Models You Need to Know

Gartner's experts predict that cloud computing will have almost driven out the traditional on-premises model of workload location by 2020. "Cloud will increasingly be the default option for software deployment," said Jeffrey Mann, Research Vice President at Gartner. "The same is true for custom software."

The Basics of Cloud Computing

Cloud computing — the availability of information resources, such as data repository and computer capacity, on request — provides significant business benefits to companies of different sizes and specifics. However, to make the most use of this computing type, that is, to reduce capital spending, control business-related expenses and improve overall process efficiency, a company should opt for appropriate deployment models in cloud computing.

A cloud deployment model is a "configuration" of certain cloud environment parameters such as the storage size, accessibility and proprietorship. To choose the most suitable one for you, SaM Solutions recommends companies to make a choice based on their computing, networking, storage requirements, TCO expectations and business goals, as well as available resources.

There are four main cloud deployment models that differ significantly and for which most of the companies opt: a public, private, hybrid and a community one. There are also web-based organization systems that are not so widespread, such as virtual private, inter-cloud and others.

Public Cloud

The name speaks for itself, as public clouds are available to the general public and data are created and stored on third-party servers. As server infrastructure belongs to service providers that manage them and administer pool resources, the need for user companies to buy and maintain their own hardware is eliminated. Provider companies offer resources as a service on a free of charge or pay-per-use basis via the Internet connection. Users can scale them when required.

At the same time, relying on a third party in running their infrastructure deprives users of knowing where their information is kept and who has access to it. Often enough, public clouds experience outages and malfunction, as in the case of the Salesforce CRM disruption in 2016 that caused a 10-hour storage collapse.
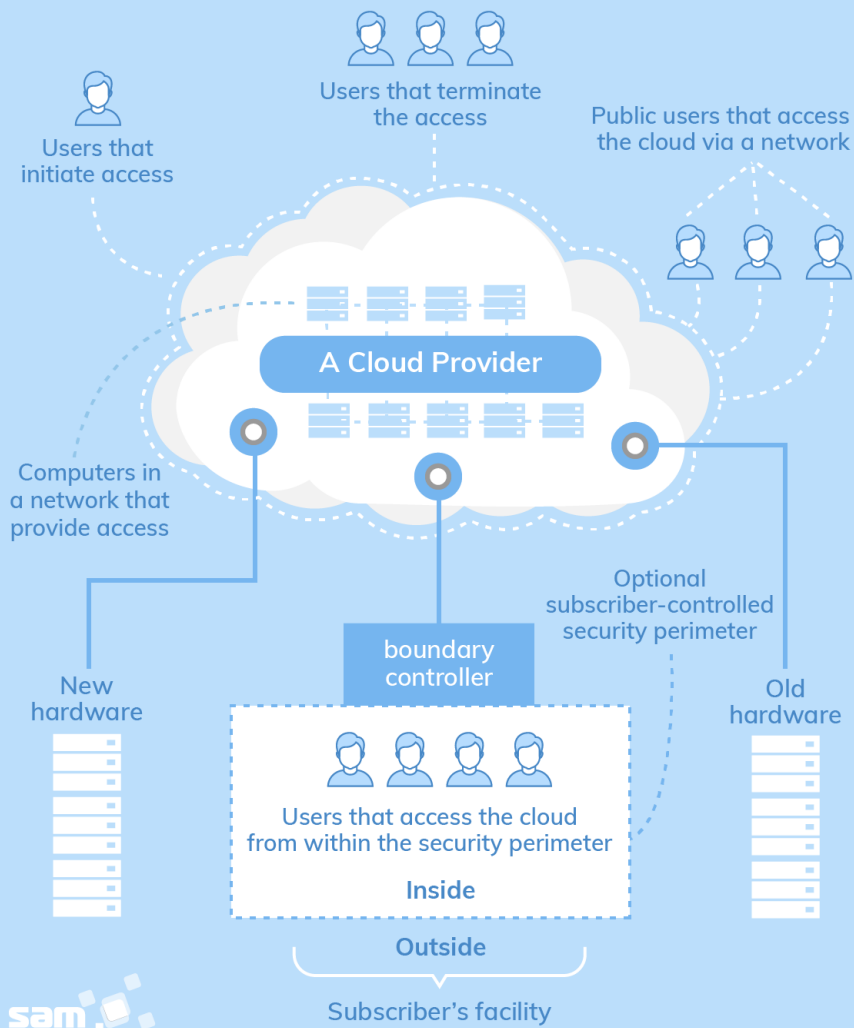
The pros of a public cloud are:

- Unsophisticated setup and use
- Easy access to data
- Flexibility to add and reduce capacity
- Cost-effectiveness
- Continuous operation time
- 24/7 upkeep
- Scalability
- Eliminated need for software

The cons of a public model:

- Data security and privacy
- Compromised reliability
- The lack of individual approach

The public cloud deployment model is the first choice of businesses that operate within the industries with low privacy concerns. When it comes to popular cloud deployment models, examples are Amazon Elastic Compute, Google AppEngine, IBM's Blue, Microsoft Azure, Salesforce Heroku and others.

Public Cloud

Users that initiate access

Users that terminate the access

Public users that access the cloud via a network

A Cloud Provider

Computers in a network that provide access

Optional subscriber-controlled security perimeter

New hardware

boundary controller

Old hardware

Users that access the cloud from within the security perimeter

Inside

Outside

Subscriber's facility

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Private Cloud

There is little to no difference between public and private clouds from the technical point of view, as their designs are very similar. However, unlike in the public one, only one specific company owns a private cloud, which is why it is also called internal or corporate. Because these data center architectures reside within the firewall, they provide enhanced security. Even though one organization runs its workloads on a private basis, a third party can also manage it, and the server can be hosted externally or on-premises of the user company.
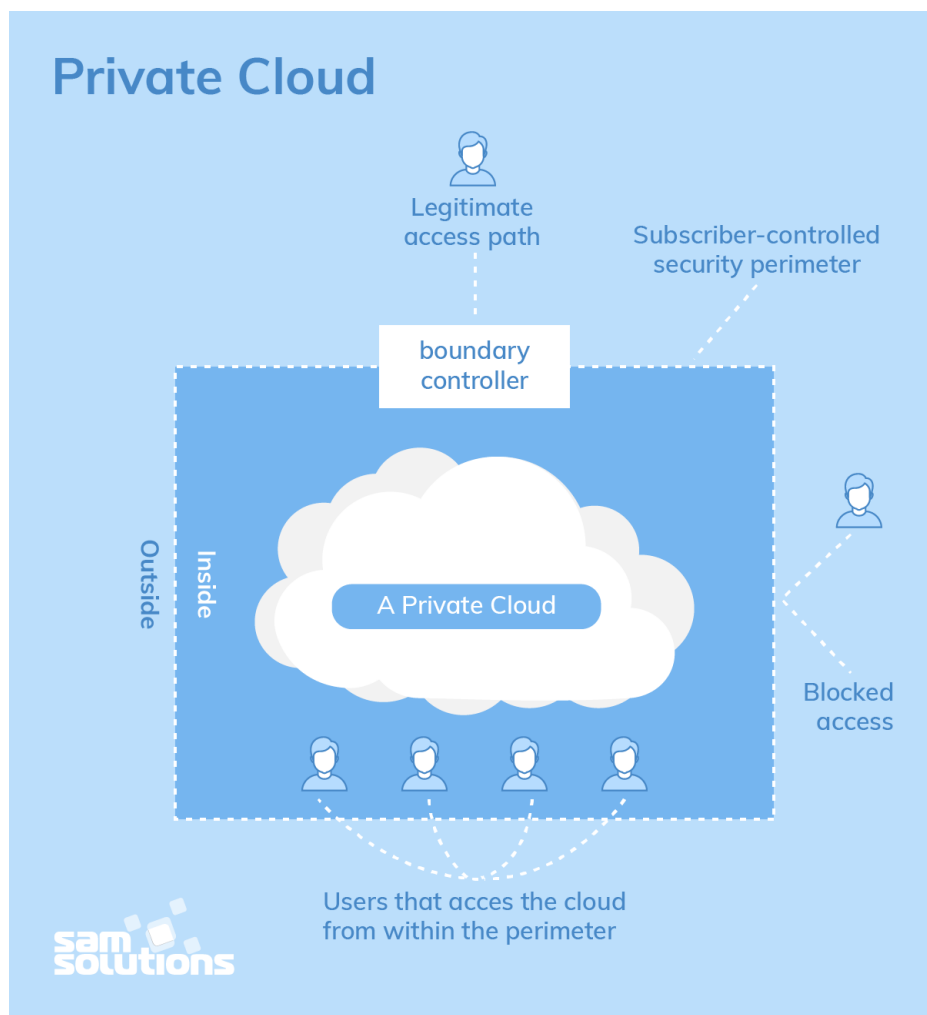
Only a clearly defined scope of persons have access to the information kept in a private repository, preventing the general public from using it. In light of numerous breaches, a growing number of large corporations decided on a closed private type as it is expected to be less risky.

The advantages of a private model:

- Individual development
- Storage and network components are customizable
- High control over the corporate information
- High security, privacy and reliability

The major disadvantage of the private cloud deployment model is its cost intensiveness, as it entails considerable expenses on hardware, software and staff training. That is why this secure flexible computing deployment model is not a choice of small to medium companies. Also, it is especially suitable for companies that seek to safeguard their mission-critical operations or for businesses with changing requirements.

Multiple service providers – including Amazon, IBM, Cisco, Dell and Red Hat – also build private solutions. We at SaM Solutions have created our proprietary cloud solution — CloudBOX. It is a ready-to-use Platform as a Service that facilitates projects by their quick and easy launching.

Private Cloud

Legitimate access path

Subscriber-controlled security perimeter

boundary controller

Outside

Inside

A Private Cloud

Blocked access

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Users that acces the cloud from within the perimeter

Community Cloud

A community cloud deployment model resembles a private one to a large extent; the only difference is the set of users. While a private type implies that only one company owns the server, in the case of a community one, several organizations with similar backgrounds share the infrastructure and

related resources.

As the organizations have uniform security, privacy and performance requirements, this multi-tenant data center architecture helps companies achieve their business-specific objectives. That is why a community model is particularly suited for organizations that work on joint projects. In that case, a centralized cloud facilitates project development, management and implementation. Also, the costs are shared across all users.

The strengths of a community computing type include the following:

- Cost reduction
- Improved security, privacy and reliability
- Ease of data sharing and collaboration

The shortcomings are:

- Higher cost than that of a public one
- Sharing of fixed storage and bandwidth capacity
- It is not widespread so far

Companies can decide on community solutions that Google, Red Hat, IBM, Microsoft or others provide.
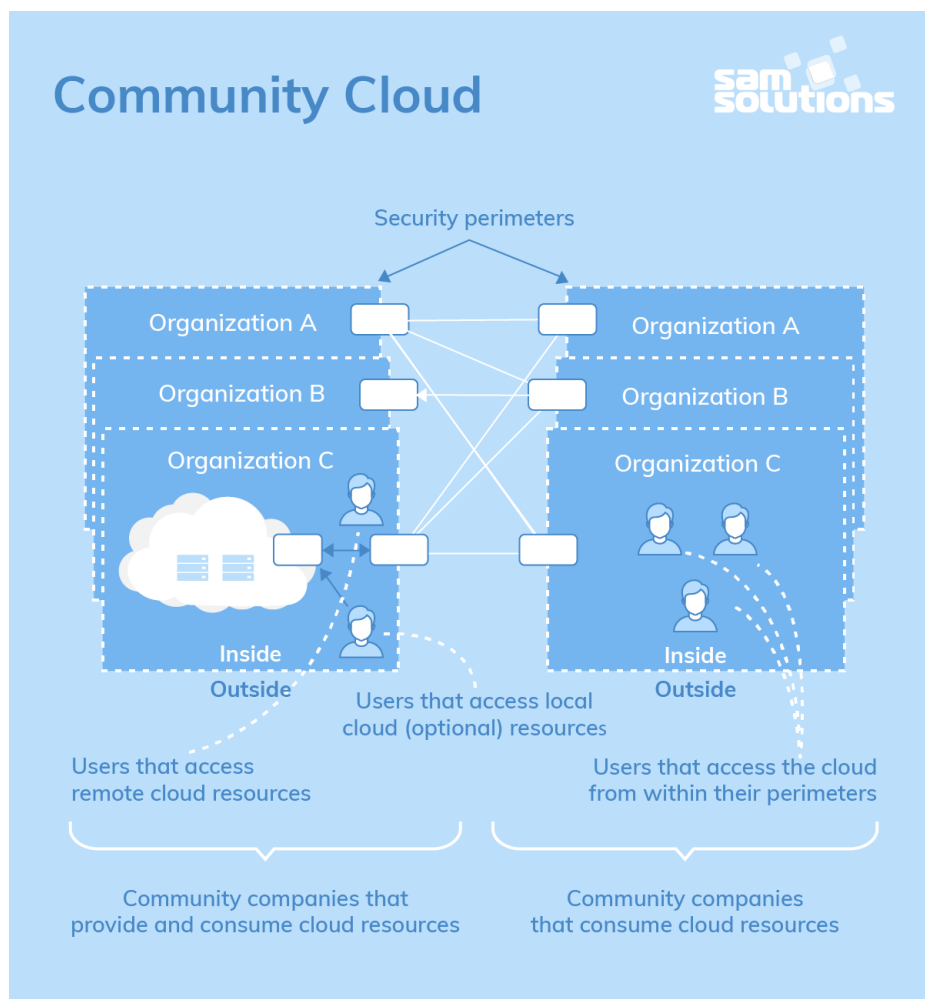
Hybrid Cloud

As it is usually the case with any hybrid phenomenon, a hybrid cloud encompasses the best features of the above-mentioned cloud computing deployment models – a public, private and community ones. It allows companies to mix and match the facets of all three types that best suit their requirements.

As an example, a company can balance its load by locating mission-critical workloads on a secure private cloud and deploying less sensitive ones to a public one. It not only safeguards and controls strategically important assets but does so in the most cost- and resource-effective way possible for each specific case. Also, this approach facilitates data and application portability.

The benefits of a hybrid model are:

- Improved security and privacy
- Enhanced scalability and flexibility
- Reasonable price

However, the hybrid cloud deployment model only makes sense if companies can split their data into mission-critical and non-sensitive.
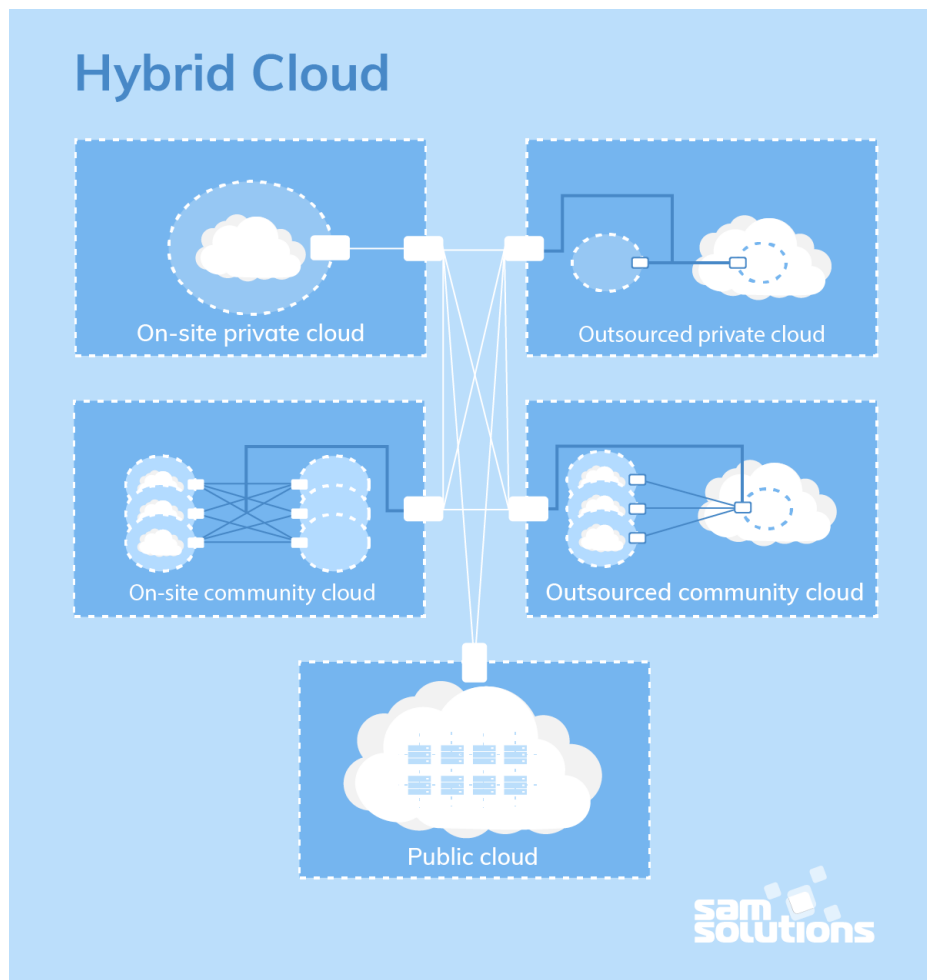
Types of Cloud Deployment Models: The Comparison

To facilitate the choice of the appropriate deployment models of cloud computing by opting for the ones with the most business-critical features, we have created a comparative table that provides an overall view of the specificity of each type.

The ==comparative analysis of the best cloud deployment models==

	Public	Private	Community	Hybrid
Ease of setup and use	Easy	Requires IT proficiency	Requires IT proficiency	Requires IT proficiency
Data security and privacy	Low	High	Comparatively high	High
Data control	Little to none	High	Comparatively high	Comparatively high
Reliability	Vulnerable	High	Comparatively high	High
Scalability and flexibility	High	High	Fixed capacity	High
Cost-effectiveness	The cheapest one	Cost-intensive, the most expensive one	Cost is shared among community members	Cheaper than a private model but more costly than a public one
Demand for in-house hardware	No	Depends	Depends	Depends

Careful consideration of all business and technical requirements, as well as of each model's peculiarity, is a prerequisite for a successful shift to the cloud. However, it is quite a challenging task, which is why SaM Solutions recommends opting for professional cloud deployment services.

Our extensive expertise allows us to choose the most appropriate model that fits the bill for your company, based on your requirements and expectations, to improve your performance and avoid risks and security issues in the future.

★★★★★

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About the author

A content writer at SaM Solutions, Yuliya is anxious to create and deliver relevant experiences. She evangelizes corporate knowledge on expertise and innovations that the company provides.

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