

FNT

// simplify complexity



THE HYBRID INFRASTRUCTURE CHALLENGE:

HOW THE CLOUD IS TRANSFORMING YOUR
INFRASTRUCTURE MANAGEMENT



IN THIS WHITE PAPER

A hybrid cloud strategy is the option of choice for many companies. This is because it allows them to take advantage of the benefits of the cloud while continuing to operate certain IT resources in their own data center, for example to meet increased compliance requirements. However, this hybrid strategy also poses numerous challenges for infrastructure management, as hybridity also means more complexity.

We have summarized the ten most important things to consider when managing hybrid infrastructures in this white paper. Find out what impact they have, how you can best deal with them and why there is no way around professional hybrid infrastructure management for organizations.

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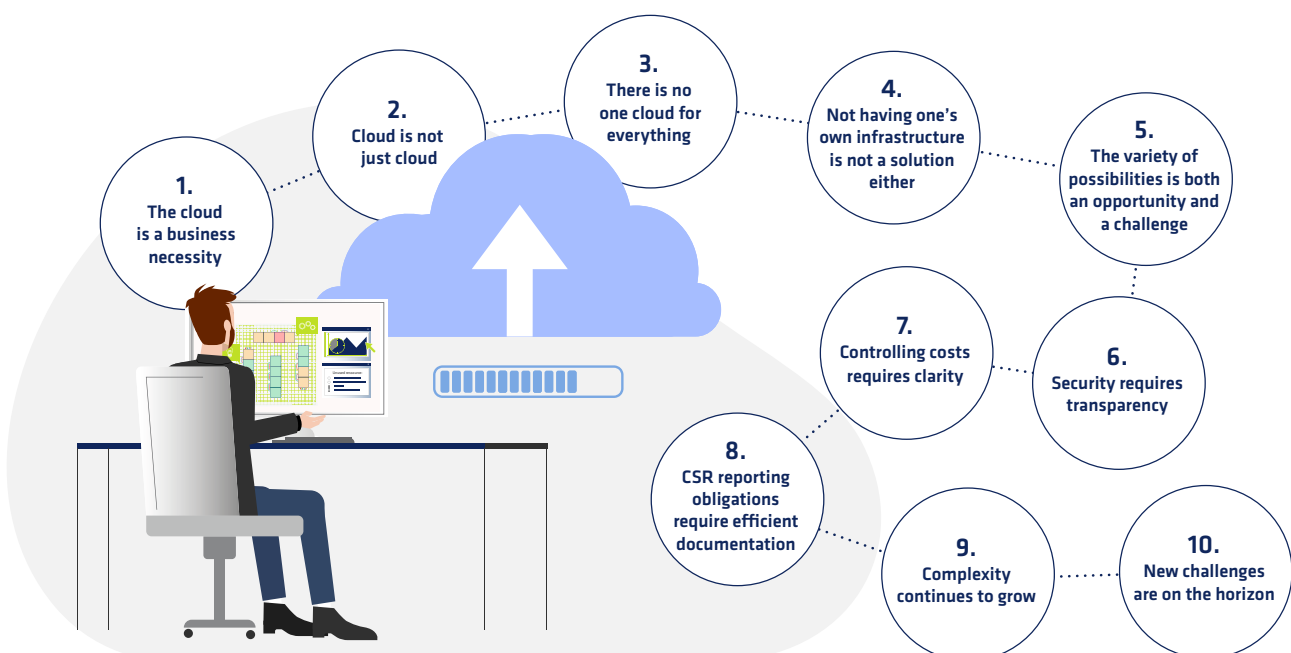
The ten most important reasons for hybrid infrastructure management

Cloud infrastructures are here to stay. At the same time, many organizations continue to operate some workloads on-premises. So, when it comes to cloud infrastructures, most companies are opting for a hybrid strategy. This was the finding of a study by Research in Action. With such a hybrid strategy comes increased complexity of infrastructure management.

The coexistence of different management tools for networks, storage, hardware and software further complicates the situation and makes it nearly impossible to ensure the smooth operation of end-to-end processes. This is no surprise given that modern business processes run

to a greater extent outside the company's own infrastructure. In addition, customers today expect services of the highest quality. Anyone who fails to meet their expectations risks losing their competitive edge. At the same time, companies must ensure data protection and security for all process steps. This also poses considerable challenges for infrastructure management. After all, transparency and the ability to provide information on the performance and security of systems are business-critical.

This white paper discusses the most important factors of efficient hybrid infrastructure management and why it is important to address them now.





1. THE CLOUD IS A BUSINESS NECESSITY

Only five percent of companies consciously refrain from using cloud resources. This was another finding from the same Research in Action study. The advantages of the cloud are too numerous and too important to do without it completely in the long term. This applies to the shift from CAPEX to OPEX as well as the increased flexibility due to faster provision of IT services. The ability to use company IT services from any location in distributed teams and by employees on the move is also something that is commonplace in modern working life. For example, working from home would not be possible in the vast majority of companies without the cloud.

On the other hand, the "cloud only" principle, i.e. obtaining all IT services from the cloud, is not an option for most companies. There are also a wide variety of reasons for this. These range from the lack of availability of special functions in cloud-based standard software to compliance requirements, which primarily affect the public sector and operators of critical infrastructure. However, they all have the same effect: companies have to manage IT resources in their own data center and cloud-based services at the same time and, at least from their customers' perspective, they are always responsible for the entire - hybrid - infrastructure.

To ensure a positive customer experience, infrastructure managers must not only keep their own systems under control, but also the cloud resources. Most cloud providers offer their own management tools for this purpose. However, the challenge of integrating these into their infrastructure management remains within the IT organization. It also grows exponentially when companies have to integrate cloud services from different providers into a single end-to-end process.

2. CLOUD IS NOT JUST CLOUD

The complexity of hybrid infrastructures increases with different cloud usage scenarios, which can be roughly divided into four categories. Their different objectives affect the way in which they are integrated into the holistic management of the IT infrastructure.

Lift & shift

Infrastructure as a Service (IaaS), for example, is primarily about using a lift and shift approach to transfer IT workloads to the cloud as they are. This is often associated with

the intention of converting CAPEX into OPEX and thus freeing up space for investments in other areas. This requires determining which workloads can be transferred at all. However, it is often not clear to those involved which cases the shift really makes sense. With older applications in particular, it is often difficult to identify which components consume which resources. This can lead to an unforeseen increase in network costs, for example when moving to the cloud. This eats up the expected savings and is counterproductive. Even with the supposedly simple lift and shift, it is therefore important not only to be able to describe the existing infrastructure - servers, storage, networks - in detail, but also to look at it in the overall context of the IT landscape.



Developing in the cloud

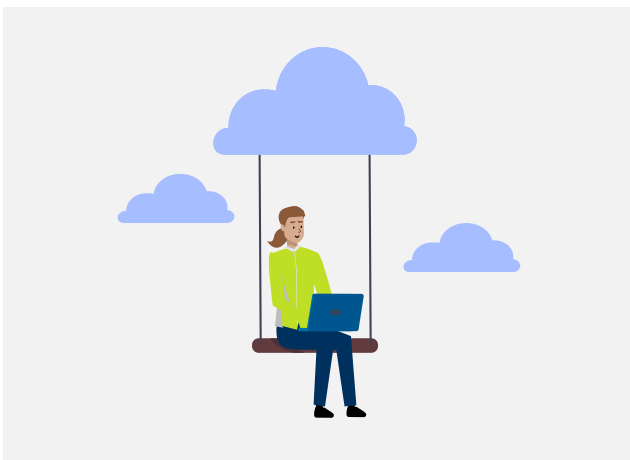
In the "developing in the cloud" scenario companies use Platform as a Service (PaaS) to develop applications faster and more flexibly with new technologies. The management of licenses and users is particularly important here in order to ensure smooth development operations and keep costs under control. The security and protection of company data used in the development process is also a challenge for infrastructure management. For example, data leaks can occur during functional tests and cause considerable damage. This also applies in particular to automated code development using artificial intelligence (AI).

Cloud-based working

Software as a service, which is the procurement of complete applications from the cloud, relieves IT of many management tasks. For example, besides the provision of hardware, the roll-out of updates is also eliminated. At the same



time, however, the question arises as to who is the point of contact for the managed security service provider in the event of a serious disruption. Another important task of hybrid infrastructure management is to clearly define such details, which can prevent million-dollar losses in the event of an emergency, and to document them so that they can be viewed at any time.



Operating one's own cloud

With a private cloud, some of the challenges described so far can be eliminated because the operation of the infrastructure is completely in your own hands. In this way, legal regulations that prohibit outsourcing to third parties can be complied with while still enjoying the benefits of modern cloud technology. However, the fixed costs for hardware and its operation remain more or less the same for the company, while the scaling effects that are a major benefit of cloud models are eliminated. For example, it is generally no more cost-effective for an individual company to operate a cloud data center to the highest security standards than it is for a cloud provider. Unless all components can be completely transferred to the cloud infrastructure, for example because some legacy applications on mainframes are still required, private clouds must also be integrated into hybrid infrastructure management.

3. THERE IS NO ONE CLOUD FOR EVERYTHING

The previous sections of this white paper focused on the effects of individual cloud scenarios on IT infrastructure management. It has become clear that cloud services on their own can certainly simplify individual aspects of IT management. However, when viewed as a whole, they always pose additional challenges for IT infrastructure management,

which now has to deal with IT services provided in different ways. One thing that has been ignored so far is that in reality there is no such thing as "the" cloud, but rather a more or less large number of different providers and service packages with different strengths and weaknesses.

The providers' on-board resources are designed to support internal optimization – whether IaaS, PaaS or SaaS. They are often of little help when it comes to managing a multi-cloud environment. As a result, the responsible IT infrastructure managers lag behind the expectations of company management and users when it comes to rectifying performance issues. Effective cost management is also difficult to achieve in this way. What is missing is hybrid infrastructure management, which takes a bird's eye view of the entire system landscape. This makes it difficult to identify the causes of faults and the constant risk of overlooking the really important correlations in the many different views of the system prevents many IT managers from sleeping.

4. NOT HAVING ONE'S OWN INFRASTRUCTURE IS NOT A SOLUTION EITHER

Another aspect that is often given too little consideration when switching to cloud-based IT usage: even with a "cloud-only" model, there is always some residual infrastructure management that remains the responsibility of the company. This is because without the active and passive components of the structured cabling of network and communication infrastructure, there is no connection to the cloud.

5. THE VARIETY OF POSSIBILITIES IS BOTH AN OPPORTUNITY AND A CHALLENGE

The various deployment options provide a wide range of possibilities for the development and planning of future-proof infrastructure. In practice, every choice also means effort. Comparing the advantages and disadvantages of different options, assessing the long-term effects of changes – all of this requires in-depth specialist knowledge and, above all, detailed knowledge of the existing infrastructure. A sustainable infrastructure development strategy can hardly be planned, let alone implemented, with the knowledge in the heads of a few specialists alone. Where there is a lack of overview and transparency, hidden costs, bad investments and security risks almost inevitably arise, which no company can afford in the current competitive environment.



6. SECURITY REQUIRES TRANSPARENCY

Servers in storerooms that nobody knows exist, identities and access rights that no longer appear in any directory because the people or applications for which they were assigned are no longer active - such gateways for cyber-attacks exist in almost every company that does not have detailed documentation of its infrastructure. And the more complex the infrastructure, the more difficult it becomes to create and maintain transparency through such documentation. This applies to the management of access rights to cloud services as well as administration rights to central infrastructure components, access to server and data center rooms and, increasingly, access to the control of smart building components. As a lack of knowledge about the type, number and status of such components does not protect against responsibility for the consequences of their inadequate security, transparency about the systems is absolutely business-critical for any company with a digital infrastructure.

7. CONTROLLING COSTS REQUIRES CLARITY

Cost transparency is one of the most important arguments for using cloud services. "You only pay for what you use" is often the promise. In many cases, however, the reality is different: Many providers bundle their services into packages whose scope cannot be changed and which are invoiced at full cost. Although this makes it easier to quickly provide typical service configurations, it makes it more difficult to keep track of actual usage and calculate requirements.

In addition, when purchasing packages from different providers, individual services or functions may be redundant - and have to be paid for. On top of this, providers of office or business software move functions and modules between individual applications. This leads to additional usage rights for entire modules being acquired for individual functions, while the licenses for other modules that are no longer required due to the change continue to run for the time being. An overview of all contracts and licenses with a provider is becoming standard with more and more providers. However, how this is handled differs from application to application. Most companies do not have a complete overview of all contracts with all providers at all

levels of the IT stack. As a result, companies are missing out on considerable cost optimization potential.

8. CSR REPORTING OBLIGATIONS REQUIRE EFFICIENT DOCUMENTATION

One of the more recent challenges for the management of digital infrastructure is environmental sustainability. One driver in this context is the legal requirements for reporting standards, which have been tightened in many countries around the world. One example is the European Union's updated regulations on CSR (Corporate Social Responsibility) reporting as part of the fiscal year end reporting of companies. They apply in the European Union beginning with the 2024 reporting period for companies that already had to submit CSR reports in the past and will be gradually extended to other companies. Added to this is the increasing sustainability awareness of consumers when purchasing products and services.

In order to meet all these requirements, infrastructure managers must be able to provide up-to-date data on the CO2 footprint and other key figures related to the environmental impact of all elements of the infrastructure. And this applies to both their own infrastructure and the cloud services they use. In the long term, the aim is not only to document but also to intervene to actively minimize resource consumption and greenhouse gas emissions.

9. COMPLEXITY CONTINUES TO GROW

Regardless of whether the aim is to reduce energy consumption or to identify the causes of critical faults and rectify errors: Companies need to be able to switch quickly between the big picture and deep insights into the details of individual components. The more complex the infrastructure, the more difficult this becomes for IT infrastructure managers. This increases the need for a comprehensive overview that integrates data from a wide range of infrastructure components. This is even more important in light of the upcoming IT/OT convergence, which involves networking traditional IT systems with the operational systems in production facilities, vehicles and the technical building equipment (TBE) of physical infrastructure.

10. NEW CHALLENGES ARE ON THE HORIZON

While most organizations are busy creating an integrated platform consisting of traditional data centers and cloud resources, new challenges are already on the horizon: in addition to IT/OT convergence, companies will also have

to master technologies such as quantum computing and AI in the future. As these bring new challenges in terms of data security, network performance and cooling, among other things, companies are well advised to start looking at hybrid infrastructure management today before the complexity of the systems escalates further.

Conclusion: From challenge to opportunity

Hybrid infrastructures place high demands on IT managers. At the same time, they open up the opportunity to better adapt business processes to changing requirements - whether these are related to economics, technology or regulation. This means that those who switch to hybrid infrastructure management earlier will benefit more quickly from the possibilities of new technologies and increase the return on investment of the existing infrastructure.

Find out more about **Hybrid Infrastructure Management** from FNT here.





About FNT

FNT GmbH, headquartered in Ellwangen (Jagst), Germany, simplifies the management of highly complex digital infrastructures in companies and public authorities with its FNT Command Platform. With the cloud-enabled “software made in Germany”, IT, telecommunications and data center infrastructures can be efficiently recorded as digital twins and documented across all levels from buildings to digital services. The software also offers open interfaces and numerous functions for planning,

implementing and automating transformations and changes in an integrated manner. FNT’s customers include more than 500 companies and government agencies worldwide, including more than half of the DAX-40 listed corporations. FNT operates offices in several locations in Germany as well as in New York, London, Singapore and Timisoara and has an international partner system with market-leading IT service providers and system integrators.

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