

BLUE PLANET NETWORK ORCHESTRATION SOFTWARE

The Next Leap Forward in Network Virtualization

Think Big. Accelerate. Transform.

Orchestrate and manage services from end-to-end across both physical and virtual domains with Ciena's award-winning Blue Planet network orchestration software. Blue Planet reduces operational costs by abstracting network complexity and drives greater competitive advantage through a level of previously unachievable service programmability.

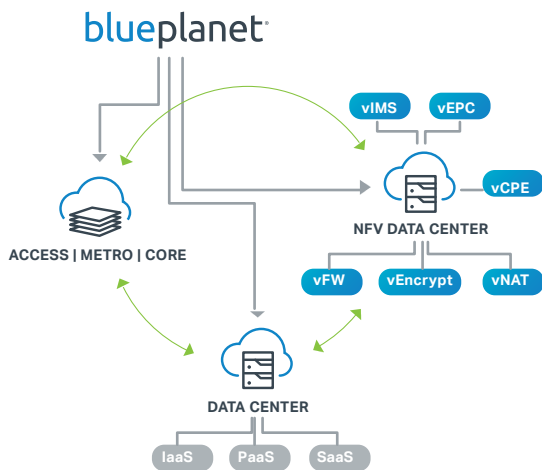


Figure 1. Blue Planet automates end-to-end service delivery across physical and virtual domains.

Network Transformation Starts with Software

Blue Planet is purpose-built for network operators, automating service delivery and reducing operational complexity to enable transformation to more open and programmable networks. Blue Planet serves three main use cases:

- Multi-Domain Service Orchestration
- NFV Orchestration
- SDN Management and Control

It does this on top of a disruptive, next-generation software architecture that leverages model-driven templates and container-based micro-services.

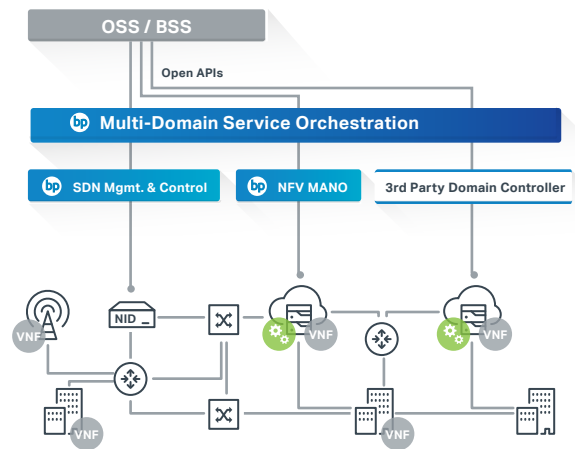


Figure 2. Blue Planet serves three primary use cases to meet our customers' business and operational requirements.

Multi-Domain Service Orchestration (MDSO)

Seamless end-to-end service automation and orchestration across multiple technology (physical or virtual) and vendor domains.

Leveraging open APIs and model-driven templates, Blue Planet integrates with third-party SDN controllers, element/network management systems and orchestration platforms to manage and orchestrate services comprising physical and virtual resources. MDSO eliminates silos by abstracting the complexity of underlying domains and enabling network operators to support end-to-end, lifecycle service orchestration.

NFV Orchestration

Scalable, vendor-agnostic management and orchestration of virtualized network functions and data center resources.

Blue Planet delivers carrier-grade, NFV orchestration capabilities for instantiating, managing and chaining Virtual Network Functions (VNFs). Unlike closed NFV solutions from many large incumbent vendors, Blue Planet leverages an open and vendor-agnostic approach that allows network operators

to use the VNFs and NFV Infrastructure (NFVI) of their choice to streamline the definition and creation of innovative new NFV-based services.

SDN Management and Control

Automation, management, and control of multi-vendor and multi-layer network infrastructure.

Blue Planet is the industry's first and most widely deployed SDN controller and management system for carrier networks. By unifying carrier-grade element and network management (full FCAPS) with the advanced control and programmability provided by SDN, Blue Planet enables network operators to deliver services faster and more cost-effectively across multi-vendor and multi-layer networks. Blue Planet incorporates open APIs and a scalable Path Computation Element (PCE) to simplify and automate end-to-end service delivery.

A Programmable Architecture

Blue Planet takes a giant leap forward with new disruptive software advancements to enable operational scale, efficiency and self-service programmability. These technology elements include:

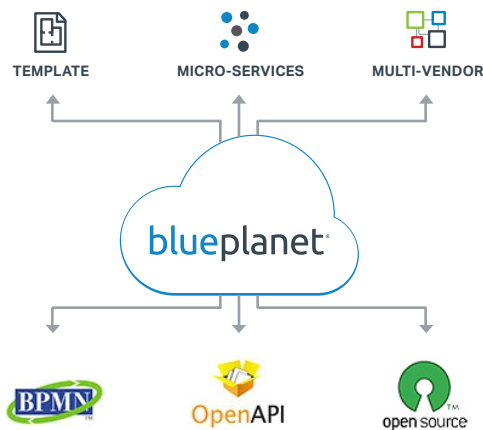


Figure 3. Blue Planet incorporates the latest software advancements to enable operational transformation, web-scale, and self-service programmability

- **Micro-services architecture** provides the ability to customize and rapidly deploy new technologies with no service interruption, integrate with third-party solutions, achieve web scale, and reduce resource utilization with no service interruption.
- **Model- and data-driven templates** allow for self-service programmability and a reduced dependence on software pro-serv charges from incumbent suppliers.
- **Multi-vendor management** provides a unified view of the network that helps network operators focus on delivering

services instead of managing equipment.

- **Open APIs** allow customers to consume data from Blue Planet and port this data into existing OSS/BSS systems or custom-developed applications that drive network operations.
- **Business Process Modeling** simplifies integration with legacy OSS/BSS systems and makes it easier to create, integrate and operate new services. It also improves the ability to offer programmable self-service tools to end-customers.

Software Professional Services

Expert software integration and network transformation support from Ciena's team of SDN and NFV subject matter experts, including:

- **Resource On-boarding** Utilizing Blue Planet's model-driven templates to on-board physical and virtual resources
- **Blue Planet Application Integration** Integrating Blue Planet with third-party OSS, NMS/EMS and other higher-layer apps using Blue Planet's Open APIs
- **Automated Service Rollouts** Assistance on-boarding PNFs and automating services across multiple vendors and network layers
- **Project Management for Network Augmentation** Consulting or project-based design, development, installation, and/or management of SDN and NFV deployments

Blue Orbit Ecosystem

The Blue Orbit SDN and NFV Ecosystem builds on the openness of the Blue Planet software with a group of like-minded, best-of-breed partners dedicated to accelerating real-world SDN and NFV deployments. Blue Orbit Virtual Network Functions Partners, Physical Network Element Partners, and Virtual Infrastructure Partners focus on delivering disaggregated solutions that enable operators to adopt a multi-vendor approach to building next-generation networks.

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