



**Data Centre  
Network**

[www.ruijienetworks.com](http://www.ruijienetworks.com)

# CLOUD DC SOLUTIONS

Help customers build a ultra-fast, intelligent,  
lossless, green and open cloud data center.



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# Cloud DC Solutions

## Booming of Global Digital Economy Brings Huge Challenges and Opportunities to Data Centers

01

Thanks to next-generation technology such as 5G, Big Data and AI, the computing power of IDCs has witnessed an exponential improvement.

02

In compliance with the global mission of "carbon peak and carbon neutrality", energy conservation and low carbon become a key indicator to IDCs.

How to balance between the improvement of computing power and energy conservation?

## Unique Benefits of Cloud DC Solutions

The cloud DC solutions cover all scenarios, helping to build a new type of DCs featuring higher bandwidth, extreme reliability, ultra-high cost performance and energy conservation in the future.



**Ultra-fast**  
400G High-speed  
Interconnection  
Solution

Applicable to the core network and DCI scenarios of large-scale DCs, and supports smooth upgrade to 800G.



**Intelligent**  
IDC Egress Scenario  
Solution

Use the next-generation Ruijie egress traffic scheduler to realize automatic and intelligent scheduling and help DC customers maximize bandwidth utilization.



**Lossless**  
AI DC  
Solution

Use PFC and ECN based on the DC switch and RoCEv2 protocol to dynamically carry out traffic backpressure, achieving zero packet loss over the network and improving the efficiency of AI training.



**Green**  
Low-carbon DC  
Solution

Reduce the power consumption of a single device by 30% to achieve a better balance between high performance and low power consumption.



**Open**  
Partner-cloud DC  
Solution

Connect the SDN controller with the cloud platform to achieve cloud-network integration and improve business deployment efficiency.

# Ultra-fast — 400G High-Speed Interconnection Solution

## Pain points

### Surging Demand for 400G Bandwidth

**Strong demand for DCI cost reduction:** With the surging demand for DCI, the 400G ZR/ZR+ standard is gradually popularized and applied on a large scale, and the demand for reducing backbone transmission cost is increasingly strong.

### Higher DCI security requirements

## Solution

The RG-N18000-XH series switch is a 400G high-density fixed core switch that meets the requirements of large-size IDC core networks and ultra-large DCI scenarios. The RG-N18000-XH series switch provides a high-speed transmission, security, and energy saving network, and can be smoothly upgraded to 800G to meet the network requirements in the next 10 years.

## Benefits

### High-speed Interconnection, Lower Cost and Higher Efficiency

- Supports 100G/400G/800G full line rate ports, meeting the high-density core interconnection requirements of large-scale IDCs
- Adopts the SRv6 technology to achieve cloud-network integration and refined traffic scheduling, and improve DCI bandwidth utilization
- Supports the 400G ZR/ZR+ module and requires fewer devices in the intermediate transmission layer, reducing the DCI cost by 15% – 30%

### Green Energy-saving and Sustainable Development

- Adopts the industry-leading switching chip architecture
- When the switch is fully equipped with 400G line cards, its power is reduced by 25% compared with that of the previous generation chip architecture, saving up to 100,000 kWh/year for a single device

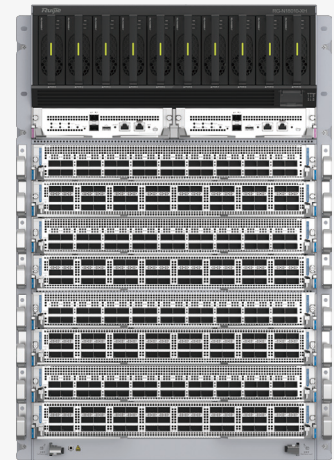
### Safe, Reliable and Stable Operation

- Adopts full line-rate MACsec encryption to ensure the security of long-distance data transmission
- Adopts the redundancy design for key components to greatly improve stability of the device

### Intelligent O&M, Lower OPEX

- Supports Telemetry traffic visualization and cloud-network collaboration
- Realizes automatic and intelligent O&M, which greatly reduces the OPEX

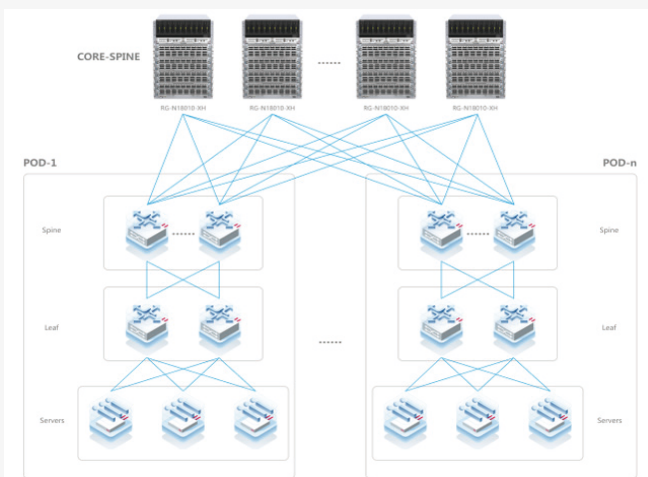
Recommended Product



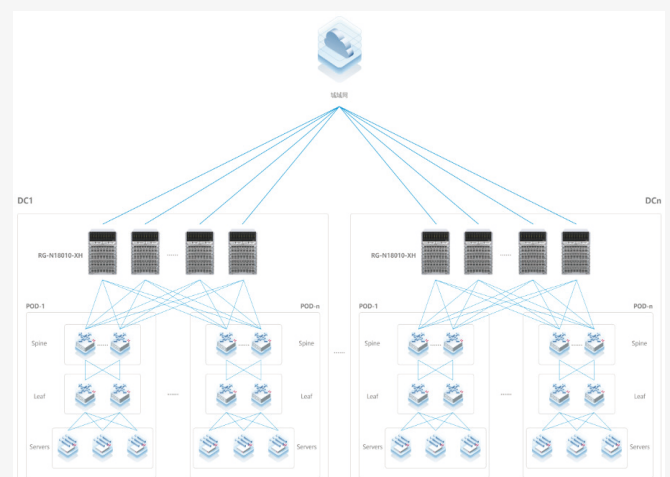
RG-N18000-XH Series

## Ultra-Fast Solution Topology

### IDC Scenario



### DCI Scenario



# Lossless — Intelligent IDC Egress Scenario Solution

## Pain points

**Low Bandwidth Utilization:** The IDC egress bandwidth cannot be fully utilized. The usage of a single port is about 80%.

**Load Imbalance:** Heavy traffic and burst traffic may cause load imbalance among different ports. Sometimes, the bandwidth difference among ports is 10% or even higher.

**Non-intelligent Scheduling:** The system depends on SNMP or manual scheduling, which is complicated and inefficient. In addition, packet loss may cause poor end user experience.

## Solution

TS10K-48X8C, the next-generation Ruijie egress traffic scheduler, can realize automatic and intelligent scheduling and help IDC customers maximize bandwidth utilization.

## Benefits

**Intelligent Scheduling:** Automatic scheduling is supported based on the bandwidth threshold, packet loss rate, and even time.

**Good Balance:** With the TS10K-48X8C, the bandwidth utilization can reach over 95%, and the bandwidth difference among ports can be controlled within 1%.



# Lossless — AI Cloud DC Solution

## Pain points

**Inefficient Training Caused by Packet Loss:** In the AI computing environment, the RDMA network is often introduced to improve GPU training and inference efficiency. The packet loss rate greater than 0.1% causes a sharp decrease in the effective network throughput. The packet loss rate of 2% reduces the RDMA throughput to 0. To prevent the RDMA throughput from being affected, the packet loss rate must be lower than 0.001%, and preferably 0%.

**Complicated RDMA Network Configuration:** RDMA network configuration involves dozens of parameters related to thresholds and optimization. It takes at least one month to adjust the network configuration before a cluster can be deployed. Can there be an easier way to configure the thresholds to quickly deploy an RDMA network?

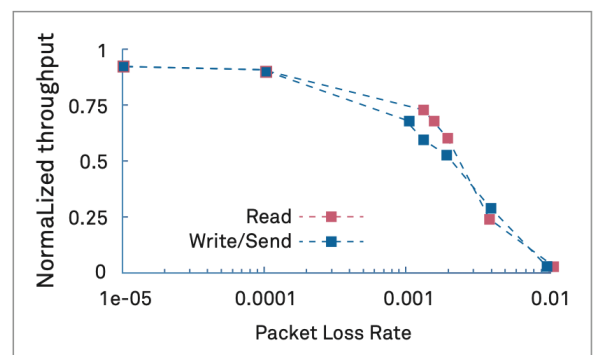
## Solution

Uses PFC and ECN based on the DC switch and RoCEv2 protocol to dynamically carry out traffic backpressure, achieving zero packet loss over the network and improving the efficiency of AI training.

## Benefits

**Efficient Training:** The backpressure technology is adopted to meet the requirement for no packet loss in the RDMA network and improve the training efficiency of the AI scenario.

**Use Without Learning:** With the built-in scripts, users simply need to make a few clicks without learning to deploy the RDMA network, which is easy and fast.



# Green — Low Carbon DC Solution

## Pain points

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- Under the background of the "carbon peaking and carbon neutrality" policy, it has become a general trend to build intensive, green, and super-scale DCs. Traditional air cooling cannot meet the PUE requirements of future DCs and the heat dissipation requirements of a single chassis.
- With rapid development of AI, ML, HPC and other applications, the performance of switching chips, SerDes, and optical modules is constantly improving with the iteration of network architecture, and power consumption of DCI becomes a great challenge.
- In a large DC, IT equipment accounts for over 50% of the energy consumption. Reduction in energy consumption, efficient heat dissipation, and a balance between high performance and low energy consumption have become top issues to be solved in construction of green DCs.

## Solution

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### CPO Technology

This technology integrates the silicon optical module and switching chip onto one ASIC, greatly shortening the wiring distance between the switching chip and optical engine and reducing the SerDes drive capacity.

### NPO and Cold-plate Liquid-cooling Technology

- This technology integrates the open optical engine interface (OPI) and switching chip onto the same PCB substrate to achieve chip decoupling with a standardized architecture, which significantly shortens the signal link.
- The cold-plate liquid-cooling technology adopts 3M fluorinated liquid (non-conductive) and independent cold plate for cooling. The built-in coolant micro leakage detection system eliminates the short circuit risk, ensuring high reliability of the rack.

### Immersion Liquid-cooling Technology

The switch is immersed in insulated and non-corrosive coolant. The heat is absorbed by the coolant and directly transmitted to the outside world through the cooling system, achieving heat dissipation and preventing the failure or aging of electronic components at high temperatures.



## Benefits

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### CPO Technology

- Ensure high-quality and accurate transmission of signals
- Reduce the power consumption cost of SerDes
- Reduce the overall power consumption by about 23% compared with conventional switches equipped with pluggable optical modules

### NPO and Cold-plate Liquid-cooling Technology

- Ensure high-quality and accurate transmission of signals
- Reduce the power consumption cost of SerDes
- Efficient cooling of independent cold plate ensures long-term stable operation of the system
- Reduce the overall power consumption by about 31% compared with conventional switches equipped with pluggable optical modules and adopting air cooling

### Immersion Liquid-cooling Technology

- Reduce the overall power consumption of DCs, achieving carbon emission reduction
- Optimize heat dissipation, reduce coolant consumption and the overall construction cost of DCs

# Open — Partner-cloud DC Solution

## Pain points

- After cloud services are deployed, the network needs to be manually configured, which is inefficient and cannot meet the requirements for rapid service deployment and use.
- The interconnection between the cloud and network has been completed, but the binding is strong. A more open and flexible cloud-network collaboration model is needed to carry services.

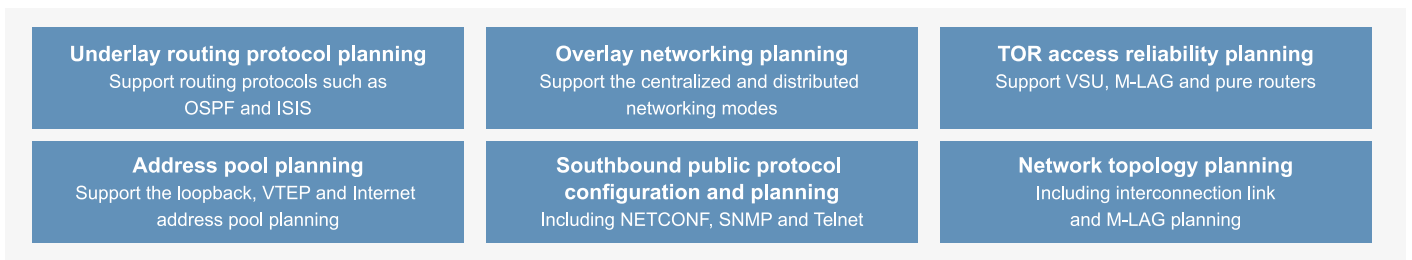


## Solution

Connects the SDN controller with the cloud platform to achieve cloud-network integration and improve business deployment efficiency.

## Benefits

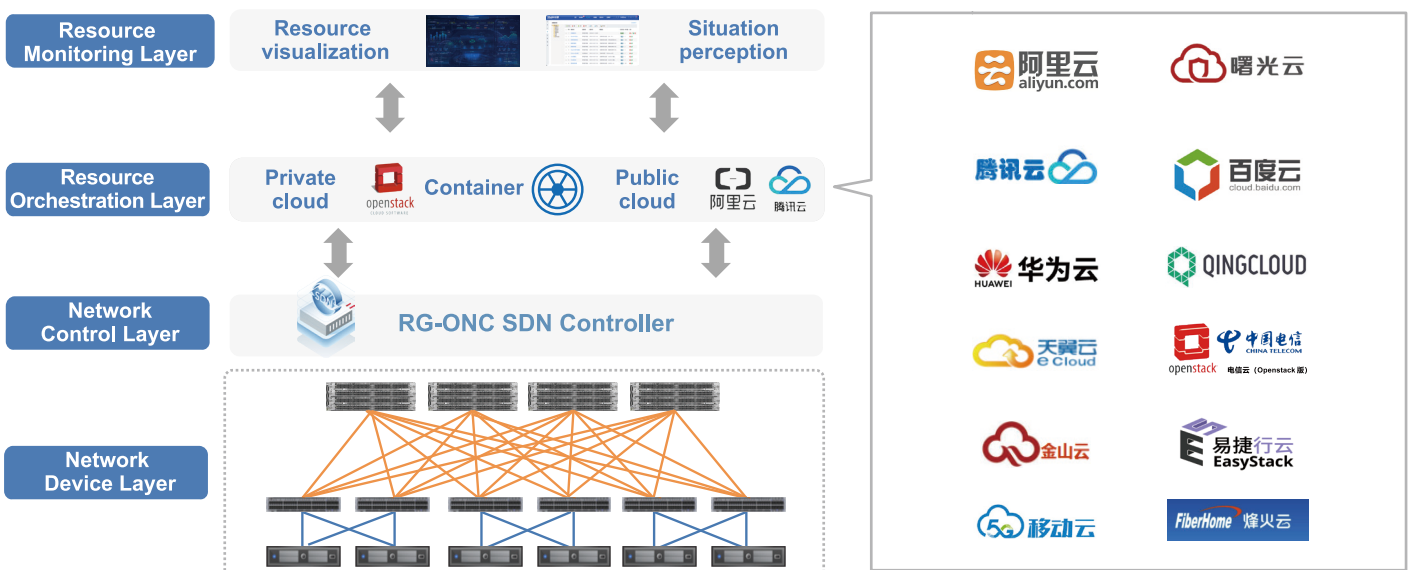
**Fast Deployment:** Graphical operation and flexible and rich configuration templates enable the use of devices in a plug-and-play manner and fast provisioning.



**Open Interconnection:** Currently, Ruijie has completed interconnection with mainstream cloud manufacturers in the industry, and the Ruijie DC network is open and integrated with products from 12 cloud platform manufacturers.

**Cloud-network Correlation:** The Ruijie DC network interconnects with the cloud platform to achieve cloud-network integration and improve the network and service collaboration efficiency.

## Partner-cloud Cases



# Major Customers in China



## Alibaba

Key partner of DC and campus network



## ByteDance

In-depth understanding of business scenarios and launching of ByteDance in a cooperative and innovative manner



## Tencent

In-depth participation in construction of Tencent DC



## Baidu

Hyper-large DC

## Serving over 300 Internet enterprises

### Large-scale multi-scenario application by the Operators



### Multi-DC application in the financial sector



### DC application in governments and enterprises



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