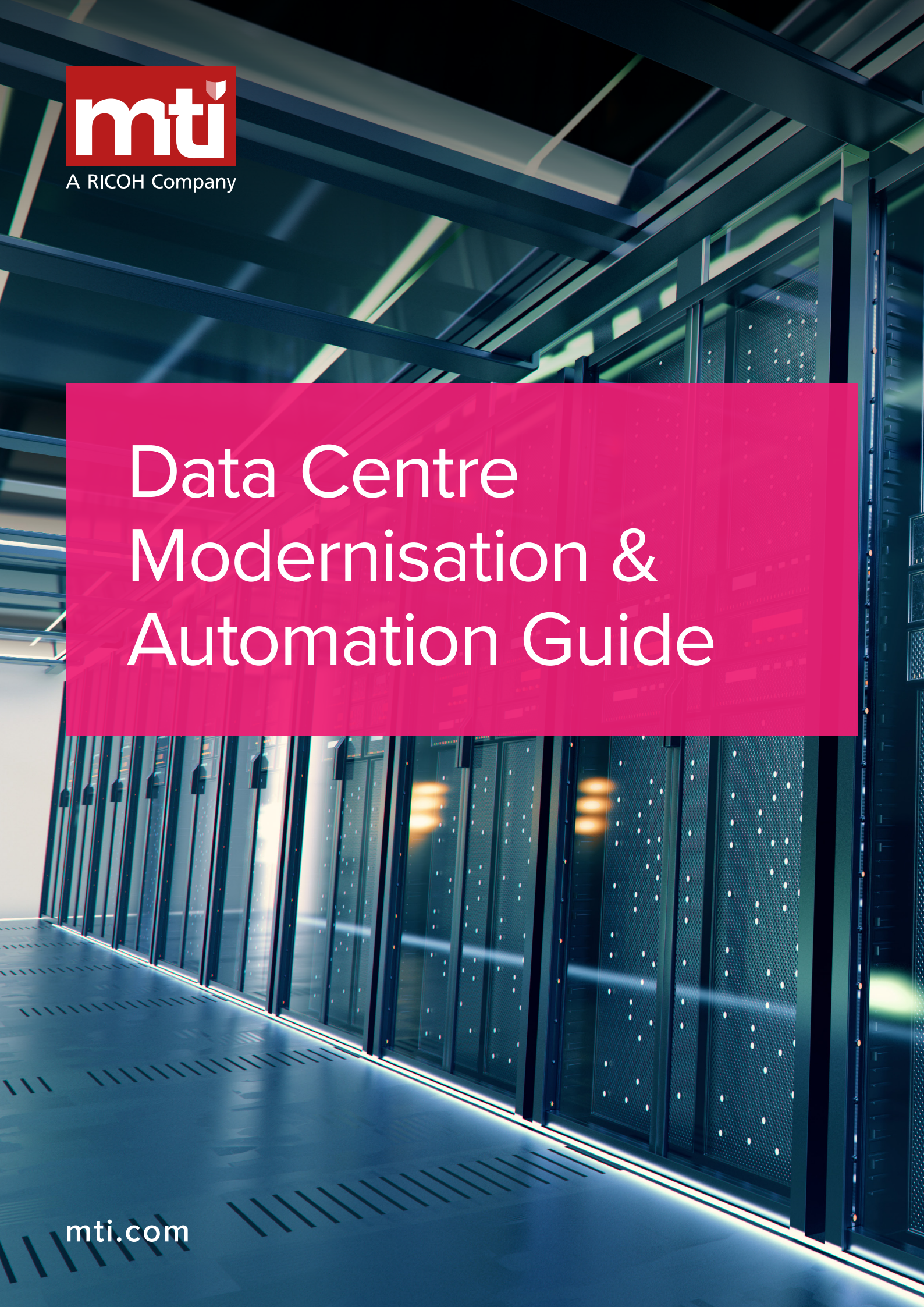
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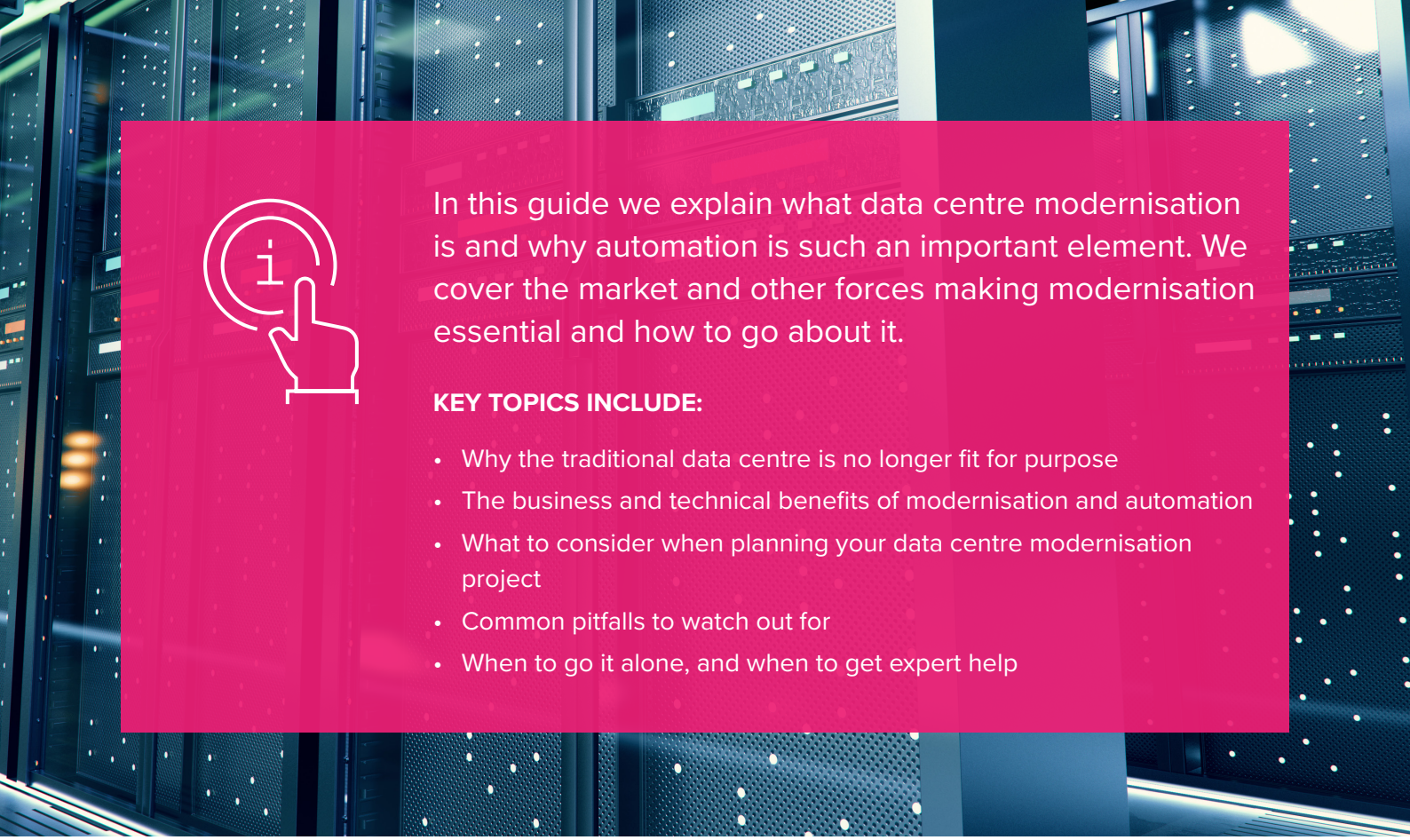

In this guide we explain what data centre modernisation is and why automation is such an important element. We cover the market and other forces making modernisation essential and how to go about it.

KEY TOPICS INCLUDE:

- Why the traditional data centre is no longer fit for purpose
- The business and technical benefits of modernisation and automation
- What to consider when planning your data centre modernisation project
- Common pitfalls to watch out for
- When to go it alone, and when to get expert help

Contents

Discover examples of relevant technologies and services in these black boxes as you work through the guide.

Introduction

Why should you even be considering modernising your data centre? On the face of it, the answer to that question is simple: digital transformation. However, as is so often the case, lying just below the surface of the simple answer is a boiling sea of complexity.

Digital transformation, as we all know, is affecting almost every aspect of life. Smartphones, tablets, wearable technology, apps, the Internet of Things and a host of other innovations have radically changed the way we live our lives, both in the workplace and beyond it.

They've also changed our expectations. It's not so long ago that mail-order (remember that?) forms used to warn, "Please wait 28 days for delivery". Today, typical expectations would be next day, or sooner. We expect instant response, instant delivery. Click and go. Right here, right now.

For businesses, this translates into a need to deliver new services and improve existing services faster, and to streamline and accelerate existing processes in all departments and across all lines of business. Meeting today's digital engagement and business exchange expectations demands response times of under 60ms. This is not possible with a traditional, centralised data centre model. Digitalisation, with a geographically distributed, regionalised hybrid/multicloud infrastructure, is essential.

Digitalisation happens in three principal locations, dubbed by IDC as the endpoints (PCs, smartphones, IoT devices and the like) the edge (enterprise infrastructure such as branch offices) and the core (the data centre).

A key aspect of Digital Transformation is the shifting of services away from the core, where they have traditionally sat, to the edge, using technologies such as software defined platforms, containersation, and cloud. Moving services closer to users in this way helps improve agility and performance. Enabling enterprises to maximise digital opportunity in distributed population centres and business ecosystems interact.

2020's Coronavirus crisis has demonstrated in an unmistakable manner the need for this shift. With a huge proportion of the workforce suddenly operating from home, rather than the office, connected devices at the edge and latency-sensitive collaboration tools demanding a certain quality of service, and the security strategies and technologies to protect them, have all become business IT essentials.

All this is, of course, a challenge.

Regardless of where your users are or where your data is stored. Data centre modernisation will improve your operational efficiency whilst future-proofing and securing your data centre.

Section **1**

Change, Change and More Change

IN THIS SECTION WE EXPLORE:

- The digital economy is here
- Data is the engine of growth
- The data centre challenge

The Digital Economy is Mainstream

In 2020, there were approaching **5bn** connected devices across the world.

Hop onto social media, read the press, watch TV, chat to colleagues – everywhere you'll hear the same. The digital economy is on the rise. The digital revolution is happening. The digital economy is here. It's mainstream, right now.

The numbers, representing a slew of new connectivity, data, collaboration and commercial models, are impressive. In 2020, there were approaching 5 billion connected devices across the world, through which more than two trillion app usage sessions were conducted. 4.4 zettabytes of data were created and stored, and mobile apps generated $20 billion in revenues.

Meanwhile, as long ago as 2017, 50% of enterprises had adopted hybrid cloud services, and in 2019, $176 billion was spent on cloud services.

Various companies, new and established, have capitalised on this new, digital world.

In the first quarter of 2020 one of the original dot-com business', Netflix, acquired 16 million new customer accounts.

Various companies, new and established, have capitalised on this new, digital world. Netflix, established back in 1997 as an online DVD rental business, reinvented itself repeatedly, moving first to a subscription model and then to video streaming with a proprietary video recommendation system. Among the most successful of the original dot-com businesses, the company has launched a steady stream of new services over the years and in the first quarter of 2020 acquired some 16 million new customer accounts. That's twice the rate of new customer acquisition it achieved in the closing months of 2019.

In the financial world, challenger banks such as Monzo and Starling have sprung up. They have leveraged their unique opportunity as new entrants to create their offerings from scratch, unencumbered by legacy systems and services. This has allowed them to focus ruthlessly on customer experience, creating highly personalised services that feel light years away from the stuffy world of high street bank branches, cheque books and monthly statements in the post.

Across sectors and geographies, the digital economy is having similar, dramatic effects. It's turning long-established, mature business models upside down and inside out, and it's doing it fast. The raw, unvarnished truth is that those businesses that adapt and change rapidly, taking full advantage of the opportunities afforded by this brave new digital world, will be the ones that grow and thrive. Ultimately, they will consume those which can't or won't. Previous success or sheer size will be no protection in such situations – witness recently departed household names such as Thomas Cook and Toys-R-Us.

Data is the Engine of Growth

It's clear that the data stored and processed in your data centre is key to your day-to-day business operations. But that data often holds enormous potential additional value, accessible in ways unrelated to your core business. Historical trading data can be sold for use in research. Sensor data gathered for one purpose – triggering automatic windscreen wipers, perhaps – can be sold for use in another, entirely different purpose, such as weather reporting and forecasting research.

Businesses are now creating and consuming data faster than ever, and in increasingly widely distributed locations. IDC predicts that by 2022 over 50% of enterprise-generated data will be created and

processed outside the data centre or cloud. This will increasingly present data storage and protection challenges. One way of addressing these will be the consolidation of data storage functions, either on-premise or in the cloud, often using a Storage-as-a-Service (STaaS) approach.

This data, collected, in vast quantities, at the edge, has itself become virtual gold, endlessly repurposable and repackagable to render it suitable to a near limitless number of new applications.

Working this virtual goldmine takes innovative thinking, app development capability and more. These are hard to do when your existing data centre architecture demands much of your IT team's time and effort simply to stay running. Legacy IT architectures weren't designed for today's hyperconnected digital world support the new commerce and collaboration models that organisations must now implement to engage customers, partners and employees, and to support new connectivity data models.

Enable your business to flex, react nimbly, and scale as demanded.

The Data Centre Challenge

If your business is of a certain size and was established before the digital revolution took hold, it's highly likely that your data centre is the beating heart of all your IT service delivery. Work back from every customer transaction, user action, application, tool and service and you'll end up at the data centre.

Successfully leveraging the digital revolution is not merely a matter of technology. Riding this wave demands a host of changes across your organisation – new skills, new attitudes, process improvements, better customer experiences, business model changes and more. Behind all of these, though, sits the data centre. Bringing it up to standard to enable your business to flex, react nimbly, and scale up and out as demanded by new market realities is key.

The traditional data centre was designed for a business culture in which all IT services were sanctioned, planned and delivered by the IT department. Lines of business gained access to new services and service improvements when they were ready, which often meant a significant wait.

Traditional data centre architecture is typically highly hardware-centric, with specific hardware platforms for each application, each with their own operating system, application and management software. Such systems are inflexible, making changes and improvements hard to achieve.

To make matters worse, these highly siloed systems are usually managed and administered through platform-specific, manual intervention. IT specialists in such environments, like the systems they manage, tend to work in tightly defined silos – storage specialists, network specialists, and so on. Workflows are cumbersome and slow to execute, with many opportunities for errors to creep in. Even small changes can require the intervention of multiple technicians.

As a result, responses to change requests can take weeks or months – a far cry from the “Click and go” mentality of consumers used to the instant gratification of the app store.

Request a storage health check to inform your planning. Start here.

CONSIDER:

- Zadara STaaS
- HPE Greenlake
- Dell

Data management (which is integral to digital transformation) presents further challenges. Data and capacity growth, disaster recovery (DR) and backup needs, stringent compliance requirements, the need for adequate storage performance and the difficulties arising from storage silos are all significant pain points.

Over-arching all of this is the persistently high CAPEX impact of storage costs. Happily, there are many OPEX data management offerings, ready for deployment on-premise, in the private cloud or as hybrid solutions.

Section **2**

The Modern Data Centre

IN THIS SECTION WE EXPLORE:

- Characteristics of the modern data centre
- Cloud issues
- The human element
- Sustainability
- Disaster recovery

Key Characteristics

The modernised data centre supports the move of digital services and applications to the edge, facilitating the real-time interaction.

What, then, does the modern data centre look like? What characteristics deliver the flexibility and scalability necessary to support the corporate agility demanded by today's market?

Ask a hundred data centre specialists and you'll get a hundred different answers. That's inevitable since every data centre is designed to address the specific needs of the organisation at hand. That said, we can make a number of observations which will hold true for almost all modern data centres.

The modernised data centre supports the move of digital services and applications to the edge, facilitating the real-time interaction the market craves. It will enable IT to implement, manage and enforce security, policies and regulatory frameworks across diverse environments – on-premise, in the private cloud and in multiple public clouds.

Similarly, enhanced interconnection will allow businesses to create and gather data at the edge, analyse it in near real time, and exchange it, privately and securely via a digital ecosystem spanning multiple industries. Information from one business can help others, even in entirely different sectors, creating value via consumer savings, new revenue streams and growth opportunities.

This interconnection will shorten the distance between users, cloud services, ecosystem partners and customers. It will deliver the high performance and low latency which are essential to business capabilities and process built on multi-cloud, multi-partner environments and interactive workloads.

Typically, a modernised data centre will be:

- Software-defined
- Automated
- Secure
- Self-healing
- Process and policy-driven
- Scalable – out and in, up and down
- Resilient, with fit-for-purpose DR capabilities

Working with these key ingredients, we can build a data centre supporting:

- A consistent operational model across all applications and services
- Enhanced and scalable performance, efficiency and availability
- Efficient and accelerated application rollout and management
- Seamless extension of services across public and private clouds
- Unified resource and cost management
- Easily repeatable processes
- Modern data protection capabilities
- DevOps tools such as cloud-native apps, container technologies and microservices-based architectures

Administered in software as a single integrated stack, the modern data centre's dynamic, highly available, agile, software-defined compute, network, storage and security resources give your business the agility and flexibility to respond to swiftly changing demands from internal and external customers alike.

Talk to MTI's experts about our Modern Data centre solutions.

CONSIDER:

- Software-defined storage
- Software-defined networking
- Cloud mobility
- Information orchestration

Many of these capabilities and characteristics have been known to be beneficial for some time. The difference now is that they are nothing less than essential prerequisites for the successful adoption of the agile, service-oriented IT models demanded by the digital economy.

CONSIDER:

With services in the cloud, high speed, low latency cloud connections are often essential.

EXAMPLES INCLUDE:

- Amazon AWS Direct Connect
- Microsoft Azure ExpressRoute

What About Public Cloud?

It's easy to think of the cloud as a place – "someone else's server" – but in reality your cloud can be anywhere, even in your (modernised) data centre.

Costs

Perhaps startlingly, given the general perception that cloud means lower costs, a modernised, automated data centre can deliver services at a fraction of the cost of public cloud. That's one reason why we're already seeing big names retreating from public cloud, back to their own data centres.

This is one of the drivers behind the marked interest that IDC has noted in consumption-based flexible, on-premise infrastructure pricing.

Uber, for example, have found that it's more cost effective to store and process the vast quantities of data they collect in their own data centres than in the cloud. Meanwhile, Dropbox saves tens of millions every year having moved its services in-house from the public cloud platforms it was previously using.

The actual cost of cloud is multifaceted and unique to each customer and each deployment.

Clear visibility and like-for-like comparison of costs is therefore essential when deciding on the optimal mix of on-premise, public cloud and private cloud for your needs. A simple "lift and shift" approach, moving wholesale to the cloud, might appear attractive on the surface, but is rarely if ever optimal. MTI has a full suite of modelling tools that can give you this insight – always go into the cloud with your eyes open.

Automated data centres can deliver services at a fraction of the cost of public cloud.

Such cost and performance modelling exercises help you identify the best execution venue for each workload. When circumstances change and an application currently situated in the cloud would be better in the data centre, it can be easily, seamlessly moved there, and vice versa. This is the increasingly popular hybrid cloud architecture.

Consider a MTI Secure Backup Review

CONSIDER:

- Veeam
- VMWare
- HPE
- Rubrik

Backup and Restore

Data is one of the most valuable assets in any organisation, yet data backups are often a headache for IT teams. Not only can they be costly and risky, legacy backup solutions are commonly provided by several vendors, across various locations and within an traditional data centre, making them challenging to manage.

The widely held view that cloud adoption renders backups unnecessary is a serious and dangerous misconception. Your cloud provider will deliver security certification for its infrastructure and service, but as the customer you are still responsible for securing the cloud resources you consume.

Relying on multiple vendors and their contrasting user interfaces makes it difficult to get a clear, unified view of your backup infrastructure and nearly impossible to efficiently manage all your data that lives on-premise, in the cloud or at the edge.

In today's complex IT environments, downtime is unavoidable, but the speed in which you recover from downtime is crucial to mitigate risks to your reputation and to your bottom line. Older backup products, and even some newer ones, are often only capable of handling the quick recovery of a few virtual machines at a time.

Many Software as a Service (SaaS) providers will offer a data restore facility as standard, but this perceived peace of mind can come with a few pitfalls:

- What is the cost for each restore?
- What happens if you get hit by a ransomware attack or when user errors strike?
- What does the contract fine print say about retrieving your data should you wish to move to a different cloud provider, or back in-house?

Questions like these should be considered in detail, as the answers to them can dramatically impact costs and service levels.

The general rush to the cloud should not, then, be interpreted as retiring of the data centre. Far from it. Some workloads and resources are well suited to the cloud, but others are not. The traditional data centre may be dead;a data centres role in digital transformation is certainly not.

Modernised, automated data centres have a substantial role to play, especially in the context of private cloud services – cloud apps can be run within a modernised and automated data centre just as they can out in the public cloud, and often at significantly lower expense.

Consider the security of your backups

Backup and recovery solutions are designed to protect your organisation and keep your data secure, but sophisticated ransomware attacks are now leaving backups vulnerable to being compromised. As cyber criminals focus their attacks on backups, it is imperative that your organisation safeguards its data with a modern backup solution that has built-in capabilities, that prevent backups from becoming targets and protect backups should they be compromised.

The Human Element

> The traditional data centre may be dead; the data centre itself is certainly not.

Extensive human intervention is a key characteristic of traditional data centre management, with processes tending to be highly linear and often requiring diverse specialist skills. Delays to project delivery, impaired productivity, thwarted attempts to automate and increased risk of errors are the typical results.

The software-defined nature of the modernised data centre simplifies administration and facilitates automation, which in turn can remove many of the repetitive tasks that previously had to be directly addressed by the IT team.

Released from mundane administrative tasks and the burden of managing complex, siloed resources, IT staff can be redeployed to more rewarding, higher-value activities, improving productivity and employee satisfaction. In turn, IT can be repositioned within your organisation as a driver of new and enhanced value, no longer merely a cost centre.

Modernising and automating the data centre doesn’t reduce the need for skilled IT staff. It enables employees to focus on developing business strategies to achieve objectives, while managed services deliver stable platforms, DR and enhanced efficiency for existing platforms and apps. It opens up opportunities for IT staff to engage in more rewarding work, learn new skills and become more valuable in the employment market.

Section **3**

Key Aspects to Consider

IN THIS SECTION WE EXPLORE:

- Charting a course to a modernised, automated data centre
- Key aspects of a typical modernisation journey
- Alternative project approaches

The challenge is to chart a course from an existing architecture, to a fully modernised data-centric data centre.

Out With the Old?

It's unlikely you'll have the luxury of simply abandoning your existing IT estate and the investment it represents in order to build a modernised infrastructure from scratch.

The challenge, then, is to chart a course from an existing, siloed, hardware-centric architecture, to a fully modernised, automated, application and data-centric data centre.

A pragmatic, project-based approach is a powerful ally here. The components of your existing data centre will be of varying vintages, so which of them is currently at the head of the queue for a refresh?

Infrastructure, Facilities and Location

A modernised data centre is as much a mindset and a way of doing things as a collection of hardware and software. Close reference to that mindset is fundamentally important to all the infrastructure choices you make.

Critically, the architecture as a whole and every element in it must be designed with six key issues in mind: flexibility, scalability, extensibility, security, disaster recovery and location. Over-arching these, and essential to them all, is a software-defined approach to everything.

Consider MTI's Infrastructure Managed Service

CONSIDER:

- VMware Tanzu Kubernetes

Flexibility

Your infrastructure must be able to adapt to a variety of different workloads, such as cloud native apps and containers, but also to new ways of packaging up workloads that will emerge in the future.

CONSIDER:

- Dell VxRail
- HPE dHCI

Scalability

Each infrastructure element – compute, storage, networking and security – should be easy and cost-effective to scale up and out, independently of other elements. Remember to consider the possible geographical growth of your organisation, perhaps through acquisition, or as a result of setting up facilities in new territories.

Extensibility

Your infrastructure should be open rather than proprietary, to avoid the danger of becoming locked in to any one vendor's ecosystem. Infrastructure as code, a comprehensive set of APIs and easy integration with external orchestration and management tools are all key.

Security can no longer be considered an add-on, but must be an integral part of each platform used.

Security

Traditionally, security has been viewed as a capability to be built on an underlying architecture. In the modernised and automated data centre, security can no longer be considered an add-on, but must be an integral part of each platform used. With this approach, security itself can become portable, supporting the easy migration of workloads to their optimal execution venues.

Location

The physical location of your data centre is also critically important – a modernised, automated data centre is a strategic business resource, playing a key role in a wider IT ecosystem, typically reaching well beyond the organisation itself. Connectivity, network neutrality and physical security issues must all be considered.

Data and Cyber Security

As well as selecting platforms with appropriate security built in from the ground up, security capabilities designed for the virtual world, not simply ported over from the traditional, siloed environment, are essential.

For example, microsegmentation conceptually separates different entities in the virtualisation layer, limiting the ability of attacks this layer and to spread throughout it. Distributed firewalls allow for a microsegmentation strategy within the virtualisation layer, and supports portable security capability. When a workload moves to a new execution venue, it takes its security rules with it, eliminating the need for IT to re-engineer those rules.

Consider MTI VMware Management Solution

CONSIDER:

- VMware NSX for microsegmentation

This tight security/platform integration accelerates resource provisioning and makes it more repeatable, supporting more extensive and sophisticated automation, and shortening time to market, delivery and value.

Automation

Agility and speed of delivery are key issues for today's IT teams. As consumers, we've all been conditioned by the click-and-go world of the smartphone and the app store to expect new applications, features and bug fixes to be delivered near instantaneously, with minimal disruption.

Having become the norm in our wider lives, such expectations are also increasingly prevalent in the workplace. That, of course, presents a huge challenge for IT teams working with legacy data centre architectures.

To successfully rise to this challenge, end-to-end automation of the provisioning and configuration of infrastructure and application components is key. Effectively applied, automation can improve the quality of applications and production-ready infrastructure, and accelerate its deployment, enhancing the IT team's productivity and efficiency, and supporting lines of business in achieving faster time to market.

Bandwidth is a key issue when considering automation. Insufficient bandwidth and excessive latency can be significant challenges, often arising simply because of the physical distances between platforms and components which need to work together. Often the solutions to such challenges lie outside the hardware and software stack entirely, being found in the realm of interconnection, the edge, and regional cores.

With such automation in place, IT becomes a value provider, not just a cost centre, through the swift, seamless delivery of the services that internal and external customers need.

Agility and speed of delivery are key issues for today's IT teams.

Extending to the Cloud

The cloud. It'll slash your costs, reduce admin workloads to near zero and accelerate every aspect of your business. At least, that's the impression we might get, were we to believe all the hype.

In reality, the cloud is no panacea. It won't cure all your ills and rarely, if ever, is the mass migration of everything from data centre to cloud the right approach. That said, cloud services and platforms offer your business various tools and capabilities which can be significant as you seek to take full advantage of the digital marketplace.

A multi-cloud strategy, with workloads and resources allocated to several different private, public multi-tenanted and hyperscaler connect clouds, can help you improve flexibility and agility, drive up ROI, strengthen security, and minimise downtime and service outages, while at the same time avoiding lock-in to any one provider or platform.

The cloud can also give you greater application development flexibility, allowing you to develop the apps you need and deploy them to the cloud platforms of your choice, reliably, securely and without service disruption.

With a modernised, software-defined data centre (SDDC) you can bring cloud resources and platforms into your broader IT estate, creating hybrid cloud environments to streamline and accelerate service delivery, managing them with the same software tools and skills as your on-premise assets.

This pays dividends in terms of consistent infrastructure, with the same policies in place across all your compute, storage, networking and security assets, whether they sit in your data centre, in your private cloud, in one or more public clouds, or across any mix of these.

You can use the same tools, processes and skills across your entire estate, enabling standardised support and management services to be deployed, simplifying and enhancing customer experience, reducing costs and cutting the risk of errors.

Simplifying and enhancing customer experience, reducing costs and cutting the risk of errors.

Diverse applications can be deployed across multiple clouds using the same deployment methods and policies, enabling application interoperability and portability. And with consistent Infrastructure as Code (IaC) across your estate, you can leverage higher-order environments and resources such as Platform as a Service (PaaS) and container orchestration.

The key in all cloud-related considerations is to remember that good on-premise architectures have their strengths, including stability and proven processes, weighing this up against Cloud benefits such as agility and flexibility. In designing your modernised, automated data centre, bring together the best of each world in your hybrid cloud strategy, to implement an effective hybrid cloud architecture.

Getting this right will mean that it won't matter where you run any given workload, because your visibility, processes and tools will be the same, across all execution venues, whether on-premise, in your private cloud or in any of a number of public clouds.

Intelligent IT Operations

The standardisation of all compute, storage, networking and security assets, regardless of where they are hosted, makes possible the unified visibility and management of all resources through intelligent operations software. This is essential to the modernised, automated data centre – its flexibility, scalability, agility and automation benefits depend heavily on such insight.

Simplifying, streamlining, accelerating and enhancing your decision making, continuous, intelligent operations also drives improvements in system performance, reliability and utilisation. Intelligent operations gives your IT team a range of capabilities, typically including capacity management and workload placement, cost insights, performance monitoring and troubleshooting.

Deeper IT operations and business insights also support enhanced application and infrastructure planning. Whatever point you may be at in your journey to a fully modernised and automated data centre, you need clear visibility of workloads, network traffic and more in order to make informed decisions about your next move.

Consider MTI's Infrastructure Managed Service

CONSIDER:

- VMware vRealize Operations

Consider MTI's Infrastructure Managed Service

CONSIDER:

- VMware vRealize Network Insight

Project Approaches

When it comes to any transformation project there is no one single path. Multiple factors and considerations are in play based on the scale and urgency of the project. How much expertise is required and the expertise level. How much budget is available. How much the existing infrastructure needs to flex to accommodate new configurations or infrastructure.

Make sure you are clear on the overall business goals of a project before you start so that you can review against these periodically through the project.

We advise you initially step back and review the existing environment, audits / assessments are very helpful here.

Then put a plan together, prioritising certain elements of the project, understanding the scope of each stage and considering the knock on effect to the business.

Finally, get started, whether you approach the project conservatively or are looking for a speedy and dramatic change. Every project is different, just make sure your approach and decision making is in line with your business goals.

Initially step back and review the existing environment, then put a plan together.

Section **4**

Things to Watch Out For

IN THIS SECTION WE EXPLORE:

- Progressing at the right pace for your business
- Selecting the right platforms and technologies
- Assessing your needs with care
- Avoiding shadow IT
- Protecting your assets in the cloud

Be Aware of the Pitfalls

As with any complex undertaking, there are several potential pitfalls, common to most data centre modernisation and automation projects, to be aware of, and avoid.

Don't Delay, but Don't Move too Fast

Data centre modernisation and automation is a hot topic right now, and it would be easy to dive in without sufficient understanding, planning or preparation. It's important to take into account your existing infrastructure, available resources, business needs and culture. Often an upcoming technology refresh or rearchitecting of apps is a good time to consider modernisation on a wider scale.

Select Your Platforms and Technologies Carefully

Be aware that what you can do with your systems can be influenced or restricted by the platforms and technologies you select.

Vendors all have different agendas and priorities, but all want you to use their products and services, and will typically try to lock you in to their technology. However, they are realising that, in our increasingly hybrid world, ruling competitors out entirely is impossible. Offerings such as Microsoft Azure and Amazon AWS are the result, allowing you to bring such vendors' infrastructure into the data centre for a cloud-like experience on-premise.

Similarly, traditionally on-premise vendors such as VMware and Red Hat are extending their activity out from the on-premise environment into the multi-cloud environment.

With such a wide range of technologies and services available, it's important to select platforms which allow you to deploy and consume the very rich set of data services on offer from a diverse spread of vendors, without becoming locked in to any of them.

When selecting technologies and platforms to work together, especially from a variety of vendors, be careful to select components that will interact reliably in the ways you need. Compatibility does vary. If you're in any doubt, seek expert advice.

Be Clear on Your Needs

Don't be tempted to simply "lift and shift" services to the cloud without first measuring and analysing your apps, services and data, and their interactions, to identify their best execution venues. Some workloads will be best suited to on-premise execution, others in your private cloud and still others on public cloud platforms.

Don't be tempted to simply "lift and shift" services to the cloud.

This is an area in which support from providers with demonstrable experience in cloud migration can really pay dividends. Taking a DIY approach here can end up costing far more in the long run than securing expert help at the outset.

Without effective measurement, analysis and planning, workloads will end up in sub-optimal execution venues. Security risks, poor performance and unplanned expenditure can be the unwelcome results.

It's a popular myth, that when using public cloud services like Microsoft Office 365 or Amazon AWS, data is automatically protected.

Beware Shadow IT

Spinning up resources in a modernised, automated environment is simple and easy. That's a benefit in terms of freeing the IT team from mundane administrative tasks, but without the right policies and governance in place, it can mean that anyone users can install and adopt new technologies and apps which can present detrimental security risks and unnecessary costs to the business.

Protect Your Assets

It is important when dealing with any public cloud provider to be aware of its shared responsibility model for data protection. It's a popular myth, but a myth nonetheless, that when using public cloud services like Microsoft Office 365 or Amazon AWS, data is automatically protected.

Your cloud provider will take responsibility for providing secure platform infrastructure and services. However, you remain responsible for securing a wide range of elements such as your data, applications, operating systems and network configurations. With Gartner predicting that no less than 99% of cloud security breaches will be the customer's fault rather than the cloud provider's, this is critically important.

Section **5**

Go it Alone or Get Expert Help?

IN THIS SECTION WE EXPLORE:

- When to seek help

When to Seek Help

When to engage external support, then, is determined by several factors:

- Your current data centre architecture and the state you want to get it to
- Your organisation's dependence on and commitment to existing customer bases
- Your IT team's culture and approach, for example with respect to DevOps
- The state you want to get your data centre to
- The route you plan to take to get your data centre to that target state
- The specific skills and person-hours resource available in your in-house teams
- Your company culture and attitude to risk
- The time-frame over which you want to modernise and automate your data centre

These factors need to be considered for each aspect and each stage of your modernisation project. Not only will different skills and attitudes be needed at each point, but as modernisation progresses, resource will be freed up in your in-house teams, which can be reinvested into further modernisation.

Be aware that often there will be areas in which you need support that you are not aware of. MTI offer professional assessments and self-assessments tools available for server, storage, network, backup and workload assessments, these will give us the tools to make decisions when designing a modern environment for customers.

CONSIDER:

- MTI Assessment Tools

Section **6**

Key Takeaways

In this guide we've explored the whys and hows of data centre modernisation and automation. We've looked at the market forces and the limitations of traditional data centre which are combining to make data centre modernisation and automation essential.

We've noted how the data centre will remain central to most organisations' IT estates, a key engine of innovation and growth, despite the rapid development and uptake of cloud technologies.

We then outlined the nature of a fully modernised and automated data centre – its characteristics and the benefits it realises – and detailed seven important aspects of data centre modernisation.

Finally, we looked at key issues to watch out for as you undertake your data centre modernisation journey, and how to determine when to go it alone and when to get expert support on board.

Let's Recap

Here's a quick summary of the key points to remember as you consider and pursue your data centre modernisation programme.

Business Goals

Make sure you clearly understand what your business needs and where you want to take it, and that you have solid buy-in for your modernisation project from your management team.

Milestones

Decide where you want to be in terms of timescales and budgets.

No one-size-fits-all approach

Identify the elements of the modernisation process that you need to attend to.

Business Units

Increasingly, financial decisions concerning strategic IT direction are being made by business units, rather than IT, so involve your business units in the process and make sure they understand the benefits to they'll see from data centre modernisation and automation.

No More Silos

Remember that data centre modernisation isn't just about eliminating hardware and software silos from your infrastructure. It's about ending the siloed nature of IT and the data centre within the business, repositioning them as a holistic, across-the-business service, driving innovation, revenues and growth.

No One-size-fits-all

Identify the elements of the modernisation process that you need to attend to according to your existing infrastructure, business objectives, budgets, and in-house skills and resources.

Vendors

MTI works with best-of-breed vendors across all aspects of data centre modernisation and automation. We are vendor-agnostic, will always recommend solutions and technologies to suit your needs and circumstances, and are always ready to explain the pros and cons of alternative approaches to addressing your particular challenges.

Dell

An innovative leader in data centre solutions for 30 years, Dell EMC delivers tailored IT infrastructure from the edge to the core to the cloud.

MTI and DellEMC have been working together for over 18 years. MTI is one of the most Dell Accredited deployment and support partners with over 50+ technical competencies.

HPE

Hewlett Packard Enterprise delivers business transformation by enabling organisations to connect to, protect, analyse and act on all their data and applications, anywhere, from edge to cloud, turning insights into outcomes, at scale and speed.

Consider HPE for unified management and roll-out, container support, self-healing capability, seamless data mobility between public cloud and on-premise infrastructure, low-cost on-premise or cloud object storage for long-term backup retention, and consumption models for cost management.

Rubrik

Rubrik are a modern hyper-converged cloud data management company. Rubrik solutions protect your data on-premises, in public and hybrid cloud and in O365 using its unique ability to use your backup data for high-value use cases such as Ransomware detection and Data Classification. MTI works with Rubrik to provide scalable data protection solutions across all industries where fast recovery at an affordable cost is important. MTI Backup as a Service is powered by Rubrik technology.

VMware

Building on the conviction that software has the power to unlock new possibilities for people and for our planet, VMware provides a digital foundation powering the apps, services and experiences that are transforming the world.

Consider VMware for a modernised data centre that can be run on premise or in the cloud, hybrid cloud solutions that can be delivered as a service, simplified and automated lifecycle management, and tools to help you identify where you may find expert support valuable.

Zadara

An innnovative, disruptive market challenger, Zadara's mission is to provide zero-risk enterprise data storage and management.

The specialist's award winning enterprise storage-as-a-service flexes with today's data-driven business priorities to address and mitigate the technical, operational and financial challenges common to traditional enterprise storage solutions.

Your Data centre

It's likely that you'll need support and advice at various points on your data centre modernisation and automation journey.

MTI has developed a comprehensive range of data centre modernisation and automation services: we can help with aspects of your journey for which you lack in-house skills or capacity. We are vendor agnostic, working with best of breed technologies to provide the support you need when you need it.

Our services to assist with data centre modernisation and automation challenges include health checks and virtualisation assessments, cloud-readiness assessments, secure IT relocation, data protection assessments, network audits and storage health checks.

We can provide project support all the way up to a fully managed data centre and anywhere in between.

Speak to one of our experts get in contact **here**

We also have an extensive collection of guides, articles and other media exploring diverse aspects of data centre modernisation and automation. Dive in **here**

For advice, assessments or support on any aspect of data centre modernisation and automation, or if you'd like to know more, speak to one of our experts, get in contact **here**

A RICOH Company

About MTI

A multi-award-winning technology services and solutions provider, MTI Technology operates across Europe from offices in the UK, France and Germany. The company specialises in data centre modernisation, cyber and data security, IT managed services and IT transformation services.

MTI helps customers accelerate digital transformation through IT systems modernisation and IT operations refinement, with robust security and privacy designed into every solution.

Deep technical capability, a comprehensive service portfolio and a profound concern for customers' success are the driving forces behind the company's 98.6% customer satisfaction rate and 90% customer retention rate.