

AEROSPIKE CLOUD

M A N A G E D S E R V I C E

Aerospike Cloud Managed Service:

Mitigating risk and accelerating time-to-value
with a fully managed cloud service

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Introduction

The market consistently challenges businesses to deliver always-on services and products; they have to innovate and adapt faster and faster, continuously increasing pressure on their development and IT operations teams to provide new data-intensive applications.

When companies require new technologies, like Aerospike, to create differentiation or satisfy a need, their technical teams become challenged to master, provision, secure, scale, and maintain a new stack, introducing risk and friction in the business with every simple change.

Aerospike offers a fully managed cloud service for mitigating risk and accelerating time-to-value.

In the first section, we will answer the most common questions that companies ask Aerospike:

- What are the benefits of a cloud-managed service?
- Why do you offer the service?
- How does it compare to self-managed Aerospike?
- Who is the team that delivers the service?
- What is the process to be fully operational in ACMS?
- How do you reduce risk and improve my time to deployment?

In the second half, we will explore the technology behind the Aerospike Cloud Managed Service. We will review the Aerospike Cloud Console, a web application that customers can use to visualize their clusters' business and technical aspects.

The summary will help you answer the biggest question: what should you expect of a cloud-managed service that provides real-time capabilities, all the time, anywhere for your company's future?

The Aerospike Cloud Managed Service

Aerospike Cloud Managed Service - <https://aerospike.com/products/cloud-managed-service/>

Digital applications have become woven into our daily lives and routines, to the point where we depend on the information they provide and their ability to meet our needs, be it for checking the weather, ordering furniture, or just interacting with friends and family. Becoming increasingly reliant on these applications, we've also come to expect instant feedback and constant uptime. For businesses, this translates to an always-on approach in delivering their applications and services.

The demands of the always-on, real-time pace of business force companies to quickly develop new data-intensive applications to maintain a competitive advantage. And the pressure to deliver optimized infrastructure is forcing IT operations and resources to the breaking point.

One of the keys to success in today's cloud business world is to optimize resources to empower businesses to act in real-time consistently across billions of transactions while minimizing the impact of infrastructure cost.

Aerospike Cloud Managed Service enables enterprises to deliver new digital value to customers rather than managing databases and infrastructure. With our Cloud Managed Services, Aerospike takes responsibility for providing and maintaining an optimized deployment of the industry's most resilient, low latency, high-scale real-time data platform with enterprise-grade security and observability.

Why does Aerospike offer a Cloud Managed Service?

Our main objective with Aerospike Cloud Managed Service is to offer end-to-end deployment and management of highly available Aerospike database clusters using best practices for security in enterprise-class environments. As your business expands, so does your data and, naturally, your database needs to scale up to support your business requirements quickly.

We have seen a few different challenges that businesses tend to face when bringing their applications to market:

1. Scaling without impacting performance: many enterprises cannot scale distributed databases.
2. Reducing friction and complexity: rapid expansion in the cloud can introduce high risks and even higher costs.
3. Managing multiple cloud environments: enterprise applications often need a multi-stage cloud strategy that includes development, testing, production, and disaster recovery.

Our comprehensive experience and expertise with the Aerospike Real-time Data Platform enable us to offer a *fully* managed service.

Benefits

Aerospike Cloud Managed Service begins with the Aerospike Real-time Data Platform. Offering always accurate, globally distributed, strongly consistent data, it can scale from terabytes to petabytes with consistent, sub-millisecond speeds. With this data platform as our foundation, we can provide:

- **Faster time-to-value**
The service is built on years of experience architecting and managing the Aerospike real-time data platform both on-premises and in the cloud.
- **Increased organizational agility**
Your time is better spent aligning your organizational resources with your goals instead of using valuable resources to design and maintain your Aerospike deployment.

- **Security**
Our enterprise-class features include Data Encryption (in motion and at rest), Authentication, Authorization, Auditing, and more to provide security and operational controls to comply with your audit needs.
- **Flexibility in scalability**
Our flexible storage engine provides predictable performance from terabytes to petabytes, whether via In-Memory or Hybrid Memory Architecture (HMA).
- **Predictable control of resources**
Workload profiling to identify the correct capacity plan and optimized configuration templates to help customers budget appropriately and avoid unforeseen costs.

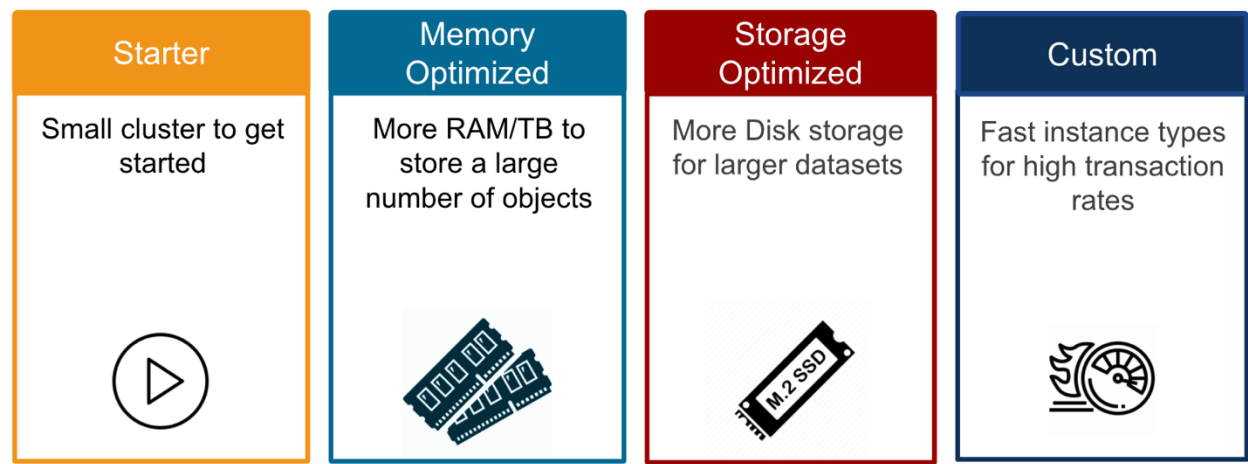


Fig. 1. Workload profiles for optimum resource utilization

The Aerospike Cloud Managed Service Difference

To meet the always-on requirements of a real-time business with zero impact on your performance, you need an enterprise-grade system. We ensure that Aerospike Cloud Managed Service is enterprise-ready through six main attributes:

High availability

The service is designed for 100% availability – this means any maintenance upgrades or troubleshooting is done with zero downtime for the environment and no impact on the availability of your cross cluster. With an SLA of 99.99%, your ACMS team works to ensure your Aerospike database clusters are fully operational at all times.

Security

We know that data security is critical to your operations. Through Aerospike's Encryption at Rest feature, we ensure that your data is always encrypted. We also require the use of Transport Layer Security (TLS) for any data in transit.

Data isolation

The Aerospike database cluster is deployed directly into your cloud account so that data never leaves your governance, and you always have full control. We also use a dedicated VPC deployment in your cloud, and all communication to that VPC is through a peering mechanism - on AWS, we use VPC Peering or Transit Gateway; on GCP, we use VPC Network Peering.

Full cluster lifecycle

The Aerospike operations team handles all the planning, provisioning, and management of the Aerospike database clusters. First, we will develop a plan for configuration that meets your performance targets; then, we will provision the infrastructure and software and manage it all through the cluster lifecycle. We provide 24x7x365 monitoring for various performance metrics. If we receive an alert on any of these metrics, we will execute a run-book to remediate the issue and automatically scale the cluster.

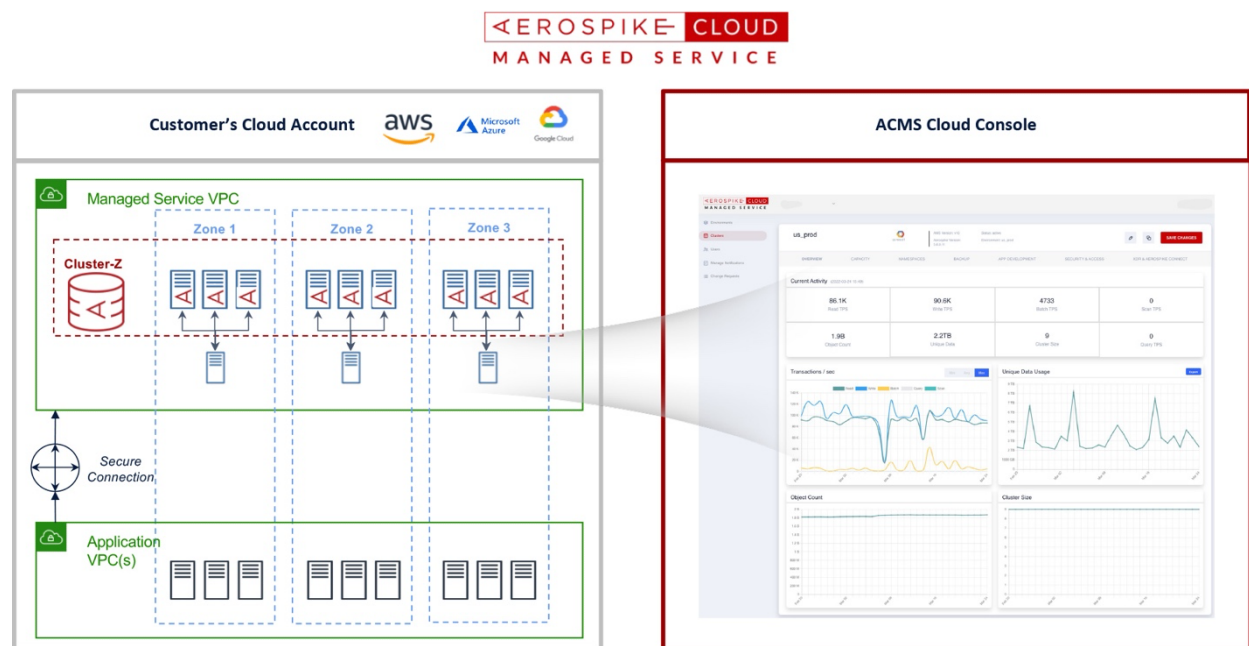


Fig. 2. The Aerospike Cloud Managed Service difference

Maintenance

Our team also takes care of all the infrastructure maintenance – whether we need to replace hardware, implement an OS patch, or apply a software update. We handle all aspects of managing the database for you, with zero downtime for lifecycle maintenance.

Aerospike Cloud Managed Service also allows you to run your workloads on Amazon Web Services, Microsoft Azure, and Google Cloud Platform across any region that has the required cloud inventory without being locked into any single cloud platform. You can run your application

on one cloud or on multiple clouds to support your business requirements. We designed the Aerospike Real-time Data Platform and the Cloud Managed Service to be platform-agnostic with all database and service features available anywhere.

Aerospike demonstrates the commitment to these principles, processes, and technology through our ISO27001 Certification. Similarly, Aerospike's service team has implemented systems and controls and provided the necessary reports to demonstrate compliance with data management for a SOC 2 certification.



About the Managed Service Team

The Aerospike Cloud Managed Service team is your Aerospike operations team. We combine deep expertise of the Aerospike database with decades of work on running highly-available cloud systems for mission-critical applications. The merging of these disciplines results in an Infrastructure-as-Data (IaD) cloud service that is designed for many types of workloads and use-cases.

Our stand-up service begins with matching a capacity plan to your workload and extends through to connecting your application to the database. Our 24x7 global management service takes care of tuning the database as needed and performing all aspects of platform maintenance, including infrastructure updates, security patches, and database upgrades.

Becoming operational with ACMS

The Aerospike Operations team knows the product inside and out, and, with our Managed Service, we can supercharge your application lifecycle. Your CI/CD pipeline is likely to go through a few stages, and our team is there to help you at every step.

Development

Whether you are working on prototyping, application development, maintenance, functional testing, etc., your team can use Aerospike development clusters. While we don't typically offer our auto-scaling service for development clusters, we provide business hour monitoring.

Staging

Next, we get to the staging/pre-production environments where you can work on your performance, integration, and A/B testing. Again, here we offer business-hour monitoring without the auto-scale service.

Production

Once in production, we provide our 24/7 monitoring and alerting and the standard auto-scaling service as it is critical during this stage. You have the option to deploy a single cluster per workload or multiple workloads on the same cluster; we will monitor and auto-scale your clusters as traffic increases.

Reliability

Best practices recommend including a passive cluster in your portfolio for disaster recovery. These clusters can take dual writes from your application or receive record updates via XDR from primary clusters. In case of an infrastructure failure on your primary cluster, our Managed Service can manage these passive clusters as needed to provide you with a failover option.

Whichever level of service you need, the Aerospike team will work closely with you to tailor your SLA and help manage your environments to simplify your CI/CD pipeline and ultimately accelerate your deployment.

How Aerospike reduces risk and time to deployment

Aerospike architecture

At the heart of our consistent cluster performance is our pattern for the cluster architecture. We deploy the cluster across three availability zones, which ensures we are fault-tolerant and can align to the zones used by your application. This configuration is part of our always-on architecture and allows us to scale both vertically and horizontally. We also deploy a small number of admin nodes in each zone. These admin nodes handle our logging, monitoring, and automation to upgrade the cluster without any downtime.

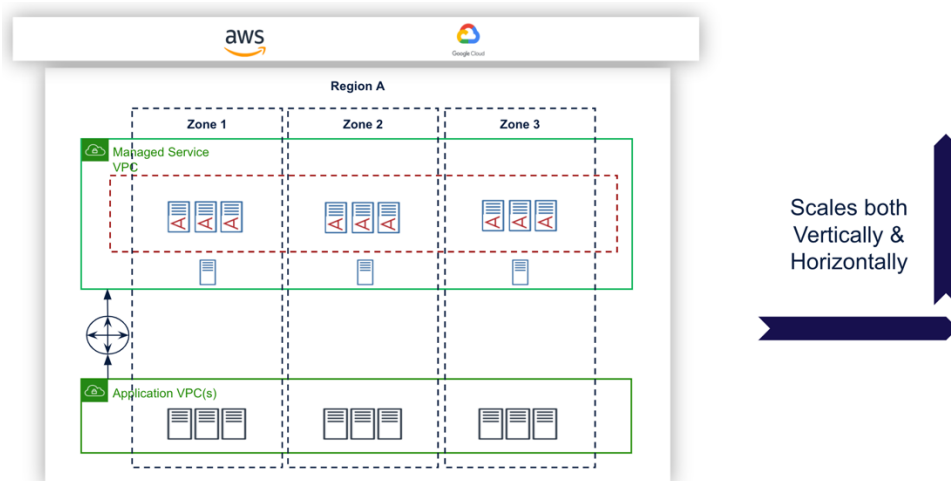


Fig. 3. The Aerospike Cloud Managed Service architecture

Accelerate your time-to-value

Our team can help you accelerate your deployment using our predefined cluster templates for performance, scalability, high availability, and more. The templates reflect different workloads and experiences; these templates provide a strong starting point with a vertical and horizontal scale strategy to grow along with your business. We can also help you with a custom deployment to fit your application's specific needs.

Features

Aerospike Cloud Managed Service also offers several features and capabilities to help you mitigate risk and accelerate your deployment:

Security by design

With Aerospike Cloud Managed Service, we ensure your data is safe and administration is authorized with zero-trust network security, role-chaining cloud identity and access management, database authentication and user management, encryption in transit and at rest, encryption keys, and OS hardening.

Always-on architecture

Designed for 100% availability, we help to ensure predictable performance and data durability throughout your multi-zone cluster architecture while reducing infrastructure requirements. We use workload profiling to identify the correct capacity plan, provide secure data encryption, and implement automated backup and restore procedures to prevent any impact on your expected performance.

Data Platform observability

The Aerospike Cloud Console is used for cluster monitoring and will provide aggregate metrics and SLA information so you can view high-level health, configuration, and performance.

Enterprise-ready deployment

Aerospike Cloud Managed Service delivers real enterprise-grade deployments at any scale with end-to-end data encryption, data compression, strong consistency, high availability, and both synchronous and asynchronous data replication.

Zero downtime operations

The Aerospike Cloud Operations Center provides 24x7x365 global coverage with health and performance reports, security and auditable governance controls, change requests, and quarterly reviews.

The Aerospike Cloud Console

With Cloud Managed Service, we aim to provide seamless transparency and visibility into your clusters. During your onboarding session, you'll receive access to the Aerospike Cloud Console, which is your one-stop shop to interact with the ACMS team. Use the Aerospike Cloud Console to monitor your data usage, security policies, request new clusters, submit change requests for existing clusters, view your database configuration settings, and much more.

It's important to note that we *never* transmit any customer data; only metrics are transmitted directly from your cluster to the Cloud Console. We aggregate high level-metrics for unique data stored, total reads/writes per second, queries, batch scans, etc.

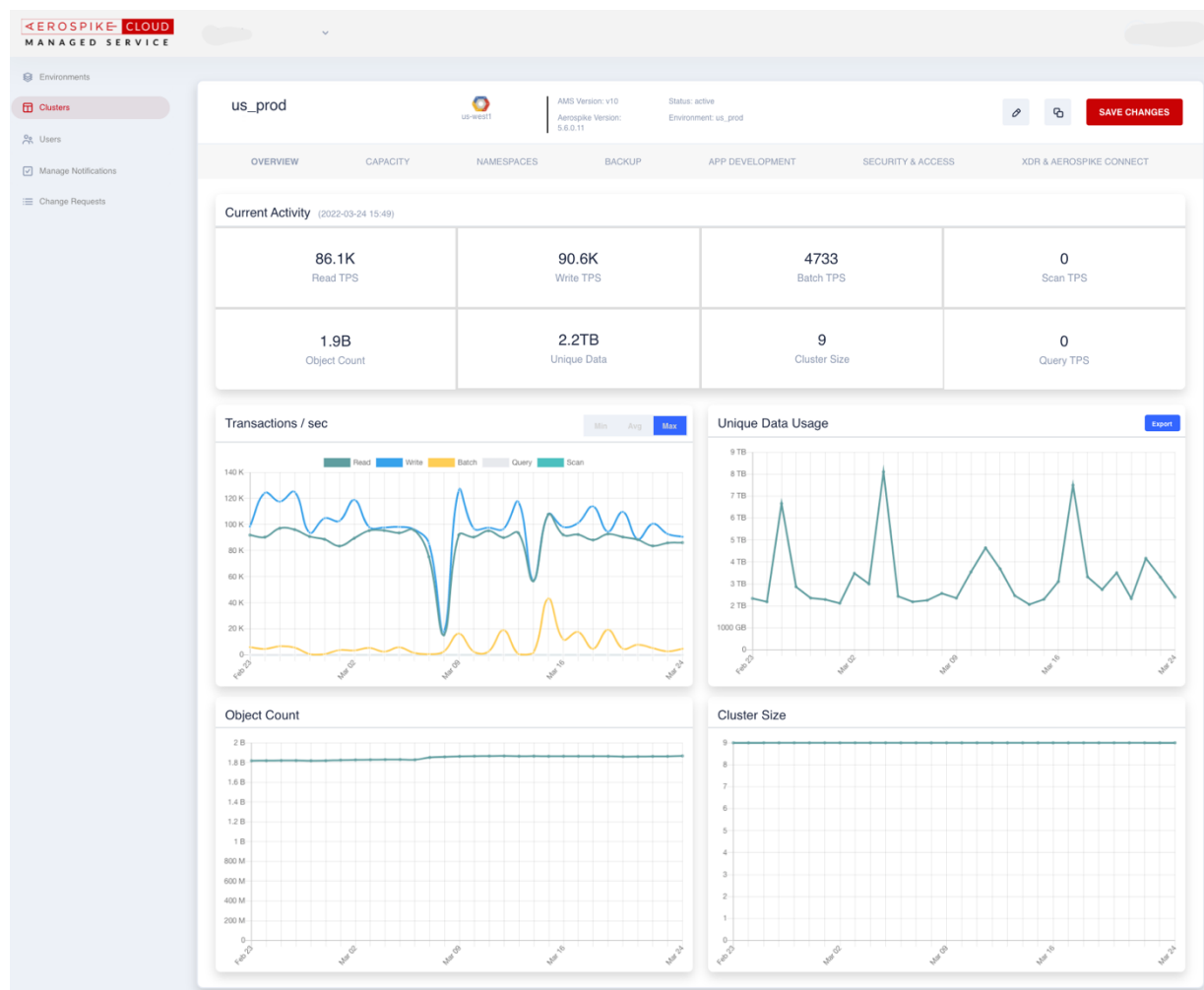


Fig. 4. The Aerospike Cloud Console

The Cloud Console also presents available clusters to use as a base to create new clusters. One of the first steps in getting a new cluster is to match your workload to the proper infrastructure. To make this an easy process, we offer cloud instances based on the following:

1. **Memory-Optimized.** Which is suitable for workloads with many small objects, and you need more RAM to store the index.
2. **Storage Optimized.** These clusters will have larger SSDs that work well for larger datasets.
3. **Throughput Optimized.** These clusters work very well for workloads with a high transaction rate; the instances include fast SSDs and fast network cards.

Within Cloud Console, we define the parameters for the sizing, the configuration of your namespaces, and the backup schedule. If you need to change anything in the database, for example, if you need to add a new namespace, this is where you submit your change requests. You can also manage users and permissions to add new team members to a cluster and provide permissions for configuration change requests or to request new clusters.

Customers running on ACMS

Dream11

Dream11 is a fantasy sports entertainment service that serves millions of users with fantasy options for leagues spanning dozens of sporting events. Unfortunately, they had a database architecture built around Redis and a relational database that failed during their premier league matches in 2020. This failure cost them millions of dollars in lost revenue and, more importantly, the trust of their users. As a result, they decided to rebuild their service using Aerospike Cloud Managed Service as the cornerstone data platform.



Why did Dream11 select Aerospike to rebuild their application and the trust of their users?

- Aerospike Cloud Managed Service proved to provide the highest availability and performance and came with the stability commitment Dream11 demanded.
- Working together with Aerospike, Dream11 launched their service at scale in 14 days.
- Through IPL (India Premier League), which serves millions of users each day, Aerospike Cloud Managed Service provided 100% of the player rosters, with 100% data consistency.
- The site would receive large traffic spikes as the rosters were released, with millions of TPS recorded each day. However, during those spikes, the latency for the 99.9th percentile for linearized reads was less than 16 milliseconds.

As their CIO stated, Aerospike Cloud Managed Service was key to helping Dream11 restore their users' trust in their service.

Experian

Aerospike Cloud Managed Service manages a set of global clusters that power Experian's Fraud and Risk product line. Experian uses a regional deployment model to ensure the data stays in the appropriate region to adhere to local data privacy and consumer protection regulations. Each region has a complete set of integration, pre-prod, and production clusters managed by Aerospike Cloud.



Why did Experian select Aerospike as the foundation for their Fraud and Risk products?

- The operational security and controls required for managing sensitive data are paramount in the financial industry, and Aerospike Cloud Managed Service met all the governance requirements for Experian.
- Aerospike demonstrated commitment to governance and security with the certifications for ISO27001 and SOC2.
- Aerospike Cloud Managed Service delivers consistency latency under 8 milliseconds for the 99.9th percentile of Experian's transactions.

These points have improved the customer experience and allowed the experience to land new customers to use their CrossCore fraud platform.

Conclusion

The Aerospike Cloud Managed Service enables you to deliver always-on services and products through a fully managed cloud service that reduces the friction and complexity of running a highly sophisticated data platform.

Our team takes responsibility to size and characterize the profile of your data application to deploy and maintain an optimized cluster of the industry's most resilient data platform. Aerospike joins your team through the application development lifecycle from prototyping and testing to integration, production, and disaster recovery, to deliver an appropriate SLA in each phase.

Customers like Dream11 and Experian trust the Aerospike Real-time Data Platform for low latency, high-scale applications. They are building their future on enterprise-grade security and observability features to minimize risk and accelerate time-to-value.

Contact Aerospike to talk to one of our cloud specialists to get a custom quote.

<https://aerospike.com/forms/contact-us/>

About Aerospike

The Aerospike Real-time Data Platform enables organizations to act instantly across billions of transactions while reducing cloud instances by up to 80 percent. The Aerospike data platform powers real-time applications with predictable sub-millisecond performance from terabytes to petabytes of data with five-nines uptime with globally distributed, strongly consistent data. Applications built on the Aerospike Real-time Data Platform fight fraud, provide recommendations that dramatically increase shopping cart size, enable global digital payments, and deliver hyper-personalized user experiences to tens of millions of users. Customers such as Airtel, Experian, Nielsen, PayPal, Snap, Wayfair, and Yahoo rely on Aerospike as their data foundation for the future. Headquartered in Mountain View, California, the company also has offices in London, Bangalore, and Tel Aviv.

For more information, please visit <https://www.aerospike.com>.