# DESIGN FOR GLOBALLY RELIABLE AND SECURE DATA

## Keep data accessible with a data-centric architecture.

It's a data-centric world, in which data is the new currency, fueling organizations with the opportunity to gain insights from the collection and analysis of ever-growing amounts of data. However, data alone is inherently powerless. Like currency, the value of data comes not from its existence or accumulation, but from the opportunity it represents. Data becomes more valuable the more it is processed and used, so the ability to use that data efficiently and release its value is at the center of competitive advantage for a **data-centric business**. Yours can be a data-centric business with the power to disrupt traditional ways of working and win in the new economy. But to do so, you must invest your data, put it in the right place at the right time to create value from it — or risk being left behind. Before data can be shared and used, it must be accessible, available, and trusted, which is why globally reliable access and security of data is a pillar of a data-centric architecture.

Change is hard, but inaction has consequences. The main barriers to providing a single plan for the accessibility, continuity, and security of data, and therefore to tapping its value, lie in siloed data, clouds, and organizations:

- **Siloed data.** Data is often spread across the enterprise in discrete silos to meet the needs of specific applications. However, this inhibits modern analytics-driven workflows that demand data be available and delivered quickly as a consistent whole, not fractured in data silos.
- **Siloed clouds.** Cloud has earned its place in enterprise IT, but that place has so far been separate and distinct. Separate isn't shared, isn't invested, and isn't valuable. Those data silos withhold data's value from your business, constraining innovation and degrading your users' experience.
- **Siloed organizations.** At the same time, organizational silos, inherited from traditional separation of IT builders and technology operators, prevent the agility of DevOps where the builders *are* the operators and the service is their objective.

That's why you are moving toward a data-centric architecture, an approach to designing an end-to-end environment — across compute, network, storage, and cloud — that is optimized for ubiquitous and fast consumption of data.

A data-centric architecture is characterized by five pillars:

- Fast, shared data
- On-demand and automated
- Globally reliable and secure
- Hybrid cloud by design
- Constantly on and improving

This paper focuses on the globally reliable and secure nature of a data-centric architecture.

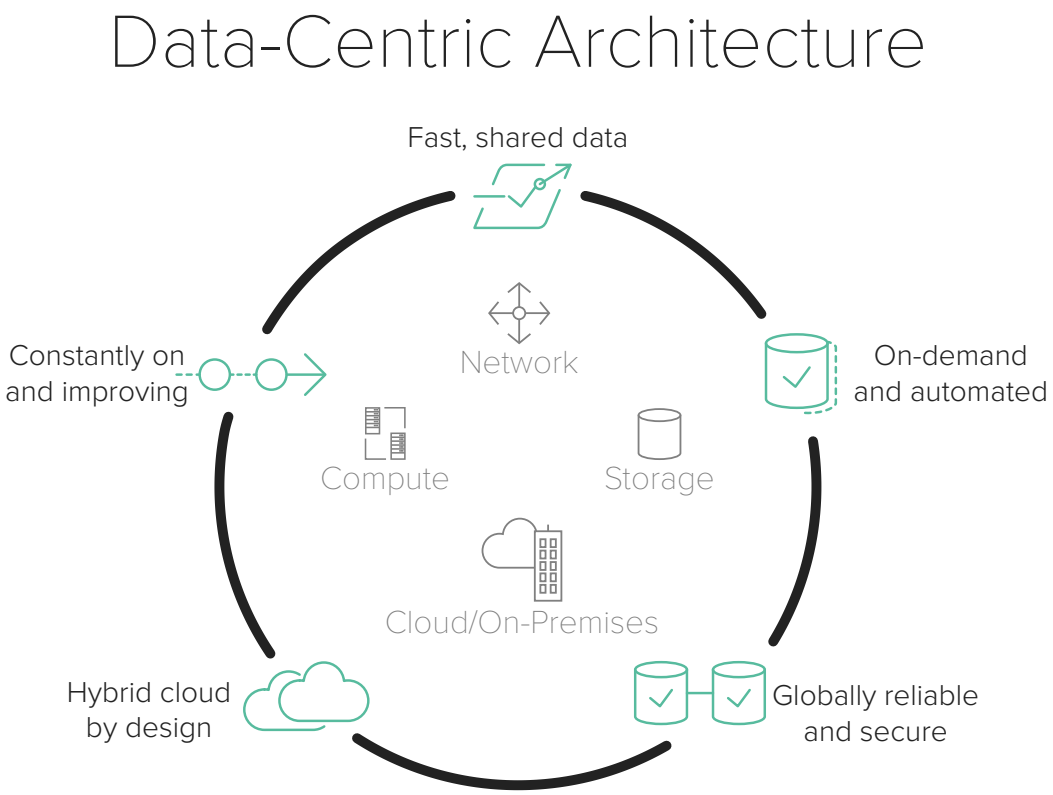


*Figure 1. The five defining pillars of a data-centric architecture.*

## Spectrum of Reliability and Security

A defining trait of a data-centric architecture is that it is globally reliable and secure, which means it delivers self-healing and protection capabilities to provide business continuity while securing data. Ultimately, this delivers a single-source-of-truth data environment that is a constant for business and compliance.

Reliability and security of data are not unrelated requirements for a business, but rather overlapping ideas on a spectrum (see Figure 2).

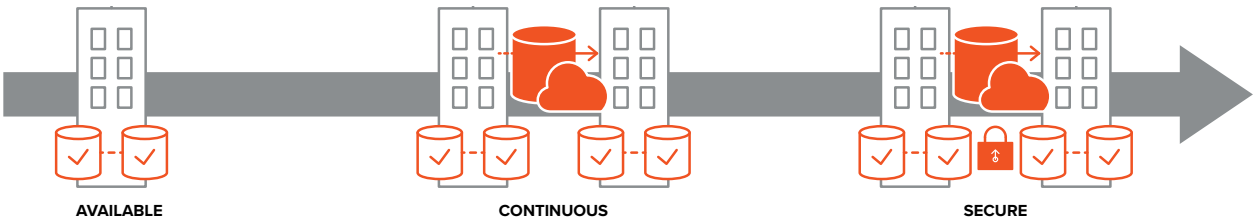


*Figure 2. Reliability and security can be expressed as a spectrum, where high availability is a basic achievement up through business continuity and data encryption.*

At the beginning of the spectrum is the assurance of data availability. Data must always be available to the business — no exceptions — and a data-centric architecture is capable of everything up to and including mission-critical workloads.

The midpoint on the spectrum delivers reliability of the business itself with backup and recovery (B/R), emphasizing *recovery*, disaster recovery (DR), and business continuity (BC). BC can have a range of service-level agreements (SLAs) from simple recovery or failover to a live environment in hours, to "I never knew it was down" immediate hot-site readiness.

Finally, underlying it all, is trust in the security of the data. High availability is worth nothing, after all, if the data that's available is not trustworthy. Data recovery and BC strategies are, in effect, ways of securing workflows; but wherever it resides, data must also be protected by strong encryption to prevent it from being compromised. Not only is the authenticity of the data critical to your organization, but, increasingly, the ability to prove that data is secure is becoming a regulatory-compliance requirement of its own.

These are the elements in the spectrum that a data-centric architecture can provide to your organization by being globally reliable and secure. A data-centric architecture can help ensure that your data is a constant single source of truth in the face of whatever error, breach, or disaster might occur.

## Fast Path to Reliability and Security

In the evolutionary cycles of compute, network, and storage, it has become storage's turn to help you lever up the capabilities of your data-centric architecture. Think of storage as the fulcrum that helps to rapidly improve the reliability and security of your infrastructure. Here's how next-generation solutions from Pure Storage® improve the reliability and security of your business in a data-centric architecture.

## Start with Availability

Unavailable data is unusable data, so before all else, a data-centric architecture keeps data available to the business. Pure FlashArray™ has a proven six-nines track record across our installed base, inclusive of maintenance and generational upgrades.[1] The backbone of FlashArray is Purity software, which delivers comprehensive, rich data services to all workloads — even as it provides global flash management to your arrays. Moreover, Purity enables consistent low latency, data protection, and non-disruptive "everything" — and its resilience means full performance through array maintenance and failures.[2]

## Reliability of Business Access to Data: Accelerate Recovery

Legacy data-protection systems are dominated by single-purpose appliances that create backup data silos via disk-to-disk-to-tape (D2D2T) infrastructures. These are notoriously slow to restore, forcing organizations to make trade-offs between performance and cost. While flash has become prevalent in the primary storage tier, continuing with disk and tape for backup still results in a slow recovery of your data and slow resumption of your business. Pure is focused on both the fast restoration of your business and taking advantage of the new economics of cloud. Now, the pairing of Pure's ObjectEngine™ platform, the industry's first flash-to-flash-to-cloud (F2F2C) platform for data protection, with FlashBlade™, delivers both local fast restores of your most recent data and complete backup of your data in the cloud. No more compromises. When deployed as a data hub, FlashBlade is a single, powerful data-centric platform that lets you manage your recovery plan as one more workload alongside the rest of your applications, including your next-generation analytics and artificial-intelligence (AI) workloads. Now, instead of slow data silos on backup appliances, your backups are created rapidly right in your FlashBlade, and they can be restored almost instantly.

## Reliability of User Access to Your Business: Built-in Continuity

The reason for protecting data is really to preserve the workflows that rely on it. Those workflows exist for your business. The real objective is to protect your business — keep data flowing and keep your business available to your teams and customers. How old is your recovery data, and how long will it take to recover? When disaster strikes, these are the key questions you will be facing. Business-continuity plans set targets and refer to these as recovery-point objectives (RPOs) and recovery-time objectives (RTOs). But these objectives assume that you have time to be "down." A data-centric architecture allows critical workloads to stay up because downtime is not part of the plan — *avoiding* downtime is the plan. Purity ActiveCluster, with active-active synchronous replication, provides transparent, automatic, non-disruptive failover between arrays and sites with automatic resync and recovery for business continuity — and zero RTOs and RPOs — across your data center or metro region. Purity ActiveCluster uses Pure1® Cloud Mediator, a software-as-a-service (SaaS)-based quorum witness, which eliminates the need for a customer-managed third site. Failovers happen safely, automatically, and transparently within standard host input/output (I/O) timeouts. If an array becomes inaccessible, the Pure1 Cloud Mediator ensures your hosts simply access data on the other array.[3]

## Secured and Assured Data

Data security is part of the plan in a data-centric architecture; and, at Pure, we believe world-class security should be standard, invisible to the user, and require zero management. That's why Purity software continuously protects data at rest with encryption that's built-in, always-on, always in-line, and it costs you nothing: no impact on performance, no administrative overhead, no key management — and no additional upgrade fee or ordering process. Pure accomplishes this by securing data with AES-256-bit encryption — without impact to performance and while maintaining full data-reduction capabilities. Pure FlashArray encryption is Federal Information Processing Standards (FIPS) 140-2 certified, National Institute of Standards and Technology (NIST) compliant, National Information Assurance Partnership (NIAP)/Common Criteria validated, and Payment Card Industry Data Security Standard (PCI-DSS) compliant.

## Empower Your Data-Centric Architecture with Pure

Reliability and security are critical elements in the spectrum of data's availability for your data-centric business. As organizations transform to compete, they move toward a data-centric architecture, optimized for ubiquitous and fast consumption of data, and they need that architecture to be globally reliable and secure. Storage is the fulcrum for rapidly improving reliability and security in a data-centric architecture. Pure engineers reliability and security into our offerings across the spectrum from rapid backup, restore, and replication to continuity of the business and always-on encryption, for the proven availability of your trusted data when and where you need it.

## FOR MORE INFORMATION

Contact your Pure representative today to learn more about a globally reliable and secure data-centric architecture.



[1] Six-nines availability is available with Pure Storage FlashArray products. Source: Pure Storage. Entry-Level Storage web page. www.purestorage.com/products/entry-level-storage.html.

[2] Pure Storage. Data Protection web page. www.purestorage.com/solutions/infrastructure/data-protection.html.

[3] Pure Storage. ActiveCluster web page. www.purestorage.com/products/purity/activecluster.html.