Architecture of Computing Power
Optical Network

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Motivation

With the rapid popularization and application of cloud computing, artificial intelligence and other technologies, the total amount of data has increased explosively, and the demand for data storage, computing and transmission has increased significantly. The processing of these heterogeneous data needs ubiquitous computing power to support.

With the advantages of ultra-large capacity, ultra-long distance, low latency, and flexible scheduling, optical networks provide a wide coverage, flexible and efficient super-capacity guarantee for computing resources.

This architecture combines the computing power network with the optical network to realize the collaborative linkage between edge computing and cloud computing.
Use case 1: Network Resource Acquisition

The edge network management layer receives information from the client, obtains complete user information, and provides it to the cloud management platform for network resource synchronization.

The cloud management platform obtains regular information about applications and networks.
The architecture of Computing Power Optical Network

- Cloud management platform
  - Computing power orchestration
  - Computing resources
  - Computing power scheduling
- Cloud network management
- Edge Management Platform
  - Edge Computing Power Orchestration
  - Computing resources
  - Computing power routing and forwarding
  - Edge Network Management
The architecture of Computing Power Optical Network

• Edge management platform
  • Receive application request from users
  • Verifying the users
  • Forward the request to the cloud management platform
  • Edge network management reports network information and computing power scheduling information
  • Edge computing power scheduling performs computing power routing forwarding operations, and issues the final computing power scheduling strategy through computing power routing addressing, computing power routing notification

• Cloud management platform
  • Report the network information to the computing power scheduling layer
  • Inform the computing power service and perceives the computing power status through the computing power scheduling layer
  • Generate the computing power route and monitor the route in real time
  • Send the generated computing power arrangement information to cloud network management
  • Cloud network management distribute the received computing power arrangement information to edge network management