

Data Sheet

Virtuora PD

A Software system for optimizing and expediting planning, design, and testing processes for optical networks

Virtuora® PD Product Highlights

- Planning, design and inventory for WDM, OTN, and Open ROADM-compliant networks
- Sandbox design environment
- Synchronization between planned and deployed networks
- Brownfield data extraction from Virtuora NC
- Support for alien wavelength designs
- Heat map showing span capacity utilization
- Reduce potential for design errors and mismatch between designed and deployed Open ROADM-compliant networks
- Dynamic nodal view showing cards and pluggables per blade

Network designers planning the dynamic configuration and physical layer characteristics of a scalable optical network need software that optimizes and speeds WDM and OTN planning, design, and testing. These processes are complex, costly, and time-consuming. Even after build-out, large or unexpected discrepancies can occur between the design and the result. These are hard to solve without a unified view.

Virtuora PD Overview

Virtuora PD optimizes and speeds WDM and OTN planning, design, deployment, and testing. This SDN application enables designers to develop DWDM networks on FLASHWAVE 9500 and 1FINITY equipment using optical design algorithms. A path computation engine helps create designs that provide end-of-life guarantee of the system.

Automated functions simplify planning and design. Node creation, wavelength assignments, equipment placement (ports and pluggables), and routing are auto-configured with the options that best fit the criteria provided. The tool checks reachability and places regenerators to ensure all services within the network are reachable. Routing criteria for lowest cost, shortest path, and lowest latency are also available. All these functions can be programmed manually.

Alien Wavelength Support

Virtuora PD supports alien wavelength calculations, allowing third-party transponders to be modeled over Fujitsu ROADM networks (performance depends on user-provided specifications).

Brownfield Synchronization

Virtuora PD allows synchronization between planned and deployed networks through the brownfield sync feature. Brownfield sync increases design flexibility, efficiency, and accuracy by allowing users to extract live data from Virtuora NC on-demand. The application can modify the extracted data by adding new nodes, services, and spans to simplify planning of future expansions.

Capacity Planning

An integrated “heat map” view shows the capacity and utilization of each span. This helps identify congestion points and plan around them in current and future designs. The heat map also provides direct access to the wavelength report for details about the services riding on each wavelength, in addition to spectrum utilization for a given span.

Deployment Modes

Virtuora PD can be deployed on the same or different server as Virtuora NC. Whether deployed together or separately, Virtuora PD can pull brownfield deployment data from Virtuora NC.

Easy-to-Use GUI Features

Intuitive GUI features provide rich topographical and tabular views, including linear, point-to-point, ring, and mesh topologies, with detail views of subnetworks, sites, nodes, spans, and services. A graphical nodal view provides visualization into unit placement and port usage. The intuitive interface distinguishes between deployed and planned



A Unified Multilayer, Multivendor Design View

nodes, spans, and services within the topology view, nodal view, and Bill of Materials (BOM) report.

Multilayer, Multivendor Open ROADM Designs

Virtuora PD supports multilayer, multivendor designs that conform to Open ROADM specifications, and can be tightly integrated with an operator’s business processes. Virtuora PD helps network planners to speed up the overall design process, reduce errors with zero touch provisioning, and drive out operational inefficiencies.

Comprehensive Reporting Tools

Powerful reporting tools aid planning, installation, provisioning, and maintenance with valuable analytical data.

- **Wavelength Report** – Displays wavelength channel assignments for services over the selected spans.
- **Reachability Report** – Displays the wavelength path from a given starting point for the selected context and signal rate. Additional reports are available to display for OSNR and OSNR margin values for each reachable node.
- **Bill of Materials (BOM) Report** – Lists all parts needed, together with pricing data, for building, turning up, and provisioning from a design.

OTN Network Design

Users can create OTN designs for FLASHWAVE 9500. Services are aggregated and routed based on user-provided network data.

Virtuora NC Solution Requirements

Hardware Platform

- Standard x86 server
- 8 multi-threaded CPU cores (or 16 vCPU)
- 32 Gb RAM
- 200 Gb disk (CPU: Intel Xeon E5 series or higher)
- 32 Gb of swap memory

Operating System

- Server: Red Hat Enterprise Linux version 7.4 or compatible
- Client: HTML5-compatible browsers such as Mozilla Firefox or Google Chrome

Platform Architecture

- OpenDaylight SDN platform for configuration and provisioning
- Northbound APIs and southbound device drivers
- YANG models
- Apache Karaf environment with Apache Karaf Cellar clustering
- Apache Kafka distributed streaming platform
- Apache Cassandra database management platform

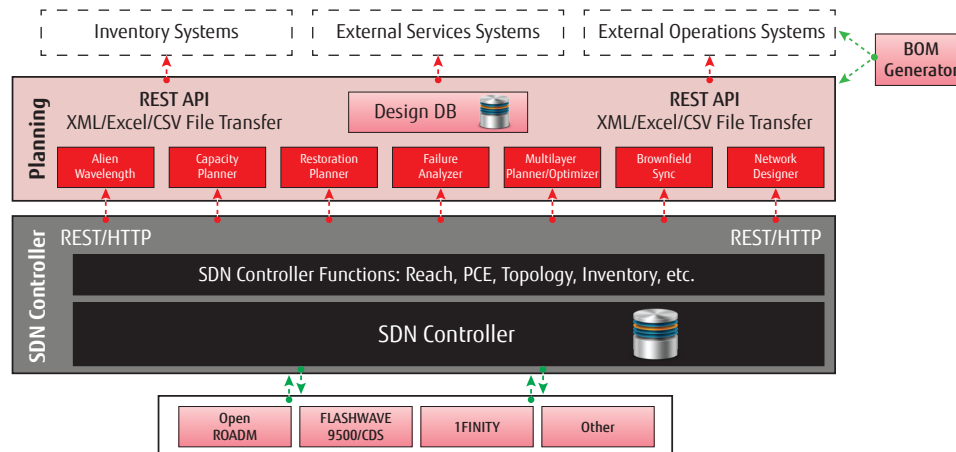
Interfaces

- Northbound: Shared HTTPS port for GUI and REST API
- Southbound: TL1, NETCONF, SNMP, CLI

Clustering

- Supported

Virtuora PD Architecture



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