Computacenter

MODERN CLOUD NATIVE PLATFORM

GETTING AHEAD WITH AN ADAPTIVE STRATEGY

OFFICE OF THE CTO

DEAN HOGAN
SOLUTION DEVELOPMENT,
OFFICE OF THE CTO

Dean is a Solution Leader and responsible for creating the solutions and services our customers require to implement their digital strategy and improve developer productivity. Dean has been with Computacenter for seven years, working with customers to adopt cloud native platforms and services, and has over 30 years' enterprise IT experience in technical and leadership roles.

Back in 2020 McKinsey* released insights from research they conducted on how Developer Velocity is a key indicator of business performance and that "improving software development comes down to empowering developers, creating the right environment for them to innovate, and removing points of friction." Although it is a couple of years old now, McKinsey's report and their Developer Velocity Index (DVI) remains a useful reference, especially for large enterprises in identifying the leading capabilities known to correlate with high business performance. Among their 13 developer velocity dimensions, they noted "tools, product management, culture, and talent management as having the greatest impact on business performance". The DevOps Research and Assessment (DORA) is another highly respected framework. Having been looking at the topic of high performance in software delivery for many years, DORA has a proven set of research and assessments tools used to determine the pathway, priorities, and benefits for improving Developer Velocity.

Teams can be assessed and aligned to performance levels, with each level focusing on a set of capabilities that are shown to have the biggest benefit for improvement.

For those enterprise IT leaders responsible for software delivery and platform services, improving Developer Velocity is becoming an increasingly important objective, and as new industry initiatives emerge and ultimately mature, we experience two things.

Firstly, a convergence of features across the tools and practices used, which in turn drives confidence in adoption.

Secondly, an increase in market volatility and uncertainty that can disrupt technology strategies and investment plans. One example of this is container-based cloud native platforms. It is worth exploring this topic further and how, by taking the right approach in software delivery, deployment and platform operations, a vendor platform choice can be made with confidence and without fear of disrupting operational initiatives and adapting IT strategies.

Devops Capability Priorities

LOW	MEDIUM	HIGH	ELITE
• Continuous testing	• Continuous integration	• Learning culture	• Organisational culture
• Cloud infrastructures	• Continuous delivery	• WIP limits	• Observability
• Core maintainability	• Architecture	• Trank-based development	• Small batches

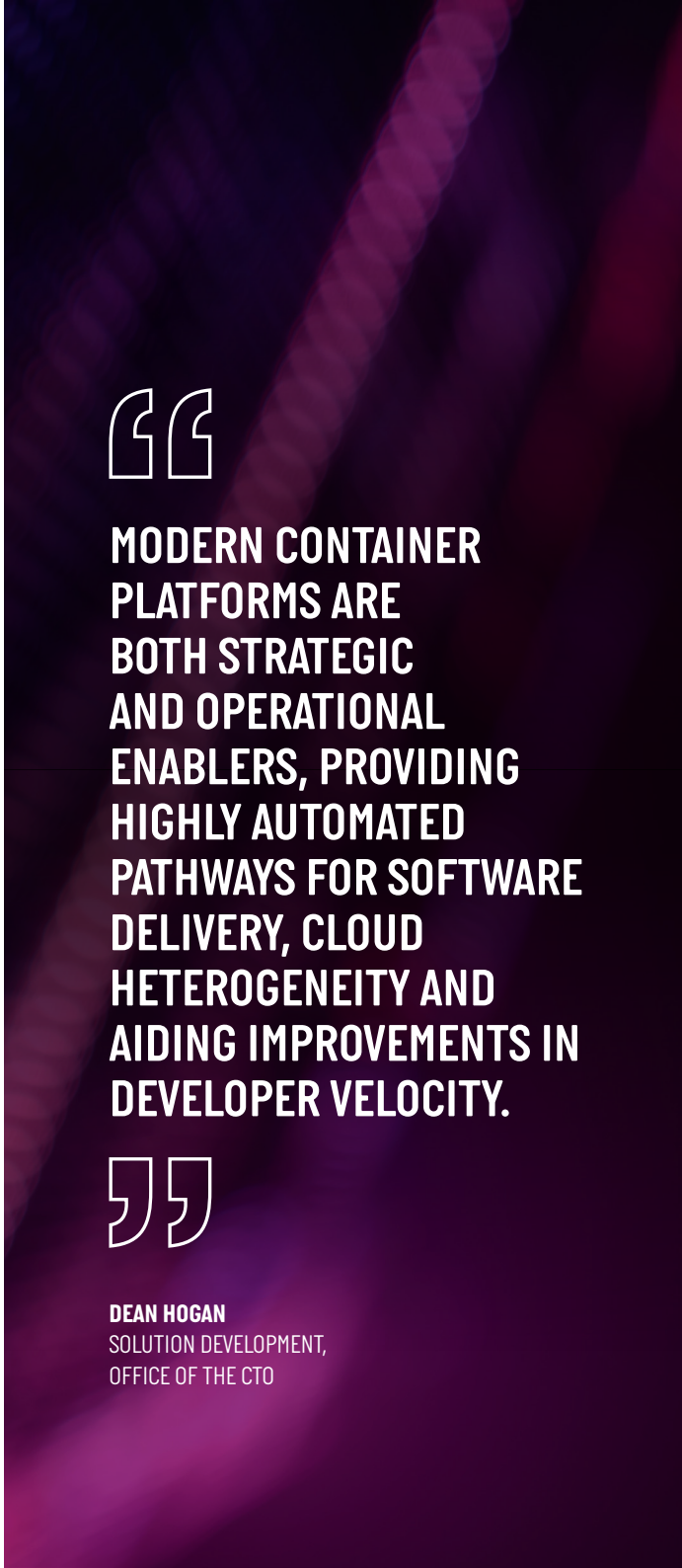
* McKinsey & Company: Developer Velocity: How Software Excellence Fuels Business Performance

The modern container market is now over 10 years old, that is assuming you see the launch of Docker Inc as a marker in modern container technology. And during that time the IT industry has continued to move at rather dynamic place, the ISV market, being at the extreme end of this volatility. With the container technology market now maturing cloud native start-ups and acquisitions are happening at an alarming rate. Over the last 3 years we have seen IBM acquire Red Hat, SUSE acquire Rancher, Mirantis acquire Docker Enterprise and more recently the potential acquisition of VMware by Broadcom has everyone's attention. For any IT professional tasked with choosing a container platform over the coming few years, it can be particularly challenging to determine where there are sufficient points of stability in the market, so as not to create levels of technical debt that could see operational costs increase rather than reduce.

What is more, the container platforms these vendors initially came to market with have now evolved to be become modern cloud native platforms. These serve as operational enablers by supporting highly automated pathways for software delivery, and strategic enablers by providing cloud heterogeneity and aiding improvements in developer velocity. Add to this that a current container orchestration platform is no longer restricted to running just cloud native applications, but instead can support traditional enterprise workloads also, and your modern cloud native platform becomes a key asset in any strategy of future proofing software delivery for the business.

This means when implemented as a set of productised platform services, and supporting a unified approach for software delivery, a modern container platform will provide the automation needed to deploy, and run software in a secure manner, as well as providing the abstraction needed to support mobility between infrastructure providers. The ability to choose and shift compute consumption across different infrastructure providers, both public and private, is of greater consideration enterprises as their use of cloud services mature. Typical rationale for this flexibility includes continuity of IT services, shifts in IT strategy due to market forces, and changes in IT cost control and focus.

Across our customer engagements, we see four strategic themes arising for container platform adoption.



MODERN CONTAINER PLATFORMS ARE BOTH STRATEGIC AND OPERATIONAL ENABLERS, PROVIDING HIGHLY AUTOMATED PATHWAYS FOR SOFTWARE DELIVERY, CLOUD HETEROGENEITY AND AIDING IMPROVEMENTS IN DEVELOPER VELOCITY.

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STRATEGIC THEMES DRIVING CONTAINER PLATFORM ADOPTION

Workload heterogeneity

Businesses drive a diverse set of requirements, and with it comes numerous use cases, technical constraints, and demands for scaling software development and infrastructure runtimes. Providing a platform that can support each of these enables IT development and operations to adapt and accelerate with the business.

Data strategy alignment

Data strategies that look to externalise or monetise business data or leveraging ML to gain better insights are now commonplace. These are driving a demand for scalable compute, standardised patterns for ML pipelines, and on-demand access to both streaming and persistent data services, across localised and regional boundaries. There is a significant amount of platform complexity and automated governance needed to enable this.

Cloud provider independence

The drive to compete and deliver differentiating business software has led to the rise of cloud native applications built and deployed on public cloud services. This is increasing the risk of cloud provider lock-in and while it is a generally an accepted trade-off during the early stages, maturing cloud adoption means platform teams are increasingly looking at codified and declarative ways to abstract control of infrastructure, platform builds and software deployment from individual cloud providers.

Increasing Developer Velocity

Businesses have faced challenges in hiring and retaining the scale of IT talent needed to accelerate the rate of software delivery. The need to increase the quality, security and speed of software delivery has led to the adoption of DevOps practices, and agile frameworks. However, key to increasing developer velocity is the removal of the distractions developers face in creating their code, by improving the end-to-end automation of building, testing, deploying software, and applying security policies.

MODERN CONTAINER PLATFORM OPERATING CAPABILITIES

When planning cloud native platform architectures and service capabilities, we also see increased focus on new operating capabilities, that enable high performing software delivery and operational efficiencies, such as:

Cloud native architectures – providing an operating environment that delivers resilience and scale through horizontal scaling, distributed processing, and automating the replacement of failed components.

Simplified multi-cluster management – ensuring end-to-end management, visibility, and control of your cluster and application lifecycle, along with improved security and compliance of your entire Kubernetes domain - across multiple datacentres and public cloud environments.

Shifting security left – automating DevSecOps by integrating with CI/CD pipelines and image registries, leveraging policy templates to enforce security and configuration best practices and provide continuous scanning and assurance.

Curated private software catalogues – providing and maintaining a catalogue of trusted and tested open-source software used to accelerate application build and deployment. This trusted software is published to developers and provisioned using automated methods across the enterprise container environments.

Enterprise resilience – providing the means to withstand errors and failures without data loss and provide reliable application services that contribute to business continuity. Generally achieved through redundant access paths and component resiliency, and the provision of DR backup services to application teams.

Developer Experience – providing developers with the set of UI, API & CLI features, along with SDK and code libraries that simplify code create and run in container native environments. Typically providing open standards-based Containers and Functions as a Service.

Mixed workloads and platforms – supporting the broader demands of enterprise workloads, that are based on Windows as well as Linux. Enabling cluster creation and lifecycle management of bare metal, multiple hypervisors and chip sets used for edge/IOT. Providing container and virtual machines orchestration.

Sandboxed containers – providing an additional layer of isolation for applications with stringent security requirements via an OCI compliant container runtime using lightweight virtual machines running workloads in their own isolated kernel.

> A HIGHLY STANDARDISED CORE BUILT ON TRANSFERABLE OPEN STANDARDS PROVIDED BY FEW KEY VENDOR PRODUCTS, AND THE BULK OF CUSTOMISED SERVICES, AUTOMATION AND DEVELOPER EXPERIENCE BUILT FROM SEPARATE OR OPENSOURCE TOOLS.

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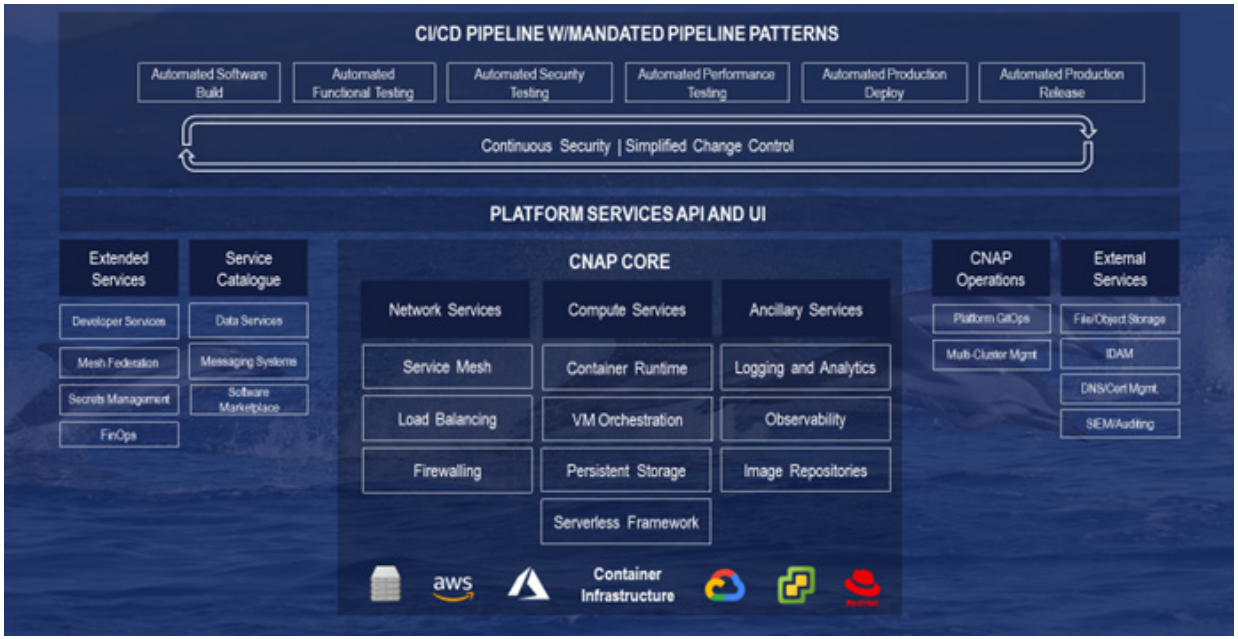
These strategic and operational capabilities should be defined in any modern cloud native platform architecture, like the one shown below. We see customers considering a highly standardised core built on transferable open standards provided by few key vendor products, and the bulk of customised services, automation and developer experience built from separate or opensource tools.

You would be hard pushed to implement a Modern Cloud Native Platform without the inclusion of Kubernetes. The open-source community have done a significant amount of work over the last 10 years to not only stabilise and secure Kubernetes, but also enhance its ability to meet the demands these broader operational capabilities. As a result, it is now at the heart of modern cloud native platforms and is a far greater enabler of strategic and operational imperatives.

Modern Cloud Native Platform for software delivery



Future Proofing Cloud Native Platform Investments

The volatility of the container ISV market continues to surge forward, with start-ups and acquisitions happening at an amazingly high rate, making vendor container platform selection a challenging exercise. With uncertainty when planning expenditure, influencing product roadmaps, and being confident in the long-term availability of platform features, thoughts are often dominated by the notion of technical debt. Define this how you will, but typically high impact changes down the line most often arise from the human effort needed to apply corrections to either hardware or software implemented at scale, which can be amplified by technical and architectural complexity. However, the benefits of vendor technical expertise taking care of the quality and security of your platform is compelling. So how do you make choices that do not lead you to a compromised outcome?

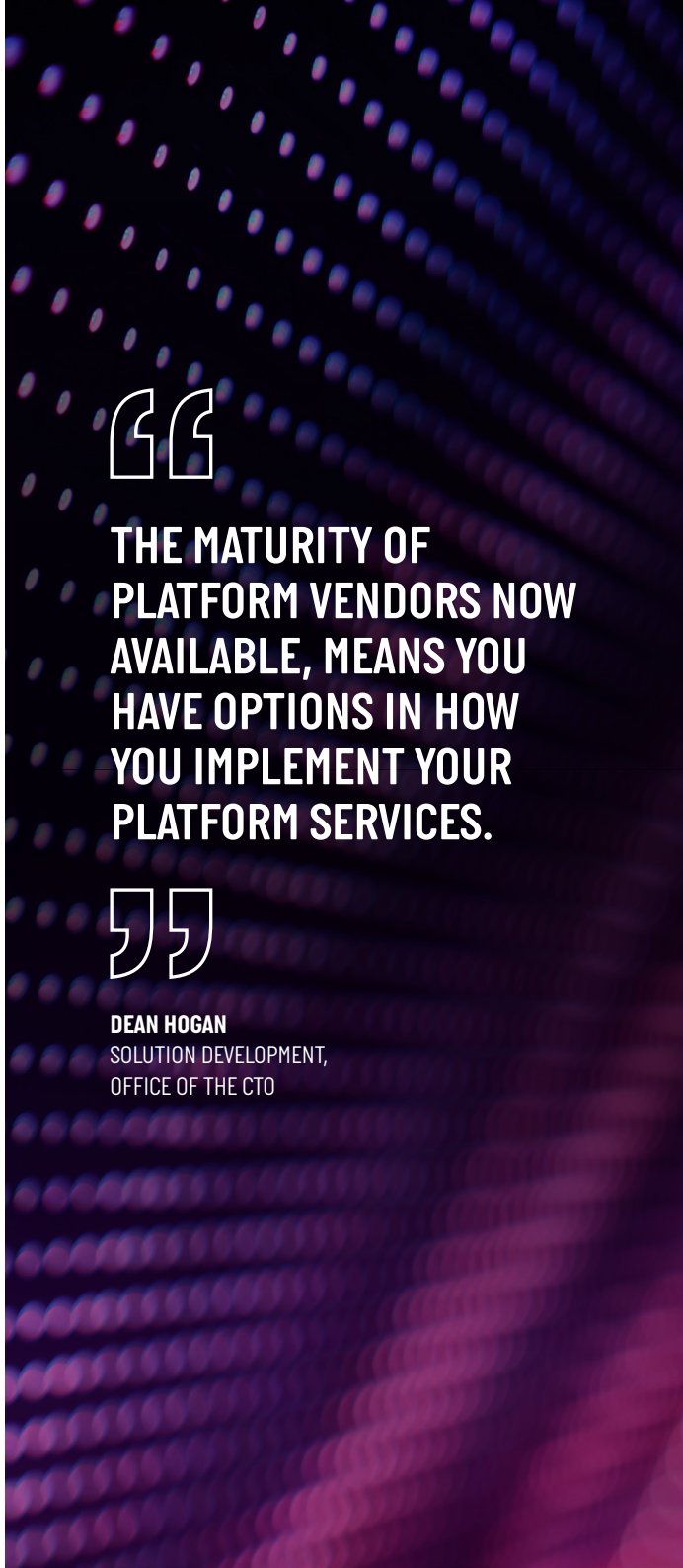
There are areas across the software delivery and platform infrastructure services that you maintain a degree of control over, that can reduce the impacts of changes in vendor market. In principle these exist in the following areas:

- How you build your container images and leverage standard patterns
- How you automate your application deployment
- How you apply policy-based automation of your container clusters

The maturity of platform vendors now available, means you have options in how you implement your platform services. On the one hand, you can take a singular and more integrated and supported set of products from a strategic vendor of choice, which spans the broader scope of software delivery and CNAP core. Alternatively, you can take a more modular approach, leveraging parts of the CNAP core from multiple ISV & Hyperscaler providers, and marry this with an independent ISV or open-source choice of products for the 3 areas above.

A good example of how the leading vendors have embraced this is VMware's recent announcement at their annual conference Explore 2022, with their Tanzu Application Platform (VMware's set of developer tools and curated path to production for building and deploying software) now officially supporting Openshift as a target Kubernetes platform.

Given these options now means the enterprise platform teams can make a strategic and unified tooling choice at this build and deployment layer for software delivery and making vendors choices that are built on open-source projects, can provide you with the power to leverage varied Kubernetes platforms as your situation demands Sourcing a unified container platform with the right platform and software delivery architecture can ensure investments are optimised for the longer term and continue to support a business's strategy of innovation.



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The 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.

Computacenter

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

computacenter.com
+44 (0)1707 631000