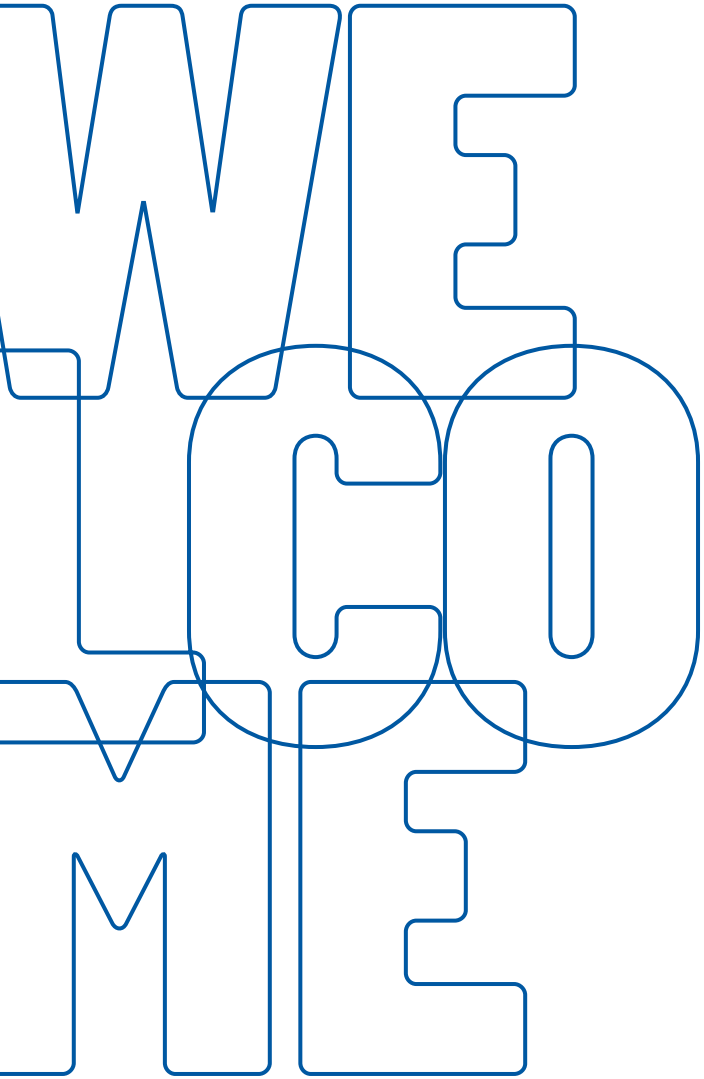
Computacenter

RETHINK THE POSSIBLE

MAKING SENSE OF TECHNOLOGY TO ENABLE AND EMPOWER PEOPLE

COMPUTACENTER TECHNOLOGY INSIGHTS
SUMMER 2021



Welcome to Technology Insights.

As a team of CTOs in Computacenter's UK business, we spend most of our time with our customers and key partners. Our role is primarily to understand their requirements and ensure that we are capable and relevant to them, in order that we might play some role, large or small, in enabling their success.

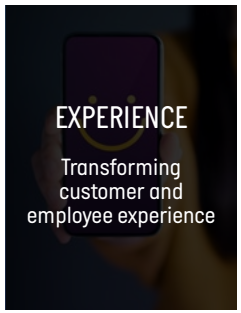
Our lens to the market throughout 2021 has been centred around the five key trends cited below. Working with large organisations across the public and private sector, we've assimilated all of the challenges and activities they face into these broad themes. And for this Summer edition of the Technology Insights, there's a specific relevance of what we are going to discuss to the topics of **Speed** and **Experience**. Each of the trends are to some degree interrelated, but for this paper, we chose to focus specifically on people, and their relationship and engagement with technology.

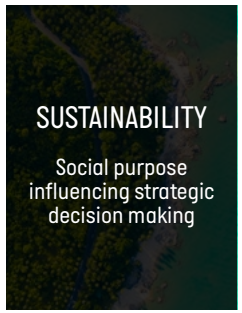
There are many different types of people that you need to enable in order to be effective. They may be your users (employees within your business - customer facing or otherwise) or they may be the consumer of your products themselves.

Once again the team share their insights on the key topics that are currently being explored in their areas. Ashley shares his perspectives on consumer and end user enablement, whilst Paul will speak of a specific, but highly critical group of users – the developers. Finally, Colin shares his thoughts on how data can be used to optimise and enhance the activities and decision-making processes across the IT operations landscape, and the possibilities that lay ahead.

As ever we hope you enjoy and take a lot from these discussions, and throughout this paper you'll find our contact details should you wish to explore these topics or themes further.

Paul Bray
CTO, UK&I





Meet our CTOs

Paul Bray
CTO, UK&I

Paul Casey
CTO, Platform & Hybrid IT

Colin Williams
CTO, Networking & Security

Ashley Richardson
CTO, Workplace

TRANSFORMING USER AND CONSUMER EXPERIENCES

ASHLEY RICHARDSON
CTO, WORKPLACE

Increasingly our conversations revolve around experience; specifically measuring, maintaining, improving or transforming the user experience. There is no doubt that our personal experience of a service or product will shape how we view the organisations that provide the service, and our willingness to continue to interact or consume them. Digitisation and transformation of processes and experiences provide the opportunity to enhance and differentiate your brand with consumers.

Applications and automation are two areas that we see influencing this.

"There's an app for that"

Back in 2009 Apple introduced and subsequently trademarked the phrase "There's an app for that" in a bid to show how many apps were available for iOS devices through its App store. App stores in general have undoubtedly empowered a change in both developer and consumer markets, with people shifting many of their daily activities to an app on a mobile device for reasons of simplicity and convenience.

Most people I know use a mobile device for everything. From banking to email, shopping to diary management and everything in between. The mobile device rarely leaves our side, so it is understandable that so much of our lives have shifted to these devices. Why is this important?

Mobile applications have shifted the point of engagement to that which is most likely to be with someone when they need it. These devices have enabled omni-channel capabilities to be delivered and consumed from a single device. Organisations increasingly come under pressure to provide applications to their customers to enable interaction with any services provided. These applications are the default point of engagement, ultimately defining the brand experience.

It's very rare to see an organisation that hasn't catered for consumers by providing an app, and with over 5.5 Million apps in the two biggest stores, the trend for engaging via applications is ever increasing.

This fact hasn't escaped the attention of the two major desktop manufacturers either. Apple launched their own desktop and laptop silicon last year based on the ARM architecture; it just so happens that their mobile devices also run on ARM. In fact, the latest iPad Pro uses the same chip as the latest Apple laptops. This opens iOS developed applications to run on all Apple devices should they choose to allow this.

On 24 June, Microsoft announced Windows 11, which will enable Android applications to run on Windows. It is clear to see how applications can start to become ubiquitous across all platforms providing a large range of services to more of the world's population.

Personally, I think we will see a hybrid approach moving forward where the applications become more fluid and adapt to the device they are presented on. Development costs reduce as the application is developed once on a chosen platform and adapted for device types.

Building an application to use on mobile devices requires both an identified requirement "what problem/need am I solving?" and a simple user experience.

This technology change requires engagement from the user. Increasing levels of digital "literacy" and "dexterity" are required for people to adapt to modern way of consuming services, which ultimately should benefit themselves. Enabling a multi-generational society to use and interact with digital services requires good design, simplicity but also training and education. Some generations and cultures still choose to access services in a non-digital way, so services we build must be inclusive of all.

Autonomy or automation

Given the diverse number of interactions (activities or tasks) that occur with organisations and the pressures that they are under for efficiency and productivity, those that can be automated are being automated. These interactions tend to be those which run within a defined set of parameters or with limited scope, but even this offers huge benefits to both end users and the wider business in optimising work. Powered by low code services that are now becoming available to many, individuals are choosing to automate some of their more mundane tasks, freeing themselves to concentrate on the more interesting parts of their work.

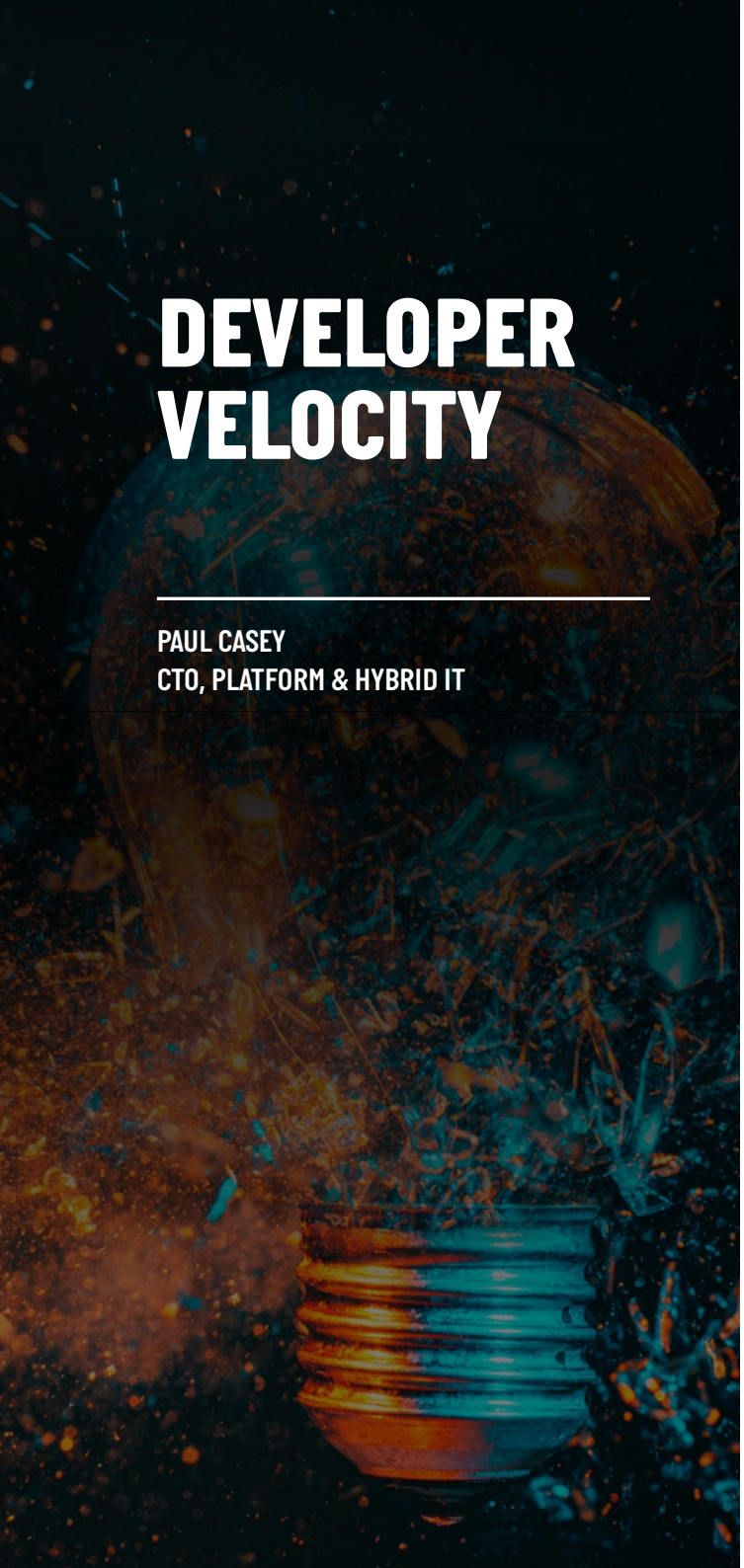
The necessity to understand and harness these capabilities requires collaboration, focus and building of a defined function to catalogue, share and educate the wider business to realise the benefits. This is often manifest in a Centre of Excellence (CoE) driving and governing automation activities against a common framework.

One such example we have delivered is the ability to spin up workloads on a cloud platform using Microsoft Teams as the user interface, with the approval process orchestrated and automated across several relevant platforms via APIs. This has simplified the user experience, removed many manual steps, provides a clear and auditable trail and provisions the required workload in much less time and at a higher level of delivery quality.

User experience is improved, and operational efficiencies are realised. The upside of this particular automation is that the point of delivery to the consumer could be anywhere that Microsoft Teams is available - web, desktop, tablet, mobile etc. So, the value of these automations is the ability to surface the "application" to whichever device at the point of need; improving time to deliver and user experience.

The bigger picture is that one that we must continue to learn, adapt and change our engagement and the services we deliver to enable a more dynamic environment. If machines are able to ingest and process data and information faster and more reliably than humans, we need to ask ourselves if, in the future more decision making and automation will be influenced by machines using Artificial Intelligence and Machine Learning (AI and ML). And if so, will the adaption of digital processes for further optimisation be handled by machines too? Clearly this evolution will impact how people work and the type of work that they will do. Whilst this isn't an article on future skills, the requirement to become more digitally literate is obvious.

Whether we choose to build or use applications to interact with consumers and organisations, the evolution of AI, ML and technology in general will mean that people will interact with not just other people, but machines as well. The concept of service from a machine perspective, especially one that has autonomy may be very different from that of humans. This requires careful thinking about how we interact with and train machines, how we govern their activities and how we define what 'good looks like' as we drive toward providing the best experience for all.



DEVELOPER VELOCITY

PAUL CASEY
CTO, PLATFORM & HYBRID IT

Last year I wrote an article for a Customer Insights brochure on the topic of Developer Productivity and how the shortage of available skills could in part be offset by enabling developers to be more productive. This year, the term Developer Velocity has started to emerge as a way to describe the benefits, blockers and enablers associated with streamlining and optimising the product development and code creation process. While the topic is not breaking news to the developers, it's getting a lot more interest in the boardroom as the benefits become quantifiable and the correlation between software excellence and business performance is better understood.

Before we get into the headlines, what is meant by the term Developer Velocity? 'Improving business performance through software development comes down to empowering developers, creating the right environment for them to innovate, and removing points of friction[1]' is how McKinsey put it, going on to describe the need to overcome 'entrenched Cultural and structural barriers'. McKinsey have gone on to create DVI - the Developer Velocity Index, based on extensive customer research and with the aim of exposing the most critical factors in achieving Developer Velocity. This index, comprising 46 drivers across 13 capability areas is useful as a framework and set of principles to drive the customer forward, although your mileage will inevitably vary when it comes to the metrics, measures, and findings.

However, the quantified benefits from the sample of customers who contributed to the research and who fall into the top quartile are compelling, outperforming others in the market by 4-5 times. Product management, culture, talent management are all key, while tools are a significant factor enabling greater productivity, visibility, and co-ordination.

The more integrated the toolset, the better the outcome, but not at the cost of high complexity and increased overhead to maintain.

Another useful paper on the same topic comes from Forrester[2], sponsored by one of the tools vendors, titled The Total Economic Impact of Gitlab. The sponsor is a growing partner of Computacenter in the UK, often deployed alongside Hashicorp Terraform and Vault. Forrester tell us that by using Gitlab, it's possible to achieve a 65% reduction in the planning phase, 90% in Build / Verify and reduce defects in code by 80%. Pretty impressive claims.

What is particularly encouraging though, is that we are seeing these claims and these data become reality in customer engagements that we are undertaking. A particular customer project that we are leading, a significant programme of work to increase developer productivity through toolchain consolidation, underscores just how valuable a streamlining of the Software Development Lifecycle (SDLC) can be. The existing toolchain consists of 19 separate technologies; this is being rationalised, almost by half, to 10 tools, with a roadmap to consolidate this down to 4 in the years ahead. The value case supports a substantial increase in developer productivity. Multiplied by a development community of several thousand people results in multi-million-pound savings each year as well as an acceleration in the volume and quality of releases.

If the benefits from a streamlined platforms and toolset seem compelling, what about that other factor in the chain - the focus of all this activity - the developer? Just how well are they set up to go faster if their landscape and environment is slipstreamed and optimised for velocity?

A recurring theme that we hear from our customers are the differences between their established developers and the new recruits they are onboarding. The highly competitive market for developer skills means that in a lot of cases the age of the new recruits is getting lower with many coming straight from university.

With seasoned developers, the focus is getting them to understand and harness cloud native practices, leverage serverless functions, cloud services and the likes, and in doing so, incorporate best practices that leave no S3 bucket and no unnecessary ports open etc.

The insight from our customers about the new developers being brought in is that they don't need any coaching in these areas – they know they should lock down by default and naturally know how to build secure workloads in the cloud. The issue seems to be they know what to do, but not so much why they are doing it or how the outcome is achieved. They know it's to stop the hackers, they know how to click the button on the Cloud Providers console to deploy a Web Access Firewall, but they don't know how things work in the data center (cloud or on premises). Being newly trained developers straight out of university, they have not been exposed to how things work in a real data center. As one customer put it:

"You walk them into a data center and they have very little concept of how they function, or how to request the networking, storage or server infrastructure they will need for workloads not being deployed in the cloud. We need to start training them as they come in the door on all things not cloud".

For the average business in pursuit of Developer Velocity, where the answer is not always going to be public cloud. Multi-cloud, hybrid cloud and never cloud are all viable destinations for an application to be deployed, so this education and skilling will be an additional task to overcome on the way.

Another factor likely to create a lot of emotional debate and that could hinder Developer Velocity is how to control application deploy and release. It's likely this challenge is more pronounced when planning the modernisation of existing systems, that have historically been governed by manual service management processes. On one side of the argument is a desire to minimise hand-offs and approvals, on the other a service management and security function that needs to adapt and flex.

We are on the right path, but there are a lot of considerations to be dealt with and obstacles to be overcome in pursuit of the benefits of delivering Developer Velocity. Developers, toolset, process and culture are all going to need fine tuning before they are fully primed to play their part in the evolution of the Enterprise.

THE BENEFITS BECOME QUANTIFIABLE AND THE CORRELATION BETWEEN SOFTWARE EXCELLENCE AND BUSINESS PERFORMANCE IS BETTER UNDERSTOOD.

ENABLING PEOPLE BY HARNESSING THE POWER OF DATA

COLIN WILLIAMS
CTO, NETWORKING AND SECURITY

There is no doubt that people remain the most important asset within a business. In most cases they deliver insight, operate systems, and as well as being the source of the original idea that created the organisation, they are also the source of its management, leadership and culture. In this modern era where businesses are underpinned by the use of technology, IT and applications have moved from a cost of business to a source of competitive advantage. But it is the data that is held that is now being identified as the most critical asset for the future.

Digitisation which encapsulates the evolution of traditional activities and a shift away from human centric activity to system-based processes powered by IT is a "must do" transformational activity. Data is at the heart of this and the use of data intentionally to inform, guide and realise business benefits previously unimaginable must be one of the most attractive aspects of the digitisation wave.

IDC forecasts that global data creation and replication will experience a compound annual growth rate (CAGR) of 23% over the 2020-2025 forecast period[3]. Whether data is used in a personal capability by a user creating their own app to perform ad-hoc analysis or across an organisation made available through a data warehouse, the power of "data at your fingertips" as data-driven business philosophies are starting resonate. With 86% of the Fortune 500 are now using Microsoft Power Apps (Microsoft 2021), data is empowering the user, enabling them to empower the business[4].

However, organisations may still fail to capitalise on the power of data and find themselves data enabled more by chance rather than by choice. "Data by chance" organisations may use data created in a passive or traditional manner within existing processes, but with less focus on the data as the main source of value. "Data enabled organisations by choice" flip the paradigm and consider data from its creation, analysis, through use and reuse, storage, security and retirement as the focus activity to move the organisation forward.

Business objectives must guide data-driven transformations and identify the changes and benefits desired in order to anchor the development of models and algorithms used to exploit value within data. Machine Learning (ML) and Artificial Intelligence (AI) build on good practice information management foundations and use mathematical and data science to undertake advanced analysis and complex "what if?" calculations at unprecedented speeds.

Whilst the value promised by data is immense, realising it is not without its challenges. The creative thinking and courage required to approach existing challenges via a data driven mindset is difficult. This is where strong leadership, a vision for how data can empower the business and a culture and passion for innovation and change is essential to sponsor data driven initiatives. New skills are needed, with data analysts and scientists essential to consume real world business objectives and turn them to enhanced outcomes energised using data. This may open the door to the reuse of many of those same people fearful of job displacement, retrained with data aligned skills to perform new roles and future proof their own careers.

Observability – from awareness to action

Observability has become a new "must have" within the midst of IT operational change conversations. Observability is "the ability to measure the internal states of a system by

examining its outputs. A system is considered observable if the current state can be estimated by only using information from outputs, namely sensor data[5]" (Splunk 2021).

It does not replace the need for visibility and monitoring. In fact, it builds on it and moves what was previously a reactive activity to a proactive one, using analytics and automation to predict events before they occur and, where possible, remediate before the business or the user is impacted. This shift from managing the "known" to predicting and affecting the "unknown" is why observability is one of the catalysts for a new persona for IT operations.

Observability has a role to play at the heart of user experience, a key indicator of business success in the digital age. By using data aligned to device, user and application behaviour or performance, the pre-emptive nature of observability platforms helps to understand, enhance and maintain high levels of user satisfaction. Businesses must now operate at the speed of software with development and release cycles for many companies in days and hours not months and years. As developer velocity increases due to the reduction of operational friction, observability-based approaches ensure the metrics that matter to development teams are part of a bidirectional flow of action orientated insight to improve application reliability and service availability.

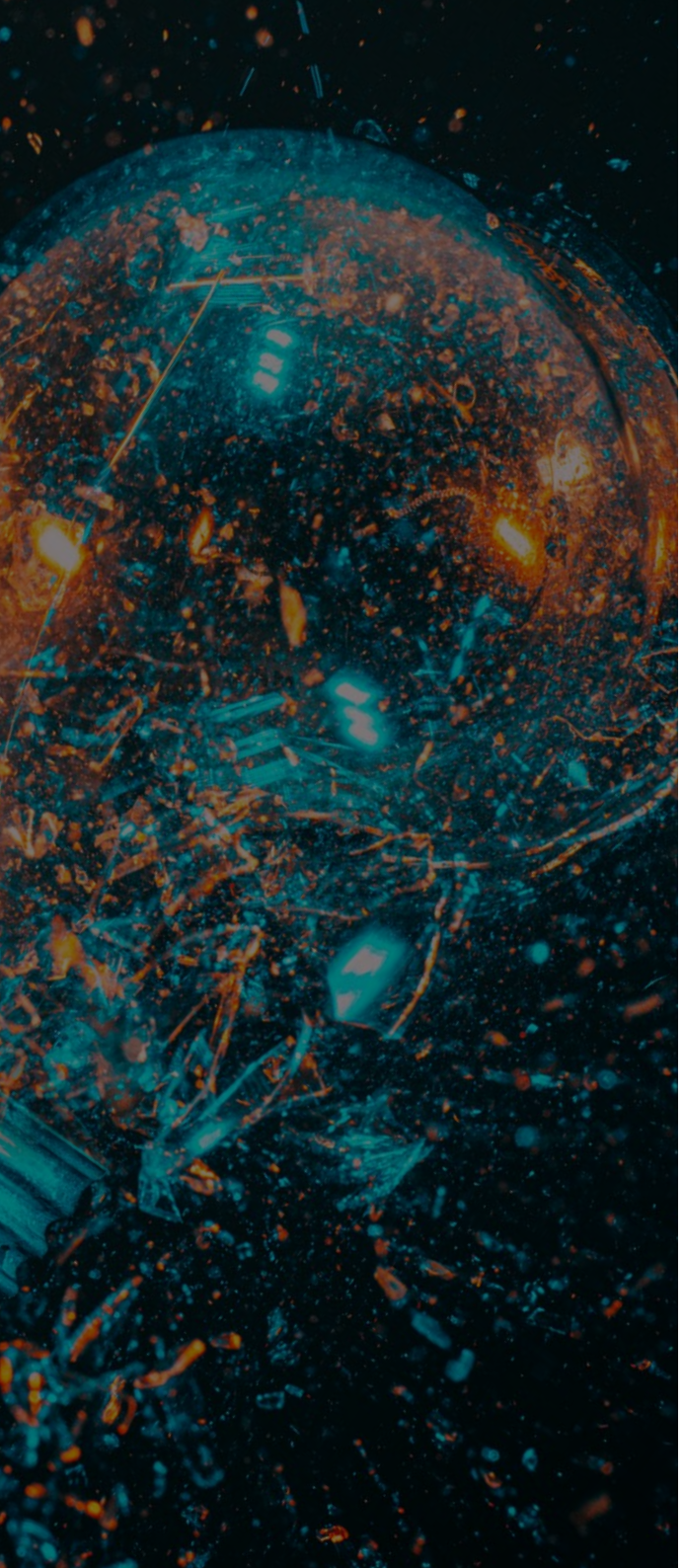
AIOPS

It is impossible to discuss observability without the importance of AIOPS coming to the fore. IT operational environments are more complex than ever before with the amalgam of traditional on premises and cloud environments now working in harmony to deliver workloads and services. Always-on is an expected norm for IT systems in the current 24x7x365 business world. IT platforms never sleep and deliver their best value when working at optimum levels.

AIOPS based approaches tap into the ideals of a data driven enterprise and utilises data and telemetry ingested from multiple platforms (hardware and software) to transform IT operational behaviour and outcomes. The estimated market size for AIOPS is $1.5 billion, with a compound annual growth rate (CAGR) of around 15% between 2020 and 2025[6]. The ability to normalise, correlate, analyse and utilise Artificial Intelligence to detect and predict events and transform site reliability builds on the foundations of observability to derive real business meaning aligned to impact. It means that observability and AIOPS are often blurred and confused.

Some observability platforms include AIOPS functionality, but equally AIOPS platforms exist as a standalone capability, deployed on top of existing monitoring environments. This trifecta of data, AIOPS and observability working in harmony is showcasing a future operational template that will deliver scalable and tangible value. Short term, it may reduce human capital in selected IT operational areas but this is not a wholesale elimination of people but instead the use of systems, platforms and data guided by analytics and machine learning to enhance the activities of people giving them more time to make human judgement based business impacting decisions.

As organisations embrace the benefits of the use of data for innovation, decision making or to enhance business outcomes, the IT operational landscape that has remains somewhat unchanged in recent times may be unrecognisable when viewed in only a few years from today.



Summary

As we see it, organisations of all types and sizes are wrestling with a dual dilemma. On the one hand is a mandate to **Drive Operational Efficiency** and maximise the usage and effectiveness of assets and resources that are deployed today. But, on the other hand, and with equal focus, organisations need to **Increase Agility and Growth** to ensure that they continue to compete and be relevant within their industries and markets. This is not an either/or - equal focus must be applied to each.

Hopefully we have explained clearly above how we are seeking to enable and support these objectives, with a clear focus on the people that consume, engage and deliver these services. How we design for and engage users and consumers in the "experience era" that we find ourselves in is a critical priority where people have choice, are fickle and intolerant of a poor experience.

We've seen this very prominently within businesses over the past few years, which is where our conversation around Developer Velocity emerged as a need to rapidly embrace and support these groups with tooling and streamlined processes to enable them to work effectively – delivering on their purpose to help their business reduce their time to market for their next generation business services.

And finally, across the IT environment where the demands and expectation for operational efficiency are ever more acute, the need to augment people (the human effort) with technology to help inform and make better decisions, drive faster response and ensure continued availability systems is a current and pressing concern.

All of this is needed on top of a range of other priorities, and in an environment of ever-present volatility and uncertainty. We hope these ideas and thoughts have given you some better understanding and direction on how you forge your own paths forward in the months ahead.

SOURCES

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Engage with us

One of our key objectives has been to continue to share the people, skills and thought leadership that we have, to provide better insight and guidance to our customers. These papers are part of that strategy. You can also engage with our industry thought leadership group on LinkedIn by clicking the image below and registering your interest.

CTO Talk is an area where you can discuss and collaborate with peers as well as the Computacenter team and take advantage of unique insights and perspectives that we don't publish elsewhere.

Computacenter

Computacenter (UK) Ltd
Hatfield Avenue, Hatfield, Hertfordshire AL10 9TW, United Kingdom

computacenter.com
+44 (0)1707 631000