



# **IBM Cloud Satellite: delivering true hybrid multicloud capabilities without geographical boundaries**

# True hybrid capabilities delivered via public cloud and on-premise systems

*IBM Cloud Satellite enables organisations to enjoy the benefits of consistent and flexible public cloud services wherever in the world they want them, confident in the knowledge that compliance with local security and regulations is being managed by IBM Cloud*

Organisations are increasingly moving IT workloads to the cloud to achieve benefits including flexibility, scale and consistent application performance wherever their operations are located.

But for many IT leaders, retaining some applications and data in-house is essential – perhaps for regulatory compliance or local security needs.

According to TechTarget's annual IT priorities research, 34% of European IT leaders are increasing their cloud spending in 2020, even though 46% of the organisations surveyed say that on-premise systems will remain their primary environment. Not surprisingly, therefore, a quarter of IT chiefs are prioritising hybrid cloud.

But hybrid setups can suffer from inconsistent user experiences and fragmented visibility. Systems management can be challenging in a mixed cloud and on-premise environment, and more so when using multiple public cloud providers.

IBM Cloud aims to tackle this issue with its new offering, [IBM Cloud Satellite](#), which brings the benefits of cloud to in-house IT systems, delivering services that are consistent, flexible and compliant with security and regulatory rules, while ensuring organisations are not restricted by location.

## What is IBM Cloud Satellite?

IBM is meeting demand for extended reach of cloud services with IBM Cloud Satellite, allowing organisations to use IBM Cloud services anywhere, whether on-premise or at the edge. Corporate IT services can be delivered via a “single pane of glass” controlled through IBM Cloud.

“Satellite is IBM Cloud,” says Dave Tropeano, worldwide programme director for IBM Cloud Satellite. “Satellite is an IBM Cloud service that creates IBM Cloud regions.”

This distributed cloud architecture allows IT leaders to harness the benefits of public cloud services in different geographic locations, but the operation, governance and development of services remain the responsibility of IBM Cloud.

Tropeano says the crux of IBM Cloud Satellite is to take IBM Cloud datacentres in locations, for example, in Dallas, Frankfurt and London, and extend their ability to run IBM Cloud services onto client infrastructure, anywhere the customer provisions it. Operations teams gain visibility of their digital platform and applications for every site. They can update and configure systems, whether in house or cloud hosted, as if they were running in the IBM Cloud.

IBM Cloud Satellite can overcome problems such as incompatible databases, continues Tropeano. It unifies vital services such as Kubernetes, DevOps and artificial intelligence (AI) across locations, while reducing operational complexity across multicloud, edge and on-premise.

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IBM Cloud**



“Consistency means the same set of services, wherever you need them, whether on IBM Cloud, on someone else’s cloud, on-premise, or in a third-party datacentre, so you know the exact behaviour and configuration of services anywhere you need them,” he says.

This approach helps to meet compliance and regulatory challenges around data sovereignty and locality, as well as handling big data without latency issues. Enterprises have the flexibility to run apps where it makes sense and comply with all country and regional rules.

Tropeano points out that some services cannot run on public cloud: regulatory issues such as Europe’s General Data Protection Regulation mean that some data and workloads must stay on-premise and within a country to ensure local compliance.

With [IBM Cloud Satellite](#), organisations can comply and simultaneously access the benefits of IBM Cloud. Data can be retained on-premise or in country, but still be available for processing using advanced analytics and machine learning software provided on the IBM Cloud. IBM Cloud managed services are enabled at client locations and end-to-end security is guaranteed where data and workloads reside.

Data-rich organisations keen to exploit big data, machine learning and AI technologies can also gain operational benefits. Sometimes it’s not practical to transfer petabytes of data to the public cloud to be processed because of latency issues. Realistically, such big data workloads are best processed on-premise.

IBM Cloud Satellite addresses this problem because data processing happens close to the data, even when using processor-heavy workloads such as predictive AI analytics. Meanwhile, enterprises continue to access the benefits of a unified IBM Cloud environment.

IBM Cloud Satellite addresses the habitual disconnect between developing on-premise applications and cloud-native applications, enabling organisations to create an IBM Cloud region in their own datacentre to achieve consistency with low latency.

## How IBM Cloud Satellite delivers business benefit

The flexibility of IBM Cloud Satellite is a core strength as it meets a variety of business scenarios. Tropeano gives a flavour of the different client infrastructures that can be used with IBM Cloud Satellite. These include:

- Adopting a “bring-your-own” infrastructure model;
- Using IBM Services to provide managed infrastructure as a service (IaaS), based on an operational expenditure model where hardware is shipped from IBM to a client’s on-premise location, but charging on a pay-as-you-use basis;
- Buying the [IBM Cloud Pak](#) system appliance;
- Running at 5G edge locations;
- Creating infrastructure using other cloud providers to then be used to deploy an IBM Cloud Satellite location.

In all these infrastructure scenarios, IBM Cloud Satellite sits on top and provides the consistency of managed Kubernetes services, database services and DevOps services. Enterprises can then run their own applications, IBM Cloud Paks or other IBM software.

Tropeano explains that IBM Cloud Satellite can be tailored to match individual client needs. For example, in a global bank with a complex public, private and

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multicloud environment that is subject to regulatory and UK Financial Conduct Authority rules, some applications must stay in the datacentre because compliance rules mean they are not allowed on public cloud. However, the head of IT wants to give application teams on-premise the same innovation and agility that public cloud provides, because applications teams require rapid software delivery practices anywhere they need to be deployed.

These complex requirements are typical of enterprises that have built up legacy applications over years that remain essential to the running of operations. However, software delivery practices are slower on-premise than in the public cloud where multiple changes – sometimes hundreds a day – can be made rapidly through automation. With [IBM Cloud Satellite](#), the bank can harness advanced DevOps practices, and modifications can be made and delivered rapidly without breaking data compliance rules.

Another scenario is a shipping company that requires the benefits of public cloud extended to its various port locations in a consistent way. Tropeano explains how every port in effect has a mini datacentre, because some applications need to run locally to minimise latency and because of the time-critical nature of global logistics. But things can start to drift in terms of application availability or different versions in different ports. Version 1.1 may run in Morocco; 1.2 runs in Seattle; and 1.3 runs in London. Clearly, this is not optimal.

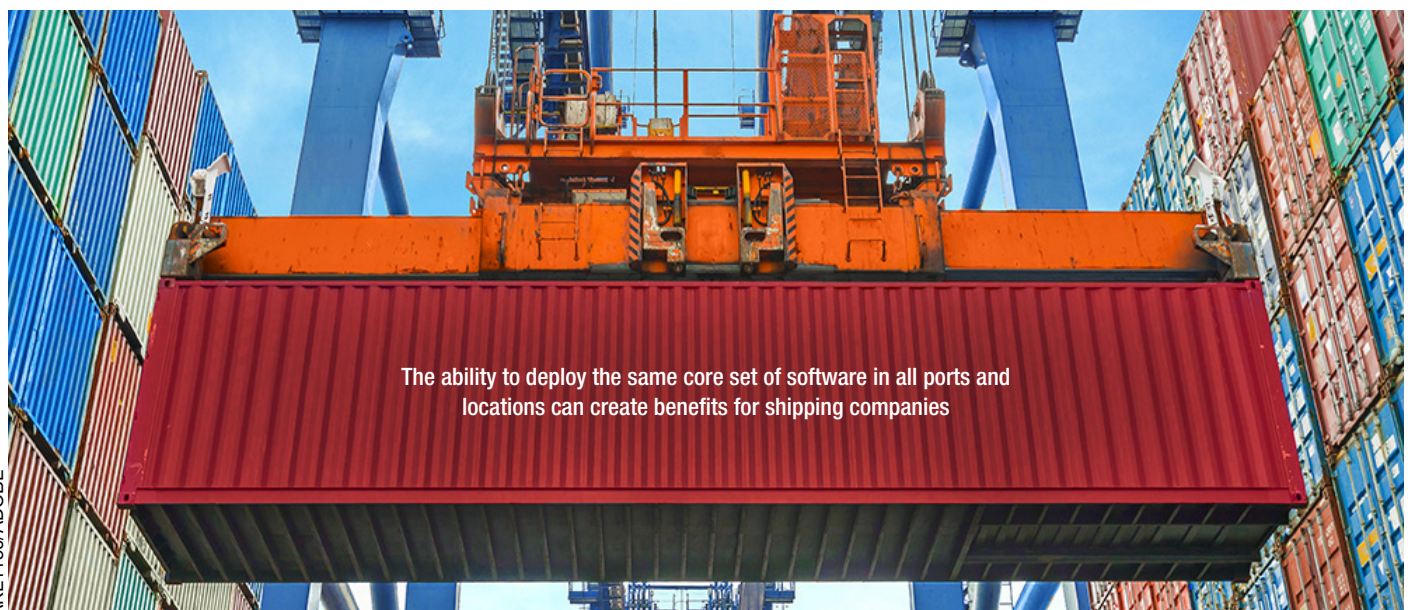
“The shipping company wants to easily deploy the same core set of software into all ports and locations,” he says.

“The feedback across industries is clients want a public cloud consumption experience and consistency of versions of core middleware, such as Kubernetes, databases, DevOps approaches, AI tools, as well as more simplified operations, whether running in the cloud, at the edge or on-premise,” Tropeano adds.

Now enterprises can enjoy consistent deployment, configuration and management as available in IBM Cloud, across all locations.

### **Unified management and operations**

IT leaders want all the services they need delivered through one user interface, so they are aggregated and provide a single management and operations experience. IBM Cloud Satellite provides the solution.



“It drove us to say we can do all of this from IBM Cloud and deploy to locations wherever they are set up. Full operations, governance and updates are done through IBM Cloud,” says Tropeano.

Most enterprises are not in business to patch Kubernetes or build up a software development practice. A few specialist organisations may want to maintain software themselves because it is their competitive advantage. However, most enterprises do not have the skills to handle a rapidly changing environment, whereas IBM Cloud, as a trusted partner, has the expertise to deliver all this over the public cloud. Enterprises no longer have to commit to hiring costly engineering talent in every location because cloud services can be deployed in a consistent way to any location.

Security remains a critical concern for all enterprises considering cloud services. IBM Cloud Satellite Link helps to allay these worries. Satellite Link is the connection back to an IBM public cloud datacentre from the Satellite location. It provides tooling critical to establishing trust in the distributed model, including simplified administration and automated application-level firewall management, as well as full packet capture capabilities for audit requirements and transparency.

With IBM able to manage software and middleware through IBM Cloud Satellite and ensure security, compliance and visibility, enterprises can devote their IT resources to innovation.

“Clients want to focus on apps, not ops,” says Tropeano.

[IBM Cloud Satellite](#) avoids vendor lock-in because it can run on whatever cloud service a client chooses, such as AWS or Google. IBM Cloud’s commitment to open source technologies is key to this.

“More than 90% of our IBM Cloud services are open source projects. We are not building proprietary software. We take the best open source projects in the world to run at scale. We know how to manage Kubernetes better than anyone else. Our crown jewels are our ability to manage at scale and save clients money in the long run by letting us do that instead of them,” explains Tropeano.

## Tailored services

Enterprises enjoy the advantage of consistency in delivering IBM Cloud services anywhere, but it is possible to tailor services to their specific needs.

“There is nothing that precludes a Satellite location from being customised. Clients can install their own set of applications or services alongside the IBM Cloud Satellite managed services,” says Lee Fredricks, EMEA technical sales leader for platform-as-a-service (PaaS) for IBM Cloud including IBM Cloud Satellite.

A set of applications and services can be installed by the client to manage themselves if they choose. For example, some clients may want the reassurance of OpenShift being managed by IBM in a Satellite location and then use it as a PaaS cloud-native development environment alongside these manually installed services to develop their own applications and workloads, Fredricks explains.

Many clients are interested in the potential of IBM Cloud Satellite to extend cloud services that are fully certified and compliant with regulations to all their office locations. This reduces the burden for clients because they can use the IBM Cloud environment, which is already certified for various capabilities.

The key rule with [IBM Cloud Satellite](#) is that if the link is cut, everything still runs. The application and data remain on site. No data transfer is required back and

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forth. The link is there only to allow IBM Cloud engineers to patch and upgrade services and to aggregate logs and monitoring information. As fast as data can get to an application on-premise, is as fast as the application can run.

“The data latency and data sovereignty issue are addressed because the data and the data workloads are staying in exactly the same place,” says Tropeano.

Every Satellite location is populated by a group of Red Hat Enterprise Linux hosts, physical or virtual, that provide the capacity to run applications and IBM Cloud service instances.

Red Hat OpenShift is “at the core” of IBM Cloud Satellite, explains Fredricks. It is an open source container platform based on Kubernetes, focused on a platform-agnostic developer experience and application security.

“The IBM Cloud Managed Red Hat OpenShift offering will be the first service to be Satellite-enabled so clients can have an IBM managed instance in their own locations. It is a hybrid cloud PaaS environment and provides the tools for cloud-native development and app modernisation in that location. It becomes the centre of the universe for the rest of Satellite and the mechanism by which we deploy other Kubernetes products and workloads out to that location,” says Fredricks.

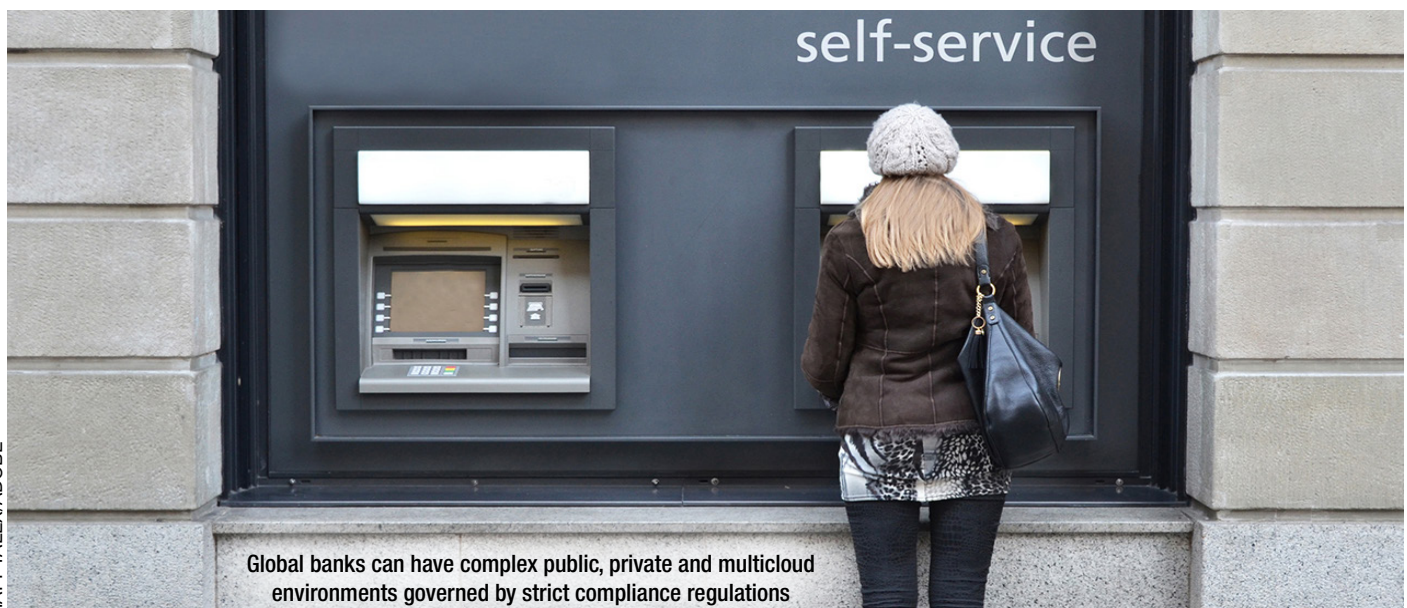
The IBM Cloud portfolio offers 190 services to choose from, including tier-one services such as blockchain, data analytics, AI, IBM Watson, internet of things, and machine learning – and all based on Kubernetes.

“Having OpenShift and Kubernetes at the core of the customer site means we can very quickly deploy tier-one offerings into their satellite locations,” says Fredricks.

## No geographic limitations

No single cloud provider can claim universal coverage, but with IBM Cloud Satellite, geography and country of origin are no longer inhibitors for enterprises.

Through IBM Cloud Pak systems, IBM Cloud Satellite offers enterprises “cloud in a box”, explains Fredricks: “Where we don’t have a physical datacentre presence, we can roll hardware into the customer premise and power it up, so clients have access to IBM Cloud where they didn’t have it before.”



IBM can roll in an appliance to locations where it was not possible before to own and run a datacentre, giving a huge amount of geographic flexibility and the ability to scope new opportunities.

Running [IBM Cloud Satellite](#) on third-party clouds in European regions where IBM Cloud does not have a datacentre means that regulatory restrictions are no longer an obstacle. Tropeano cites the example of a client based in Finland where workloads and data are not permitted to leave the country, so apps cannot run outside Finland.

An enterprise wanting access to IBM Watson and AI services could not do so previously because there is no IBM Cloud datacentre in Helsinki. However, Google does have a datacentre there, so it is now possible to run IBM Cloud Satellite on top of Google Cloud virtual machines, while meeting Finland's strict compliance and security regulations surrounding data.

### Flexibility for a post-pandemic environment

The level of flexibility offered by IBM Cloud Satellite really comes into its own in the aftermath of the global pandemic, as the economy comes to terms with changing consumer patterns of behaviour and a revolution in how and where we work. Some sectors are more vulnerable to this change than others – retail is a prime example – and Tropeano points out that there are challenges as well as opportunities that IBM Cloud Satellite can address.

While bricks-and-mortar retail is suffering, online shopping has grown. One retail client says sales were down 75-80% in physical shops over six months due to Covid-19, but e-commerce surged by 400-500%. The knock-on effect is there is more innovation with e-commerce, but many retailers still require a face-to-face presence to generate consumer excitement.

"The plan is to reduce the number of storefronts and move to a more flexible location concept, such as pop-up stores, kiosks, perhaps a tent at a stadium that can be set up and torn down. However, they still need a mini datacentre and IBM Cloud Satellite can provide that, with 5G to provide network connectivity. All applications can run in a consistent manner, whether in a superstore or in a flexible location," says Tropeano.

Another effect of the pandemic is that employees are increasingly working from home. Fredricks highlights how this raises challenges around business continuity if a large section of the workforce is remote and datacentres are off limits except to a few key people. "IBM Cloud Satellite bolsters the conversation around business continuity because software running on customer sites can now be managed by IBM Cloud and can be patched and upgraded remotely," he says.

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MARMOSSET/ADOBE

Changes to consumer shopping habits driven by the pandemic may mean retailers reduce the number of high street stores in favour of pop-up shops

## Standardised services

The way enterprises consume IT has undergone a revolution over the past decade. A large part of IT budgets, at least 40%, is now earmarked for packaged software – the concept popularised by companies such as SAP, where applications run with a standard set of capabilities. This approach is taken up by [IBM Cloud Satellite](#) with its delivery model and promise of consistency.

This capability is important for independent software vendors (ISVs), which in turn offers new possibilities for clients too. One ISV built a plant floor monitoring system on top of Kubernetes, but it was built on AWS first. Transferring it to Azure did not work because the Kubernetes versions were different between Microsoft and Amazon.

“IBM Cloud Satellite gives the ISV an experience similar to SAP – a standardised set of services from which they can build applications,” says Tropeano. “Instead of putting applications on-premise or on cloud, they can put their application running on IBM Cloud Satellite everywhere, which gives standardisation for the application. We saw this with the packaged app world many years ago and we are now extending that to cloud-native applications.”

IBM Cloud Satellite delivers on the promise to abstract complexities away from the distributed environments and offer a global operations view of applications and services. Consistency is an important principle because satellite hosts and locations link back to the control plane running on IBM Cloud.

“Satellite makes IBM Cloud natively hybrid. It gives huge flexibility of deployment, even giving us the ability to deliver cloud in a box,” says Fredricks.

Tropeano concludes: “IBM Cloud Satellite is a way to build a public cloud anywhere the client wants it. The value can be a standard environment to run your ISV applications; it can be because regulatory and data privacy concerns only allow the client’s workloads to stay at the enterprise but they can now get the benefits of public cloud; or it could be standardising DevOps practices and services. The value is achievable no matter where you run it – on IBM Cloud, someone else’s cloud or on-premise.” ■

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For more information on the benefits of IBM Cloud Satellite, visit: <http://ibm.biz/use-ibm-cloud-anywhere>

## Business benefits of IBM Cloud Satellite

IBM Cloud Satellite brings the benefits of cloud to in-house IT systems. The key reasons for introducing IBM Cloud Satellite include the following:

- Organisations can access IBM Cloud services anywhere, whether on-premise or at the edge, and in any geographic location.
- The technology unifies vital services such as Kubernetes, DevOps and artificial intelligence, while reducing operational complexity in a multicloud environment.
- IBM Cloud Satellite can be tailored to match individual customer needs, while meeting all relevant regulatory, security and governance requirements.
- Business continuity is improved because software running on customer sites can be managed by IBM Cloud and can be patched and upgraded remotely.
- Customers have a consistent, global operations view of applications and services through a “single pane of glass”.