



iMaster NCE-Campus Brochure



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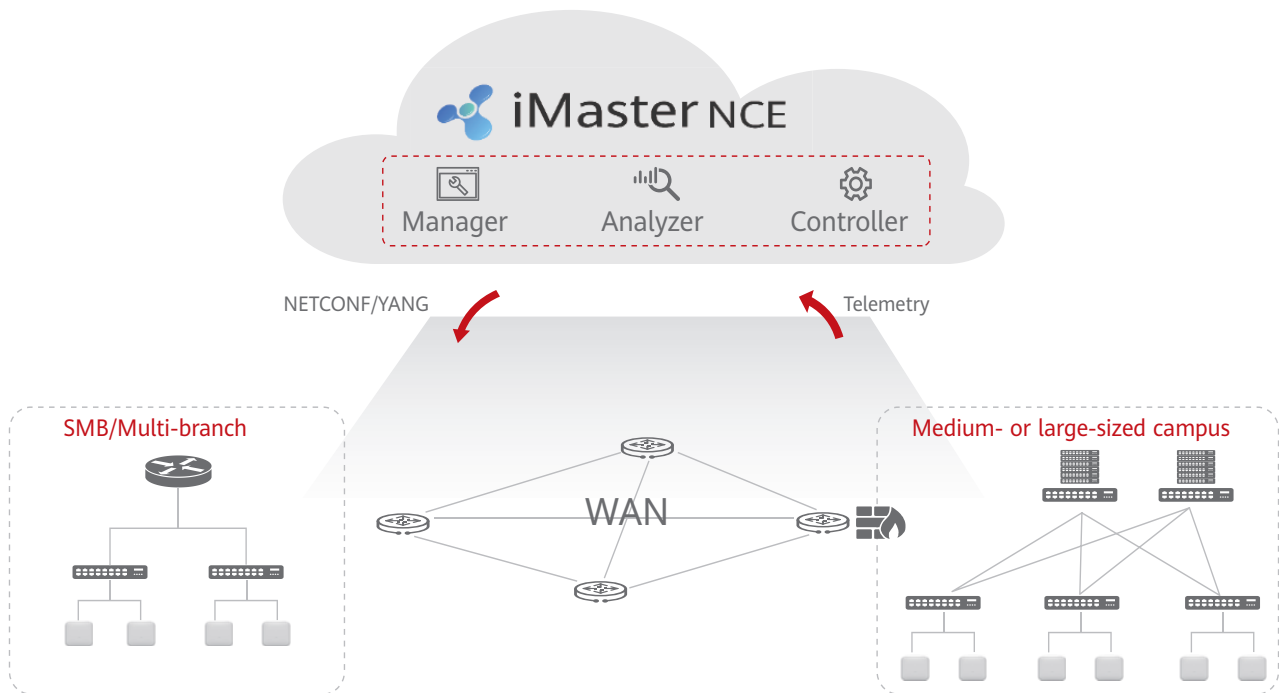
! Product Overview

iMaster NCE-Campus is Huawei's next-generation autonomous driving network management and control system for campus networks. This first-of-its-kind intelligent network automation platform integrates management, control, and analysis functions, provides full-lifecycle automation of campus networks, and implements intelligent fault closure through big data analytics and AI. These innovative features help enterprises reduce OPEX and O&M costs, accelerate enterprise cloudification and digital transformation, and achieve automated and more intelligent network management.

! Solution Description

With the rapid development of enterprise services and comprehensive digital transformation of campus networks, campus networks are rapidly developing towards wireless, cloudification, and intelligence. In this trend, a large number of innovative services such as BYOD, IoT, cloud UC, office, storage, VR, AR, and live TV are emerging, massive terminals are accessing the network, the network scale is growing exponentially, and various digital services frequently go online or are adjusted. However, the number of network administrators does not increase. If the administrators still manage networks using CLIs and scripts, networks will inevitably become a bottleneck for rapid service innovation and an obstacle for enterprise digitization. As the automatic management center of campus and branch networks, iMaster NCE-Campus is faced with multiple opportunities and challenges: how to accelerate network service deployment, how to provide reliable Service Level Agreement (SLA) guarantee, and finally how to improve user experience and service agility.

In campus and branch network scenarios, iMaster NCE-Campus uses cloud computing, SDN, and big data analytics to implement automatic and centralized underlay & overlay management, provide data collection and analysis capabilities beyond traditional solutions, perform centralized control over access rights, QoS, bandwidth, application, and security policies of campus users, and enable service-driven virtual service provisioning in a simplified, rapid, and intelligent manner, transforming the network from an obstacle into an assistant for services.

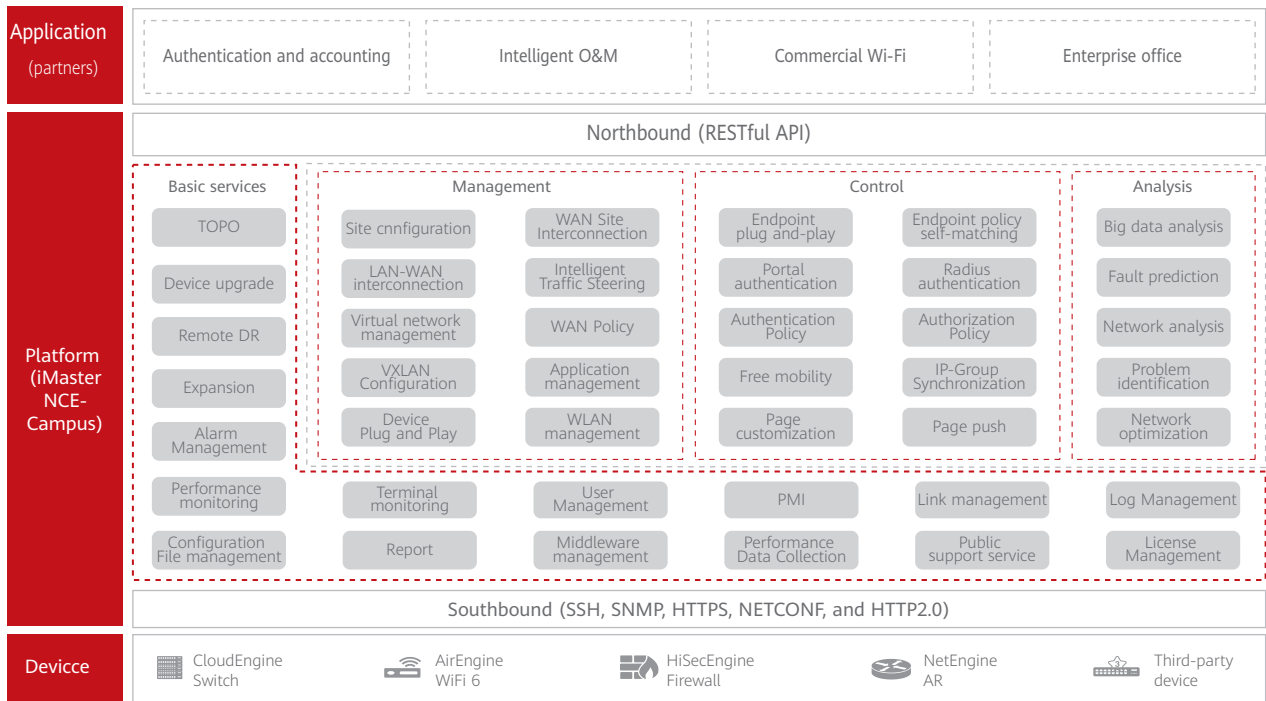


As the intelligent management and O&M center of the campus network, iMaster NCE-Campus covers large- and medium-sized campus networks, SMBs, and multi-branch interconnection networks. It has the following key capabilities:

- Automatic Network Deployment: physical network deployment automation, virtual network service provisioning automation, and LAN-WAN converged management.
- Service Policy Automation: mass user authentication, endpoint plug-and-play, and hierarchical QoS scheduling.
- Intelligent O&M: Real-Time Experience Visibility, Fault Locating Within Minutes, Intelligent Network Optimization.

! Key Components

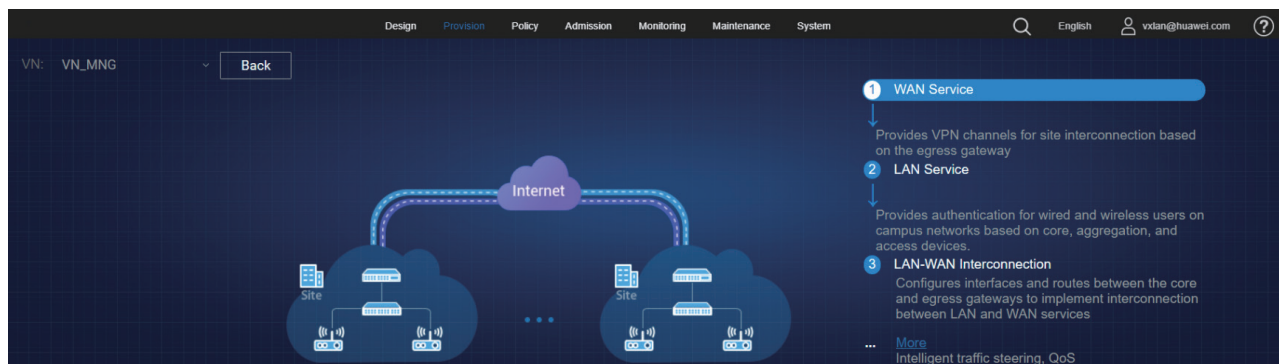
Based on the cloud computing and distributed architecture design, iMaster NCE-Campus adopts the service-oriented module design and supports distributed deployment. The overall architecture of iMaster NCE-Campus consists of four components, basic services, management, control, and analysis.



Benefits

Automatic Network Deployment

- App-based deployment, DHCP-based deployment, and deployment through the registration query center: Devices are plug-and-play and networks are provisioned within minutes, greatly simplifying network deployment and shortening the construction period.
- End-to-end automated VXLAN network deployment: service isolation, one network for multiple purposes, and a wide range of networking models (such as centralized gateway and distributed gateway), enabling more flexible and efficient network adjustment and capacity expansion.
- Multi-branch interconnection: LAN and WAN network devices are centrally deployed, managed, and monitored, guaranteeing services in an end-to-end manner while reducing O&M costs and improving O&M efficiency.



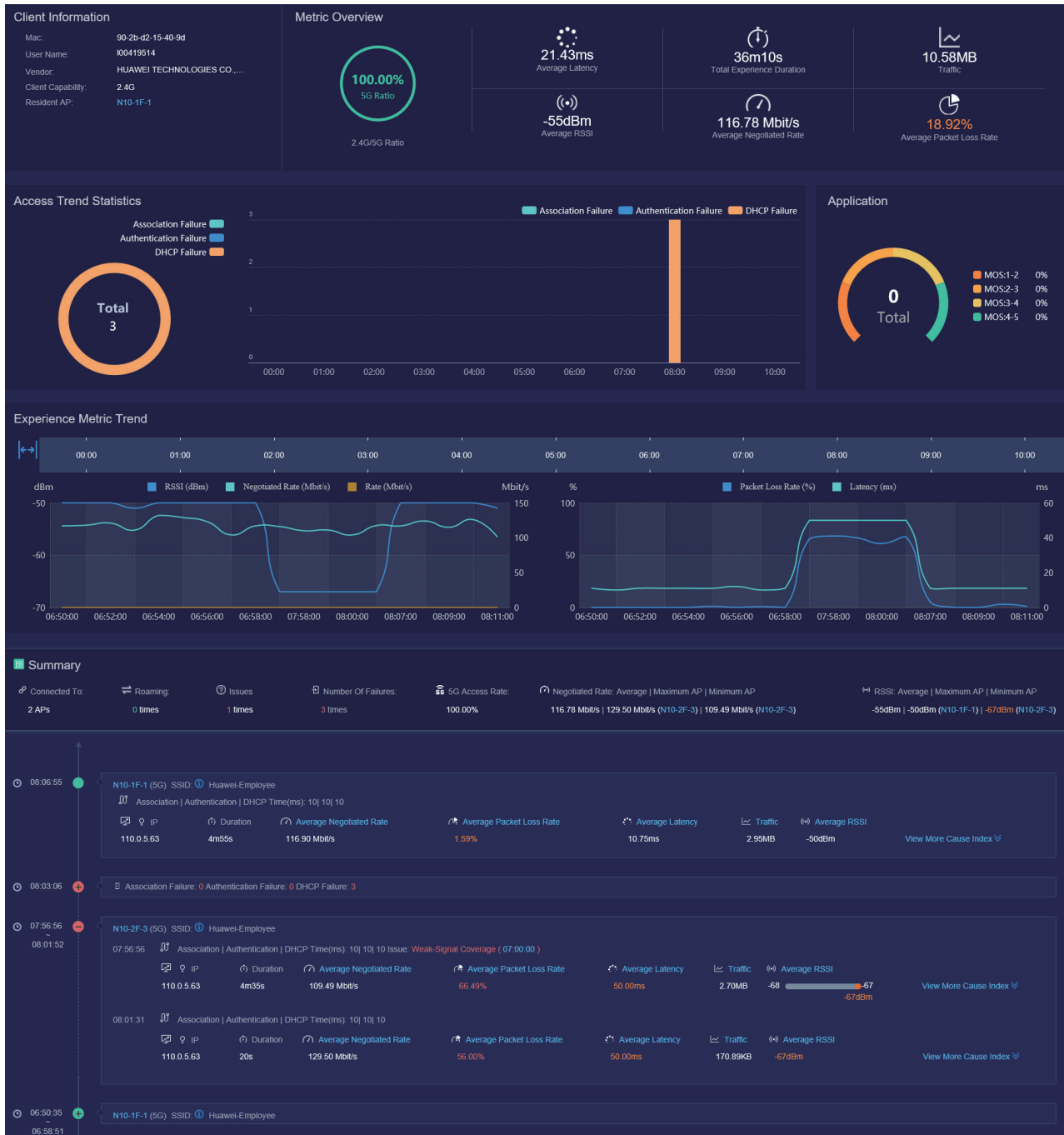
Service Policy Automation

- Massive network device management and user network access authentication: iMaster NCE-Campus supports multiple authentication modes, such as 802.1X authentication, Portal authentication, and social media authentication. Users are decoupled from IP addresses, and can access the network anytime and anywhere with consistent permissions. This ensures free mobility and consistent user experience, ensuring user experience while meeting permission control requirements.
- Built-in terminal fingerprint library: Multiple intelligent identification methods are combined to accurately identify terminal types. Massive IoT terminals are connected intelligently, and policies are automatically matched and delivered, making IoT terminals plug-and-play.
- HQoS scheduling based on users and service priorities: Different policies are implemented for different users and applications, achieving more refined bandwidth policy control and effectively ensuring user access experience.



Intelligent O&M

- Real-time experience visibility for each application of each user in each area: With fault backtracking, iMaster NCE-Campus quickly and intelligently demarcates faulty devices and analyzes root causes for poor quality.
- Continuously trained AI algorithm: Through proactive issue identification, fault locating in minutes, and intelligent fault prediction, iMaster NCE-Campus identifies 90% of potential network faults and provides optimal rectification suggestions.
- Real-time wireless network channel conflict evaluation: iMaster NCE-Campus performs predictive radio calibration, and compares gains before and after calibration, improving network performance by more than 50%.



! Specifications List



Key Feature	Value
Simplified Network Deployment	<ul style="list-style-type: none"> Provides four PnP deployment modes: deployment through app-based barcode scanning, deployment through DHCP, deployment through the registration query center, and deployment through the email. The four modes are applicable to different network scenarios. GUI-based network planning and deployment and provision network services in minutes.
Automatic Virtual Network Service Provisioning	<ul style="list-style-type: none"> Visualized service configuration and GUI-based fabric planning, configuration, and provisioning. Supports service configuration visualization, topology-based virtual network configuration and monitoring, and real-time service provisioning status query. Automatically establish VXLAN tunnels through BGP EVPN. Supports centralized and distributed VXLAN gateway solutions, providing flexible expansion and high efficiency.
SD-WAN Convergent Management	<ul style="list-style-type: none"> Automatic deployment of HQ-branch and branch-branch lease line services: automatic configuration of all services including service policies, value-added services (VASs), and dynamic VPN connections, simplifying branch network deployment. Application experience-prior: Agile supports comprehensive traffic steering considering bandwidth and link quality. O&M and network-wide application traffic visualization: supports visualized management by application and link, network-wide status visualization, and real-time network status awareness, improving O&M efficiency.
Multi-tenant Management	<ul style="list-style-type: none"> Adopts a three-level management model: The system administrator is responsible for platform-wide management and O&M. The MSP administrator can create tenants and provide construction and maintenance services for tenants. The tenant administrator is responsible for deployment and O&M of the local network; alternatively, the tenant administrator can authorize an MSP to manage tenant networks. Supports rights- and domain-based management. In the three-level management model, administrators can be set by role and site to secure network management. Services are invisible between tenants. Data of different tenants is isolated in an E2E manner and distinguished by tenant IDs in the database. In addition, only the corresponding tenant administrator can access data of a tenant. This ensures tenant data security to the most extent.
User Access Authentication	<ul style="list-style-type: none"> Introduces new authentication protocol HTTP2.0, and can authenticate a large number of network devices and users using various access authentication modes, such as 802.1X authentication, Portal authentication, SMS authentication, and social media authentication. It also provides multiple user access control policies. This significantly improves network security. Users decoupled from IP addresses, allowing users to access the network anytime, anywhere with consistent permissions. This ensures free mobility and consistent user experience, ensuring user experience while meeting permission control requirements.

Key Feature	Value
Endpoint plug and play	<ul style="list-style-type: none"> • Built-in terminal fingerprint library: Multiple intelligent identification methods are combined to accurately identify endpoint types. • Massive IoT endpoints are connected intelligently, and policies are automatically matched and delivered, making IoT endpoints plug-and-play.
Intelligent HQoS	<ul style="list-style-type: none"> • HQoS scheduling based on users and service priorities: Different policies are implemented for different users and applications, achieving more refined bandwidth policy control and effectively ensuring user access experience.
Intelligent O&M	<ul style="list-style-type: none"> • Provides GIS-based networking monitoring, network inspection, and health evaluation to monitor device alarms in real time and detect network conditions in advance for fault prevention. If a fault occurs, iMaster NCE-Campus provides various fault locating methods to quickly locate and rectify the fault. • Real-time experience visibility for each application of each user in each area: With fault backtracking, iMaster NCE-Campus quickly and intelligently demarcates faulty devices and analyzes root causes for poor quality. • Continuously trained AI algorithm: Through proactive issue identification, fault locating in minutes, and intelligent fault prediction, iMaster NCE-Campus identifies 90% of potential network faults and provides optimal rectification suggestions. • Real-time wireless network channel conflict evaluation: iMaster NCE-Campus performs predictive radio calibration, and compares gains before and after calibration, improving network performance by more than 50%.
Capability Openness	<ul style="list-style-type: none"> • Provides 170+ northbound RESTful APIs for user management, topology management, access authentication, service configuration, and performance monitoring. • Leveraging such APIs, Huawei joins hands with 30+ partners to release 30+ industry, greatly simplifies integration with third-party systems and shortens the TTM of services.

Glossary

AI	Artificial Intelligence
AR	Augmented Reality
IoT	Internet of Things
MSP	Managed Service Provider
NCE	Network Cloud Engine
SD-WAN	Software-defined networking in a wide area network
VR	Virtual Reality
VXLAN	Virtual extensible local area network

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