

USE CASE

DataCommCloud Enables Ceph Storage With OpenStack For Its Cloud Service To Enterprises In Indonesia

ABOUT DATACOMM CLOUD INDONESIA

- Datacomm is Leading system integrator for government projects and big enterprises such as Telecom, ISP in Indonesia.
- Expand business to public cloud service to Enterprises by using OpenStack, VMware & KVM
- Offering a friendly cloud service to Enterprises Indonesian, support customer to migrate their IT infrastructure to cloud without barrier
- Long term goal to support Indonesia 4.0 national vision by providing nation-wide reliable, dependable and secure cloud Infrastructure.

HIGHLIGHTS

- Datacomm Cloud has deployed an OpenStack Public Cloud service and engage Ambedded to provide and support its ceph storage with RBD & object storage in 3 datacenters.
- With Ambedded hands on L2/L3 supports, Datacomm cloud could deploy 3 high availability ceph clusters in 3 datacenters quickly, providing both SSD pool and HDD pool for OpenStack usage.
- Through the ceph RBD mirroring, Datacomm Cloud is able to simplify the site to site backup for its data use and disaster recovery consideration.

WHO IS DATACOMM CLOUD



PT DATACOMM is Leading Information & Communication Technology Service Provider in Indonesia. their goal is to help customers to be ready for digital generation. Started as traditional system integrator more than quarter century ago, they are building long-term partnership and leadership in virtualization, cloud computing, cybersecurity and software defined network. Nowadays they split their organization into 3 main business aspect, Telco, Government & Cloud. With Indonesia 4.0, Datacomm Cloud has observed the urgent and fast-growing demand from Small and Medium Enterprises (SMEs) for moving their IT to the public cloud service. The SMEs are lacking in IT investment, Cloud Technology is opening possibilities for SMEs to start in IT to boost their efficiency, competitiveness and differentiation, as well as expanding their market reach. While SMEs are lack of IT equipment and experience professional, and large enterprises are looking for cloud diversification for resiliency/redundancy purposes. Datacomm Cloud aims to offer the digital transformation to cloud native application in an easier, faster and more confident way to all the Enterprises in Indonesia.

THE CHALLENGES

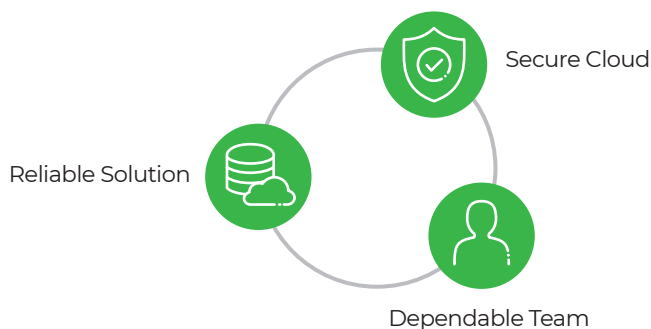
As [DataComm Cloud](#) is offering a new cloud service to the target market, the challenges are how to provide a competitive cloud service compared to the market giants such as Google Cloud, Microsoft Azure, and Amazon Cloud Service.

Operating VMware cloud for more than five years and running Kubernetes cloud already, DataComm Cloud was also looking for extending their cloud service with OpenStack for enterprises in Indonesia. Their OpenStack operation requires the use of block storage and object storage. If they choose a storage design where the block and object storage come from different storage systems, this will add complexity for monitoring, managing, and future support capabilities.

Also, the cloud infrastructure and the application requirement will likely scale out along with the actual business need. Application and users will consume more capacity over time, and therefore the anticipated storage capacity might not be able to 100% meet the original plan. In addition, DataComm Cloud is not only operating one datacenter but up to 4 different datacenters, to provide high reliability, high availability, data security, and edge cloud service to enterprises all over Indonesia, With frequent happened power shortages suddenly in the country, it's important to consider data backup and disaster recovery ability among the current 4 datacenters, which may extend to 5 or 6 data centers very quickly.

Furthermore, the DataComm IT team pays lots of attention to Power Usage Efficiency (PUE) since they own more than one datacenter facility, and the new DCs are already on the plan. All the incoming datacenter build-up shall set PUE as mandatory criteria for equipment arrangement.

- **Preferable to have block storage and object storage in 1 storage cluster, to avoid storage silos and future complexity**
- **Scalability to adopt to various applications by actual need**
- **Simplicity on data backup with OpenStack and also the disaster recovery ability**
- **Power efficiency for datacenter facility**
- **Aiming to enterprises with cost Effectiveness to own Cloud Infrastructure**





We have considered several storage solutions to work with our OpenStack cloud, including legacy storage and software-defined storage. As our cloud service targets SMEs, we will need to find cost-efficient cloud-native ready, scalable, reliable, resilient, and good performance. We found ceph storage to be a perfect fit after 2+ year trial experience.

Furthermore, as we have three data centers located in 3 different sites, the RBD mirroring and simplicity to backup data from one datacenter to another in the Ceph cluster enhances our belief in choosing ceph storage

Said **Mr. Luk Phin Tirtokuntjoro**,
CTO of DataComm

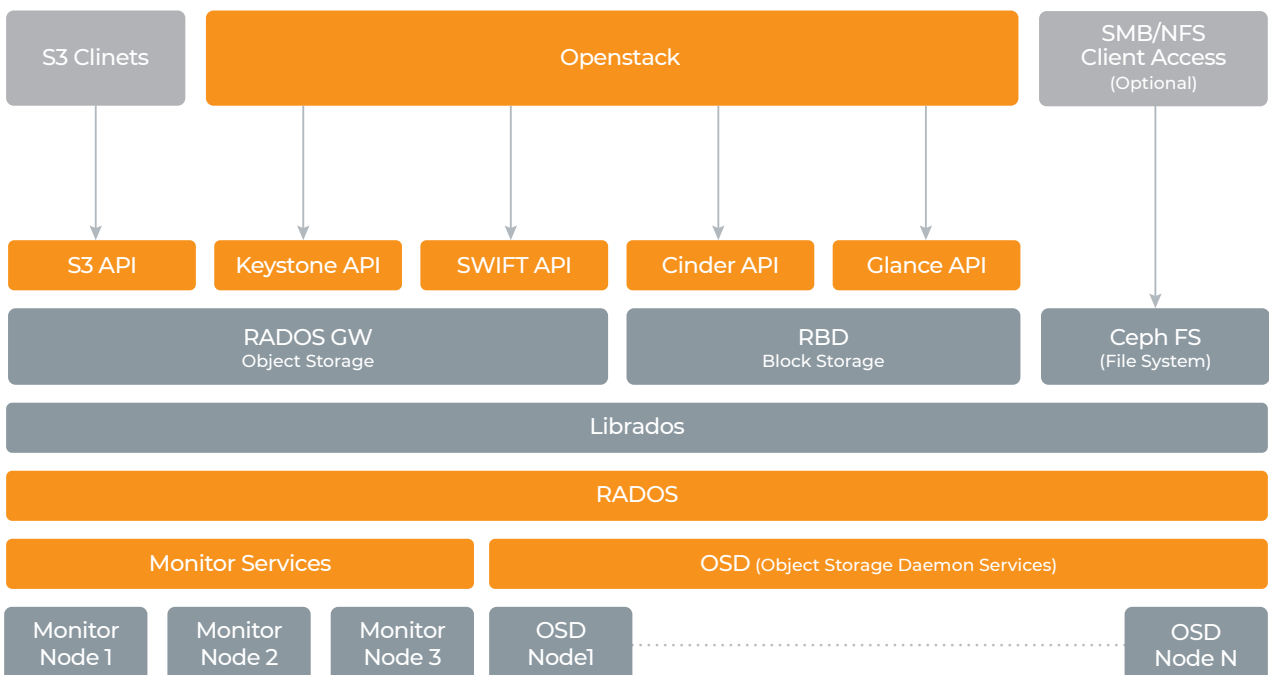


THE SOLUTIONS AND BENEFITS

Considering the OpenStack infrastructure and the potential blooming cloud business, the DataComm Cloud team takes more than one year to evaluate the right solution on the backend storage to OpenStack.

For storage needs, OpenStack cloud architects usually choose Ceph as the storage system for its scalability, flexibility, rich native support, and high availability. Also, Ceph storage is the most popular open-source software-defined storage in recent years.

With Ceph, users get all the benefits of open-source software. It supports multiple protocols such as object storage, block storage, and file system. With Ceph, OpenStack got what it requires to run with predictable performance and reliable integration.





WHY AMBEDDED ?

There are many options to have Ceph storage, DataComm Cloud could choose to deploy and manage the ceph cluster by their engineers or choose one Ceph storage vendor to provide the service.

Ambedded offers a Ceph storage appliance solution to the datacenters and enterprises. This solution is for the IT users who intend to deploy a Ceph cluster but without an experienced team to have initial deployment, optimize configuration, and maintain daily operation.

The Ceph Appliance is a turnkey solution integrated with ARM-based micro-servers, Ceph storage software (optimized to adapted micro-server architecture), and web-based GUI management ("UVS Manager"). This solution facilitates non-experienced Ceph users to deploy, configure and manage Ceph clusters without an entry barrier.

BENEFITS OF SELECTING AMBEDDED CEPH STORAGE APPLIANCE

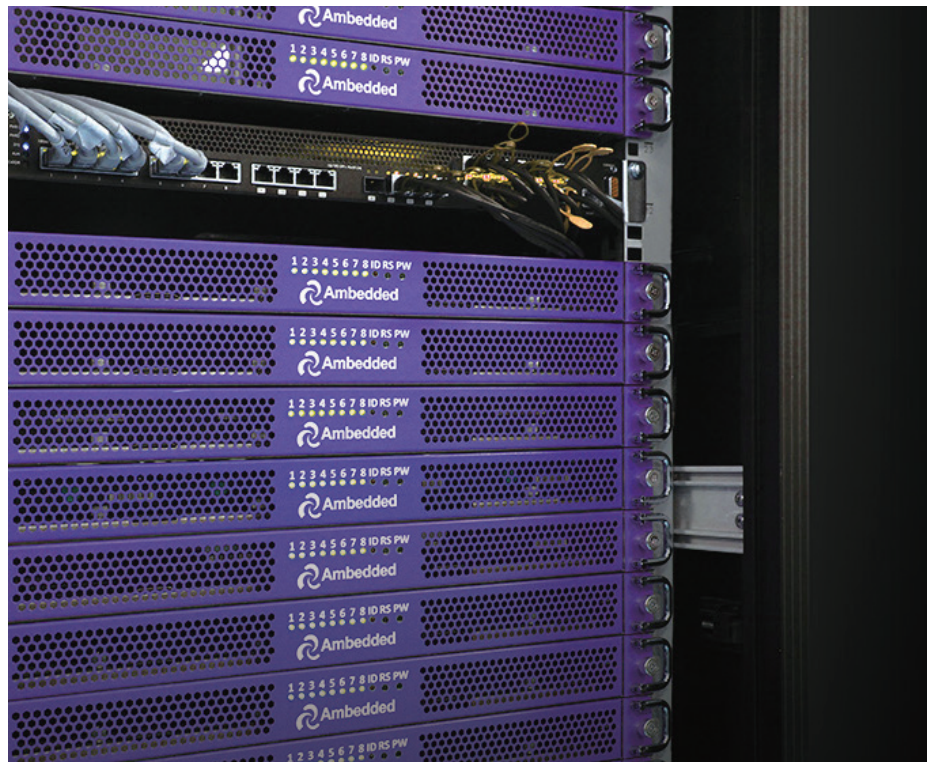
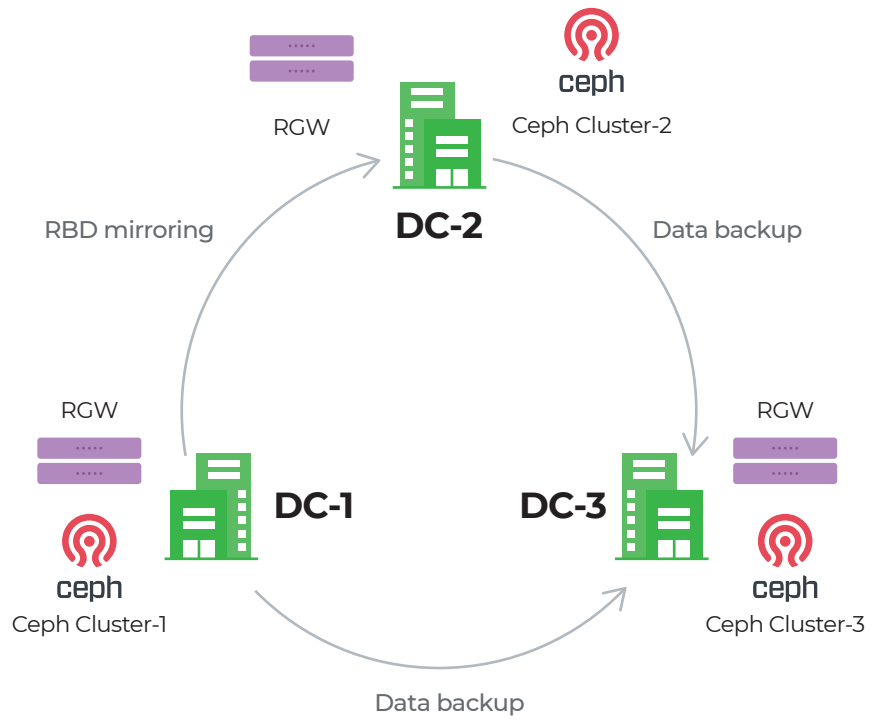
Ambedded offers	How it works to benefit
Tuned and optimized for ceph	The hardware server's kernel and OS been tuned & optimized for ceph storage use, users can enjoy a reliable ceph cluster without worrying the hardware server.
Management software tool - UVS Manager	An intuitive web-based GUI to help IT user to deploy, configure, manage and monitor the ceph cluster in an ease.
One station ceph storage support & service	Ambedded expert team to assist IT users to deploy, configure, manage and Troubleshooting ceph related requests.
Storage expansion in some simple clicks	The turnkey appliance solution simplify the steps to scale out ceph storage by just adding more units and use UVS manager to complete the scale-out procedure.
Efficiency & sustainability	Arm-based microserver with de-centralized hardware architecture. 1x OSD vs. 1x Micro-server, working with dedicated hardware resources, to provide superior performance & high resilience on ceph cluster design.
Cost efficient on operation and environment friendly (high density & low power)	The Arm-based microserver hardware platform working efficiently with extreme power saving. Saving more than 60% of energy comparing to other servers in the market.

THE RESULT

The Datacomm Cloud has deployed three Ceph clusters across three datacenters using the Ambedded Mars 400 Ceph storage appliance. Each Ceph cluster has mixed SSD OSD & HDD OSD for different performance purposes use. Mainly for the RBD use by OpenStack Cinder and Glance. The three datacenters have a backup for each other with high availability, so the enterprise customer would not worry if any sudden disasters cause data loss.

With the Ambedded Mars 400PRO Ceph appliance, the Datacomm Cloud team doesn't need to start a large cluster to run with their OpenStack IAAS, simply four units per site to start the operation with their availability concerns. The future capacity & performance requirement can be scale-out by adding more Ceph appliances simply.

Also, thanks to the low-power design on this Arm-based micro-server, each cluster consumes less than 500Watts per site, showing a significant power saving compared to run a Ceph cluster on traditional servers in the same Ceph capacity.





Ambedded is a software-defined storage company with expertise on Linux OS, kernel, software-defined storage, embedded system, and Arm server.

Today, Ambedded offers Ceph storage appliance to the customers who is interested in stepping into Software-defined storage, those solutions help users to reduce capital and operational cost on enterprise data storage, which requires high availability, elastic scalability as well as performance.

With the purpose-built Ceph appliance, Ambedded team owns widely experience to help customers to adopt our ceph solution into versatile industries, such as Telecom, medical, military, edge datacenter and HA required enterprise storage.

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