



CLOUD COMPUTING

Unit 3

COMPUTATION STORAGE



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WHAT IS COMPUTATION STORAGE

Cloud Storage is a service that allows to save data on offsite storage system managed by third-party and is made accessible by a **web services API**.

Storage Devices

Storage devices can be broadly classified into two categories:

- Block Storage Devices
- File Storage Devices

BLOCK STORAGE DEVICES

Block Storage Devices offer raw storage to the clients. This raw storage can be partitioned to create volumes.

FILE STORAGE DEVICES

File Storage Devices offers storage to clients in form of files, maintaining its own file system. This storage is in the form of Network Attached Storage (NAS).

Cloud Storage Classes

Cloud Storage can be broadly classified into two categories:

- Unmanaged Cloud Storage
- Managed Cloud Storage

UNMANAGED CLOUD STORAGE

Unmanaged Cloud Storage means that the storage is preconfigured for the consumer. The consumer cannot format nor the consumer can install own file system or change drive properties.



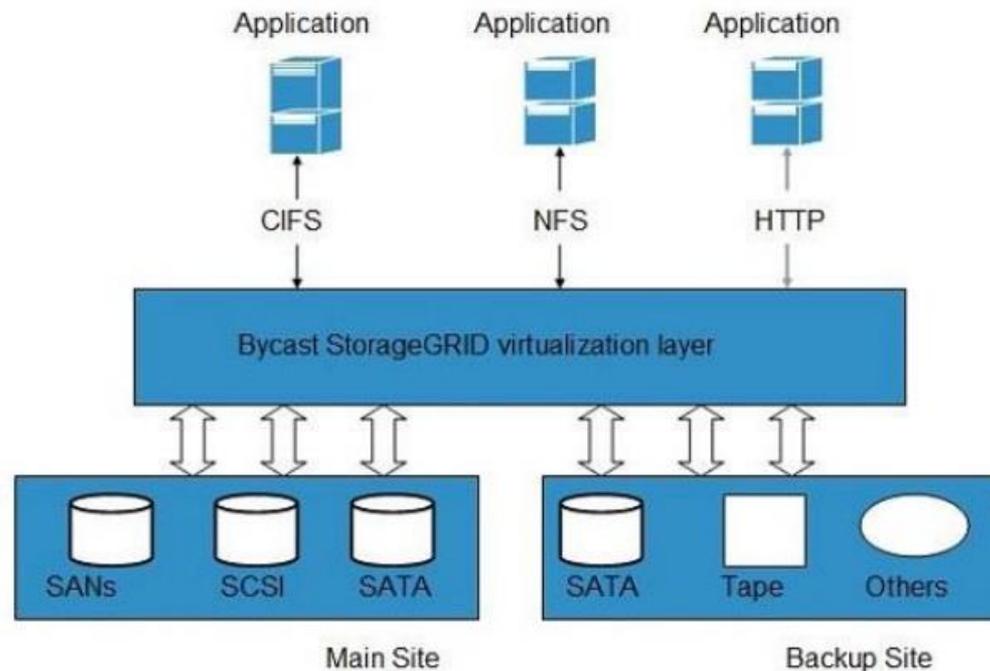
MANAGED CLOUD STORAGE

Managed Cloud Storage offers online storage space on demand. Managed cloud storage system presents what appears to the user to be a raw disk that the user can partition and format.

Creating Cloud Storage System

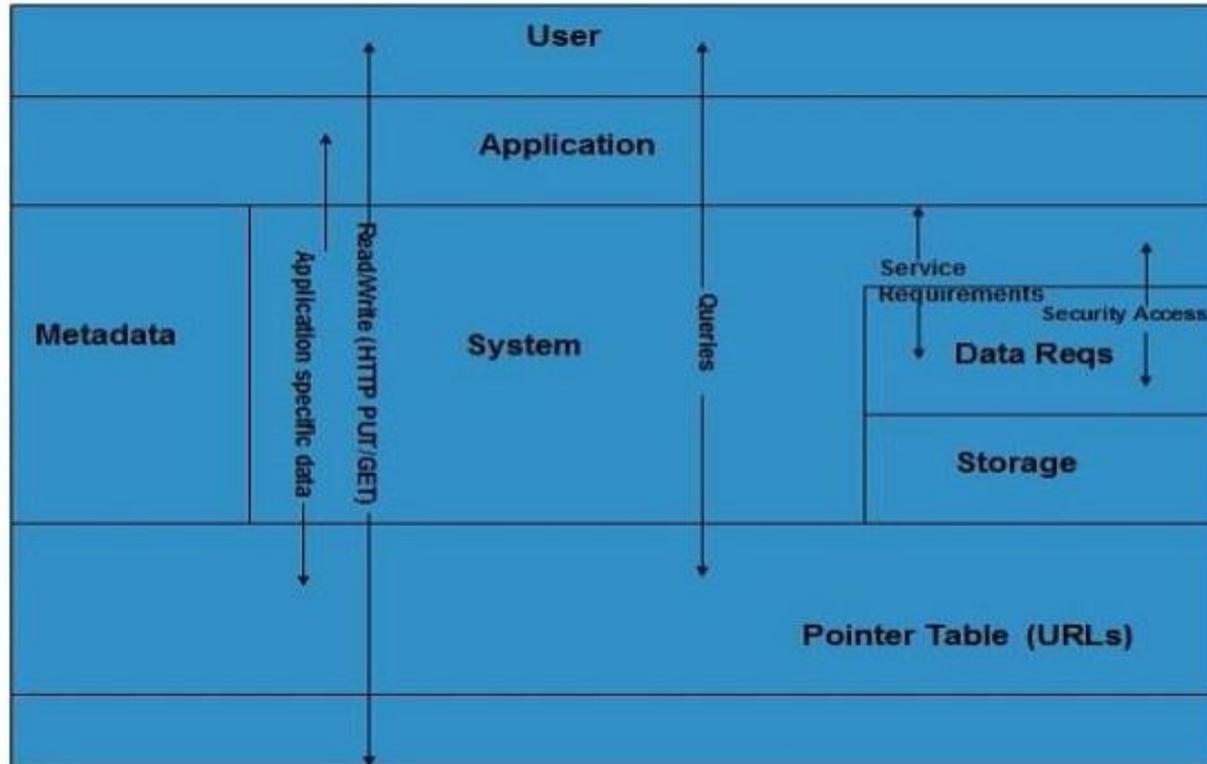
The cloud storage system stores multiple copies of data on multiple servers and in multiple locations. If one system fails, then it only requires to change the pointer to stored object's location.

To aggregate storage assets into cloud storage systems, the cloud provider can use storage virtualization software, **StorageGRID**. It creates a virtualization layer that fetches storage from different storage devices into a single management system. It can also manage data from **CIFS** and **NFS** file system over the Internet. The following diagram shows how SystemGRID virtualizes the storage into storage clouds:





Virtual Storage Containers



Challenges

Storing the data in cloud is not that simple task. Apart from its flexibility and convenience, it also has several challenges faced by the consumers. The consumers require ability to:

- Provision additional storage on demand.
- Know and restrict the physical location of the stored data.
- Verify how data was erased?
- Have access to a documented process for surely disposing of data storage hardware.
- Administrator access control over data.



PaaS Case Studies



Introduction

When your enterprise uses the PaaS Cloud computing model, there are numerous benefits. For example, when creating or running a new application, your company will not need to purchase in-house hardware or install new software.

Because the time between obtaining an application and having the ability to deploy it can be significantly shortened, this streamlined process can allow your company to innovate much more quickly—something that's becoming increasingly more important in today's fast-changing competitive environment.

Your in-house teams can focus on optimizing the benefits of your new applications, allowing you to laser-focus on how human resources spend their time. You can take advantage of the best technology available today without all of the associated costs, scaling up and down, as needed—and these are just some of the many benefits of PaaS.



Cummins Engine Case Study

This comprehensive solution would need to facilitate their ability to efficiently source a large number of items, given that Cummins has literally hundreds of thousands of parts. Just one single sourcing event, for example, could involve hundreds, even thousands, of the company's 700,000 parts, with a high number of attributes and cost factors to consider.

Employees were using multiple systems to manage huge amounts of data, and enterprise leaders realized they needed to create a system whereby team members could rely upon a single source of information, one that delivered what was needed to the right people at the right time.



Cummins Engine Case Study

The overall solution involved Cloud strategic procurement to E-Business Suite R12, rolled out in phases, including PaaS extensions integrated to Cloud sourcing. More specifically, PaaS extensions focused on:

**high volume uploading
price breaks
line level attributes**

CSS consultants needed to address PaaS-related challenges in two broad ways: functionally and technically.

From a functional standpoint, we needed to assess and create solutions in the following areas:

**creating and editing a supplier negotiation
creating and editing supplier negotiation lines with:
multiple line level attributes
multiple price breaks
uploading mass negotiation lines from Excel
cloning negotiation lines**



Cummins Engine Case Study

From a technical standpoint, it took two months to develop the highly complex solution that included the following elements:

Java Cloud service SaaS extension provisioned in the same identity domain as the Oracle Procurement Cloud

Oracle ADF for development of the application UI

Procurement Cloud web services as a data model

Companies are increasingly needing to import or otherwise mass load items into sourcing events. With direct purchasing companies, there are typically large attribute lists associated with each item, especially when engineering part numbers are involved. Uploading lines in bulk doesn't really help direct purchasing companies if they can't also load price breaks and line level attributes.

There was, however, no option available to create a PaaS solution that solely focuses on the line level, and it isn't practical to drill into each line, one by one, and individually add data. To solve this problem, the entire negotiation needs to be created, and then additional functionality needs to be layered in with multiple levels for cost factors and price breaks.



Cummins Engine Case Study

It can be challenging to address these types of issues without negatively impacting the bells and whistles built into Cloud sourcing functionality. CSS consultants, in this case, needed to focus on fixing gaps rather than attempting to rebuild entire modules in PaaS. RFQs, as just one example, needed to be pushed into Cloud sourcing to take full advantage of the sourcing module.

Oracle consultants at CSS, though, were able to solve these complex problems for Cummins Engines, with the results being:

reduced product costs

reduced supplier and supply chain risk

maximized leverage

Streamlined RFQ process

Cummins could now effectively maintain global contacts and manage contract development documents, as well as complete risk assessments, audits, and certification tracking for suppliers. CSS was able to transform Cummins' operations through a hybrid Cloud and EBS solution with PaaS extensions.

PaaS Extensions developed using Java Cloud service and database Cloud service allowed the enterprise to benefit from a supplier negotiation process that was tailored specifically for their needs. It supports unique price break and line level attribute requirements and seamlessly serves as an extension of Oracle Cloud.



Azure PaaS Case Study

Business Need

The client is a Real Estate Interactive Technology firm based in Canada. They wanted to build an interactive application to dynamically customize housing floor plans to delight their customers. They had a flash based tool which they needed to re-platform into HTML5 based interactive platform. For this, they wanted a re-engineering solution for their legacy product suite. To maintain huge critical historical data from legacy systems, client wanted a cloud-based solution.

The key challenge meant in re-engineering legacy systems as they were built in VB6 and outdated technology. As HTML provide limited events like single click, double click and right click, client wanted to re-platform it to more usable and interactive design solution. The client required a communicable design framework with more availability of design functions.



Azure PaaS Case Study

Technology Solution

HTML5, JQuery, JavaScript, Microsoft Azure, ASP.NET 4.0, Web Services, SQL

Saviant offers Azure PaaS Consulting services in providing cloud solutions to the clients of varied industries like Real Estate and Construction Industry. Our Azure developer delivered a cloud-based solution to re-engineer the client's legacy product suite. To perform custom calculation of points, serialization of objects and persistence, and for handling interactive events, we used JavaScript technology in our solution. We produced a rich user interface using HTML5 canvas, JavaScript, and JQuery frameworks. Our team has created all the geometric calculations to transform the objects on various mouse click operations and used Web Services for seamless integration into legacy systems.

We re-platform the client's existing Flash based tool into a highly interactive cloud based solution through Raphael JS & HTML5 canvas. With this cloud solution, we were able to build an interactive application to dynamically customize housing floor plans to its end users. Users can dynamically zoom and change floor plans because of the rich user interface we have provided. With this cloud solution, the client is handling more than 100 web services and accelerating their performance rate.