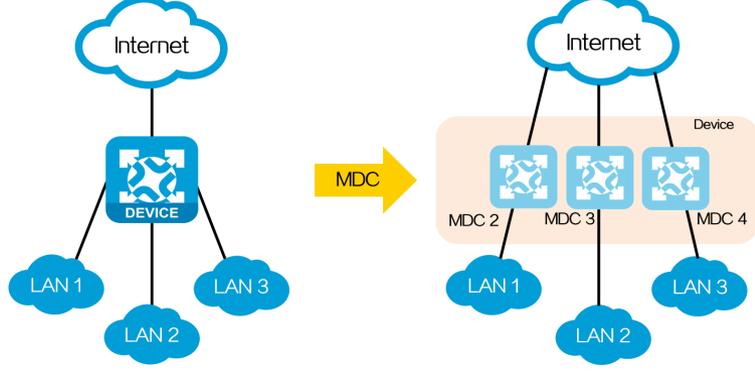


## About MDC

The Multitenant Device Context (MDC) technology is a 1:N virtualization technology that can partition a physical device into N independent logical devices (called MDCs). Each MDC owns independent hardware resources and management privileges as well as independent forwarding entries and configuration interface. MDC makes full use of physical devices by device isolation and multiplexing, allows multi-service customers to share the core network device, and reduces the investment on the network infrastructure.



## Benefits

The administrator can create and delete MDCs and assign resources (including CPU, memory, disk, LOU, and interface) to the MDCs as needed to improve resource efficiency.

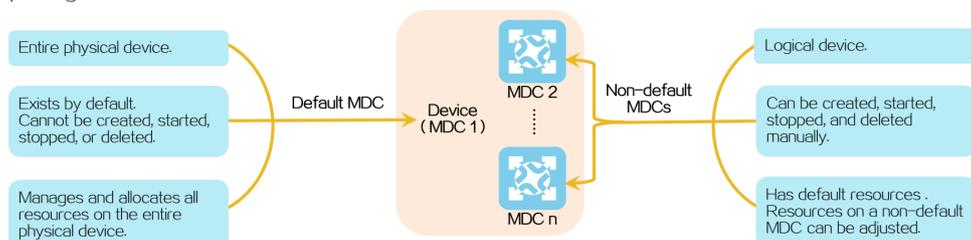


Each MDC uses its own hardware and software resources, runs independently of other MDCs, and provides services for its own customer. Creating, starting, rebooting, or deleting an MDC does not affect any other MDCs.

The administrator can manage multiple MDCs from a single physical device. All MDCs use the same configuration methods and configuration interface, which simplifies the MDC management.

## Default MDC & non-default MDCs

MDCs include the default MDC (MDC 1) and non-default MDCs, which have different features and privileges.

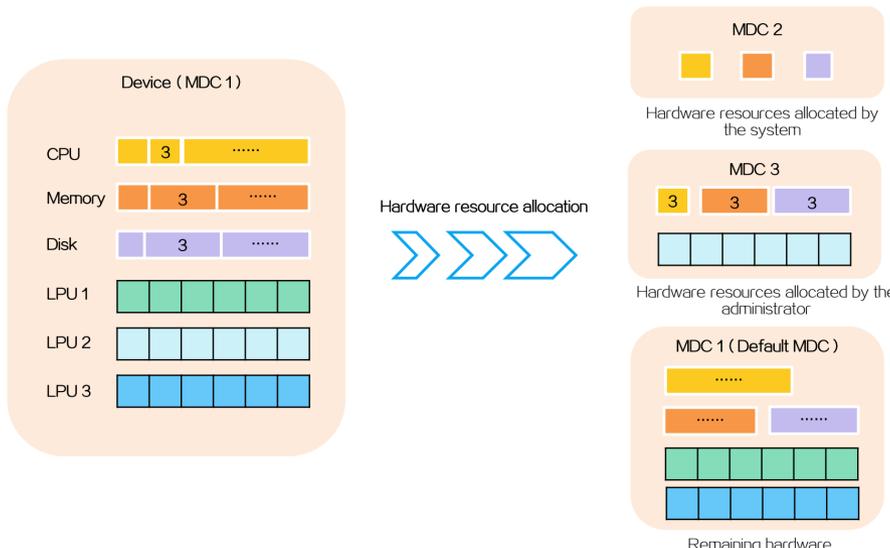


## Hardware resource allocation

### Allocation mechanism

The following rules apply to hardware resource allocation:

- When you create a non-default MDC, the system automatically assigns necessary resources for the MDC to start and operate to the MDC, including CPU resources and memory space.
- A non-default MDC needs interfaces to forward packets. The system does not automatically assign LPUs or interfaces to MDCs. For an MDC to forward traffic, you must assign interfaces and LPUs to MDCs. To prevent a non-default MDC to occupy too many resources, you can adjust the resource allocations as required.
- Resources that are not assigned to any non-default MDC belong to the default MDC.



### Allocation details

Resource type	Default resource allocation	Remarks
CPU	Shared by all MDCs	<ul style="list-style-type: none"> <li>When the CPU is idle, all MDCs share and compete for the CPU resources.</li> <li>When the CPU is busy, the number of CPU resources an MDC can use depends on the percentage of its CPU weight among the CPU weights of all MDCs that share the same CPU.</li> </ul>
Memory	Shared by all MDCs	A non-default MDC can use the memory assigned to it.
Disk space	Shared by all MDCs	<ul style="list-style-type: none"> <li>Disks are used to save non-volatile data such as configuration files and log files.</li> <li>A non-default MDC can use only the disk space assigned to it.</li> </ul>
LPUs	Belongs to the default MDC	An LOU can be assigned to multiple MDCs, and all the MDCs share the resources on the LOU.
Interfaces	Belongs to the default MDC	<ul style="list-style-type: none"> <li>You can assign interfaces to an MDC before or after you start the MDC.</li> <li>As a best practice, assign MDCs resources before starting them to avoid system flapping.</li> </ul>

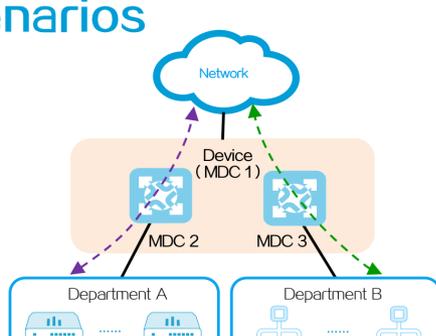
## Non-default MDC management

- MDC login**  
To log in to a non-default MDC, you must first log in to the physical device, and then use the `switchto mdc` command to log in to the non-default MDC. This is equivalent to logging in to a non-default MDC through a console port. After login, you can assign an IP address to the management Ethernet interface, VLAN interface, or Layer 3 Ethernet interface on the MDC. Then, you can log in to the MDC through Telnet or SSH.
- Configuration methods**  
You can use the CLI interface, Web interface, SNMP, and NETCONF to configure a non-default MDC in the same way a physical device is configured.
- Configuration files**  
Each non-default MDC has an independent configuration file that saves its own configuration. You can use the configuration file to restore the configuration of a non-default MDC.
- Logging**  
Each non-default MDC can independently generate logs. You can send logs of multiple MDCs to the same log server or different log servers.
- User management**  
You can create users and manage the privileges of the users on a non-default MDC. An administrator of an MDC can log in to and manage only the MDC.

## Application scenarios

### 1:N virtualization (MDC only)

A company has two departments. MDC can be configured on the device to create two independent MDCs (MDC 2 and MDC 3) for the two departments. Each department can use an MDC to manage its own gateway, configure access control policies, and use exclusive routing forwarding entries.



### M:N virtualization (IRF + MDC)

An enterprise has two devices acting as egress gateway devices. For simple topology and device management, IRF is used to virtualize the devices as an IRF fabric.

The enterprise network is divided into multiple internal networks for different areas (such as the production area and the office area). To meet the services of different internal networks, MDC is used to virtualize the IRF fabric into multiple MDCs. The default MDC is configured with BGP to act as the egress of the enterprise network. MDC 2 is connected to security devices (such as firewalls) to act as the gateway of the production area. MDC 3 is configured with rate limit and NAT to act as the gateway of the office area.

If the enterprise plans to add a leisure area to provide the Wi-Fi services to staffs, MDC 4 can be created on the IRF fabric to act as the gateway of this area without changing the existing network and configuration.

