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DEUTSCHE TELEKOM'S **NEXT-GENERATION HYBRID DATA CENTER**

Why a hybrid approach is the most straightforward
and effective route to IT modernization



**Connecting
your world.**

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INTRODUCTION

“Just like a beautiful butterfly can’t come into life without its transformation cycle from egg to larva, caterpillar to pupa and finally to a brilliant creation, to become a successful digitally transformed organization, similar transformational stages are essential.”

– Enamul Haque, IT veteran, industry thought leader, author

Dear Readers,

Welcome to our European-flavored e-paper tailored for IT and business decision-makers. When we set out to write it, we agreed that it was not necessary to focus on any one sector or industry because, whether you manage an SMB, head an IT team in a large enterprise, or work for a public authority, the challenges you face as you journey to a cloud-enabled world are almost universally shared.

We know that we don’t need to beat the drum on the value of the cloud – few need convincing, and you can read countless other publications for that. Instead, we focus on the obstacles to achieving a modern IT ecosystem, why it can be so easy to fall into a disconnected jungle of cloud services, and the value of a strategic, iterative approach.

Above all, this is a solutions-driven paper. We believe the optimal route to IT modernization is a hybrid approach: a computing environment utilizing the best of different platforms. Success demands complete visibility and control of these platforms, which we will explore in depth in the coming chapters. Following the shift to the cloud, hybrid is the next logical step and will be here for the long term.

At Deutsche Telekom, we’ve been on our own transformation journey. Cloud computing has evolved, and so have we. We’ve built on our expertise in global telecommunications and vast network of state-of-the-art data centers to create our own unique butterfly—our Next-Generation Hybrid Data Center. As a cloud-agnostic offering independent of the market hype, we can provide a highly customizable, effective solution that breaks down common barriers, eases innovation, and reduces complexity. But above all, it enables choice.

We’re excited to showcase our Next-Generation Hybrid Data Center in this e-paper and even more excited to imagine what you will achieve with it. And who knows, perhaps your success story will feature in one of our future papers.

Best,
Marek Andrzejuk



Marek Andrzejuk

Head of Portfolio & Innovation,
Telekom B2B Europe

A BRIEF HISTORY OF DATA CENTERS

Data centers – the real estate of the IT world – have evolved considerably. Their evolution reflects both tremendous advances in technology and organizations' ambitions:



The mainframe era (1960s–1980s):

Data centers originated as computer rooms that housed large, expensive, and powerful mainframe computers to automate processes and support critical business functions. Banks used them for financial transactions, insurance companies to maintain comprehensive records of policyholders and claims, and airlines to manage reservations and ticketing.

While newer technologies coexist, mainframes remain integral to these industries' stability, security, and operational effectiveness because of their high reliability.

The client-server era (1990s–2000s):

Data centers shifted to a distributed model, where networks of smaller, cheaper, and faster servers replaced some mainframe computers. These servers could run multiple applications and support the demand for Internet and web services. Data centers became more standardized and modular, using racks and cabinets to organize the equipment.

The cloud era (2010s–2020):

Data centers embraced the cloud computing paradigm, where data and applications are delivered over the Internet as services. Cloud providers built large-scale, ultra-efficient, geographically distributed data centers to offer various cloud services, such as infrastructure, platforms, and software. Data centers also adopted virtualization, automation, and green technologies to optimize performance, scalability, and sustainability. Around this time, the world saw the emergence of cloud hyperscalers, such as Microsoft Azure, AWS, and GCP.

The hybrid cloud era (2020–present):

As organizations began combining on-premises workloads with public and private cloud services, data centers recognized the need to facilitate hybrid strategies. Hybrid scenarios allow businesses to optimize their IT environments by balancing security, flexibility, and cost-efficiency. Companies can leverage the scalability of the cloud for variable workloads while maintaining critical applications and sensitive data on-premises. This era is also seeing advancements in orchestration and management tools, enabling seamless integration and movement between different environments, fostering innovation, and accelerating digital transformation.

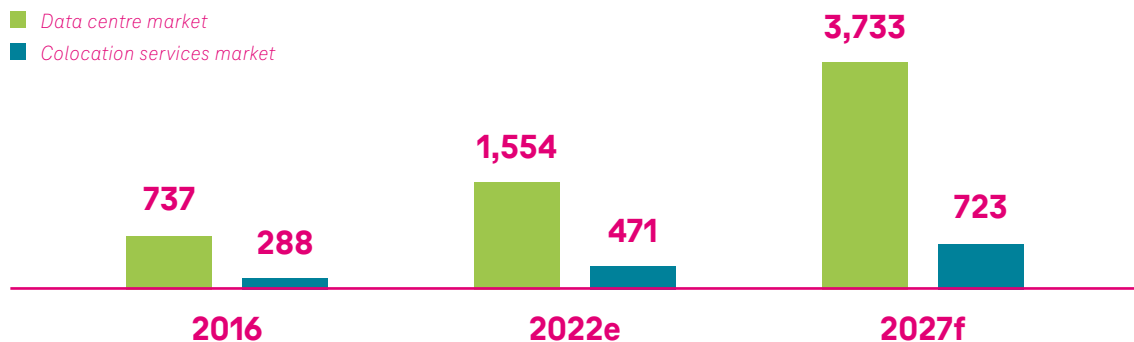
THE GROWTH OF DATA CENTERS

DATA CENTERS IN CEE COUNTRIES ON A SKYWARD TRAJECTORY

CEE countries (€ m), 2016 – 2027

■ Data centre market

■ Colocation services market



e – estimate f – forecast // Source: PMR.

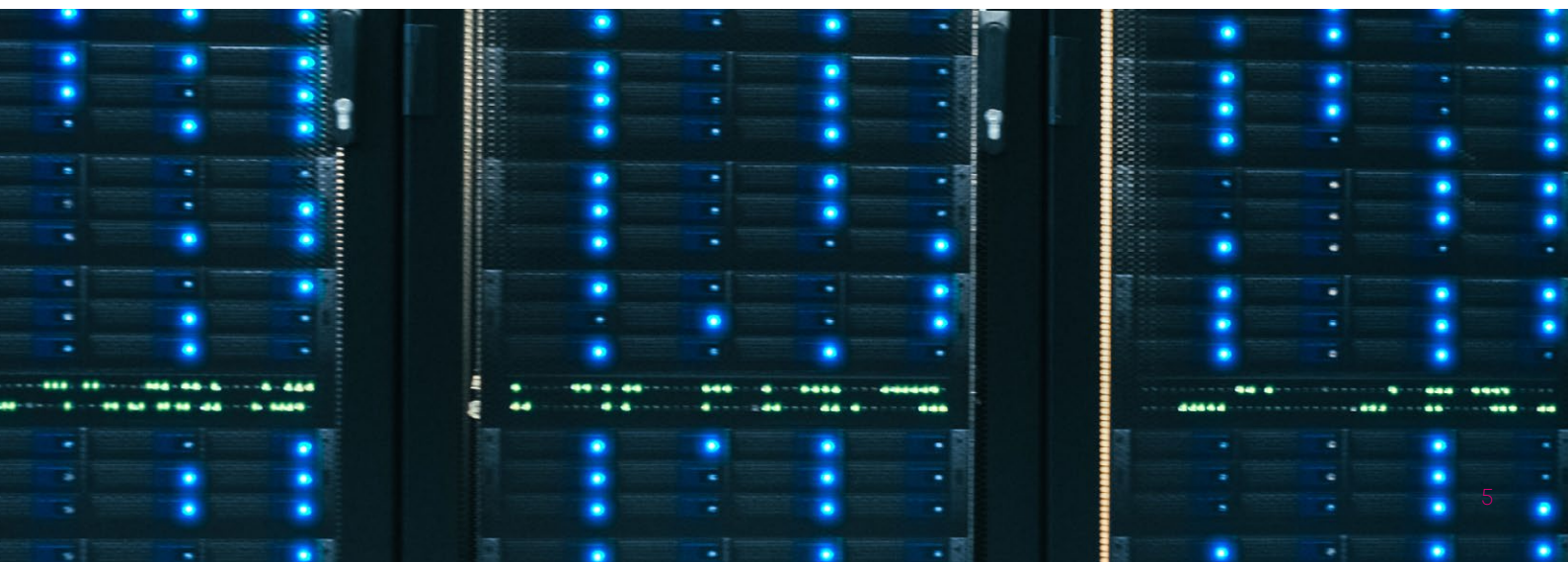
Data Centre market includes colocation, hosting, dedicated servers, managed services, disaster recovery, storage and backup. It doesn't include services provided by hyperscalers (IaaS, PaaS, SaaS). Colocation is a there-of Data Centre market, not growing as fast as the total Data Centre market.

Analysis by market experts PMR reveals that the data center market in Central Eastern European countries (CEE) is on a trajectory for growth. By 2027, it is on course to reach a market value of €3.7bn, double that of 2016. By the same year, PMR forecasts that data centers in CEE countries will cover 241,000 m² of land – the equivalent of

around 45 football fields, with a combined capacity of 482 megawatts. One megawatt-hour of electricity is enough to power the average American home for 1.2 months.

What is driving this growth?

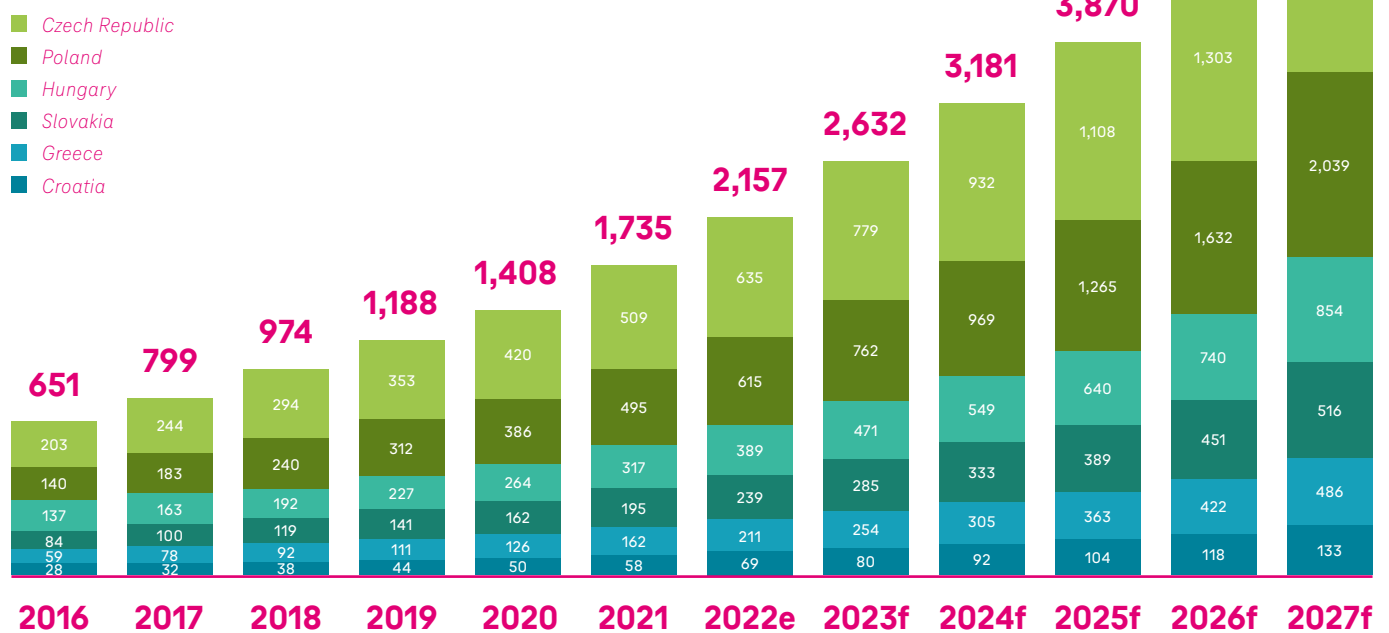
The answer lies in two words: cloud services.



THE EVOLUTION OF THE CLOUD SERVICES MARKET

MORE COMPANIES USING CEE COUNTRIES ADOPTING CLOUD SOLUTIONS

PMR's forecast: Cloud computing market value (€ m) in selected CEE countries, 2016 – 2027



e – estimate f – forecast // Source: PMR. The cloud computing market includes Infrastructure as a service, Platform as a service, and Software as a service.

PMR's research of the cloud services market in selected CEE countries reveals rapid growth, some of which it attributes to the pandemic, as workplaces became ghost ships and employees needed the ability to work from home.

When we scratch beneath the surface, what does the IT landscape look like for companies? Here, we focus on two commonplace models – multicloud and hybrid. And because the cloud means different things to different people, we define these models below:

- **Multicloud** – An organization consuming cloud services from at least two cloud providers. Multi-cloud environments typically combine two or more public clouds, two or more private clouds, or some combination of both.
- **Hybrid** – A computing environment that combines an on-premises data center (also called a private cloud) with a public cloud, allowing the sharing of data and applications between them. Many IT professionals – including Deutsche Telekom employees – define hybrid cloud infrastructure to include multicloud configurations, where an organization uses more than one public cloud in addition to its on-premises data center.

THE POWER AND PAIN OF A MULTICLOUD ENVIRONMENT

THE TOP DRIVERS OF MULTICLOUD

What principally drives the adoption of a multicloud model? A Gartner survey¹ revealed ‘improving availability’ as the number one driver, closely followed by ‘selecting best-of-breed capabilities’ and ‘to satisfy compliance requirements’. But is a multicloud model best for your organization, and does it occur more

by chance than choice? While another Gartner survey of public cloud users found that 81% of respondents work with two or more providers,² its researchers also identified that many either have no deliberate multicloud strategy or, if they do, it is not fit for purpose.³

THE DIFFERENT FLAVORS OF MULTICLOUD

Dissecting Multicloud

This mixed picture results in different multicloud scenarios:

1. Arbitrary

- Nobody knows why
- Provider driven
- At least something is deployed in the cloud

2. Segmented

- Specific workload to specific cloud
- Segregate by factors
- Easy to slip back to 1 option

3. Choice

- Common for large organizations
- Free to use proprietary cloud services
- Good initial step for multi-cloud
- Avoid vendor lock-in & minimize operational overhead

4. Parallel

- Deploy an app in a more than one cloud (high availability)
- Create a cross-platform service for identity management, automation and monitoring
- Open-Source components

5. Portable

- Pinnacle of multicloud
- Portability across clouds
- Containerized application first

Credit: The Architect Elevator, Gregor Hohpe

LET'S BREAK DOWN EACH OF THE ABOVE SCENARIOS A LITTLE FURTHER:

Arbitrary:

A less kind word for this arrangement would be 'random'. Whether through changes in IT personnel and leadership, vendor influence (e.g., license incentives), or a lack of governance, this scenario results in some workloads running in Cloud 1 and others in Cloud 2 with no apparent rationale as to why.

Segmented:

In this scenario, enterprises deploy specific workloads to specific clouds. Which cloud is often influenced by the vendor – for example, because of the vendor's licensing terms or strengths. Enterprises may also choose to segregate their workloads by various factors, such as workload type (legacy or cloud-native), data type (sensitive or open), or purpose (compute vs. data analytics vs. collaboration). However, it's essential to understand any interdependencies between applications. For example, if data flows between one application in Cloud 1 and another in Cloud 2, this may lead to excessive egress charges. Moreover, there can be a risk of slipping into an arbitrary scenario through vendor affinity.

Choice:

Some may not consider the above scenarios true multicloud. They advocate for freedom of choice – the ability to deploy workloads freely across cloud providers to minimize lock-in. One route to achieving this freedom is by adding abstraction layers. In cloud computing, there are three broad levels of abstraction called service models: IaaS (Infrastructure as a Service), PaaS (Platform as a Service), and SaaS (Software as a Service).

Parallel:

While the previous scenario enables enterprises to choose cloud service providers, those enterprises remain bound by the respective provider's service levels. Even if a cloud provider has multiple availability regions, many enterprises look to deploy critical applications in parallel across multiple clouds to ensure higher levels of availability. However, deploying the same application across different clouds requires decoupling from the cloud provider's proprietary features, which IT teams can achieve in various ways. The possible downside is complexity, which can easily cancel out the expected gains in uptime.

Portable:

The multicloud nirvana, this scenario enables enterprises to deploy their workloads anywhere they please and move them at will. The advantages include avoiding vendor lock-in (hence enhanced negotiating power) and the flexibility to move applications based on resource needs. For example, an organization uses one cloud for normal operations and can push excessive traffic into another. Enabling such capability demands exceptionally high levels of automation and abstraction from cloud services. While abstraction solutions exist, they don't generally take care of the data, meaning enterprises need to consider how they will keep it in sync. Moreover, if they leap this hurdle, they should be cognizant of the potential hit to their data egress costs.

Fundamentally, each scenario involves weighing the pros and cons. This means never losing sight of the primary objectives for adopting multicloud, which will be specific to each organization.

THE DOWNSIDE OF MULTICLOUD

The freedom of choice enabled by a multicloud approach allows organizations to react faster to changing business needs. However, this freedom and agility comes at a price: increased complexity.

THE PAIN OF A MULTICLOUD ENVIRONMENT

But Increases the Complexity Related to...



**Management
and Governance**



**Data
Dispersion**



**Vendor
Relationships**



Integration



**Employee
Skills**

Source: Gartner 2021

Naturally, complex environments are correspondingly more complicated to manage. Organizations must juggle relationships with multiple providers, different service level agreements, contractual arrangements, and billing systems. Many sources of IT data can make it burdensome to track assets, map business services to them, and budget efficiently. And there are other challenges, such as:

Identity and access management (IAM):

As companies migrate more workloads to the cloud and spread them across platforms from multiple providers, they must ensure their IAM framework is in lockstep.

Cybersecurity:

Protecting data and enforcing access control policies across a multicloud architecture requires a centralized approach to identity management, governance, and security. Without a rigorous approach, organizations can be at greater risk of data protection lapses and security breaches

Interdependencies:

Any interdependencies between applications and workloads that reside in different clouds – for example, they may share data.

The talent shortage:

With a tapestry of complex technologies, organizations must recruit or train more people to provide various specialisms. This need creates challenges on several

fronts: increased expenditure (wages, training costs); as the demand for specialist IT skills outstrips supply, IT professionals can command higher salaries, further adding to an organization's costs; and employee retention – in a competitive marketplace, IT pros can pick and choose and may need incentives to stay with one employer for long.

Having a unified view and clarity of the entire IT estate goes a long way to addressing most of the above. Visibility promotes consistency and standardization by providing a proven framework.

It also aids efficiencies by informing decisions around streamlining processes and allocating resources. Crucially, a single pane of glass also helps organizations understand security considerations and address vulnerabilities.

TOP-LEVEL POINTERS FOR CRAFTING AN EFFECTIVE MULTICLOUD STRATEGY

***“Strategy without tactics is the slowest route to victory.
Tactics without strategy is the noise before defeat.***

– Sun Tzu, ancient Chinese military strategist and philosopher

What should organizations consider when creating a multicloud strategy? It starts by aligning your strategy with the business's goals. A solid understanding of these goals – and their priorities – will inform your strategy’s overarching objectives. For example, these goals might be increasing resiliency, embracing innovation, greener IT, greater redundancy, optimizing performance, saving costs, tightening regulatory

compliance, enabling acquisitions, or facilitating new business models.

To plan any journey successfully, you need to understand precisely where you are now. So next, assess your current state. Map your existing IT infrastructure, workloads, and applications. At this stage, putting them into buckets can be helpful.


Application / workload	X	Y	Z
Business-critical	Yes	Yes	No
Contains sensitive data	Yes	No	No
Requires high bandwidth or real-time data processing	Yes	Yes	No
Has specific compliance requirements	Yes	No	Yes
Has interdependencies (e.g., with other applications or data sources)	No	Yes	No

This exercise will help you to assign different levels of importance or weight to each app or workload.

Then, list which cloud services you are already using to determine if there are any gaps or inefficiencies. Your findings will help you shape a plan for each

application in line with Gartner's trusted five R model⁴: rehost, refactor, revise, rebuild, or replace.

Once you have a clear picture of your requirements and your desired future state, you can begin approaching the more tactical considerations, such as:

- 
- **Choose cloud providers** – Based on how well their offerings fit your needs.
 - **Design architecture** – Develop a robust architecture that leverages each cloud provider's strengths while ensuring interoperability and data portability.
 - **Implement governance** – Establish policies and procedures for managing multicloud environments, including resource provisioning, access control, compliance monitoring, and cost optimization. Use automation and orchestration tools to streamline operations.
 - **Security** – Implement comprehensive security measures to protect data and applications across multiple cloud environments. This includes encryption, identity and access management, network segmentation, and threat detection.
 - **Optimize costs** – Monitor and optimize cloud usage to avoid unnecessary expenses. Take advantage of cloud providers' cost management tools and consider strategies like reserved instances, spot instances, and workload optimization.
 - **Manage complexity** – Address the complexity introduced by a multicloud environment by implementing centralized management and monitoring solutions.
 - **Enable portability** – Design applications and infrastructure to be cloud-agnostic whenever possible, allowing for easy migration between cloud providers or hybrid deployments. Use containerization and abstraction layers to abstract away provider-specific dependencies.

It's worth expanding on the last point above. Containerization – a powerful software deployment technique that simplifies the way applications are packaged, distributed, and executed – has the potential to become a legacy application's best friend. Containers are designed to run consistently

across various environments. Finally, regularly review and refine your multicloud strategy to adapt to evolving business needs, technological advancements, and lessons learned from implementation. Foster a culture of continuous improvement and innovation.

A VITAL FACTOR FOR A CLOUD-ENABLED WORLD

Connectivity and latency are critical considerations in a multicloud strategy, especially for applications that require real-time data processing, low-latency interactions, or high-bandwidth requirements.

For example:

- **Geographic distribution**

Choose cloud regions strategically to minimize latency for your target users or applications. Select regions that are geographically close to your primary user base or data sources.

- **Multi-region deployment**

Deploy redundant instances of critical applications across multiple cloud regions to minimize the impact of regional outages and optimize latency for users in different geographic locations.

- **Traffic management**

Implement intelligent traffic management techniques, such as load balancing and route optimization, to dynamically route traffic based on latency, availability, and cost considerations.

- **Edge computing**

Leverage cloud providers' capabilities to process data closer to the source or destination, reducing round-trip times and improving responsiveness.

- **Connecting on-premises infrastructure with cloud environments**

Establish dedicated network connections between your on-premises infrastructure and cloud environments using services like AWS Direct Connect or Azure ExpressRoute to reduce latency and improve reliability compared to public internet connectivity.

- **Content Delivery Networks (CDNs)**

Utilize CDNs to cache and deliver static content closer to end-users, reducing latency and improving performance for global audiences.

- **Monitoring and optimization**

Continuously monitor network performance metrics and application latency to identify bottlenecks and optimize connectivity configurations. Use cloud-native monitoring tools or third-party solutions to gain insights into network performance.

- **Anycast DNS**

Use Anycast DNS to automatically route user requests to the nearest cloud endpoint, reducing latency by directing traffic to the closest available server.

- **SLA and QoS Requirements**

Consider service-level agreements (SLAs) and quality of service (QoS) requirements for your applications and choose cloud providers and connectivity options that can meet these performance guarantees.

- **Hybrid connectivity**

If your multicloud strategy includes hybrid deployments with on-premises infrastructure, ensure seamless connectivity between cloud and on-premises environments using VPNs, SD-WAN solutions, or hybrid networking services offered by cloud providers.

By incorporating these considerations into your multicloud strategy, you can effectively manage latency and connectivity challenges to deliver optimal performance and user experience across diverse cloud environments.

THE UNDENIABLE REALITY: A HYBRID ENVIRONMENT IS THE FUTURE

“No CIO will wake up one morning to find all of their workloads in the cloud. Hybrid cloud is a reality.”

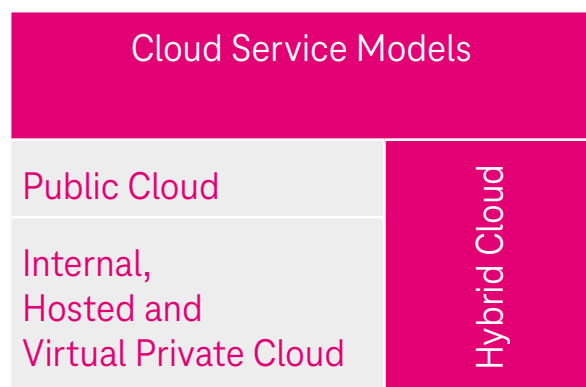
*– Gregor Hohpe, cloud evangelist,
published author, and speaker*

If you're a start-up organization, you likely have the luxury of designing your IT ecosystem from scratch, unburdened by on-premises tin and monolithic legacy systems. However, if you're an established organization, the odds are that you are using legacy applications; a survey⁵ by Tata Consultancy and AWS found that over 66% of organizations use legacy apps for core operations and over 60% for customer-facing functions.

There are several possible reasons why so many organizations host their apps on-premises. For example, they may have integration challenges, want to continue realizing a return on their investment or have specific security requirements.

They may also require reduced latency and increased speed. Edge computing, a distributed computing framework, brings enterprise applications closer to data sources such as IoT devices or local servers and provides new capabilities for legacy applications. This proximity to data at its source can deliver compelling advantages, including faster response times, rapid insights, and better bandwidth availability.

So, to quote Gregor Hohpe once more: “You're bound to have something ‘out’ and something still ‘in’, and the two more likely than not need to interact.” The statistics bear out Hohpe's view: 72% of companies already rely on a hybrid cloud.⁶



Let's remind ourselves of our earlier definition of a hybrid cloud:

A computing environment that combines an on-premises data center (also called a private cloud) with one or more public clouds, allowing data and applications to be shared between them.

Hohpe argues that the core of a hybrid cloud strategy is ‘how to slice’ – that is, determining which workloads to move to the cloud and which ones to keep on-premises.

THE ADVANTAGES OF A HYBRID ENVIRONMENT

A hybrid environment enables a phased approach to cloud migration, empowering organizations to create and tailor an ecosystem that fits their needs. It also allows them to manage and govern IT services in a standard way.

Does it offer you the flexibility to continue running a legacy app but more securely? Check. Can you adopt a public cloud service that does an existing job more efficiently and saves money? Check.

Does it open the door to innovations, such as AI, and marry them with data in a private cloud? Check. Can it improve governance, risk, and compliance (GRC)? Check.

Moreover, organizations can harness a hybrid model to establish an optimal mix of subscription, CapEx, and OpEx cost models. But above all, a hybrid ecosystem facilitates choice.

CHOICES, CHOICES

Gartner estimates that 90% of global organizations will be running containerized applications in production by 2026 – up from 40% in 2021. By 2026, 20% of all enterprise applications will run in containers – up from less than 10% in 2020.⁷

When an organization decides to pursue a multicloud or hybrid strategy, it faces many choices. The flexibility that any modern ecosystem facilitates can be a

double-edged sword. As this whitepaper has explored, increased complexity is just one of the many challenges.

An organization must make critical decisions, such as where to place its workloads, what technologies to leverage (e.g., containerization, edge computing), and the decisive arguments. It also needs the skills and experience to execute its decisions.

WORKLOAD PLACEMENT DECISIONS

■ *Stop: Boundaries* ■ *Caution: High-Impact Placement Factors* ■ *Important but not critical Placement Factors* ■ *Nice to have* ■ *Variable Impact*













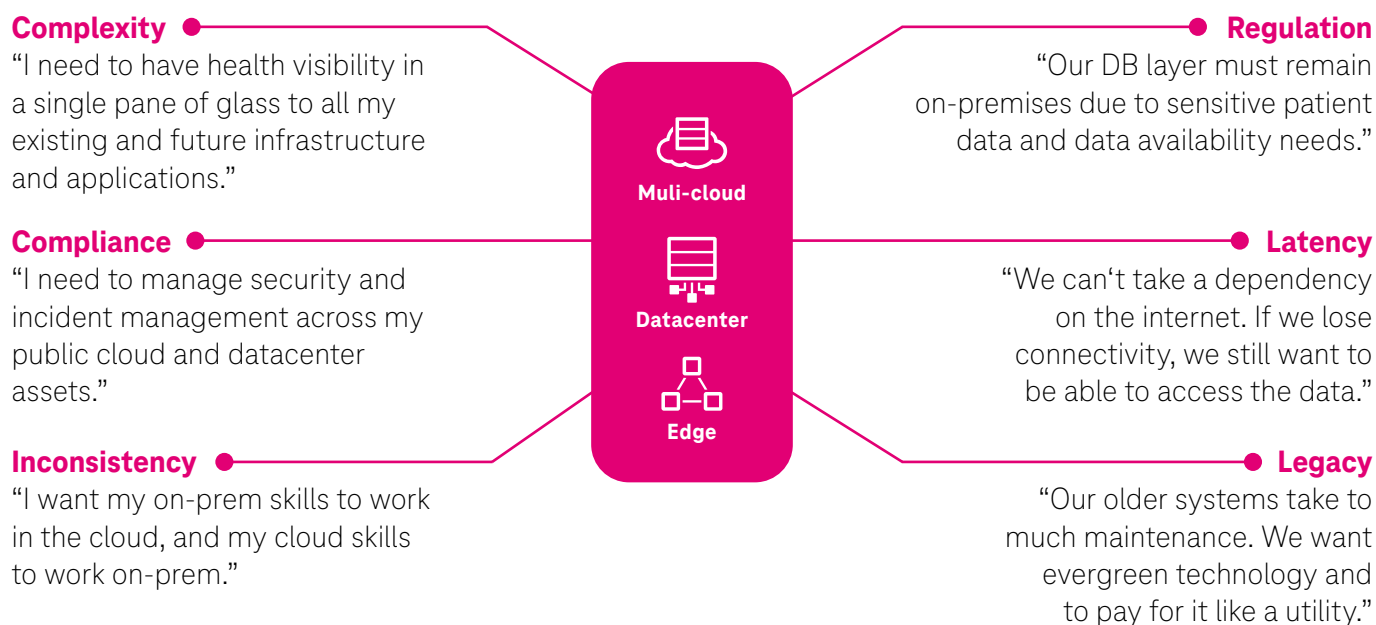
Limitations	Integrations	Affinities	Technical Fit	Cost
 Location	 Data	 App Stack	 Capabilities	 TCO
 Policy	 Apps	 Ops Style	 Ecosystem	 Manageability
 Requirements		 Organization and Skills		

Image source: Gartner

So, what do organizations need for an effective hybrid environment?
A typical wish list of requirements might look like this:



MOREOVER, WHAT MIGHT THEIR TYPICAL STEPS BE AS THEY JOURNEY TO A HYBRID, MULTICLOUD ENVIRONMENT?

Step 1

Using private cloud services in a local or external data center.

Step 2

Gradually supplement their existing resources with selected public cloud services.

Step 3

Implement a comprehensive hybrid approach, fully integrating and centralizing all cloud services with their on-premises infrastructure.

Cue Deutsche Telekom’s Next-Generation Hybrid Data Center solution – a customizable hybrid model that bridges the gap between different environments and includes optional managed services.

A WHISTLE-STOP TOUR OF DEUTSCHE TELEKOM'S NEXT-GENERATION HYBRID DATACENTER

Fundamentally, we can lift the burden of establishing and successfully operating a multicloud / hybrid ecosystem. At its core, our Next-Generation Hybrid Datacenter allows organizations to accelerate their IT modernization with minimal complexity. It brings the best of all worlds – legacy apps, private cloud solutions, and public cloud services – into a single, connected ecosystem.

We deliver our solution via Deutsche Telekom's European network of modern, energy-efficient datacenters backed by the highest security and connectivity standards. Moreover, all cloud services are under one contract, so there is no need to juggle multiple providers or manage different billing systems.

With a comprehensive menu of self-service and managed options, we can wrap our solution around your needs and address any specific skills or resource gaps.

The strategic and operational benefits of Deutsche Telekom's Next-Generation Hybrid Datacenter include:

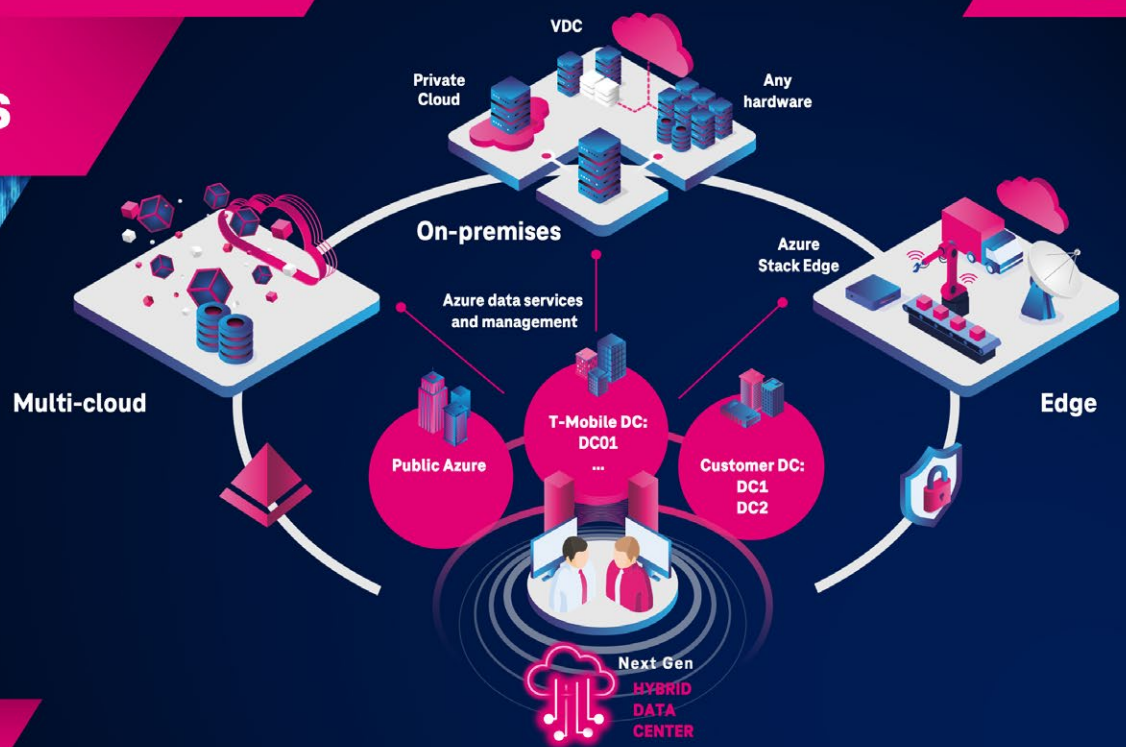
Unlike hyperscalers' usage-based billing, we offer a fixed cost for data transfer backed by impeccable data transmission standards. For organizations consuming connectivity-heavy solutions, a fixed cost can realize substantial savings.

- It allows the **transition of legacy systems** / on-premises applications to the cloud in a manageable, well-planned way.
- Visibility and governance – **a single pane of glass** enables centralized oversight, control, and management of the hybrid environment.
- Uniformity – **a standardized operating framework** that overcomes the challenges of varied, disparate environments. Streamlined management and operations lead to lower operating expenses (OpEx), increased uptime, faster provisioning and deployment, and improved IT and user productivity.
- **Scalable resources** for Infrastructure as a Service (IaaS), Platform as a Service (PaaS), and Software as a Service (SaaS)
- Pick and mix **best-in-class services** from hyperscaler public clouds – AWS, GCP, and Microsoft Azure.
- Avoid **vendor lock-in**.
- Enabling access to public cloud services opens **the door to innovation**, such as artificial intelligence and the IoT.
- Capex light – requires only **minimal investment** in hardware or infrastructure.
- It supports the creation of **new business models**. Our cloud-agnostic solution does not restrict customers to a particular public cloud provider's framework of tools and technology, which they cannot adjust.
- As a provider of critical infrastructure to national companies, we are subject to **extensive security requirements** by the regulators.

DEUTSCHE TELEKOM'S NEXT-GENERATION HYBRID DATACENTER UNDER THE HOOD

**NEXT-GENERATION HYBRID DATA CENTER:
A STABLE AND SECURE ECOSYSTEM SEAMLESSLY BRIDGING
ON-PREMISES, PRIVATE, AND PUBLIC CLOUD**

**Converged IaaS/PaaS
offering for
our customers**



Our Next-Generation Hybrid Data Center is an IaaS and PaaS solution and a convenient gateway to SaaS. Leveraging advanced technologies enables us to craft the optimal solution for your organization, independent of the market hype. These include the

technologies previously mentioned in this white paper – containerization and edge computing. Other technologies we use to customize our holistic solution include the following.

Microsoft Azure Arc: Manage heterogeneous environments in a consistent way

Microsoft Azure Arc is a unified management platform that simplifies governance and management across diverse and distributed environments. With Azure Arc, users can leverage familiar Azure services, management capabilities, and a consistent set of tools, irrespective of the location of their resources. The Azure Resource Manager is the control plane, providing visibility and control over the entire environment, including non-Azure or on-premises resources. Users can seamlessly manage virtual machines, Kubernetes clusters, and databases as if they were running within Azure itself. Additionally, Azure Arc enables the development and deployment of cloud-native applications while providing insights into data regardless of the infrastructure's location.

Azure Stack HCI: Enjoy the freedom of hybrid capabilities

Azure Stack HCI extends Azure's benefits to on-premises or edge environments, allowing supported Azure workloads to operate outside the cloud. The platform offers simplified management, hybrid capabilities, and scalability for running virtual machines (VMs) or virtual desktops on-premises with connections to Azure hybrid services. Azure Stack HCI is built on proven technologies like Hyper-V, Storage Spaces Direct, and core Azure management services, ensuring industry-leading

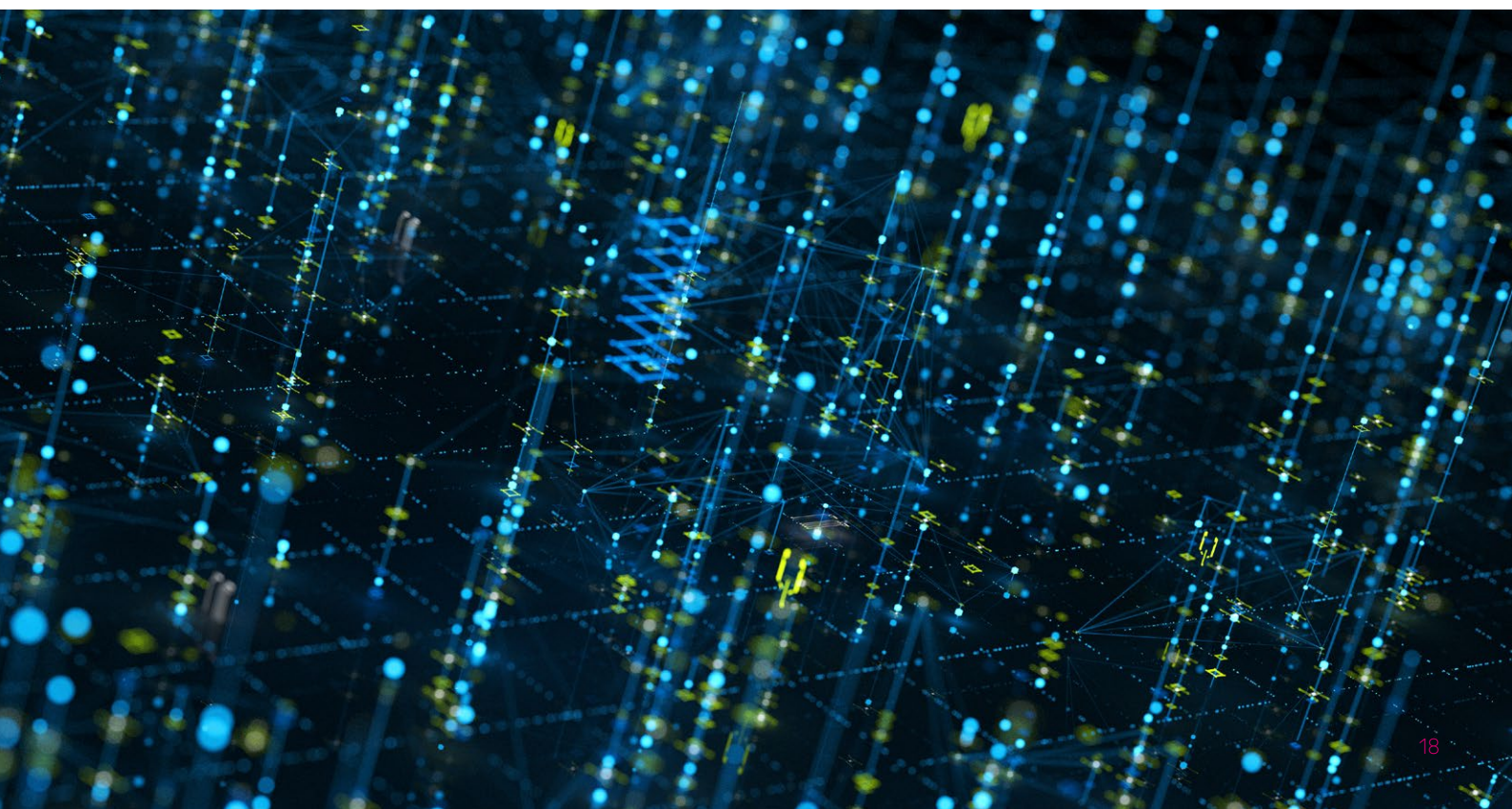
performance, low latency, and data sovereignty. Its hybrid capabilities enable seamless integration with Azure services, data replication between on-premises and cloud environments, and flexible networking options.

Hewlett-Packard Enterprise's (HPE) GreenLake: Streamline IT management, access cloud solutions

Hewlett-Packard Enterprise's (HPE) GreenLake is a comprehensive suite of cloud and as-a-service solutions designed to deliver a simplified experience for organizations, regardless of where their data and applications reside. From Infrastructure-as-a-Service (IaaS) to Platform-as-a-Service (PaaS) and Software-as-a-Service (SaaS), GreenLake offers a range of flexible solutions tailored to meet diverse business needs. It enables organizations to seamlessly manage their entire IT infrastructure through integrated tools and technologies, from on-premises to cloud backup. Additionally, GreenLake serves as a central purchasing and management platform for a wide array of HPE products and services, providing organizations with a unified solution for their IT needs.

Deutsche Telekom – packing an additional punch

Moreover, you benefit from Deutsche Telekom's high-end backup solutions and ability to manage complex disaster recovery scenarios.



A VISUAL TOUR: THE BENEFITS OF DEUTSCHE TELEKOM'S SOLUTION

Embark on a visual tour of our Next-Generation Hybrid Data Center, where every icon represents a beacon of opportunity. Explore the transformative landscape of hybrid and multicloud, where simplicity meets sophistication.

Holistic Solution

A multi-provider service managed by Deutsche Telekom.

Visibility

A view of the IT operational environment via a single pane of glass.

Future Fit

Continuous development of our solution to make emerging innovations available to our customers.

Flexibility

Alongside private cloud resources, leverage hyperscaler platforms (AWS, GCP, Microsoft Azure) or a Telekom Cloud.

Latency

Run workloads and applications reliably, even without an internet connection.

Scalability

Our solution grows to accommodate your needs. Add or swap services on demand.

Minimal CapEx Outlay

A CapEx light solution.

Financial Certainty

Predictable costs and a simple monthly billing system for all services.

Hybrid Stack

Address and manage all workloads under 'one roof'.

Sustainability

Deutsche Telekom has pioneered sustainability for almost three decades. Ask to see our green credentials and awards.

Customizability

Wrapping up IaaS and PaaS, managed services, self-service options, private cloud resources, and public cloud services.

Dependable Partner

Work with a dedicated, multi-disciplinary team whose sole focus is on delivering value.

Data Security

Data is stored and monitored in secure digital and physical locations.

Efficiency

Increased automation and optimized IT and business processes.

Synergies

All elements work seamlessly and in harmony.

Cost Savings

A fixed cost for data transfer. Realize other savings through automation and increased efficiencies.

Local and International Presence

We operate over 70 Next-Generation Hybrid Data centers in nine countries, including 25 in Poland and Hungary.

Reduced Complexity

Thanks to a well-structured IT ecosystem supported by Deutsche Telekom.

Digital Sovereignty

Data resides in appropriate locations.

CONCLUSION

For most organizations, their IT landscape is no longer confined to on-premises. The amorphous entity of the cloud is gradually replacing those safe but restrictive physical and digital boundaries, resulting in a 'half in, half out' world.

As organizations adopt more cloud services – by happenstance or by design – it often leads to a sprawl of disparate, disconnected systems, making visibility and governance increasingly tricky. Deutsche Telekom's Next Generation Data Center is

a holistic suite of solutions and services that bridges the legacy and cloud worlds and allows customers to create a single, integrated ecosystem they can view through one window. Whether you want to utilize AWS, Microsoft Azure, GCP, or the Deutsche Telekom cloud, you can do so with freedom and flexibility under a single contract. Moreover, you can access innovations, such as AI, with greater ease. Together, we'll help you navigate the complexities of the digital world with clarity and confidence, forging a path toward success. For further information, contact.

SOURCES

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ABOUT DEUTSCHE TELEKOM

With a talented and diverse workforce of almost 200,000 people, a presence in over 50 countries, and a revenue of 112 billion Euros in the 2023 financial year, Deutsche Telekom stands tall among the world's most trusted integrated telecommunications companies.

The figures speak for themselves: over 252 million mobile customers depend on 25 million fixed-network lines and 22 million broadband lines around the clock. It is on the above solid foundation that

Deutsche Telekom, with our subsidiaries T-Mobile and T-Systems, is evolving almost as fast as the world of cloud computing.

Day by day, service by service, and in close cooperation with our stable of trusted partners, we are expanding our support to business customers. Not only can we effectively meet all your organization's IT needs, but we can do so in line with our sustainability and ESG principles and our unwavering commitment to service and technological excellence.



**Connecting
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