The Map of Migration Tool for Huawei Cloud

C-POMC

Version 1.3

15 Mar 2024

What's New?

No.	Version	Description	Phase	Modified By	Audited By	Document Name
1	V1.0	• Reorganize the document structure • Add the "Ecosystem Tool Framework" • Update the "Discovery Tools" • Update "Packer / RiverMeadow / Disk2VHD / qemu-img-hw / image-migrator / kclone / i2active / DMS / DRS / UGO " • Update "OMS / Fastcopy / RCLONE / RSYNC / FPSYNC" • Add LLD2Terraform	27 Sep 2023	Liu Shaowei	lichang	The Map of Migration Tool for Huawei Cloud-v1.0
2	V1.1	• Update "Inventory 1 - Huawei Cloud Migration Tools"	31 Oct 2023	Liu Shaowei	lichang	The Map of Migration Tool for Huawei Cloud-v1.1
3	V1.2	• Update UGO • Update OMS • Add CDM • Add Pentaho Data Integration (Kettle) • Add CodeArts PerfTest • Add WRK Version2 • Add packer-terraform-demo • Remove Packer	30 Nov 2023	Liu Shaowei	lichang	The Map of Migration Tool for Huawei Cloud-v1.2
4	V1.3	• Update Inventory list • Update MgC / Haydn	15 Mar 2024	Liu Shaowei	lichang	The Map of Migration Tool for Huawei Cloud-v1.3

Preface

Currently, the public cloud is widely used, and HUAWEI CLOUD is also used by more and more users in Latin America. To help HUAWEI CLOUD users quickly migrate services to HUAWEI CLOUD, Huawei Latin America cloud team prepares this manual.

We hope to help you:

First, you can quickly find efficient and available tools, including open-source tools, Huawei tools, and third-party tools, based on migration scenarios.

Second, you can quickly master how to use the tool based on the tool introduction.

Third, share tool usage experience within your team, provide feedback, and help HUAWEI CLOUD optimize tool capabilities.

Disclaimer for Tool Use

No.	Topic	Description	Remark
1	To Which the Document Is Applicable	Huawei Cloud engineers HUAWEI CLOUD partner engineers and HUAWEI CLOUD customers	
2	Compliance Suggestion	The use of Open Source tools must comply with relevant open source license agreements. The use of Commercial tools must comply with relevant commercial software license requirements.	
3	Disclaimer	This document is for reference only. HUAWEI CLOUD is not responsible for data loss and service interruption caused by the use of the tool. Users must have basic technical capabilities. Before operating the production environment, fully evaluate and verify the tools to prevent service interruption caused by improper tool operations.	

Inventory 1 - Huawei Cloud Migration Tools

| Domain	SN	Tool Name	Online or Offline?	Global or Region level?	Santiago Region	Sao Paulo1 Region	MexicoCity2 Region	Discovery	Assessment	Resource orchestration	Host Migration	K8S Migration	Docker image	File Migration	DB Migration	OS Upgrading	Performance Test	ETL	Others	Remarks
Migration Management	1	MgC	Online	Global	Available			Yes	Yes	Yes	Yes									
	2	Haydn	Online	Region	Available	Available	3.30			Yes									Soluton Design / Project Management	
Discovery & Assessment	3	RDA	Offline	NA	Available	Available	Available	Yes	Yes											
	4	KSPIDER	Offline	NA	Available	Available	Available	Yes	Yes											
Resource orchestration	5	RFS	Online	Region	Available	Available	Available			Yes										
Server Migration	6	SMS	Online	Global	Available	Available	Available				Yes									
	7	qemu-img-hw	Offline	NA	Available	Available	Available				Yes									
Container Migration	8	K8CLONE	Offline	NA	Available	Available	Available					Yes								
	9	image-migrator	Offline	NA	Available	Available	Available						Yes							
Database Migration	10	DRS	Online	Region	Available	Available	Available								Yes					
	11	UGO	Online	Region	Available	NA	NA								Yes					
		UGO	Offline	NA	Available	Available	Available								Yes					
Storage Migration	12	OMS	Offline	NA	Available	Available	Available							Yes						
		OMS	Online	Region	Available	Available	Available							Yes						
Test and verification	13	CodeArts PerfTest	Online	Region	Available	Available	TBD										Yes			
BigData Migration	14	CDM	Online	Region	Available	Available	Available											Yes		

Inventory 2 - 3rd party Migration Tools

Domain	SN	Tool Name	Status	Provider	Business Type	Charged or not	Necessary to authorize?	Discovery	Assessment	Resource orchestration	Host Migration	K8S Migration	Docker image	File Migration	DB Migration	OS remodeling	Performance Test	ETL	Others	Remarks
Discovery & Assessment	1	RVTools	available	Rob de Veij	Closed source (free of charge)	No charge.	Unlimited	Yes												
	2	ARI (Azure Resource Inventory)	available	Azure	open source	No charge.	Unlimited (MIT)	Yes												
	3	ADE (aws-discovery-export)	available	GCP	open source	No charge.	Unlimited (Apache 2.0)	Yes												
	4	FADDOM	available	FADDOM	Commerce	Charged	N/A				Yes									
Server Migration	6	I2move	available	i2soft	Commerce	Charged	N/A				Yes									Win2003 / Centos 5.X
	7	disk2vhd	available	microsoft	Closed source (free of charge)	No charge.	Unlimited				Yes									Windows Image Migration
Database Migration	8	DMS (Database Migration Service)	available	AWS	Cloud service	Charged	N/A								Yes					Migrating AWS RDS to HUAWEI CLOUD
	9	i2Active	available	i2soft	Commerce	Charged	N/A								Yes					
Storage Migration	10	fastcopy	available	FastCopy Lab	Commerce	Charged (Working)	N/A							Yes						Windows SMB File
	11	Rclone	available	N/A	open source	No charge.	Unlimited (MIT)							Yes						Linux
	12	Rsync	available	N/A	open source	No charge.	Unlimited (GPL 3.0)							Yes						Linux
	13	fpsync	available	N/A	open source	No charge.	Unlimited (BSD)							Yes						Linux
Test and verification	14	WRK	available	N/A	open source	No charge.	Unlimited (Apache 2.0)										Yes			
Data Migration & Integration	15	Pentaho Data Integration (Kettle)	available	N/A	open source	No charge.	Unlimited (Apache 2.0)											Yes		

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Inventory 3 - Huawei Latin Cloud developed tools

Domain	SN	Tool Name	Online or Offline?	Global or Region level?	Santiago Region	Sao Paulo1 Region	MexicoCity2 Region	Product Manager	Discovery	Assessment	Resource orchestration	Host Migration	K8S Migration	Docker image	File Migration	DB Migration	OS Upgrading	Performance Test	ETL	Others	Remarks
Resource orchestration	1	LLD2Terraform	Offline	NA	Available	Available	Available				Yes										
	2	packer-terraform-demo	Offline	NA	Available	Available	Available				Yes										

MgC (Migration Center)

Positioning: Integrates migration tools to cover the entire migration process and domain, and supports one-stop migration service, including Discovery & Assessment , orchestration of migration processes and management of migration tasks.
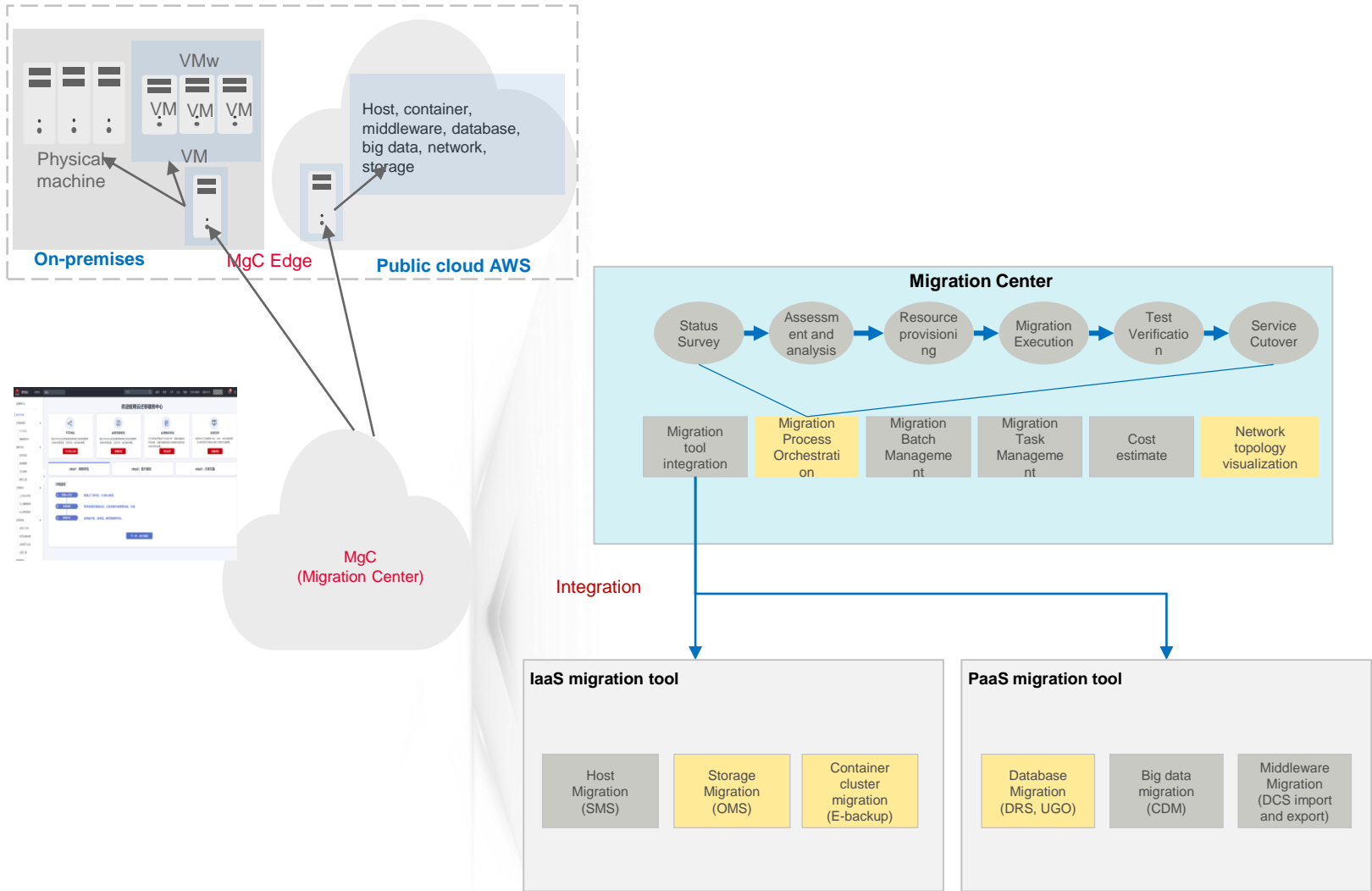
Application Scenarios

- VMware (Available)

- AWS (Available)

- Azure (In development)

- GCP (Available)

- OCI (In development)

Major Features

- Survey

- Assessment

- Migration

Haydn Solution Digital Platform

Positioning: Haydn Cloud Solution Factory (HaydnCSF) is a one-stop digital platform for solution full lifecycle management. It digitalizes objects, workflows, and rules to help partners and end users design, deploy, verify, deliver, and manage solutions online in a collaborative manner, accelerating solution monetization.

Overall Diagram for Haydn Solution Digital Platform

Digital transformation

Blueprint Planning	Blueprint on the target side of the business

Architecture Planning	Application Architecture	Application Architecture	Execution Plan	Tasks	Project	Quick win
	Application Architecture	Application Architecture				

Haydn Solution Digital Platform

Design Center	Verification Center	Delivery center	O&M event center

Solution Acceleration Field

Application Scenarios

- Solution Design
- Baseline Verification
- Certification Test
- Project PoC
- Solution Delivery
- O&M Event Management

Haydn Document

Limitation: Haydn is available in LATAM Regions, partner could use the Solution Design function.

Available

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RVTools for VMware Discovery
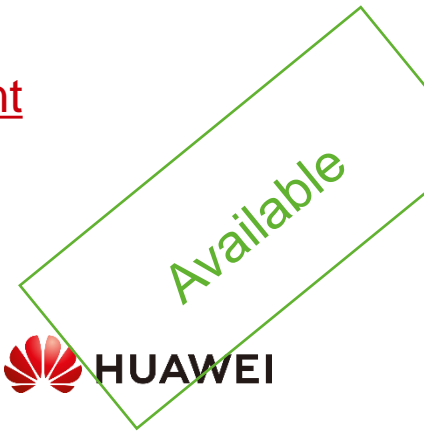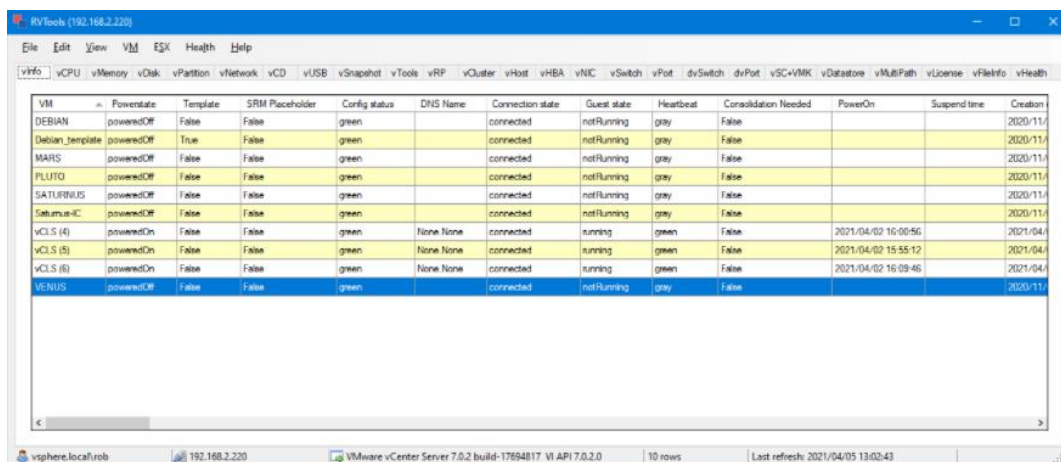
Positioning: RVTools is a discovery tool for VMware Platform, it can export the Virtual Machine List with one command

RVTools Introduction

RVTools is a Windows .NET 4.6.1 application which uses VMware vSphere Management SDK 7.0 and CIS REST API to display information about your virtual environments.

VirtualCenter 4.x, ESX Server 4.x, VirtualCenter 5.x, ESX Server 5.x, VirtualCenter 6.x, ESX Server 6.x, VirtualCenter 7.0 and ESX server 7.0.

https://www.robware.net/rvtools/

Suggest to export all information to xlsx file, then you can import the xlsx file to RDA.

1. Export Guide: Start RVTools with userid password, and export all to xlsx

Start RVTools connect to a specific virtualcenter or ESX server, pass userid and password, start export all to xlsx and write the xlsx files to the given directory with the given filename.

- Command Format: RVTools.exe -s virtualcenter.domain.local -u userid -p password -c ExportAll2xlsx -d directory -f filename

- Command Example: RVTools.exe -s *192.168.2.220* -u *Administrator* -p *password* -c ExportAll2xlsx -d *c:\temp* -f rvtools.xlsx

2. Import Guide: Import xlsx file to RDA for further analysis and migration

RDA Console -> Discovery -> Import -> RVTools ->Select xlsx File -> OK

RDA for VMware and AWS
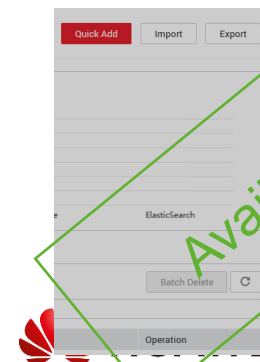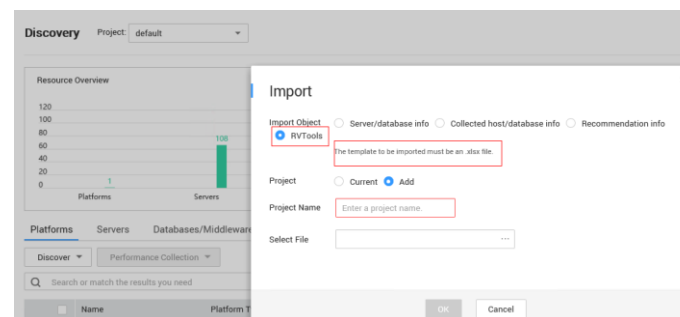
> Positioning: Resource Discovery Assessment (RDA) is a tool deployed on Windows hosts for resource discovery and migration assessment.

Scenario 1: Resource Discovery

With the cloud discovery and information collection functions of the RDA, resource information about the cloud platform, host, database, container, big data, and middleware can be collected and exported.

Scenario 2: Migration Evaluation

Analyze collected resource information before migration, identify migration risks, provide migration suggestions, and evaluate the driving force and readiness for cloud migration.

Support cloud platform

Supported the cloud platform VMware, AWS.

Support cloud services

Host, container, middleware, database, big data, network, and storage (7 types)

Support Group and Team

Technical support
- Luo Junlin
- Xie Peicai
- Tang Fa

RDA用户交流群（RDA Users Communication Gr…
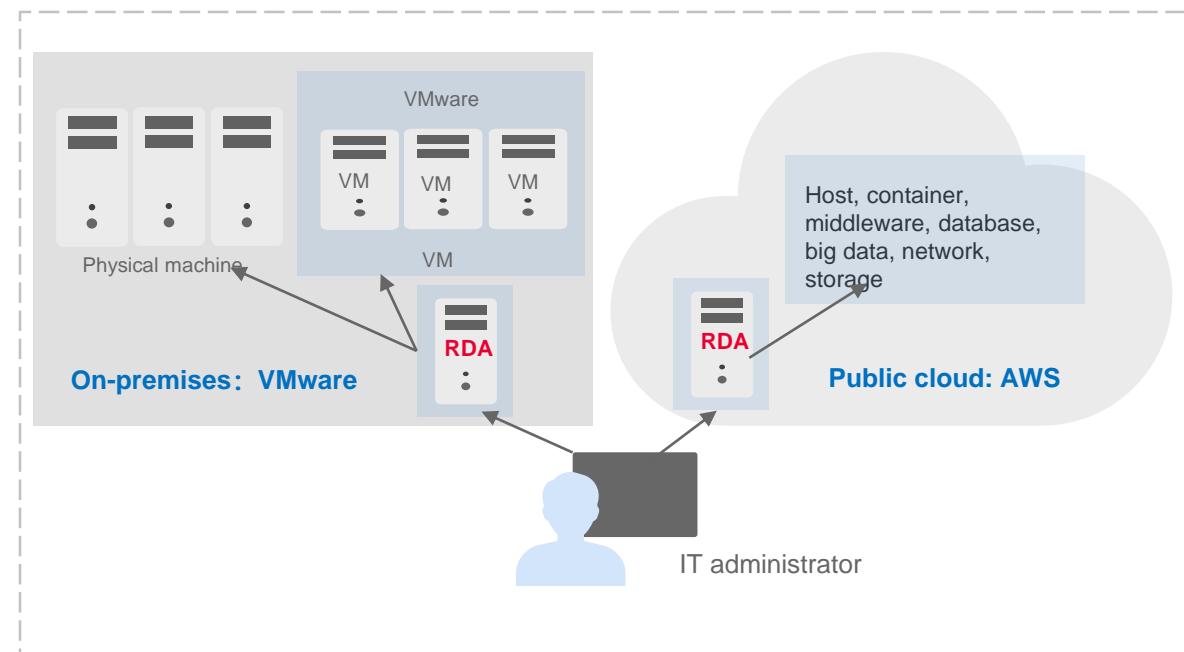
Installation Procedure

Step 1 Download the RDA installation package to the Windows computer, double-click the RDA installation package, and click Next.

Step 2 On the License Agreement page, read the license agreement carefully, select I accept the terms in the license agreement, and click Next.

Step 3 Select an installation directory and click Next.

Step 4 After the installation is complete, click Finish to enter the RDA console.

Available

Azure Resource Inventory for Azure

| Migration Mgmt | Discovery | Assessment | Resource orchestration | Server Migration | Container Migration | Database Migration | Storage Migration | Test and verification | Data Migration & Integration | Others |

Positioning: Azure Resource Inventory - It's a Powerful tool to create EXCEL inventory from Azure Resources with low effort

https://github.com/microsoft/ARI
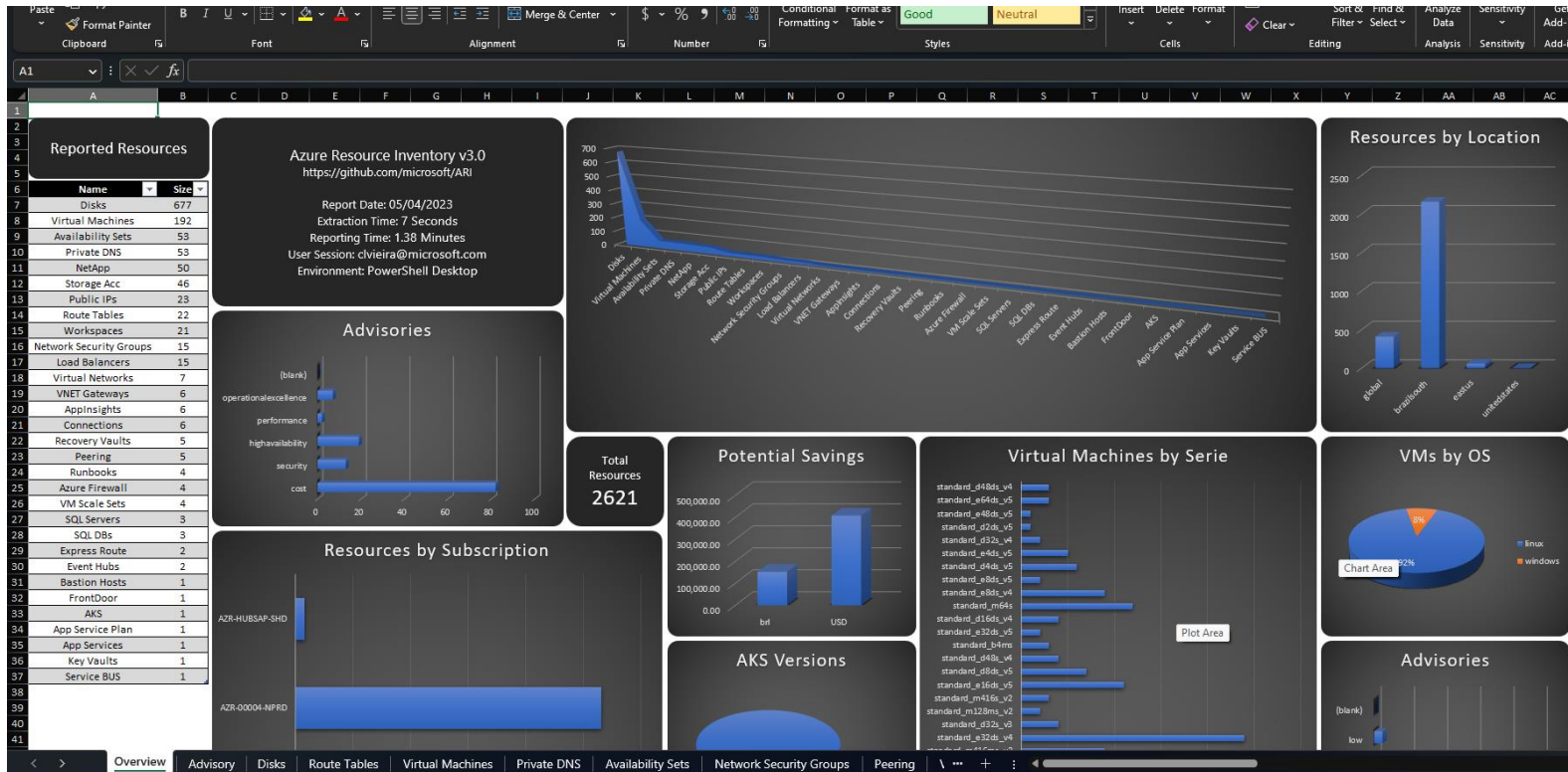
Application Scenarios

- Azure

Major Features

- Survey

Available

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ADE (aws-discovery-export)

Positioning: aws-discovery-export is a discovery tool to create inventory from AWS Resources with low effort.

https://github.com/GoogleCloudPlatform/aws-discovery-export

29 Cloud Services

GIT

Application Scenarios

- AWS 29 Cloud Services

  By default resources from following services are collected: ec2, s3, route53, apigatewayv2, appconfig, appstream, appconfigdata, application-autoscaling, autoscaling, eks, efs, ebs, lambda, rds, sns, cloudfront, elasticbeanstalk, iam, glacier, kinesis, dynamodb, elasticache, redshift, sagemaker, sqs, lightsail, cloudwatch, chime, clouddirectory

Features

- Discovery

Remark

The EC2 Discovery has been validated sucessfully.

https://github.com/huaweicloud-latam/migration-tool-map/tree/main/02-003-aws-discovery-export

Available

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KSPIDER for kubernetes cluster survey

Positioning: kspider is a tool used to collect information about the source cluster.
It provides cluster-related data such as the Kubernetes version, scale, workload quantity, storage, and in-use images. The data helps you understand the current status of the cluster and evaluate migration risks, and select a proper destination cluster version and scale.
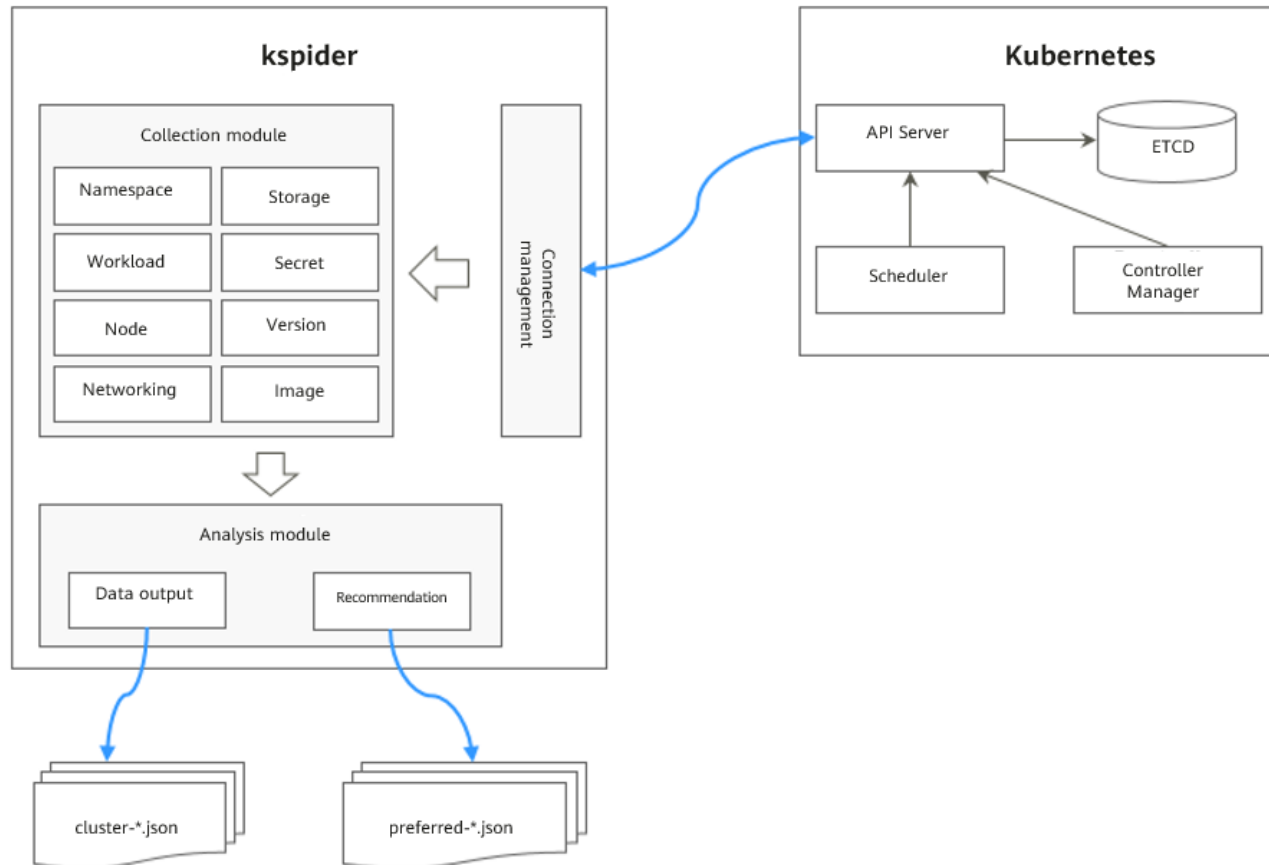
Application Scenarios

- Kubernetes
- AWS EKS
- Azure AKS
- GCP GKS
- Huawei Cloud CCE

Major Features

- Collect information from source cluster
- Evaluate the destination cluster

KSPIDER Document

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FADDOM - Agentless Application Dependency Mapping

Positioning: FADDOM is a tool that Map all your on-prem servers and cloud instances, applications, and dependencies in under 60 minutes.
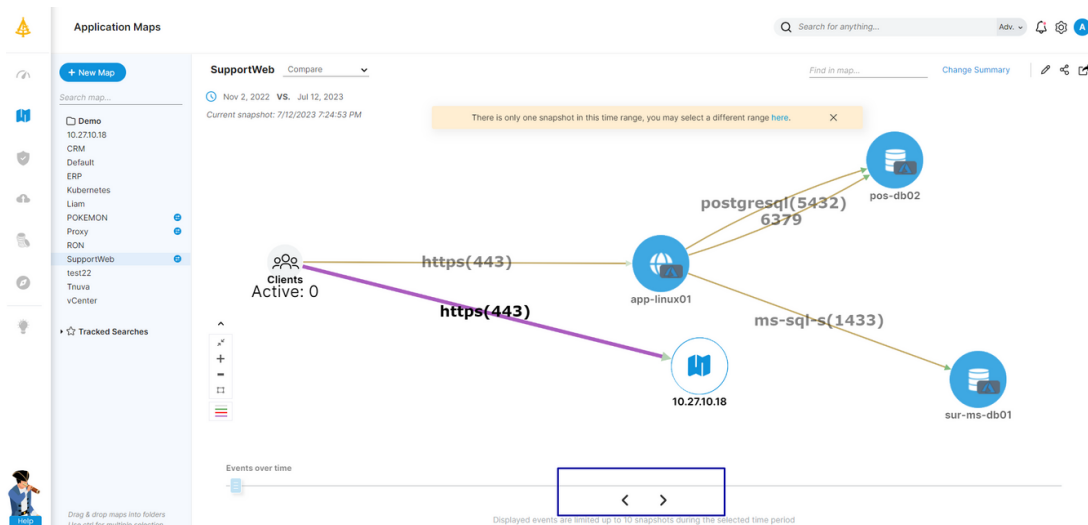
Application Scenarios

- Vmware / Hyper-V / Nutanix
- AWS / Azure / GCP

Major Features

- Discovery
- Recommendation (Sizing)
- Change Management
- Cybersecurity

FADDOM   FADDOM Help Center

Available

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RFS for Resource Provisioning

Positioning: Resource Formation Service (RFS) is a new final-state orchestration engine which helps you create, manage, and upgrade required resources in an efficient, secure, and consistent manner.
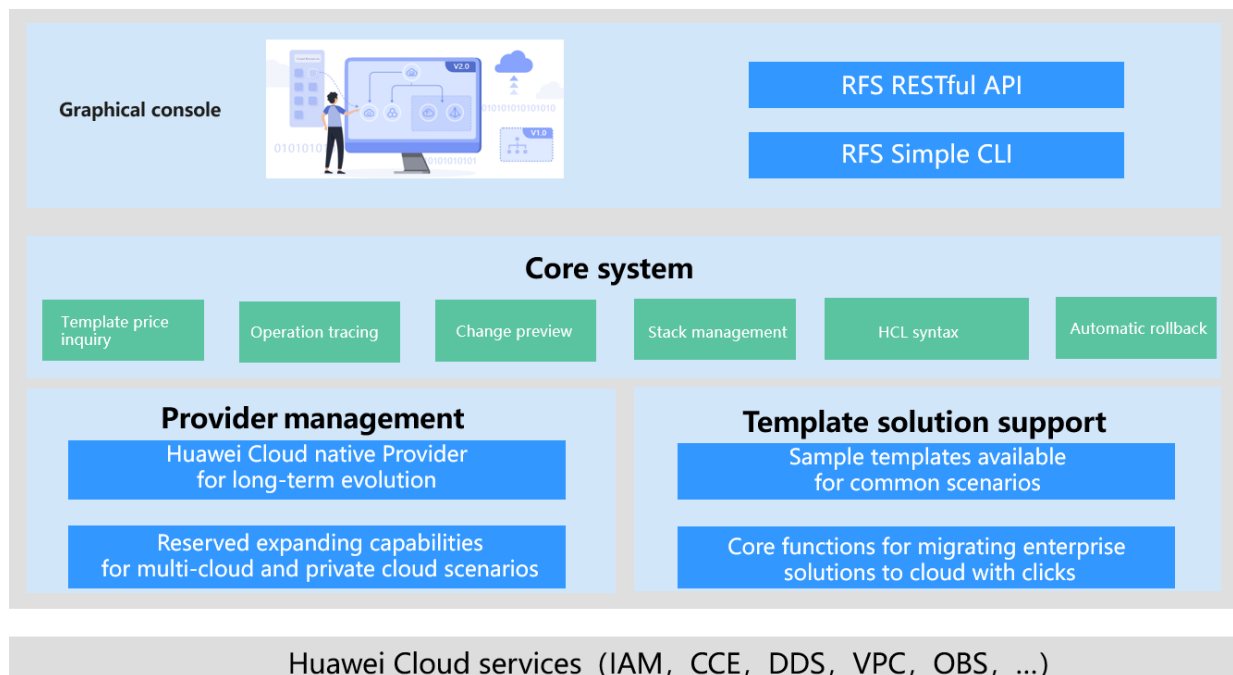
Application Scenarios

- Migrating Applications to the Cloud

- ISV Resource Provisioning

Major Features

- Easy to use: Cloud Service mode

- Declarative: Compatible with Terraform

- Efficient: Provides UI Designer

RFS (Resource Formation Service) Document

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LLD2Terraform for Resource Provisioning

Positioning: LLD2Terraform is a Python script tool to convert Low-Level Design (LLD) to Huawei Cloud Terraform code

LLD2Terraform Workflow

LLD2Terraform

LLD → Terraform Scripts → Terraform Apply → ECS / EVS / VPC Instances
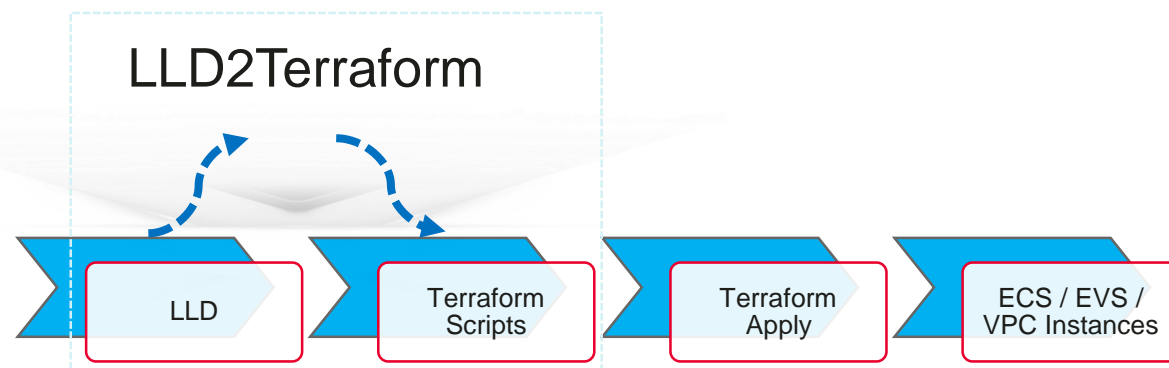
Python tool that reads LLD information and converts to Terraform code
Available at
<https://github.com/huaweicloud-latam/lld-to-terraform>

Application Scenarios

- Resource Provisioning on Huawei Cloud

Major Features

- Creating Resources in Batches Based on LLD Information

SCAN ME

Available

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Packer for Image Creation On Huawei Cloud

Positioning: Packer is an open-source tool for creating custom images for multiple cloud platforms in parallel.
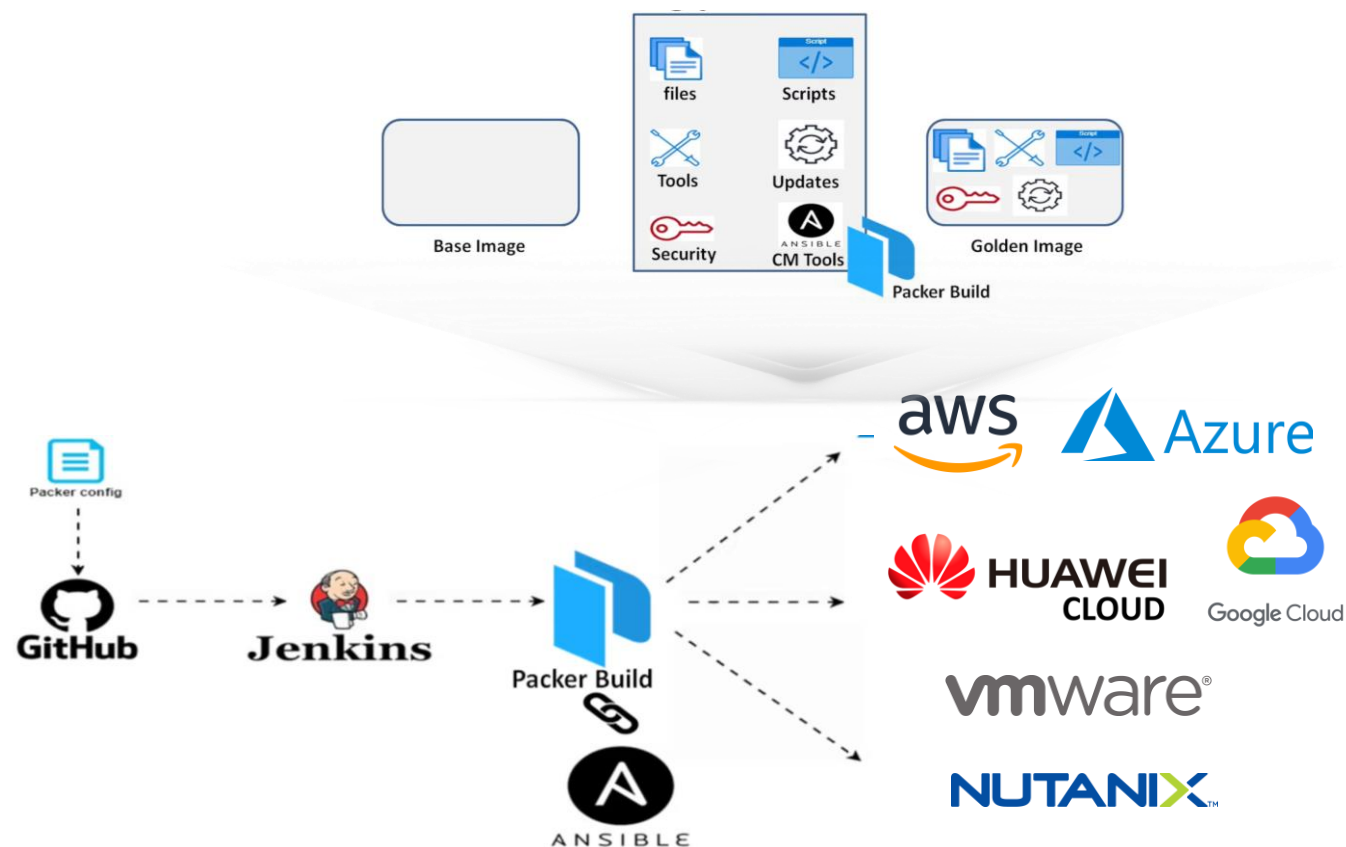
Application Scenarios

- Automatic image creation

Major Features

- Simplifies private image creation by using manageable code

  Packer-terraform-Demo

  Packer Official

  Huawei Cloud Packer Provider Manual

  Creating a Private Image Using Packer

Available

SMS for Server Migration

Positioning: SMS (Server Migration Service) is a Cloud Service which is provided by Huawei for online server migration.

SMS Workflow

1 Preparing for Migration
Focus on the migration network and AK/SK
Go to Preparation and Configuration

2 Download and Start Agent
Download the migration Agent and install it on the server to be migrated.

3 Configure Target ECS
Select the server to be migrated and click Set Target ECS.

4 Start Migration
Select the server to be migrated and click Start.
Migration automatically enters the continuous synchronization state after the first replication.

5 Launch Target ECS
You are advised to stop importing source data.
SMS automatically perform final synchronization after the target ECS startup.

Application Scenarios

- P2V (physical machine to virtual machine)

- V2V (virtual machine to virtual machine)

- AWS EC2 / Azure Machine / GCP Compute Engine / Vmware VM / Hyper-V VM / Nutanix VM etc.

Major Features

- Windows: Windows Server 2008 and higher OS version
- CentOS / Redhat / Oracle Linux 6.0 or higher Version
- Debian 6 / Ubuntu 12 / Suse 11 or higher OS version

Refer to the SMS Guide

Available

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I2MOVE for Windows 2003 / Centos 5.X migration

Positioning: I2MOVE is a commercial migration tool provided by I2Soft for online server migration.

I2MOVE Workflow
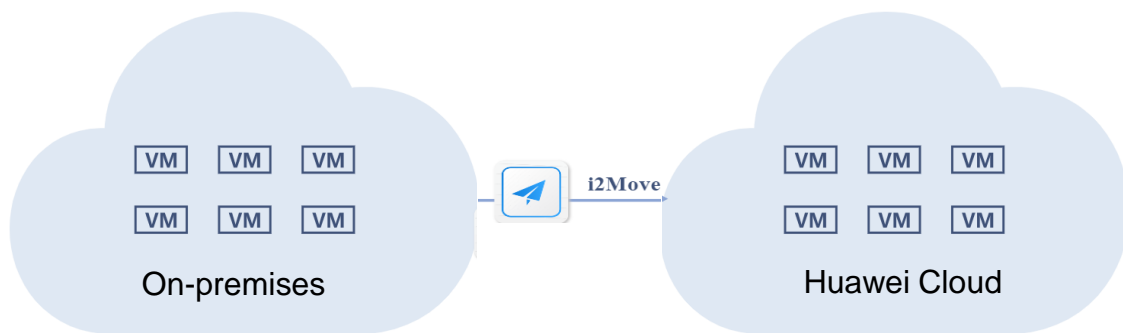
On-premises → i2Move → Huawei Cloud

Official Website

https://www.info2soft.com/en/product/i2move

KooGallery

https://marketplace.huaweicloud.com/intl/product/00301-173035-0--0

Application Scenarios

- P2V (physical machine to virtual machine)

- V2V (virtual machine to virtual machine)

- V2P (virtual machine to physical machine)

- P2P (physical machine to physical machine)

Major Features

- Windows: Windows Server 2003 R2, Windows Server 2008 and above system, Windows XP, Windows 10, etc.
- Linux: CentOS 4.4(*) and above system, including CentOS 6.5, 7.0, 7.1, etc.
- Others: Redhat 4.8 (*) and above system, SUSE10sp1 and above system; NeoKylin 6.5, NeoKylin 7.2 and so on.
- Various virtualization platforms, Hyper-V, Citrix Xen Server, VMware, KVM.

Remark:

* Huawei Cloud ECS needs KVM driver, some old Operating Systems don't have KVM (VirtIO) Driver, such as Centos 4.X – 5.0 / 5.1

Available

RiverMeadow for OS Upgrading

Positioning: RiverMeadow's Multi-Cloud Migration Platform is quick to implement and will safely upgrade your source OS versions as part of the migration.

OS Modernization Workflow
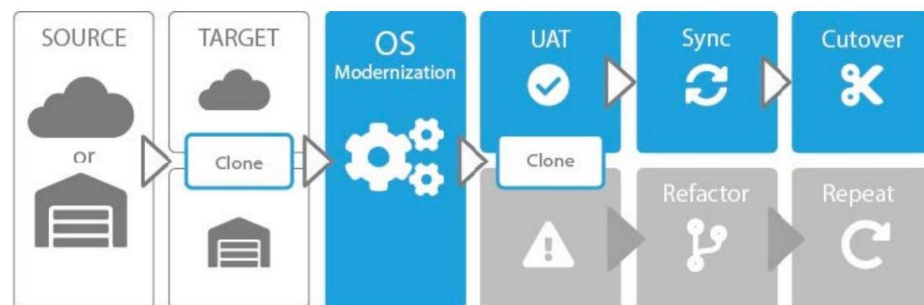
OS Modernization Workflow

Items	MANUAL OS upgrade - Standard -	AUTOMATED OS Upgrade - RiverMeadow -
Time to Execution	4-5 hours per manual process	Minutes
Speed of Process	Slow & not sustainable eg 5 per week	Fully Automated and built for scale eg 75-100 per week
Downtime (Source Applications)	Excessive - Process must be done in a maintenance window	No downtime required on the source
Single-hop or multi-hop?	Single-hop only eg n-2 to n-1	Multi-hop - For example, choose to go from Windows Server 2003 (64bit) to Windows Server 2019 or any version in between
Pre-Flight Compatibility Scan?	None	Pre-flight scan identifies known compatibility issues before migration start
Certification by Microsoft?	No	Yes - Microsoft has certified the OSM process for Windows Server teams and Azure Product Owners

Application Scenarios

- AWS / Azure / GCP

- Huawei Cloud (Doesn´t support*)

Major Features

- Project Management

- Server Migration

- OS Modernization (Highly recommended)

* Remark: If you have Project requirement, please contact Huawei Cloud team.

Not Available

Disk2vhd – Create VHD image from Windows Server

Positioning: Disk2vhd is a utility that creates VHD (Virtual Hard Disk)

Disk2vhd Workflow

Windows Server → VHD Image → IMS Private Image → ECS Instance
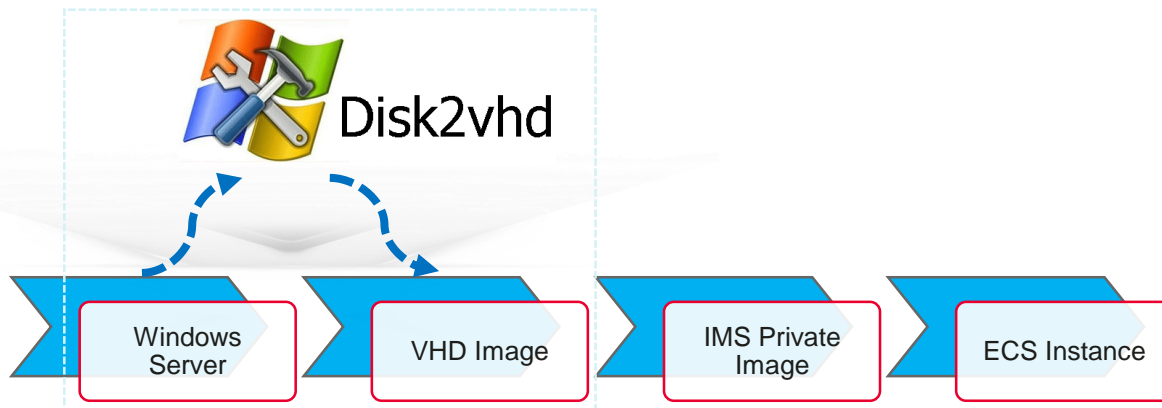
Software Version and Console

Version	Compatiable OS List	Download Link
V1.62	Windows XP SP2 Windows Server 2003 SP1, and higher, including x64 systems.	https://github.com/huaweicloud-latam/migration-tool-map/blob/main/02-007-disk2vhd/Disk2vhd_v1.62.zip
V2.02	Windows Vista, Windows Server 2008, and higher, including x64 systems.	https://learn.microsoft.com/en-us/sysinternals/downloads/disk2vhd
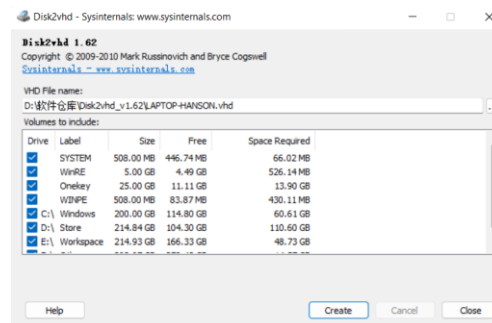
Application Scenarios

- Windows 2003 or later(*)

Major Features

- Server Migration (Offline mode)

REMARK
- Huawei Cloud doesn´t support Windows XP, because Windows XP doesn´t have KVM Driver

** V2.02 doesn´t support Windows 2003, so please download the previous versión V1.62.

Disk2vhd Document

Available

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qemu-img-hw - Converting the Image Format

Positioning: qemu-img-hw is developed by Huawei and is used for converting image formats from other formats to RAW or ZVHD2 format.

qemu-img-hw Workflow

qemu-img-hw

Other format (VMDK/VHD) → ZVHD2 Image → IMS Private Image → ECS Instance
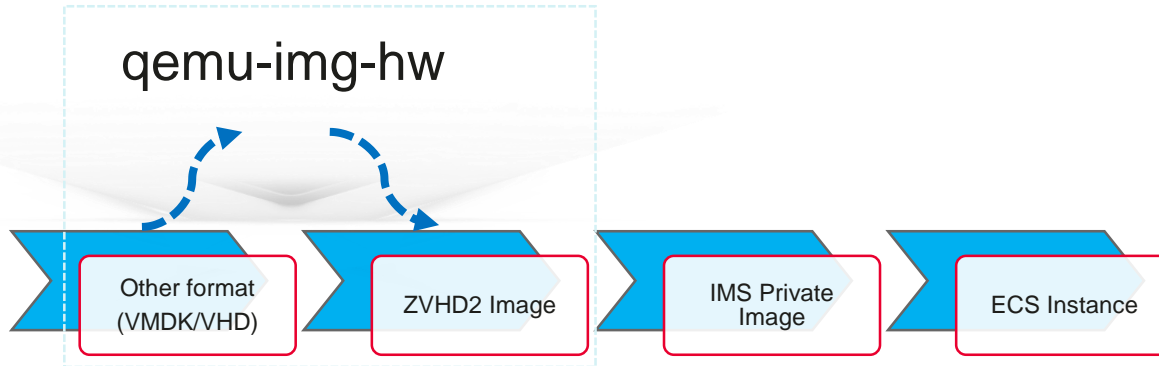
Software Version and Console

Version	Compatiable List	Download Link
V2.3.0	VHD, VMDK, QCOW2, RAW, VHDX, QCOW, VDI, QED, ZVHD or ZVHD2	Converting the Image Format Using qemu-img-hw

Application Scenarios

- Server Image in formats: VHD, VMDK, QCOW2, RAW, VHDX, QCOW, VDI, QED, ZVHD or ZVHD2

Major Features

- Image Format Converting

REMARK
- The Image size of IMS Service has limitation, so it´s mandatory to convert the image to RAW or ZVHD2 first, then import the image through fast import feature.

Qemu-img-hw Document

Available

HUAWEI

image-migrator for docker image migration

Positioning: image-migrator is an image migration tool that can automatically migrate images from the Docker image repository built on Docker Registry v2 to SWR.

Image-migrator Workflow

Application Scenarios

- AWS Elastic Container Registry (ECR)

- Azure Container Registry

- GCP Artifact Registry

- Huawei Cloud SWR

Major Features

- Docker Image Migration in parallel
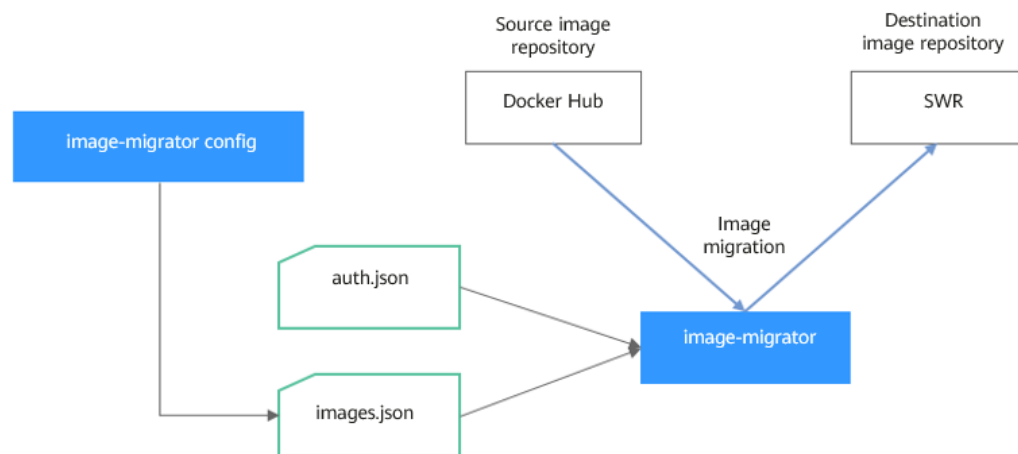
Docker Image Migration Guide

Available

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K8CLONE for kubernetes metadata migration

Positioning: k8clone is a simple Kubernetes metadata cloning tool. It can save Kubernetes metadata (objects) as a local package and restore the metadata to the destination cluster.

K8CLONE Migration Workflow

1. Application Backup

2. Application Restore
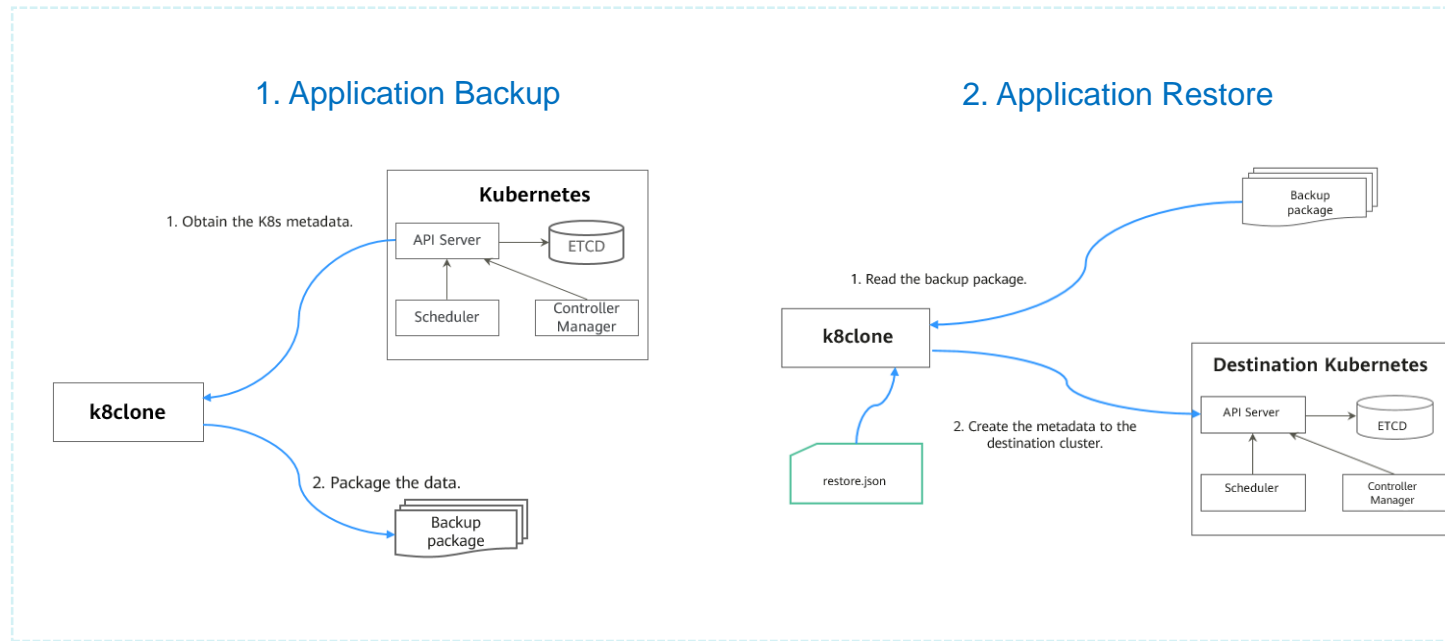
Application Scenarios

- AWS EKS
- Azure AKS
- GCP GKS
- Huawei Cloud CCE

Major Features

- application migration

 k8clone Document

DMS from AWS to Huawei Cloud

Positioning: DMS is a Database Migration Service developed by AWS, supports the database migration from AWS RDS to Huawei Cloud RDS (MySQL / PGSQL / SQLSERVER engine).

DMS Migration Workflow
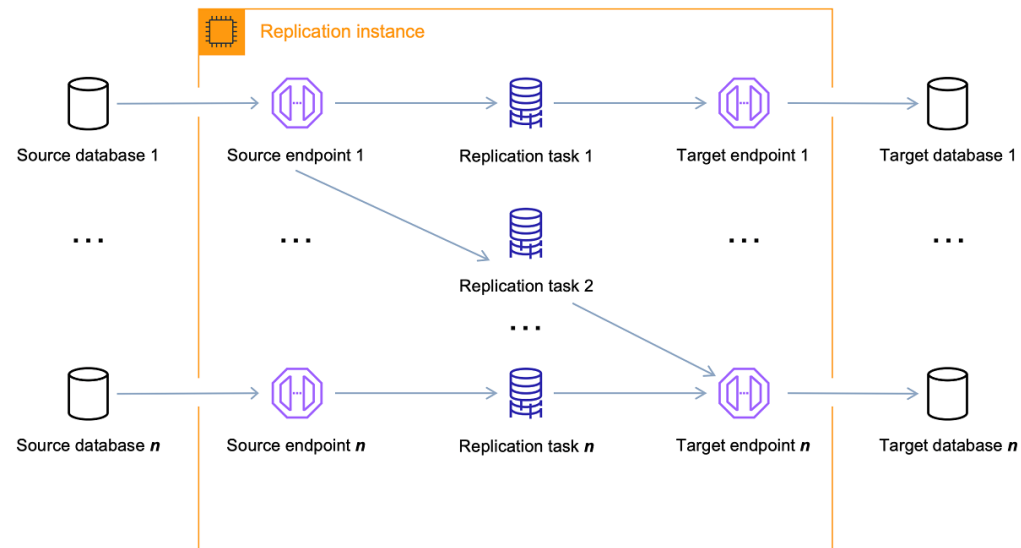
Application Scenarios

- AWS RDS to Other Clouds

Major Features

- Database migration

AWS DMS Document

Available

HUAWEI

i2Active for Database Replication and Synchronization

Positioning: i2Active is a database transaction-level real-time synchronization software. It supports Oracle Database online migration.

i2Active Oracle Migration Workflow

i2Active

AIX7.1

Oracle 11G RAC

Centos

Oracle 11G
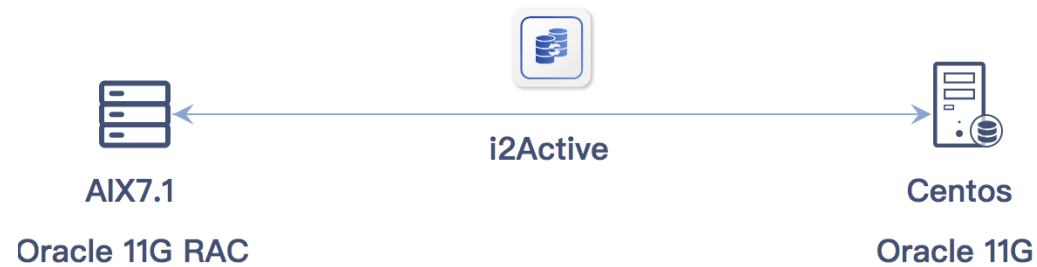
Application Scenarios

- Oracle on other Cloud to Huawei Cloud

- Oracle on AIX to Oracle on Huawei Cloud

- Single / Active-Standby / Oracle RAC

Major Features

- Oracle Database Migration (Online)

Koogallery Product Link

i2Active-HWY

Available

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DRS for Database Migration and Sychronization

Positioning: Data Replication Service (DRS) is a stable, efficient, and easy-to-use cloud service for real-time database online migration and synchronization.

DRS Migration Workflow
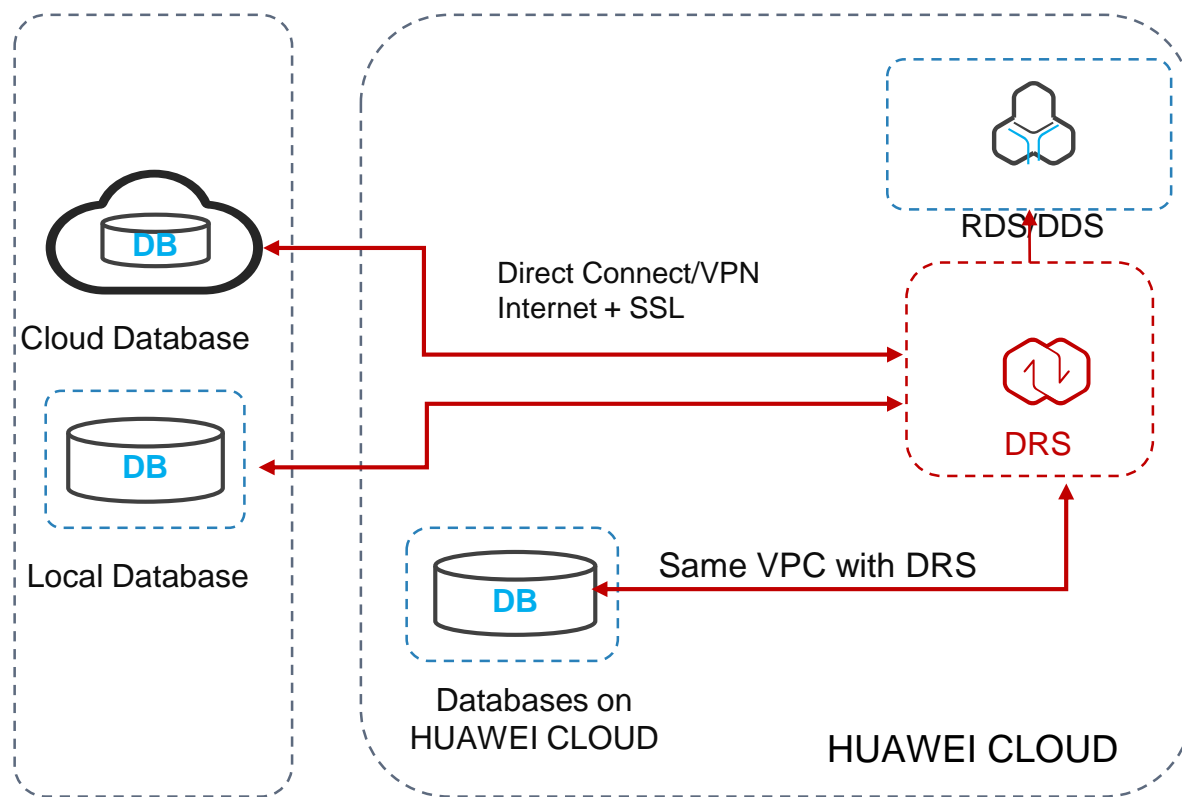
Application Scenarios

- MySQL / PGSQL / SQLSERVER to RDS
- MongoDB to DDS
- AWS RDS / Azure SQL / GCP Cloud SQL
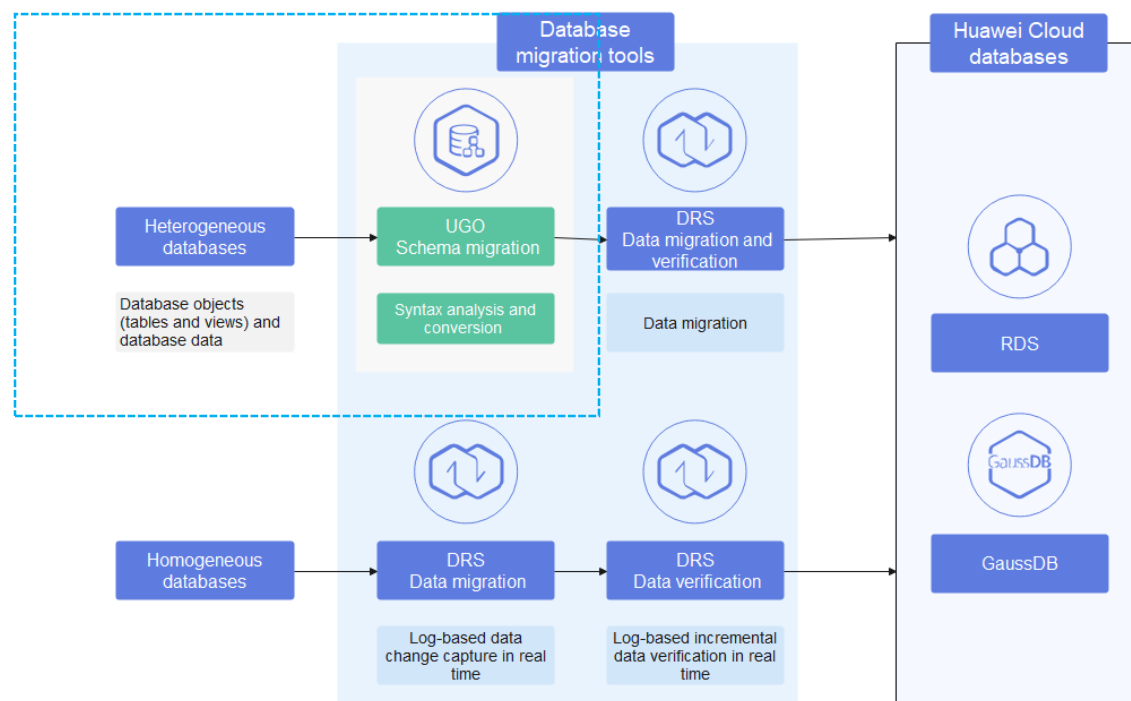
Major Features

- Database Migration

Product Link

- DRS Document

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UGO for heterogeneous database schema migration

Positioning: Database and Application Migration UGO, referred to as UGO, is a professional cloud service focused on heterogeneous database schema migration.

UGO Migration Workflow

Application Scenarios

- On-premises Oracle Database

- AWS Oralce Database

Major Features

- Oracle to PGSQL Schema Migration

- Oracle to GaussDB Schema Migration

Deployment Mode	UGO (Deployment Version)	UGO (Cloud Service Version)
Application Scenario	Database can not be accessed from Internet.	Database can be accessed from Internet.
Limitation	Should prepare installation server and apply License	N/A
User Guide	https://support.huawei.com/enterprise/en/cloud-computing/ugo-pid-251711929	https://support.huaweicloud.com/intl/en-us/productdesc-ugo/ugo_01_0002.html
Software Package	https://support.huawei.com/enterprise/zh/cloud-computing/ugo-pid-251711929/software	Huawei Cloud

OMS for File Storage Migration

Positioning: Object Storage Migration Service (OMS) migrates object storage data and file storage data from AWS, Azure, or GCP to HUAWEI CLOUD.

OMS Migration Workflow
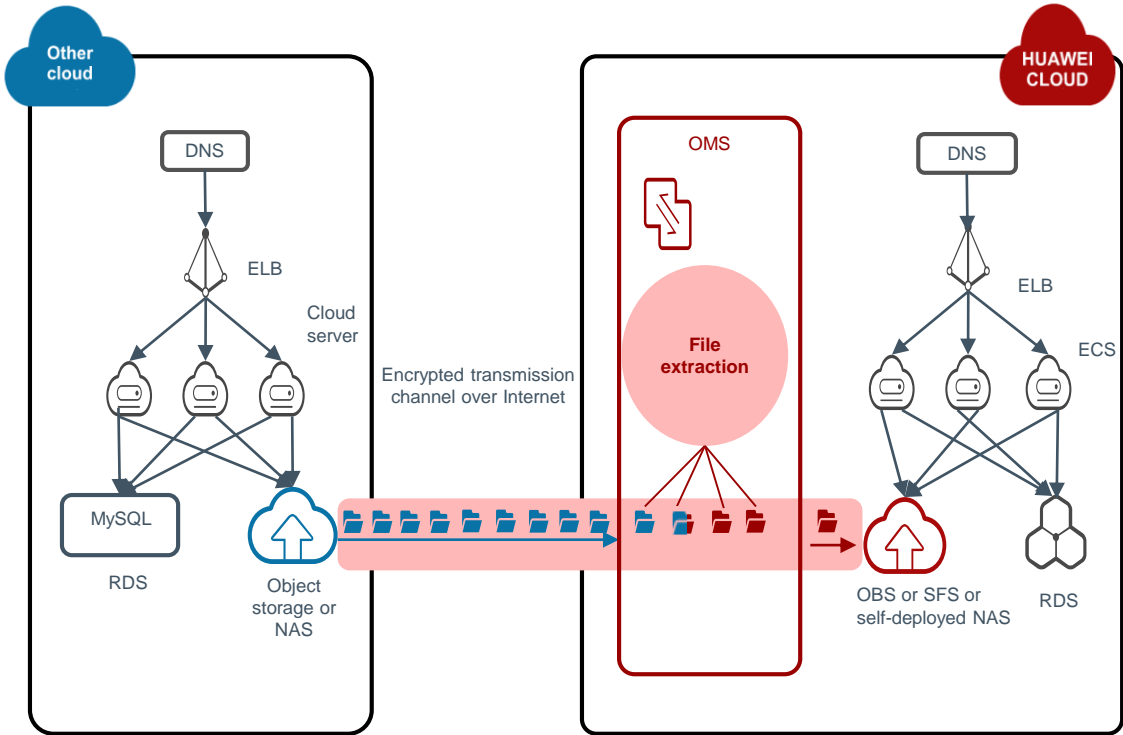
Scenario 1: OBS File Migration

1. Migrating AWS S3 to OBS on HUAWEI CLOUD
2. Migrating AWS S3 to HUAWEI CLOUD SFS Turbo

Scenario 2: NAS File Storage Migration

1. Migrating AWS EFS to HUAWEI CLOUD OBS
2. Migrating AWS EFS to HUAWEI CLOUD SFS Turbo
3. Migrating 3rd NAS to Self-Deployed NAS

Supported storage types

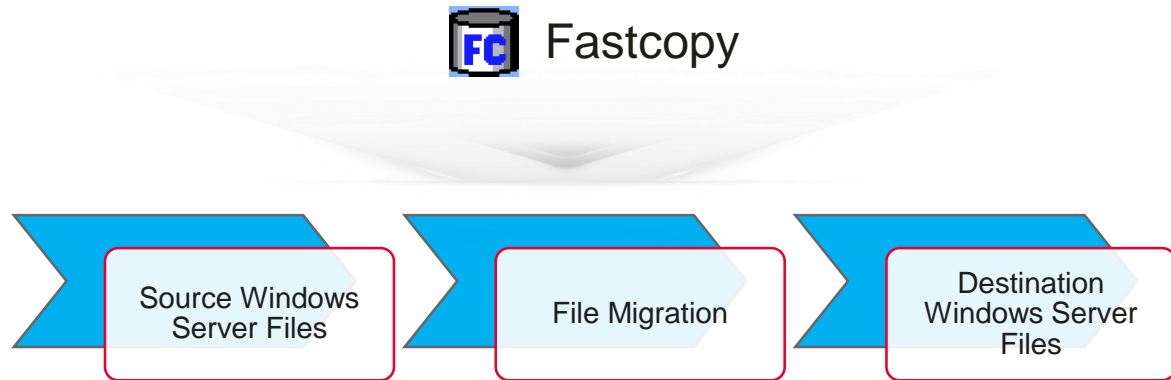| Deployment Mode	RDA + OMS plug-in (offline deployment version)	OMS (cloud service edition)
Object Storage Support	AWS S3 / Azure Blob / GCP Cloud Storage	AWS S3 / Azure Blob
File storage support	NFS V3/V4 and SMB (CIFS) protocol (AWS / Azure / GCP)	Not supported

Typical Unsupported Scenarios

1. FTP file storage. Recommended solution: Use the SMS or WinSCP for host migration.

Fastcopy for Windows File copy

Positioning: FastCopy is a Fast Copy/Backup Software on Windows.

FC Fastcopy

Source Windows Server Files → File Migration → Destination Windows Server Files

Application Scenarios

- SMB File Copy in Windows

- CIFS File Copy in Windows

Major Features

- Windows file copy

Version	License Mode	Compatiable OS List	Download Link
V5.x.x	Business Software	Windows 7/8/8.1/10/11 Windows Server 2012(&R2)/2016/2019/2022	https://fastcopy.jp/
V3.x.x-V4.x.x	Freeware	Windows Vista/7/8/8.1/10 Windows Server 2008(&R2)/2012(&R2)/2016/2019	https://github.com/huaweicloud-latam/migration-tool-map/tree/main/02-011-fastcopy

Available

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Rclone for Cloud Storage File Migration

Positioning: Rclone is a command-line program to manage files on cloud storage.

RCLONE Copy / Sync / Check

Source File Storage → File Migration → Destination File Storage
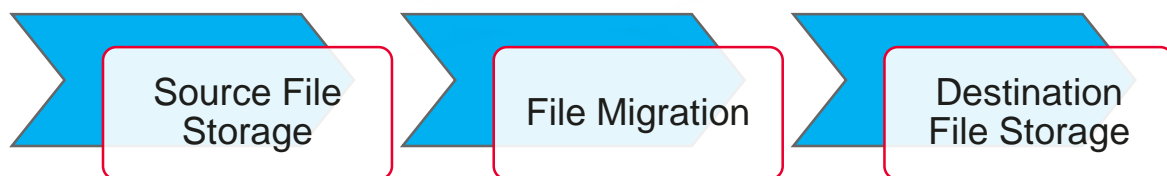
Does rclone preserve file permissions?
Currently when copying or syncing files with Rclone, it DOES NOT PRESERVE the permissions of those files.

Rclone is multi threaded with a user definable number of simultaneous transfers.

Application Scenarios

Windows / Linux / macOS / BSD

- Backup (and encrypt) files to cloud storage
- Restore (and decrypt) files from cloud storage
- Mirror cloud data to other cloud services or locally
- Migrate data to the cloud, or between cloud storage vendors

Major Features

- Transfers
  1. MD5, SHA1 hashes are checked at all times for file integrity
  2. Timestamps are preserved on files
  3. Operations can be restarted at any time
  4. Can be to and from network, e.g. two different cloud providers
  5. Can use multi-threaded downloads to local disk
- Copy new or changed files to cloud storage
- Sync (one way) to make a directory identical
- Move files to cloud storage deleting the local after verification

Product Link

RCLONE

Available

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Rsync File Replication Between Linux Servers

Positioning: RSYNC is a fast, versatile, remote (and local) file-copying tool. It can copy locally, to/from another host over any remote shell, or to/from a remote rsync daemon.

Application Scenarios

Synchronize Files / Folders from one Linux Server to another Linux Server

Major Features

1. Rsync supports incremental synchronization.

2. Rsync preserves file attributes and permissions (owners, groups, and permissions)

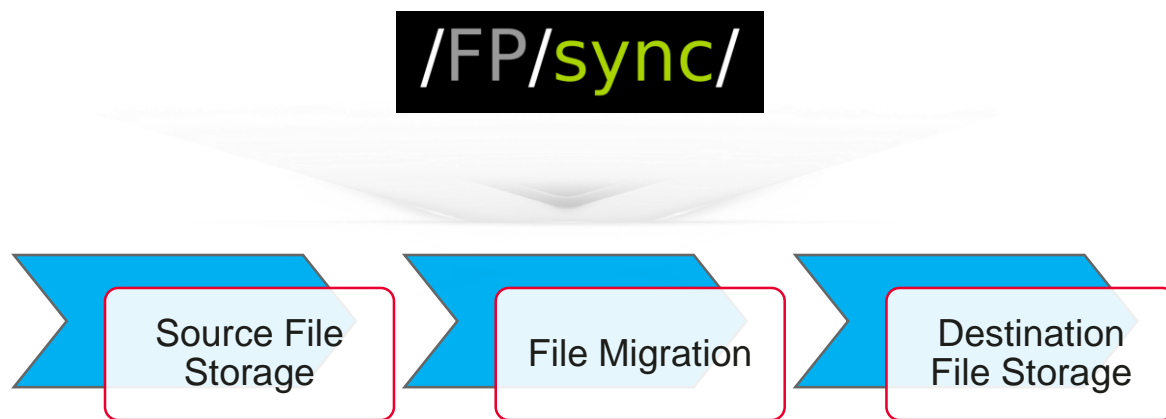**Source File Storage** → **File Migration** → **Destination File Storage**

Limitation

* Rsync is single threaded,doesn´t support multiple threads.

* The RSYNC synchronization efficiency is lower than FPsync for multi-level directories with a large number of small files.

One Command:

```
# rsync -avHPX --sparse --one-file-system --numeric-ids --stats  /data/
root@<DESTINATION_IP>:/data
```

Product Link

RSYNC Website

Available

Huawei Proprietary - Restricted Distribution

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FPsync - File Replication Between Linux Servers

Positioning: FPSYNC is a shell script that wraps FPART and RSYNC, CPIO or TAR to launch several synchronization jobs in parallel

/FP/sync/

Source File Storage → File Migration → Destination File Storage

Application Scenarios

Synchronize Files / Folders from one Linux Server to another Linux Server

Major Features

1. FPSYNC supports incremental synchronization.

2. FPSYNC preserves file attributes and permissions (owners, groups, and permissions)

3. FPSYNC supports concurrent tasks.

Remarks

• FPsync supports multiple threads.

• The FPsync synchronization efficiency is higher than RSYNC for multi-level directories with a large number of small files.

Product Link

FPSYNC Website

One Command:

```
# fpsync -n 4 -f 1000 -s $((100 * 1024)) /data/src/ root@XXX:/data/dest/
```

Available

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CodeArts PerfTest

CodeArts PerfTest (CPTS) is a service that provides performance testing for cloud applications built based on protocols such as HTTP/HTTPS/TCP/UDP/HLS/RTMP/WEBSOCKET/HTTP-FLV. After tests are complete, PerfTest provides professional test reports to evaluate your service quality.

Performance test procedure

Prepare environment resources → Create test projects → Create test tasks → View test reports

Performance Test Best Practices

SN	Topic	Guide Name	Remark
1	PerfTest + Jmeter	Native Performance Pressure Test of JMeter Test Projects	

Application Scenarios

- E-Commerce Flash Sale Tests
- Game Peak Tests
- Complex Scenarios Support
- Application Performance Optimization

Major Features

- Test Resource Management
- PerfTest Project Management
- PerfTest Case Management
- PerfTest Task Management
- PerfTest Report Management
- Transaction Management
- Jmeter Test Project Management

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WRK - a HTTP benchmarking tool

wrk is a modern HTTP benchmarking tool capable of generating significant load when run on a single multi-core CPU.

General Working Principles
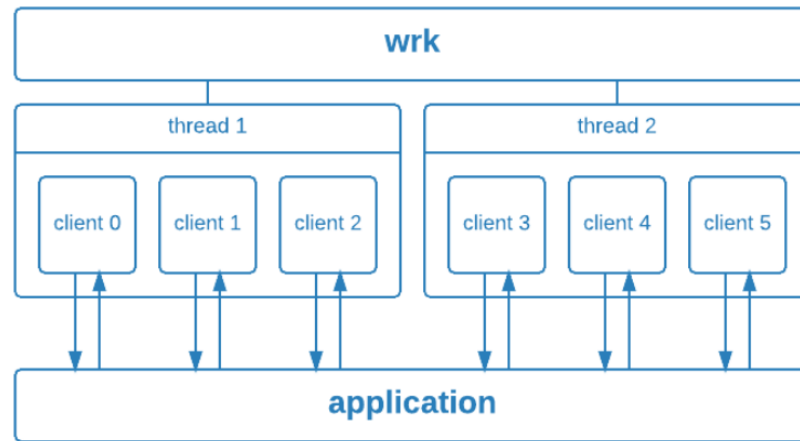
WRK + LUA Script Working Principles
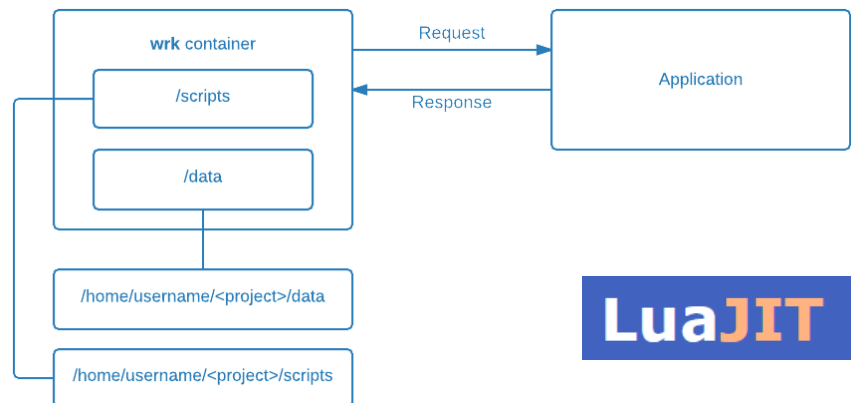
Application Scenarios

- HTTP Request (Such as Get / POST etc.)

Major Features

- Multithreaded design with scalable event notification systems
- Integration with LuaJIT script to generate HTTP requests / process responses and customize reports.

Limitation

- WRK only supports Single Node
- The official document does not specify the limit on the number of WRK connections.

Performance Test Guide
https://github.com/giltene/wrk2 (WRK Version2 Support -R Request per second) command

wrk -t4 -c1000 -d10s **-R**500 --latency -s wrk.lua https://xx.xx.xx.xx/xx

- Suggest to control the number of threads, first use single then use larger.
- The number of Connections should be divisible by the number of Threads
- Lua script is a mandatory skill for the WRK performance test.

CDM - Cloud Data Migration

Cloud Data Migration (CDM) is an efficient and easy-to-use batch data integration service
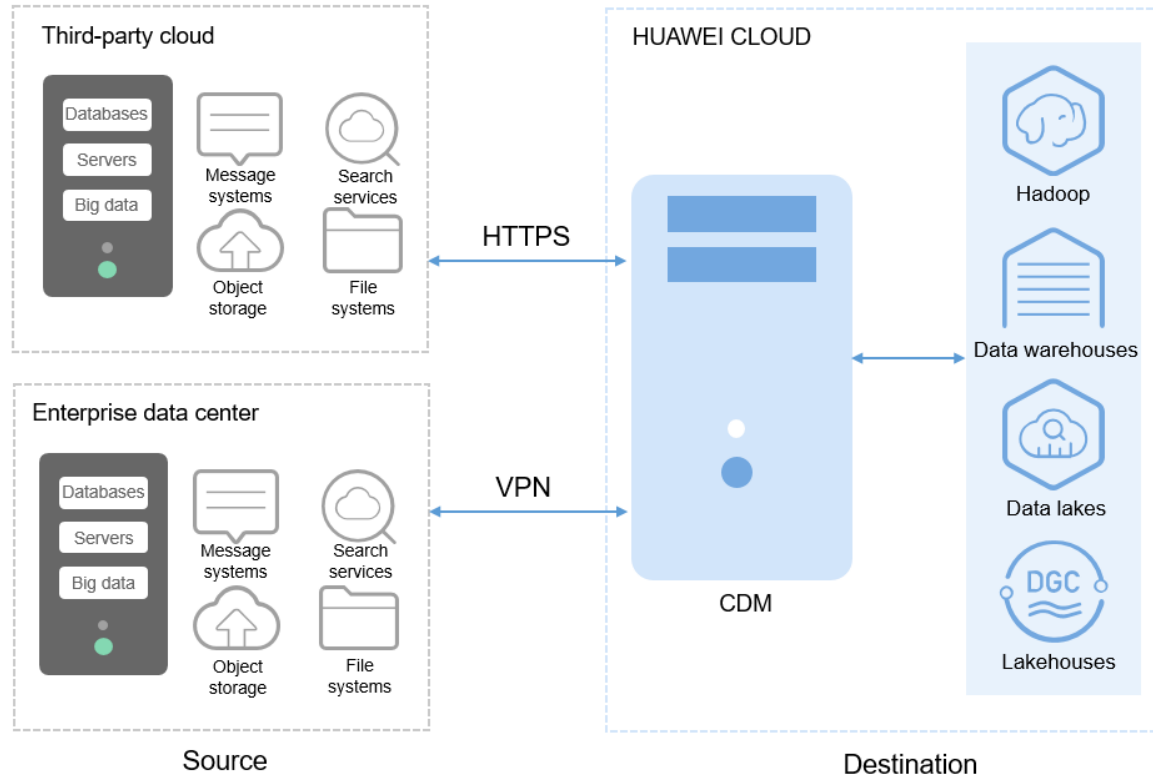
Application Scenarios

- Migrating Big Data to the Cloud
- Batch Importing Data to a Data Lake

Major Features

- Table/file/entire DB migration
- Incremental data migration
- Migration in transaction mode
- Field conversion
- File encryption
- MD5 verification
- Dirty data archiving

Limitation

- Does not support real-time incremental migration, suggest use DRS to migrate DB to RDS

Performance Test Guide

https://support.huaweicloud.com/intl/en-us/bestpractice-cdm/cdm_01_0334.html

Pentaho Data Integration (Kettle)

Pentaho Data Integration (Previous Name: Kettle) - a set of tools and applications which allows data manipulations across multiple sources including Hadoop, Hive, HBase, Cassandra, MongoDB, and others.
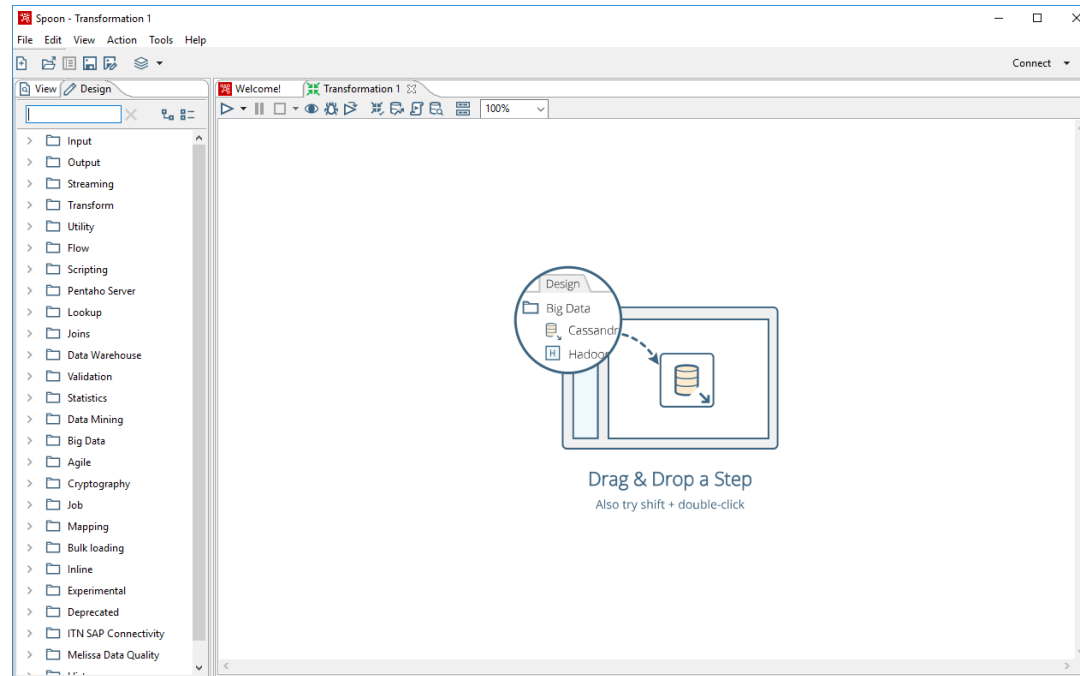
Application Scenarios

- AWS RedShift to Huawei Cloud DWS

Major Features

- Data extraction from source databases
- Transport of the data
- Data transformation
- Loading of data into a data warehouse

Resources

- Open Source Project

  https://github.com/pentaho/pentaho-kettle

- Pentaho Community Edition can now be downloaded from:

  Pentaho Community Edition Download | Hitachi Vantara

- Pentaho Enterprise Edition, trialware can be obtained from:

  https://www.hitachivantara.com/en-us/products/dataops-software/data-integrationanalytics/download-pentaho.html

How to obtain the support from LATAM Cloud Regional Team?

Huawei Internal Support Channel

Please Huawei staff use Welink to scan and join the group

LATAM Migration Tool Support Group

1. After you join the group, the Latin America Cloud Regional Work Team will provide support.

2. Tool contact person:

   - lichang /

   - liushaowei /

   - Nestor Joel /

3. If your partner has requirements on migration tools, you can contact the Latin America cloud team for tool training and support.

External Support Channel

If you (Huawei Cloud Customers or Partners) have any questions or suggestions, please feel free to contact us:

1. Send email to public mailbox:

   latamhwcloud@huawei.com

2. Create Issue on Github:

   https://github.com/huaweicloud-latam/migration-tool-map/issues

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Thank you.

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