HYBRID CLOUD
The best of all worlds?

I need to upgrade **my data center.** Is this a sensible investment?

I want to ensure **business continuity** via deduplication. What is the best solution for my company, and what will it cost?

I want to **digitize** the patient files for my hospital. Can I **store** everything in the cloud? Will the information be secure?

I need a new **business application.** Should I opt for a customized solution or a cloud-based solution?

These are all relevant questions for every IT manager who has to make decisions for the future. There are various options available for working in the cloud. This white paper aims to inform you about the opportunities, benefits, and pitfalls. Our goal is to assist you in taking well-grounded decisions for your company.

The 2015 Gartner Hype Cycle Report indicates that presently 10 to 15% of companies have adopted a hybrid IT strategy. Hybrid cloud computing will be mainstream within two to five years, according to the same report.

A survey carried out by Gartner in 2015 also indicated that 83% of the CIOs interviewed see Cloud IaaS (Infrastructure as a Service) as a possible solution for an infrastructure problem.

We are convinced that almost all companies are already working with a hybrid solution.

The exact numbers obtained depend upon the definitions being used. Although most people by now have heard of the cloud, that does not mean that everyone uses the same definition. Most people think of the cloud as a collection of Internet services located somewhere or other. But as the end user, you don't know where that is exactly. Yet in reality, in the IT sector, we use a number of explicit parameters to define the various cloud solutions.

WHAT IS HYBRID CLOUD?
THE PARAMETERS

According to the National Institute of Standards & Technology (NIST), there are five parameters that determine whether a service is a cloud service or not.

1 The service or application must be available from every location and via any device: i.e. via a PC, tablet, smartphone, etc.;

2 The service or application offered is clearly defined and can be requested via an automated self-service method;

3 There must be a sufficient degree of flexibility: I must have the option of activating the service or application when I need it, but also of turning it off when I want to. Flexibility is also a question of scalability and elasticity;

4 The use must be measurable to enable pay-per-use options;

5 The service or application must be pooled, available from a central location somewhere, and shared by various users.

PARTNER CLOUD

HYBRID CLOUD

PRIVATE CLOUD
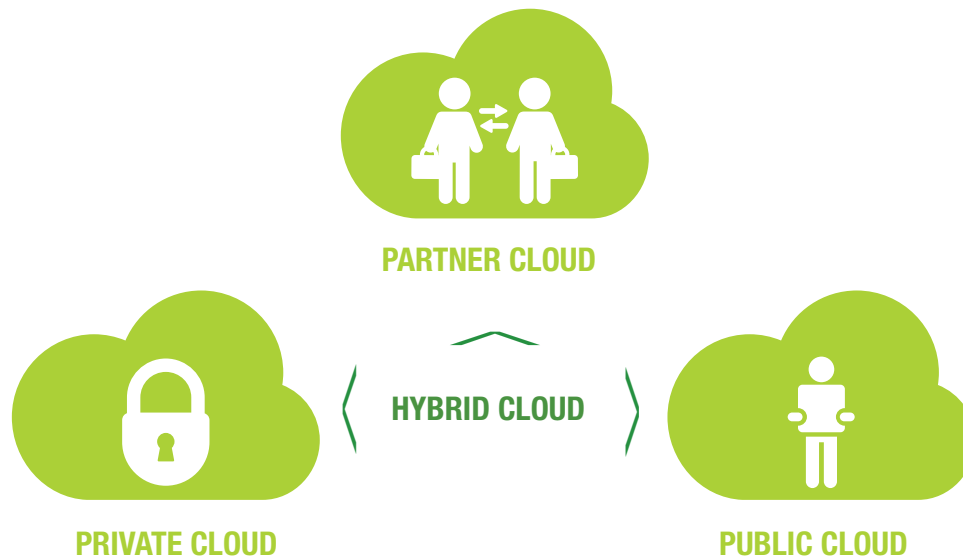
PUBLIC CLOUD

Based on these five parameters, we can define what private clouds, public clouds, and hybrid clouds are.

Private cloud

Services and applications made available by an IT department within a company to the end users, i.e. the company's employees, are part of the private cloud. But, and this is the most important criterion for a private cloud, the cloud in question is limited to a single company – no IT components are shared with other companies. Of course, the services or applications offered must also comply with the five basic cloud parameters: available, self-service, flexible, measurable, and pooled. Every company that has virtualized infrastructure and that offers automated applications and services is working with some form of private cloud.

Public cloud

The public providers such as Microsoft, Azure, Google, and Amazon all offer public cloud services and applications. The services and applications offered are all located on the external service provider's servers and are generic in nature. Facebook, Gmail, and apps on your smartphone are also public cloud services.

Many public cloud providers are US companies. They sometimes make it difficult for European companies to comply with European regulations in relation to security and privacy. This leads to the emergence of partner clouds, in which case the data is stored at a European location.

Partner cloud

In the case of a partner cloud, the cloud services are offered by a local partner that takes on the role of service provider. The platform on which the services and applications are run is owned by the service provider. The customer leases part of that platform to store data or run applications. The service provider – not the customer – manages the service provided. Partner clouds therefore have some aspects of a public cloud, but they also adapt more easily to the specific wishes and needs of the customer in question. The customer has a local contact point, often has access to the C-level of the partner in case of escalations, and can more easily comply with local privacy regulations and other legislation.

An illustration from the real world can make this clearer. If you bake your own bread, you are in a private cloud environment. If you purchase your bread from the local bakery, it's a partner cloud. If you order your bread online from the bakery at the supermarket, it's a public cloud.

At Realdolmen, as soon as you combine at least two of the above-mentioned cloud types, we refer to it as a Hybrid Cloud.

DOES CLOUD COMPUTING
make sense for my company?

How can I, in my role as IT manager, make a well-grounded decision on whether cloud solutions make sense for my company and, if so, which solutions? Migrating all company data, services, and applications to the cloud, in other words the entire IT environment, is a huge step. But simply ignoring cloud solutions is no longer an option. Generation Z are ready and willing to push your business out of the market.

To make an informed decision, it's important to analyze your business strategy, IT infrastructure, and application architecture. First, start by identifying your assets, hardware and software. After that, determine what belongs in the cloud and what doesn't. How critical is your business data? Do you need to have fast access to your data? Where will your data be safer? What is the size of your budget earmarked for business continuity? How quickly can you respond to a changing situation?

In considering cloud computing for your company, you can base yourself on the following decision parameters:

1. Cost price

Generally speaking, cloud computing is considered to be less expensive than managing your own environment. By working in the cloud, you can share the costs of servers and/or licenses with other users. However, also take into account that migrating existing data to the cloud is not always a simple matter, and also comes with a price tag. The cost of connectivity also plays an important role. Accordingly, it's important to make a thorough analysis and calculation.

2. Accessibility of the cloud

The cloud is ideally suited to the new way of working when it comes to working from home, satellite offices, and mobile work environments. Data and applications are always available in the cloud regardless of where the user is located. The only prerequisite for being able to work is access to the Internet.

3. Security

The major international service providers have large teams and a great deal of expertise in the area of information security. In reality, your data is safer in the public cloud than within your own company environment. But safety and security also have a psychological side: if something is far away, it seems to be outside our control, which is why the public cloud feels less safe. In general, it's safe to assume that, when it comes to security issues, most organizations cannot really compete with the providers of public cloud services.

4. Privacy

Privacy legislation differs per continent, country, and business sector. Sensitive information of a personal nature may be less appropriate for

SOME OF OUR CLOUD PARTNERS

Hewlett Packard Enterprise

NetApp

DELL

vmware

the public cloud. This is particularly the case if the provider works within the framework of different regulations than the ones that apply in Europe. This is a legal jungle that becomes much more transparent if a company opts for a private or partner cloud solution.

5. Flexibility and agility

How long does it take to get a new IT infrastructure or application up and running? How scalable must the environment or application be? Do you need to have access to more or less capacity on an ad hoc basis? The service provider who can respond to your demands more quickly may win the race.

6. Opex/Capex

From a financial and accounting perspective, some organizations prefer to purchase their own hardware and software. Others choose the opposite approach and prefer not to make any long-term investments at all.

7. Offer

The range of applications offered via the cloud is evolving extremely quickly. Access to a global portfolio is creating new opportunities. Cloud solutions already exist for any business requirement you can think of.

8. IT vs Business

Many IT departments are asking themselves to what degree they should be dealing with operational IT affairs instead of ensuring that the IT services are in line with the requirements of the business itself.

It's quite a challenge for an IT manager to balance all these parameters against each other while taking the specific needs of the company into account. The best answer for each company may be different. No general rule exists for determining how much of your data or IT resources you should or can outsource. Some companies, in particular newer ones, start operating entirely in the public cloud. For other companies, there may not be any type of cloud option that is appropriate. For a great many companies, a mix may be the ideal solution, whereby some services are purchased within a cloud environment and other services are provided in a more traditional manner.

Therefore be sure to choose the timing and degree of engagement that is most appropriate for your own company.

SO DOES THE HYBRID CLOUD MAKE SENSE FOR ME?

Here are some facts and figures

If, after considering and analyzing as many aspects as possible, you're still not sure which direction to take, then a hybrid cloud solution may be just what you're looking for. And more likely than not, your business is already more of a hybrid then you realize: web hosting, Gmail, Facebook, OneDrive, etc. are all examples of generic services hosted in the public cloud. In combination with your own (automated) IT infrastructure, this means that your business is already somewhat of a hybrid. So we are seeing an increasing number of companies moving towards hybrid cloud solutions and, even more importantly, we are seeing that IT budgets are increasingly being earmarked for various cloud-based solutions.

What do IT managers expect from cloud computing?

All statistics agree that more and more companies will start using some combination of cloud solutions. To make the right decision, you need to analyze and weigh up the advantages and disadvantages of each solution carefully.

A public cloud is generally favorably priced, and such solutions are evolving at lightning speed. This means that you will always be working with the latest version of a tool or service. But at the same time, this can also work against you. After all, you will have no choice but to evolve further
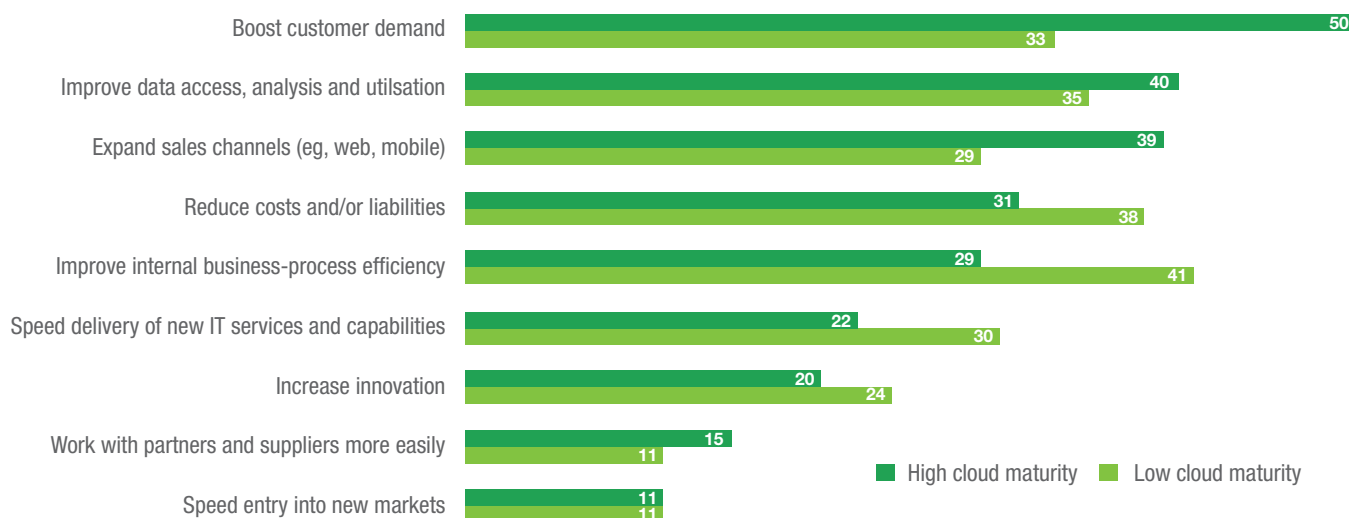
together with whatever is happening in the cloud.

Your private cloud and IT infrastructure will need to evolve at the same speed. If you don't succeed in integrating the public cloud with your private cloud, your business may end up at a disadvantage.
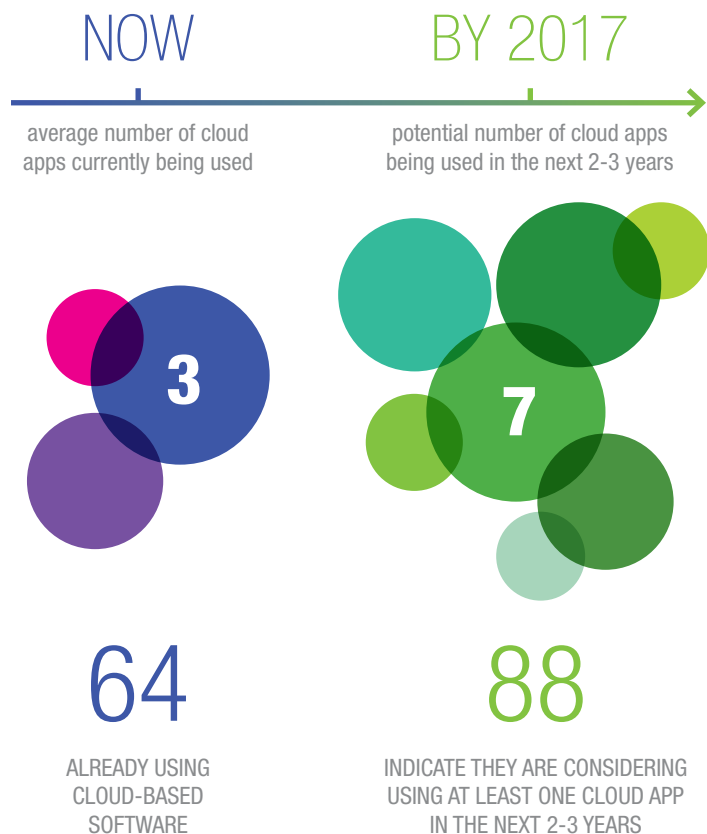
Hybrid, the best of both worlds

Ideally speaking, a hybrid cloud enables you to get the best out of both worlds and combine them to create a customized solution for your own company. However, you need to take into account the technical aspects, relevant regulations, financial resources, and the psychological impact of a cloud

High cloud maturity organisations tend to rank growth-related objectives as their top drivers among their drivers to cloud adoption. What have been the primary business drivers behind cloud adoption at your organisation during the last two years? (% respondents)

Driver	High cloud maturity	Low cloud maturity
Boost customer demand	50	33
Improve data access, analysis and utilsation	40	35
Expand sales channels (eg, web, mobile)	39	29
Reduce costs and/or liabilities	31	38
Improve internal business-process efficiency	29	41
Speed delivery of new IT services and capabilities	22	30
Increase innovation	20	24
Work with partners and suppliers more easily	15	11
Speed entry into new markets	11	11

source: Economist Intelligence Unit survey, February and March 2015

solution. The switch to a hybrid solution is a complex affair. It's wise to carefully consider which provider of cloud solutions you wish to work with. So why not obtain advice from an independent and expert organization that can assist you in coming to a well-grounded decision on what is best for your own company? Even if it turns out that a hybrid cloud is not the right solution for you.

When it comes to the cloud, companies are not looking for a broker but for an integrator. They are looking for information about the opportunities available to them and a partner who can actively help them in finding the best solution for their specific business needs and requirements.

At Realdolmen, we do exactly that by providing cloud roadmaps and cloud journeys that give our customers a clear and transparent answer to their questions. At the customer's request, Realdolmen can provide an optimum blueprint for the customer's IT environment with an appropriate mix of private, partner, and/or public cloud solutions, taking into account the desired IT services.

So doesn't the Hybrid Cloud have any disadvantages?

Yes, it does. One of the biggest challenges is the complexity of a hybrid architecture. Integrating different cloud solutions with regard to connectivity and security is not easy. In addition, your present private cloud must be future-proof if you want to use it in a hybrid solution.

BY 2017, THE NUMBER OF WORKLOADS USING CLOUD WILL HAVE DOUBLED

NOW

average number of cloud apps currently being used

BY 2017

potential number of cloud apps being used in the next 2-3 years

3

7

64

ALREADY USING
CLOUD-BASED
SOFTWARE

88

INDICATE THEY ARE CONSIDERING
USING AT LEAST ONE CLOUD APP
IN THE NEXT 2-3 YEARS

source: Forbes

Migrating your data center, in whole or in part, to a partner and/or public cloud is quite expensive and means that you will be very dependent upon the cloud partner.

With regard to the legal aspects, it's also no simple matter to retain an overview of the complex structure involved in a mix of public, private, and/or partner cloud solutions, including the contractual aspects.

Another disadvantage that should not be underestimated is the psychological aspect. Regardless of how you do it, if you switch

to a cloud environment you will always be giving a certain degree of control to a third party. The future of your company will therefore, at least in part, be linked to the future of that third party. The more similar that third party is to your own company – physically, culturally, and legally – the less important that psychological disadvantage will be.

EVOLUTION OF PRIVATE, PUBLIC AND HYBRID CLOUDS

2015

2017

2019
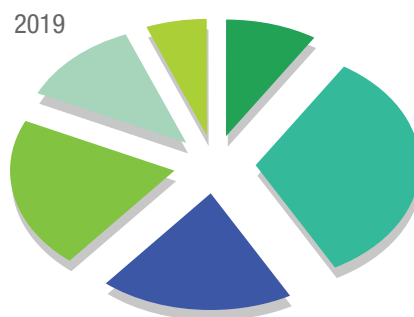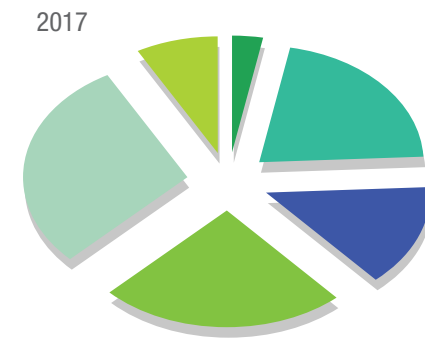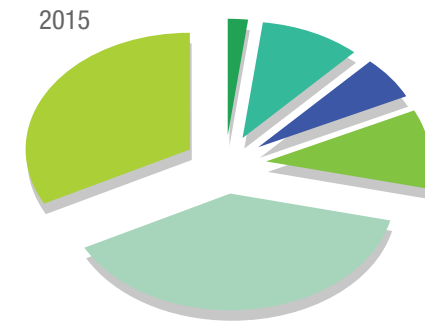
- 🟩 Public cloud
- 🟩 Hybrid (on-premise + Public cloud)
- 🟦 Hosted Private cloud
- 🟩 Internal Private cloud
- 🟩 On-premises / Virtualized
- 🟩 On-premises / Limited Virtualization

Saugatuck Technology, IT Infrastructure Survey, March 2015

ARE WE MOVING TOWARDS A HYBRID FUTURE?

Regardless of the disadvantages, the evolution towards a cloud environment is a fact. Make sure you get the best possible expert advice in order to navigate safely through the complex jungle of advantages and disadvantages, risks, and revenues involved. It makes more sense for you to integrate them into your company instead of waiting for your business to be pushed out of the market by the believers.

Gartner has defined four trends that are slowly but surely becoming permanent features of our world: mobility, social media, information, and cloud. They all point in the same direction: the future of digital business, the Internet of Things. If you want to be part of the first three trends and you want to convert your business to digital, you can't do without the cloud.

Does this mean that, 20 years from now, all on-site data centers will have disappeared and everyone will be situated in the cloud? Actually, nobody really knows. What we do know is that during the next 5 to 10 years, only the hybrid cloud can resolve your doubts and ensure your future.

	Before the Web	Before the Nexus of Forces			After the Nexus of Forces	
	Analog	**Web**	**E-Business**	**Digital marketing**	**Digital Business**	**Autonomous**
Focus	Build relationships that drive business or lower cost	Extend relationships into new markets or geographies	Transfom sales channel into a global medium to drive efficiencies	Exploit the nexus to drive greater efficiency	Extend potential customers from people to things	Smart, semiautonomous things become the primary "customer"
Outcomes	Optimize relationships	Extend relationships	Optimize relationships	Optimize relationships	Build new business models	Maximize retention of and relationships with things
Entities	People	People, Business	People, Business	People, Business	People, Business, Things	People, Business, Things
Disruptions	Emerging technologies	Internet and digital technologies	Automation of business operations	Deeper customer relationships, analytics	Creation of new value and new nonhuman customers	Smart machines and things as customers
Technologies	ERP, CRM	CRM, Web	EDI, BI, portals	Mobile, Big data, social	Sensors, 3D printing, smart machines	Robotics, smarter machines, automation

▲ Change of kind   ▲ Change of degree

Source: Gartner's Digital Business Development path (2014)

Hybrid cloud :
The best of all worlds?

If you would like to find out more about hybrid cloud solutions, please contact **conny.vandensteen@realdolmen.com.**

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REALDOLMEN
to get there, together