Partner Spotlight

DevOps, Hybrid IT, Infrastructure as a Code: Computacenter Offers Future-Ready IT Solutions with Early Investment in Containers with Red Hat OpenShift

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Archana Venkatraman
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INTRODUCTION

Digital transformation is dominating most companies' strategic planning right now, not just within IT but at a business level too. Europe is at an inflection point as digital transformation efforts shift from "project" or "initiative" status to strategic business imperative. Most companies, regardless of age or industry, are aiming to become "digital native" in the way they think, operate, and serve. To this effect, they are relying on their software and application developers to design next-generation applications that can significantly improve customer experiences and drive innovation.

Developers need to leverage new tools and technologies to build these next-gen, dynamic, and highly scalable applications. New-age technologies such as cloud services, analytics, application-centric platform-as-a-service (PaaS), and container technology, as well as new processes such as DevOps, microservices architectures, and on-demand access to infrastructure resources, are imperative for digital success.

Containers are an important and growing technology that is drawing widespread interest from IT customers. Container technology offers a new way to package applications that logically collects code and dependencies using fewer resources than virtual machines (VMs). They can run as lightweight processes within a host OS and are faster, more efficient, and easier to manage than VMs. Containers enable faster time to market and more agility for customers requesting new application functionalities.

Many hyperscale web and SaaS providers such as Google and Facebook have already proven beyond any doubt that container technology scales and is a differentiating technology. Seeing how containers are used at massive scale in these leading digital pioneers, many ambitious European enterprises are taking deeper interest in it. Early adopters are already reaping benefits such as scalability, fewer servers and VM licenses, application isolation, built-in quality control, and automatic security patching. But they are also seeing that containers, with their open source nature and deeper abstractions, truly enable hybrid cloud architectures with full workload portability — currently a key challenge for organizations.

IDC estimates that the worldwide container host installed base (excluding web and SaaS providers' infrastructures) will grow from 300,000 physical and logical hosts in 2015 to 26.2 million total physical and logical hosts by 2020, representing a CAGR of 144.4%. This growth in container use over the next five years presents huge opportunities to those PaaS, container, and container management vendors and solution providers that build IT services around containers and help customers overcome container adoption challenges.

IN THIS PARTNER SPOTLIGHT

This IDC Partner Spotlight discusses how application PaaS, open source tools, and container solutions are the cornerstone of successful digital transformation. It assesses the benefits of using container-based PaaS in delivering next-gen applications and discusses the trends in adoption of containers among European enterprises.

It also showcases how Red Hat Premier Partner Computacenter's early commitment to container technology and Red Hat OpenShift is yielding results. Computacenter's container and PaaS strategy helps it offer customers fundamental pillars of digital transformation — infrastructure as a code, continuous application development, DevOps, automated provisioning of resources, and hybrid IT architectures.

SITUATION OVERVIEW

Container software is an emerging technology that is already disrupting the way server deployments are optimized. It promises to deliver efficiencies beyond those currently available in both virtualized and non-virtualized deployments. As such, containers and the associated container management market emerging around the technology will disrupt the virtualization, operating system, and enterprise systems management software markets. The advantages in certain scenarios are clear. From an IT operations and corporate infrastructure perspective, software containers offer the option to abstract applications from infrastructure, leading to more efficient utilization of server hardware and thereby potentially saving cost.

Containers have a very low barrier to entry. Today, containers are a default feature in nearly every modern operating system, making it easy for users to make basic use of containers and realize benefits even from rudimentary deployments.

Containers were initially aimed primarily for cloud-native applications developed with agile methodologies, tied to initiatives such as microservices, immutable infrastructure, and continuous integration/deployment (DevOps). But early adopters are also using them to lift and shift existing applications as container functionalities in this area improve. IDC believes that vendors and solution providers that add features and capabilities to container solutions to widen the workloads that can be hosted on them will benefit from accelerated adoption.

Although a full-blown CI/CD pipeline with fully automated production operations is still complex to deploy for many European organizations because of their legacy applications portfolio, IDC believes container adoption will gain momentum. This is mainly because container technology has the potential to solve many issues in software development such as:

- The need for faster and agile software development
- Architecting applications that have cloud-native designs but doing so quickly and efficiently
- Scaling applications dynamically to meet increasing application loads
- Pressure to make more efficient use of computing resources and save on licensing costs
- The need for highly portable units of compute as users move to multiclouds and hybrid cloud architectures
- Improving abstraction from underlying operating systems and other infrastructure software
- The need to upgrade applications continuously without disruption

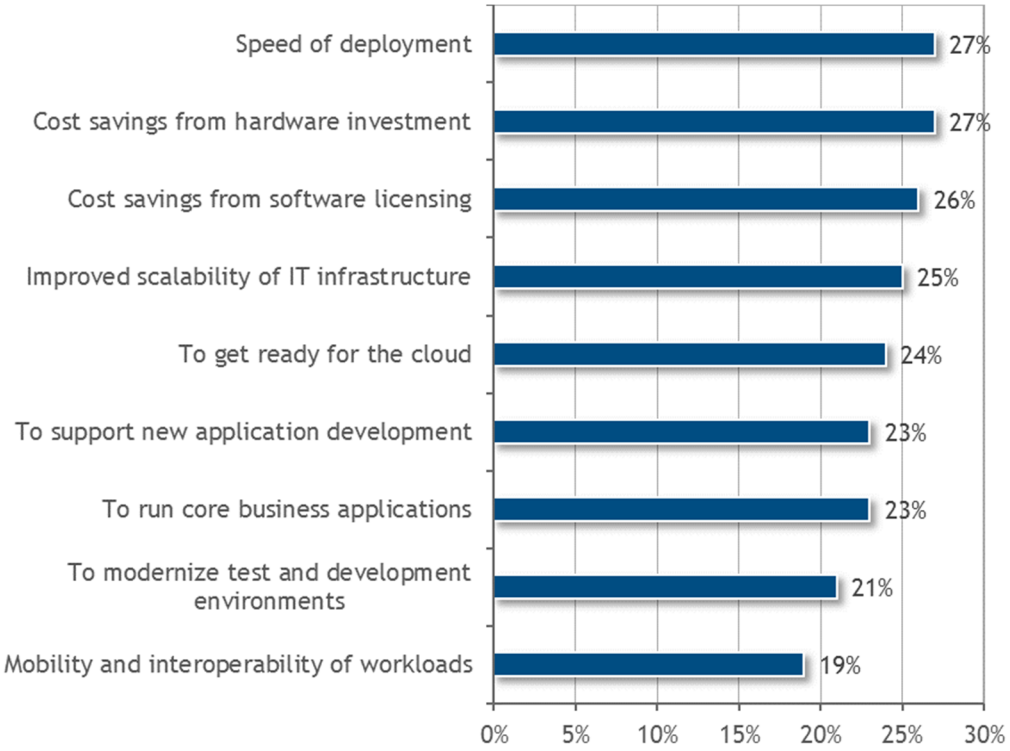
IDC's 2017 *Datacenter End-User Survey* on containers reveals the growing understanding of the technology among European enterprises.

As shown in Figure 1, respondents cited speed of deployment as one of the biggest benefits of containers, indicating that early adopters have used containers to deploy their next generation of applications and have seen results. Cost savings around software licensing, improved scalability, and cloud-readiness are other key benefits of container adoption.

FIGURE 1

Benefits of Container Adoption

Q. What are the expected benefits of deploying container technologies at your organization?



Note: n = 640

Source: IDC European Datacenter End-User Survey, 2017

Although the container infrastructure market in Europe is at the early stages of development, the future looks promising. IDC believes that as enterprise appetite to use containers and application PaaS grows in 2017 and beyond, they are likely to choose solution providers that are further ahead in the curve, have the skills and ecosystem solutions around containers, and can demonstrate varied use cases in production.

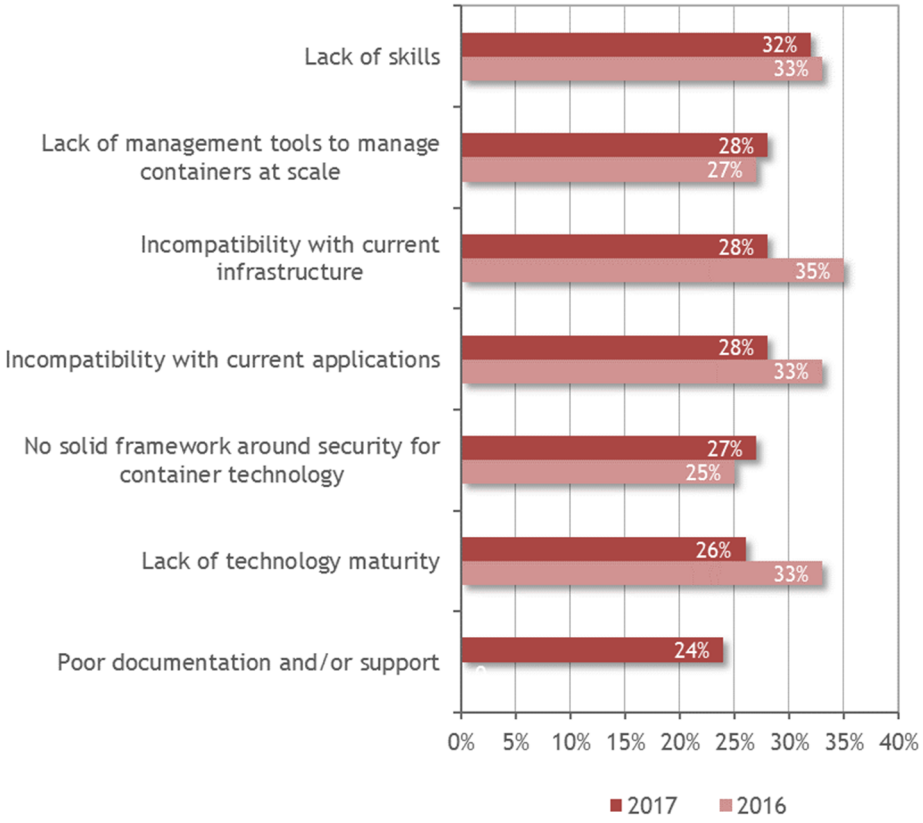
Challenges to Container Adoption and Channel Opportunities

IDC's 2017 survey also found that challenges such as the lack of security around containers, lack of container management tools, and lack of support or documentation were cited more in 2017 than they were in 2016 (see Figure 2), indicating that as more companies adopt containers, practical challenges are coming to the fore. At the same time, technology immaturity, incompatibility with applications, and lack of skills were cited by fewer respondents in 2017 than in 2016. IDC believes that there will be significant opportunities for solution providers that plug the gaps around skills, security framework, and management to win customers.

FIGURE 2

Challenges to Container Adoption

Q. What do you think are the expected challenges with deploying container technologies at your organization?



Note: n = 640

Source: IDC European Datacenter End-User Survey, 2017

COMPUTACENTER — INNOVATING IN INFRASTRUCTURE AND IT SERVICES WITH PAAS, CONTAINERS, AND HYBRID IT

European infrastructure and IT services provider Computacenter generated revenues of £3.25 billion in 2016, 6.3% higher than the previous year thanks to strong performances in Germany and France. For the first time, it reported annual services revenues of over £1 billion in 2016, reflecting the growth in 3rd Platform business.

In the era of hardware commoditization and eroding margins, system integrators and solution providers are forced to shift from a hardware-centric approach to provisioning a software-defined, cloud-ready infrastructure. They are expected to provide enterprises with infrastructures that are scalable, cost-efficient, capable of supporting next-generation applications that are complex and heterogeneous, and able to deal with the volume and variety of data. Enterprises are also seeking support from solution providers to pick the technologies that are best suited to their complex multicloud and hybrid IT architectures. They are depending on solution providers to develop their DevOps strategy and have an agile developer-friendly infrastructure for digital innovation.

Computacenter, with its experience of working with large technology vendors (ranging from Cisco, HPE, Microsoft, NetApp, and VMware to Red Hat, among others) as well as large European enterprises, has the advantage of spotting technology trends early on and weaving them into its business roadmap. It has also shown a commitment to new technologies to support the drive to digital transformation within its large enterprise customer base.

IDC believes that Computacenter has capitalized on its market strengths to explore new business opportunities beyond the client/server-focused 2nd Platform era to remain a relevant player in Europe in the cloud and DevOps era.

Computacenter's Progress in Container Strategies with Red Hat OpenShift

The solutions provider's commitment to container technology began in 2015 when containers were only just gaining traction and the use cases were sporadic. But the service provider saw the potential of containerization and began exploring how to address this growing market. As a Red Hat Premier Partner in Europe, it selected OpenShift as its primary container solution and started building consulting, support, and integration services around it. In IDC's opinion, this investment and commitment to application PaaS and container strategy is already helping Computacenter gain prominence as containers become red hot in 2017 and beyond.

In two years, Computacenter has developed a solid skills portfolio around containers and has a strong integration services story. It has a dedicated DevOps practice to help customers get on a DevOps journey and enable a CI/CD pipeline using container technologies and microservices architecture to build the future applications.

> *"Back in 2015, there was not much hype around containers in typical European enterprises. But we strongly believed there would be solid adoption of containerized workloads in the immediate future and so we started to build knowledge and competency to address that growing market. Today, we have solid deals and a strong pipeline. Our bet on containers and Red Hat OpenShift is paying off as we see it picking up nicely among our customer base."*
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> *Norbert Steiner, Solutions Manager, Professional Services – Core IT, Computacenter Germany*

Within DevOps, Computacenter has developed a strong middleware layer focusing on Open Container Initiative (OCI) based on Docker. This platform approach is likely to boost confidence among Computacenter's enterprise customers beginning their PaaS and container journey. It bet on Red Hat OpenShift to develop its container offering in 2015 and bolstered it in 2016 when OpenShift standardized on container orchestration platform Kubernetes. Computacenter's early-mover advantage enabled it to see how Kubernetes was winning the container orchestration game over competing technologies such as Docker Swarm and Mesos.

We also see Kubernetes gradually becoming the de facto industry standard for container orchestration because of its accelerated innovation and enterprise focus (Kubernetes has matured to a degree where it enables new workloads and addresses enterprise requirements around security and manageability). So, PaaS offerings built on Kubernetes such as Red Hat OpenShift are likely to gain more traction in Europe because users want to leverage mature containers and container management tools.

Computacenter started using Kubernetes as its platform orchestration service to support enterprises adopting container technologies. IDC believes that the deep knowledge of OpenShift and Kubernetes is Computacenter's biggest differentiator going forward as software developers favor Kubernetes for container management and favor OpenShift's developer-friendly features to

push code updates seamlessly and even roll back application features without disruption. IDC notes that many OpenShift adopters even use just the Kubernetes component within OpenShift, and Computacenter's familiarity with the technology will be useful as it helps its customers on their container journeys.

Red Hat OpenShift Container Platform

IDC sees OpenShift as the cornerstone of Red Hat's comprehensive set of container-optimized solutions such as Red Hat JBoss Middleware and application services, Red Hat Mobile, Red Hat Gluster container storage, and Red Hat CloudForms. Red Hat's primary goal with OpenShift is to accelerate application delivery to support the business and provide the technology foundation needed in a DevOps transformation for IT. It incorporates Docker container support along with the Kubernetes orchestration engine.

At a time when containers were still very nascent (late 2013), Red Hat evaluated many container orchestration engines, including building its own container orchestration service. It then decided to standardize on Kubernetes. IDC views this as a very strategic move because apart from features in Kubernetes such as enhanced networking and simplified orchestration of storage resources, it is essentially an architecture built with an understanding that the needs of developers and operators were different and took both of those requirements into consideration. By embracing Kubernetes, OpenShift can offer a flexible platform that doesn't mandate upgrade cycles and doesn't impose restrictions on container configuration.

Red Hat is positioning OpenShift as one of its flagship offerings and is adding more functionalities (such as multistage app deployment, stronger integration for hybrid cloud, and service broker capability to deploy native AWS as a service directly from within OpenShift) — transforming it into a single environment that software developers can use for all their needs.

OpenShift Container Platform provides a set of container-based open source tools enabling digital transformation, which accelerates application development while making optimal use of infrastructure. Professional developers can use the fine-grained control of all aspects of the application stack, along with application configurations, to respond rapidly to unforeseen events.

It is built and runs on Red Hat Enterprise Linux. It is an open source code PaaS base, licensed under the Apache License v2, and uses GitHub as its code repository. In the past five years, OpenShift has had multiple major architecture changes and the latest version has been reengineered to use Docker-compliant containers natively.

IDC sees it as 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.

Availability of highly secure operating systems assists in standing up an environment capable of withstanding continuously changing security threats, helping deployment with highly secure applications in industries like finance and healthcare. The availability of multiple consumption options with OpenShift, such as OpenShift Online and OpenShift Dedicated offerings, gives customers choices for ramping up adoption of PaaS solutions that are appropriate for their environment.

The fate of OpenShift is strongly tied to how Red Hat's partners adopt it, build services around it, and help customers use it. Red Hat is primarily an IT engineering company focused on developing technical excellence. Its awareness and reach within European enterprises, particularly at C-level executives and in lines of business, are limited compared with tech giants such as Microsoft. That's

why Red Hat needs to rely on and enable its partners to bring OpenShift to the market. Red Hat is empowering partners in Europe by training them on OpenShift and supporting them to build services or integration capabilities around it.

DevOps and Infrastructure as a Code: Computacenter Leverages OpenShift Container Platform to Expand its Services

Having built expertise and integration services around OpenShift for two years, Computacenter has now set up a dedicated DevOps practice at a broader group level. It is also providing infrastructure-as-a-code and automated deployment capabilities.

IDC notes that with cloud automation tools, infrastructure as a code is gaining prominence among DevOps teams that want consistent provisioning of resources across environments, up-to-date documentation of IT infrastructure, granular control, improved security, repeatability, mitigated risk and reliance on IT teams, and the ability to manage infrastructure configurations without downtimes. Infrastructure as a code helps enterprise IT move away from legacy systems management and maintenance techniques as well as manual configurations that are error-prone leading to security and availability risks. In our opinion, infrastructure as a code paves the way to successful DevOps adoption. Treating infrastructure as software or code allows IT to manage and automate the deployment of resources the same way software developers use application platforms. Companies can implement the same principles such as continuous integration, automated testing, code review, and upgrades for infrastructure deployment.

Computacenter differentiates by providing infrastructure as a code across on-premise and public cloud for a hybrid IT setup. It orchestrates and uses tools such as Ansible and Puppet for automated deployment of resources. Computacenter also has certified engineers working on container technologies, PaaS, and public cloud services for automated provisioning of resources.

> *"We showcase OpenShift as our primary container solution and having built knowledge, experience, and resources around it, we have developed a dedicated DevOps Practice within Computacenter as a global initiative to help customers progress on that journey. We focus on OpenShift, Open Container Initiative, and Kubernetes for container orchestration for our DevOps services."*
>
> *Norbert Steiner, Solutions Manager, Professional Services – Core IT, Computacenter Germany*

Computacenter has further extended its services by boosting its partnership with Cisco on the AppDynamics side for application and infrastructure performance monitoring. In our opinion, having full stack visibility on application and underlying infrastructure can enable enterprises to benchmark configurations and derisk infrastructure upgrades or technology refreshes. The performance metrics are easy to understand for even lines of business that can use the dashboard to understand the implications of a new functionality and decide whether to roll it back or extend it further.

FUTURE OUTLOOK, CHALLENGES, AND RECOMMENDATIONS FOR COMPUTACENTER

Computacenter's three-year commitment and investment in containers is bringing a difference to the bottom line as container adoption accelerates. The solutions provider now has a strong pipeline of customer demand and many demonstrable use cases. As a result, the company is increasing investment and building additional resources around containers such as infrastructure as a code and full stack instrumentation and monitoring. It has also expanded its software developer team to more than 30 developers that focus on supporting customers to build agile

development on containers and adopt microservices strategies. It is also bolstering its hybrid IT strategy by developing applications on-premise for customers in Germany and then using OpenShift Federated to deploy the applications in other geographies on public cloud services. It is also working on software-defined networking integrations between Cisco and OpenShift and Nuage and OpenShift. Also, as part of its hybrid cloud offering, Computacenter is developing PoCs for Microsoft Azure and Red Hat OpenShift to appeal more to enterprises that have heavily invested in Microsoft IT.

As digital transformation takes centerstage, organizations need to deliver applications, features, and services at the speed their businesses require. They need to do this amid the increasingly diverse IT environments as technological initiatives such as cloud migration, containerization, and microservices take hold. These technologies offer the promise of more efficient and effective IT services, but it can be challenging for organizations to realize such benefits without the right technological platforms and solutions in place.

Open, unified development platforms such as Red Hat OpenShift that work across heterogeneous IT environments and enable containerized application development efforts are helping organizations to improve their business outcomes. But solution providers and channel partners are key in bridging the gap between the new technical innovations from vendors and the skills and awareness among enterprises to use these new technologies.

Computacenter is approaching the container business strategy in a planned and phased approach. Phase 1 was to identify the right platform and its initial viability, then train and certify its engineers to deliver on-demand capabilities and help build agile IT and DevOps for enterprise customers. The current Phase 3 is a full-blown group-scale container implementation strategy using the technology to offer a new generation of services such as DevOps, automated provisioning and deployment, infrastructure as a code, hybrid IT, and container security services. IDC believes Computacenter has the right container vision, and that its willingness to reinvent its services, its expertise in vetting multiple technologies and picking OpenShift and Kubernetes, and its wider ecosystem play of integrating solutions from other vendors such as Cisco, Puppet, and Nuage can help it provide a holistic DevOps, microservices, and hybrid IT service to its customers. It is investing to overcome container deployment challenges especially around networking bottlenecks with software-defined networking solutions.

Moving forward, it will need to bring together teams and resources to build reference architectures and come up with best practices around container deployment and security management. Patch release around containers is another bottleneck around container management, and Computacenter, in alliance with Red Hat, should focus on monitoring and reporting services to overcome container security challenges.

Computacenter must also remain committed to expanding its container integration tools to include solutions for its other key alliances beyond AWS, Microsoft, and Cisco, such as VMware, Google, and Dell. In our opinion, one important point that will influence the path of hypervisor-optimized containers is that the largest implementations are from VMware and Microsoft, which makes the technology closed source, commercially licensed, and, for Microsoft, limited to Windows support.

It must keep a close watch on these developments to expand its container technology offerings. It should also note that many solutions providers in Europe are reinventing themselves and developing similar container strategies to stay relevant, while competition in the area is likely to intensify. As this happens, Computacenter can leverage its early-mover advantage and mature services in the area to differentiate from the rest.

CONCLUSION

IDC sees Red Hat OpenShift as a solid starting point for Computacenter. With OpenShift.io – the development part that offers real value by shifting focus on development and robust infrastructure – it opens more opportunities for ambitious service providers such as Computacenter.

The implication of digital transformation is that all companies are having to rethink their software development competency and are beginning to imitate digital disruptors (Spotify, Tesla, Uber) in software development practices. Concepts like agile (e.g., frequent iterations on design, development, and deployment) and lean (e.g., the pursuit of the minimum viable products with minimum resourcing) are practiced at a holistic product and service development level by ambitious companies.

Cloud-native technologies like containers and microservices are further optimizing infrastructure, giving developers the ability to deliver new applications quickly.

In our opinion, a container integration offering will help Computacenter initiate container-focused conversations and demonstrate how it can help enterprises achieve their hybrid IT goal. This, we believe, will increase the value the solution provider can bring to its customers.

As competition in the container space intensifies in Europe, Computacenter's main hope of success is to continue to develop compelling, differentiable solutions at a faster pace than the competition while simultaneously building stronger partnerships with Red Hat and other open source technologies. We believe its commitment, investment, and engineering efforts in embracing newer technologies such as containers are the right strategy and that this will help it gain significant competitive advantage when the container technology and DevOps movement gain further momentum in Europe.

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IDC U.K.

IDC UK
5th Floor, Ealing Cross,
85 Uxbridge Road
London
W5 5TH, United Kingdom
44.208.987.7100
Twitter: @IDC
idc-community.com
www.idc.com

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Global Headquarters: 5 Speen Street Framingham, MA 01701 USA P.508.872.8200 F.508.935.4015
www.idc.com.