

# Why Open-source Databases Need Modern Storage



Like every essential service, storage is critical infrastructure that underpins everything running above it. Consistent, high-performing storage is a must if your business relies on open-source databases in production environments or for development services. Unfortunately, your existing storage might not get you there.

If you started out using open-source databases only for lightweight development projects, storage was

likely an afterthought. As your database and application needs grew, your storage performance probably lagged. Traditional data-storage systems such as Direct-Attached Storage (DAS) aren't designed to meet the demands of modern workloads. If you're still working with DAS, you're forced to work around storage limitations that can lead to increased complexity, higher administrative costs, and—worst of all—extra or unplanned downtime.

That's where Pure Storage® comes in. Pure offers a Modern Data Experience™ that delivers speed, simplicity, resiliency, and hybrid-cloud agility designed to meet the needs of modern workloads and innovative business.

## Optimize Database Operations

With DAS, I/O operations per second (IOPS) decrease and latency increases as you try to scale your workload. The issue is less apparent with Solid-State Drives (SSDs) compared to hard-disk drives (HDDs), but performance still falters. Pure Storage addresses that issue with a stable, predictable, and scalable data store that provides optimized database operations with low-latency performance.

To demonstrate these gains, Pure [ran tests with MySQL](#) to compare the performance of DAS with Pure FlashArray™. Not surprisingly, FlashArray handily outperformed DAS. In fact, the FlashArray device handled more than 50% more transactions per second than the DAS system, with up to 34% lower latency.

## Improve Ease of Use

Simplicity is key to minimizing support overhead and eliminating unnecessary tasks that can lead to configuration problems, downtime, and data loss. Pure simplifies storage infrastructure in several ways. [Setup is so simple](#) that you can be up, running, and optimized much quicker than it takes to set up other storage solutions. No workload-specific tuning is needed.

The Pure1 Meta® AI-driven workload planner helps optimize capacity allocation for future growth. This

avoids storage over- or under-provisioning—a problem that’s common with DAS. The workload planner also helps you plan for future growth by simulating workload changes, controller upgrades, and added capacity packs so you can prepare for hardware upgrades well in advance.

## Get Scalability without Risk

Pure can help you sleep easier knowing that your data is protected with space-efficient snapshots—not only for scalability but also quick database recovery, cloning, and six (6) nines of proven availability in FlashArray. For example, [building a MongoDB replica set](#) in Amazon Web Services (AWS) is as easy as locking the file system on the MongoDB node, copying the Pure Cloud Block Store™ volume, and connecting the new volume to the replica set node. Then, you simply start MongoDB and join the node to the replica set. Recovery from a failed node is just as simple: Lock the file system on one of the secondaries, copy the Pure Cloud Block Store volume, and connect it to the recovered node. Recovery is quick and easy, with no performance impact, no database stoppage, and no lengthy data copy over the network.

Additionally, Pure’s Evergreen Storage™ delivers continuous improvements and innovations to keep your storage fresh, modern, and agile. With an architecture designed to be 100% non-disruptive through upgrades and expansions, and a flexible buying program, Evergreen Storage frees you from the legacy storage approach of complex, risky, and expensive forklift upgrades and data migrations.

Moreover, Pure Storage includes [ActiveDR™](#), which goes beyond mere volume replication by also copying snapshot histories, snapshot schedules, volume settings (like QoS limits), protection groups, and user-defined volume tags to the target array.

When [Pure tested FlashArray ActiveDR against MongoDB replication](#), the FlashArray system demonstrated up to 33% lower replication lag during heavy write operations than was the case with MongoDB native replication.

## Achieve Hybrid-cloud Agility

With Pure as-a-Service™, you get storage as a service (STaaS) for on-premises and public-cloud that unifies hybrid clouds with a single subscription. Given how tight most IT budgets are, this efficient OPEX approach is a great way to avoid overprovisioning or additional fees, scale-up and -down flexibly, enjoy competitive on-demand rates, and simplify billing.

Pure Storage cloud data services also bridge the cloud divide to enable hybrid applications that run seamlessly both on premises and in the public cloud. Pure also offers the global data plane and management view, plus agile data recovery for both on-premises and cloud deployments. Lastly, Pure provides APIs, orchestration, and ongoing updates so your investment in storage systems is agile.

The best part? [Pure’s Professional Services](#) team can engage with you to help fill any gaps, assess technology, develop expertise, and create plans that deliver results.

## Implement Modern Storage for Open-source Databases

Open-source databases like MySQL, MongoDB, Cassandra, PostgreSQL, and many others have gained wide adoption. Pure’s solutions assure a Modern Data Experience for open-source database workloads, so you can spend less time managing storage and more time innovating.

***Learn more about [Pure for open-source databases](#).***