

PRODUCT BROCHURE

# Blue Planet Intelligent Automation Portfolio

Accelerate digital transformation

## Software-centric agility to unlock network potential

The Blue Planet<sup>®</sup> Intelligent Automation Portfolio automates and optimizes business processes, helping network operators increase network and service agility, improve the customer experience, and reduce operational costs. Open and standards-based software, Blue Planet works with any vendors' network elements and leverages open APIs to streamline integration with third-party software systems. Blue Planet leverages leading-edge technologies to enable intelligent automation across IT and network operations, and more efficiently fulfill, manage, and assure today's dynamic, on-demand services.

- Achieve business agility and accelerate service velocity by abstracting network complexity and driving intelligent automation across IT and network operations

- Improve operational efficiency continually through end-to-end network and resource visibility, advanced network visualization and analytics, as well as policy-guided actions

- Elevate the customer experience by enabling the rapid development and delivery of innovative services that meet today's fast-changing market demands

### Intelligent automation is the path to the Adaptive Network™

The world is increasingly connected, with evermore subscribers, devices, and applications, the rise of the Internet of Things (IoT), and machine-to-machine communications. To profit from these long-term trends, network providers need greater agility, efficiency, and automation across their network infrastructure. The Blue Planet Intelligent Automation Portfolio meets these needs by facilitating the adoption of technologies like Network Functions Virtualization (NFV) and Software-Defined Networking (SDN) to modernize and transform operations and enable a pragmatic path toward the Adaptive Network.

Blue Planet is a comprehensive software suite combining orchestration, advanced analytics, inventory, and network service assurance in a common architecture. It provides the extensibility and openness needed to power the digital age.

Blue Planet products—which can be deployed individually or in any combination—include:

- Inventory (BPI)
- Service Order Management (SOM)
- Multi-Domain Service Orchestration (MDSO)
- NFV Orchestration (NFVO)
- Route Optimization and Analysis (ROA)
- Unified Assurance and Analytics (UAA)

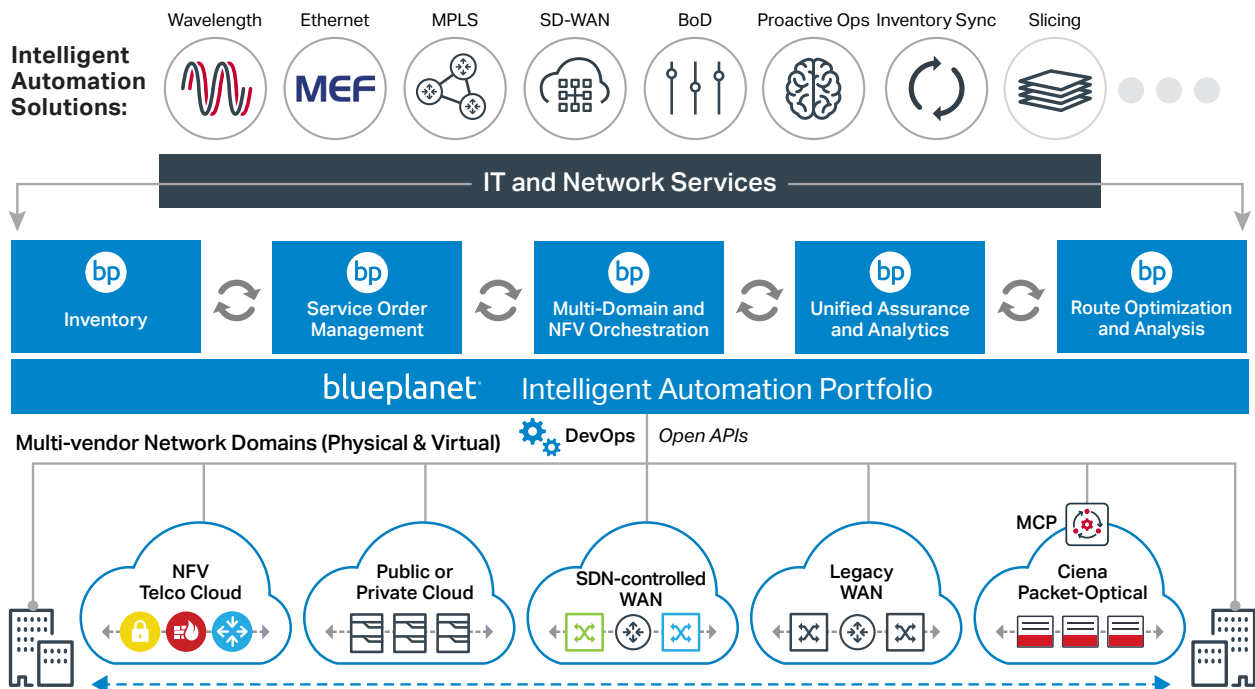


Figure 1. Blue Planet Intelligent Automation Portfolio

## Inventory

### Federate multiple operational systems in a single, real-time, end-to-end view

Blue Planet Inventory (BPI) is a flexible software platform that federates data from multiple existing systems and provides an accurate end-to-end visualization of network and service resources. The dynamic visibility provided by BPI gives providers a strong foundation for OSS transformation and automation, helping them bridge the gap between IT and network operations, and simplify and optimize critical activities such as service fulfillment, network planning, and service assurance.

## SOM

Blue Planet SOM provides industry-leading service order management that uses advanced catalog-driven capabilities to permit the rapid and efficient addition of new network services and technologies. Blue Planet SOM leverages data already contained within the operators' OSS/BSS, as well as data from Blue Planet Inventory and MDSO to discover network capabilities and resources, create re-usable service catalogs, and provide catalog-driven, 'zero-touch' fulfillment. Additionally, SOM provides insight into the order workflow throughout the service fulfillment process, providing technicians with real-time order status information and alerting them to issues that can impact on-time service delivery.

## MDSO

### Seamless end-to-end automation and service lifecycle management

Blue Planet MDSO provides vendor-agnostic, intent-based automation that accelerates the order-to-service process, reduces costs, and improves customer experience. MDSO leverages model-driven abstraction to drive end-to-end service automation across multiple network layers, physical and virtual domains, and technologies. MDSO also supports DevOps-style resource onboarding that facilitates customer self-sufficiency and collaboration, and open REST APIs to simplify integration with OSS/BSS environments. MDSO integrates with other Blue Planet products to support closed-loop automation and the evolution to the Adaptive Network.

## NFVO

### Scalable lifecycle management and orchestration of Virtual Network Functions (VNFs) and virtual services

Blue Planet NFVO delivers carrier-grade capabilities for managing and chaining VNFs in centralized, hybrid, and distributed environments. Unlike closed NFV solutions, Blue Planet leverages an open and vendor-agnostic approach that lets network operators streamline the definition and creation of innovative NFV-based services using the VNFs and NFV Infrastructure (NFVI) of their choice.

## ROA

### Real-time IP/MPLS network visibility to assure and optimize performance of critical services

Blue Planet ROA software uniquely combines routing, traffic, and performance analytics for real-time, path-aware operational monitoring to simplify the trouble-to-resolve process for IP/MPLS-based services and reduce service disruptions. ROA gives network providers the ability to visualize and compute service paths across Layer 3 networks, including real-time monitoring of the network control plane and overlay services, as well as automated calculation and configuration of TE tunnels to optimize traffic. Interactive modeling capabilities also help engineers optimize their networks by helping to predict the impact of changes, simulate new workloads for capacity planning, and test failure scenarios.

## UAA

### Advanced assurance and analytics based on AI innovations

Blue Planet UAA provides multi-domain and multi-layer assurance and AI-powered analytics to enable operators to derive real-time insights on how the network and its services and applications are performing. It provides a holistic view of the entire network and service topology, supporting any vendor network element (physical or virtual), Mobile Edge Compute endpoints, 5G infrastructure, and more. Operators can quickly visualize service health and availability as well as their impact to customers and SLAs. In addition to real-time fault, event, and performance monitoring it provides ML-assisted predictive analytics and prescriptive capabilities, allowing operators to shift from reactive operations to one that is proactive. UAA's highly interactive and customizable user interface provides the most relevant network updates to ensure optimized prescriptive control. Corrective actions on the network are taken by interfacing with the Blue Planet policy subsystem and Blue Planet MDSO, which allows for configurable actions after a defined condition is met. As the ML model becomes increasingly optimized through operator input and feedback, operators can incrementally and confidently begin to automate remedial actions without their own intervention. This gives operators full control of how much autonomy is given to the network. As a true multi-vendor solution, UAA supports over 1,300 products from over 135 vendors today and these numbers will continue to grow.

The Blue Planet software is highly modular, and typically provided to customers as pre-packaged solutions that combine software and professional services to address network providers' key business challenges. These solutions, such as Layer 3 Service Assurance, Bandwidth on Demand, SD-WAN Automation, and more, are designed to intelligently automate key operational processes (e.g. order-to-service, trouble-to-resolve, etc.) and deliver a quantified business outcome.

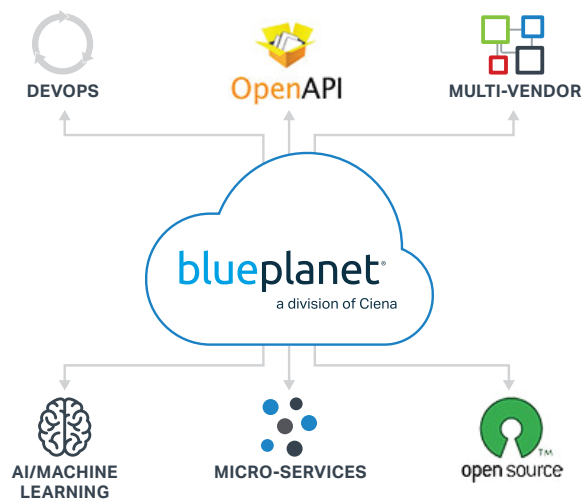
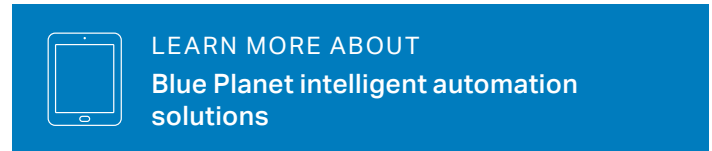
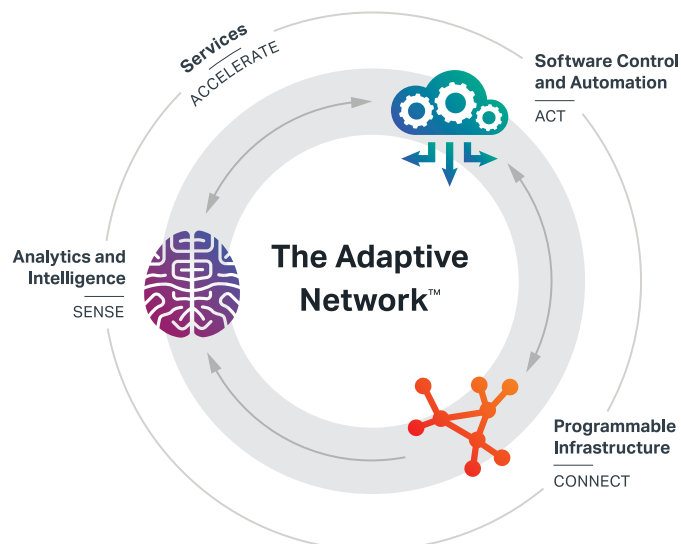


Figure 2. Blue Planet leverages a container-based micro-services software architecture that incorporates open-source components with advanced modeling and DevOps methodologies to provide an open and highly programmable software platform.

Built with a cloud-native, container-based, micro-services architecture, Blue Planet software can be consumed in an elastic Software as a Service (SaaS) model, or it can be deployed in customer and partner cloud infrastructure or on their premises. These flexible options let customers and partners fully align their Blue Planet implementation with their technical requirements and their strategic business goals.

## The Adaptive Network

The Adaptive Network is Ciena's vision of a new target end-state for service providers. Utilizing automation guided by analytics and intent-based policies, the Adaptive Network rapidly scales, self-configures, and self-optimizes by constantly assessing network pressures and demands. The Adaptive Network is built on four foundational elements: Programmable Infrastructure, Analytics and Intelligence, Software Control and Automation, and Services. Blue Planet fulfills key roles within the Analytics and Intelligence and Software Control and Automation elements.



## 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:

- **Microservices-based architecture** – Provides the extensibility to customize and rapidly deploy new technologies without service interruption, integrate with third-party solutions, achieve web scale, and reduce resource utilization
- **Open and technology-agnostic approach** – Leverages open RESTful APIs for integration with OSS/BSS and business applications that drive network operations. Embraces related open standards and reference architectures to help network operators focus on delivering services instead of managing equipment
- **DevOps agility** – Self-service programmability tools and an open community facilitate close collaboration between the operators' network and IT teams for integrating new resources, expanding network capabilities, deploying new services, and modernizing operations
- **Built on open source** – Architecture integrates 30+ open-source components and is designed to rapidly adopt best-of-breed technologies as they mature
- **AI/Machine Learning** – Facilitates AI-assisted operations through the use of advanced machine learning algorithms. Blue Planet enables a pragmatic adoption strategy for customers that includes clear manageable steps for incorporating AI into their operations and the evolution to closed-loop automation

The Blue Planet architectural elements can be leveraged by other Ciena software products, for specific applications. For example, Ciena's Manage, Control and Plan (MCP), the domain controller for automating lifecycle operations for Ciena networks, uses Blue Planet capabilities to ensure scalability, modularity, and programmability. This enables a strategic shift from legacy network management and operational support systems (OSS) software to modern software control and automation that accelerates the creation, delivery, and assurance of services across Ciena networks and multi-vendor infrastructure.

## Backed by an Open Community

Blue Planet's DevOps Exchange helps network providers transition to an agile operations approach for supporting today's increasingly virtualized, on-demand services. This open community includes development tools and learning resources for ecosystem partners and customers that facilitate collaboration, accelerate service creation, and simplify the on-boarding of new resources.



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