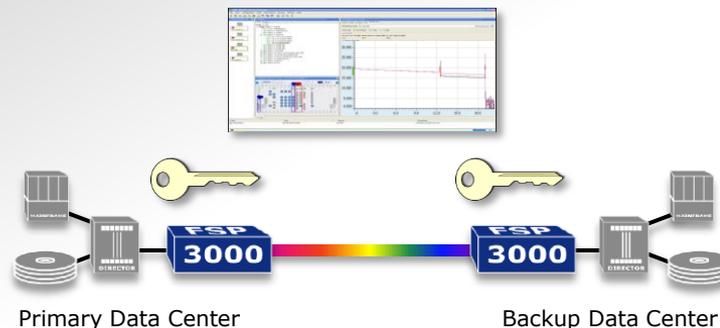
## Powerful

- Data protection at lowest possible latency

## Integrated

- Supported by FSP management solution

## Secure Data Transmission

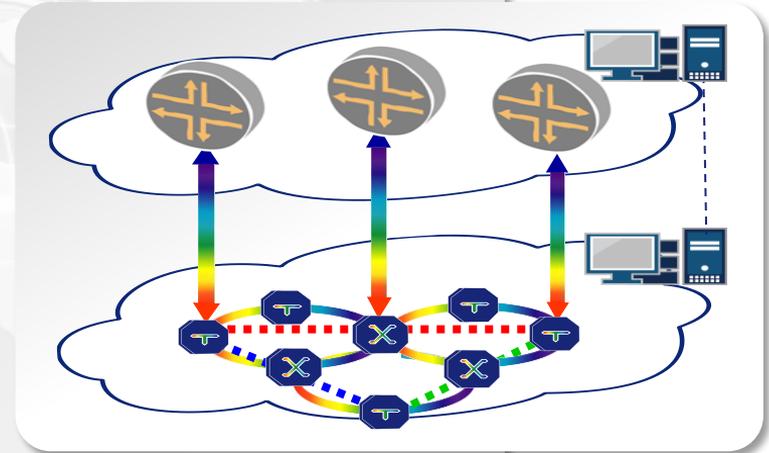


Highest security for private applications

# Packet-Optical Integration

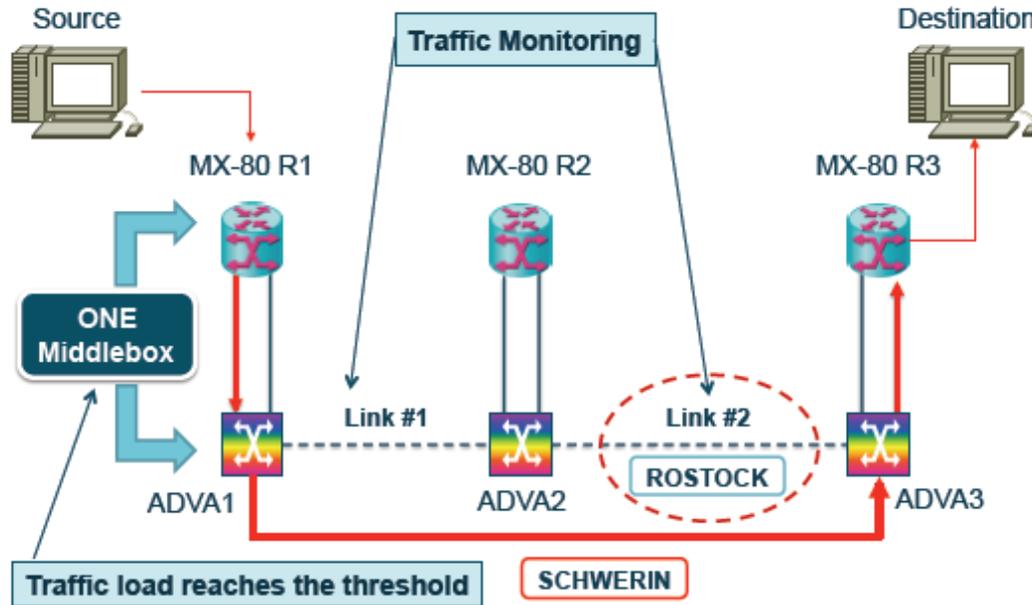


- Data plane integration
  - Direct DWDM interfacing to FSP 3000 for OTN and non-OTN signals
- Control plane integration
  - MPLS/GMPLS interworking enables automatic path configuration
- Management plane integration
  - End-to-end monitoring and management of services



Integrated solution composed of best-of-breed elements

# Multi-Layer Network Optimization



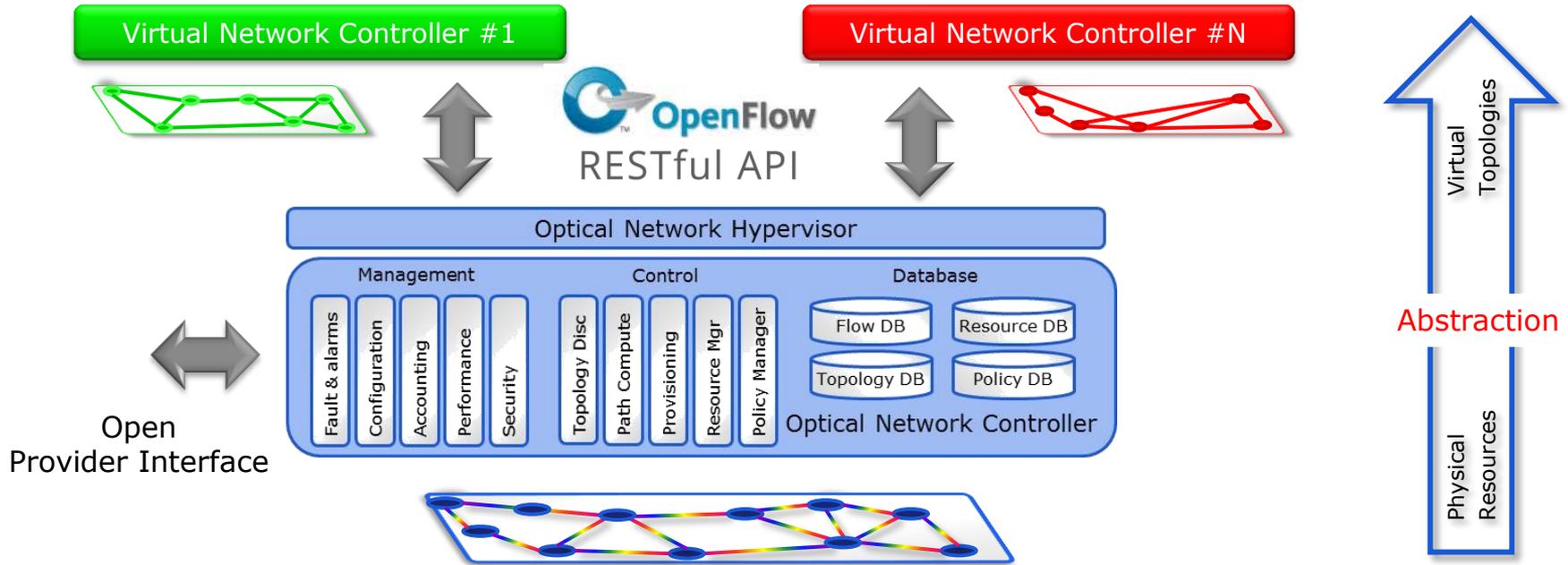
Telefonica

JUNIPER  
NETWORKS

CRAAX

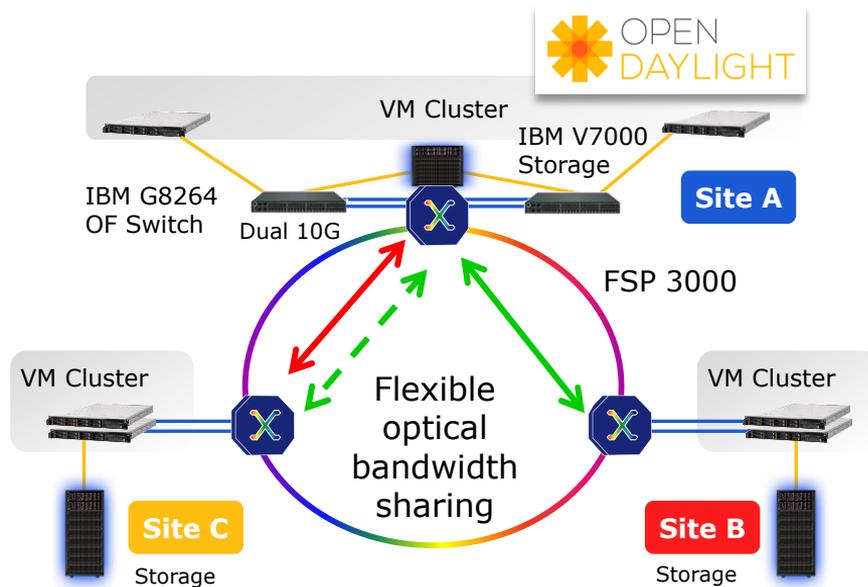
50% CAPEX savings by software-controlled network optimization

# Optical Transport SDN



A resource pool for high speed, low-latency connectivity

# Private Enterprise Cloud



More than 30% network capacity savings over static configuration



# Thank You

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