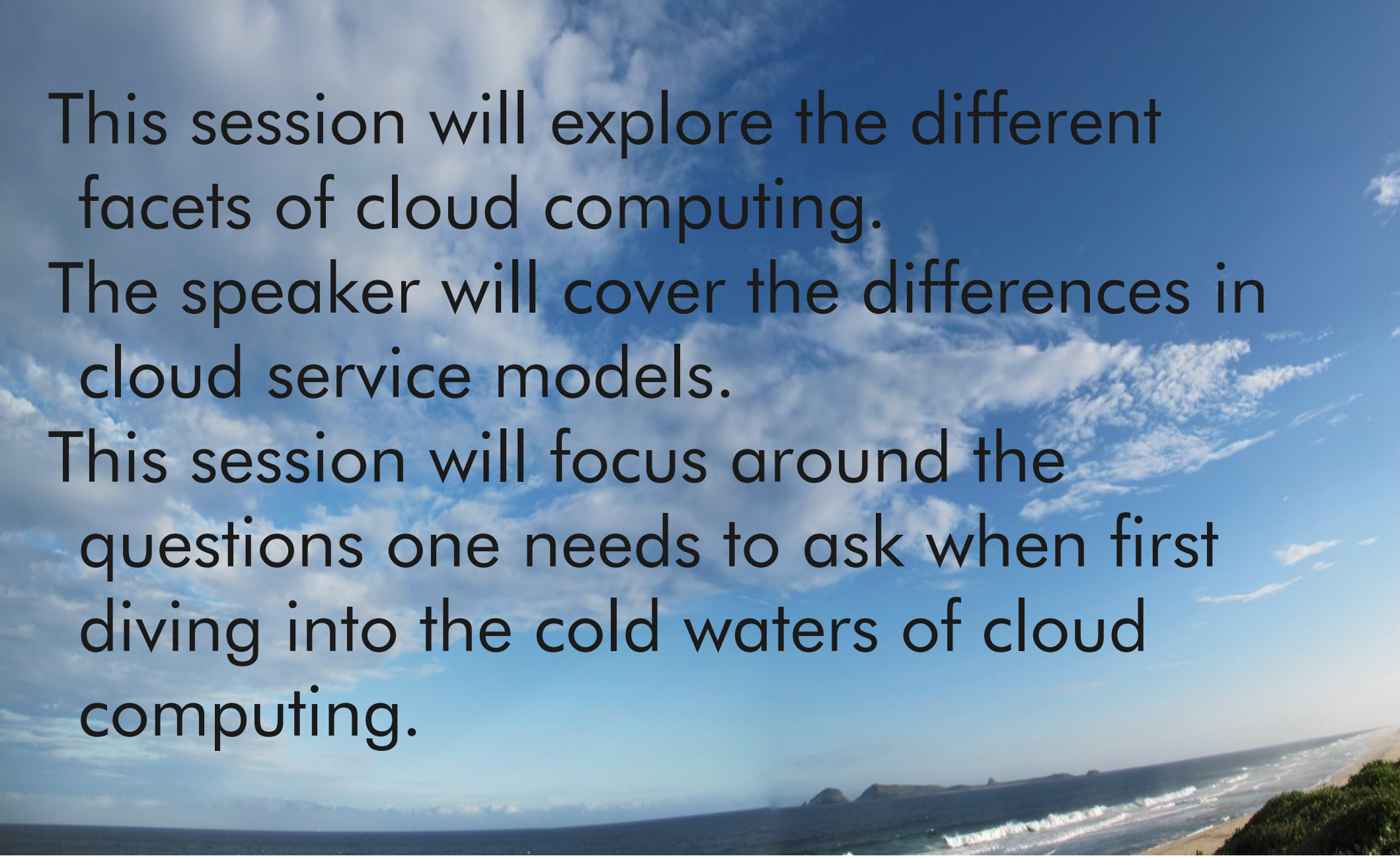
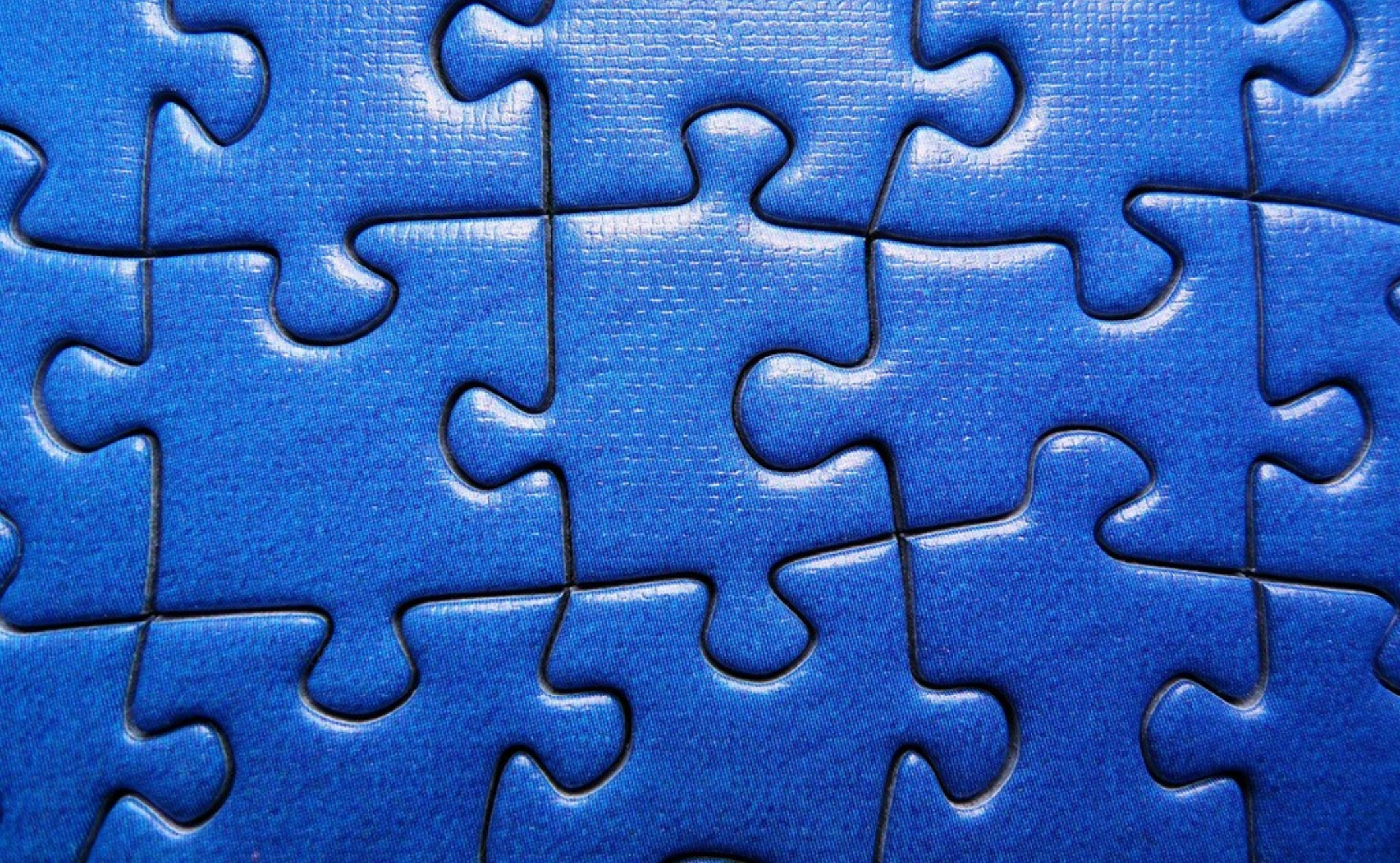
How is Cloud Right for Me?

I am here to help

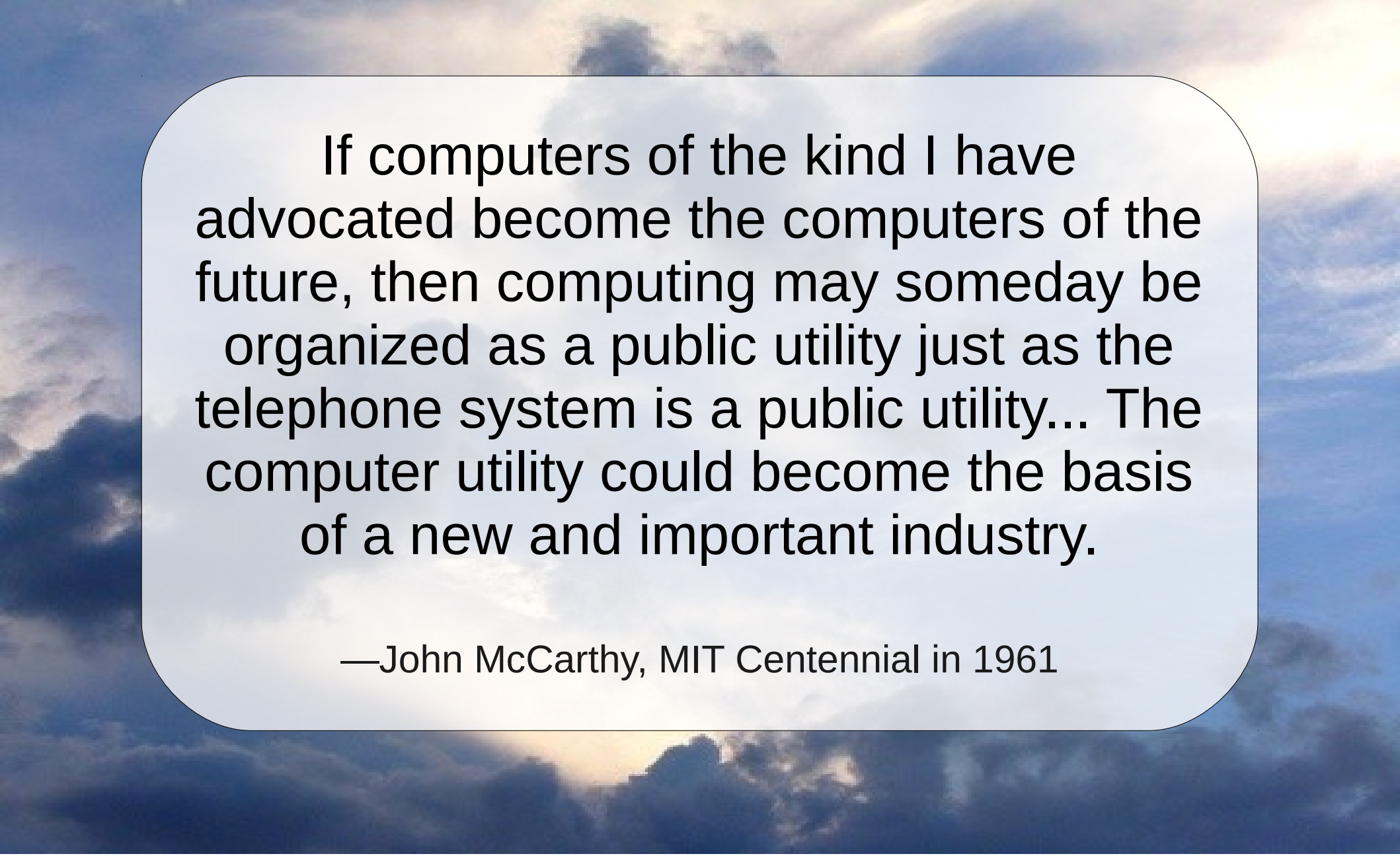
buzzetti@us.ibm.com


This session will explore the different facets of cloud computing.
The speaker will cover the differences in cloud service models.
This session will focus around the questions one needs to ask when first diving into the cold waters of cloud computing.

Abstract

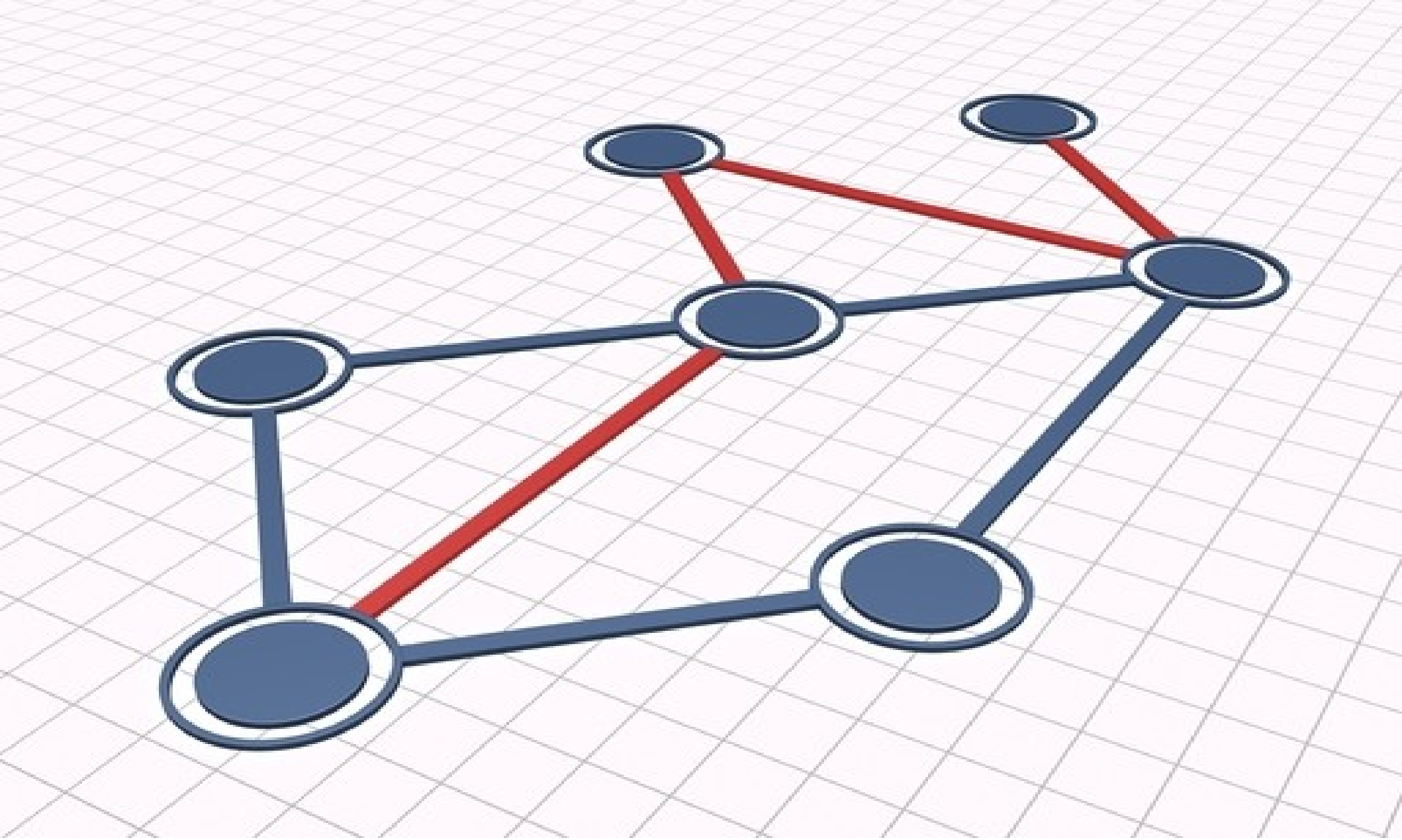


What? Why? How?


If computers of the kind I have advocated become the computers of the future, then computing may someday be organized as a public utility just as the telephone system is a public utility... The computer utility could become the basis of a new and important industry.
—John McCarthy, MIT Centennial in 1961

Cloud


NIST



Characteristics

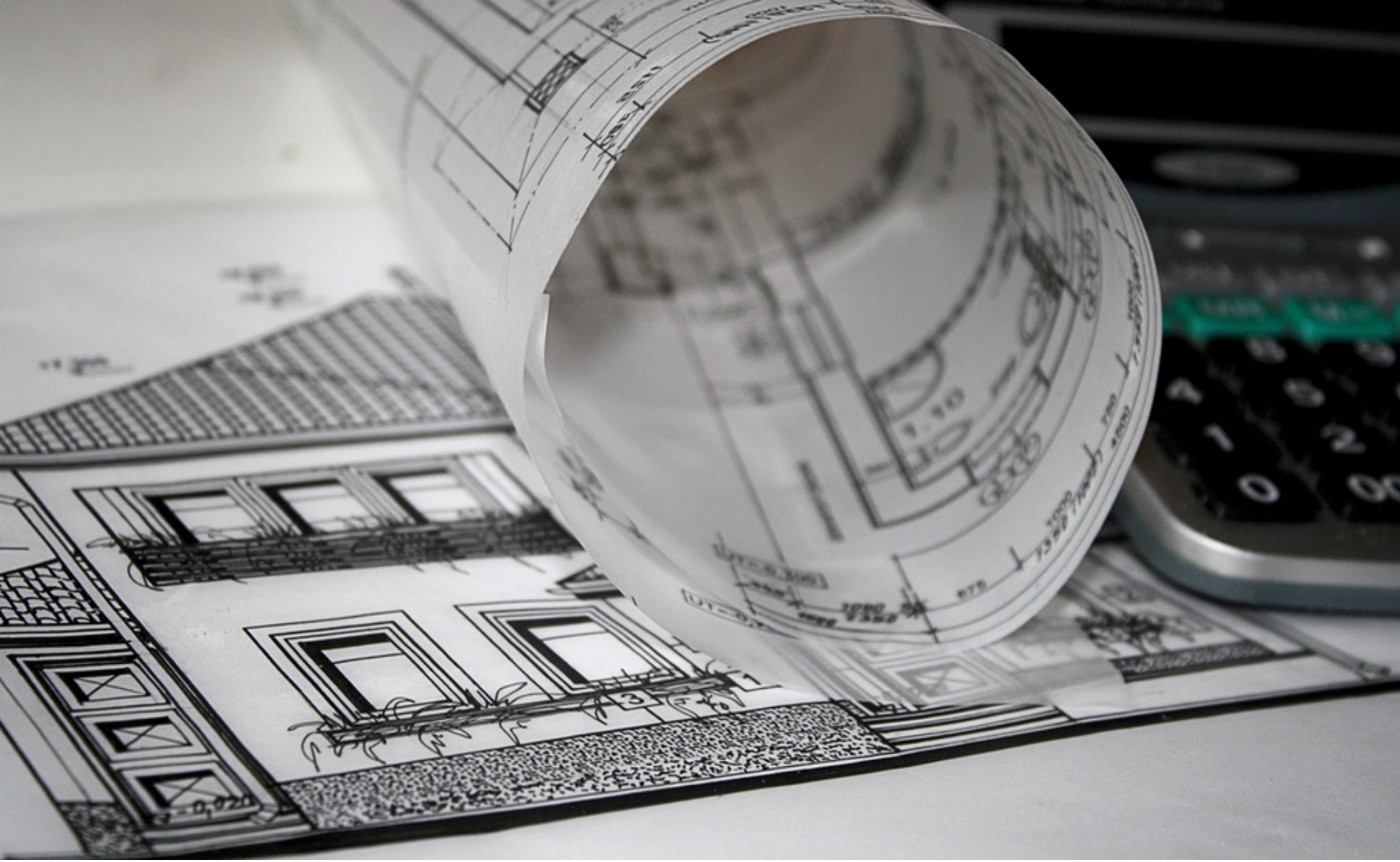
Self Service

Broad Network Access

Resource Pooling

Rapid Elasticity

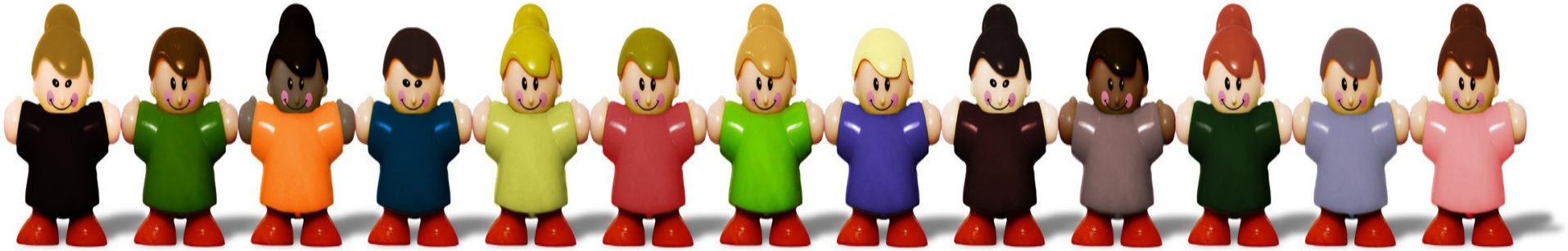
Measured Service



Deployment Models

Private Cloud

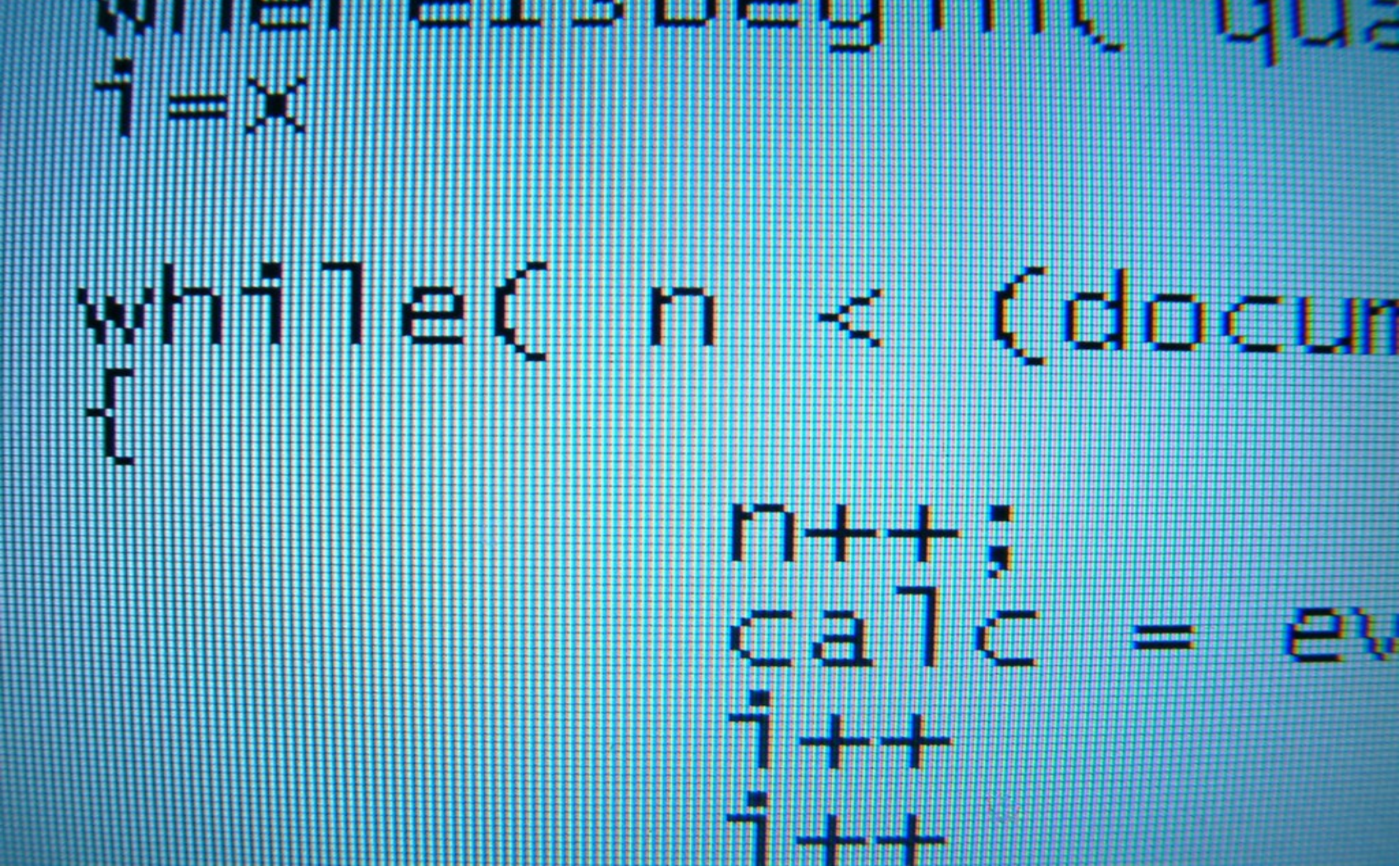
Public Cloud



Community Cloud

Hybrid Cloud

Service Models

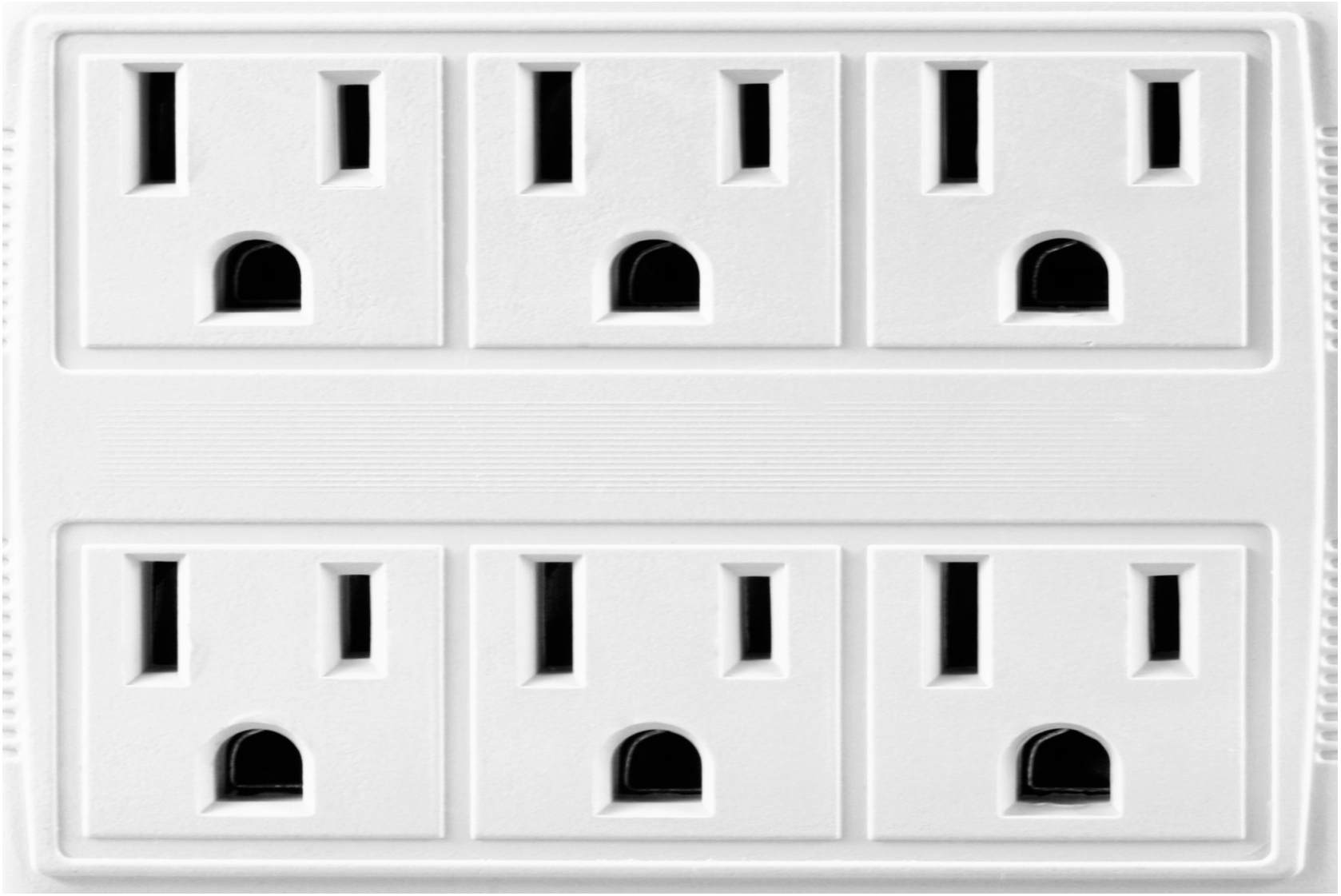


SaaS

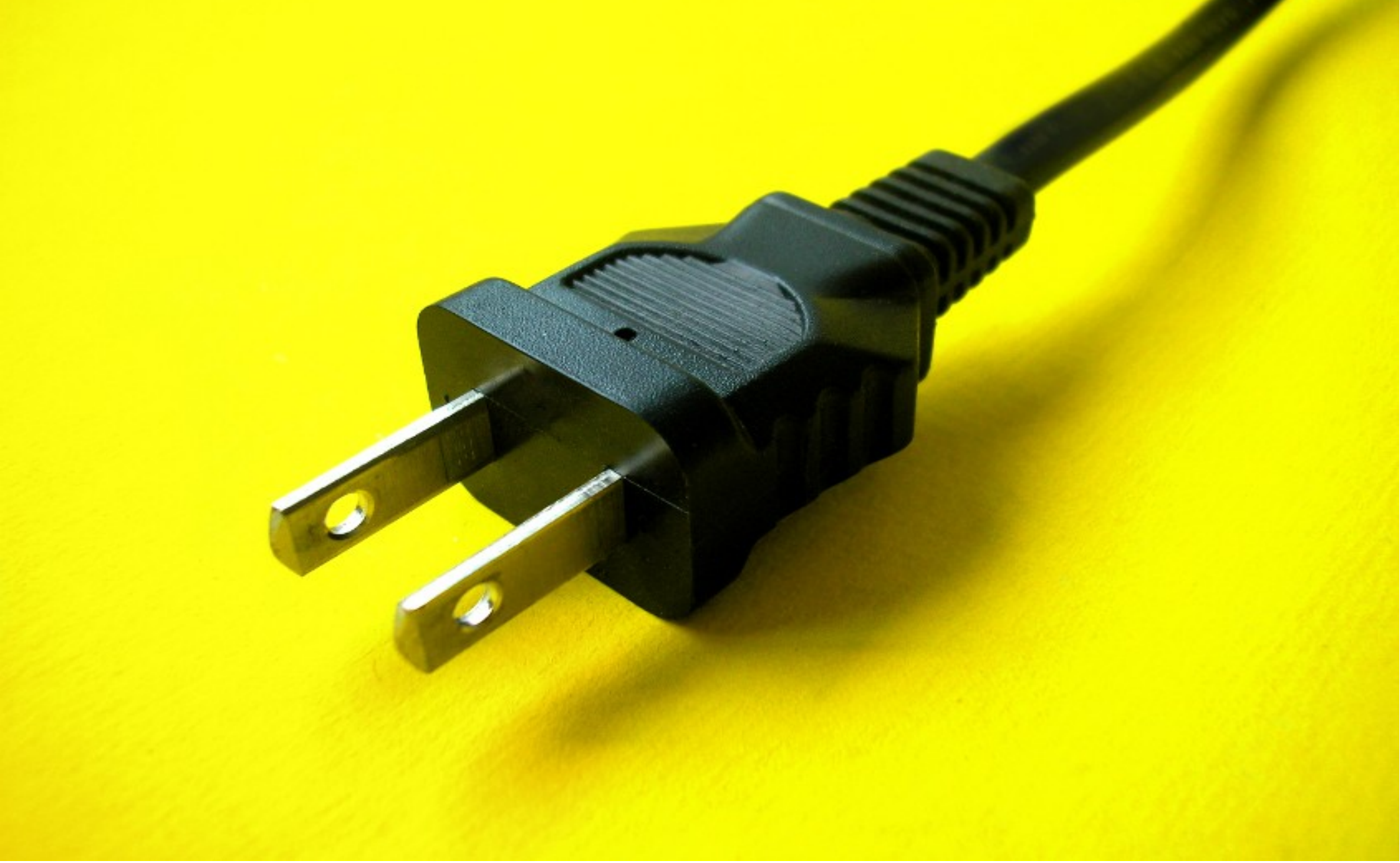
PaaS

IaaS

New Terms

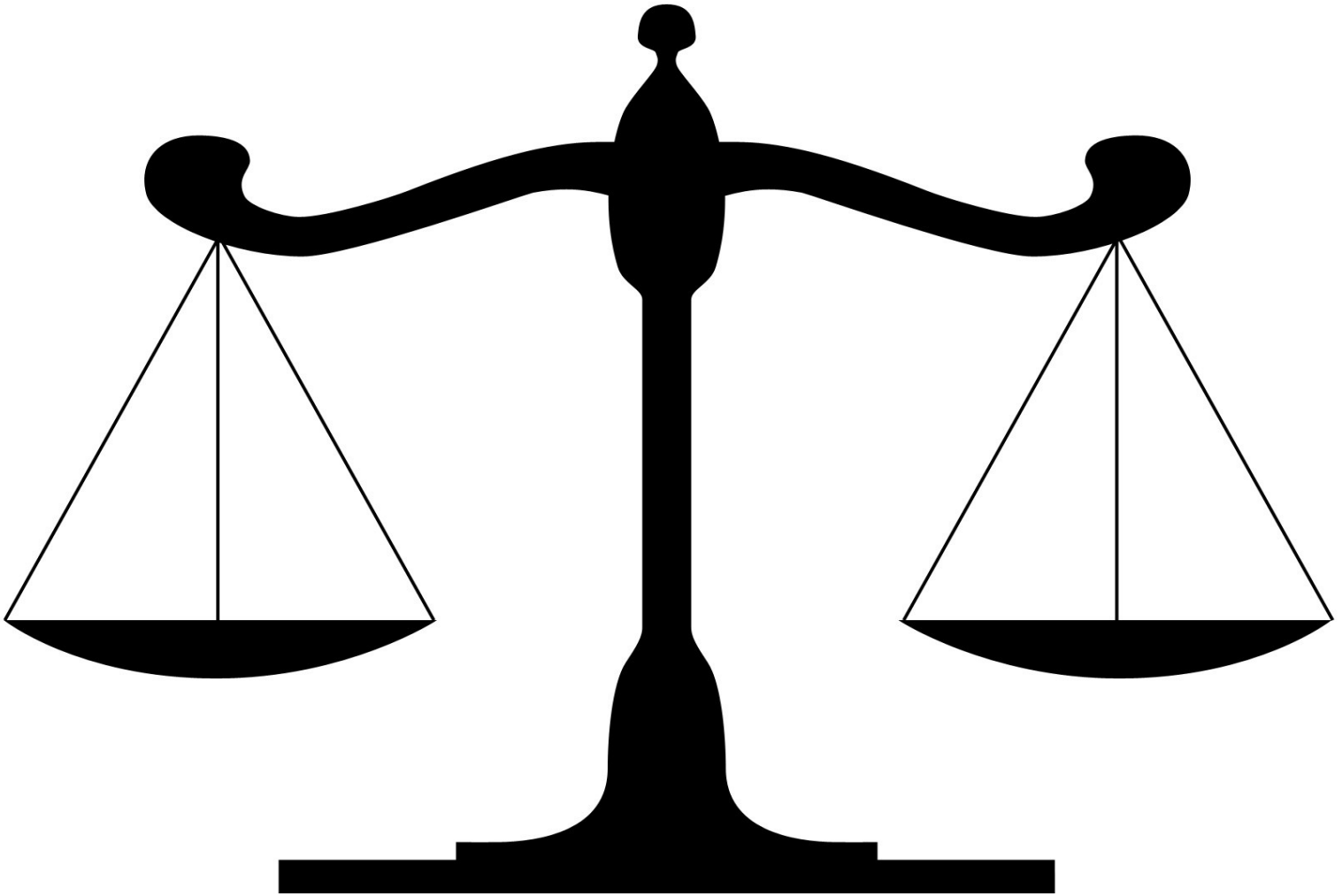


Cloud Service Provider

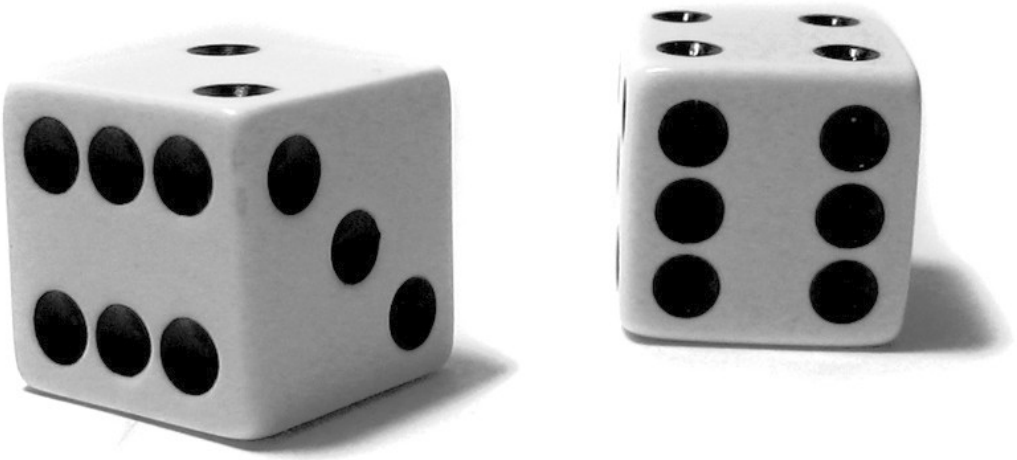


Cloud Service Requester

There is No Free Lunch



Decision Points



Risk

Cost

Timing

Resources

Service Level Management

Availability Management

Capacity Management

Security Management

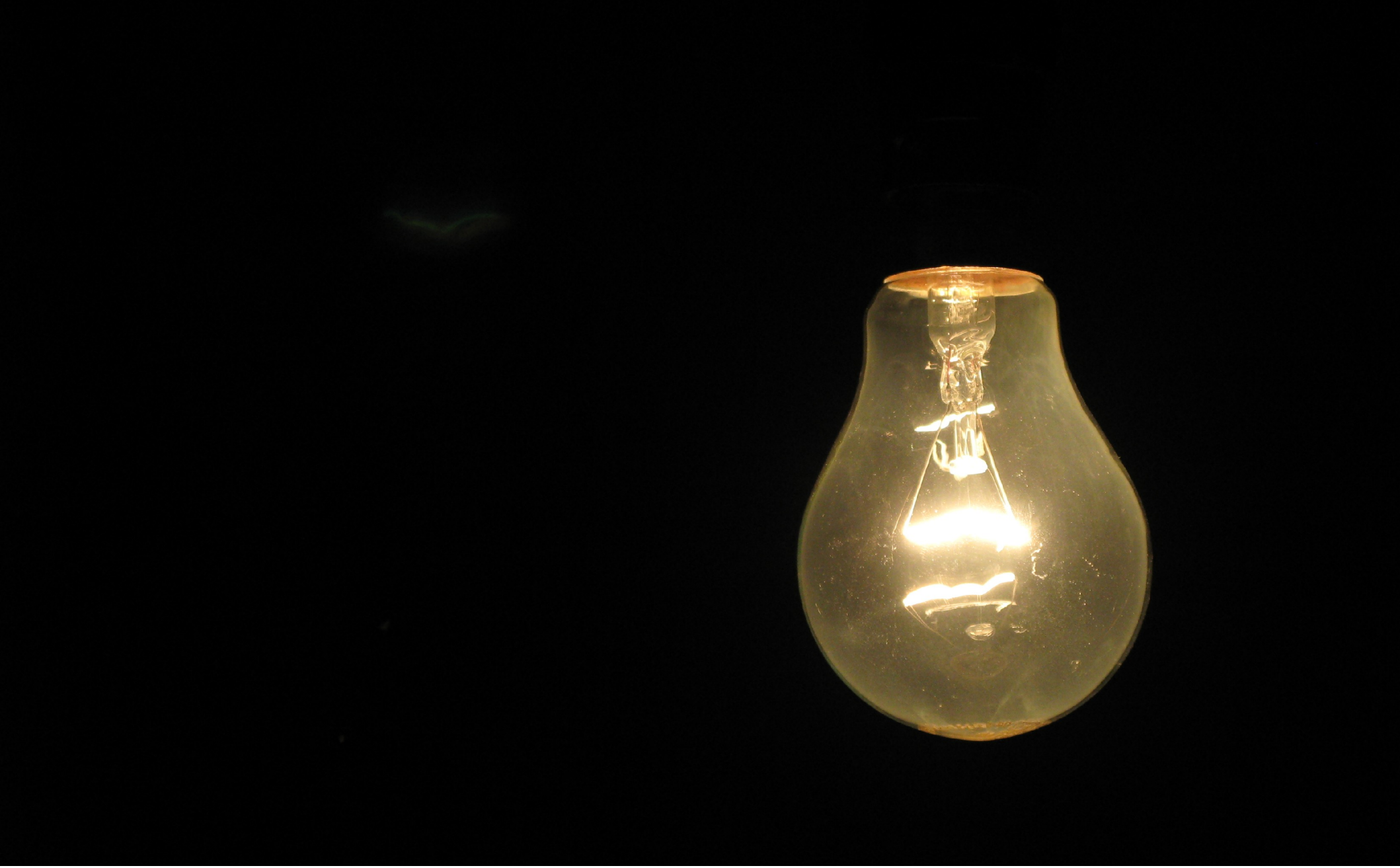
Questions you have to ask yourself

What do you do?

Choosing Sides

Service Provider

Service Consumer



Which Delivery Model ?

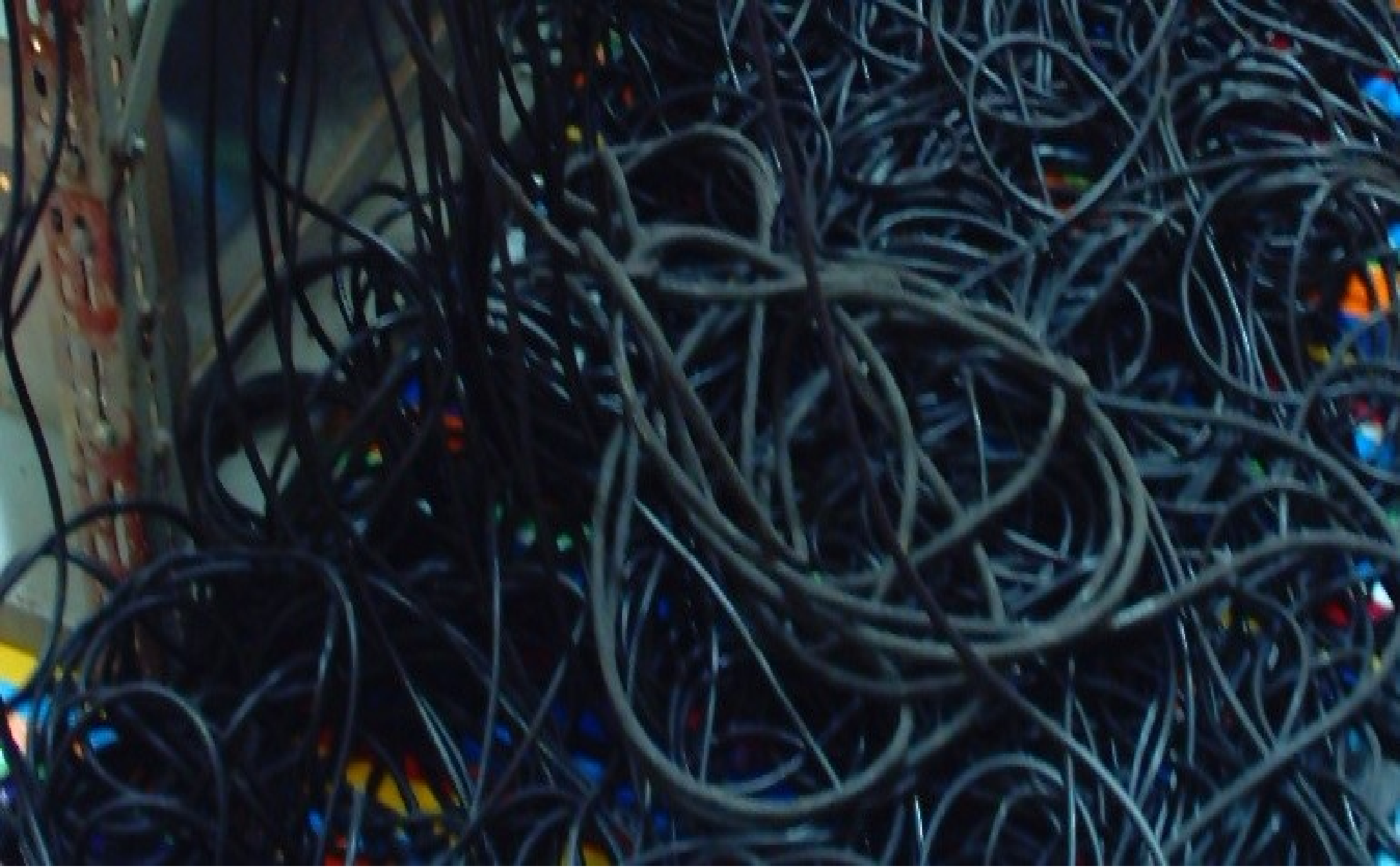
Answer: Private Cloud

Is data core to your Business?

Are you regulated?

Are you already cloud like?

Answer: Public Cloud



Is your Data Center too small?

Do you want to
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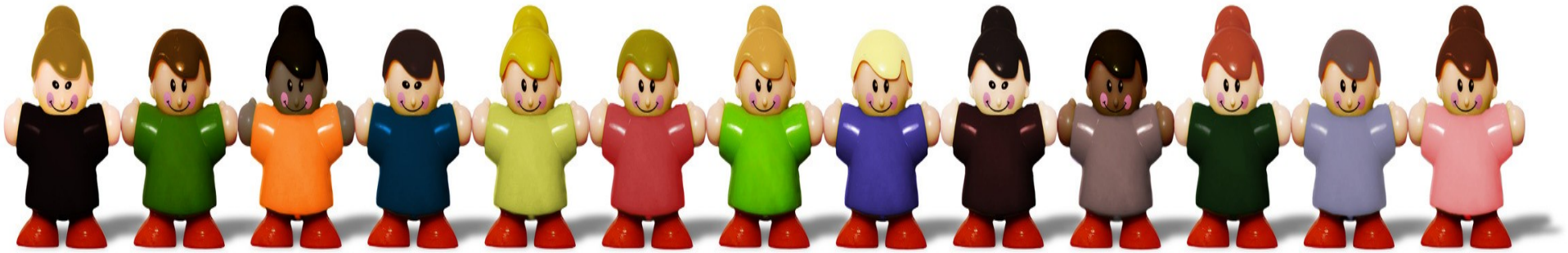
line of business?

Do you have declining LOBs?



Answer: Community Cloud

Do you share a mission statement?

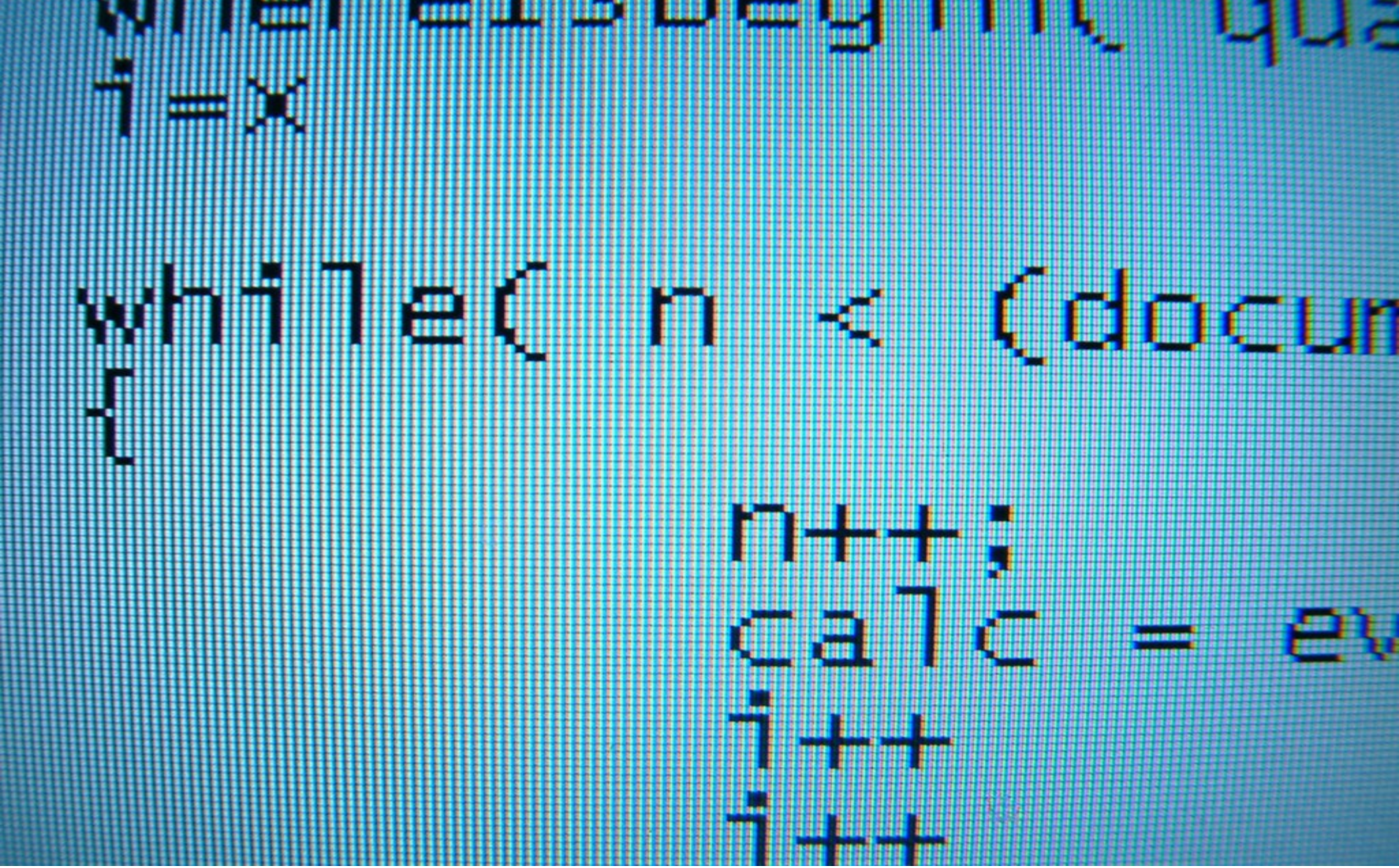
Do you share requirements?

Answer: Hybrid Cloud

Does your workload have peaks?

Do you want to ease the transition?

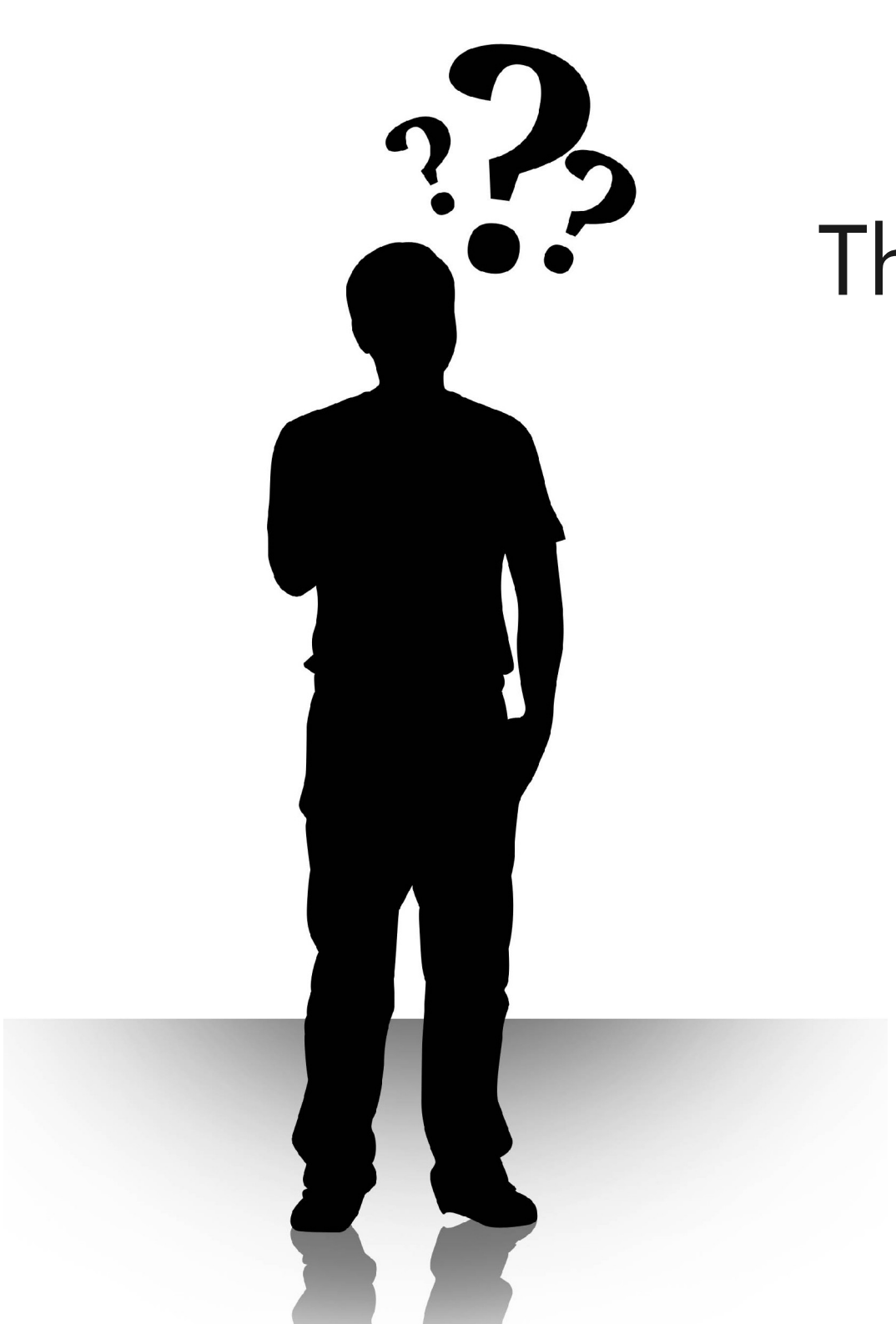
Which Service Model?



Answer: SaaS

Answer: PaaS

Answer: IaaS



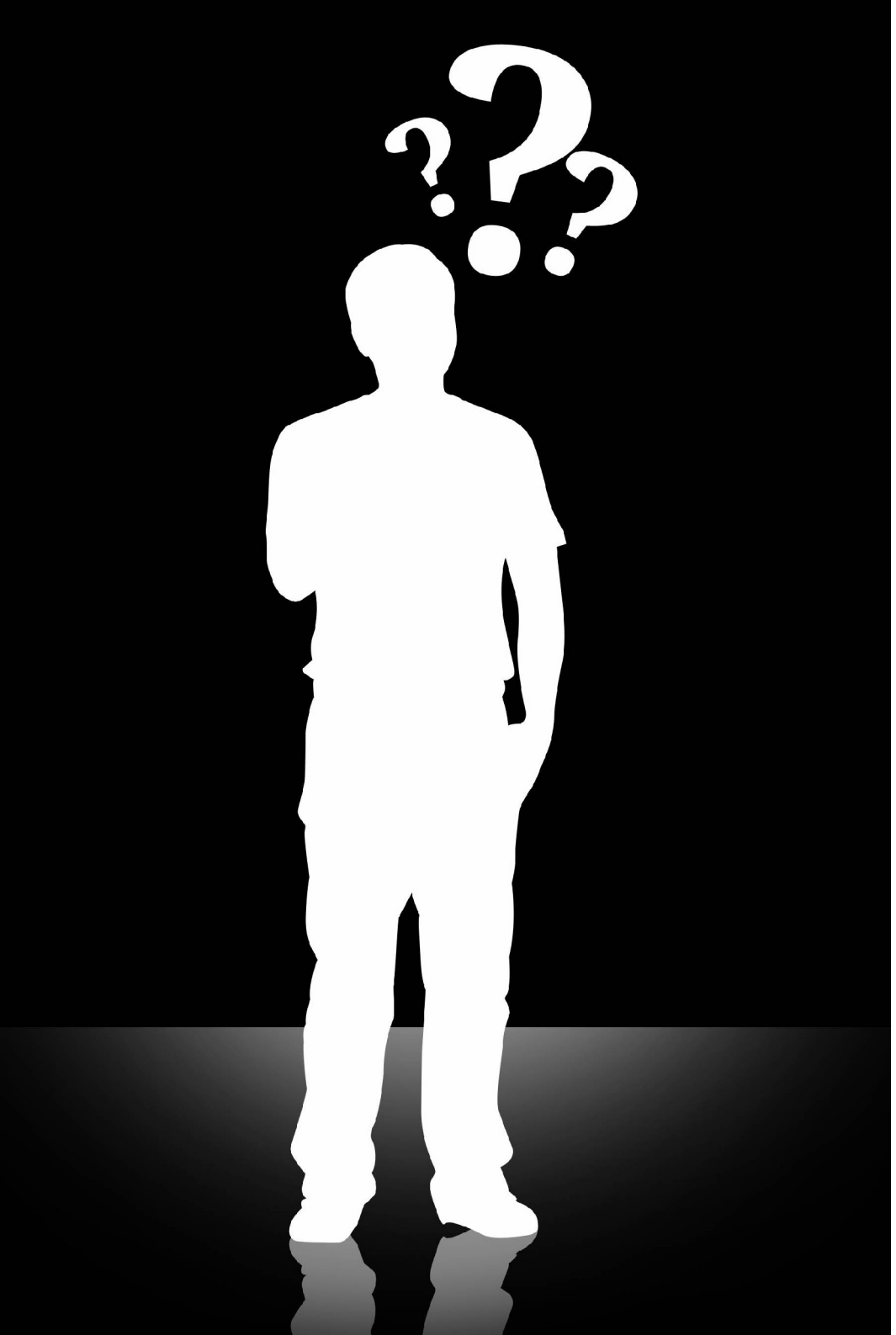
Things to consider for a CSR

SLA

Is your pipe “fat”?

Trust

Migration costs



Things to consider for a CSP

Data Protection

License

Capacity Planning

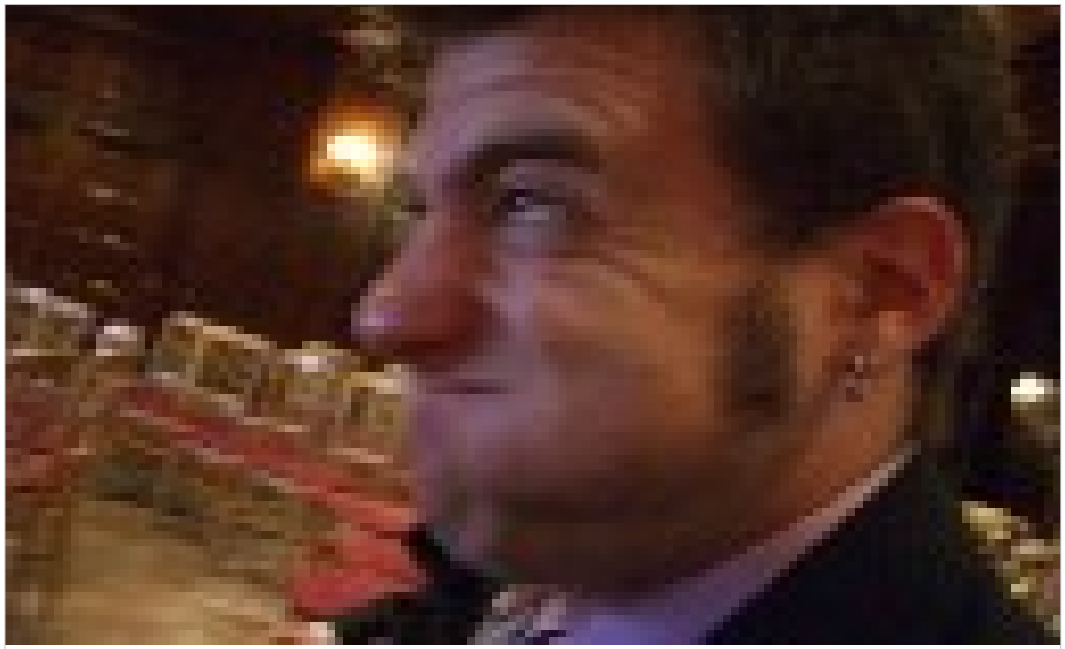
Questions

Template

Template

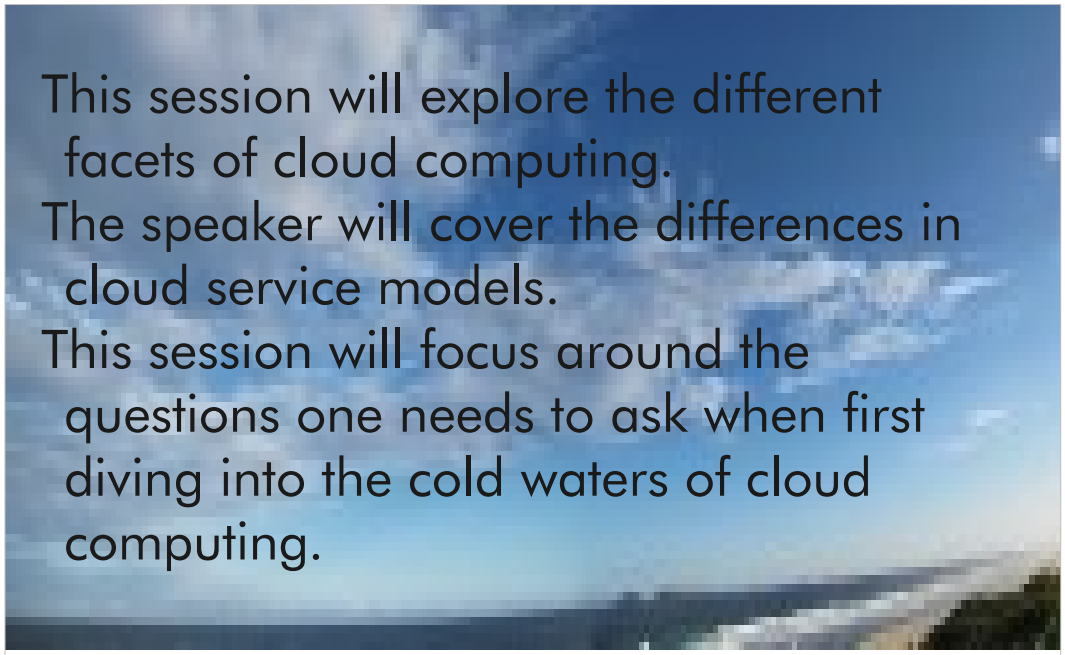
Template

How is Cloud Right for Me?



I am here to help
buzzetti@us.ibm.com

This is me. I am here to help. I include this chart so that people can have my email.



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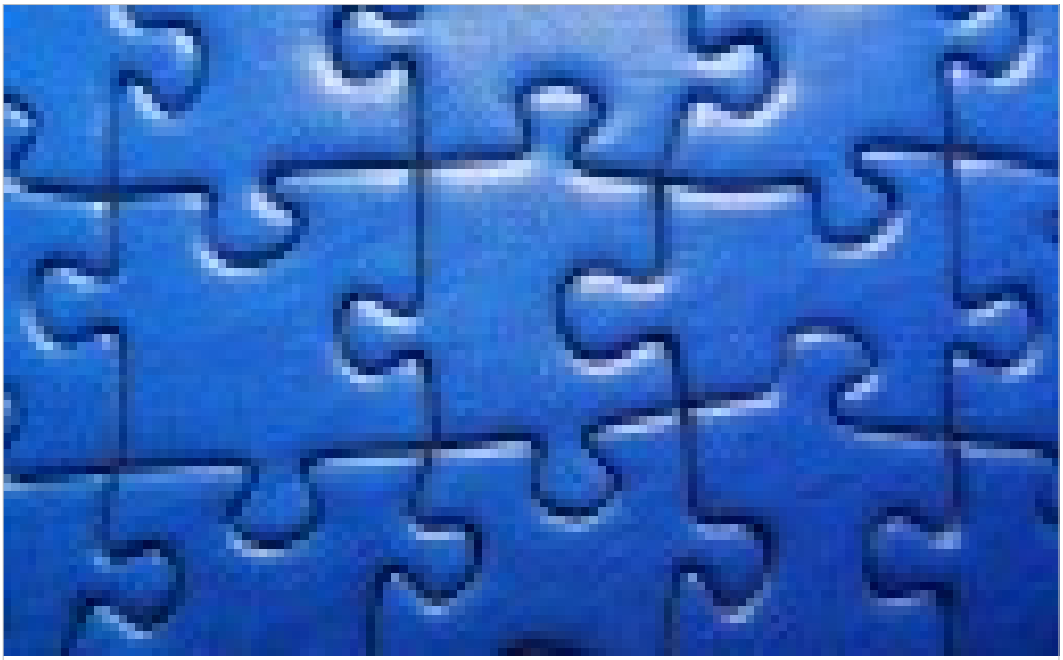


What? Why? How?

This is part of a large cloud presentation. Since SHARE is broken up int 1 hour segments, I have broken this up three segments.

What is

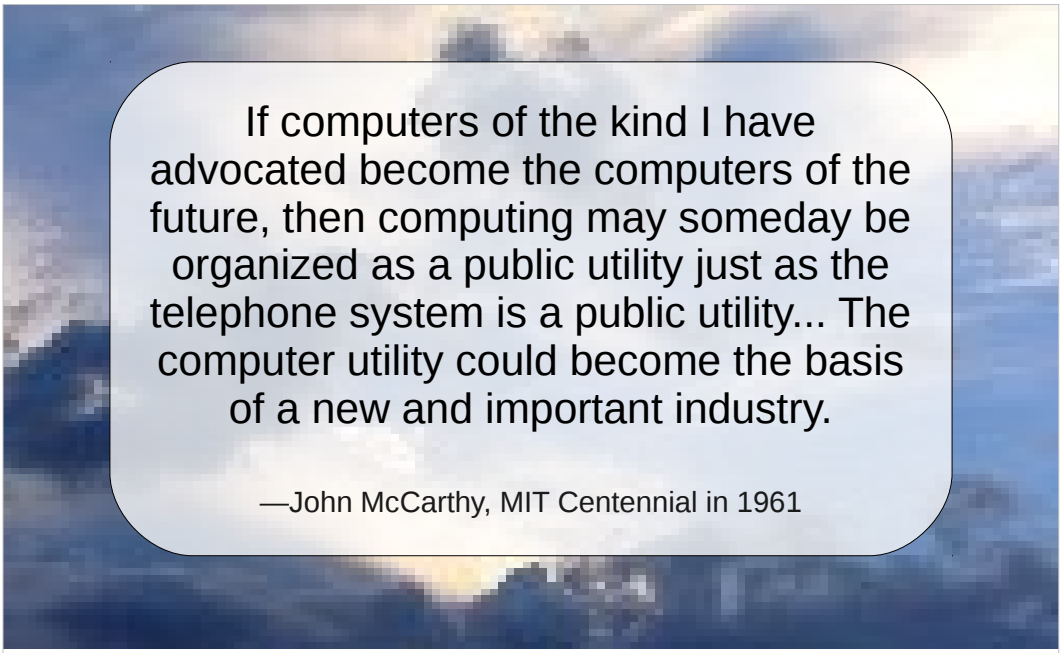
- An Introduction to Cloud Computing

Why is

- How is cloud right for me ?

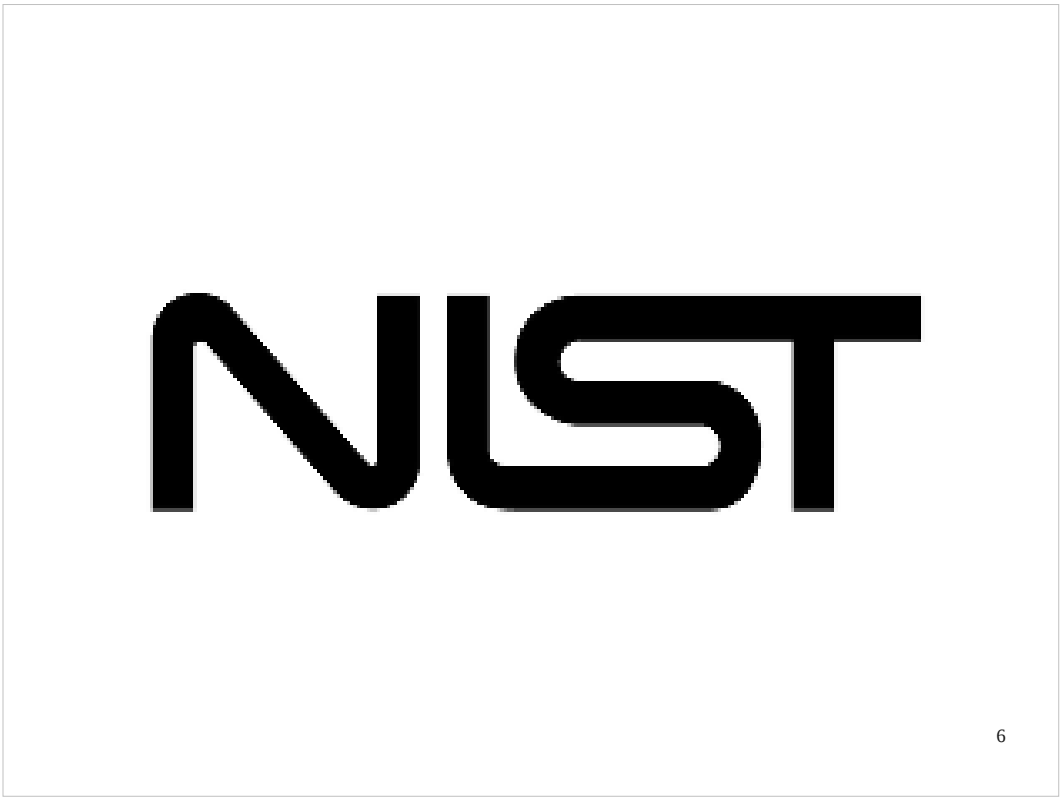
How is

- Cloud: How to take your first steps.

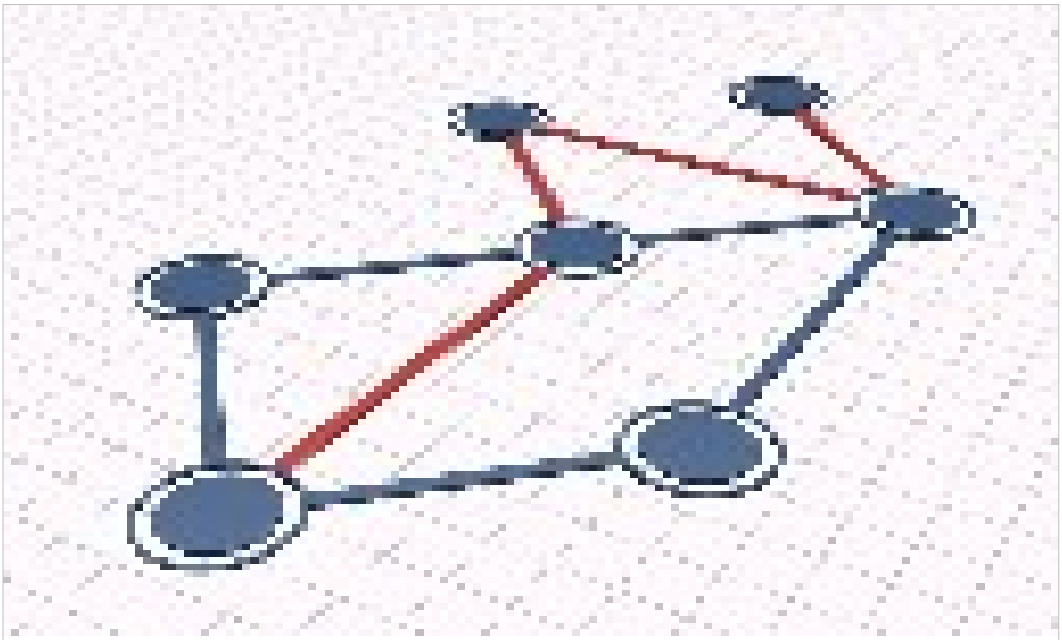


Cloud

What are the drivers for cloud ?
What are the big forces ?



http://csrc.nist.gov/groups/SNS/cloud-computing/



Characteristics

Self Service

A consumer can unilaterally provision computing capabilities, such as server time and network storage, as needed automatically without requiring human interaction with each service’s provider.

Broad Network Access

Capabilities are available over the network and accessed through standard mechanisms that promote use by heterogeneous thin or thick client platforms (e.g., mobile phones, laptops, and PDAs).

Resource Pooling

The provider's computing resources are pooled to serve multiple consumers using a multi-tenant model, with different physical and virtual resources dynamically assigned and reassigned according to consumer demand.

There is a sense of location independence in that the customer generally has no control or knowledge over the exact location of the provided resources but may be able to specify location at a higher level of abstraction (e.g., country, state, or datacenter).

Examples of resources include storage, processing, memory, network bandwidth, and virtual machines.

Rapid Elasticity

Capabilities can be rapidly and elastically provisioned, in some cases automatically, to quickly scale out and rapidly released to quickly scale in. To the consumer, the capabilities available for provisioning often appear to be unlimited and can be purchased in any quantity at any time.

Measured Service

Cloud systems automatically control and optimize resource use by leveraging a metering capability at some level of abstraction appropriate to the type of service (e.g., storage, processing, bandwidth, and active user accounts).

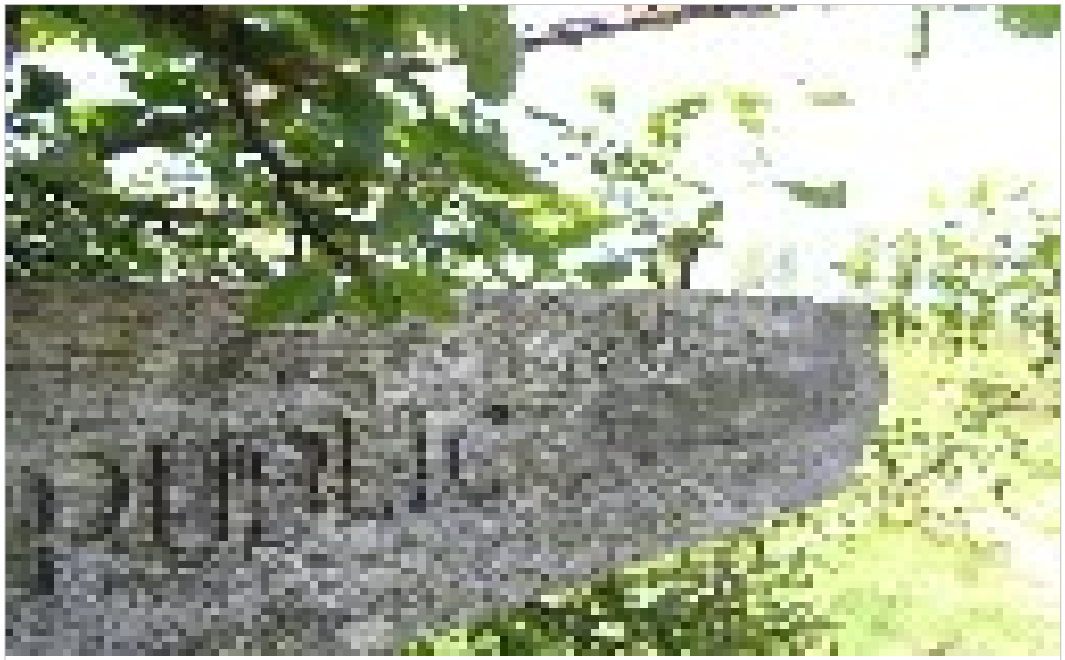
Resource usage can be monitored, controlled, and reported providing transparency for both the provider and consumer of the utilized service

Deployment Models

Cloud introduces new ways to deploy services.

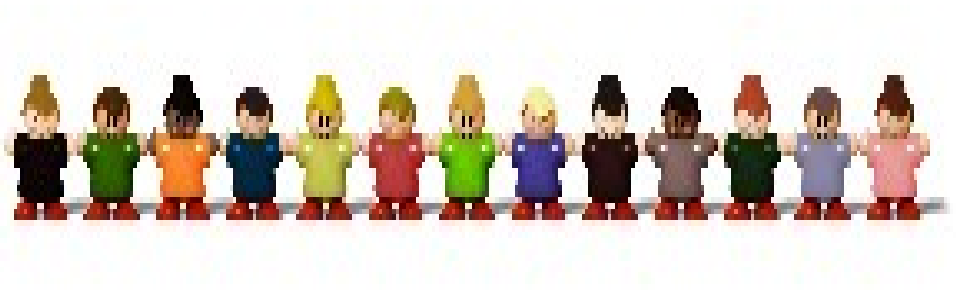
Private Cloud

The cloud infrastructure is operated solely for an organization. It may be managed by the organization or a third party and may exist on premise or off premise.



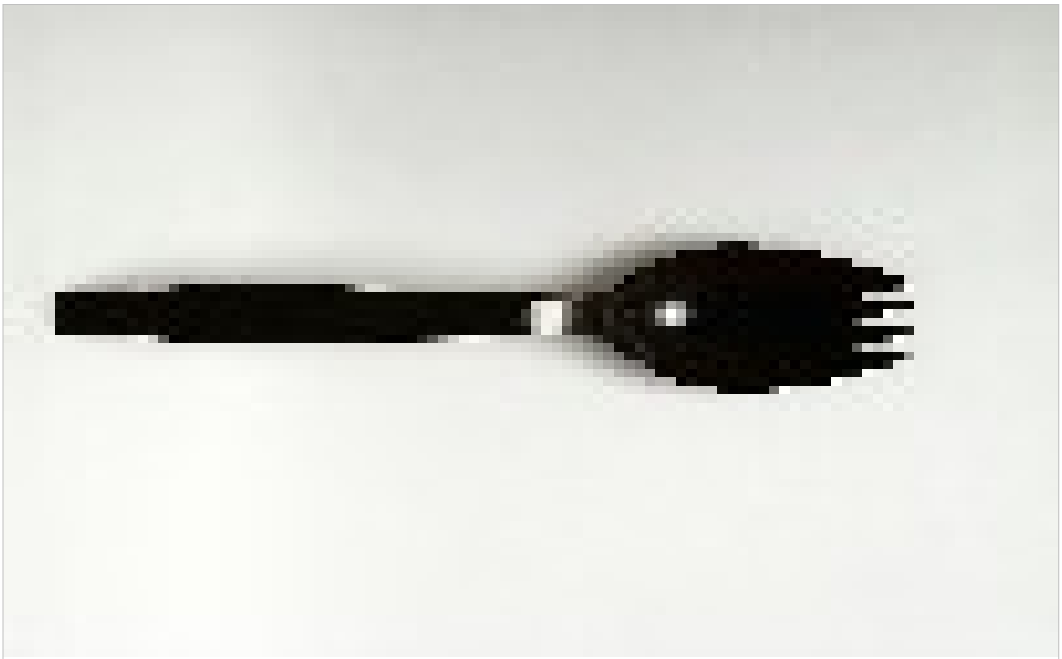
Public Cloud

The cloud infrastructure is made available to the general public or a large industry group and is owned by an organization selling cloud services.



Community Cloud

The cloud infrastructure is shared by several organizations and supports a specific community that has shared concerns (e.g., mission, security requirements, policy, and compliance considerations). It may be managed by the organizations or a third party and may exist on premise or off premise.

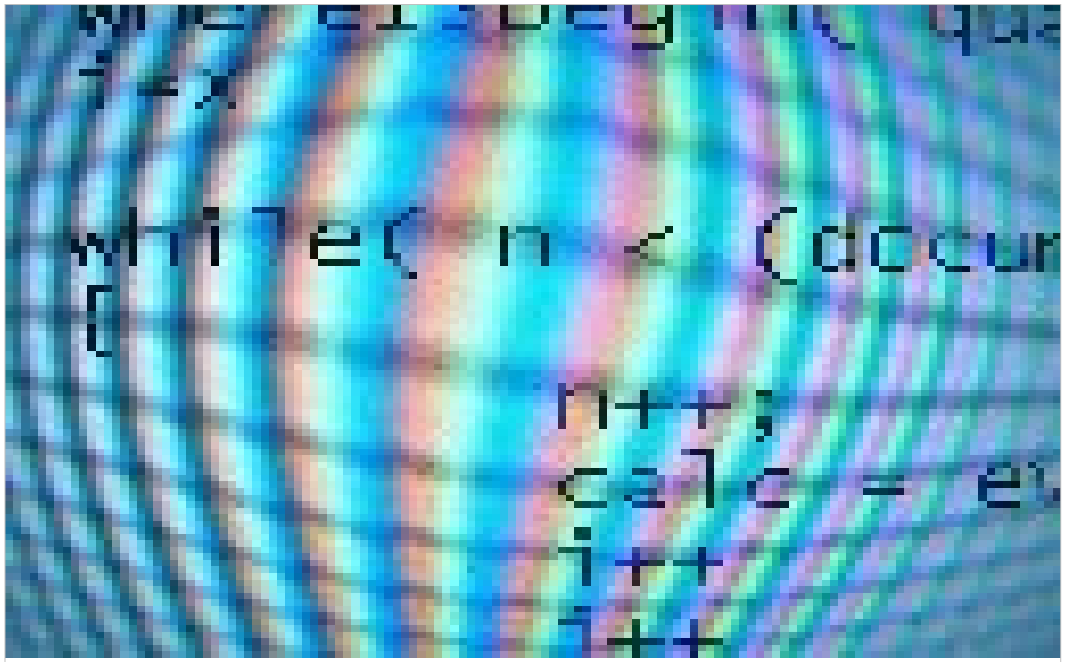


Hybrid Cloud

The cloud infrastructure is a composition of two or more clouds (private, community, or public) that remain unique entities but are bound together by standardized or proprietary technology that enables data and application portability (e.g., cloud bursting for load-balancing between clouds).

Service Models

Cloud introduces some new ways for businesses to delivery service to consumers.



SaaS

The capability provided to the consumer is to use the provider's applications running on a cloud infrastructure. The applications are accessible from various client devices through a thin client interface such as a web browser (e.g., web-based email). The consumer does not manage or control the underlying cloud infrastructure including network, servers, operating systems, storage, or even individual application capabilities, with the possible exception of limited user-specific application configuration settings.

PaaS

The capability provided to the consumer is to deploy onto the cloud infrastructure consumer-created or acquired applications created using programming languages and tools supported by the provider. The consumer does not manage or control the underlying cloud infrastructure including network, servers, operating systems, or storage, but has control over the deployed applications and possibly application hosting environment configurations.

IaaS

The capability provided to the consumer is to provision processing, storage, networks, and other fundamental computing resources where the consumer is able to deploy and run arbitrary software, which can include operating systems and applications. The consumer does not manage or control the underlying cloud infrastructure but has control over operating systems, storage, deployed applications, and possibly limited control of select networking components (e.g., host firewalls).

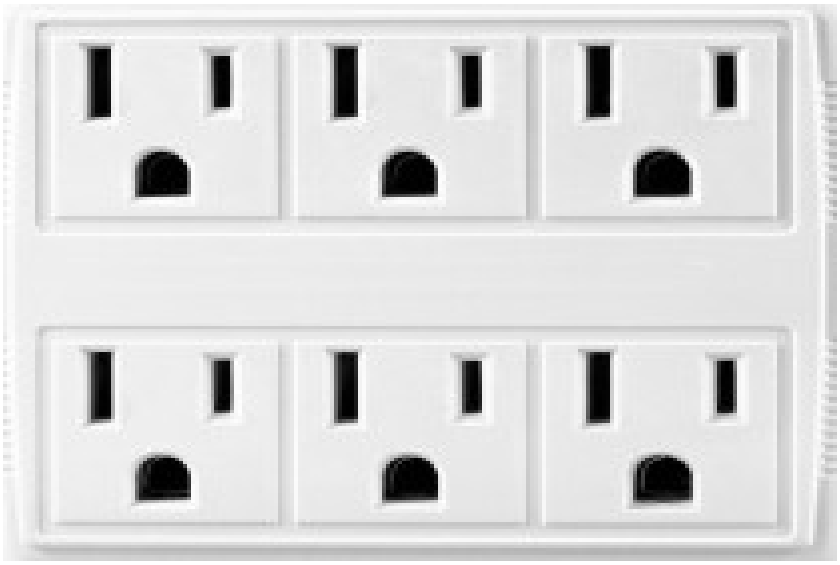
New Terms

The into session did not cover all of the proper terms. We are going to introduce two more which have become part of the common vernacular.

A few of these should already be known.

- Interoperability
- Portability
- Integration
- Multi Tenancy
- Federation

A large portion of the thought process that occurs when one decides which cloud one should endorse, depends on the next two terms.

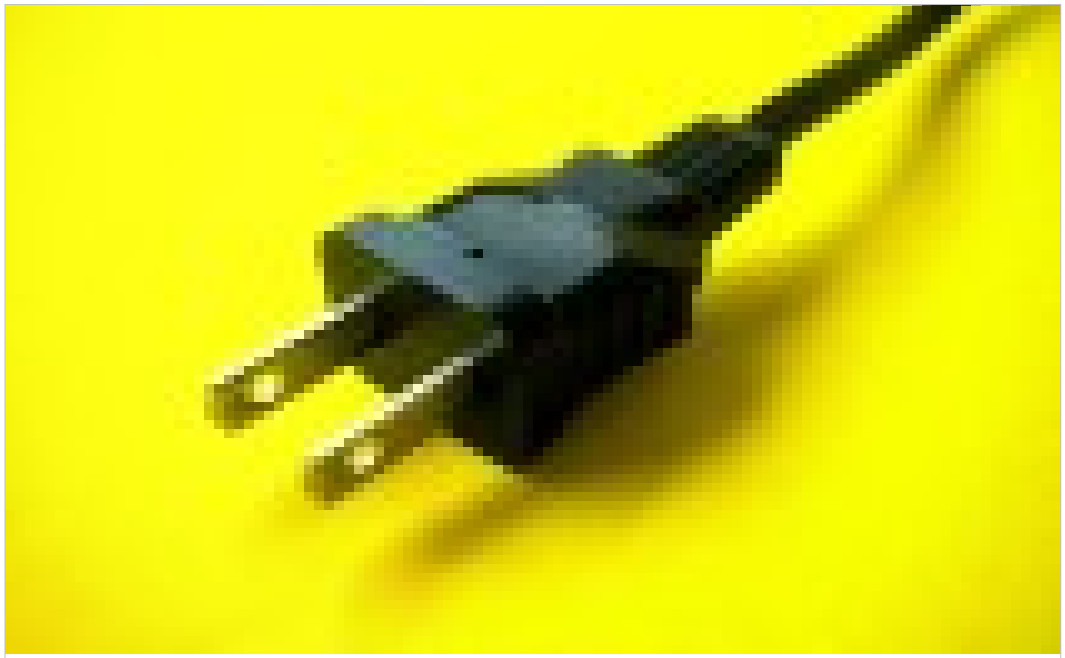


Cloud Service Provider

A Cloud Service Provider(CSP) is an entity that offers some resource in exchange for some sort of compensation.

Amazon in this case would be a CSP.

As would Google and Sales force



Cloud Service Requester 24

A Cloud Service Requester (CSR) this is pretty much the opposite of a CSP.
Someone who uses google docs would be a CSR, or someone who requests a EC2 machine.

The most important thing to understand is that these two entities are not mutually exclusive In the enterprise space, a single business unit might

There is No Free Lunch

Popularized by science fiction writer Robert A. Heinlein in his 1966 novel The Moon Is a Harsh Mistress, which discusses the problems caused by not considering the eventual outcome of an unbalanced economy. In order to avoid a double negative, the acronym "TINSTAAFL" is sometimes used instead, meaning "There Is No Such Thing As A Free Lunch".

Greg Mankiw described the concept as: "To get one thing that we like, we usually have to give up another thing that we like. Making decisions requires trading off one goal against another."

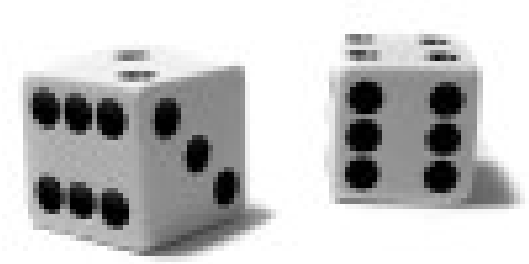
Whatever you choose, you are going to win somethings, and loose others.

Decision Points

http://www.techjournalsouth.com/2010/05/public-private-or-hyb

Generally there are a 4 main decision drivers to cloud computing. Each one of the following needs to be balanced.

The next few charts will describe the 4 large areas of concern when trying to decide how cloud is right for your business unit. That being said, I am sure that there are more points that are specific to your line of business.



Risk

Adding a new line of business could result in severe unacceptable consequences.

The same can be said for migrating your compute resources into a third party's hands.

Let's look at Gmail.
Migrating your exchange server to an external host could provide a large risk.

Cost

Cost cutting is difficult.
Is moving to a cloud computing environment going to reduce your total cost of ownership?
Would becoming a cloud services provider be cost effective?

Lets look at Amazon, for both sides.
Can

Timing

Is your business unit ready ? Are you in the midst of an acquisition ? Did your company just buy 10 brand new zEnterprise machines ?

Resources

Do you have both the physical and operational resources to build a cloud for business units other than yourself ?

Do you have the resources to migrate your existing applications and your processes to the cloud ?

Service Level Management 31

After
SLM defined agreements between the CSR and the CSP about the cloud (or IT) services.
SLAs are part of SLM. SLM is an ongoing process.

SLAs provide the details about the relationship between and CSR and CSP

Also defines the remediation mechanism if SLA's are not meant

Availability Management

Are the clouds services available ?

- Does the CSP have an availability plan ?
- What are the targets (99.99999% etc)
- How is this information gathered and reported.

Capacity Management

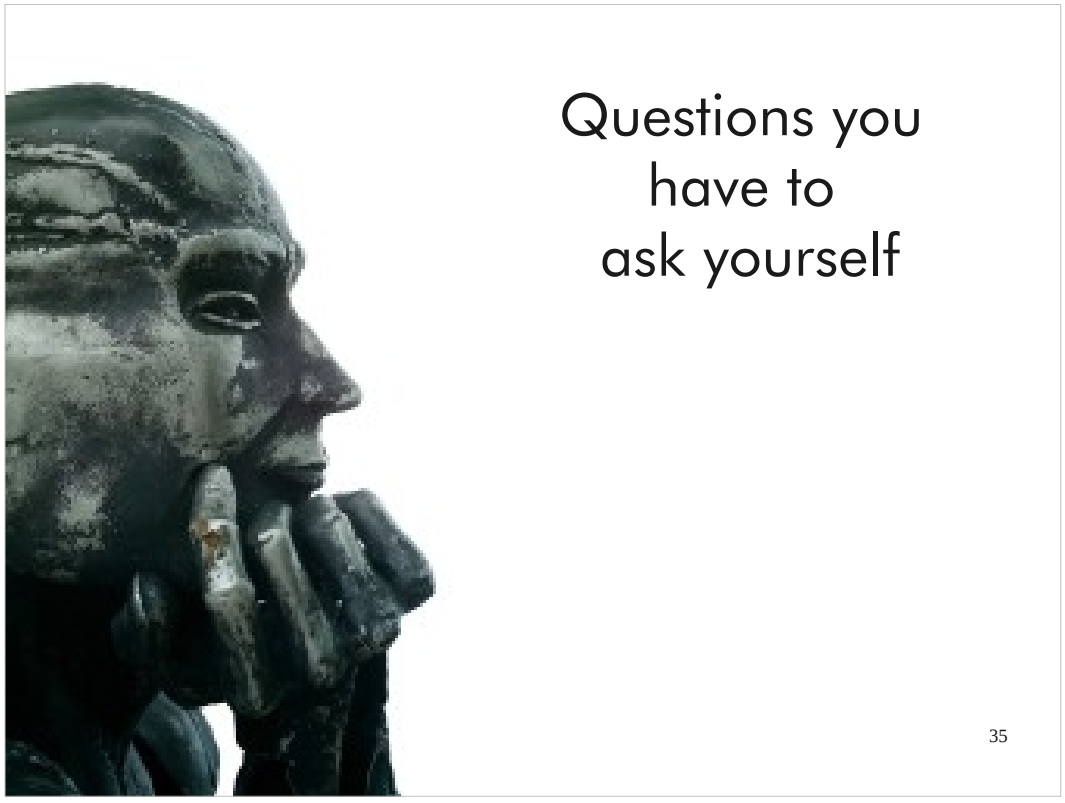
How many CSRs can a CSP support ? How many total instances of a service can a CSP support

What is the capacity plan?

How is this information gathered and reported?

Security Management

Defines the levels of confidentiality, integrity and protection of the data the resides in and around the cloud service.



The rest of this talk/presentation are going to take the form of questions and answers. Although some are in the form of jeopardy since it makes a little more sense.

What do you do?

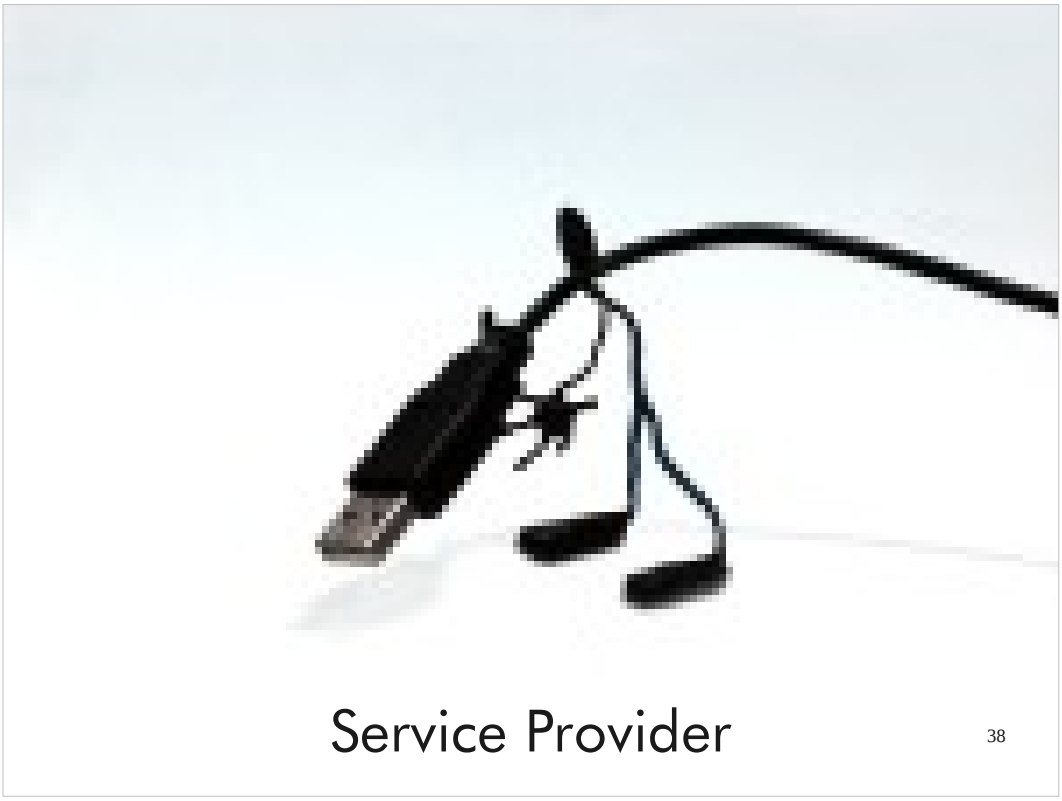
Not you personally, but do you know what your business unit is responsible for providing ?
Who and what are you responsible to ? You may be a system z programmer or a z/VM sys admin but why ?
What do your systems do ?

Whiteout knowing this, it is very difficult to migrated to a different service delivery model.

Choosing Sides

Once you have an understanding of what your Business unit or line of business does, you have to ask yourself which side do you belong on ?

These two sides are not mutually exclusive There may be parts of your business suited for one side, but not the other.



Are you a Cloud Service Provider ?

Can you provide services to consumers ? Odds are you already do this, and by moving some of you work to a cloud model you may be able to reduce operational cost. You can also increase revenue by adding new services/new lines of business.

Service Consumer

Are you a consumer ?
Do you need to reduce cost of operations?
Do you have a declining budget?
Are you out of floor space/cooling/power ?

Would you benefit from someone else doing part of your job for a price?

Are there things that you are responsible for that are not part of your core business ?
IE do you run a mail server just because you need email ?

Which Delivery Model ?

The following set of slides are the Jeopardy section. I will talk about a Delivery model, and then the questions that one might ask themselves.

Answer: Private Cloud

The cloud infrastructure is operated solely for an organization. It may be managed by the organization or a third party and may exist on premise or off premise.

Is data core to your Business?

A private cloud allows data centric businesses to obtain new levels of operational efficiency while staying in the physical bounds of network transmission.

Although one of the core characteristics of cloud computing is broad network access, it is not always possible to have the levels needed by certain businesses.

Perhaps you do a lot of data analytics, or media processing, or large medical records.

Are you regulated?

You might not be allowed to send your work somewhere else. If your CSP can not guaranteed the levels of service that are required by PCI or SOX

Or you may be a state agency that can not ship work out of state lines. Or a country and can't send work out of country lines.

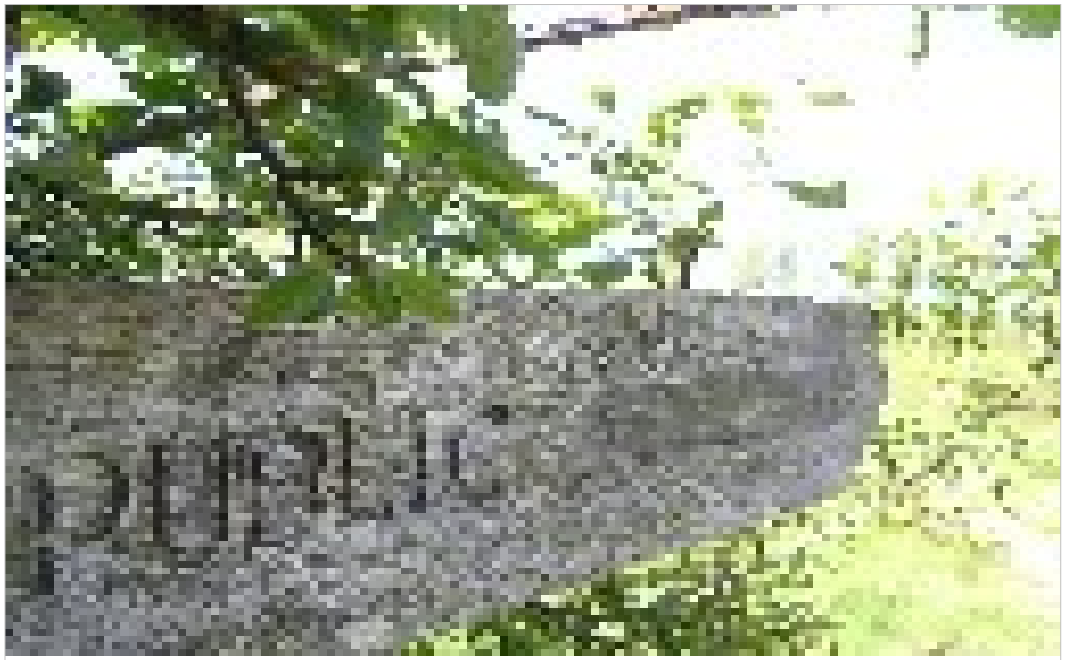
Government and corporate regulations may require that parts of your workload remain “private”.

Are you already cloud like?

You might be doing this already. I have talked to a number of IBM clients that are very good at what they do. They are already cloud like.

This kind of re enforces the fact that cloud is not a new technology area, just applying a collection of know practices in a new way.

And maybe you have written a million REXX scripts that do your operations, but can't afford to hire a programmer. You can buy a solution to build an private cloud. In the next session (Share 8869) this will be covered in more detail.



Answer: Public Cloud

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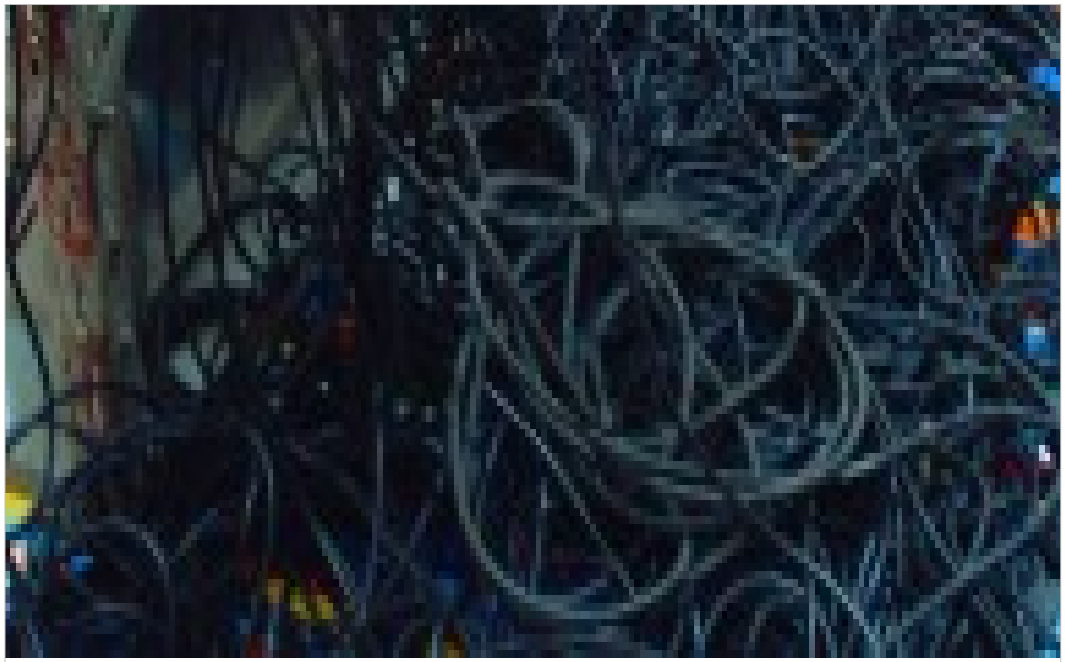
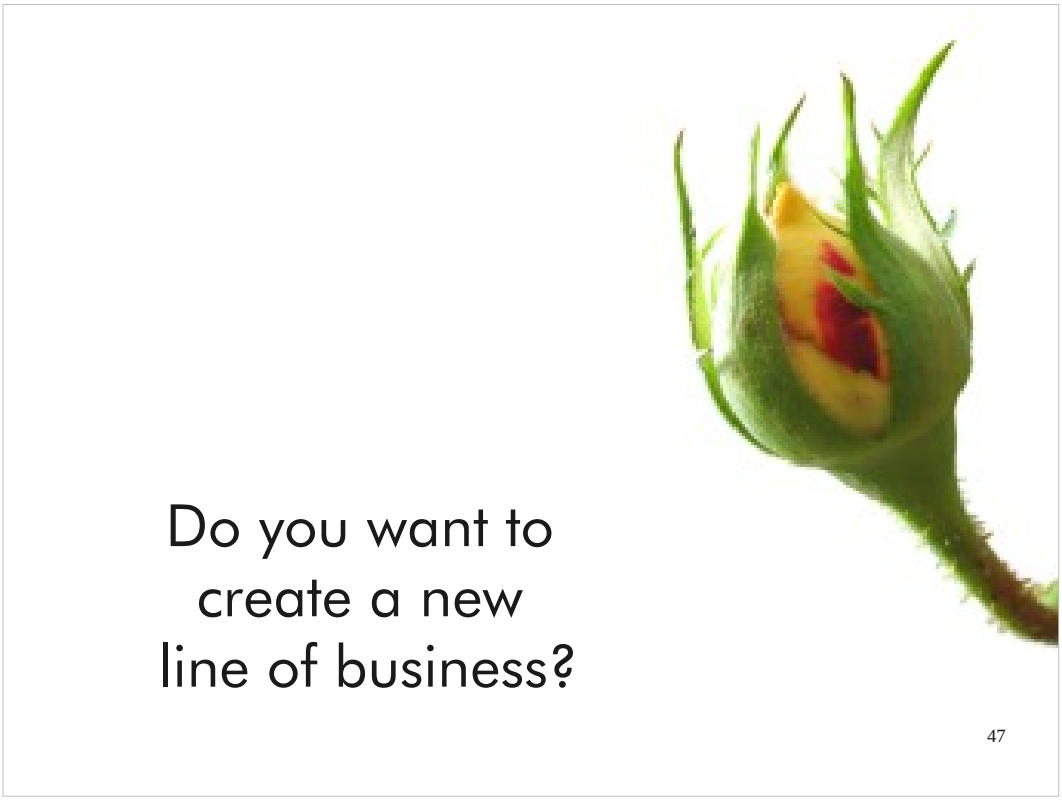


Is your Data Center too small?

If you are running out of bandwidth, power, cooling and/or space then migrating some things to the cloud may help.

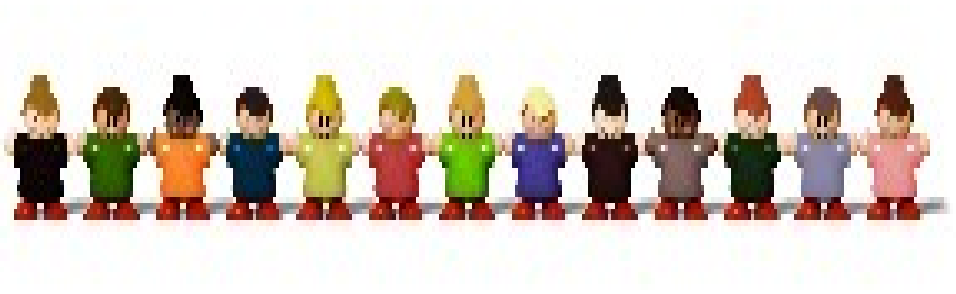


Are you looking to experiment with a new line of business?

The risk of failing is minimized when your upfront costs are so small. Using a public cloud is a great way to check out new ideas of making money without having to build hardware costs into your business plan.

Certain lines of business are declining as the world changes.

Imagine if you could only pay for what was being used by that line of business instead?



Answer: Community Cloud

The cloud infrastructure is shared by several organizations and supports a specific community that has shared concerns (e.g., mission, security requirements, policy, and compliance considerations). It may be managed by the organizations or a third party and may exist on premise or off premise.

Do you share a mission statement? 50

Are there entires outside of your business unit that you share a mission with ?

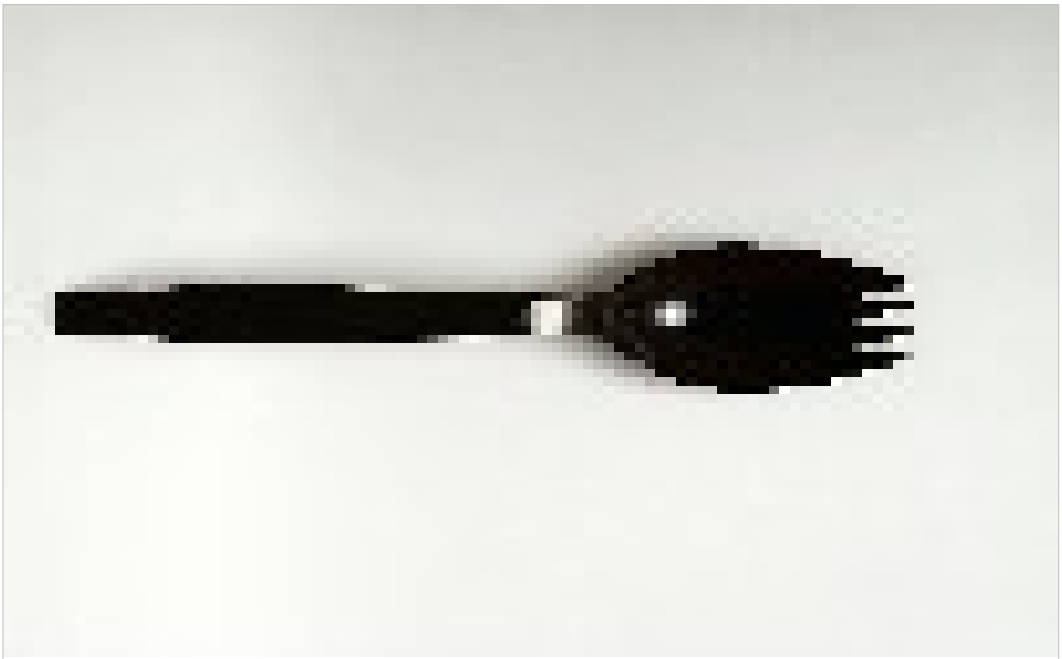
Think of DMV's. There are hundreds of them through out the US. They can benefit from combing resource in a multi tenant fashion.

There would be a decreased amount of operational costs.

Do you share requirements?

Does your business unit have very similar operating requirements as other business units ?

Perhaps all ten of your BUs have to have an external web site. Why should there be 10 of them instead of one single multi tenant?



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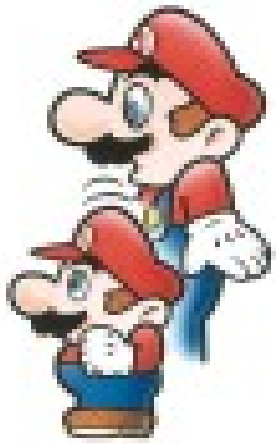
The cloud infrastructure is a composition of two or more clouds (private, community, or public) that remain unique entities but are bound together by standardized or proprietary technology that enables data and application portability (e.g., cloud bursting for load-balancing between clouds).

Does your workload have peaks? 53

Do you have a workload that peaks at know times?
End of quarter transactions?
They having a hybrid cloud would really make things more cost effective.
Think of the IRS. They need compute resources year round, but from Jan – April they need a lot more than in may. If they could burst from their internal enterprise cloud to and external cloud that would greatly decrease there operation costs.



Do you want to ease the transition? 54

Hybrid cloud allows you the ability to ease the transition between clouds.

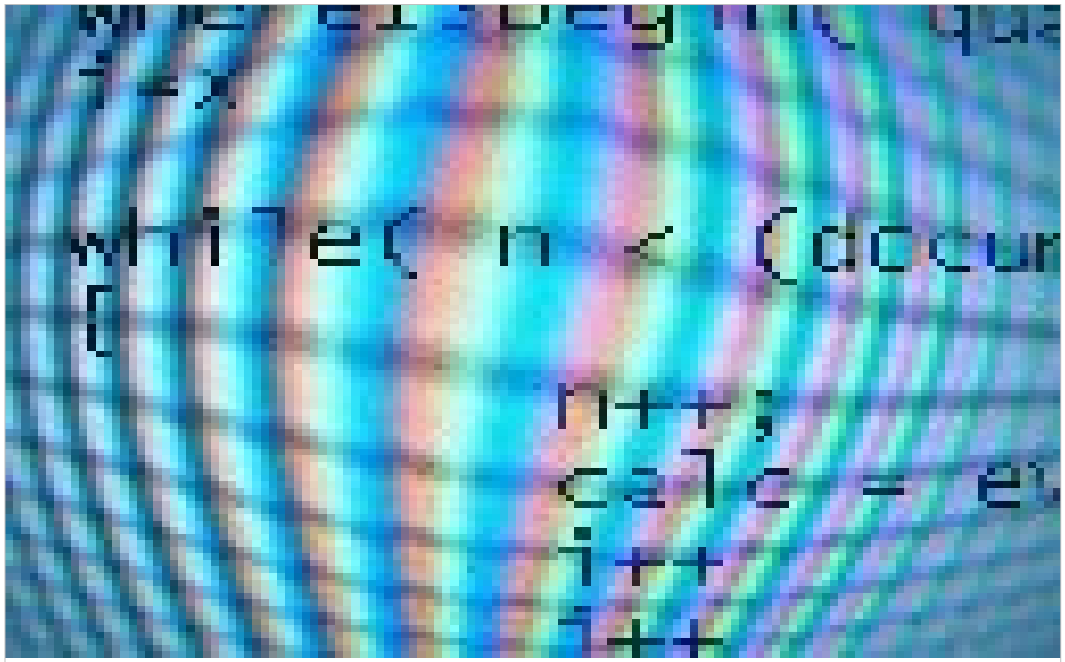
For instance, between public and private.

Or between cloud vendors

Which Service Model?

Cloud introduces some new ways for businesses to delivery service to consumers.

Similar to the deliver models, I have posed some questions that you need to ask yourself. I have broken each service model into producer and consumer.



Answer: SaaS

CSP

Can I provide a multi tenancy model for my service ?

Do I provide routine updates to my software that are difficult of end users to install? (this and update to google mail)

Can I offer my product as strictly a web offering ?

This is MS go to the cloud campaign.

CSR

Can I use a piece of software complete from the net ?

Can I use this piece of software strictly as is offered, normally in a COTS manner ?

Answer: PaaS

CSP

Does my software work in a predefined solution stack ?

Does my software support many industry standards, published APIs, and a defined feature set ?

CSR

I need to “mashup” my parts of my services with other services.

Do I need just J2EE server?

Do I need just a web server?

Answer: IaaS

CSR

Do I have have limited capabilities to grow by infrastructure?

Am I loosing the skill I need to run my infrastructure?

CSP

Do I have the best operations staff ?

This is probably what many of the people in the room are interested in. As a consumer of a service, what the the pitfalls you should try to avoid?

SLA

Does that SLA you just signed meet everything you need to ?

Does the availability match what you need ?

How about that capacity ?

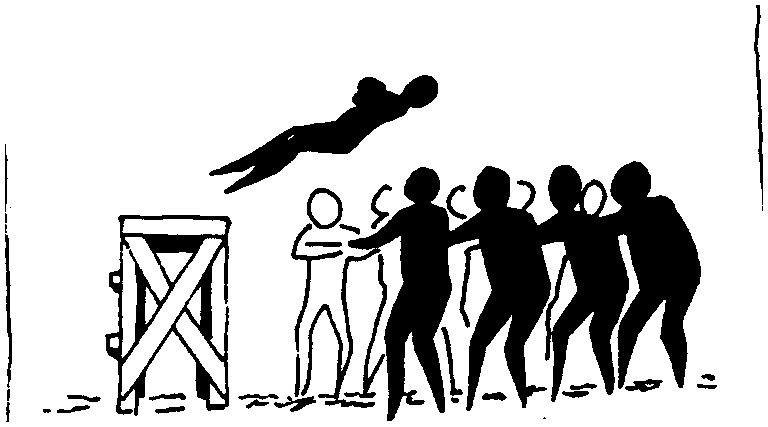
Is there room for growth?

What if the CSP messes up ? What are your options ?

Is your pipe “fat”?

Have you tried to move a large amount of data to the cloud ?
Have you tried to get a VM from a CSP ?

Also, in this case, the interenet is a series of Tubes.
Hahaha. Sorry, sometimes making these charts makes me... crazy.



Trust

Trust is more than just SLAs. There is trust that the company is going to be there for a while.

Migration costs

Odds are, you aren't going to move to EC2 or Lotus live tomorrow.

What are the costs to moving your workload to a cloud model ?

This are more the just financial costs. There are time costs. Have you converted a Vmware vmdk to a KVM image? Takes awhile.

Things to consider for a CSP

Data Protection

License

What does your EULA say?
Can you resell parts of the software?
This are difficult choices and the legalize have not caught up with the IT advances.

Capacity Planning

Do you know now many services you can offer?
Do you know how large you can grow in your current data center?

Are you allowed to get bigger? For instance, there was a group within IBM that got very good at hosting wiki (SaaS). But they were not IGS and once they got to a certain size they were shut down?

Questions

Template

Template

Template