



Capgemini Helps Businesses Containerize Existing and Modern Workloads with Red Hat OpenShift to Become Cloud and Digital Native

Digital Transformation is a Business Imperative

Digital transformation (DX) is a business imperative for success. CIOs that don't foster a culture of innovation and transformation don't just lose competitive edge but even lose market relevance.

Cloud, Big Data, mobility, and social business are the core technology and digital pillars for DX. To differentiate and further accelerate innovation, many organizations are now evaluating next-gen technologies such as IoT, blockchain, AI and ML, and robotics to use on top of the core pillars.

To leverage these next-gen technologies, enterprises need a technical foundation built with new infrastructure building blocks such as container platforms, open source management tools, automation, and microservices as well as modern development approaches such as DevOps. However, employees with these skills are in high demand, so many enterprises are turning to partners such as Capgemini to enable a successful transition to the new IT infrastructure and to be ready to embrace innovation.

IDC expects that by 2023, with new tools, more developers, and lots of code reuse, nearly 100 million new logical apps will be created in Europe, equal to the applications built over the past 40 years. Are you IT-ready to support this digital application onslaught?

What Makes DX Possible? Key Elements of the Digital Platform

To build the new IT infrastructure that supports accelerated digital transformation, enterprises need to master the following technology building blocks:

- **Multicloud and hybrid clouds.** Cloud is the launchpad for innovation and has brought new ways of application development, deployment, and collaboration. By 2020, over 50% of infrastructure hardware spending in Europe will be off-premise and nearly all large enterprises will use multiple cloud services. This is because there is no one-size-fits-all and different applications have different needs around cost, performance, and security criteria, making hybrid and multicloud a natural evolution. IDC's research also shows that by 2020, there will be an average of four clouds within enterprises. Part of this hybrid and multicloud world involves modernization of on-premise infrastructure so that IT can deliver near-uniform experience across the environment.

We estimate that 30% of all production apps in Europe will be cloud-native by 2022 and that the microservices architectures will improve the ability to design, debug, update, and leverage third-party code.

Cloud-native isn't a discussion about infrastructure but an approach to developing and running business applications. As there is a clear intent to accelerate cloud-native application programs in Europe, technology investments have to be made in that context.

- **Container application platforms.** Containers have emerged as one of the hottest topics in the past 24 months in Europe. Docker, Kubernetes, Apache Mesos, and hyperscalers' container services are becoming a priority for developers of modern, digital, cloud-native applications. IDC believes that container technology will have a disruptive impact on the application development and virtualization markets. IDC predicts that by 2021, 90% of applications will be built on cloud platforms using microservices and cloud functions, and over 95% of new microservices will be deployed in containers. Technology vendors that innovate within this new paradigm will be the ones that remain relevant.
- **Cloud-native applications.** We estimate that 30% of all production apps in Europe will be cloud native by 2022 and the microservices architectures will improve the ability to design, debug, update, and leverage third-party code. Being cloud native isn't a discussion about infrastructure but an approach to developing and running business applications. The hallmarks of cloud-native architectures are:
 - Containers for portability, interoperability, and speedy deployment
 - A services-based architecture that is modular and loosely coupled but tightly aligned
 - API-driven communication
 - DevOps, collaborative app life cycle, and automation
 - Meeting the needs of "Dev," "Ops," and "business users"

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Open source software continues to make inroads in virtually every level of the software stack. IDC estimates that by 2020, enterprises will source 80% of digital-transformation-related technology components that are community based.

Open source is at an interesting turning point. In the past two or three years, we have seen enterprises make it a deliberate strategy to adopt open source technologies for digital transformation. But now companies are using best-fit technologies and along the way are noticing that it also "happens to be open source." This heralds a new culture of community-driven innovation that is faster and lends itself to the era of "multiplied innovation" in which enterprises are moving beyond incremental transformation to more wide-scale transformation by leveraging an ecosystem of talent, technologies, and processes that make open source technologies a natural choice.

Implementing these technology building blocks for the digital platform is a significant transformational challenge for enterprises, both at the technology skills level and in terms of organizational structure and culture. To navigate this complex transformation, enterprises are looking for strong partners such as Capgemini that have the deep technology expertise in these new technology areas and can also help with the organizational transformation. Capgemini has built internal practices to help its customers navigate the evolving world of cloud, automation, container

platforms, and unified management with its Red Hat–based solutions and consultants.

How Capgemini Helps Customers Transition to a Cloud-Native and Hybrid Cloud Environment

Capgemini is helping customers to become cloud native and develop a hybrid cloud strategy with its cloud and PaaS solutions built with Red Hat® OpenShift®.

Capgemini is betting big on cloud native and has built out its value proposition around cloud-native development. In IDC's opinion, this bet is bold and on point because our research indicates that enterprises are looking to increase the percentage of cloud-native applications deployed within their environment. The key driver for this increase in cloud-native applications are rising customer expectations, improved security, cost efficiencies, and Big Data (AI/ML) initiatives.

IDC sees cloud, containers, microservices, automation, and DevOps as fundamental for cloud-native initiatives in the multicloud world.

Red Hat OpenShift Container Platform

OpenShift Container Platform is Red Hat's enterprise distribution of Kubernetes optimized for continuous application development and multitenant deployment. OpenShift adds developer and operational-centric tools to enable rapid application development, easy deployment and scaling, and long-term life-cycle maintenance for teams and applications.

It handles cloud-native and traditional applications on a single platform. Customers can containerize and manage their existing applications, modernize on their own timeline, and work faster with new, cloud-native applications. IDC is aware of numerous European enterprises from multiple verticals such as manufacturing, automotive, financial services, retail, technology, and transportation embracing OpenShift in their journey to become digital-native and cloud-native enterprises.

Customers are selecting Red Hat OpenShift Container platform for its maturity and richness of enterprise-grade services and a partner ecosystem that can help customers deploy and manage the platform. Customers also see it as a platform that gives them:

- A viable option to transform their existing application; IDC believes that IT transformation is not about ripping and replacing traditional applications that are core to the business, but a way to lift them to the new infrastructure
- An opportunity to mitigate cloud lock-in risks and have a unified platform for old and new workloads
- A unified, standardized, and enhanced distribution of Kubernetes to roll it into production

"The Capgemini and Red Hat partnership on OpenShift is a natural synergy. Containers are the next generation of compute that users are deploying in production for both new and existing applications, across multiple operating systems, on-premise and in multiple clouds."

Martin Snellgrove, Global Partner Account Manager for Capgemini, Red Hat

Capgemini Helps Enterprises with Their OpenShift Adoption and Usage Strategies — Customer Case Study: European Carmaker

Capgemini is helping a European carmaker to implement an OpenShift-based solution. The premium carmaker had a fragmented IT infrastructure and application sets. The applications were hosted on mainframes as well as Linux environments, but they were spread across multiple siloed environments. It was a challenge to manage, secure, and support all the operating systems. The carmaker had a large team to handle and maintain the fragmented infrastructure, making the digital transformation difficult to scale.

The carmaker wanted to transform a business-critical customer-facing sales application from a monolithic application to a container-based microservices-driven application. This backend application serves various consuming front-end applications with vehicle master data, including models, equipment, descriptions, prices, taxes, and buildability. It had fixed release cycles, multiple productive deployments, multiple interfaces, and several operational and support teams.

For the carmaker, its broad digital and IT objectives of transitioning to cloud infrastructure and centralized infrastructure triggered the project to containerize a critical application and drive enterprisewide change. The IT team wanted to adopt container PaaS and cloud to meet multiple objectives:

- Become cloud-ready
- Provide a centralized portfolio of IT services and use endpoints
- Make everything available through a central cloud environment to ensure security, efficiency, standardization, and IT control
- Scale applications dynamically; the IT team wanted to move away from running applications on on-premise clusters that are differently sized and configured, as managing multiple cluster sizes was challenging
- Move to a single platform to reduce costs and modernize infrastructure in a sustainable way to host today's and tomorrow's workloads; this can also help to ensure effective chargebacks
- Leverage open source software (JBoss, Postgres)

Beyond IT requirements, there were business objectives too:

- The carmaker wanted to have an agile, continuous development and delivery business model and to make its application development agile to improve time to market.
- It wanted to deliver better SLAs and user experiences through zero downtime deployment and upgrades.
- It also wanted to adopt automation to create a lean team and upskill staff to focus on high-value tasks.

Why the Carmaker Opted for Capgemini's Red Hat–Based Solution

The customer's IT team had expertise and skills in Red Hat OpenShift and was familiar with T-Systems' App Agile service for DevOps. Having evaluated solution providers to help implement and manage OpenShift PaaS as well as DevOps techniques, the carmaker selected Capgemini for its deep integration, ongoing technology alliance, and knowledge of the OpenShift platform. The carmaker already has a relationship at a global level with Capgemini.

Critically, for the carmaker, Capgemini helped it to plug the skills and resource gap it had internally. Capgemini now acts as the software developer for the carmaker, and works closely with the team to help the company to modernize its infrastructure, lift and shift applications and transition to cloud native, and gradually reskill and upskill staff and make business, operational, and process changes along the way to meet the demands of the modern hybrid infrastructure. It helps the customer with REST interfaces, API management, migration of key applications, performance testing, sizing, and use of distributed caches.

While containers are primarily used for cloud-native environments, proven benefits are making many enterprises evaluate them for traditional applications. As this happens, enterprises will seek technology partners that can help to modernize core environments with minimal disruption and at speed.

Future IT Road Map for the Carmaker

Together with Capgemini and its Red Hat solution, the customer has outlined a multiyear transformation strategy for its critical applications. The first step was to make the applications cloud ready and have REST interfaces to integrate into corporate API management. Beyond that, it wants selected functionalities from the application business kernel to be implemented as microservices (on SpringBoot). This can bring enhanced scalability, resilience, traceability, and maintainability of the services. Lastly, it wants to adopt an end-to-end agile development and DevOps model.

For the carmaker, there were a number of key lessons learnt, including:

- Plan to extend its Dev team for the new Ops tasks
- Schedule training for new skills early (for deployment and support, for example)
- Move toward a product team organization

The customer manages only the front-end applications that it needs and Capgemini provides it with the management and support around the container platform, the new processes, ticketing, and automation.

Future Outlook: Growing Relevance of Open Source

Enterprises serious about well-orchestrated multicloud, unified automation, and accelerated application delivery are investing in IT foundations that are open source–driven to make transformation sustainable and resilient in the long term.

"Over time, Capgemini is tasked to carve out more and more functionalities from the application out of the monolith and implement them in independent microservices. Among many things that helped the project succeed was the creation of a DevOps operating model and product team organization of 'You build it, you deploy it, you run it,' encouraging ownership of applications and problem resolution."

Martin Snellgrove, Global Partner Account Manager for Capgemini, Red Hat

Developers are the architects of digital transformation, and open source gives them the freedom to use the tools of their choice. As it is community driven, innovation is faster. Open source is now dictating market dynamics, with traditional vendors such as Microsoft committing to it.

Acknowledging the importance of openness in accelerating digital transformation is only half the story. The other critical aspect is to adapt the culture, operations, and processes to meet the demands of a modern digital business and the community-driven innovation. IDC also observes how enterprises are open to working with enterprise-graded and supported distributions of open source technologies to ensure continuity, security, and support as they adjust their skills and processes to the new world. This also helps them to standardize, and when the euphoria of a particular open source tool settles and developers move on to the next ones, there is still support, security, management, and continuity.

Capgemini and Red Hat — A Winning Alliance

Synergies: Capgemini is heavily focused on applications and aims to move up the application side of the business, whereas Red Hat technologies are focused on infrastructure and platform modernization, containers, and managed services. Together they can help address the complete stack.

Beyond that is common vision, innovation culture, and experience in complex enterprise IT that synergizes priorities for both companies. Beyond this, IDC also sees the common alliances with T-Systems AppAgile as a differentiator to deliver cloud, container platforms, and DevOps from the same team to make the transition smoother.

Equal partners and co-creation: The alliance is a two-way street. While Red Hat OpenShift gives Capgemini a cloud-native technology portfolio, Capgemini helps position Red Hat technologies to its wide installed base. They are both significant for each other's growth and focus on integrating multiple open source products and solutions.

Conclusion

There is tremendous opportunity in the PaaS, hybrid, and multicloud space and DevOps as enterprises modernize their core applications. Together, Capgemini and Red Hat are driving awareness of the practicalities of becoming cloud native, as many enterprises still don't know how to navigate through it.

For its customers, Capgemini should outline and showcase the benefits of a multiyear strategy to go cloud native:

- **First horizon:** Become cloud connected by adopting containers for the appropriate workloads, and build sufficient experience.
- **Second horizon:** Become cloud robust by building in fault-tolerance, multiple yet standardized frameworks, and faster time to recovery. Slowly but steadily grow the modern estate and retire legacy infrastructure.

- **Third horizon:** Become a full cloud-native architecture by architecting IT, skills, and processes around microservices and DevOps-enabled automated PaaS for traditional and new workloads to co-exist.

Digital transformation requires enterprises to evolve their people, processes, and tools to build new applications-based cloud-native methodologies and technologies while supporting and transforming existing monolithic applications. Enterprises farther along their digital-native journeys prefer technology providers that offer broad support for open source development tools and to take part in that community. Enterprises that have a cloud-native vision should evaluate Red Hat and Capgemini solutions.

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