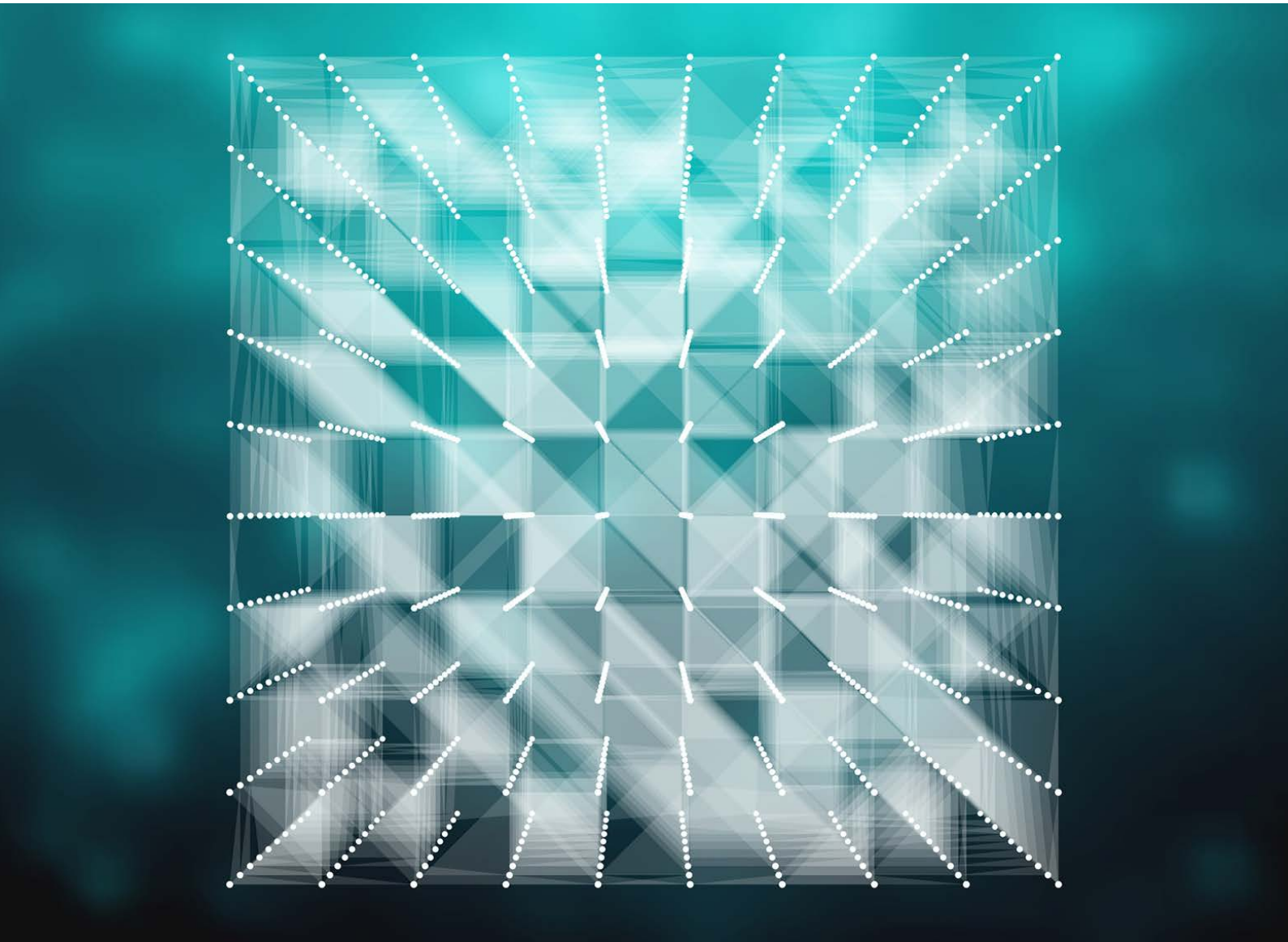
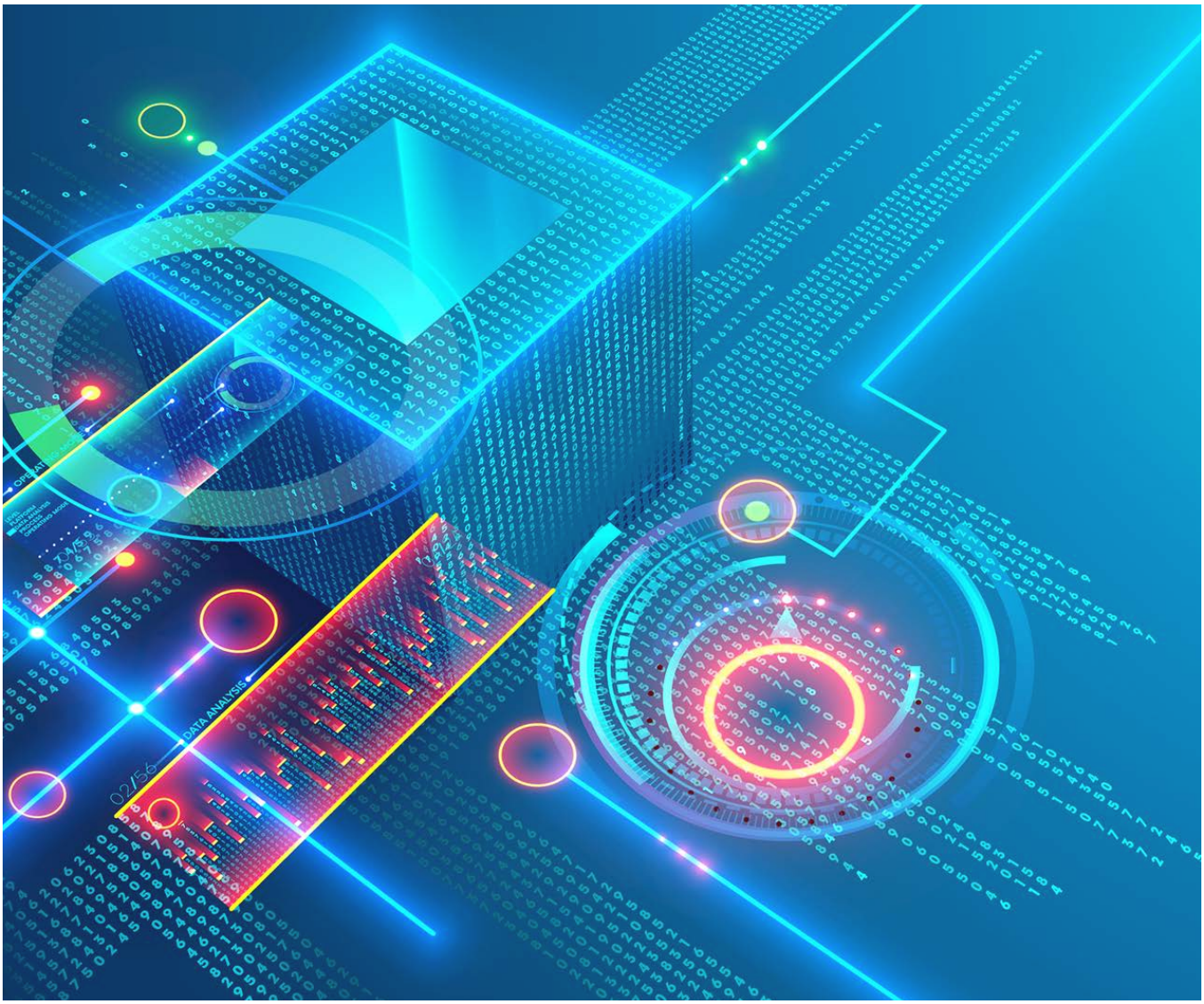
CIO FROM IDG | Red Hat | Couchbase NoEQUAL

# Containers are the new standard: how can you simplify them on databases and the cloud?






**Today, efficiency isn't measured in seconds but how close to real-time you can get. An organisation may have much of the latest and greatest technologies or DevOps practices in place, but if your content isn't getting in front of customers quickly enough, they'll go elsewhere.**

While there's certainly a growing understanding that containerised approaches to software delivery drive greater agility – with microservices-led, software-first models increasingly taking the limelight in recent years – the databases rarely match.

Over the height of the Covid-19 lockdown, almost all commerce was ecommerce. Businesses soon discovered if their legacy databases were not up to scratch and holding customers back.

There are reasons companies might have been hesitant to embrace containerising their databases: database administration is hardly a trivial speciality. And although businesses are growingly aware that it's possible to run containerised workloads with databases near-autonomously, there may be a lingering perception that the technical know-how to achieve this is beyond the reach of most. But this simply isn't the case.

**Most companies are now using the many flavours of NoSQL to overcome the performance and scalability issues with relational databases**

Just as running microservices-enabled models or organisation-wide DevOps programmes are no longer as tricky a task to achieve as they once were – with more user-friendly interfaces and better integration now available – the same is true for automating your database deployments in Kubernetes.

Most companies are now using the many flavours of NoSQL to overcome the performance and scalability issues with relational databases. One picked for many of the world's largest, most demanding applications is Couchbase – a highly portable, highly reliable, and cloud-native platform.

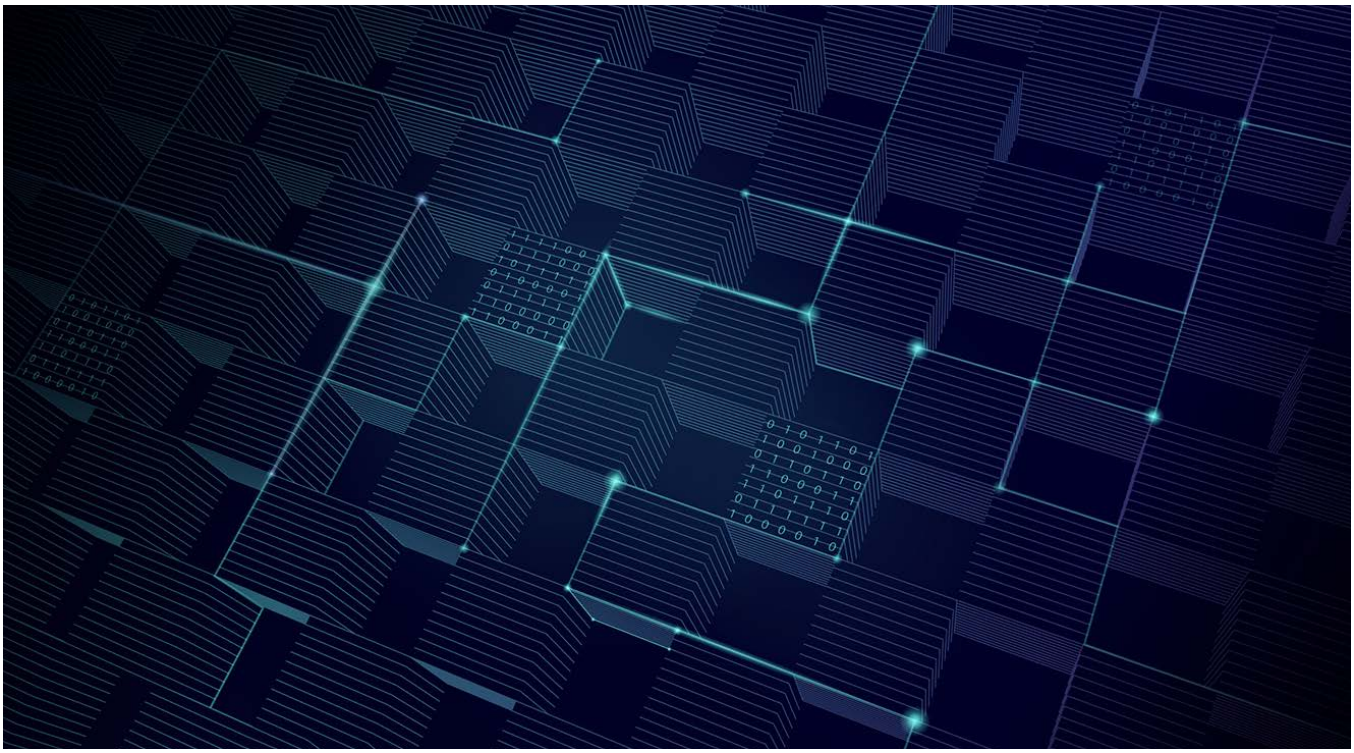
NoSQL is already known to be a more flexible, scalable option over other database solutions, but enhanced features like cross datacentre replication (XDCR), which provides businesses with extremely high-availability databases, synchronised across multiple datacentre locations, and integrated caching to relieve pressure on databases, means Couchbase has struck a deep chord with customers.

Delving deeper, customers and partners have found themselves quickly expanding their mission-critical operations with the platform, and are now taking advantage of more of what's on offer.

## The Open Infrastructure Ecosystem

Many have learned that its deep integration with the Kubernetes framework and Red Hat® OpenShift® means NoSQL can be a uniquely powerful tool in the wider open ecosystem.

Take Revolut, for example. When the UK fintech's anti-fraud lead Dmitri Lihhatsov built the company's renowned machine-learning fraud detection system, Sherlock – which continuously monitors card users' transactions – the company picked Couchbase for its architectural advantages.



**Enterprise open source enjoys the enviable position of being where innovation happens first, while also helping organisations to lower their total cost of ownership**

What Lihhatsov found was that Couchbase helped him perform his job: writing applications, algorithms, and protecting his company and customers, rather than having to dedicate time and effort into becoming a database expert. Couchbase's automated provisioning and on-demand scaling meant that when more capacity was necessary, it could be pre-empted with a tiny change in the Kubernetes script. It's the people who are building the products who are the loudest advocates for the tech.

But ITDMs also understand the value of containers. In the most recent Cloud Native Computing Foundation survey, 84% of respondents were running containers in production, up 11 percentage points from the year before[1]. And according to the Red Hat State of Enterprise Open Source 2020[2], while 59% of respondents last year expected an uptick in enterprise open source, this rose to 77% in 2020.

Enterprise open source enjoys the enviable position of being where innovation happens first, while also helping organisations to lower their total cost of ownership. Cost might not be the most advisable primary motivation for pursuing an ultra-agile, software-led business model, but a more lightweight, open source systems architecture can also help trim bloated proprietary vendor overheads.

Organisations that lead with a software-first model are also realising that it's not enough to be cloud-native, but that businesses must strive to adopt solutions that integrate into every strain of applications, development, and operations – as well as working methodologies to make the most of them.

Perhaps most crucial today for both pieces is automation: doing away with excruciatingly laborious tasks, instead automating them to fly at a speed impossible to achieve even with a large team of the most talented people.

[1] *www.cncf.io/blog/2020/03/04/2019-cncf-survey-results-are-here-deployments-are-growing-in-size-and-speed-as-cloud-native-adoption-becomes-mainstream*
[2] *www.redhat.com/cms/managed-files/rh-enterprise-open-source-report-detail-f21756-202002-en.pdf*

## Automate Databases With Autonomous Operator

Couchbase's Autonomous Operator for Red Hat® OpenShift®, developed closely with the CoreOS team, takes the best of human behaviour and leaves out the worst elements that anyone under a heavy workload could be tempted by – such as skipping software backups. Indeed, more than 120 customers are using Autonomous Operator globally now, and it's growing each quarter.

Think of an Operator as a kind of custom controller, designed for packaging, deploying, and managing Kubernetes-native applications, which are deployed on Kubernetes and managed with the Kubernetes APIs and tooling. An Operator runs in a Pod on the Kubernetes cluster, and interacts with the Kubernetes API server to continuously ensure that everything's running, available, and configured in the way that it should be.

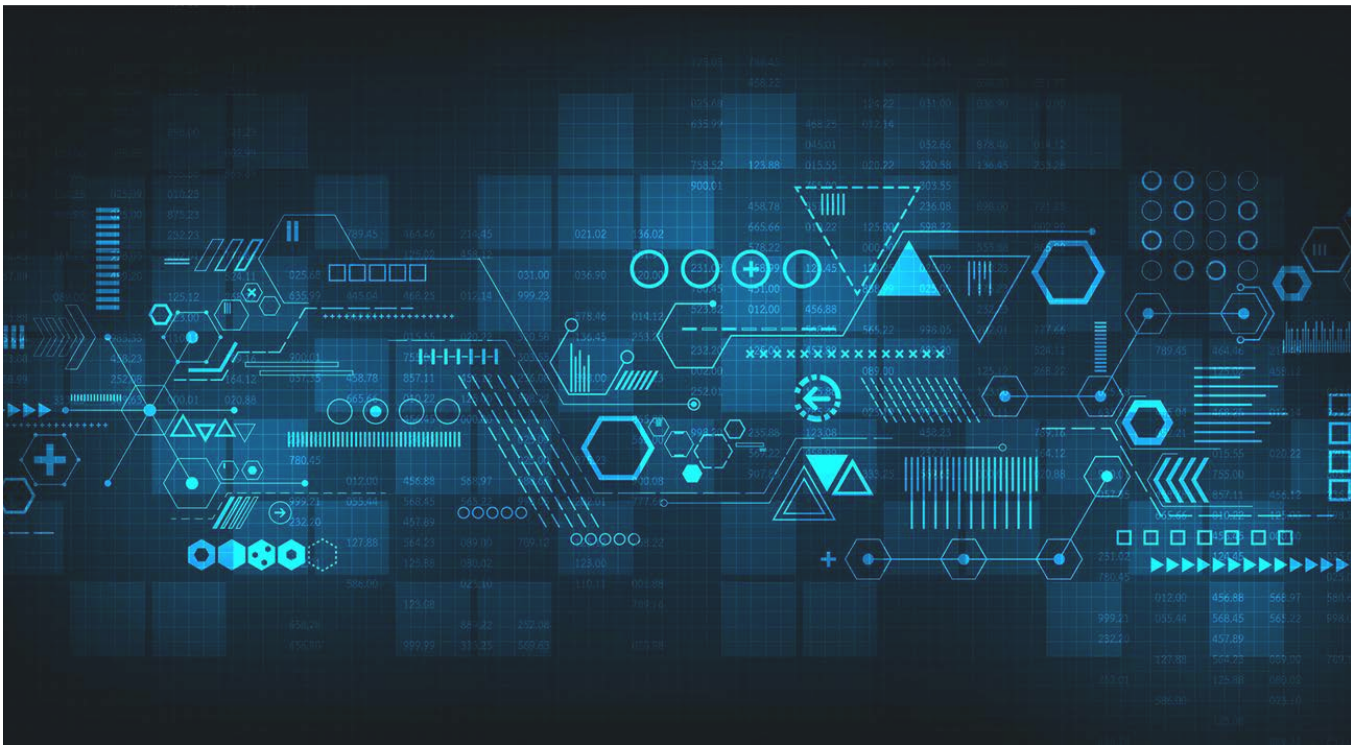
**Organisations can simplify databases on Kubernetes and begin reaping the rewards, rather than being bogged down with support tickets, technical debt, and ultra-challenging learning curves**

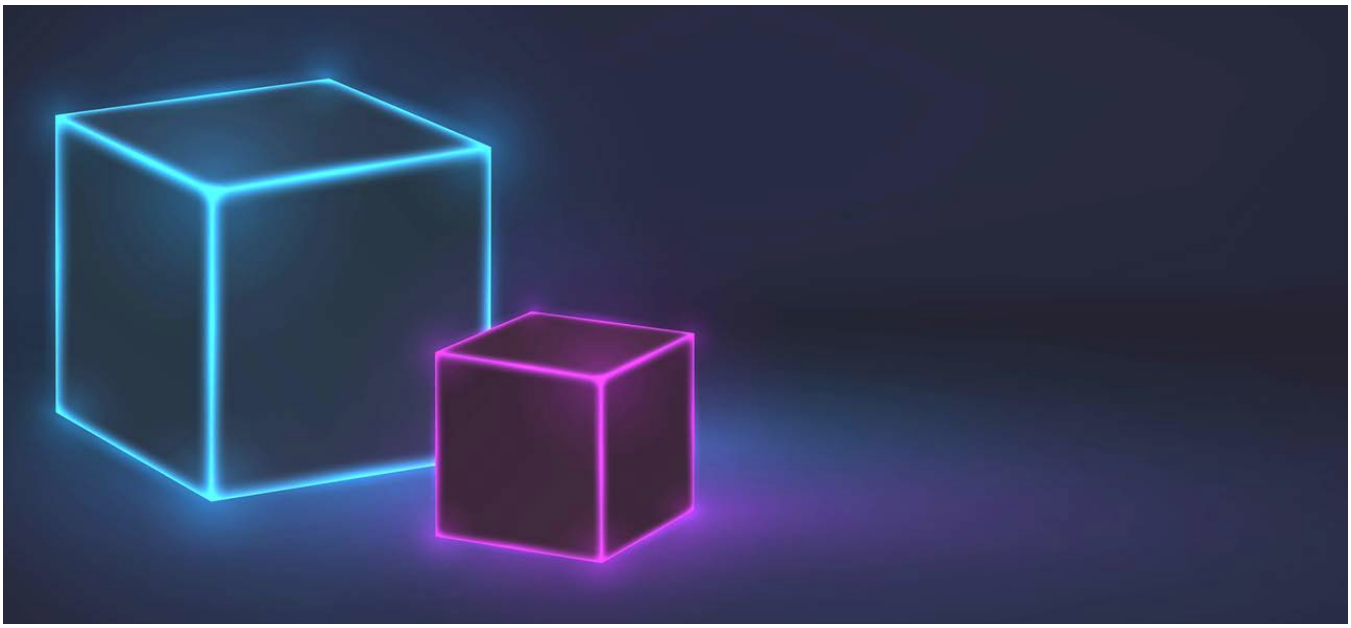
As containers start to become the classic way in which people are trying to minimise their operational overheads, they're also becoming a continual challenge for those in the database world.

Until recently, databases were rarely run straight from Kubernetes deployments. Now, with technologies like Autonomous Operator, organisations can simplify databases on Kubernetes and begin reaping the rewards, rather than being bogged down with support tickets, technical debt, and ultra-challenging learning curves.

Couchbase was the first NoSQL database technology to publish an Autonomous Operator, more than two years ago, and so enjoys unparalleled maturity in the space. With the Kubernetes framework, Couchbase has enhanced its capabilities to make its framework more in tune with all the additional features that are being built into Kubernetes.

The end result is that classic database administration costs get taken away from staff who are not specialist database people, but nevertheless know they need a database like Couchbase for the efficient operation of applications.





With the Autonomous Operator, organisations can eschew full-blown database gurus and administrators – they just allow the Autonomous Operator to take control of those functions. It enables the centralised management of clusters in a way that is cloud-agnostic and plays well with other open infrastructure products that are built on top of Red Hat® OpenShift® as the base layer.

Using NoSQL Autonomous Operators with Kubernetes also pulls organisations away from the dangers of cloud provider lock-in. Business trends were moving towards hybrid- or multi-cloud models regardless, but at a time when the macro-economic situation is uncertain, being coupled to a single public cloud provider is not optimal.

Organisations are re-assessing their relationship with cloud providers. They want to know that they can get into the cloud with confidence, and with a system that's going to behave according to their needs, without having to stretch resources to make their systems work.

Senior business executives are hearing from their staff that developer teams want to head down the container route, and as such, they're searching for technologies that make that journey as simple as possible.

This is where Autonomous Operator working with Red Hat® OpenShift® can really help, because as well as the simplicity of the platform, executives also require the reassurance of an enterprise-level product with a historical pedigree.

Many of the world's leading companies have implemented Couchbase NoSQL in Red Hat OpenShift including large commercial banks, retailers, media, telcos, logistics businesses, and travel industry players.

Both Red Hat® OpenShift® and Couchbase NoSQL are available to test and evaluate completely for free, and there is a plethora of documentation on how to design and implement a solution that fits your cloud architecture. If you wish to have a workshop to learn reference architecture – along with how the solution has been used in similar use cases to yours – contact your local Red Hat or Couchbase team.

https://access.redhat.com/ecosystem/software/1481683

CIO FROM IDG | Red Hat | Couchbase NoEQUAL