



Data Management and  
Storage in **Digitally  
Transformed Businesses**

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# The successful organizations of tomorrow will be the ones that get the most value from their aggregate data

Our century's most valuable asset – data – is in reality a two-sided coin. On the one hand, you need to be able to access, collect and analyze data for optimized insights; on the other hand, you must protect your data well, because you cannot under any circumstances afford to lose it.

For this reason, organizations need to address the rising challenges in data management now, not later. This includes deciding how and where to store and process the exponentially growing data volumes, and how and where to protect it.

*Orchestration and automation should be ranked at the top of every organization's to-do list.*

Maintaining full control of data – the lifeblood of your business – is crucial. This makes preserving it in a modern multi-cloud infrastructure a business critical priority.

With this research paper, we seek to address some of the most relevant challenges pertaining to IT infrastructure in the digital transformation, and provide inspiration for making sound decisions about storage and backup.



# Today's Digitally Transformed World

A decade has passed since we first started talking about digital disruption, and business executives were concerned about their company being "Ubered". Today, we talk about digital transformation with digitization of internal processes and customer experiences topping the list of business priorities in the established companies that increasingly drive innovation in most industries.

## **Analytics and Cloud are Essential for the Business**

Successful digital transformation requires strong and visionary leadership, as organizational structures, work processes, customer engagements, product offerings, and business culture all need to change.

However, leveraging technology and transforming the IT environment are also paramount for success. This includes fruitful adoption of numerous technologies – with various flavours of analytics and cloud most commonly considered the most important technology investments in the coming years. The reasons are that cloud is needed to build the infrastructure required for supporting the business, and analytics is essential to understand customer preferences, improve decision making, and automate business processes.

This document discusses:

- The implications of leveraging and managing multiple cloud services
- The maturity of organizations' data management and use of analytics
- Why the right data and storage strategies are essential for the business

# Building an Agile Infrastructure with Cloud

Cloud is a necessary component in a modern agile IT infrastructure. However, the different elements need to be integrated and carefully selected, which is often not the case in today's cloud adoption.

## Multi-cloud by Coincidence

Because of digital initiatives' dependence on cloud technologies, most organizations have adopted cloud ad-hoc or even randomly, as different departments have requested or directly procured cloud services independently.

As a consequence, most organizations today use many different cloud services across IaaS, PaaS and SaaS technology stacks and across public, hosted and on-premise deployment models. And in most cases with limited opportunity to orchestrate deployment of workloads and integration of data.



**The use of cloud services deployments in Nordic organizations**  
Source: IDC Nordic Multi-cloud Survey, April 2019 (N = 200)

IDC research and regular dialogue with IT and business executives, confirm that digital is increasingly a significant and cohesive part of the business strategy, and the basically coincidental use of cloud is becoming an inhibitor for business development and growth. In many organizations there is a strong emphasis on consolidating, integrating, and optimizing the current use, to establish a managed multi-cloud IT environment that support the business transformation.



# The Journey to Managed Multi-Cloud

Supporting the organization's digital business requires transformation of the IT infrastructure, including a managed approach to multi-cloud.

The cloud adoption continues to grow. Not only does the number of organizations using cloud services rise, the number of services and deployment models used also increase, resulting in a more fragmented and complex cloud environment.

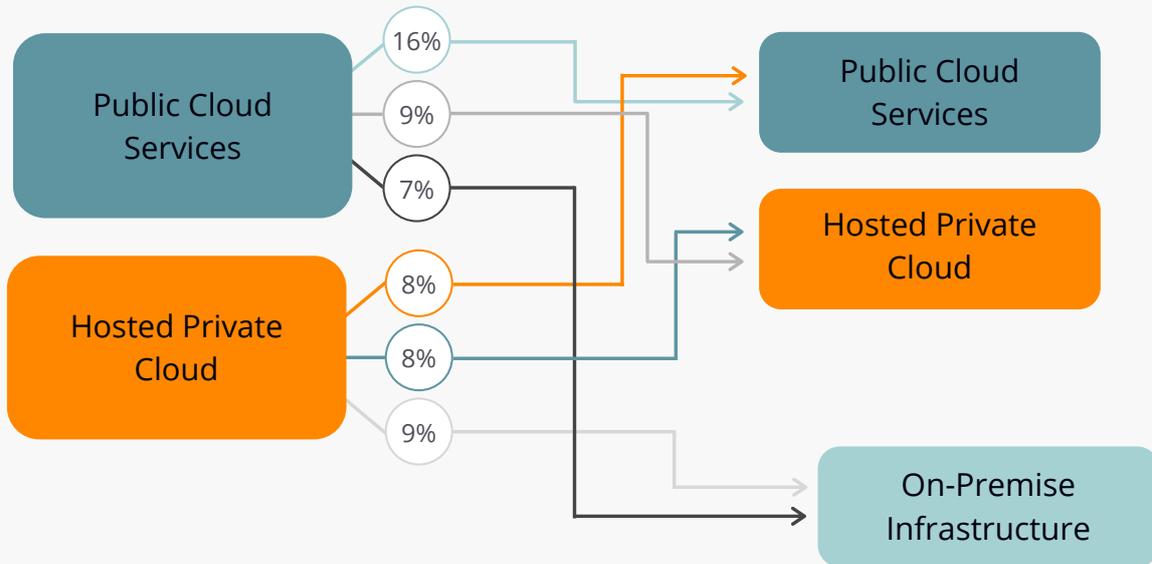
## **Tele2:** the growing cloud complexity

” *We see a growing demand for advisory related to multi-cloud – e.g. how to select, combine, connect, and secure different cloud services and deployment models*

Elias Hedbäck  
Product Manager Datacenter and Hybrid Cloud, Tele2

Today 4 out of 10 organizations are planning to move workloads and data off the current cloud services – typically to shift it to a different cloud services that have more functionality, better performance, lower cost or are otherwise preferred. And those taking selected data or workloads back on-premise are not moving away from cloud technologies but deploy it in their own data centre.

## 4 out of 10 organizations shift workloads from one cloud deployment model to another



### Nordic organizations' plans to shift infrastructure workloads off current cloud service

Source: IDC EMEA, IDC Multi-cloud Survey (Nordic respondents), February 2018 (N = 101)

While this is currently part of a clean-up process, the constant innovation in cloud platforms, and companies' continuous deployment of new solutions means that workloads and data will remain volatile in a well-managed multi-cloud environment.

### JN Data: the changing role in a multi-cloud reality

“ In recent years, our customers' requirements and technology use have changed, and today our role has extended from IT operations to also include advisory, contract management, compliance etc. We also need to transform our IT environment, focusing on consolidation and standardization to ensure stability and efficiency in a complex multi-cloud environment

Flemming Brink  
Senior VP Operations, JN Data

Although there is a shift towards public cloud services, hosted and on-premise private cloud will co-exist, and when selecting technologies and services it is important to understand the implications of shifting between solutions and integrating across solutions – especially in the pursuit of becoming a data-driven organization.

Cloud share of infrastructure spending is expected to grow from **28%** to **42%** in the next two years

# Preparing for an Analytics-Driven Business

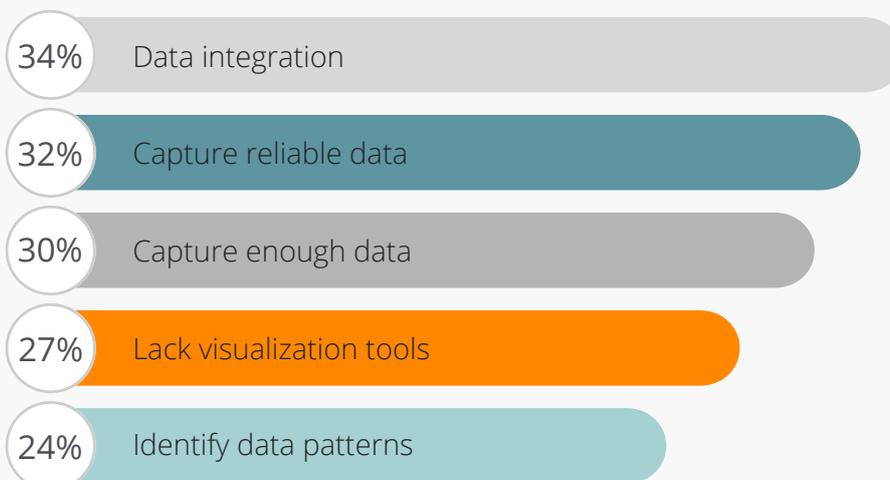
Using analytics to understand customer preferences, improve decision making, and automate both IT and business processes is paramount for companies to remain relevant and competitive.

## Data Management Must Precede Analytics

While adopting analytics is high on the agenda in many organizations, few companies have fully embraced it to become truly data driven but are at a much earlier maturity stage.

While dealing with skills-shortage and addressing cultural resistance are highly likely to thwart adoption, the most prevalent challenges today, relate to the data. Regardless of how advanced analytical tools are put to use, the outcome depends on the input, and integrating data, ensuring reliability of data, and capturing enough relevant data, are the currently what most organizations struggle with.

### Analytics are primarily inhibited by lack of accessible valid data



#### Challenges related to analytics in Nordic enterprises

Source: IDC Global IoT Survey (Nordic respondents), October 2018 (N = 197)

Consequently, for IT to support the business' need to better understand the customers, make faster more informed decisions, become more efficient through automation, and all in all become more data driven, it is paramount that data is made available in a timely, secure and compliant fashion.

Ensuring this, across an IT infrastructure that consists of multiple cloud solutions as well as traditional non-cloud IT resources, with employees needing remote and access to real-time data, and with rapidly expanding data volumes, is a highly complex task.

**Tele2:** data management challenges

” *The primary challenge related to storage and data management is to keep things simple and not build complexity that require internal specialist competencies*

Elias Hedbäck  
Product Manager Datacenter and Hybrid Cloud, Tele2

# Dealing with Large Disperse Data

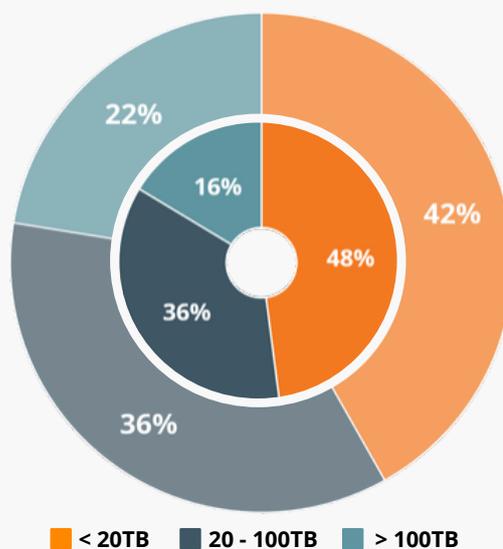
Nordic organizations already deal with dozens or hundreds of Terabyte data they need to store, secure, manage, and eventually drive value from. The data volumes are growing by more than 30% per year propelled by digitization of manual business processes and rapid adoption of Internet of Things.

## Nordic organizations expect their stored data to grow by more than 30% in one year

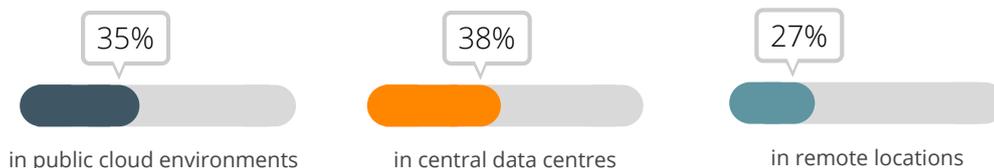
Inner circle: Data stored today  
Outer circle: Expected data in 12 months

### Current and expected data volumes in Nordic organizations

Source: IDC EMEA, Multi-cloud Survey, (Nordic respondents), August 2019 (N = 100)



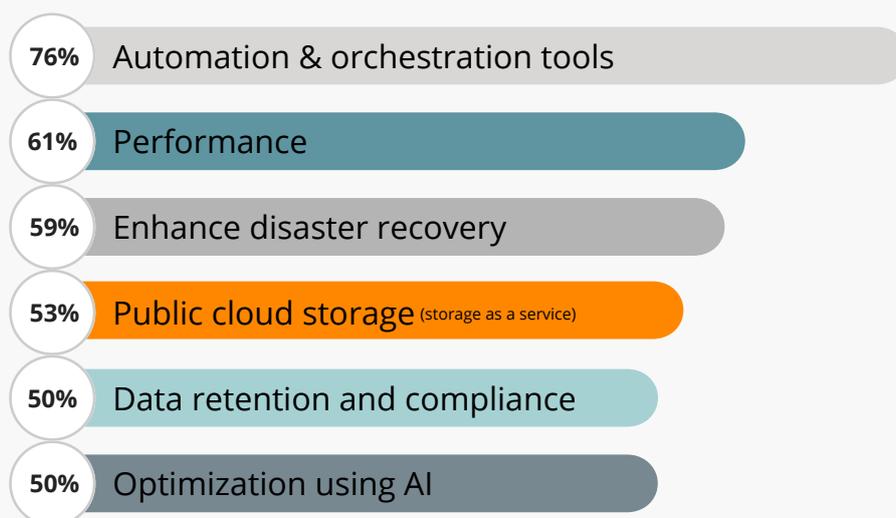
Data is also spread across different locations with



Because data is often related to new digital initiatives, it is difficult to predict the growth, and consequently forecast needed storage capacity and plan the adoption of necessary tools, which may in turn result in an infrastructure environment that is not sufficiently flexible and scalable to support the business requirements.

Protecting and managing the growing data volumes in the current multi-cloud environment has significant implications on the storage priorities. Orchestration and automation are essential in this fragmented IT scenario in order to ensure performance, retention and compliance.

### Improved automation and orchestration are dominant storage priorities



#### Storage Priorities in Nordic organizations

Source: IDC EMEA, Multi-cloud Survey, (Nordic respondents), August 2019 (N = 100)

Leveraging cloud services brings new possibilities for data sharing and otherwise supporting the business but can also enhance data security and protection.

For example, both public and hosted private cloud services can be used as secondary data centre facilities, giving smaller companies unprecedented opportunities for disaster recovery and redundancy, and large companies to significantly reduce investments in physical data centres.

Moreover, both small and large companies will benefit from the physical separation of the production IT environment and a secondary backup environment. Using as-a-service like models with defined SLAs also makes it easier to assess the security levels and meet documentation and compliance requirements while at the same time reduce the strain on internal resources.

# Adapting Data Protection and Storage Strategies

As companies increasingly adopt multi-cloud and prepare for implementing analytics, the overall data management and storage strategy and technology selection, need to be re-assessed – and probably adjusted.

## Jeopardizing Cost, Control and Compliance

Running workloads and hosting data on multiple cloud platforms, result in challenges that IT executives need to address. Monitoring cost and usage becomes more complicated, as pricing models lack transparency and vary by vendor. While cost should not be the only criteria when selecting one cloud over another, it should be possible to track and understand the cost structure.

### **Wao:** the complexity in cloud pricing

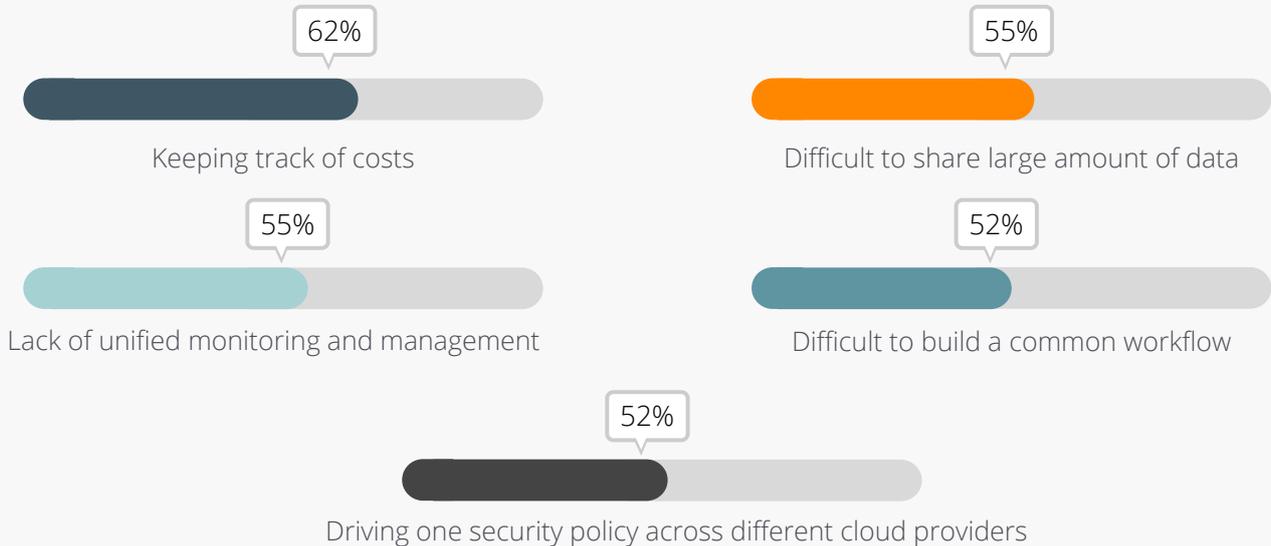
” *There are many aspects in the cost of cloud you need to consider before deciding on use. Especially high-transaction applications can end up being expensive running in the cloud.*

Ole Ørndrup  
CTO, Wao

Sharing data between applications and users also become more difficult – especially as organizations become nimbler and employees shift between teams and need to access different applications and data at different times.

Organizations typically lack integrated monitoring and management tools, making it difficult to maintain common workflows and security policies across all different infrastructure services. Especially the latter, can be a big problem in terms of both data protection and compliance.

## Cost, control and compliance are key challenges in a multi-cloud environment



### Top Challenges related to storing data across multiple cloud services

Source: IDC EMEA, Multi-cloud Survey, (Nordic respondents), August 2019 (N = 100)

When adopting cloud services, it is paramount to make sure that the cloud environment supports the business. While business processes should be improved or sped up leveraging cloud technologies, the technologies should not dictate the business processes or hinder the company from being in control and being compliant.

To remain in control, companies need to implement appropriate data management and security tools but should also consider using specialist managed services providers that takes the full responsibility for some of the necessary tasks across cloud services and deployment models, thereby reducing the overall complexity.

The ongoing shift to cloud services is the most commonly emphasized IT security challenge in Nordic organizations. This is in part because the data leaves the direct control of the company, but more notably because new work processes and technologies are introduced – e.g. virtual machines being superseded by micro services, containerization and PaaS functions.

This emphasizes the need to also reassess risks and review existing security processes and tools, as the level of protection and overall security posture is directly linked to the success of the company.

# The Business Value in Safeguarding Data

It is important to acknowledge that there is distinct business value in IT security, and protecting data and being able to recover from a security incident has direct impact on the success of a company.

## Secured data improves company profits



**Perceived value of IT security in Nordic organizations**  
Source: European Security Strategies Survey 2019  
(Nordic respondents) N = 100

A well-managed security setup will make the company more profitable and efficient. Ransomware attacks are less likely to be successful, fines less likely to be issued due to un-compliance, and fewer resources are needed for firefighting and reactively resolving small and large threats. Furthermore, the company brand value is better protected as customer trust is less likely to be negatively impacted by a breach. We even see that stock prices and company valuation more directly depend on IT security assessments, especially as more formalized IT security certifications are introduced.

Most importantly though, is that executives can make much more informed decisions about which data should be made available to whom and how to do it, accurately assessing the risk against the business value.



# Ensuring Data Protection and Compliance

Securing data in a modern multi-cloud environment while still delivering the needed services to the business in a timely fashion, require a thorough assessment of the security posture of the cloud services in use. While many services have several embedded security features – e.g. backup, data mirroring, or access control, these may not meet the company security policies, nor all compliance requirements. It is essential to fully understand the security related SLAs and the impact on the business – e.g. where are backups stored geographically, who is responsible in case of a data recovery failure, and what are the restore and failover times?

Moreover, if the same data is used in multiple services across different cloud platforms, using embedded security features may not be the best nor most cost-effective option, and it is difficult to manage the primary data and ensure that data is accurately backed up.

## **Wao:** reasons for using managed services for backup

” *We use a third-party provider to ensure complete physical separation between our IT environment and the backup solution. One of the most important elements in the backup solution is the time to restore. With our large amounts of data, the standard public cloud services cannot meet our requirements*

Ole Ørndrup  
CTO, Wao

It is good practice to separate the production IT environment physically from the backup and disaster recovery solution to ensure redundancy. However, data separation also allows for uniform data protection across cloud services and on-premise resources and makes it easier to switch between cloud providers or move data off a cloud platform if necessary.

This can be done in numerous ways including using dedicated infrastructure in a colocation centre, using a cloud environment to build a dedicated solution, or leveraging a complete service either from a cloud provider or a managed services provider.

### **Tele2:** the value in using managed services

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*We have a policy of keeping as much as possible internal, but use some managed services providers in select areas, as using an as-a-Service model means that we do not recruit and retain specialists that are costly and often difficult to find*

Elias Hedbäck  
Product Manager Datacenter and Hybrid Cloud, Tele2

Using a managed services provider takes a lot of the complexity away from the company and reduces the requirement for specialist competencies. It also makes it easier to implement logical or organizational separation of duties which reduces the risk of data loss due to human errors resulting from employee negligence or targeted attacks like phishing or more advanced forms of social engineering.

### **JN Data:** selecting a third-party provider

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*We are increasingly open towards using managed services providers or cloud services if it lowers cost without compromising security and compliance. However, it is essential that we avoid vendor lock-in and before signing with a new vendor, there must be an exit strategy in place*

Flemming Brink  
Senior VP Operations, JN Data

When selecting cloud security partners, it is important to have the complexity of multi-cloud management in mind and consider if a managed service provider or a as-a-Service offering deliver the necessary features and security levels, but in an easier to use consumption model. Additionally, it is important to thoroughly understand the dependency and service levels including real-life recovery times, and true redundancy for your IT infrastructure. Finally, the provider needs the right skills and size to meet the set SLAs and be able to scale with your company's growth.

## Conclusion

To sum up, IDC believes that in a digitally transformed world, all IT infrastructure elements need to be carefully selected. Organizations need the set right mix between cloud deployment models, choose the best cloud services for each workload, and protect and backup data using the appropriate tools and services.

Though using the same tools as always or use the built-in data protection features in cloud environments is easy, they may eventually increase the data management complexity. Also, they may not meet the company security policies, or be the most cost-efficient services. A managed services provider may be the better choice from a cost efficiency point of view, but also because it takes away complexity, provide more flexibility in setting the right SLAs, and make sure you stay in control of your data that business depends on.

## About this study

This IDC document is based on multiple IDC surveys that been completed through 2018 and 2019. Interviews with a total of more than 700 IT and business executives form the quantitative basis for the analysis. The quantitative surveys have been supplemented with qualitative interviews with three technology executives in companies identified by B4restore and IDC.

The research for this B4Restore 'Data Management and Storage in Digitally Transformed Businesses' report was led by Anders Elbak, Associate Director, IDC Nordic.

## About B4Restore

B4Restore is an industry-leading “one-stop-shop” for the multi-cloud environments of global enterprises providing software-defined Storage and Backup-as-a-Service for private, public, hybrid and SaaS solutions. We deliver enterprise-class performance and employ a professional staff of dedicated specialists within architecture, development, operations, and quality assurance.

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