



# Huawei Cloud Data Center Network

## SDN-based Automated Deployment Solution

HUAWEI TECHNOLOGIES CO., LTD.







The information age targeted at information sharing is fading away, while the digital age that explores and uses massive amounts of data to provide better service is coming. In the digital age, Big Data analytics and mining technologies are maturing, personalized applications are growing rapidly, and product lifecycles are shortening. Therefore, enterprises must quickly respond to market demands and changes to maintain competitiveness. However, the out-of-date data center architecture is often the limiting factor to quick innovation and quick service provisioning. A data center network is the key IT infrastructure that provides business, operation, and management channels between an enterprise and external networks. The performance of the data center network directly affects user experience.

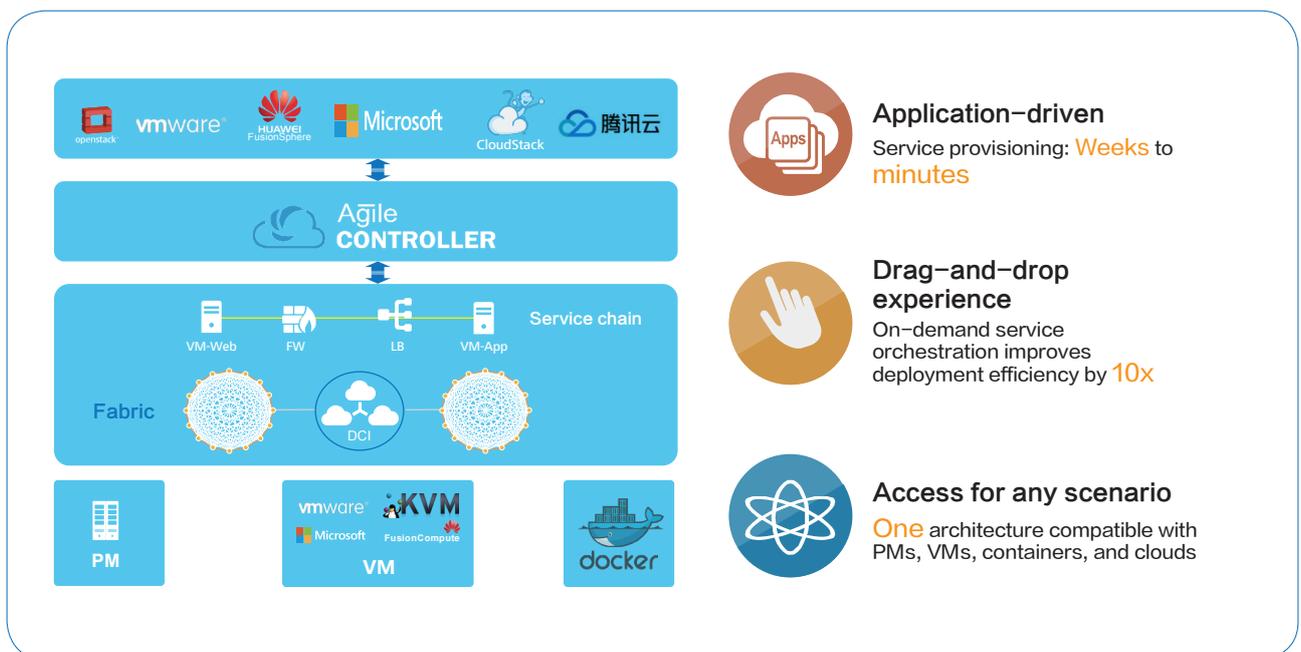
In the digital age, data center network architecture needs to be transformed to adapt to rapid business deployment. Traditional data center networks are facing the following problems:

- As networks are separated from services, it usually takes several weeks or several months for a network to be deployed to support new services. Therefore, networks have become the bottlenecks to quick service provisioning.
- A service change requires adjustments of many policies, and manually adjusting these policies is inefficient.
- A data network connects physical servers, VMs, and containers. Managing diverse resources is difficult.

To address these problems, Huawei released the cloud data center network SDN-based automated solution. This solution automates network configuration, VAS deployment, and access in multiple scenarios to improve agility of enterprise services.

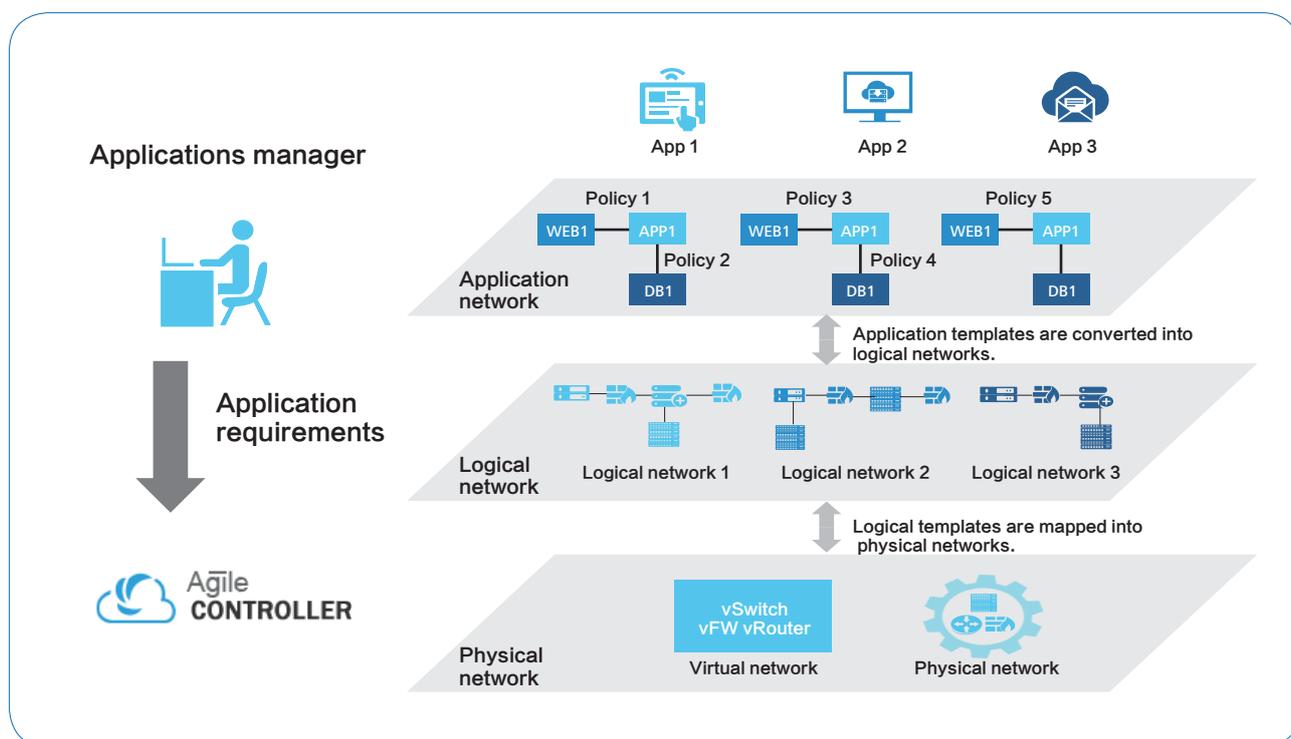


## Huawei SDN-based Automated Deployment Solution



## Application-Driven Automation, Shortening Service Provisioning Time from Weeks to Minutes

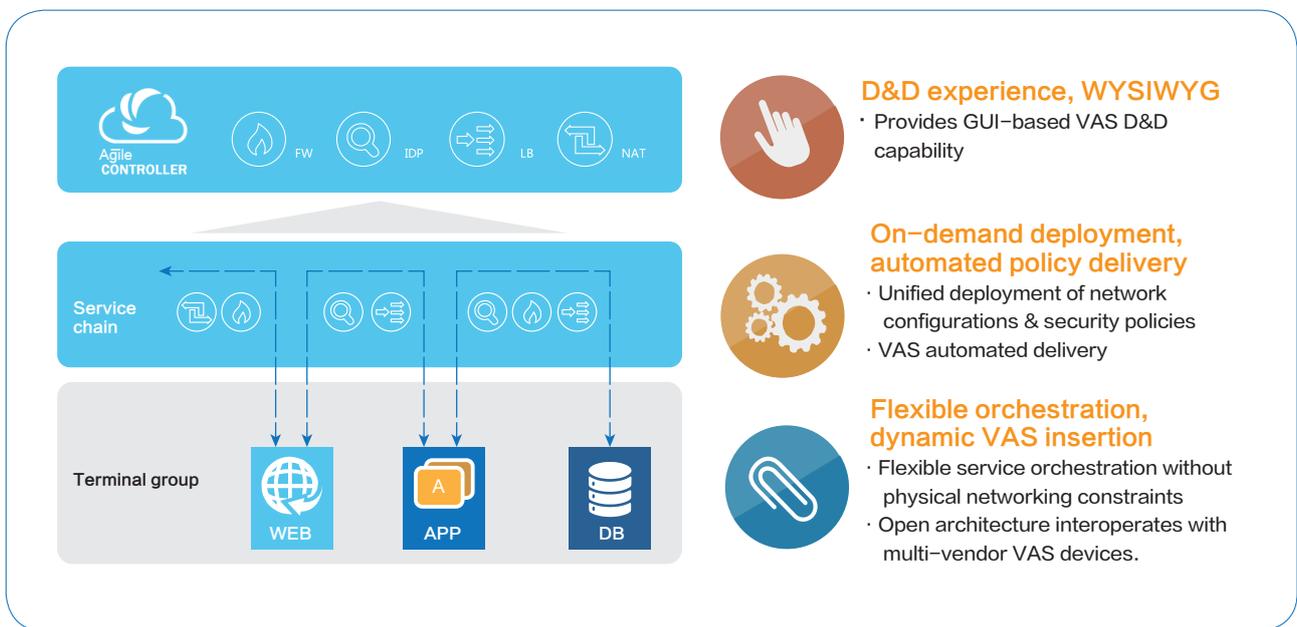
The Huawei Agile Controller implements service-centric automated network configuration. IT administrators can use service language to define network requirements (application architecture view) from a service perspective. Each service has an independent application architecture view, which can be adjusted flexibly by IT administrators. The Agile Controller supports mapping between application, logical, and physical networks. After an application architecture view is defined, the Agile Controller translates it into a logical network and delivers associated configuration to the physical network. In this way, network resources can be scheduled dynamically to provision a service in a few minutes.



## Drag-and-Drop Experience and On-demand Service Orchestration, Improving Deployment Efficiency by 10 Times

In addition to automated network configuration, Huawei SDN-based automated deployment solution uses Network Service Header (NSH) technology to implement service chain orchestration. Network administrators can flexibly insert L4-L7 VAS devices (such as firewall and IPS) on the application network and provision application automatically.

- **Drag-and-drop experience:** Service application and provisioning are completed on the portal of a unified cloud platform. The service orchestration GUI shows a vivid application network model, on which network administrators can complete service orchestration through simple drag-and-drop operations.
- **On-demand deployment:** Services can be orchestrated flexibly based on service scenarios (such as VPN access, DC egress, security, and load balancing). Services of the same type can use the same policy template to simplify deployment. The Agile Controller also supports third-party VAS frameworks and uses the DevOps model to implement quick customization of various services.
- **Flexible orchestration:** The orchestration model of the Agile Controller is decoupled from the physical network. It supports centralized and distributed VXLAN gateway deployments and allows firewalls and LBs to be deployed at any physical locations, suiting different network models. With an open architecture, the controller supports multi-vendor devices.



## Universal Architecture for Physical Servers, VMs/Containers, and Cloud Platforms

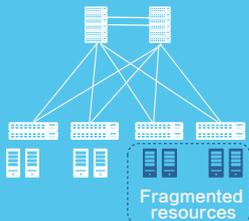
Huawei SDN-based automated deployment solution supports multiple types of computing resources and centrally manages them. When physical servers, VMs or containers are connected to the network, the Agile Controller uses a unified network model to schedule computing resources. The Agile Controller supports physical servers, virtual servers, and cloud platforms with one architecture.

- For physical servers: The Agile Controller supports a federation of 128 controllers, the largest scale in the industry. Combined with network virtualization technology, such as VXLAN, the Agile Controller can schedule scattered resources across data centers or racks, improving resource utilization to 100%.
- For VMs and containers: The Agile Controller centrally provisions physical and virtual resources and automatically deploys tenant networks, enabling services to be provisioned in minutes.
- For cloud platforms: The Agile Controller can interoperate with mainstream cloud platforms, including FusionSphere, Microsoft, VMware, Red Hat, and open-source OpenStack cloud platforms, to implement collaborative management and control of computing, storage, and network resources.



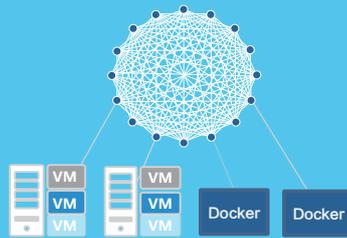
# Agile CONTROLLER

## Physical server access



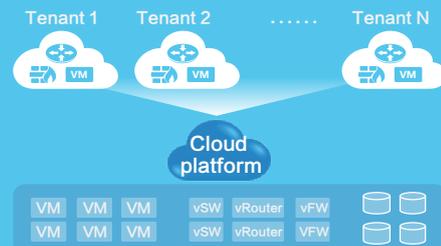
Inter-DC/rack unified scheduling of fragmented resources improves resource usage to 100%

## VM/container access



Unified provisioning of virtual/physical resources, tenant service provisioning within minutes

## Cloud DC



The cloud platform collaboratively manages and controls computing, storage and network resources.

## Summary

Evolution from traditional data centers to cloud data centers creates many opportunities. Huawei is dedicated to maximizing benefits for customers by offering solutions that decouple software from hardware and provide high service orchestration and automation capabilities. These solutions build agile networks to improve agility of services, helping customers achieve business success.

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