

THE ERA OF INTELLIGENCE

OFFICE OF THE CTO



Computacenter

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Introduction

Paul Bray, CTO UK

As we raced through 2023, we were poised to be captivated by, and respond to, new and exciting trends and technology innovations – as we so often are in the technology industry.

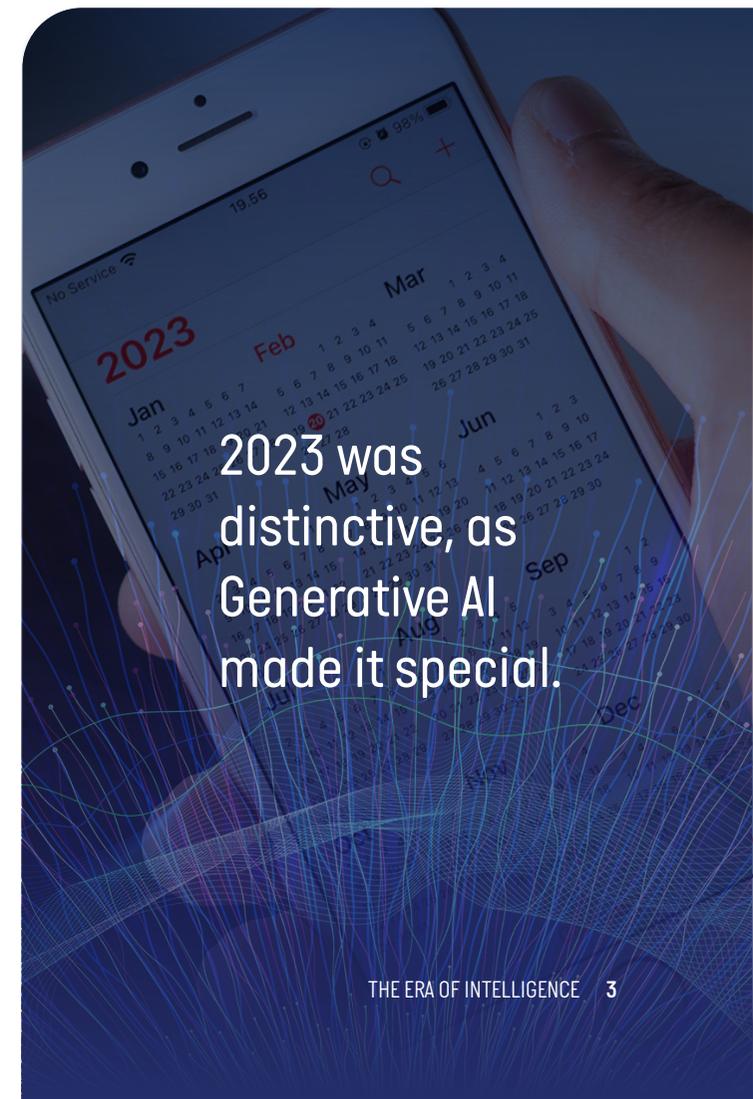
We're used to a topic that dominates the technology conversation, but 2023 just felt different altogether. The explosive pace of innovation we saw in AI technologies, the major investments and announcements made as technology companies sought to embed Generative AI technologies into their products and services was unprecedented and something that nobody could predict.

It was exciting. It was also a bit scary. The enormity of the unforeseen consequences resulting from the rapid surge of interest in these technologies was staggering, the longer-term implications set us asking profound questions about the impact on society, ethics, and people as a whole. Yet in the face of all of this, FOMO (Fear of Missing Out) was one of the bigger problems, as boardrooms sought answers and shareholders wanted to ensure that companies were considering the exciting new future.

Whilst AI was the catalyst for this narrative of 2023, and now 2024, it is not the only dynamic. All the AI excitement rests on data. Good data, reliable data, and a commitment to ethical use. Whilst we've normalised the notion of "Hybrid Work", the intricacies of it have yet to be resolved at all – we still deal with ineffective and inequitable experiences that hold back our productivity and innovation.

As we explore later in this document, defining the right platforms as the foundations for innovative and BAU business systems is a key challenge both in the pursuit of operational efficiency and achieving business agility, and connecting, securing, and delivering apps, data, and experiences at scale, in a rapid fashion is the key challenge for IT supporting the business.

Combining these factors and recognising the opportunity we coined a phrase - The Era of Intelligence. We see huge opportunity ahead, huge innovation in technology, huge change in process and culture – all of which needs to come together to deliver on the promises that the title holds.





CHAPTER 1

Data-Driven Decision Making

Darren Franklin

The role of data is shaping business strategies, igniting innovation, and securing a competitive edge. This affirms that data has a critical role in modern business.

We are seeing our customers rely less on intuition and past experiences for making key business decisions, and more on the examination of data via sophisticated analysis and AI that transforms the strategic planning and operational processes. By leveraging data, it allows businesses to make informed and better decisions, predict market trends, and understand consumer behaviour accurately, whilst having the ability to create innovative content to open new revenue streams as well as reduce costs, driving AI to the fore.

We are also seeing a shift in how organisations operate as they adopt a more customer-centric data strategy that empowers them to tailor unique offerings to better satisfy the demands of their customers, as well as enhance both satisfaction and loyalty. Data and AI can ingeniously reveal untapped innovation opportunities, by analysing data patterns and gaps in the market that may have been previously obscured.

Despite this, for many organisations we're witnessing that data, privacy and security are of paramount concern, with many facing the challenge of exploiting data for growth whilst at the same time safeguarding sensitive information. In addition, ethical considerations concerning the use of data highlight the need for a balanced approach between business interests and respecting rights and privacy.

We believe that the goal for many organisations is to adopt a more data-aware strategy. It is paramount that they understand the critical role that data and AI plays in business, but that sole reliance on these will have their pros and cons. You can leverage the data that you uncover to gain innovative insights that may have been previously unknown.

"We are seeing a shift in how organisations operate as they adopt a more customer-centric data strategy."

"The indispensable role of data in the narrative of business success is undeniable."

However, they are also able to draw upon other factors, such as experience and human judgement which cannot be overlooked. Numerous organisations that we're working with recognise that to achieve a truly data-driven business will be exceptionally challenging – and perhaps the current shift is technology focussed, as a lot still sits within the culture and leadership of business.

The indispensable role of data in business success is undeniable, it is the cornerstone of strategic decision-making, a catalyst for innovation, and a means to achieve a competitive advantage. Data has become the most precious resource, but as you navigate through the data-driven landscape, addressing the challenges and ethical considerations associated with data usage is crucial for unlocking its full potential responsibly.





CHAPTER 2

Personalised Experiences

Ashley Richardson

The workplace is in a state of rapid transformation. Gone are rigid structures and one-size-fits-all approaches. Today's workforce thrives in dynamic environments that cater to a variety of needs and preferences. This is where personalised experiences come in – a powerful approach for unlocking potential in a transformed workplace, built on people-centric design.

The Rise of the Personalised Workplace

Remote and hybrid working models have fundamentally redefined the office experience. Employees now crave flexibility and autonomy, seeking a working style that complements their lives and working preferences. Optimising workflows is no longer just about efficiency; it's about empowering individuals to perform at their best.

Personalisation takes centre stage here. Imagine an office that adjusts lighting and temperature based on your preferences, or a project management system that recommends tasks aligned with your strengths. When employees feel valued and supported by a work experience tailored to their needs, they're more likely to be productive, engaged, and loyal.

People-Centric Design: The Heart of Personalisation

The cornerstone of successful personalisation is people-centric design. This philosophy places the employee at the heart of every decision, ensuring the workplace caters to their unique needs and fosters a sense of ownership. Here's how:

Understanding employee needs: Surveys, one-on-one meetings, and anonymous feedback mechanisms provide invaluable insights into employee preferences, learning styles, and wellbeing needs.

“We believe businesses thrive when people are offered a personalised experience.”



Data-driven decisions: Employee behaviour and performance data allows you to tailor workflows, project assignments, and training opportunities. Some individuals excel in focused environments, while others thrive in collaborative spaces.

Flexible working arrangements: Empower employees with control over their schedules, communication styles, and workspace set-up. This autonomy fosters ownership and allows them to work in a way that optimises their performance.

Personalisation in Action: Transforming Workflows

Personalisation can revolutionise various aspects of the modern workplace.

Learning and development: Ditch generic training modules. Personalised learning platforms curate bespoke learning paths based on employee skills, knowledge gaps, and preferred learning styles. Interactive courses, gamified experiences, and microlearning modules cater to different learning paces and preferences.

Performance management: Move beyond annual reviews. Regular check-ins, focused goal setting aligned with strengths, and personalised feedback create a more continuous and supportive approach.

Workforce analytics: Data analysis optimises workflows and services. Tasks can be assigned based on individual strengths and preferences, leading to a more efficient and streamlined workflow.

Challenges and Considerations

While the benefits are real, there are challenges to consider.

Privacy concerns: Data collection and usage policies need to be transparent and ensure employee privacy.

Scalability: Implementing personalisation strategies across a large workforce can be resource intensive.

Manager training: Managers need training on understanding diverse work styles and implementing personalised approaches.

The Personalised Future

We believe businesses thrive when their people are offered a personalised experience. Utilise valuable data within your organisation to shape your personalisation strategies. This includes tools like analytics, surveys, machine learning, and AI, ensuring the workspace remains user-centric and effective.

“Optimising workflows is no longer just about efficiency; it’s about empowering individuals to perform at their best.”

Undertaking data security and governance projects are essential for a trustworthy, data-driven experience. Connecting business systems, processes, and a culture of continuous improvement are key to successful implementation. The rewards are significant; the ability to attract and retain top talent, and a thriving, engaged workforce. In our experience you will need to bring together various business areas to foster a deeper understanding of the broader employee context required to deliver this transformation. We can help you understand what matters to your employees and implement systems that support workplace modernisation, boost productivity, and drive personalised experiences.

CHAPTER 3

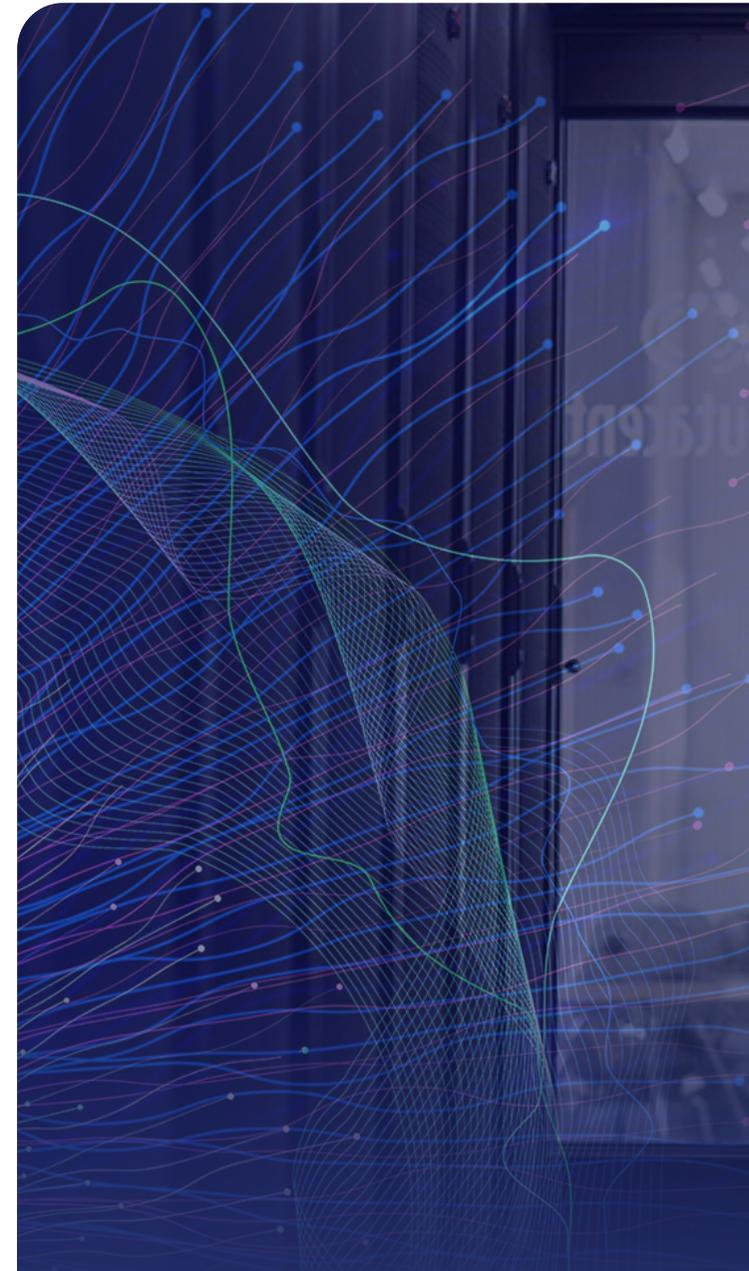
Flexible Hybrid Platforms

Paul Nearn

Dynamic business platforms are imperative to be competitive in today's fast-paced business landscape.

We design Modern Cloud solutions that are agile and secure across public cloud, private cloud, multi-cloud, the data center, and the edge – this is what we call the Flexible Hybrid Platform. Our goal is to enable workloads and applications to operate seamlessly across environments enabling flexibility, scalability, and resilience. This approach allows full advantage of different deployment models and optimises IT infrastructure for unique business needs and goals.

Flexibility and options in platform choice is now critical. In recent years we have seen a shift from 'cloud first' to a more 'cloud smart' approach, driven by an application first mentality. This is not about blindly moving workloads into public cloud; from our experience we have seen those initiatives fail because the needs of the application haven't been properly considered despite significant investment in the cloud infrastructure [i.e. the Landing Zones]. When applications are properly assessed, it becomes clear that they are not all destined for the cloud.





Questions around security, data, regulation, and latency inform these decisions, and so enterprises should optimise their on-premise infrastructures as well as leveraging the public clouds appropriately. Across our customers we see a trend of hybrid platforms because of the flexibility it offers; allowing the use of existing architectures and investments in their data centers while still taking advantage of the cloud's benefits.

We believe that the goal should always be to put the right workload with the right data into the right place. Across large scale organisations this is a complicated process, so we have developed a comprehensive set of solutions to address the needs of our customers. This starts with detailed application migration assessments. We have a strong heritage and capability in the traditional data center where our Data Center-as-a-Service (DCaaS) offering enables effective technology procurement, infrastructure design, configuration, deployment, repairs, maintenance, and end of use services. And increasingly all these need to align to ESG and sustainability objectives, in addition to traditional technology and commercial parameters.

“We believe that the goal should always be to put the right workload with the right data into the right place.”

We work with many large enterprises building and supporting their next generation private clouds, across multiple solution providers and with the three main hyperscalers, realising our multi-cloud architecture blueprint. We believe it is critical to surround the technology with effective management and governance solutions to enable you to operate platforms holistically and at optimum cost establishing the right operational people, processes, and tools. There needs to be a better balance between what lives on premise and what lives in the public cloud. Taking an application-driven approach will help you ensure that you optimise performance and reliability, whilst managing cost, in turn enabling you to focus on delivering better long-term business outcomes.



CHAPTER 4

Securing Borderless Business

Mark Prior

Every organisation must safeguard two critical digital assets: its applications and its data. Whilst this has never been an easy task, it was easier when the 'borders' of the business were well defined – i.e. when applications and data were hosted only in private data centers.

Back in the “good old days” a well-guarded perimeter was usually enough to prevent a bad actor from achieving their nefarious goals. Those bad actors launched their attacks from two directions: external cyber criminals attacked the perimeter directly, or internal users, compromised in some way by external actors or with their own malicious intent, attacked from within the office or the data center.

These sources of threats haven't changed, but the new normal of hybrid working and multi-cloud have made a classic perimeter-only approach to security ineffective. The vulnerability of users, applications, and data to cyber attack for the borderless business are now much greater and are growing all the time through human innovation powered by AI, incentivised by the profit motive for organised crime, and how important cyber-warfare is to Nation States.

“Solutions and platforms have been developed to allow us to ‘shift left’ and ensure security is delivered effectively at source throughout the application development and delivery lifecycle.”

Of course, technology vendors are continually addressing this expanding threat landscape with innovative solutions. We have seen major advances in endpoint security to better protect the user, tied into powerful Software-as-a-Service platforms that consolidate, unify, and enhance perimeter security services to vastly simplify operations and deliver new protections at pace, including advanced visibility and observability capabilities. The business can be better protected from the existential threat of ransomware attacks

through enhanced data protection and restoration solutions. In addition, many vendors are incorporating and maturing the use of AI to underpin their solutions, better dealing with ‘Zero Day’ exploits, enhancing context and correlation of events, and enabling effective and rapid response. The imperative to further enhance rapid response through automation, orchestration and integration is simplified through the consolidation offered by unified platforms.

We believe that the availability of modern solutions to tackle modern security challenges represents an essential opportunity for organisations to significantly strengthen their security posture, but this presents challenges. First, busy leaders must assess the vast landscape of solutions to select the relevant and right solutions for their business. The selected solutions will typically deliver a change from a disparate and diverse landscape of technology to an enhanced and consolidated model, operating on new principles that will deliver stronger and more agile security.

To maximise these benefits true transformation will be required that must address not only the technology, but the operating model as well.

Our services are aligned to help our customers throughout this unprecedented transformation. Advisory and assessment services can accelerate and validate solution selection, and we can support the subsequent technology, people and process change through our expertise, experience, and mature frameworks for adoption.

“We believe that the availability of modern solutions to tackle modern security challenges represents an essential opportunity for organisations.”



CHAPTER 5

Enabling Developer Velocity

Dean Hogan

2023 was the year that Generative AI took centre stage in captivating the imagination of businesses and individuals. Industry keynotes spun narratives of opportunity and caution, while boardrooms made plans on leveraging it to bolster their C-Level imperatives.

As we move into 2024, Generative AI seamlessly integrates with existing AI adoption plans, which previously encompassed Machine Learning for IT operations and Deep Learning to enhance business operations and services. The software development community have felt the impact of Enterprise AI acutely and is something Gartner highlight in their '2024 10 Top Strategic Technology Trends'. They suggest that software delivery teams will expect to increase their use of AI-augmented development this year, and that "by 2028, 75% of enterprise software engineers will use AI coding assistants, up from less than 10% in early 2023!".

They also expect business to invest heavily in building Intelligent Applications, expanding adoption of business use cases, and further state that "by 2026, 30% of new apps will use AI to drive personalised adaptive user interfaces, up from under 5% today!".

Although it is not specifically called out, it could be inferred that AI-augmented development would be a primary contributor in increasing developer productivity and therefore accelerate the delivery of traditional, cloud native and intelligent applications. However, our customer experience has shown there are other, far bigger factors to consider that, if not addressed, may inhibit the benefits AI can offer.

Increasing the pace of code to production is not a simple matter of a bigger development engine and pushing an AI-assisted foot to the floor. The challenges of scaling developer teams, handling complex system architectures, and increasing developer productivity demand a much more considered approach to technology investment, IT organisation, and transforming of established software delivery processes.

We see AI-Augmented development supporting 3 main areas of the path to production. These are Code Creation, Code Explanation, and Software Testing. In pursuit of improving developer performance, it may be tempting to start with Code Creation, something that Microsoft, GitHub and MIT examined in control group study early in 2023, prior to the release of GitHub Co-Pilot. The study identified that developers could complete code related tasks 55% quicker when assisted by Generative AI features². This sounds truly impactful, however the study also highlighted that these gains were realised when used by junior developers across the group, and with Senior developers benefiting far less.

By 2026, 30% of new apps will use AI to drive personalised adaptive user interfaces, up from under 5% today.”

Gartner, 2024

This suggests that while AI Code Creation can potentially reduce the meant time-to-productivity for a newly onboarded, lower skilled developer, as they mature, there will be a diminishing return from AI in code creation. An additional factor worth considering is that AI-augmented code creation would likely be implemented to enable AI-pair programming, where developers work in pairs to ensure quality in code and test creation. While there are some pair-programming styles that could benefit, examples such as Driver-Navigator may demand teams adapt their pair-programming techniques.





Undoubtedly, business benefits can be realised from AI-augmented development, and the enterprise imperatives for building Intelligent Applications in its digital business will support the business case. But what of the other technical activities developers are tasked with, those that often result in increased context switching, and demand time away from code creation? It is now widely recognised that improving productivity for developers demands businesses empower developers, create an environment for them to innovate, and remove points of friction. Introducing capabilities that address these is referred to as Developer Velocity.

Our experience has shown that supporting developers with a flexible, feature-rich and integrated developer platform can enhance collaboration and sharing of curated code, and provide re-usable CI/CD pipelines that automatically include security controls. Accompany this with container platforms for automating the deployment and scaling of applications across multiple infrastructure environment and embedded

“Undoubtedly, business benefits can be realised from AI-augmented development”.

observability for improving situational awareness across systems, and a developer’s experience is greatly enhanced.

These capabilities not only directly contribute to developer productivity but are critical in freeing the senior and higher cost developer community to innovate with AI, enable Developer Velocity and drive new digital business outcomes. Success in achieving this will unlikely be dependent on a business’s ability to implement developer platforms, it will be dependent on IT leaders’ ability to implement build in an approach to drive adoption.

Summary

Paul Bray

The Era of Intelligence. As you speak the words and reflect on the hype and noise of the market, it may make you think that we're there.

The perspectives in this document explain some, but certainly not all, of the considerations for embracing this opportunity throughout the IT landscape. We are dealing with a nascent concept, but one that has significant mileage as we "buy-in" to the opportunities and promise of AI, quantum computing, ubiquitous connectivity, data processing at the edge and many other trends.

We remain excited by the opportunity. We see huge change in all industries servicing their customers, improving internal delivery, and managing their business goals. Yet we are resolutely pragmatic as to the core challenges that

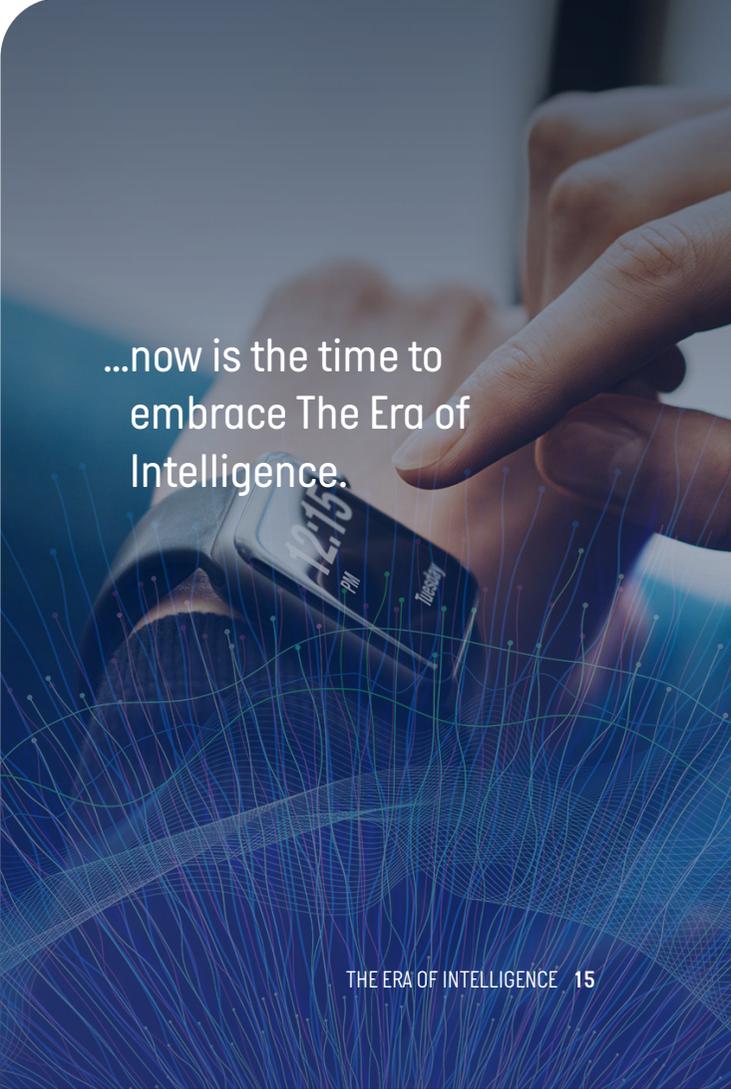
businesses face in understanding these technologies; breaking through the hype, identifying use cases, ROI, and implementing the core foundations upon which their future success wholly depends.

Some organisations will be early to adopt, some will follow behind and benefit from the learnings of others. There is so much to learn and understand, and the window to do that seems to get shorter year after year.

Whatever way you choose to go about it...

Sources:

1. 2024 10 Top Strategic Technology Trends, Gartner
2. The Impact of AI on Developer Productivity: Evidence from GitHub Copilot



...now is the time to
embrace The Era of
Intelligence.

The Office of the CTO

Computacenter's Office of the CTO (OCTO) team leads in the exploration and application of technology products and delivery methodology to aid the digital transformation of our customers. As a team of cross-functional technologists with extensive industry and IT experience we deliver thought leadership, advice, and real-world implementation experience to help our customers achieve their goals.



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