



To infinity and beyond with us!
Huawei Cloud Thailand

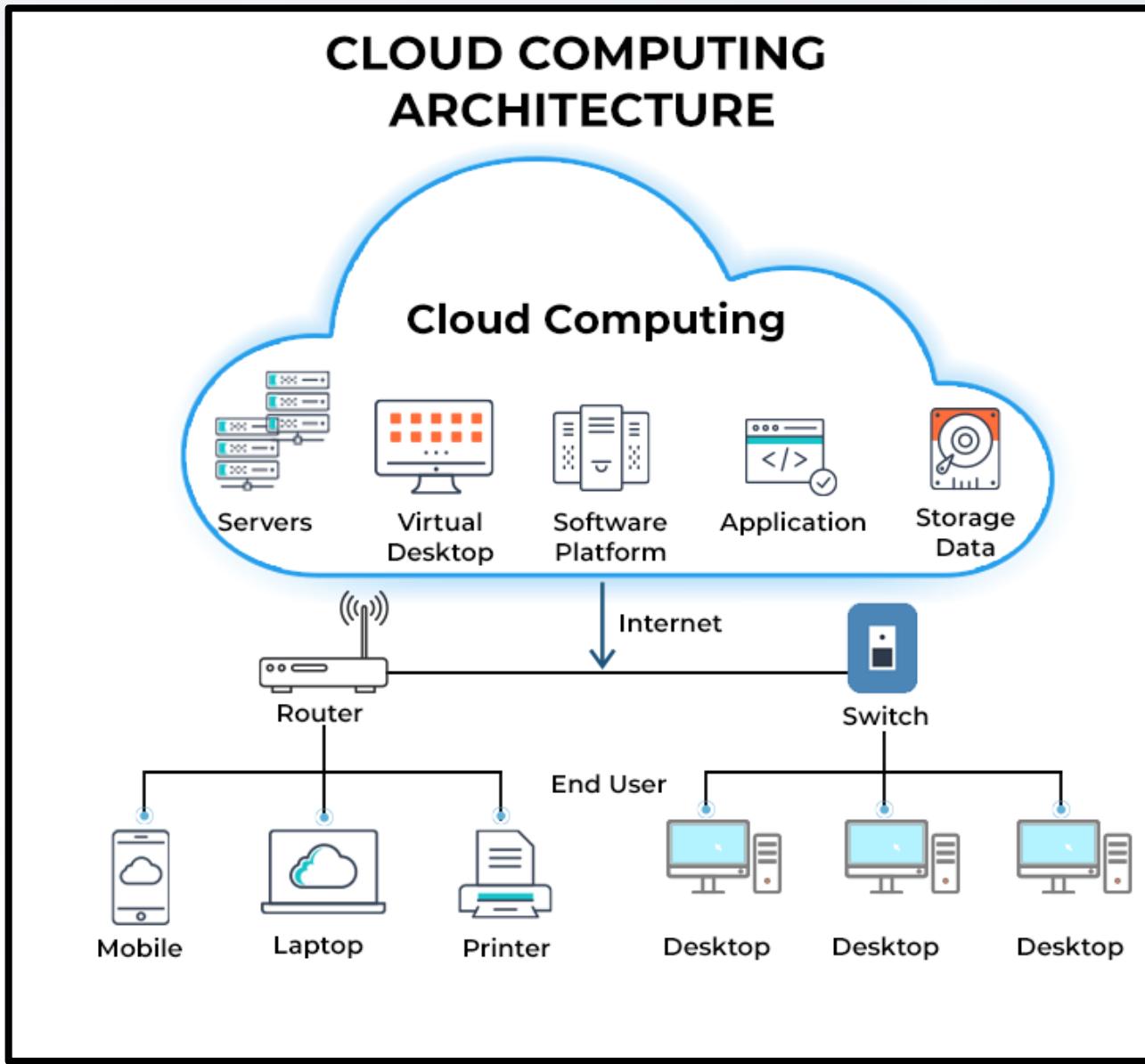


Agenda

Date	Time	Topics
Day1	9:00-12:00	<ul style="list-style-type: none">-Overviews HCCDA certificationChapter 1: Infrastructure and Computing CapabilitiesChapter 2: Storage and NetworkingChapter 3: Security and Deployment
	12:00-13:30	Lunch
	13:30-16:00	<ul style="list-style-type: none">- Compute Services Practice https://lab.huaweicloud.com/intl/en-us/experiment-detail_1771- Storage Services Practice https://lab.huaweicloud.com/intl/en-us/experiment-detail_1844- VPC Basics and Exercises https://lab.huaweicloud.com/intl/en-us/experiment-detail_1880

CLOUD COMPUTING

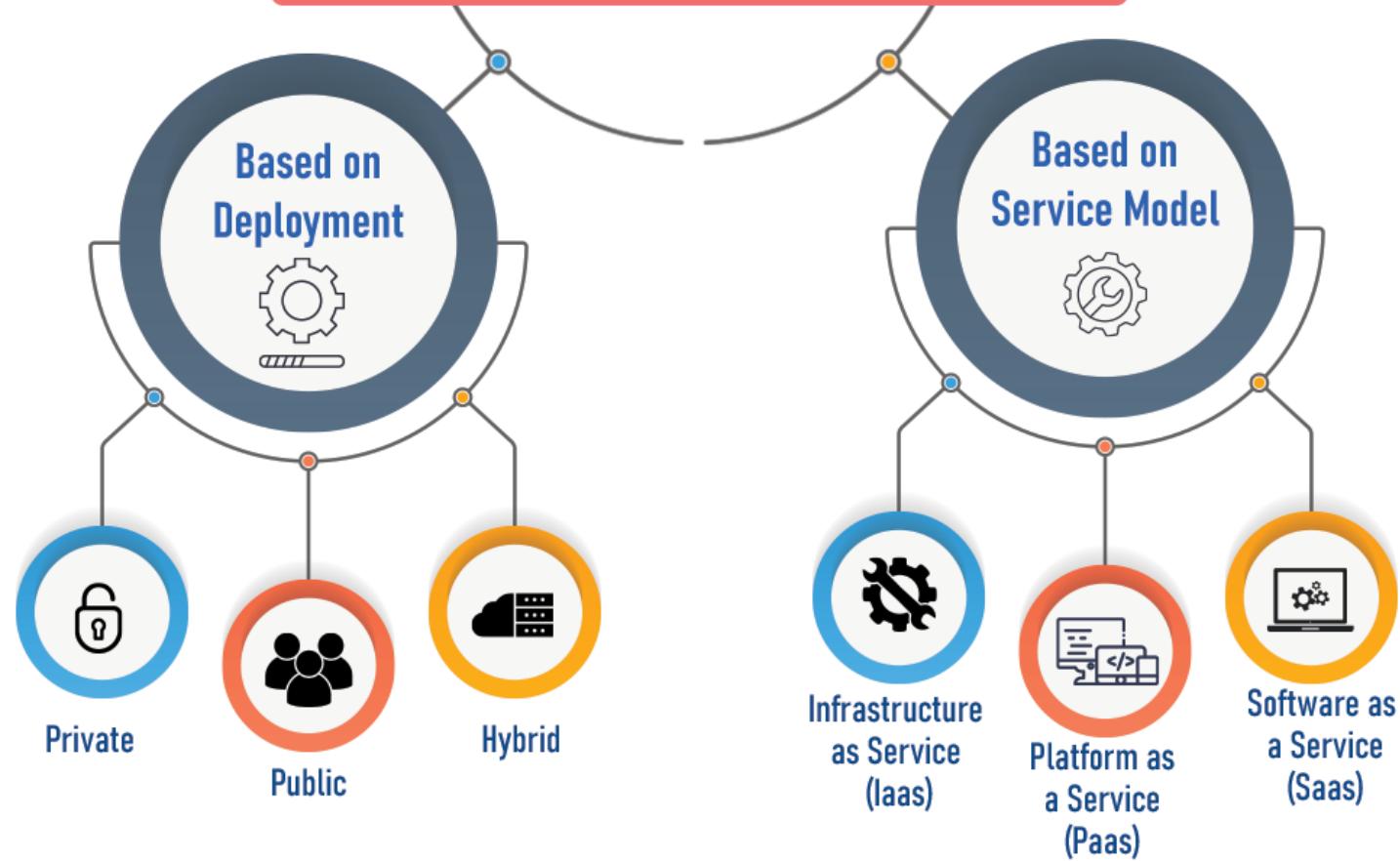




[What Is Cloud Computing? Definition, Benefits, Types, and Trends - Spiceworks](#)

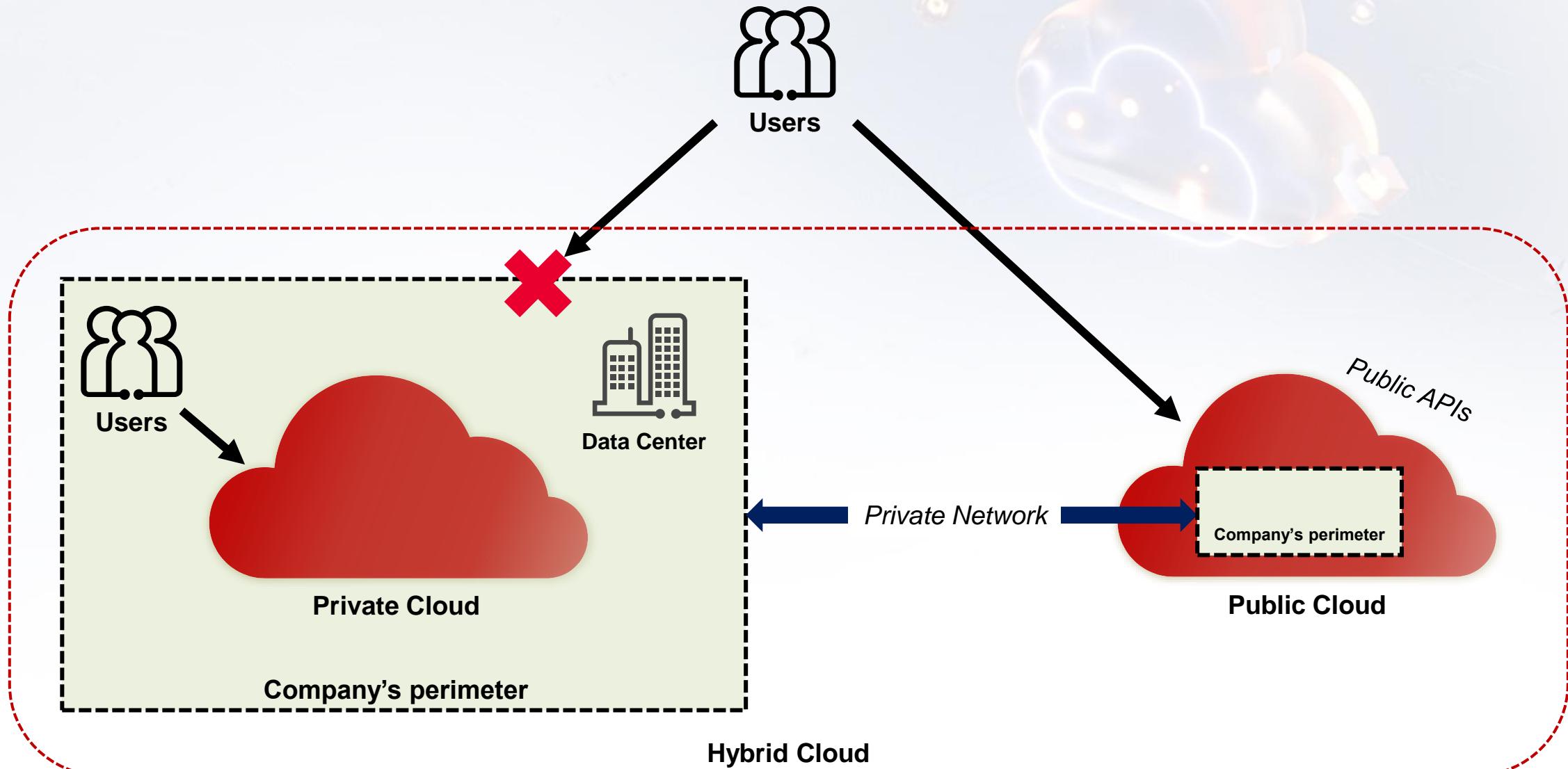


TYPES OF CLOUD COMPUTING

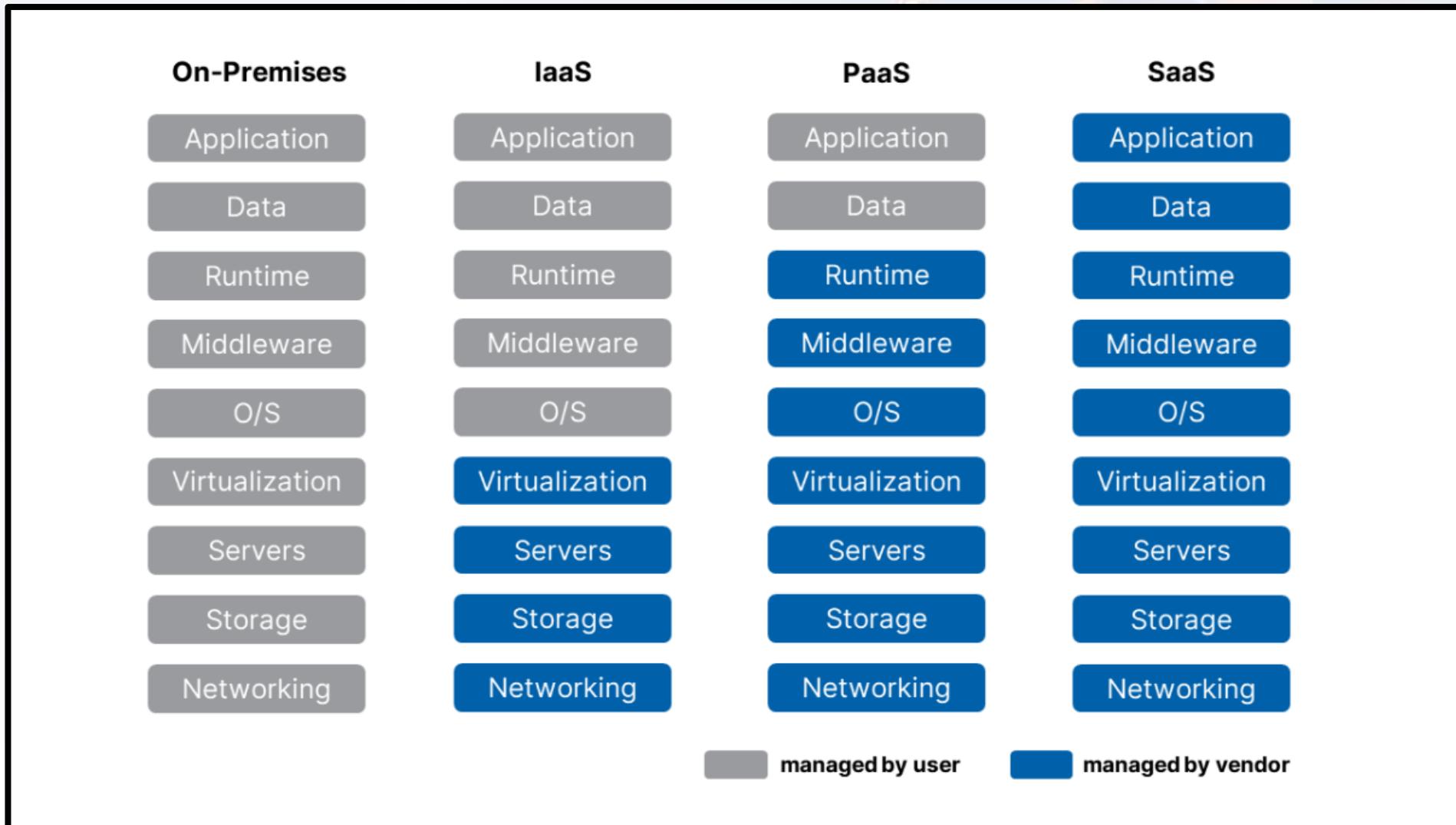


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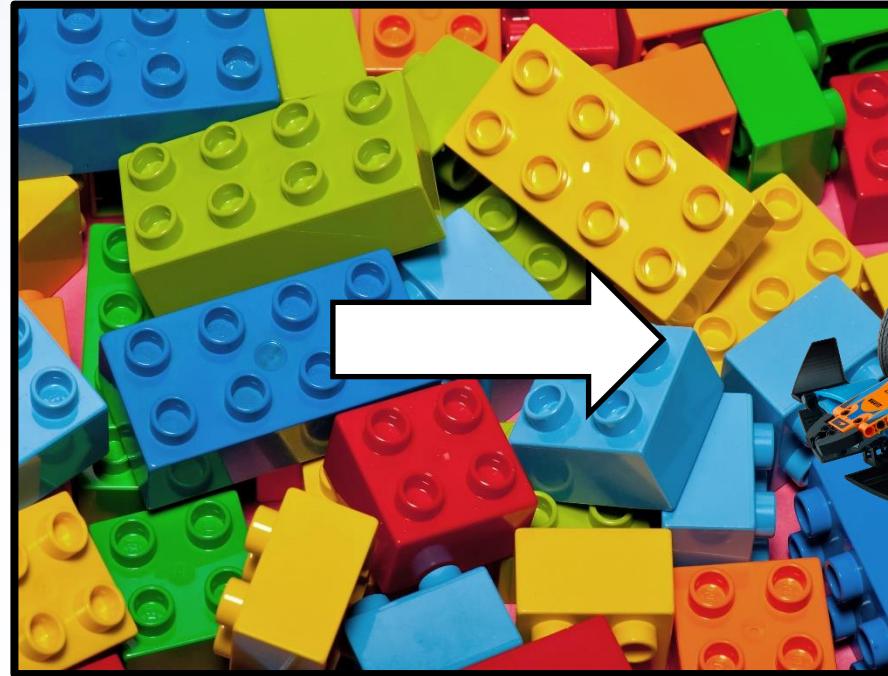
Putting them altogether



Cloud Service Model



Cloud services are like Lego-block!



Why Cloud?



Speed



Scale



Agility

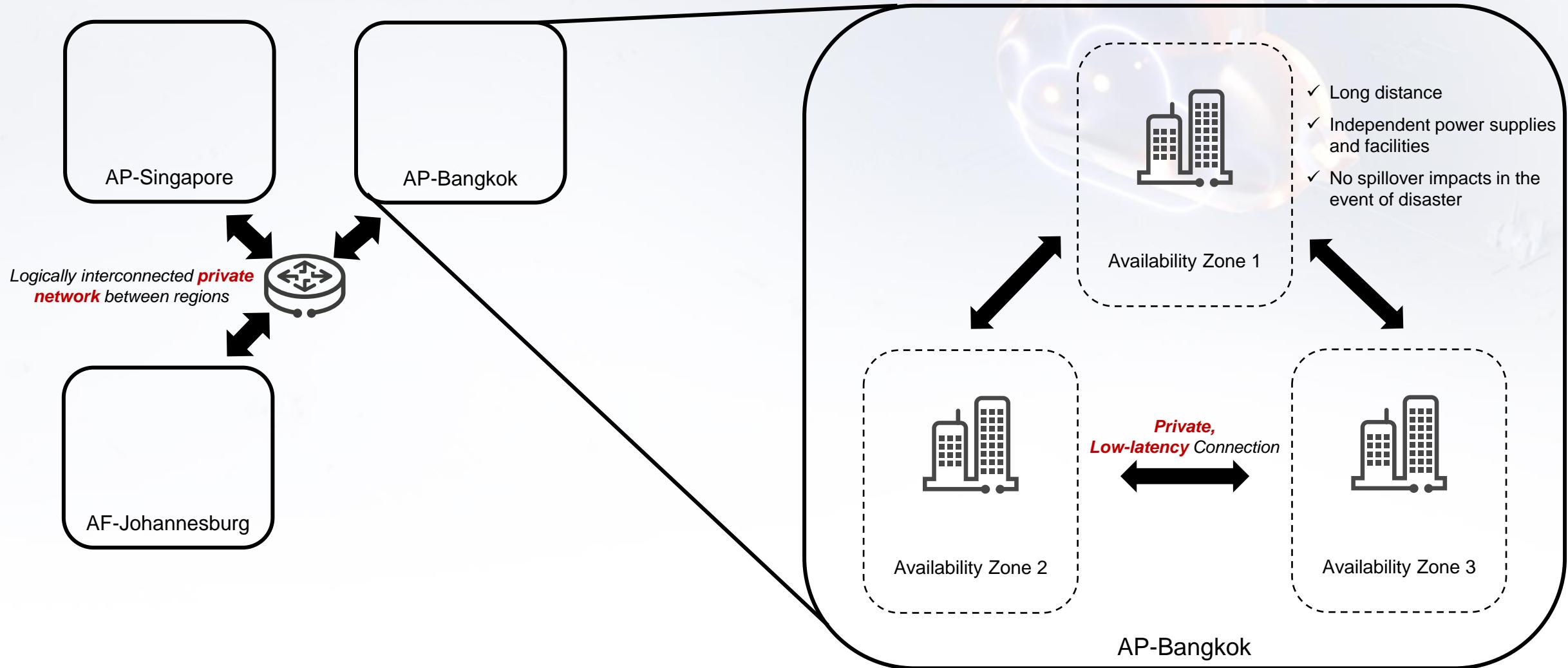


Low cost

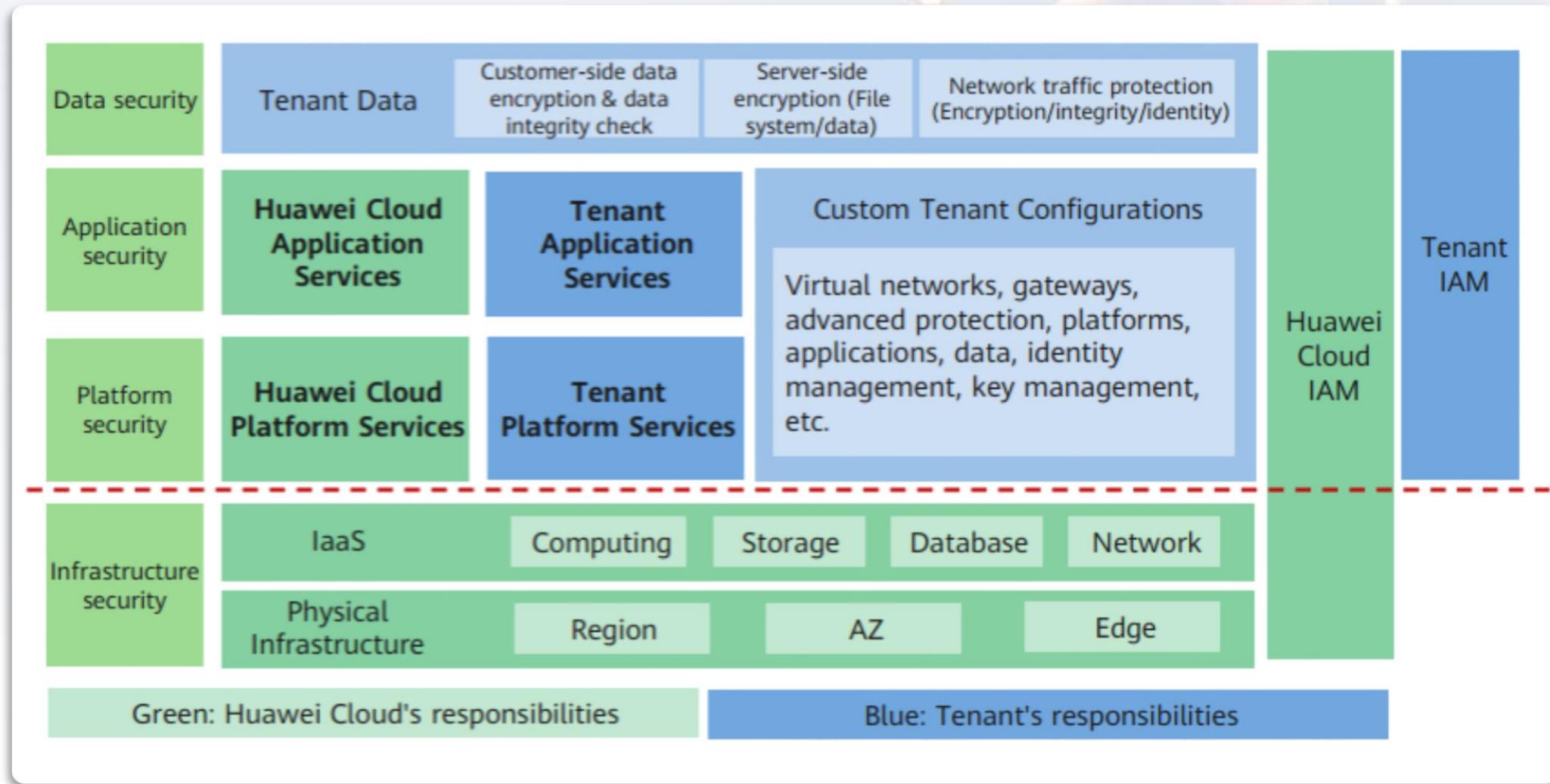
Why Cloud?

Huawei Cloud **Infrastructure** and Computing Capabilities

Huawei Cloud Infrastructure Architecture



Huawei Cloud Shared Responsibility Model



Huawei Cloud Security Certifications

Security compliance	 ISO 27001 Information Security Management	 ISO 27017 Security Controls for Cloud Services	 CSA STAR Cloud Security	 ISO 20000-1 Information Technology Service Management	 ISO 22301 Business Continuity Management	 SS 584 Multi-tiered Cloud Computing Security	 AICPA SOC SOC1 Type2	 AICPA SOC SOC2 Type2	 AICPA SOC SOC3	
Privacy compliance	 ISO 27701 Privacy Information Management	 ISO 27018 Code of practice for protection of personal information (PI) in public clouds acting as PI processors	 ISO 29151 General personal information protection	 BS 10012 Data Protection	 SOC2 Type1 Privacy	 Singapore PDPA	 PDPO of Hong Kong (China)	 Malaysia PDPA	 Thailand PDPA	
Financial compliance	 PCI DSS Payment Card Industry Data Security Standard	 PCI 3DS Compliant	 abs The Association of Banks in Singapore	 PCI DSS Compliant	 Singapore MAS & ABS	 HKMA & SFC in Hong Kong (China)	 Malaysia BNM&SC	 Thailand BoT & OSEC	 Healthcare compliance	
Compliance in China	 DJCP	Public cloud O&M system (level 3) Public cloud operations system (level 3) Public cloud service system (level 3)	Public cloud PaaS system (level 3) Public cloud SaaS system (level 3)		Public cloud high-level protection service system (level 4) Public cloud high-level protection PaaS system (level 4) Public cloud high-level protection SaaS system (level 4)	 www.cac.gov.cn	 ITSS®	 CUOPCA	Certification for the Capability of Protecting Cloud Service User Data	
Trusted cloud in China	 TRUCS 可信云服务评估 Trusted cloud service assessment	Cloud server RDS Cloud cache OBS Block storage	Cloud distribution Workspace Cloud backup Direct Connect Content security	Message queue Card OCR GPU cloud servers Physical cloud server Cloud server security	Local load balancing Security operation center Situational awareness platform Cloud-native databases Distributed database middleware	Container security Content security E-government cloud Hybrid cloud Trusted cloud container	Open-source solutions Trusted e-government cloud Micro-platform service Cloud server classification Hybrid cloud security	Cloud service provider credit rating CDN credit rating Cloud computing risk management capability Shared responsibility model for security	Edge cloud trustworthiness Cloud-edge collaboration management solution	Basic capabilities of the distributed batch processing platform Performance evaluation of the distributed batch processing platform Basic capability evaluation of distributed analytical databases
					 Trusted cloud solution			 Big data product capability evaluation	Time series databases Database management tools Knowledge graph Basic capability evaluation of distributed transactional databases	

Comprehensive 100+ Cloud Services Available in Thailand

AI (Enterprise Intelligent)  ModelArts  Image  VCR  OCR  CSS	Migration  SMS  CDM  DRS	Communication  CEC  Cloud meeting	Video  MPC  VOD  Live
Security  WAF  AAD  Anti-DDoS  HSS  CGS  *SCM  CFW  DBSS  DEW		Distributed Cloud  HUAWEI CLOUD Stack  IEF  DCC	
Big Data  MRS  DLI  DWS  DGC  DLF	Management  TMS  CES  SMN  LTS  IAM  CTS	Application Services  DMS Kafka  DMS RabbitMQ  AOM	
Database  PostgreSQL  SQL Sever  MySQL  DDS  DDM  DCS Memcache  DC Redis			
Compute  ECS  BMS  FGS  DeH  AS  IMS	Container  CCE  SWR  *UCS  AOS	Storage  EVS  OBS  SFS  CDN  SDRS  CBR  DES	Networking  VPC  ELB  NAT  Elastic IP  VPN  Direct Connect  CC  DNS

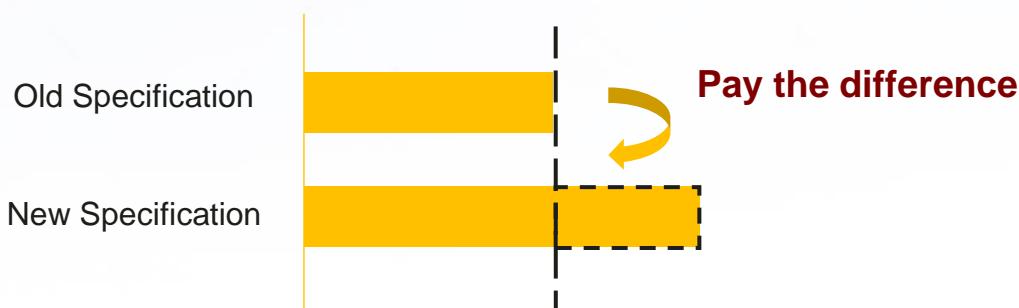
*Remark: Available in another region but be able to use from Thailand

Huawei Cloud Billing Model

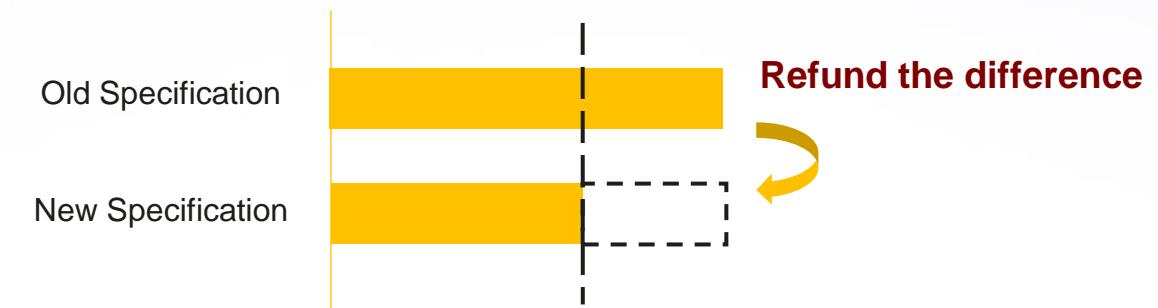
Pay-per-use	Higher cost effectiveness than other cloud providers	Save 10-20%
Monthly Subscription	Lower cost with flexible monthly commitment	
Yearly Subscription	Significant annual saving plan	

Minimum commitment can be **one-month*

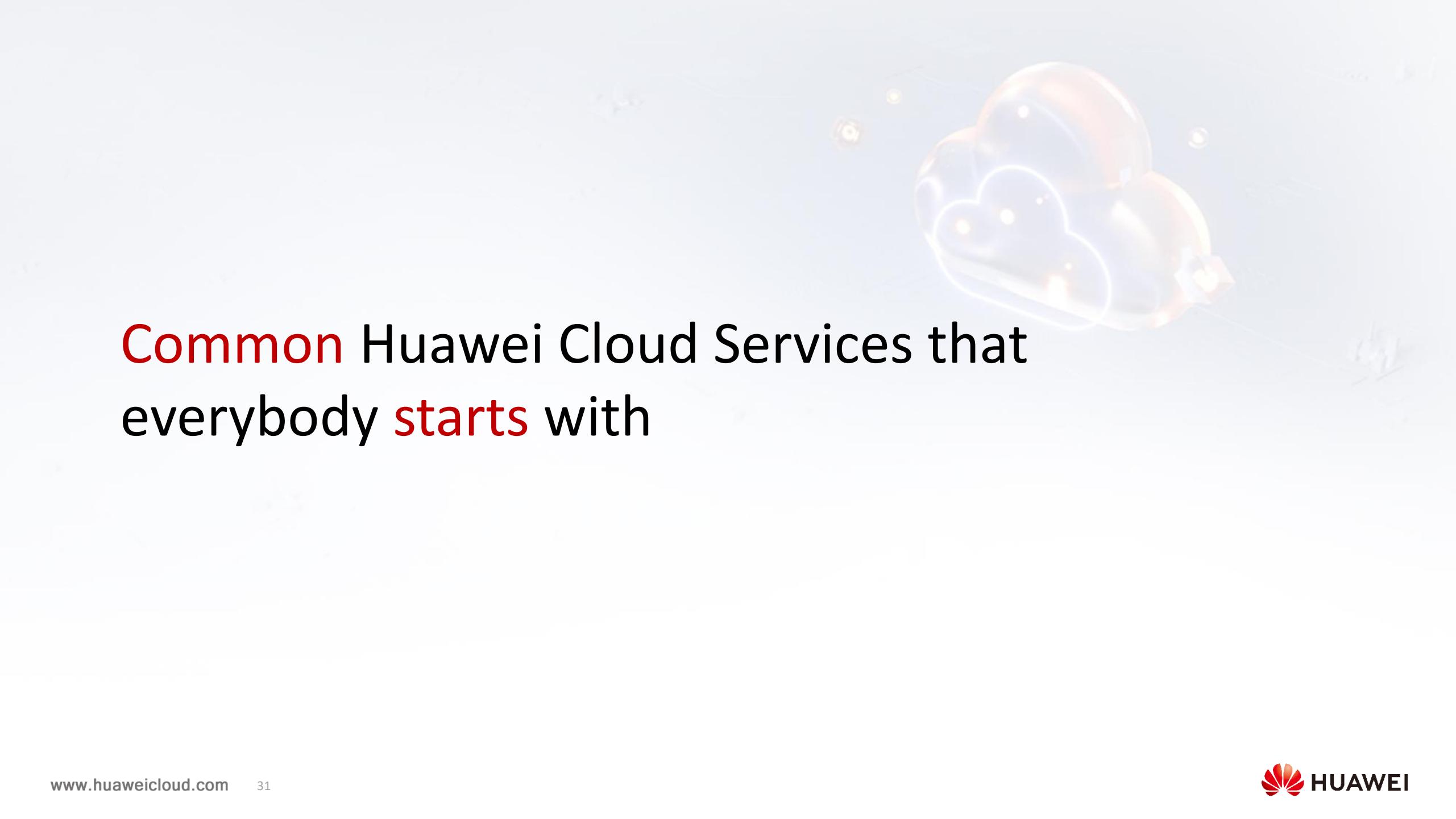
Upgrade Specification



Downgrade Specification



**Applicable for monthly and yearly subscription basis*



Common Huawei Cloud Services that
everybody starts with

Elastic Cloud Server (ECS)



Elastic Cloud Server
(ECS)

- Use an ECS just like a server.
- You have complete control over an ECS
Note: you only need to pay attention to the parts above to OS
- You can adjust computing resources after you buy an ECS
- Pay only for the resource you use

Billing Mode

Pay-per-use

- On-demand use
- Pay-as-you-go
- Suitable for temporary use

Yearly/Monthly

- Like self-owned servers
- Monthly or yearly subscriptions
- Stable discount
- Suitable for long-term use

Spot Price

- The price is determined by the market demand
- Dynamic pricing but possibly high discounts
- Resources may be reclaimed
- Suitable for architecture that allow dynamic resource adjustment

Dedicated Host & Bare Metal Server



Dedicated Host
(DeH)

- Services are running on the ECSs deployed a DeH
- The physical resources of the DeH are not shared with others
- DeH meets the compliance requirements for exclusive use.
- DeH addresses hardware specification requirements of specified software license
- Customer can choose vCPU and Memory
- Customer can create ECS on DeH



Bare Metal Server
(BMS)

- Scalability of VMs and high performance of physical servers
- Dedicated servers on the cloud
- Customer can choose physical core
- Cannot create ECS on BMS

Specifications

C8.8xlarge.4

Instance family

General computing plus (c)
General computing (s)
memory-optimized (m)
etc.

Instance generation

Generally, the newer the generation,
the better the cost-effectiveness.

Ratio of memory to vCPUs

Number of vCPUs

	vCPU	Memory
c7n.large.2	2	4
c7n.large.4	2	8
c7n.xlarge.2	4	8
c7n.xlarge.4	4	16
c7n.2xlarge.2	8	16
c7n.2xlarge.4	8	32
c8.8xlarge.4	32	128

IMS Features



Image Management Service
(IMS)

- An image is a template of an ECS environment.
- An image specifies resource limits.
- An image contains an OS.
- An image can be used to restore an ECS.
- A variety of image types are provided by Huawei Cloud

Image Type

Public Images

- All marketplace images are thoroughly tested before being published.
- Operating systems are **pre-installed in public images**. (Linux and Windows)
- Huawei Cloud periodically updates and maintains public images.
- A public image is a stable environment for customization.

Marketplace Images

- Marketplace images are **third-party images available in KooGallery**.
- All marketplace images are thoroughly test before being published.
- The billing is determined by image provider
- Specific applications are pre-installed in marketplace images.

Private Images

- You can **create a private image** from your ECS.
- You are responsible for the image security.
- When you create an image, your ECS should be stopped.
- You can **install custom software as needed**.

Shared Images

- You can **share your private images with other Huawei Cloud accounts**.
- You need to configure permissions before sharing.
- Image providers are responsible for the security of shared images.
- Ensure that a shared image is from a trusted sharer

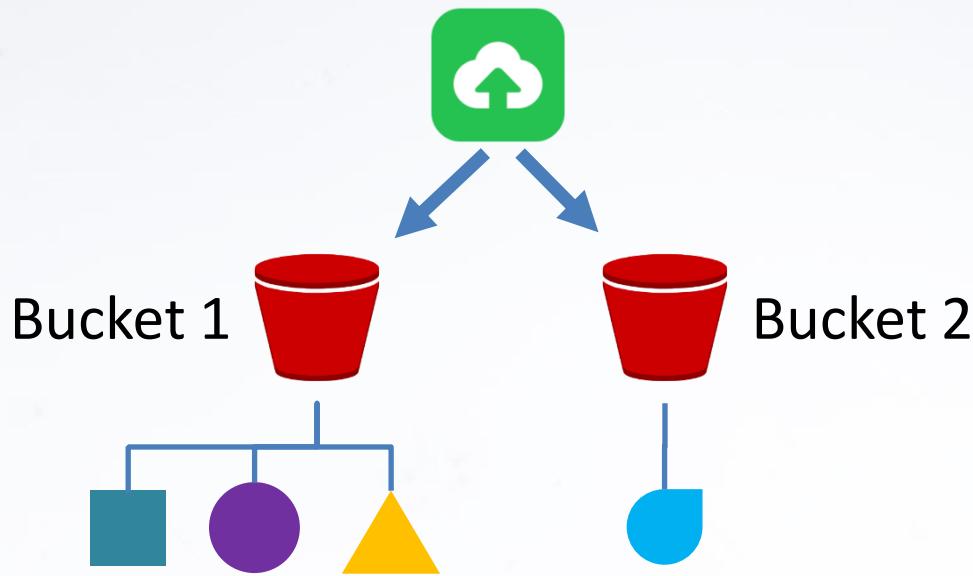
Object Storage Service



Object Storage Service
(OBS)

- Fully managed object storage
- Support for **access over the Internet (HTTPS)**
- Reliability of **99.999999999% (12 nine)**
- Event triggering capabilities
- Cost-effective solutions

OBS Bucket



- To store objects in OBS, create a bucket first.
 - A bucket is a management unit of OBS.
- Any amount of data can be stored in OBS.
 - Objects can be thought of like files.
 - An object is uniquely identified by an object name
- Use cases
 - Data storage and backup
 - Data distribution source
 - Static website hosting
 - Core storage for data lakes and data analysis

Object URL

Adding an object name to the access path of the bucket that stores this object uniquely identifies the object.

Each object has an access path (URL) that is accessible to the public.

Bucket name



Region



Object name



`http://bucket.obs.ap-southeast-2.myhuaweicloud.com/mykey/file.txt`

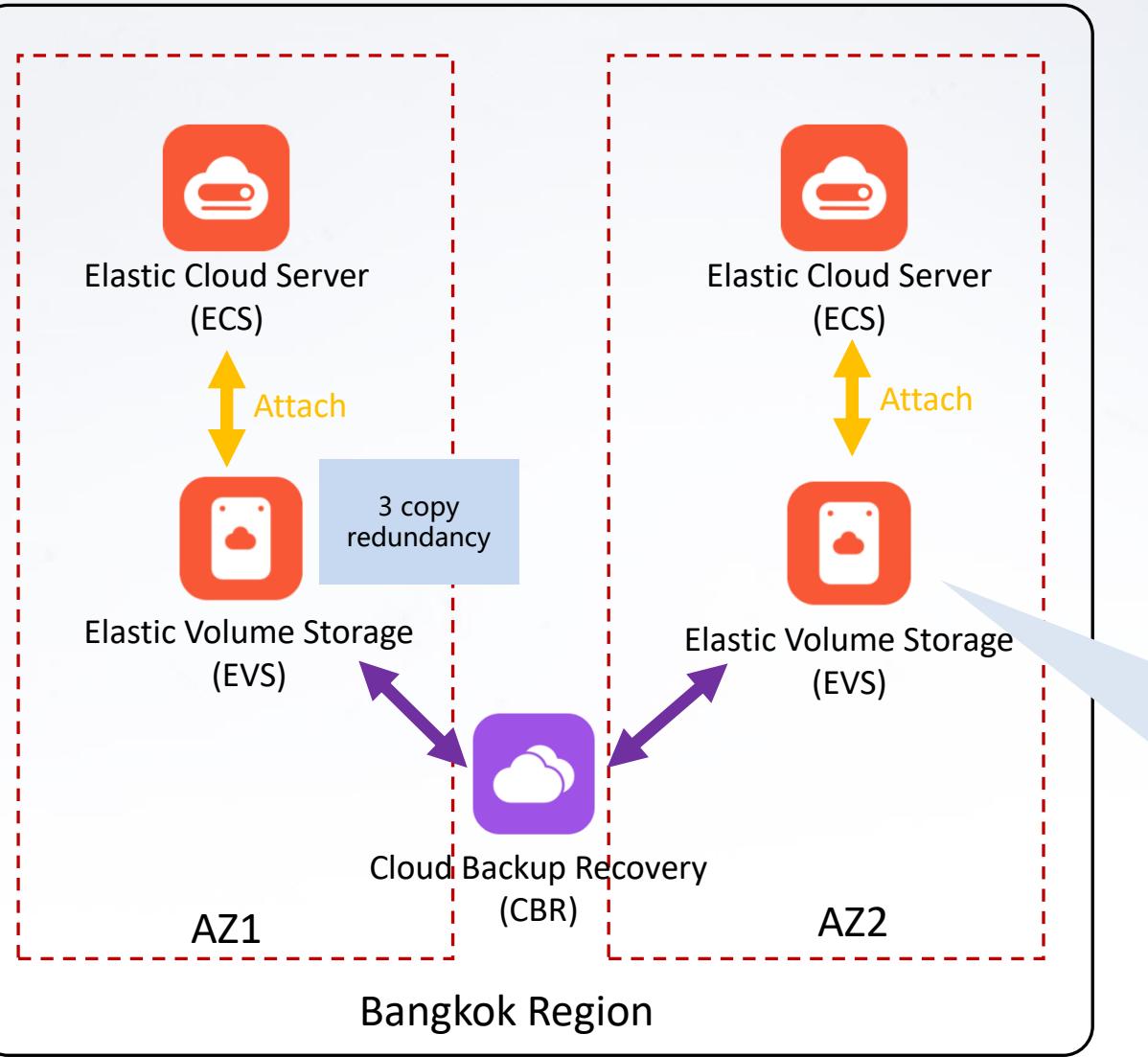
EVS Features



Elastic Volume Storage
(EVS)

- A block storage service that provides disks to ECSs
- To guarantee data reliability, **three-copy redundancy in a single AZ**
- **99.999999% durability and availability (9 nine)**
- a single disk supports **up to 32 TB**
- A variety of specifications, balancing both costs and performance
- Storage of the **backup data to OBS**

ECS Local Disk Highlights



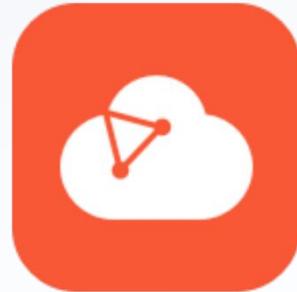
EVS

- **Stable and durable** high-speed disks Local disks
- **Super-low latency** for local accesses
- Can be **system disk and data disk**

Comparison Between Storage Solutions

	EVS	OBS
Working Model	Block storage presented as disks	Object storage accessed via APIs
★ Reliability	Multiple copies in a single AZ, 9 nines durability (99.999999%)	Multiple copies in multiple AZs, and 12 nines durability (99.999999999%)
Security	EVS encryption	OBS encryption
★ Performance	Sub-millisecond latency and high bandwidth	10 ms latency, high concurrency, and high throughput
★ Storage space limit	Storage space is pre-allocated. One disk supports up to 32 TB	No limits on object quantity and total storage space, and a maximum of 48 TB for a single object
Costs	High. EVS disks must be used with servers	Low. Different storage classes are available
Access from Internet	No. EVS disks must be attached to servers for use	Yes. Required permissions need to be public access
Application scenarios	Workloads running on traditional disks	Large-scale data storage, important data sources for big data, archive data storage, and data distribution on the Internet

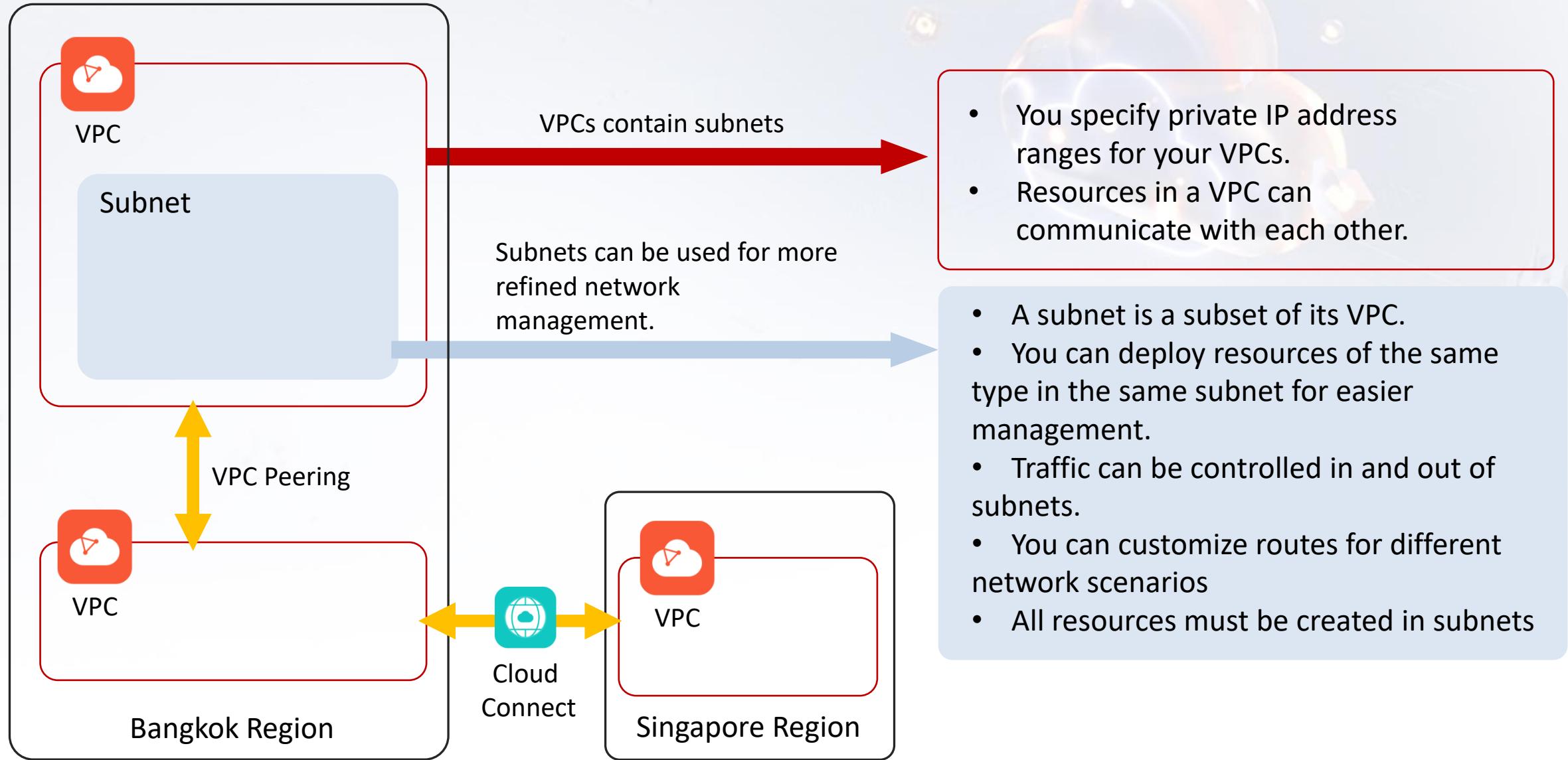
Virtual Private Cloud



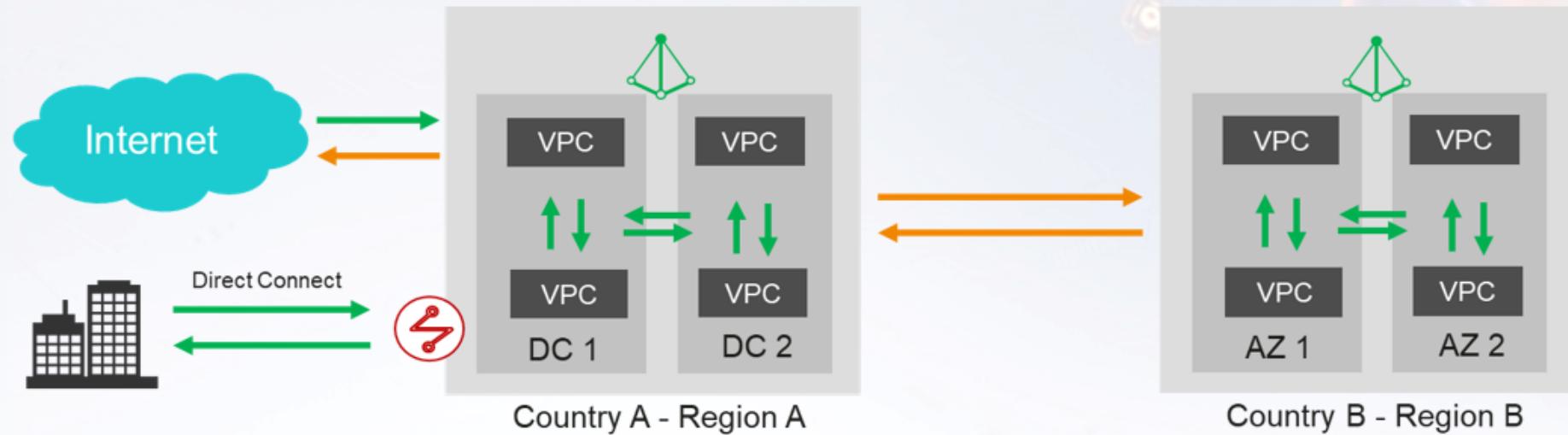
Virtual Private Cloud
(VPC)

- "LANs" on the cloud
 - Resources in a VPC can communicate with each other.
 - Resources from **different VPCs** are **isolated** from each other.
- Custom IP address allocation and route configuration
- Core network security service
- If two VPCs are in the **same region**, use a **VPC peering** connection.
- If two VPCs are in **different regions**, use **Cloud Connect**.

Relationships Between VPCs and Subnets

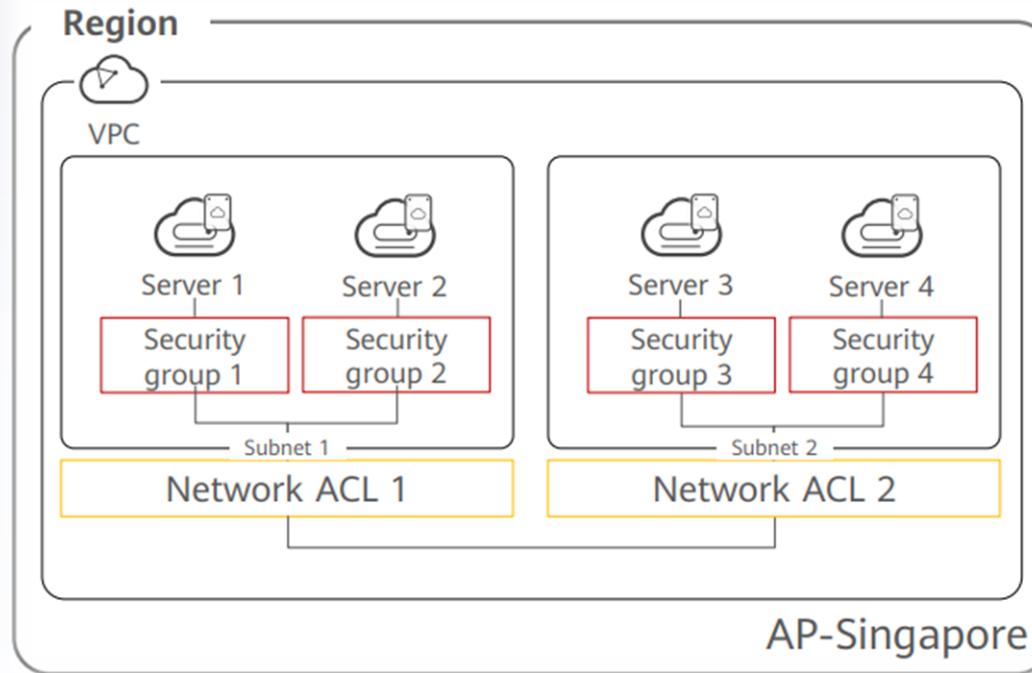


Simple Network Data Transfer Charging, Cloud as Part of Your DC



Item	HUAWEI CLOUD		Other Public Cloud Providers
Internet		Support Charge by Bandwidth or Outbound Traffic	Charge by Outbound Traffic
VPN		Support Charge by Bandwidth or Outbound Traffic	Charge by Outbound Traffic
Cross VPC		Free of Charge	Charge by Traffic
Cross DC (AZ)		Free of Charge	Charge by Traffic
Cross Region (Country)		Charge by Traffic	Charge by Traffic
Direct Connect	1GE Port	\$116/Month	XXX/Month
	Data Transfer	Free of Charge	Charge by Traffic
	Lease Line	Domestic	International

Security Control in a VPC



- Network ACLs and security groups are similar to firewalls.
- Security groups protect instances and check traffic both to and from instances.
- Network ACLs protect subnets and only check traffic across subnets.
- Security groups can be configured to allow access from IP address ranges or other security groups.

Elastic IP & NAT Gateway



Elastic IP
(EIP)

- **Dynamic BGP**
- **Static public IP addresses**
- Scalable bandwidths
- If a resource has an EIP bound, it can directly **access the Internet**.
- EIPs can be bound to or unbound from ECSs, BMSs, virtual IP addresses, NAT gateways, or load balancers.



NAT Gateway

- A network address translation (NAT) service
- A public NAT gateway enables cloud and on-premises servers in **a private subnet to share an EIP to access the Internet** or **provide services accessible from the Internet**.
- A Private NAT gateways provide network address translation, allowing ECSs and BMSs in a VPC to communicate with servers in other VPCs or on-premises data centers.
- **SNAT** translates **private IP addresses into EIPs**
- **DNAT** enables servers within an AZ or across AZs in a VPC to share an EIP to **provide services accessible from the Internet**.

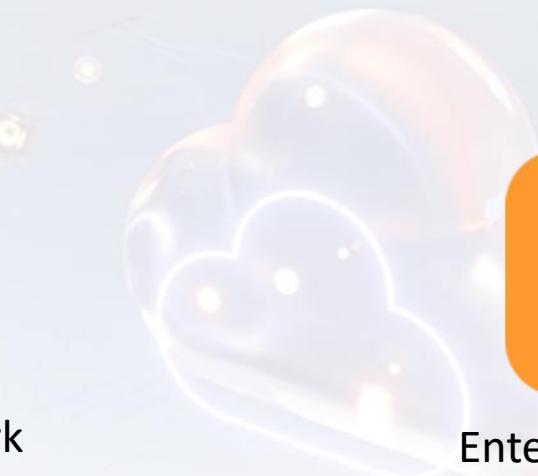
Direct Connect & Virtual Private Network



Direct Connect

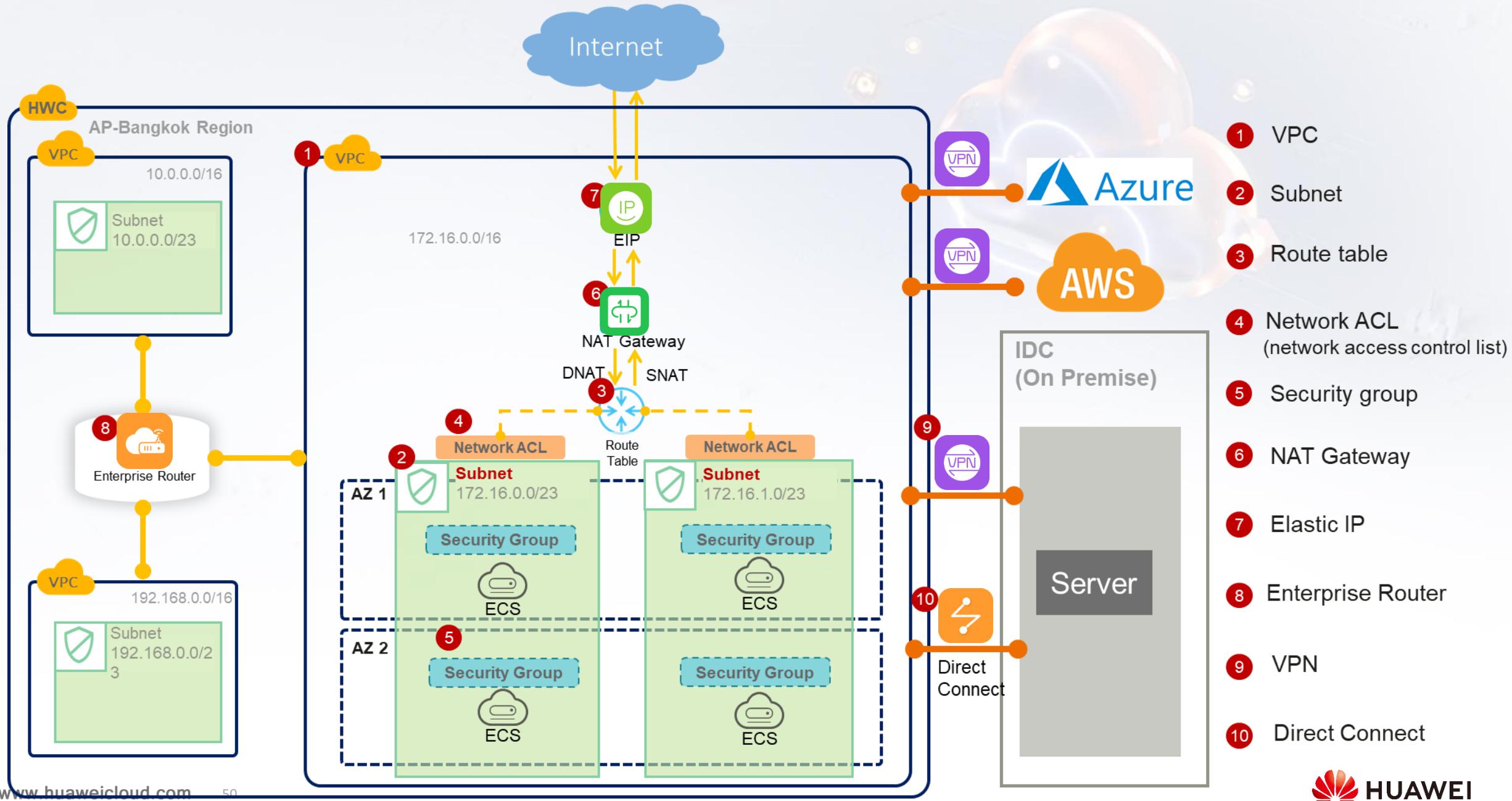


Virtual Private Network
(VPN)



Enterprise Router
(ER)

- A dedicated network is used for data transmission, which brings high network performance, low latency, and excellent user experience
- Direct Connect establishes private connectivity between an on-premises data center and the cloud. Data is transmitted over a dedicated connection, meeting the requirements for compliance.
- A single connection supports up to 100Gbit/s of bandwidth, which meets a diverse range of bandwidth requirements
- secure, reliable, and cost-effective encrypted connections between your on-premises network or data center and a virtual network on Huawei Cloud.
- An enterprise router connects virtual private clouds (VPCs) and on-premises networks to build a central hub network.



Identity and Access Management

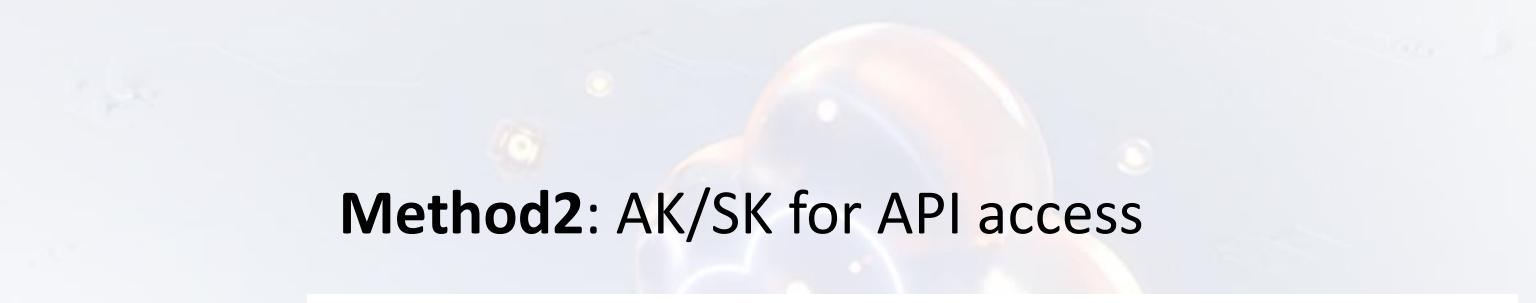


Identity and Access
Management
(IAM)

- Basic functions:
 - Identity authentication
 - Access management
- Refined permissions management
- Huawei Cloud service authorization
- Identity federation with third-party identity providers

Identity Authentication

Method1: IAM user login



IAM User Login

Tenant name or HUAWEI CLOUD account name

IAM user name or email address

IAM user password 

Log In

Forgot Password Remember me

Use Another Account: HUAWEI ID | Federated User

- Open the Huawei Cloud console login page.
- Use the IAM username and password to log in.
- Perform fine-grained permissions management on the IAM console

Method2: AK/SK for API access

Access Keys 

Access keys can be downloaded only once after being generated. Keep them secure, change them periodically, and **do not share them with anyone.**

 Create Access Key Access keys available for creation: 1 

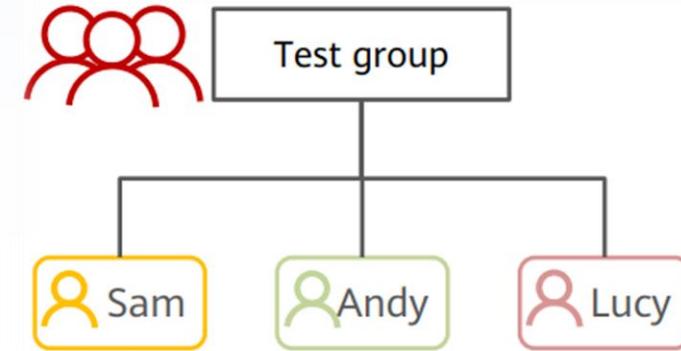
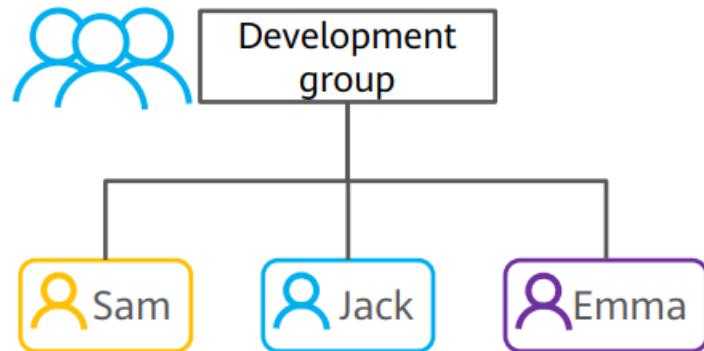
Access Key ID	Description	Status	Created	Operation
R3T38EL2RD5ET5GT9E2R	Demo	 Enabled	Nov 23, 2022 14:15:13 G...	Modify Disable Delete

```
D:\>hcloud configure init
Initialization will overwrite the original configuration. Continue? (y/N): y
Starting initialization. 'Secret Access Key' is anonymized. To obtain the parameter,
see 'https://support.huaweicloud.com/usermanual-hcli/hcli_09.html'.
Access Key ID [required]: R3T38EL2RD5ET5GT9E2R
Secret Access Key [required]: *****
Region Name: cn-east-3
*****
***** Initialization successful *****
*****
```

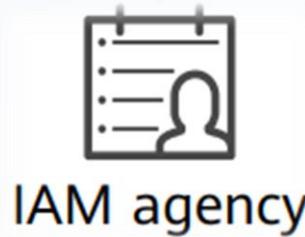
- Use an access key (AK/SK) to verify your identity.
- Each IAM user can create two pairs of access keys.
- An AK/SK pair is used only for API access.

IAM User Groups

- An IAM user group is a collection of IAM users.
- An IAM user can belong to different IAM user groups.
- User groups make it easier to manage permissions for users.



IAM Agencies



- Agencies do not have static credentials.
- Agencies get permissions through policy attachment.
- Agencies enable you to delegate permissions to:
 - Huawei Cloud services
 - Other Huawei Cloud accounts
 - Third-party identity providers

Associate Agency to ECS



Obtain agency permissions to access OBS



OBS

On the **Permissions** tab, grant the agency permissions of calling APIs to access OBS.

The screenshot shows the 'Agencies / Demo ECS Agency' page in the HUAWEI CLOUD Console. On the left, there's a sidebar with 'HUAWEI CLOUD' and 'Console' at the top, followed by 'IAM' and other options like 'Users', 'User Groups', 'Permissions', 'Projects', 'Agencies' (which is selected and highlighted in blue), 'Identity Providers', and 'Security Settings'. The main area has tabs for 'Basic Information' and 'Permissions'. Under 'Basic Information', the 'Agency Name' is 'Demo ECS Agency', 'Agency Type' is 'Cloud service', and 'Cloud Service' is set to 'Elastic Cloud Server (ECS) and Bare Metal Serv...'. A yellow box highlights this dropdown. The 'Validity Period' is set to 'Unlimited'. Under 'Description', there's a text input field with placeholder 'Enter a brief description.' At the bottom are 'OK' and 'Cancel' buttons. The entire 'Permissions' tab area is also highlighted with a yellow box.

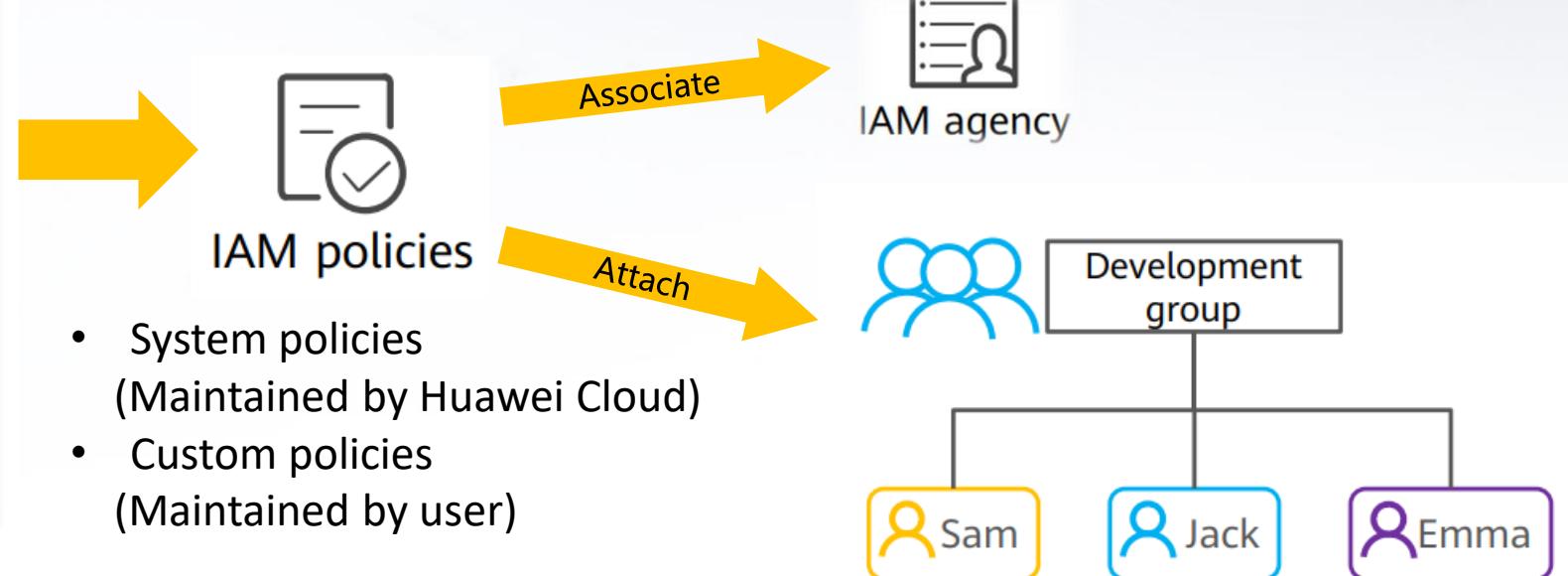
Associating the Created Agency with the ECS

The screenshot shows the 'Associate' page in the HUAWEI CLOUD TMS console. It includes fields for 'ECS Group (Optional)', 'Anti-affinity' (with a dropdown for 'Select ECS group...'), 'Advanced Options' (with a checked checkbox for 'Configure now'), 'User Data' (with tabs for 'As text' and 'As file'), 'Tag' (with a note about using predefined tags), and 'Agency' (with a dropdown for 'Select...' and a search bar for 'Search'). A yellow box highlights the 'Agency' section where 'Demo ECS Agency' is listed. The entire 'Associate' form is also highlighted with a yellow box.

IAM Permissions

```
{  
    "Version": "1.1",  
    "Statement": [  
        {  
            "Effect": "Allow",  
            "Action": [  
                "obs:bucket>ListBucket",  
                "obs:bucket:Get*"  
            ],  
            "Resource": [  
                "obs:*::bucket:*"  
            ],  
            "Condition": {  
                "StringEndsWithIfExists": {  
                    "g:UserName":  
                    ["specialCharacter"]  
                },  
                "Bool": {"g:MFAPresent":  
                    ["true"]  
                }  
            }  
        }  
    ]  
}
```

- IAM permissions are defined in JSON documents.
- JSON documents are encapsulated into policies for repeated use.



Cloud Trace Service (CTS)



Cloud Trace Service
(CTS)

- Manage **operation logs** on Huawei Cloud resources.
- Filter and query records from the last seven days.
- Analyze real-time LTS operation logs.
- Store logs in OBS for as long as needed.
- CTS itself is free of charge.
- Charges apply if you transfer traces to
 - OBS, LTS, and DEW.

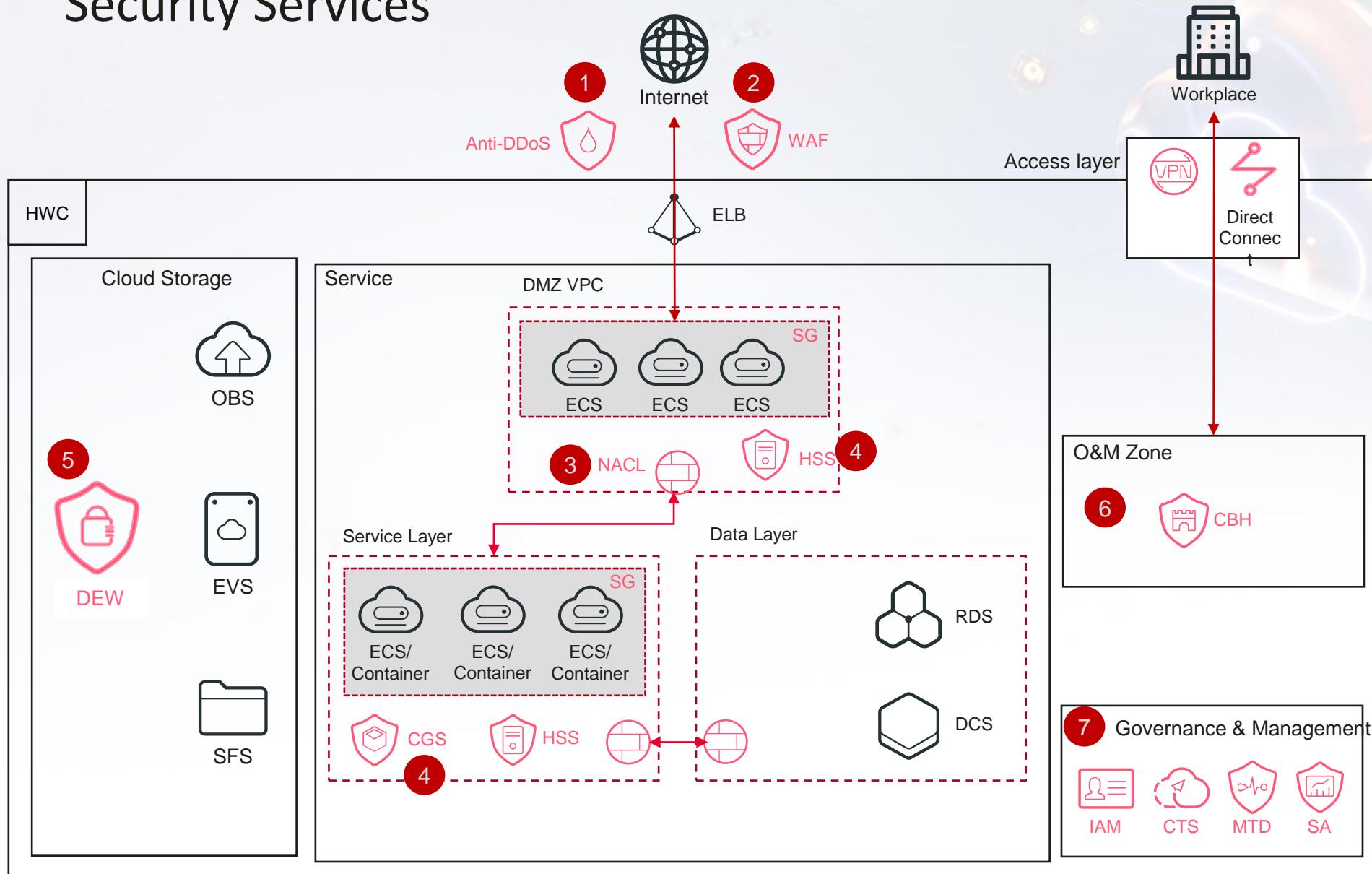
Data Encryption Workshop (DEW)



Data Encryption
Workshop
(DEW)

- Secret management
- Database and server passwords can be stored in a centralized manner.
 - You no longer need to write them in your code or configurations.
- Seamless access with IAM agencies

Security Services



Database and Data Governance

Relational Database Service (RDS)



RDS for MySQL



RDS for PostgreSQL



RDS for MariaDB

- A service that manages database engines and resources
- Compatible with mainstream relational database engines: **MySQL, PostgreSQL, MariaDB**
- A **cloud-native** service that **facilitates maintenance**
- Built-in **automated backup and patching**
- HA configuration and **automatic switchover/failover** within seconds
- Read replicas
- Security certifications

Relation Database Service

Relation Database Service (RDS) provides a comprehensive performance monitoring system, multi-level security protection measures, and a professional database management platform, allowing you to easily set up and scale a relational database. The console simplifies operation procedures and reduces routine O&M workloads, so that you can focus on your application and service development.

On-premises Databases

- Hardware and software (including servers, systems, and databases) purchase and installation required
- Expensive equipment room hosting
- High DBA costs

VS

Application optimization
Database elastic scaling
Database high availability
Data backup and restoration
Database software upgrade or patch installation
Database software installation
OS version upgrade or patch installation
OS installation
Server deployment and maintenance
Rack stacking
Infrastructure (equipment rooms, power supplies, air conditioners, and networks)

Self-Built Databases on ECSs

- Software purchase and installation required
- Cloud server rent fees
- High DBA costs

VS

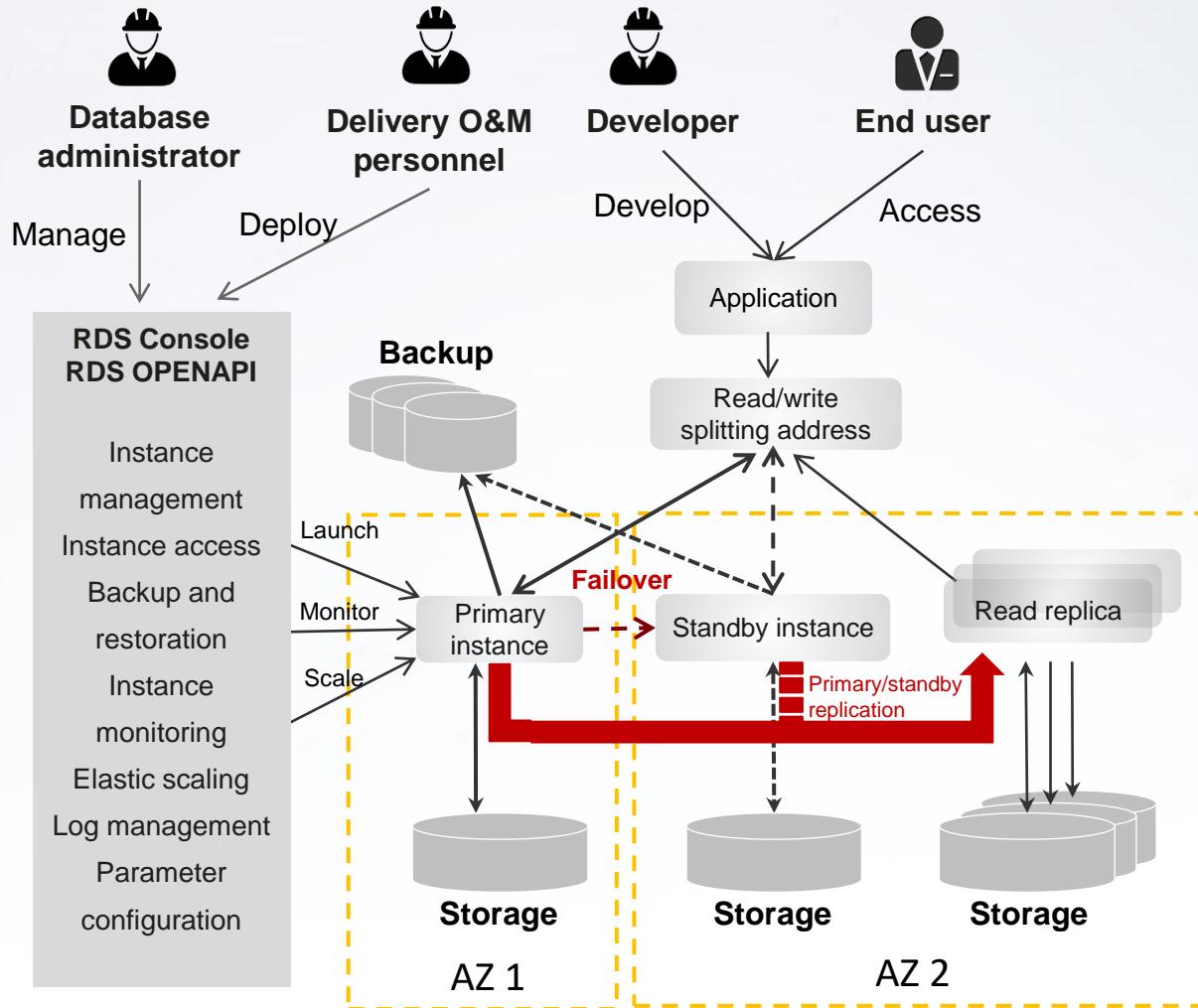
Application optimization
Database elastic scaling
Database high availability
Data backup and restoration
Database software upgrade or patch installation
Database software installation
OS version upgrade or patch installation
OS installation
Server deployment and maintenance
Rack stacking
Infrastructure (equipment rooms, power supplies, air conditioners, and networks)

RDS (MySQL, PostgreSQL, SQL Server)

- No need to purchase and install any hardware or software
- Only RDS rent fees
- Low DBA costs

Application optimization
Database elastic scaling
Database high availability
Data backup and restoration
Database software upgrade or patch installation
Database software installation
OS version upgrade or patch installation
OS installation
Server deployment and maintenance
Rack stacking
Infrastructure (equipment rooms, power supplies, air conditioners, and networks)

Primary/Standby Deployment of RDS



- If the primary DB instance fails, workloads can be **automatically** switched to the standby DB instance.
 - The switchover duration varies depending on your DB engine. A switchover can be performed within seconds.
- Primary and standby DB instances can be deployed in different AZs to enable **cross-AZ disaster recovery (DR)**.
- You can complete maintenance operations for the standby database and then perform a switchover to **ensure service continuity**.
- Primary/standby deployment **increases costs**.

Backup Solution

Full backup: A full backup is to back up all data, even if no data has changed since the last backup. Full backups include automated backups and manual backups.

Incremental backup (MySQL binlog backup/PostgreSQL Write-Ahead Logging (WAL)): RDS automatically backs up data modifications made after the most recent full or incremental backup **every five minutes**.

Automated backups : RDS automatically creates full backups for your instance **during a backup window** you specified and saves the backups based on the configured retention period. If necessary, you can **restore data to any point in time** within the backup retention period.

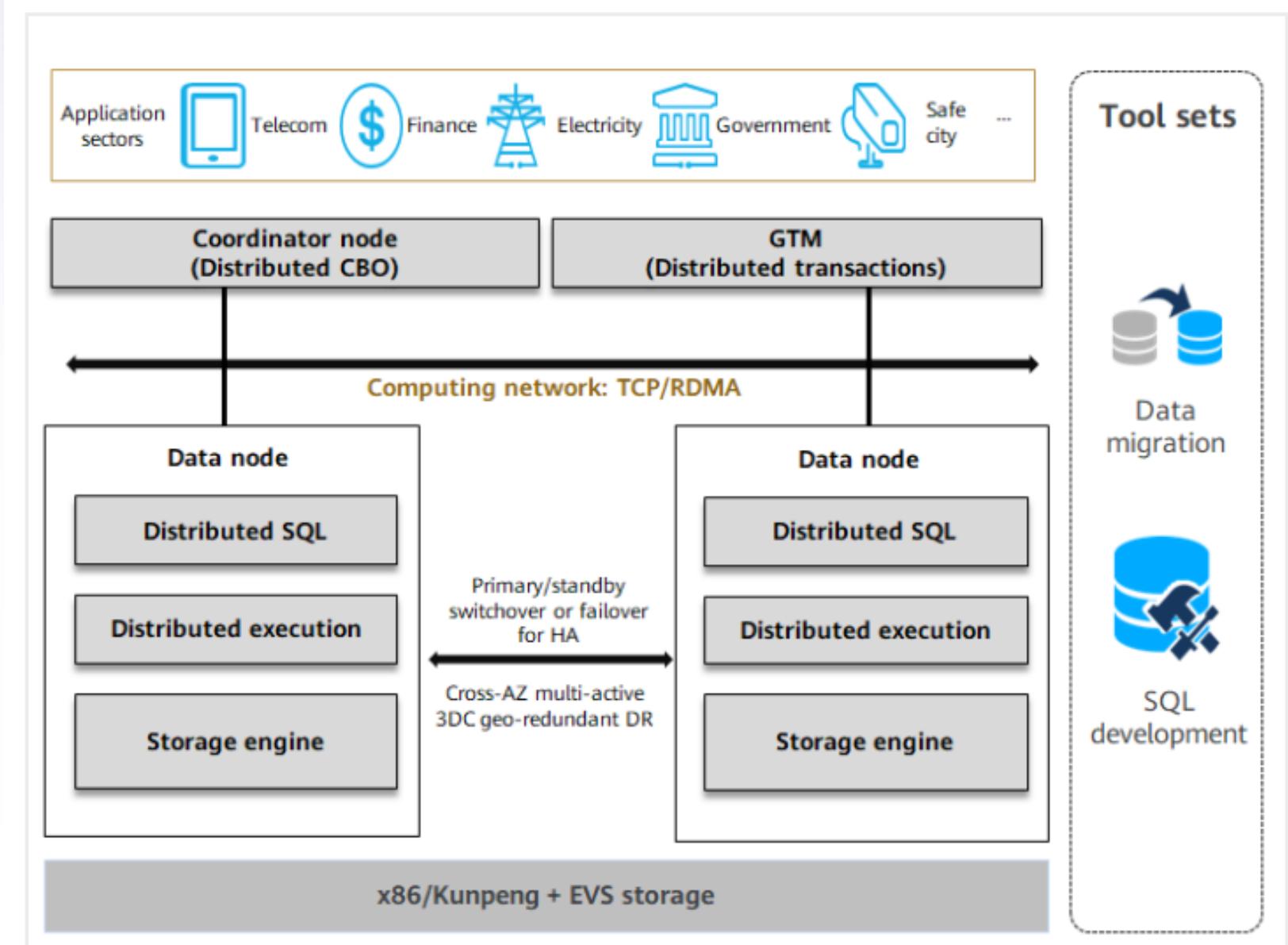
- **Automated backups cannot be manually deleted.** To delete them, you can adjust the retention period specified in your automated backup policy. When the retention period expires, automated backups will be deleted or remove instances

Manual backups: are user-initiated full backups of instances. The backup method is physical backup.

- **Manual backups will not be deleted until you delete them manually.**



GaussDB



GaussDB (for MySQL)



TaurusDB

- Huawei DB engine
- Compatible with MySQL
- Several times higher performance than that of native MySQL databases
- Strong backup and restoration capabilities achieved with decoupled storage and com
- High availability in cross-AZ deployment

GaussDB (for NoSQL)



GeminiDB

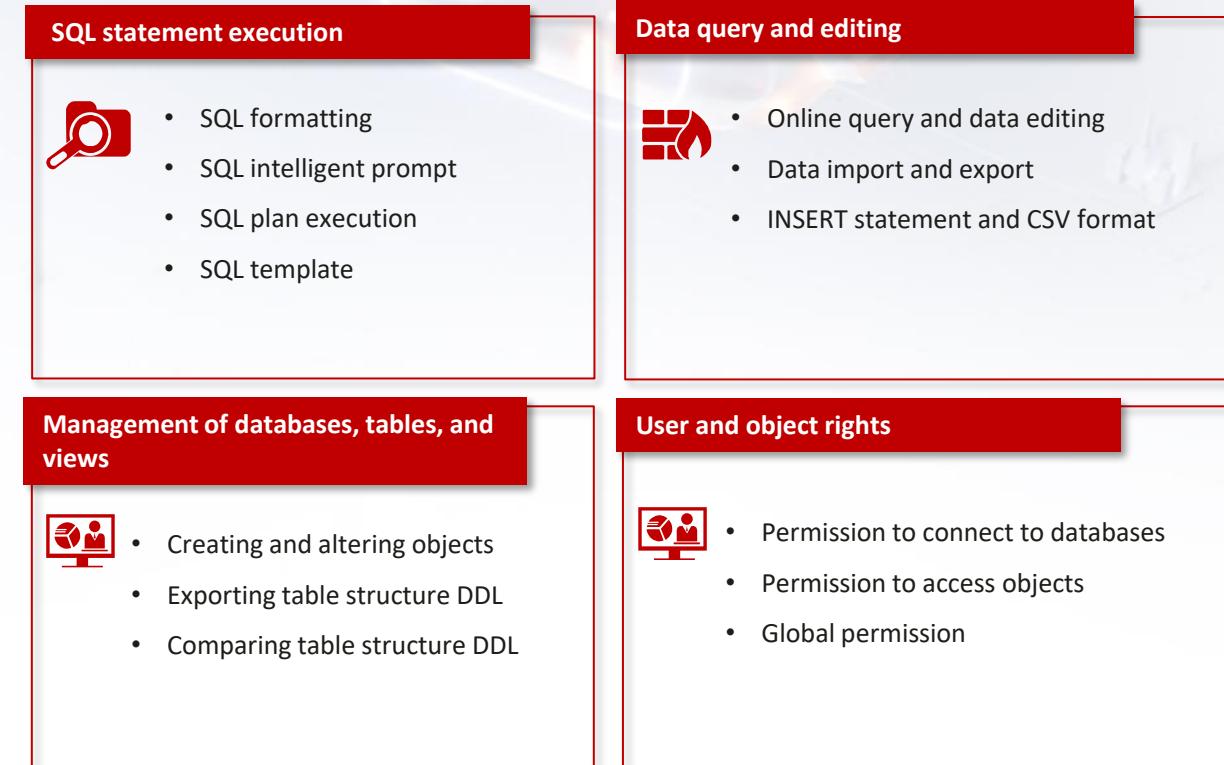
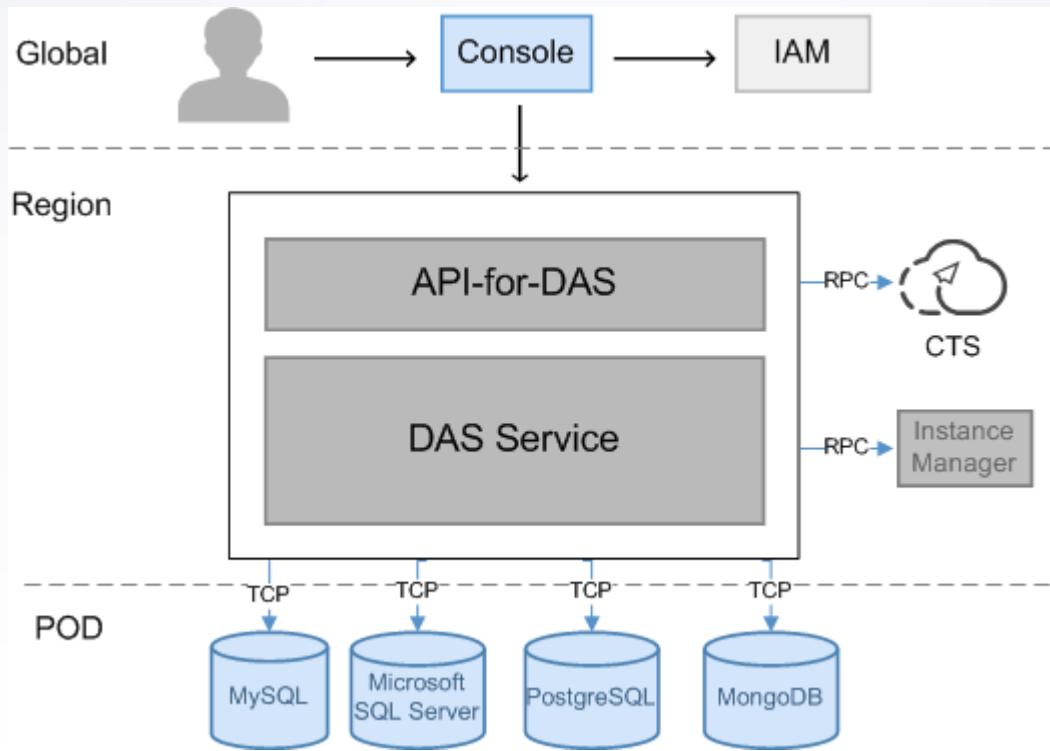
- Huawei-developed DB engine
- Compatible with Redis, Cassandra, DynamoDB, HBase, Influx DB clients
- Compute resources scaled within minutes and storage within seconds
- Cross-AZ HA
- GeminiDB clusters provide high availability



Document Database Service
(Mongo)

Data Admin Service (DAS)

Data Admin Service (DAS) enables you to manage DB instances on a web-based console, simplifying database management and improving working efficiency.



DataArts Studio



DataArts Studio

- Starts from data governance planning.
- Data import
- One platform for data development and governance
- Data quality evaluation based on planning
- Data asset management and metadata splitting

Data Collection

Transaction data Structured transaction information



RDS for MySQL



RDS for PostgreSQL

File Log, and raw data



OBS

Stream data, IoT, and Clickstreams

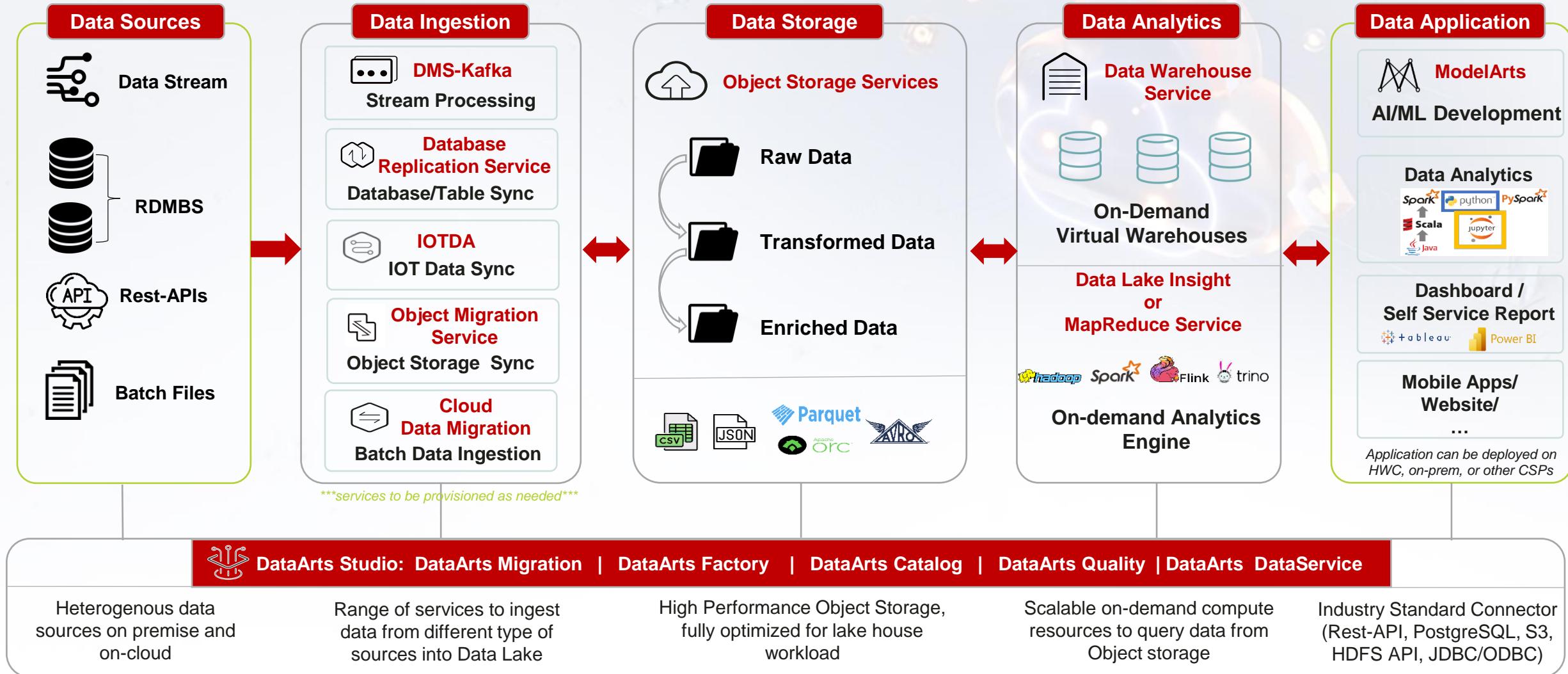


DMS for Kafka



Data Ingestion service

Huawei Lakehouse Architecture Design Framework



Huawei Public Cloud / Huawei Cloud Stack

Map Reduce Service (MRS)



MapReduce

- Provided open-source Hadoop-based components
- Deploy a Hadoop cluster with a few clicks.
- Easily run big data components such as Storm, Hadoop, Spark, HBase, Kafka and Flink
- fully compatible with open source APIs and Huawei Cloud computing and storage
- Technical support provides multiple support services
 - Creating, deleting, and scaling in or out a cluster
 - Managing cluster jobs
 - Managing cluster alarms
 - Managing cluster patches
 - Managing IAM users
 - Managing external APIs

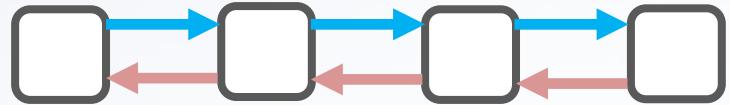
Cloud Search Service (CSS)



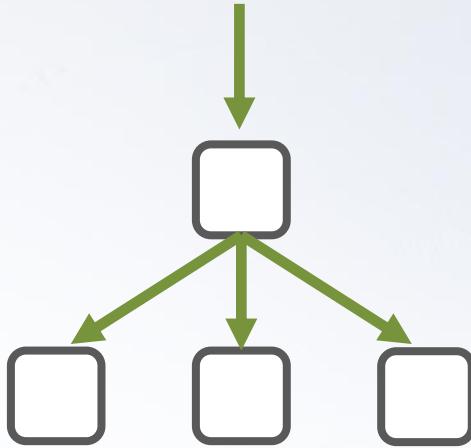
Cloud Search Service
(CSS)

- Compatible with open-source Elasticsearch, Kibana and logstash
- For structured and unstructured data search, and use AI vectors for combine search, statistics, and reports
- Store the snapshot data of Elasticsearch instances to OBS
- Example use cases:
 - Site search (Full-text search)
 - Log analysis
 - Vector search (unstructured data, such as images, videos, and corpuses)

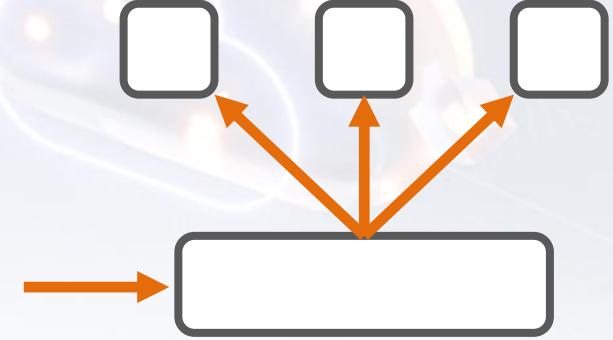
Common Distributed Models



Synchronous
communication
and coordination



Request Distributed



Task polling

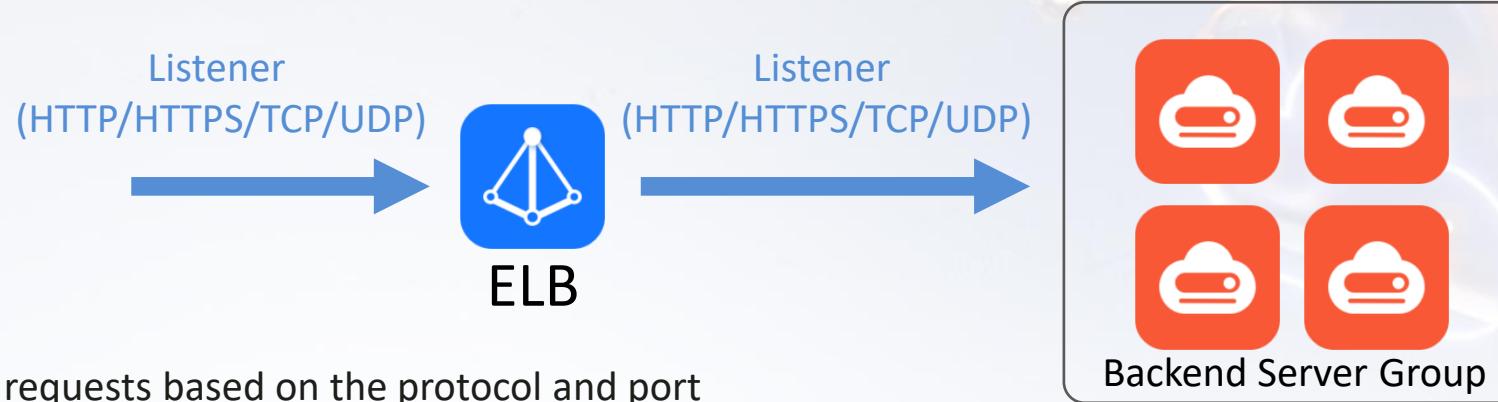
Elastic Load Balance (ELB)



Elastic Load Balance
(ELB)

- Distributes requests **across different backend servers**.
- Supports **built-in HA**.
- Works with **Auto Scaling** to process a massive number of concurrent requests.
- Routes traffic across backend server groups based on the forwarding policies you have configured.
- Checks the **health of backend servers** to ensure that requests are routed to healthy servers.
- Supports load balancing at both **Layer 4** and **Layer 7**.

Elastic Load Balance (ELB)



- Routes requests based on the protocol and port you have configured.
- Matches the requests based on the forwarding rules you have configured.
 - Domain name and URL (regular expression match)
 - Advanced forwarding rules such as HTTP request method, HTTP header, and more
- Forwards the requests or returns a fixed response to the clients based on the action you have configured.
 - Forward to a backend server group.
 - Redirect to another listener.
 - Redirect to another URL

- One or more backend servers. You can call an API to add or remove a backend server.
- **Multiple load balancing algorithms**
 - Weighted round robin
 - Weighted least connections
- Advanced settings
 - Sticky session
 - Health check

Cloud Eye



Cloud Eye

- Operations without data courts disaster.
- Not a traditional proactive monitoring system
 - Cloud service data is reported to Cloud Eye.
 - Cloud Eye is decoupled from other services.
- Tracks health metrics for all of your services.
- Keeps you up to date with built-in dashboards and alarms

Auto Scaling



Auto Scaling

- Can create or delete ECS instances across AZs.
- Supports a broad range of conditions and policies to create or delete instances.
- Automatically identifies and replaces unhealthy instances.
- Can work with ELB to distribute incoming traffic across healthy backend servers.

Scaling Policies and Scenarios



Dynamic scaling based on performance

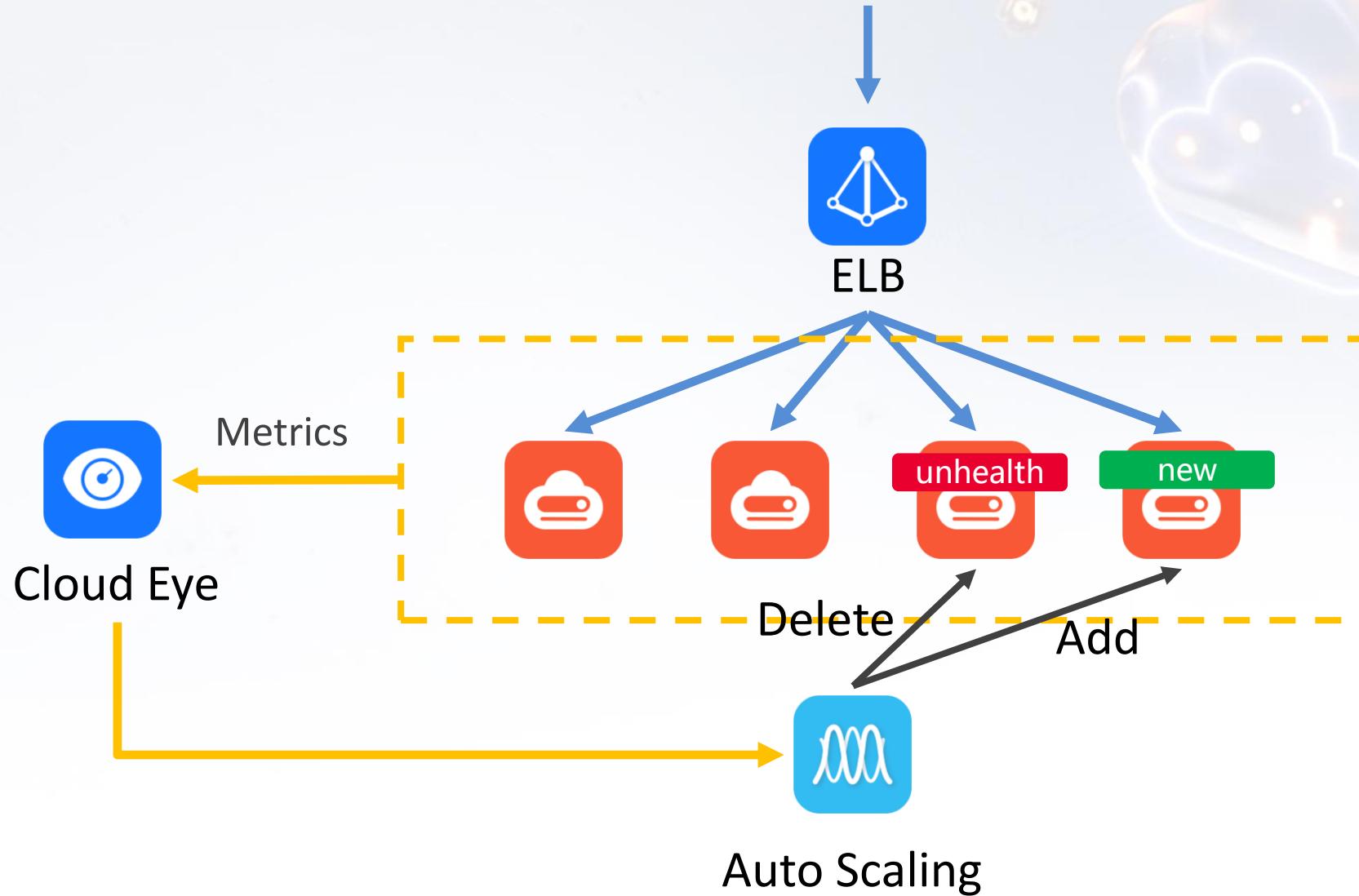
- Real-time monitoring of performance
- Automatic, dynamic scaling
- Reactive scaling
- Example
Usage of CPU, Memory , etc.



Scheduled scaling based on predictable workload changes

- Regular workload changes
- Scaling by schedule
- Proactive scaling
- Example
Schedule, Periodic

Automatically Add a healthy backend server to ensure stable performance



Cloud Native 2.0

Cloud native is a kind of approach to design, construct and operate workloads natively in the cloud, **and it** can take full advantage of cloud computing.



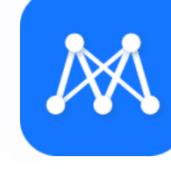
Data governance
Big data, Data Lake



Compute
Container Serverless,
Function



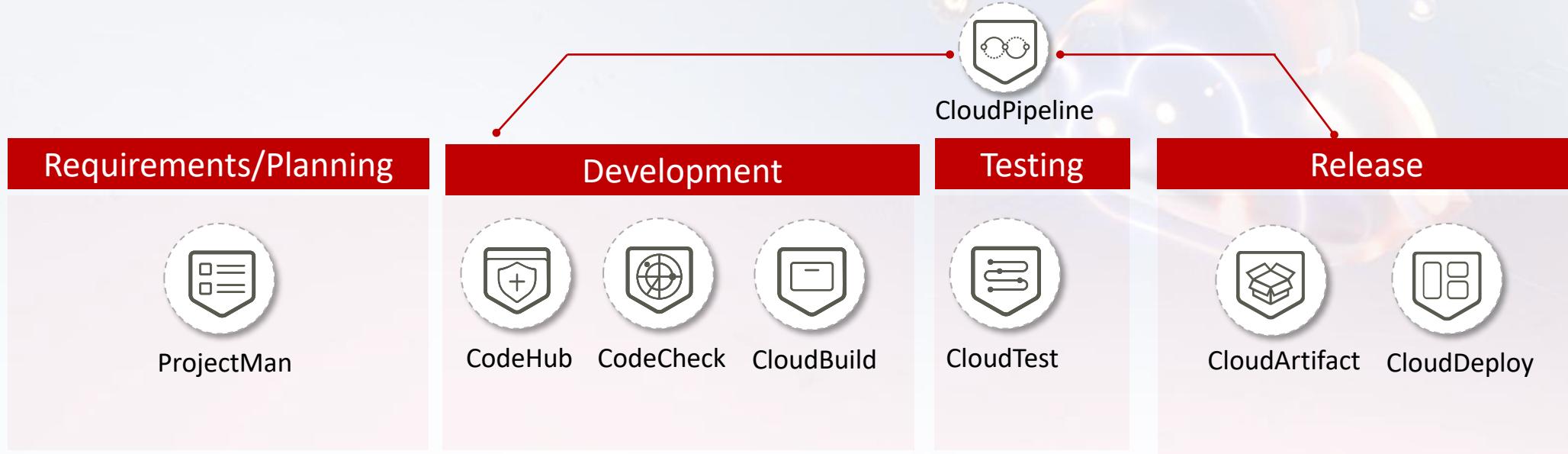
Agile DevOps



AI Platform
Components

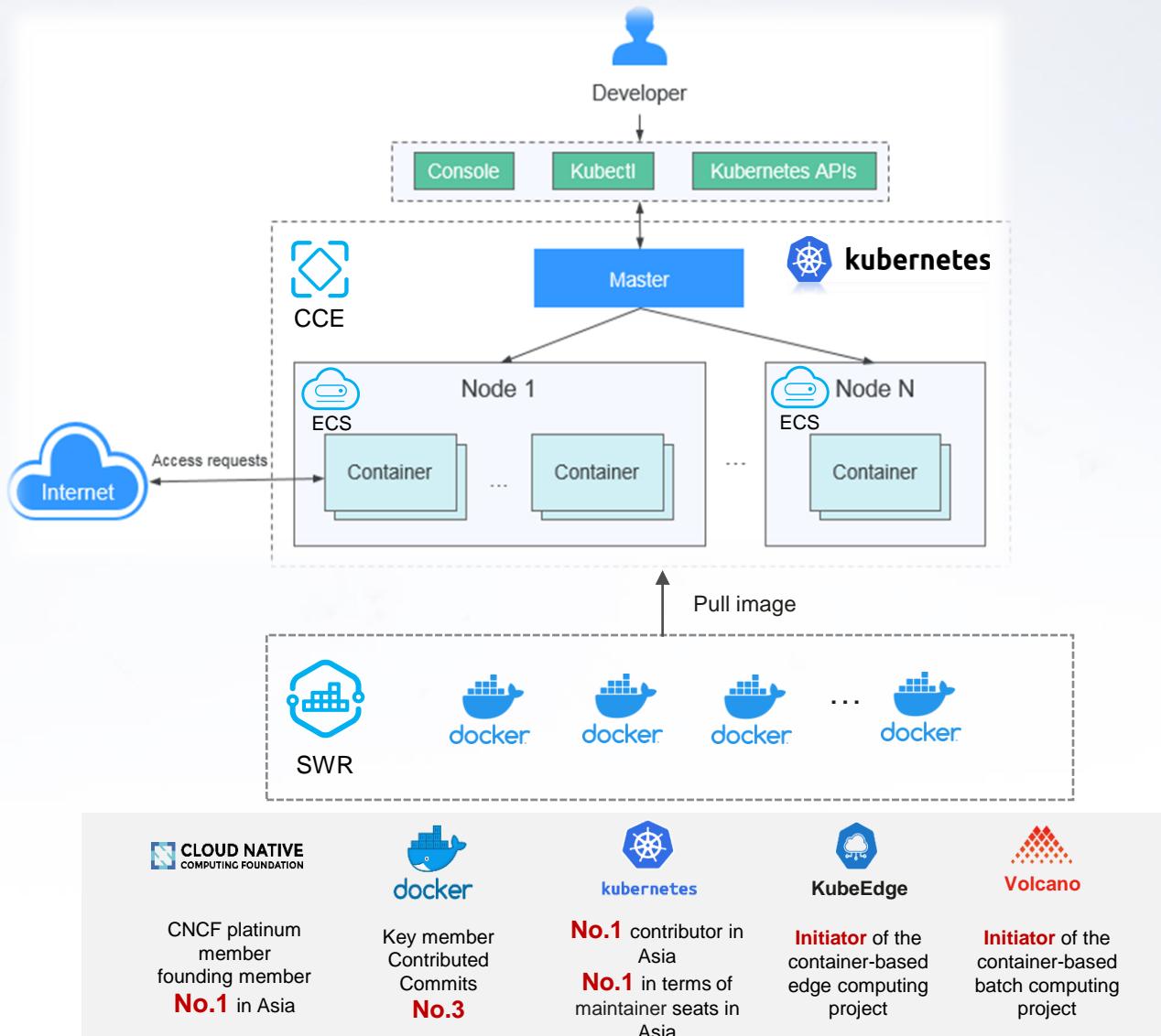
- Secure, trustworthy, efficient, and intelligent development
- Flexible **governance of dual-stack microservices**
- Co-existence of legacy and new applications; **efficient application integration**
- Serverless development allows **developers to focus on features**
- Containers help **implement service logic** and **reduce attention an coupling to servers**
- Intelligent management and efficient O&M
- Decoupled compute and storage; lower TCO
- **One-stop AI platform**; inclusive AI
- Consistent security standards for the platform and tenants

DevCloud (CodeArts)



- Huawei Cloud provides a complete **agile development system** with all required components.
- Its integrated development environment is easy to use.
- An agile development process means **quick go-to-market** and **quick response** to customer needs.
- Innovation needs cloud, and agility is the catalyst for innovation

Container



Cloud Container Engine (CCE)

One-stop deployment and operation and maintenance

One-click creation of **Kubernetes clusters**, automated deployment, operation and maintenance of container applications, and the entire life cycle is completed in a one-stop container service.

Deep integration of IaaS resources

Direct use of Huawei Cloud **ECS / BMS**, network (**VPC / EIP**), storage (**EVS / OBS / SFS**) capabilities. Compatible with native Kubernetes and Docker

High availability business without interruption

The cluster **control plane HA and cross-AZ** are highly available, container applications are elegantly scaled, and they go offline safely to ensure that services do not drop.



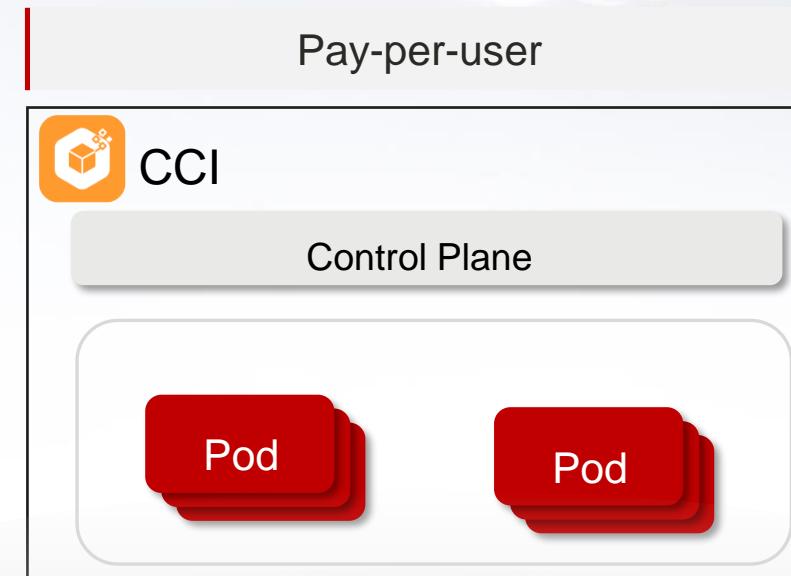
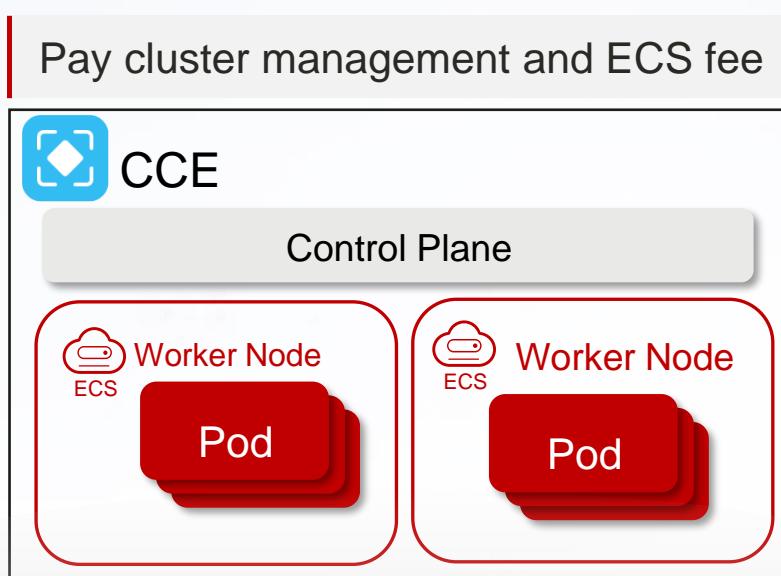
Software Repository for Container (SWR)

SWR allows you to securely host and efficiently distribute images on the cloud without building or maintaining image repositories by yourselves.

Container

Cloud Container Instance (CCI) is a **serverless container** engine that allows you to run containers without creating or managing server clusters. In the serverless model, a cloud provider runs servers and dynamically allocates resources so that you can build and run applications without having to worry about server statuses.

CCI pods adapt to customer requirements. Node management and capacity planning are not required, further reducing O&M costs.



vs



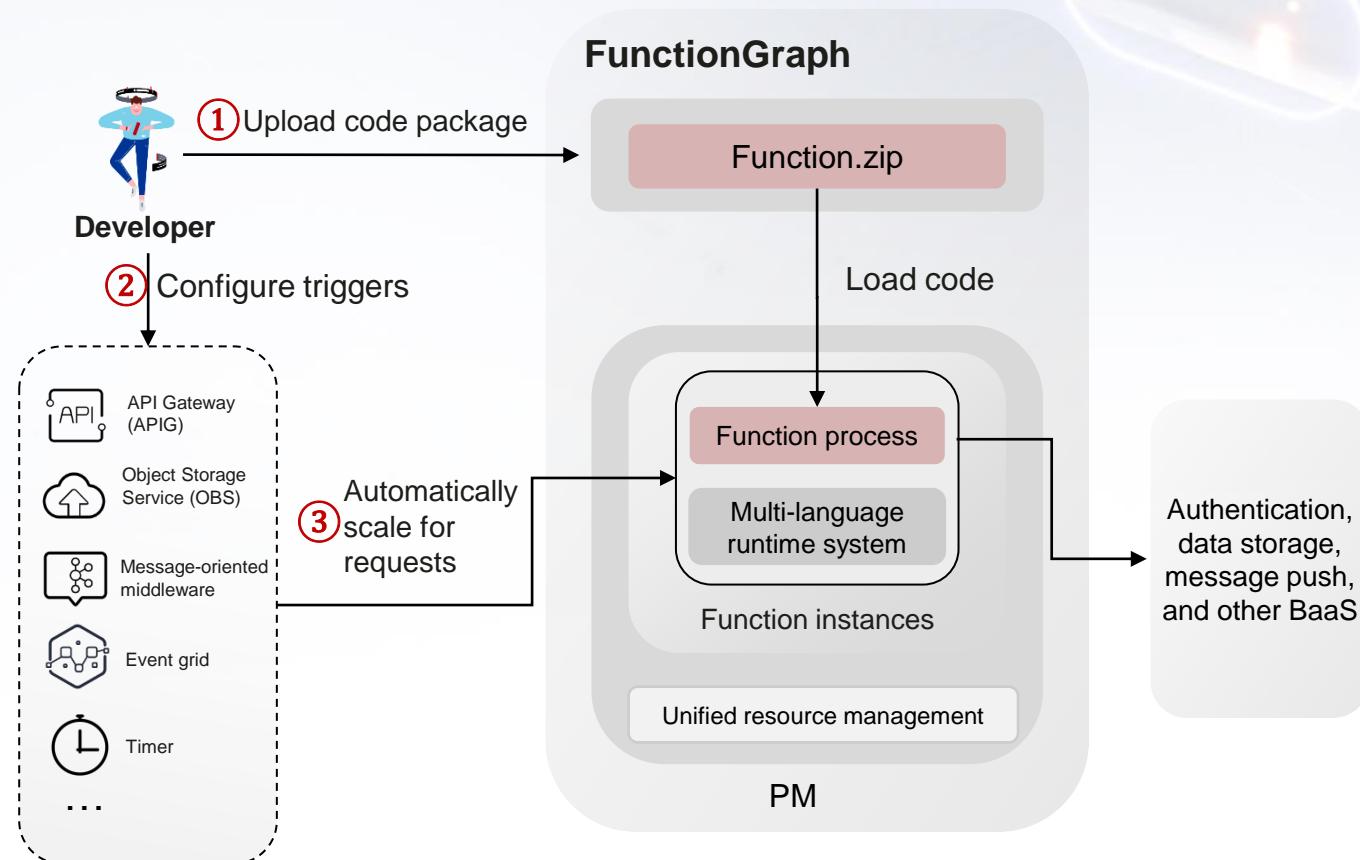
Customer provision



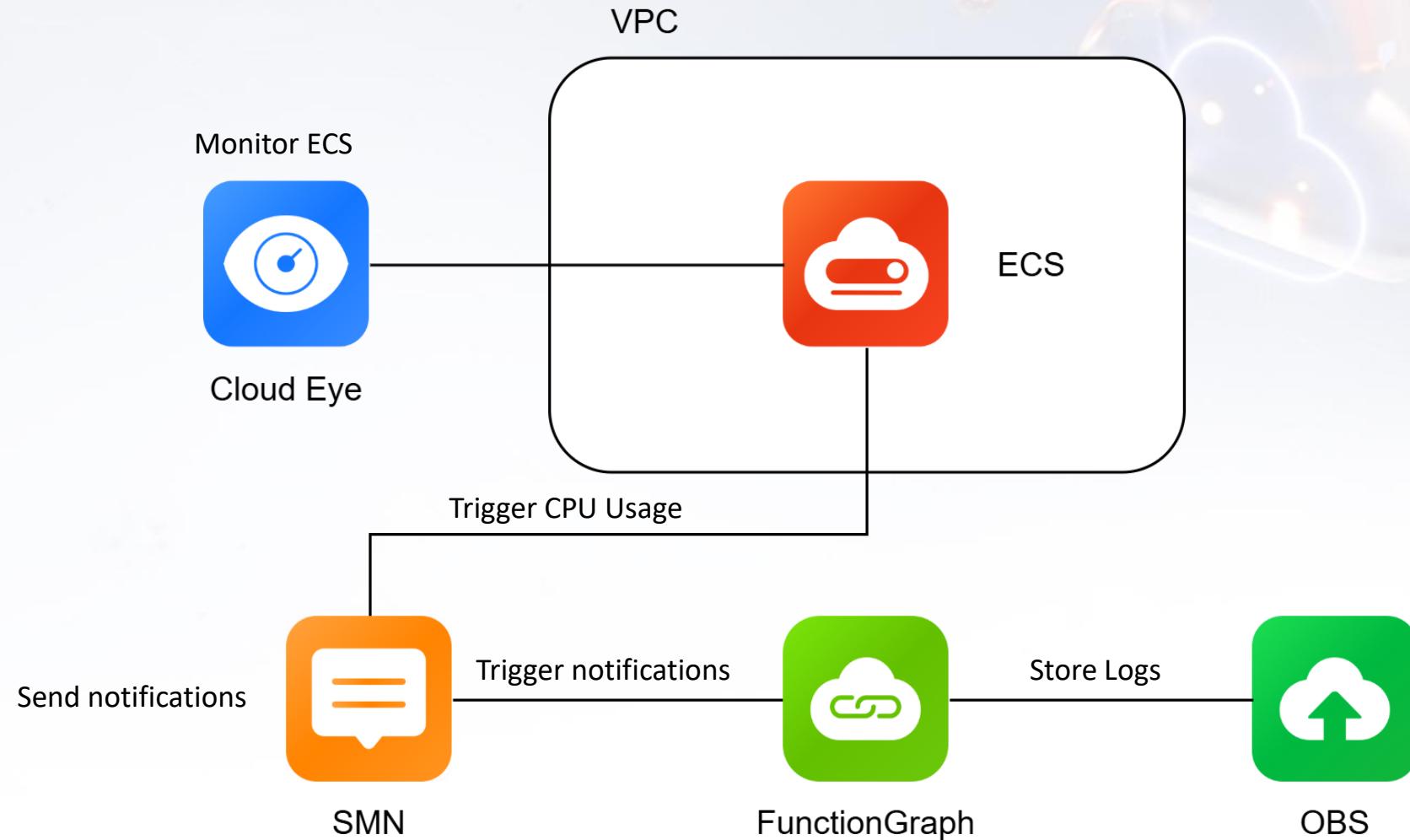
Huawei managed

Function Graph

Function Graph allows you to **run your code without provisioning or managing servers**, while ensuring high availability and scalability. All you need to do is upload your code and set execution conditions, and Function Graph will take care of the rest . You pay only for what you use and you **are not charged when your code is not running.**



Cloud Eye Basics & storage logs in OBS



API Explorer

API Explorer | Elastic Cloud Server | OpenAPI | SDKs | Error Codes | Terraform | API Assistant | API Diagnosis | Enter a keyword. | English | N

Elastic Cloud Server | CreateServers | CreatePostPaidServers | CreateServers | NovaCreateServers | Metadata Management | Tag Management | Password Management | ECS Group Management

CreateServers

Some APIs incur charges. View the billing description of the service before debugging this API.

POST https://ecs.ap-southeast-2.myhuaweicloud.com/v2.0/ecs/servers

Advanced ▾ Default Debug

Required parameters only Encrypt sensitive parameters

Body

```
1 package com.huaweicloud.sdk.test;
2
3 import com.huaweicloud.sdk.core.auth.ICredential;
4 import com.huaweicloud.sdk.core.auth.BasicCredentials;
5 import com.huaweicloud.sdk.core.exception.ConnectionException;
6 import com.huaweicloud.sdk.core.exception.RequestTimeoutException;
7 import com.huaweicloud.sdk.core.exception.ServiceResponseException;
8 import com.huaweicloud.sdk.ecs.v2.region.EcsRegion;
9 import com.huaweicloud.sdk.ecs.v2.*;
10 import com.huaweicloud.sdk.ecs.v2.model.*;
```

```
11
12 public class CreateServersSolution {
13
14     public static void main(String[] args) {
15         String ak = "<YOUR AK>";
16         String sk = "<YOUR SK>";
17
18         ICredential auth = new BasicCredentials()
19             .withAk(ak)
20             .withSk(sk);
21
22         EcsClient client = EcsClient.newBuilder()
23             .withCredential(auth)
24             .withRegion(EcsRegion.valueOf("ap-southeast-2"))
25             .build();
26
27         CreateServersRequest request = new CreateServersRequest();
28         CreateServersRequestBody body = new CreateServersRequestBody();
29         request.withBody(body);
30
31         try {
32             CreateServersResponse response = client.createServers(request);
33             System.out.println(response.toString());
34         } catch (ConnectionException e) {
35             e.printStackTrace();
36         } catch (RequestTimeoutException e) {
37             e.printStackTrace();
38         }
39     }
40 }
```



Terraform

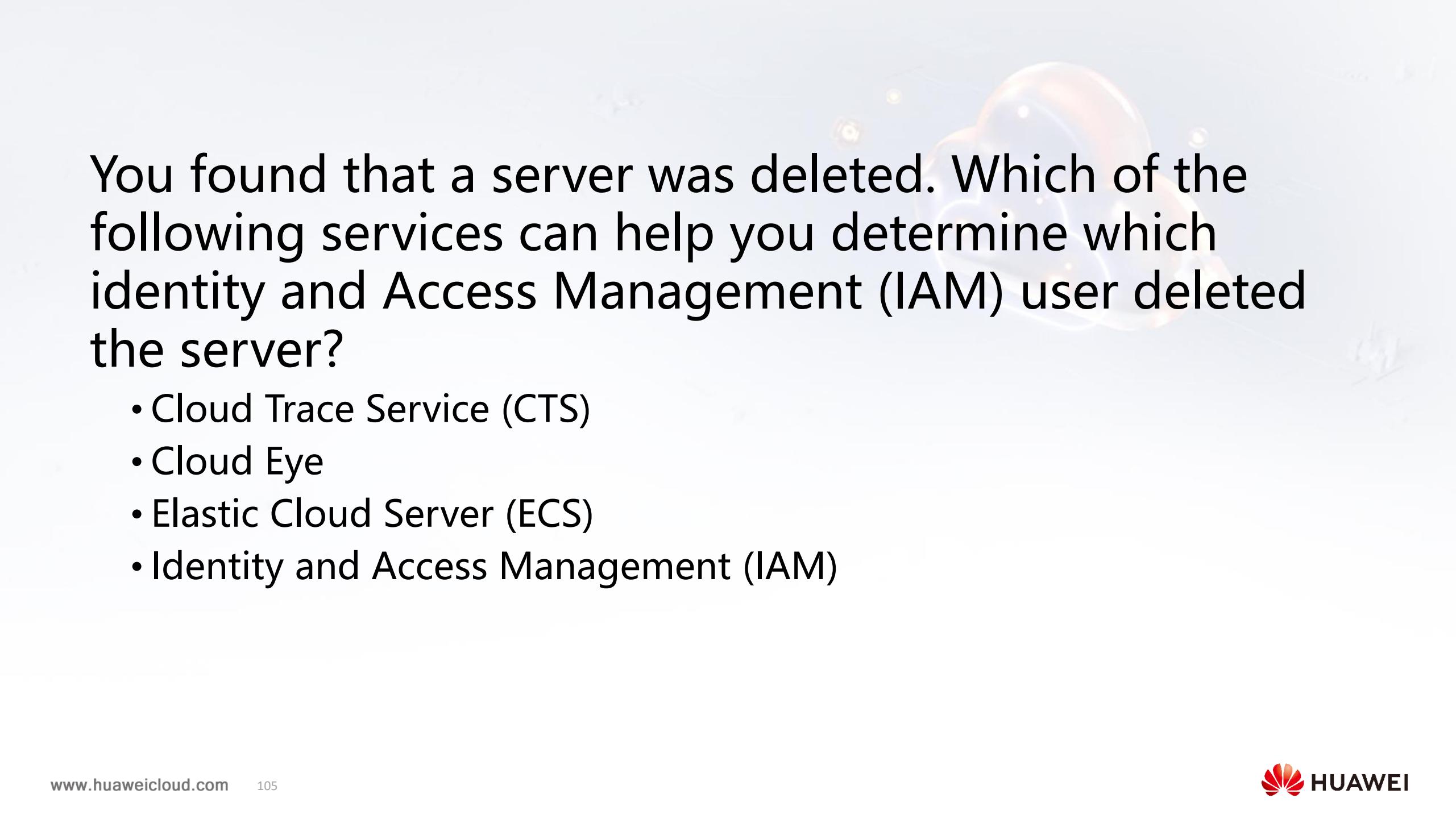
The screenshot shows the Terraform Registry interface. At the top, there's a navigation bar with 'Terraform' logo, 'Registry', 'Search all resources', 'Browse', 'Publish', and 'Sign-in'. Below the navigation, the URL is 'Providers / huaweicloud / huaweicloud / Version 1.44.1 / Latest Version'. The main content area is titled 'huaweicloud' and 'Overview'. On the left, there's a sidebar with 'HUAWEICLOUD DOCUMENTATION' and a 'Filter' dropdown. The main content area has a title 'Configure Remote State Backend for HuaweiCloud' and a section 'Terraform Remote State'. It explains that by default, Terraform stores state locally in a file named `terraform.tfstate`. It discusses the challenges of working with Terraform in a team when using local files. It then describes 'remote state', where Terraform writes state to a remote data store like HashiCorp Consul, Amazon S3, Azure Blob Storage, Google Cloud Storage, etc. A code snippet shows how to implement remote state:

```
terraform {  
  backend "s3" {  
    ...  
  }  
}
```

The screenshot shows the HUAWEI CLOUD API Explorer interface. At the top, there's a navigation bar with 'HUAWEI CLOUD' logo, 'API Explorer', 'Elastic Cloud Se...', 'OpenAPI', 'SDKs', 'Error Codes', and a 'Terraform' tab which is highlighted with a red box. Below the navigation, the URL is 'Terraform Explorer / Elastic Cloud Server'. The main content area shows the configuration for the `huaweicloud_compute_instance` resource. It includes fields for `access_network`, `fixed_ip_v4`, `fixed_ip_v6`, `mac`, `port`, `source_dest_check`, `uuid`, `scheduler_hints`, `deh_id`, `fault_domain`, `group`, and `tenancy`. There are also fields for `auto_renew`, `availability_zone`, `charging_mode`, `delete_disks_on_termination`, `delete_eip_on_termination`, and `description`. On the right side, there's a 'CloudShell' terminal window showing the output of a Terraform command:

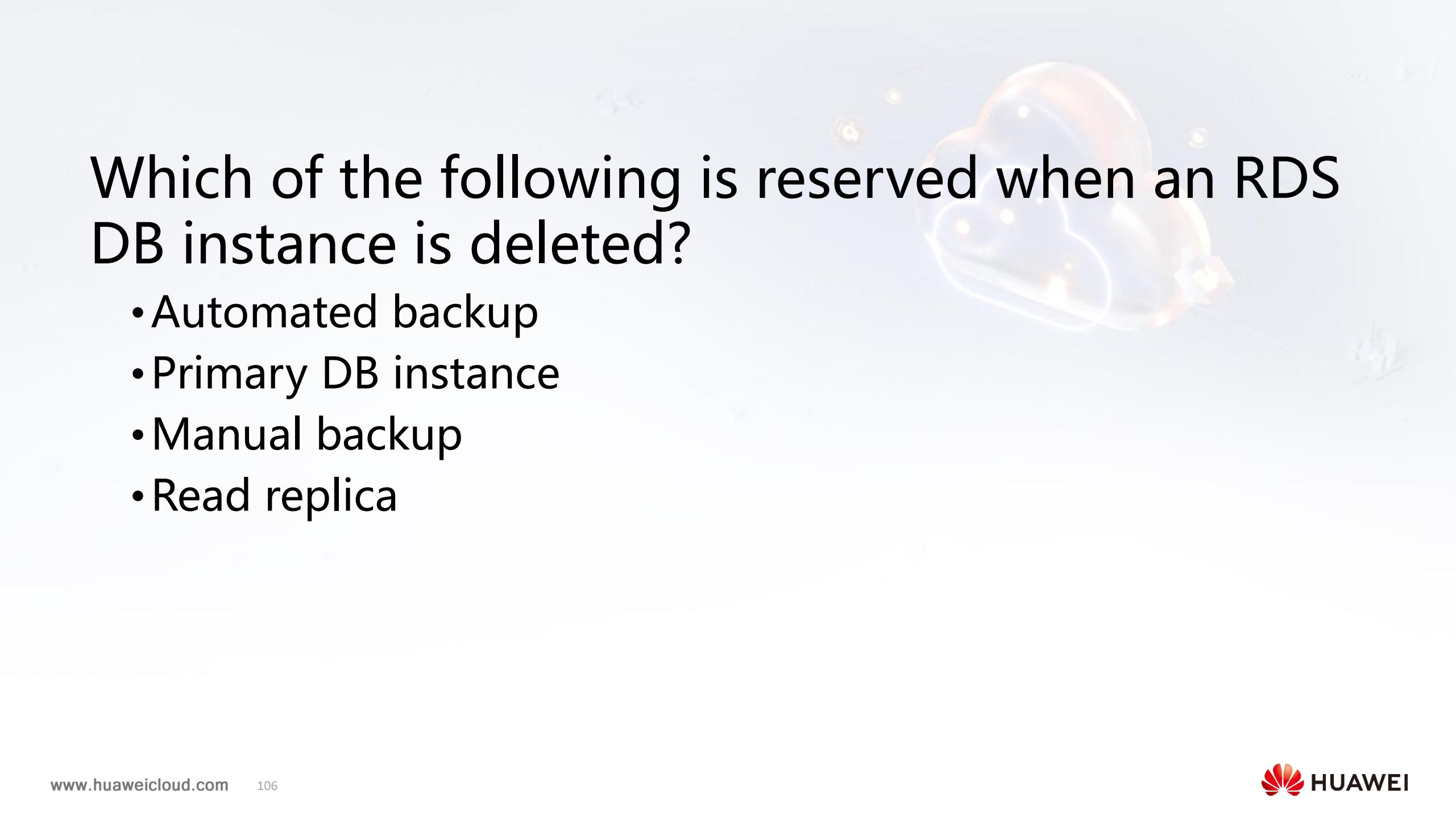
```
_ user@t83zx8lg9kijrmd-machine: ~/terraform/huaweicloud_compute_instanc  
+ access_network = false  
+ fixed_ip_v4 = (known after apply)  
+ fixed_ip_v6 = (known after apply)  
+ mac = (known after apply)  
+ port = (known after apply)  
+ source_dest_check = true  
+ uuid = "9bd04e21-4423-416f-a2  
}  
  
+ scheduler_hints {  
+ deh_id = (known after apply)  
+ fault_domain = (known after apply)  
+ group = (known after apply)  
+ tenancy = (known after apply)  
}  
}  
  
Plan: 1 to add, 0 to change, 0 to destroy.  
huaweicloud_compute_instance.compute_instance: Creatin  
huaweicloud_compute_instance.compute_instance: Still c  
huaweicloud_compute_instance.compute_instance: Creatio  
97ff-37e0-46b5-9508-022b62d98084]  
  
Apply complete! Resources: 1 added, 0 changed, 0 destr  
user@t83zx8lg9kijrmd-machine:~/terraform/huaweicloud_c
```

Quiz



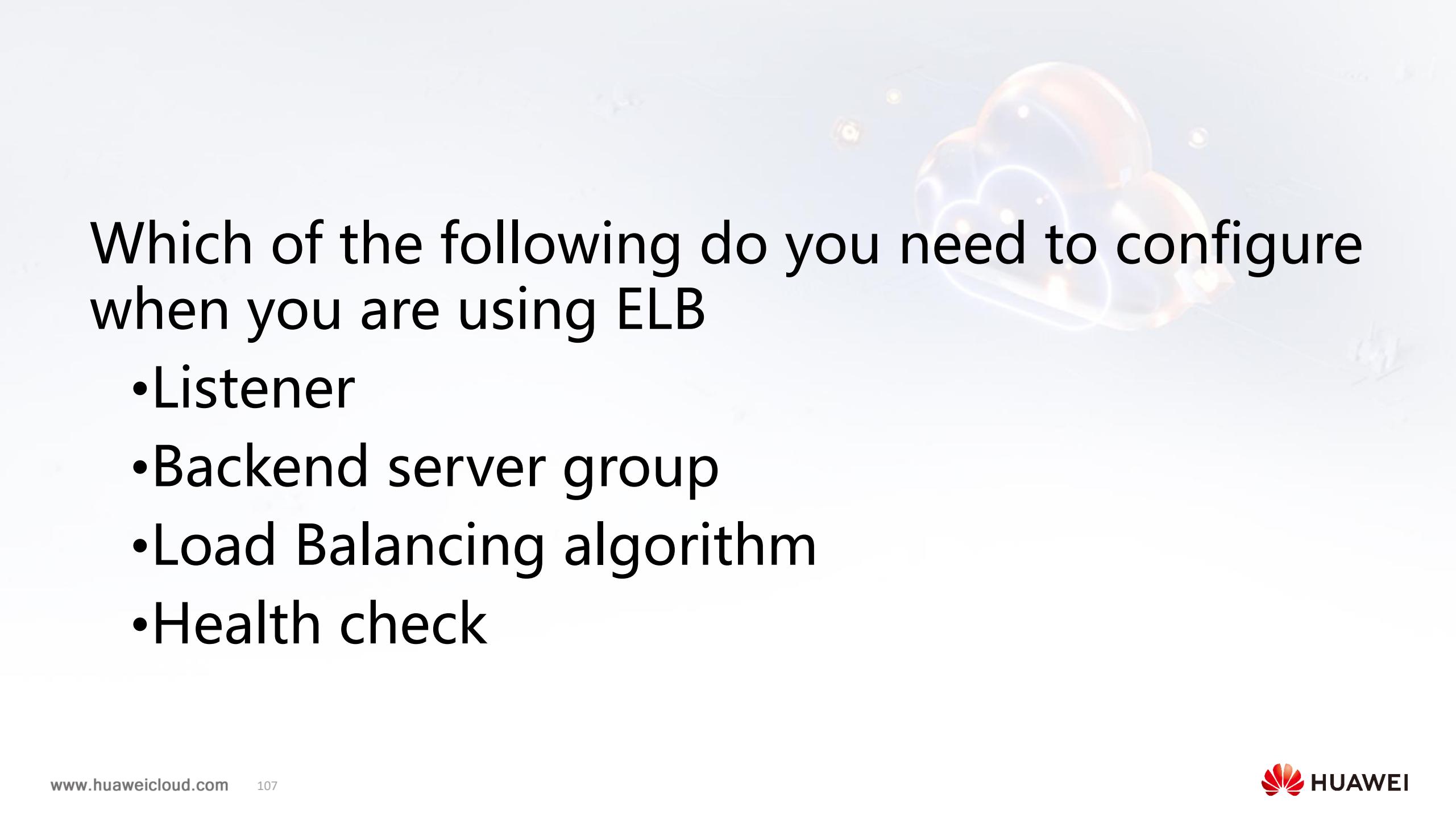
You found that a server was deleted. Which of the following services can help you determine which Identity and Access Management (IAM) user deleted the server?

- Cloud Trace Service (CTS)
- Cloud Eye
- Elastic Cloud Server (ECS)
- Identity and Access Management (IAM)



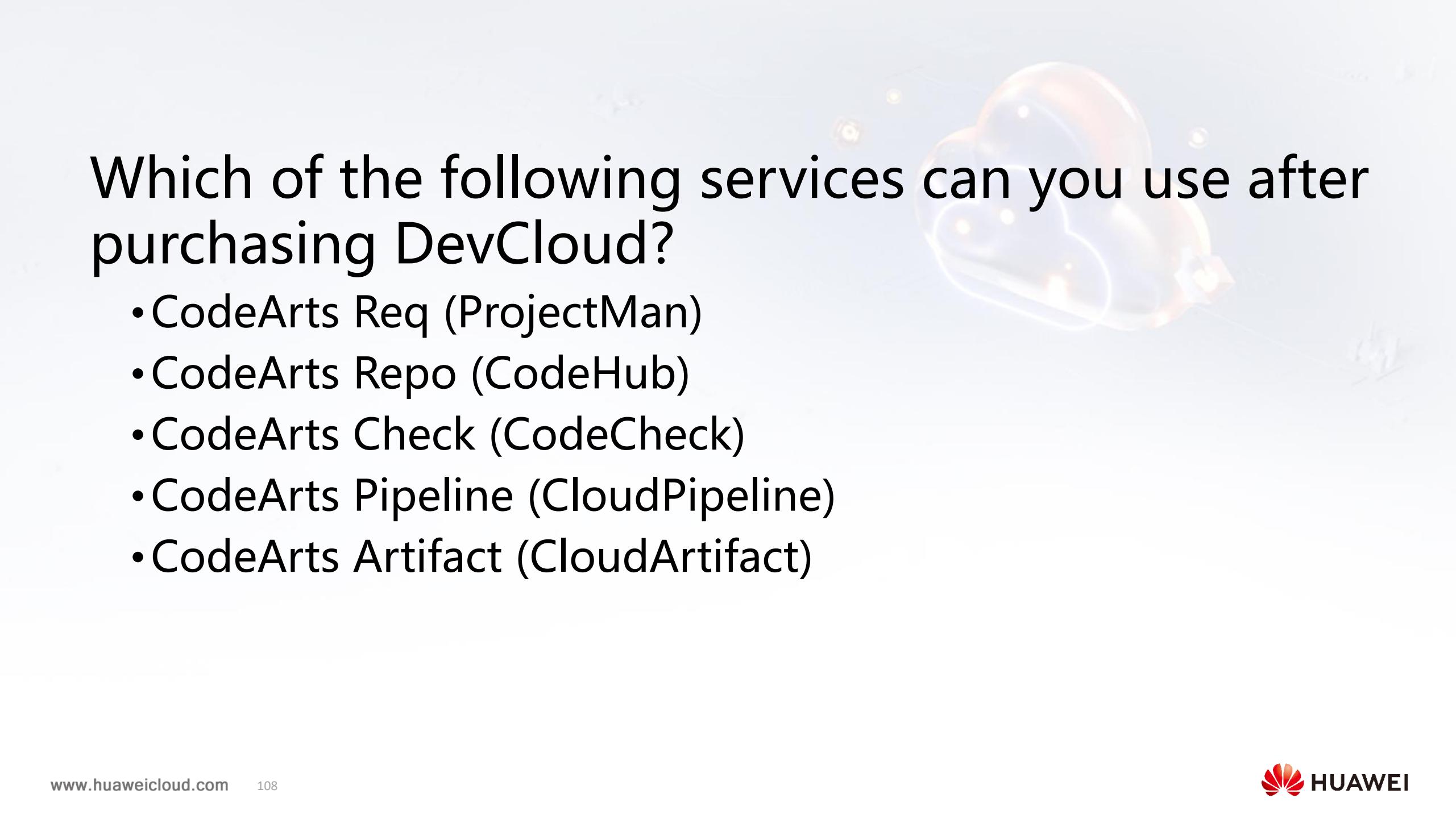
Which of the following is reserved when an RDS DB instance is deleted?

- Automated backup
- Primary DB instance
- Manual backup
- Read replica



Which of the following do you need to configure when you are using ELB

- Listener
- Backend server group
- Load Balancing algorithm
- Health check



Which of the following services can you use after purchasing DevCloud?

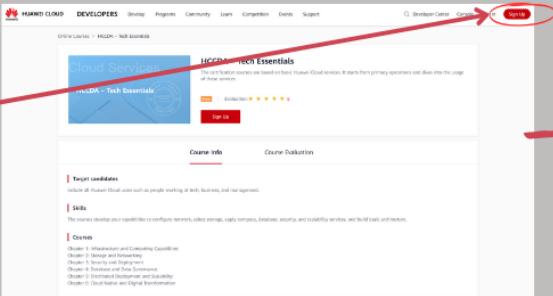
- CodeArts Req (ProjectMan)
- CodeArts Repo (CodeHub)
- CodeArts Check (CodeCheck)
- CodeArts Pipeline (CloudPipeline)
- CodeArts Artifact (CloudArtifact)

Register Huawei Cloud Account

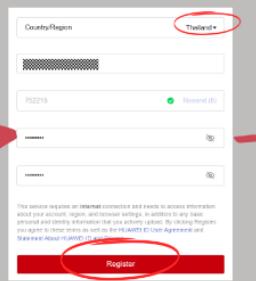
วิธีการสมัครก่อน HDDCA Self-Learning ภายใน 2 นาที

ขั้นตอนแรก

ຄລິກ ພຶງຄ HCCDA Course



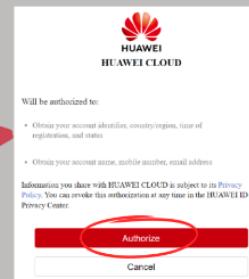
เลือก Thailand
กรอก อีเมล + รหัส



ກດ Skip



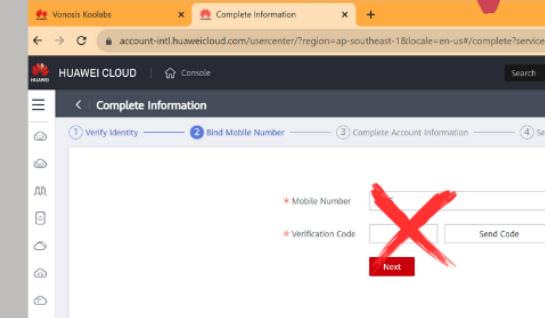
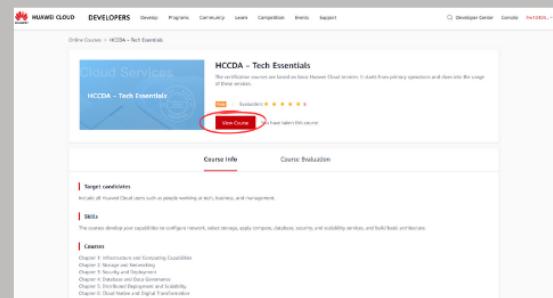
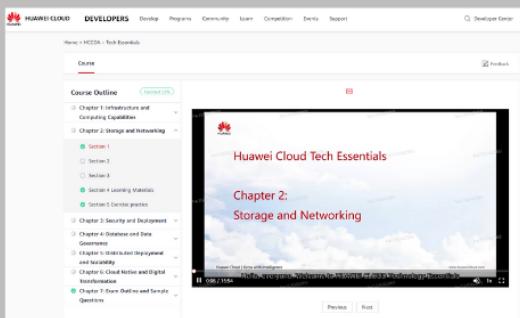
Not Authorized



no Enable



กต ปุ่มสีแดงเพื่อเริ่มเข้าเรียน



คุณจะเห็นกันหมด 7
Chapter ก็งวดิโอ และ
Slide ในทุกๆ Chapter

สมัคร เง่ายๆ 2 นาที

Self-Learning

<https://developer.huaweicloud.com/intl/en-us/activity/2f81ada6e1f2485590fe0aa4dfb3ee64>



https://connect.huaweicloud.com/intl/en-us/courses/learn/C101692237687889160/about/sp:cloudEdu_en

Courses:

- Chapter 1: Infrastructure and Computing Capabilities
- Chapter 2: Storage and Networking
- Chapter 3: Security and Deployment
- Chapter 4: Database and Data Governance
- Chapter 5: Distributed Deployment and Scalability
- Chapter 6: Cloud Native and Digital Transformation

► **Online Learning & Mock Exam**

❖ แบบฝึกหัด HCCDA ปฏิบัติจริงได้ฟรี ผ่าน KooLabs เพียงคลิก :

Koolabs:

- ★ Storage Services Practice : https://lab.huaweicloud.com/intl/en-us/experiment-detail_1844
- ★ Compute Services Practice : https://lab.huaweicloud.com/intl/en-us/experiment-detail_1771
- Cloud Eye Basics and Practices : https://lab.huaweicloud.com/intl/en-us/experiment-detail_1866
- Auto Scaling Basics Practice : https://lab.huaweicloud.com/intl/en-us/experiment-detail_1865

► **Lab Practice**

All Exam Event Activities

<https://developer.huaweicloud.com/intl/en-us/activity>

Open desktop

Open browser

Login using name/username/password

Reports

Compute Services Practice

Completed:0 %

01 : 04 : 27

End

4

Huawei Cloud Exercise Account

Log in using an exercise account

Account: Sandbox-Voyager11166

Username: Sandbox-user

Password: *****

1
2



Follow guideline

5

1.ECS Lifecycle Management

In this exercise, we will create both Windows and Linux ECSs.

Question: What is [Lab Desktop]?

Go to the [Lab Desktop] and open the Google Chrome browser to access the HUAWEI CLOUD login page. Select IAM User Login. In the login dialog box, enter the assigned HUAWEI CLOUD lab account and password to log in to HUAWEI CLOUD, as shown in the following figure.

HUAWEI ID login

IAM User Login

Compute Services Practice

Completed:0 % 01 : 04 : 27 End

Huawei Cloud - Login auth.huaweicloud.com/authui/login.html?service=https%3A%2F%2Fconsole.huaweicloud.com%2Fconsole%2Fregion%2F... Upd

You are using an unsupported command-line flag: --no-sandbox. Stability and security will suffer.

HUAWEI CLOUD Home Documentation English

Special Offers for Newcomers The preferred choice for Paworld players

IAM User Login

Tenant name or Huawei Cloud account name

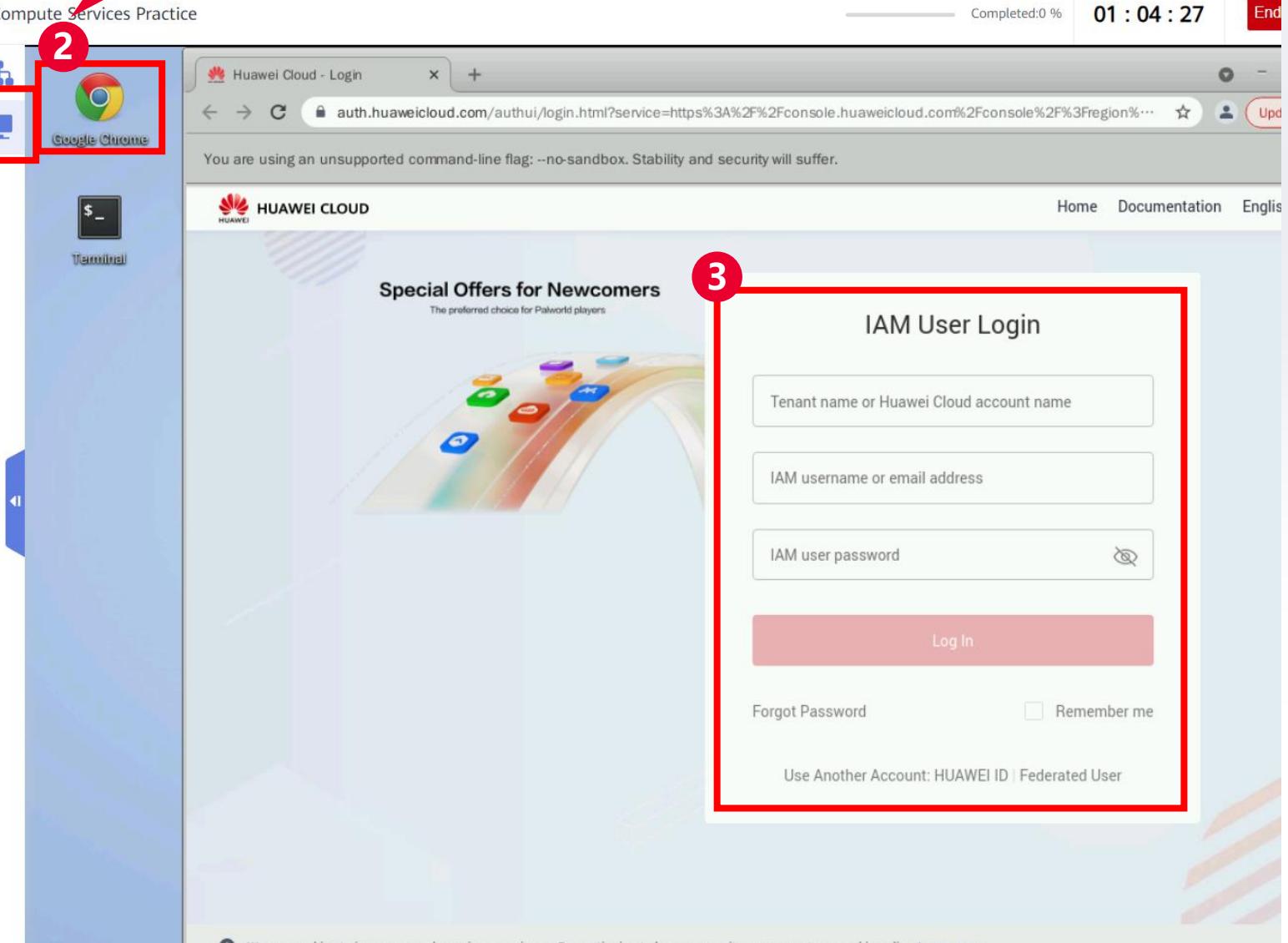
IAM username or email address

IAM user password

Log In

Forgot Password Remember me

Use Another Account: HUAWEI ID | Federated User





A wide-angle landscape photograph of a coastal arch at sunset. The sky is filled with numerous star trails, creating a circular pattern centered on the horizon. In the foreground, a person stands on a wet, reflective surface, holding a small light that casts a bright beam towards the horizon. The background features large, rugged rock formations and a body of water under a warm, orange and yellow sunset sky.

Thank you