

SOLUTION BRIEF

5G Automation – Dynamic Planning

5G network evolution made simple and efficient

Business challenges

5G technology provides new opportunities and business models for Mobile Network Operators (MNOs). But there is a large gap from here to there. Complexity may seem insurmountable.

To move forward, MNOs need to be able to easily plan their network buildouts using a systematic approach, with a clear view of their multi-vendor network resources—from cell site to core. They also require the ability to expand their network incrementally and cost-efficiently, from 4G to 5G, aligning with 3GPP standards, optimally placing and configuring network capacity where market demand is the greatest while allowing for flexible adjustment of resources as market conditions change. A comprehensive view of existing and planned, physical, logical, and virtual network resources is essential to optimize network buildouts for 5G macro and micro cell densification, thus enabling a variety of new, innovative services differentiated by bandwidth and latency requirements.

Although the end-goal of innovative, differentiated 5G service offerings may be in focus, the path there may not be so obvious. How to overcome business challenges of slow, manual processes due to legacy, static, and fragmented inventory and Operational Support Systems (OSSs)? How to intelligently design the network based on coverage, utilization, and capacity analysis, across multiple services and technologies? How to reduce the technical complexity associated with dynamic network scaling?

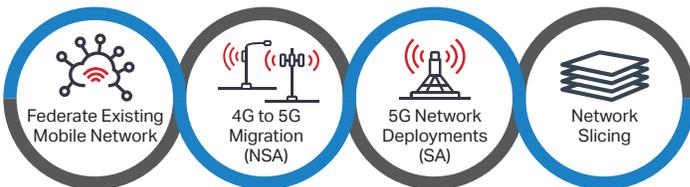


Figure 1. Blue Planet Dynamic Planning supports each phase of an MNO's evolution to 5G

BUSINESS IMPACT

Blue Planet Dynamic Planning enables MNOs to build out 5G-ready networks easily and quickly. Gain a competitive edge with:

- A comprehensive, accurate view of all network and service resources—physical or logical, passive or active, legacy or next-gen, from cell site to mobile core—to accelerate planning
- Clear visualization of multi-vendor network domains with live, planned, and historical perspectives for improved insight and optimization
- Simplified business operations based on a unified information model that abstracts network domains—5G cell sites, RAN, Edge Compute, transport, 5G Core—network slices, and service topology
- Rapid access to network capacity and utilization metrics for optimal placement of resources to support, differentiated services

The Blue Planet approach involves four key phases:

1. Getting control of network inventory
2. Evolving 4G mobile network to 5G Non-Standalone (NSA) mode
3. Deploying network assets to build out 5G Standalone (SA) network
4. Implementing network slicing to support application-specific, end-to-end bandwidth and latency requirements

Start with a clear view

A critical first step of the 5G journey is taking inventory of current network assets and identifying existing capacity to determine the optimal locations for initial 5G buildouts. However, operational data is typically scattered across multiple OSSs, and mining and correlating the data to gain any useful insights requires significant manual effort.

There is a better way.

Blue Planet utilizes a novel approach called federation, whereby operational data from existing, multiple OSS sources is collected, normalized, correlated, and stored within Blue Planet's unified information model. This provides a single inventory view of physical network assets, including passive entities such as power supplies or fans, and logical service

topology. In addition, key operational metrics such as provisioned capacity or IP address assignment are stored as entity attributes. Very importantly, Blue Planet's federation technique does not require any risky forklift of legacy systems, as it overlays existing OSSs and extracts the relevant valuable operational data needed for business decisions.

Blue Planet also uses network discovery to detect deployed network equipment across vendors and multiple network layers, and the logical services running over that deployed network infrastructure. This live inventory is reconciled with the data federated from OSSs, offering an up-to-date, unified view of all resources.

Data model designed for extensibility

5G network architectures introduce new types of nodes, connections, and logical constructs, and legacy inventory systems are either incapable of modelling these new elements, or an upgrade comes at a hefty price. Blue Planet's Dynamic Planning solution is designed to support 4G and 5G network elements and attributes, alongside legacy network elements, within a holistic information model. This flexibility in discovering, modeling, and visualizing complex networks is enabled by state-of-the-art graph database technology that allows new properties and relationships to be established dynamically.

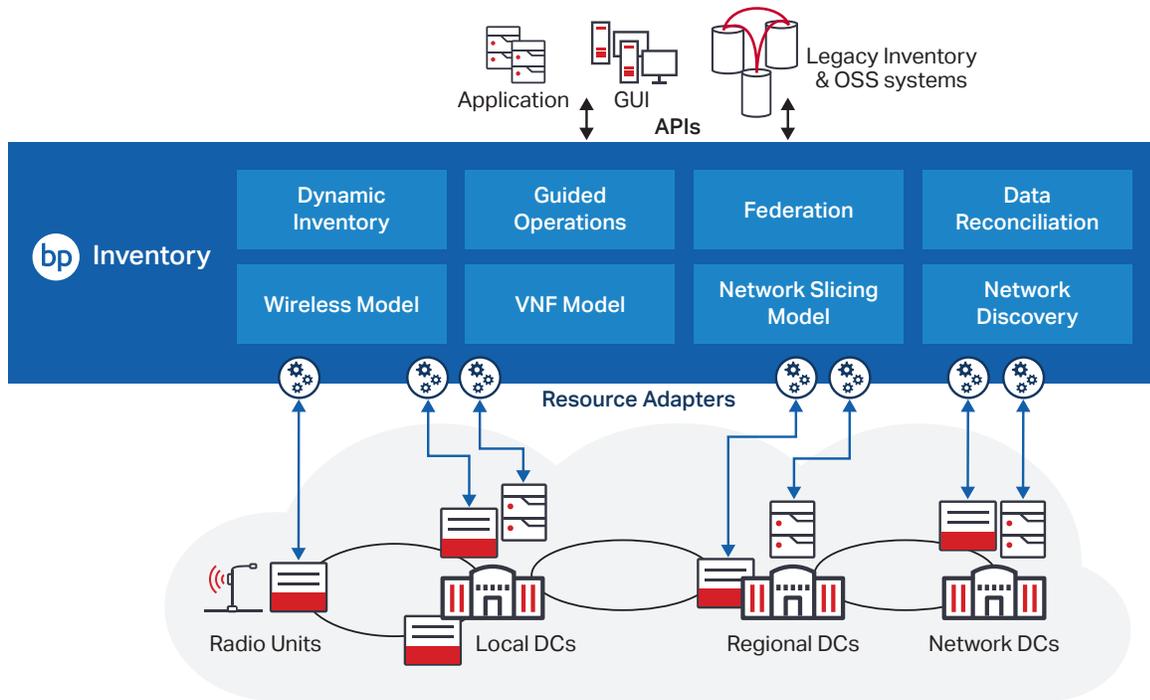


Figure 2. Blue Planet 5G Dynamic Planning provides a comprehensive network view

Process Diagram

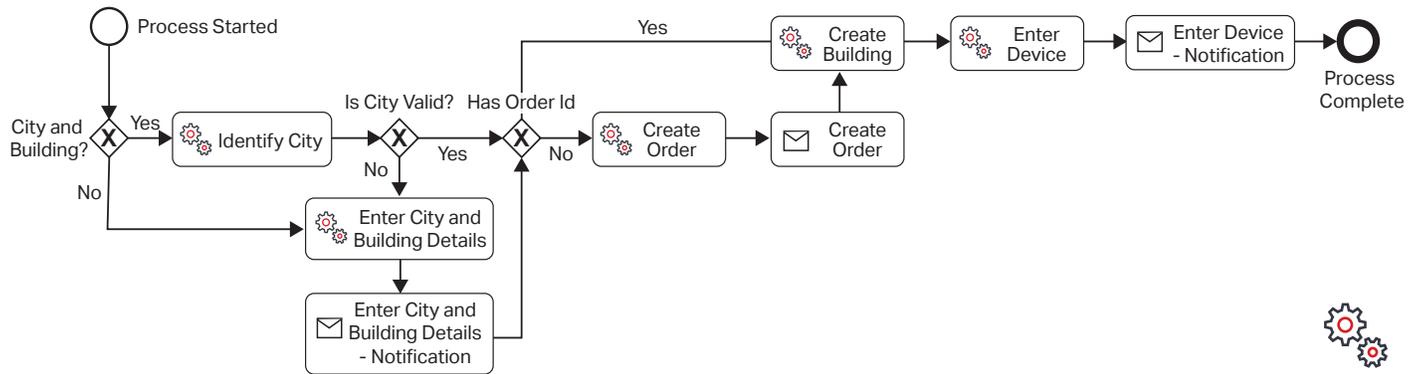


Figure 3. Automated process workflows enable quick planning turnaround in one GO!



LEARN MORE

Network slicing for 5G automation

Unique components of 5G architecture, such as 5G Core (5GC), Cloud-RAN (C-RAN), Multi-Access Edge Computing (MEC), and L3 IP-VPN connectivity, are modeled and visualized clearly so operational teams can quickly access the data they need to do their network planning. Notably, Blue Planet supports the dynamic representation of Virtual Network Functions (VNFs), which have an increased level of importance in both 5GC and at MEC. Presentation of inventory data is tailored to the user's task at hand, with 5G roles overlaid on top of network device details, to isolate the most relevant data and expedite the planning process.

Ready to slice up new service offerings

Network slicing is a powerful concept that enables a variety of services based on customers' bandwidth and latency requirements. However, slices are not an infinite resource; they need to be planned, allocated, and managed effectively across the end-to-end network. Blue Planet 5G Dynamic Planning allows for planning and visualization of network slices as individual entities—each representing a collection of physical, logical, and virtual network functions that deliver a defined set of characteristics and quality of experience to the end-customer. With a dynamic inventory view, operations personnel can plan and modify network slices and associated services in real time.

Plan a network buildout

Every organization's planning workflow is unique. Blue Planet's Guided Operations (GO!) capability allows operators to define

and trigger automated workflows easily, instead of having to repeatedly manually execute tedious, lengthy Methods of Operations (MOPs) each time a planning activity needs to be undertaken. Initially, the Blue Planet software captures individual tasks performed by operations personnel and necessary inputs, and encodes them into an automated workflow using Business Process Model and Notation (BPMN). Subsequently, users can launch entire process workflows with the click of a button from an intuitive dashboard, significantly reducing the turnaround time of planning activities.

Blue Planet brings it all together

Blue Planet 5G Dynamic Planning is a multi-vendor solution, providing the capability to inventory, visualize, and plan any vendor's network assets in the RAN, transport, and mobile core, including those from Ciena. Ciena's hardware and software offerings enable MNOs to expand their network capacity and optimize for required 5G performance and scalability. Operators can better support densification of radios with efficient IP fronthaul, midhaul, and backhaul solutions and can drive down latency with novel edge compute and network slicing technologies. Blue Planet brings these Ciena technologies—and those from other vendors—together through end-to-end inventory management, orchestration, analytics, and assurance, so MNOs can offer differentiated services reliably to their end-customers, no matter the choice of underlying network infrastructure.



CONNECT WITH BLUE PLANET TODAY