Tencent Cloud Storage 腾讯云存储

Optimized and Powered by Flash

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Tencent Cloud
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Tencent Cloud Introduction

25 Regions

53 Availability Zones

1200+ PoP *

* Point of Presence
Tencent Cloud product portfolio

SaaS
- Solution for WeChat
  - Mini-program
  - Payment gateway
- Collaboration
  - Enterprise WeChat
- Industry-specific solutions
  - Smart City
  - FIV
  - Surveillance
  - Education
  - IoT

PaaS
- AI & Big Data
  - Big Data Platform
  - RayData
  - LBS Services
  - Face recognition
  - Intelligent CS
- Video
  - VOD
  - LVB
  - IVLB
  - H5 VLB
- Messaging
  - IM
  - SMS
- Monitoring
  - BK
  - Cloud Monitor
  - Cloud Ping
  - Cloud API

IaaS
- Compute
  - CVM
  - CPM
  - CCS
  - AS
  - CLB
  - VPC
  - VPN
  - ENI
- Network
  - CBS
  - COS
  - CFS
  - CSG
- Storage
  - TDSQL
  - PGXZ
  - SQL Server
  - MySQL
  - Oracle

Ultra-large
- Infrastructure
  - Cross-region IDC deployment
    - Modular-designed PUE <1.4 Tier 3+ IDC Standard
  - Ultra-large Network resources
    - BGP network, CDN bandwidth 70T+
Tencent Cloud Storage

10+ year experience of hundreds PB data

- 2008: Support storage need of QQ
- 2012: Mature 3-copy duplication strategy, strong consistency
- 2015: Provide mature products on cloud
- 2018: Enrich matrix of product series, supporting a million customers all around world

Tencent Cloud Storage
Tencent Cloud Storage
- Cloud Storage Categories

Cloud Block Storage  Cloud File Storage  Cloud Object Storage

Cloud Virtual Machine  Cloud Virtual Machine  Application/CDN/GAAP/CLB …

Block  NAS  REST/API

CBS  CFS  COS
# Tencent Cloud Storage
- Cloud Block Storage (CBS)

<table>
<thead>
<tr>
<th>Specs</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Types</td>
<td>HDD, Hybrid Flash Storage, NVMe SSD</td>
</tr>
<tr>
<td>Flexible size</td>
<td>Single unit 1GB - 16TB, Single server support 320TB</td>
</tr>
<tr>
<td>Reliability</td>
<td>99.999999999%, Replication factor: 3</td>
</tr>
<tr>
<td>Backup</td>
<td>CBS Snapshot. Cross-region DR</td>
</tr>
</tbody>
</table>
Tencent Cloud Storage
- CBS – Distributed storage system

**Routing Table**

<table>
<thead>
<tr>
<th>HashKey range</th>
<th>router</th>
</tr>
</thead>
<tbody>
<tr>
<td>[0-1000]</td>
<td>Tablet0</td>
</tr>
<tr>
<td>[1001-2000]</td>
<td>Tablet1</td>
</tr>
<tr>
<td>[start-end]</td>
<td>......</td>
</tr>
<tr>
<td>......</td>
<td>......</td>
</tr>
<tr>
<td>[998999-999999]</td>
<td>TabletN</td>
</tr>
</tbody>
</table>

**Ability**
- Multi-copy across racks
- Scale-out
- Full redundancy of I/O path
- snapshot
- QoS
- Real-time consistency check

**Strength**
- Simple and reliable data management by routing
- No data copy unless error
Tencent Cloud Storage
- Flash cache

- Balance cost and performance by dynamic cache strategy
- Can cover most of customer use cases
Tencent Cloud Storage - Snapshot

Snapshot is the key feature ensuring data backup. Tencent snapshot storage pool is strictly separated to the data pool.

Tencent cloud accelerate the backup restore process by “trigger” strategy. User data is available when basic metadata is restored, and when some data is requested but not restored yet, the system will block the request and trigger the specific data restore process immediately. When data is restored, the system will continue the request by user.
Tencent Cloud Storage
- COS Use Cases

Website content
- Website static resources
- Enterprise net-disk file
- Unstructured data
- Games, video resources

User Content
- Q-Zone Pictures
- Small video sharing
- Photo sharing App
- CDN Distribution

Mass File Storage
- Journal backup & Archiving
- Monitoring video storage
- Live broadcast/recording storage
- User data backup
- Big data raw files
- Cross-region DR
Tencent Cloud Storage
- COS Architecture

- HTTP REST
- Unstructured data
- Highly Available, Highly Reliable
- Highly Expandable
- High concurrency
- Public/private privileges
- Tiering between hot data and cold data
# Tencent Cloud Storage - High Performance COS

<table>
<thead>
<tr>
<th>Upload speed</th>
<th>COS</th>
<th>Vendor1</th>
<th>Vendor2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Big file 5MB</td>
<td>31</td>
<td>12</td>
<td>25</td>
</tr>
<tr>
<td>Single conn MB/s</td>
<td>575</td>
<td>301</td>
<td>465</td>
</tr>
<tr>
<td>Mid-size file 5MB</td>
<td>17</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Single conn MB/s</td>
<td>379</td>
<td>285</td>
<td></td>
</tr>
<tr>
<td>Conn time ms</td>
<td>69</td>
<td>32</td>
<td>88</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Download speed</th>
<th>COS</th>
<th>Vendor1</th>
<th>Vendor2</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 KB</td>
<td>24</td>
<td>15</td>
<td>45</td>
</tr>
<tr>
<td>100 KB</td>
<td>25</td>
<td>23</td>
<td>54</td>
</tr>
<tr>
<td>200 KB</td>
<td>35</td>
<td>45</td>
<td>49</td>
</tr>
<tr>
<td>500 KB</td>
<td>42</td>
<td>89</td>
<td>55</td>
</tr>
<tr>
<td>1 MB</td>
<td>74</td>
<td>148</td>
<td>89</td>
</tr>
<tr>
<td>5 MB</td>
<td>226</td>
<td>501</td>
<td>132</td>
</tr>
</tbody>
</table>
Solution example

Infrastructure

- 10GE Direct connection
- Media center accesses cloud storage directly
- Branch sites direct connect media central site
- CVMs possess dedicated slicing processes

Upload/Download

- Upload from media center
- Distributed to branches after processing
- CDN distributes sliced data

Supports

- Compatible with all FTP clients
- AWS S3 migration tools
- Tools for FUSE mount local storage
Solution example

Acceleration Services

CDN Accelerated upload and download

Access

Picture recognition and processing
Audio and video processing
Document processing

Big data suite
Command line tool
POSIX compatible

Data Interface

S3 compatible API
SDK
HTTP REST

High Reliable Distributed Data Storage
Summary

- Comprehensive cloud service offering
- High performance Cloud Storage
- Flexible and efficient cloud storage solution