DATA SHEET

Blue Planet Multi-Domain Service Orchestration and NFV Orchestration

Multi-layer, multi-domain service orchestration and network automation solution

Mobile, cloud, and edge compute are fueling new network services. At the same time, network operations have become increasingly complex, and the competitive landscape has intensified. In this environment, network operators require automation to operate with increased speed and scale—and to respond rapidly to evolving service requirements.

Blue Planet Multi-Domain Service Orchestration (MDSO)

Blue Planet® Multi-Domain Service Orchestration (MDSO) is an open software that automates service design and activation end to end across physical and virtual domains, including any mix of vendors and network layers. MDSO leverages model-driven abstraction to provide intent-based networking, and utilizes open interfaces to easily integrate with B/OSS elements as well as with vendor-specific EMS/NMS and controllers. This approach eliminates inefficient operational silos while improving end-to-end service control, visibility, and agility.

NFV Orchestration (NFVO)

Blue Planet NFV Orchestration (NFVO) provides full lifecycle management for Virtual Network Functions (VNFs), meeting ETSI’s Management and Orchestration (MANO) guidelines. NFVO automates the orchestration of NFV Infrastructure (NFVI) resources across centralized or distributed data centers, and provides advanced, end-to-end network service visualization that includes the relationships between VNFs. This helps Communications Service Providers (CSPs) efficiently troubleshoot NFV-based services and simplifies service lifecycle management.

With Blue Planet MDSO, network operators can:

• **Shorten time to revenue** by simplifying and automating service delivery across multiple vendor systems and equipment spanning the WAN, data center, and cloud
• **Rapidly innovate new services** and maintain full, self-service control of their network transformation
• **Quickly adapt to new demands** by efficiently and effectively customizing and optimizing the network
• **Flexibly consume in a SaaS model, host in the cloud, or deploy on premises**—in complete alignment with technical requirements and business goals

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Blue Planet Intelligent Automation.
With Blue Planet MDSO and NFVO, CSPs can:

- Modernize operations with open, standards-based SDN/NFV orchestration and automation that can be flexibly implemented in a SaaS-based, cloud-based, or on-premise deployment model.
- Reduce time to revenue by simplifying and automating service delivery across multiple vendor systems and equipment spanning the WAN, data center, and cloud.
- Rapidly activate services without the delays and costs associated with manual operations.

Reduce time to revenue

Delivering services across today’s complex networks, comprised of multiple technologies and domains that require vendor-specific tools and specialized interfaces, is not an easy task. Blue Planet MDSO breaks down operational silos and drastically simplifies the creation and automated delivery of services across this complex and heterogeneous infrastructure. It enables seamless integration of virtualization and cloud applications alongside traditional network domains.

Blue Planet MDSO leverages a model- and template-driven methodology to enable intent-based automation. This approach dramatically reduces the number of tedious and time-consuming manual steps involved in designing the network to support specific services, while enabling network operators to manage services at a higher level of abstraction.

Blue Planet service templates are based on the TOSCA standard, which provides mechanisms to help control workflow, describe relationships, and reflect dependencies that exist between various resources on a network. TOSCA-based service templates allow network operators to program the high-level service intent required to execute end-to-end intelligent automation. Because TOSCA was optimized for cloud environments, it
is ideal for service orchestration and for network operators planning to expand virtualization across WAN and data center. Service templates are reusable and unite services components with network resources to streamline the automation of both physical and virtual resources across the network.

Blue Planet MDSO utilizes Resource Adapter (RA) technology to orchestrate and automate service delivery across a wide variety of popular and broadly deployed network elements. With RAs, Blue Planet MDSO can interface directly with network elements or vendor-specific element/network management systems and SDN domain controllers. In this way, it supports an array of native protocols including CLI, TL1, SNMP, NETCONF/YANG, and REST API. Network operators can benefit from a wide variety of RAs available today.

Further, Blue Planet MDSO’s REST APIs provide programmatic control for managing services and streamlining network operations as a whole. These APIs are used to integrate with OSS/BSS and customer-facing Web portals, and to interface with other business applications that utilize the network as a programmable resource. These open APIs are key enablers for dynamic self-service, and on-demand services.

**Blue Planet NFV Orchestration**

Blue Planet NFVO provides full lifecycle management of Virtual Network Functions (VNFs) and meet ETSI’s Management and Orchestration (MANO) guidelines. Blue Planet NFVO automates the orchestration of NFV infrastructure (NFVI) resources across centralized or distributed data centers. Conforming to the ETSI NFV Release 2 specifications, Blue Planet also provides advanced visualization of the end-to-end flow of a network service consisting of VNFs and the relationships between them. This enables CSPs to troubleshoot NFV deployments more efficiently and simplify the overall end-to-end service lifecycle management process.

**Rapidly innovate new services**

For network operators, rapid service innovation is one of the key elements for business success. Blue Planet makes it easy for network operators to develop new services by offering an array of DevOps and software lifecycle tools that are designed for engineering and operations teams. The Blue Planet DevOps Toolkit and the Blue Planet DevOps Exchange provide a set of tools, as well as an open community, that facilitate collaboration between network and IT teams, third-party equipment suppliers, and other ecosystem partners for on-boarding new resources and developing new services to meet specific business needs. This agile operations approach enables incorporation of new networking equipment, VNFs, and even entire networks or cloud environments into the environment more rapidly. Once incorporated, resources can be combined into service templates and used to create new and innovative services, quickly and easily.

![Figure 3. MDSO provides advanced visualization of end-to-end network services](image)

![Figure 4. Blue Planet DevOps Toolkit allows network operators to utilize in-house product development, IT, and operations personnel to on-board physical and virtual network resources and accelerate service deployment](image)
Quickly adapt to new demands

Blue Planet MDSO’s container-based micro-services architecture enables new features and capabilities to be deployed and scaled independently of the others. This development methodology makes the software easier to enhance, maintain, and scale. Network operators can make rapid, incremental adjustments to existing services, which helps uncover new revenue streams.

Customers’ fast evolving service needs require network operators to add new network capabilities and features quickly, and at scale. Unlike other solutions, which are based on monolithic software architectures that require extensive regression testing for even the smallest modifications, Blue Planet MDSO and Blue Planet NFVO accommodate any change with minimal disruption. Blue Planet’s container-based micro-services architecture enables the rapid deployment and scale-out of new features independently, and without impact to pre-existing services. This development methodology helps network operators uncover new revenue streams by efficiently introducing compelling new services and easily making rapid, incremental adjustments to existing services.

Blue Planet’s proven success

Blue Planet is field-proven and deployed worldwide. It serves as an essential component for network operators’ transformation to more open, agile, and intelligent automated networks.

Blue Planet supports a wide variety of customized and ready-to-deploy network virtualization and automation solutions, backed by a full suite of services. The following table lists a few examples of real-world Blue Planet deployments by service providers around the world today:

- SD-WAN service orchestration – Simplifies the delivery of managed SD-WAN services
- WAN automation – Automates network and service provisioning across multi-vendor optical (L0/L1), Ethernet (L2) and IP/MPLS (L3) networks
- Cloud Connect automation – Orchestrates seamless, on-demand, multi-cloud connectivity services
- Virtualized Managed Services automation – Provides customers flexible and on-demand network services

Blue Planet’s micro-services-based architecture also allows the platform to readily leverage best-in-class open-source components as they mature. To date, the platform incorporates more than 30 open-source components including Docker, Cassandra, Kafka, Grafana, and others. Open-source elements are continually being evaluated to further enhance and extend Blue Planet’s capabilities.