



Title
An Overview of Cloud Computing Hybrid Model

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Abstract:

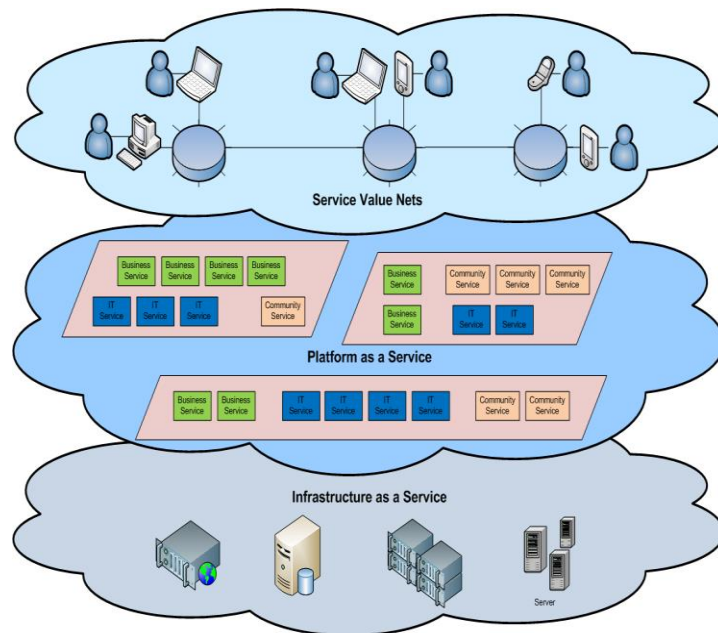
Cross breed distributed computing have gotten impressive consideration as a way to deal with huge execution picks up in numerous issue spaces Hybrid distributed computing alludes to arrangement based and facilitated administration provisioning, utilize and administration over a mixture of inner and outside cloud administrations. Organizations are understanding that they require a wide range of sorts of cloud administrations with a specific end goal to meet a mixture of client needs. In this paper we audit the current condition of practice for application advancement on cross breed frameworks.

Keywords: *WSN, Security; Network; Routing; Privacy*

I. INTRODUCTION:

Cloud computing: cloud computing is the process of storing and accessing data over the internet instead of computer's hard disk. cloud is just a metaphor for the internet. For cloud computing, you need to access your data or programs over the internet and the data or program should be synchronized with other information over the net. Cloud is a combination of hardware, network, storage, services and interfaces that helps in delivering computing as a service.

Cloud computing architecture consist of service models and deployment models. service models are Software as a service(SaaS), platform as a service(PaaS), infrastructure as a service(IaaS).Deployment models are: Public model, private model, and hybrid model.



II What is Hybrid Cloud?

A hybrid cloud is an integrated cloud service utilizing both private and public clouds to perform distinct functions within the same organization. All cloud computing services should offer certain efficiencies to differing degrees but public cloud services are likely to be more cost efficient and scalable than private clouds. Therefore, an organization can maximize their efficiencies by employing public cloud services for all non-sensitive operations, only relying on a private cloud where they require it and ensuring that all of their platforms are seamlessly integrated. Hybrid cloud models can be implemented in a number of ways:

- Separate cloud providers team up to provide both private and public services as an integrated service
- Individual cloud providers offer a complete hybrid package
- Organizations' who manage their private clouds themselves sign up to a public cloud service which they then integrate into their infrastructure

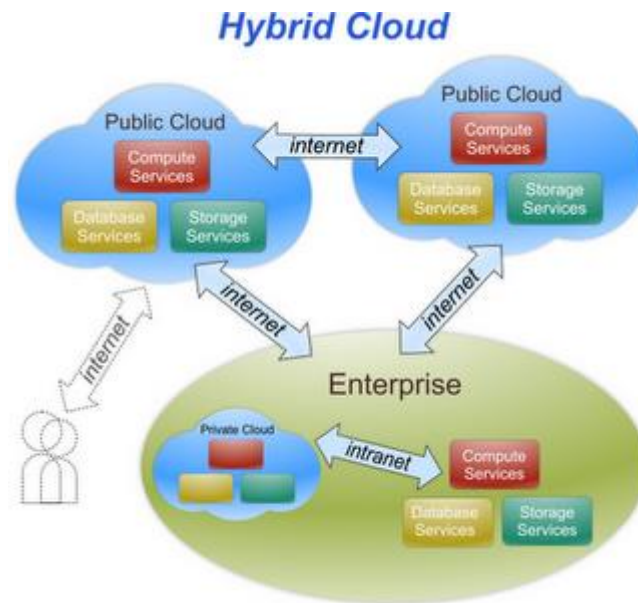
In practice, an enterprise could implement hybrid cloud hosting to host their e-commerce website within a private cloud, where it is secure and scalable, but their brochure site in a

public cloud, where it is more cost effective (and security is less of a concern). Alternatively, an Infrastructure as a Service (IaaS) offering, for example, could follow the hybrid cloud model and provide a financial business with storage for client data within a private cloud, but then allow collaboration on project planning documents in the public cloud - where they can be accessed by multiple users from any convenient location.

III Why Hybrid Cloud

When the industry first began discussing the hybrid cloud computing model back in 2008, cloud computing purists pushed back hard. After all, they already thought private clouds were silly and a new, wannabe-hip name for the data center. To them, the idea of hybrid clouds that used private clouds or traditional computing platforms was just as ridiculous. Over time, it became clear that hybrid cloud computing approaches have valid roles within enterprises as IT tries to mix and match public clouds and local IT assets to get the best bang for the buck. Now it's the cloud computing providers who are pushing back on hybrid cloud computing, as they instead try to promote a pure public cloud computing model.

IV Hybrid Cloud Architecture:





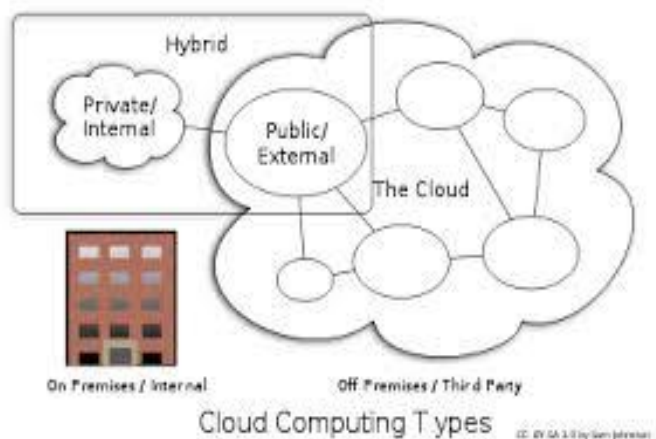
“Hybrid cloud” – the use and building of applications that connect to data and services across a mix of data centers is the reality for cloud computing today. Your businesses and applications will move to the cloud in their own unique way, at their own unique speed.

A hybrid cloud is a composition of at least one private cloud and one public cloud. A hybrid cloud is typically offered in one of two ways: a vendor has a private cloud and forms a partnership with a public cloud provider, or a public cloud provider forms a partnership with a vendor that provides private cloud platforms.

Using a hybrid model is a valuable approach to architecture, considering you can mix and match the resources between local infrastructure, which is typically a sunk cost but difficult to scale, with infrastructure that’s scalable and provisioned on demand. You place the applications and data on the best platforms, then span the processing between them.

It provides a clear use case for public cloud computing. Specific aspects of existing IT infrastructure (say, storage and compute) occur in public cloud environments, and the remainder of the IT infrastructure stays on premise. Take the case of business intelligence in the cloud — although some people promote the migration of gigabytes of operational data to the cloud, many others find the hybrid approach of keeping the data local and the analytical processing in the cloud to be much more practical.

The use of hybrid computing acknowledges and validates the fact that not all IT resources should exist in public clouds today and some may never exist in public clouds. Considering compliance issues, performance requirements, and security restrictions, the need for local is a fact of life. This experience with the hybrid model helps us all get better at understanding what compute cycles and data have to be kept local and what can be process remotely.



Difference between public private and hybrid cloud computing:

Deployment Model	General Description	Best Suited for	Offers
Public Cloud	<ul style="list-style-type: none"> Provisioned for general public use Externally hosted by a service provider 	<ul style="list-style-type: none"> Variable workloads Test & Dev. 	<ul style="list-style-type: none"> Lower TCO (pay for usage) Rapid Elasticity & Flexibility Faster deployment time Standardization
Private Cloud	<ul style="list-style-type: none"> Use for a single Organization (typically within a firewall) Can be internally or externally deployed 	<ul style="list-style-type: none"> Sensitive Data Compliance 	<ul style="list-style-type: none"> Security & Control Higher Customizability Performance
Community Cloud	<ul style="list-style-type: none"> Shared by several organizations Typically externally hosted Can be hosted internally by one of the organizations 	<ul style="list-style-type: none"> Collaboration 	<ul style="list-style-type: none"> Lower TCO Elasticity
Hybrid Cloud	<ul style="list-style-type: none"> Composition of two or more clouds that remain unique entities but are bound together, offering the benefits of multiple deployment model Can be internally & externally hosted 	<ul style="list-style-type: none"> Cloud Bursting On-demand access Sensitive Data 	<ul style="list-style-type: none"> Lower TCO High Elasticity Security & Control Performance Customizability



V Planning for Hybrid Cloud Resources to Support Growth and Change:

Planning for hybrid cloud growth and change involves understanding your data, devising a growth strategy, and choosing a provider. In a hybrid cloud environment, as with any environment, you need to understand your rate of data generation. In the hybrid world, of course, this data is being generated both on-premises and in the public cloud.

Devising a hybrid cloud growth strategy

When you have a thorough understanding of your data, the next step is to devise a strategy to determine how you're going to deal with this growth. As part of this strategy, you need to understand how much storage growth you want to support internally and how much you can support outside your corporate walls.

- **What kind of applications and data you're willing to store in the cloud versus what you want to keep on-premises:** This includes data issues associated with regulatory compliance and other risk factors. Although you may be thinking only about archive and backup applications, experts advise considering other applications that may not be mission-critical. However, make sure that your provider can adhere to any regulatory or compliance issues your company has in place. You also need to make sure they are willing to change if something changes in your industry.
- **A risk assessment:** Every company has its own tolerance level when it comes to risk. Aside from technology risks, you may also want to consider how your processes might change in the cloud. For example, you need to determine whether there are any people, processes, or cultural issues to consider.
- **On-site data storage costs:** Include all costs associated with on-site data storage: hardware, software, maintenance, environmental costs (such as electricity), and so on.
- **Cloud storage costs:** Include all costs associated with cloud storage, including data migration costs and storage costs associated with these applications and data.



Choosing a hybrid cloud provider

When you've decided that you want some of your applications and data in the cloud, you need to pick your provider with due diligence. Read the fine print in terms of costs associated with the storage and what contract termination looks like. You also want to make sure that the provider puts recovery time objectives (RTOs) in place, in case there's a problem with its service. Also, make sure the vendor you select is viable. For example, what happens to your storage if your service provider goes out of business? Will you be able to recover your assets?

Experts also advise to ensure that an escape clause is in your contract, in case your provider doesn't perform as advertised.

The hybrid cloud storage model offers many advantages to organizations that want to maintain the security of storing their highly confidential data within a private cloud and then selectively store data with fewer confidentiality requirements in the public cloud. Ultimately, the right mix between public and private environments maximizes cost savings while maintaining security and geographic storage requirements.

Storage considerations in the hybrid cloud

Here's what you need to think about in terms of storage as you deploy a hybrid cloud:

- **Interfaces:** To store and retrieve data, your applications need an API that connects your local system to the cloud-based storage system. Users should be able to send data to the cloud storage device and access data from it. You need to ensure that the APIs the cloud provider uses are interoperable with your own, because there are few standards for cloud storage. In other words, vendors like to use their own APIs.

According to experts, what users want is a standard like the ubiquitous TCP/IP for the network used across all storage interfaces. However, this may be difficult because each vendor may define its own APIs. So, for the near term, there may be similarities, but vendors won't be completely interoperable.



- **Security:** Security is always a concern. Make sure security measures are in place when data is transferred between storage and on-premises locations, as well as access-control measures once the data is stored. Files need to be secure while in storage, too.

VI. Conclusion

Distributed computing has come to incredible reputation in most recent couple of years and has turned into another pattern in the IT business. In mixture cloud situations, incompatibilities between the accessible cloud arrangements keep a wide selection all through all business. This paper presented the essential ideas of mixture distributed computing.

VII. REFERENCES

1. Shuai Zhang, Shufen Zhang, Xuebin Chen, and Xiuzhen Huo. Cloud computing research and development trend. In Future Networks, 2010. ICFN'10. Second International Conference on, pages 93{97. IEEE, 2010.
2. Judith, Hurwitz, Marcia kaufman, fern halper , dan kirch. Hybrid cloud for dummies.
3. www.javatpoint.com/hybrid-cloud
4. http://docs.media.bitpipe.com/io_10x/io_100433/item_419065/HPIntel_sCloudComputing_SO%23034437_E-Guide_052611.pdf
5. <http://searchcloudcomputing.techtarget.com/definition/hybrid-cloud>.
6. Danielson, krissi(2008).”distinguishing cloud computing from utilitycomputing”.Ebizq.net[online]<http://www.ebizq.net/blogs/saasweek/distinguish-cloud-computing>.
7. “Hybrid clouds: comparing cloud toolkits”. <http://www.philippheckel.com/files>
8. “hybridcloudWikipedia”. <http://www.en.wikipedia.org/wiki/cloud-computing>.