DATA-CENTRIC ARCHITECTURE: CONSTANTLY ON AND IMPROVING

Create a data-centric architecture that improves and upgrades while operating at speed.

It's a data-centric world. Data is the currency of the digital age, and the value released from it fuels business. Data-centric organizations have the power to disrupt traditional ways of working and create new economies. However, data alone is inherently powerless. It doesn't actually do anything unless you know how to use it — or at least have a guide to start the process.[1] Like currency, the potential value of data remains untapped by organizations that don't take action to invest it.

Everything people and organizations do is informed by how they use data — and that usage is continuously evolving. More than ever, people expect instant information at work and in their personal lives. In fact, most interactions with technology — smart phones, power in our homes, transportation, and more — are fueled and maintained with information.

Organizations of all sizes are challenged to keep up with this changing world. But doing so requires building the right kind of technology infrastructure. A data-centric architecture is an approach to designing an end-to end environment across compute, network, storage, and cloud, optimized for ubiquitous and fast consumption of data to create value. A data-centric architecture is characterized by five key 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 *constantly on and improving* aspect of a data-centric architecture.
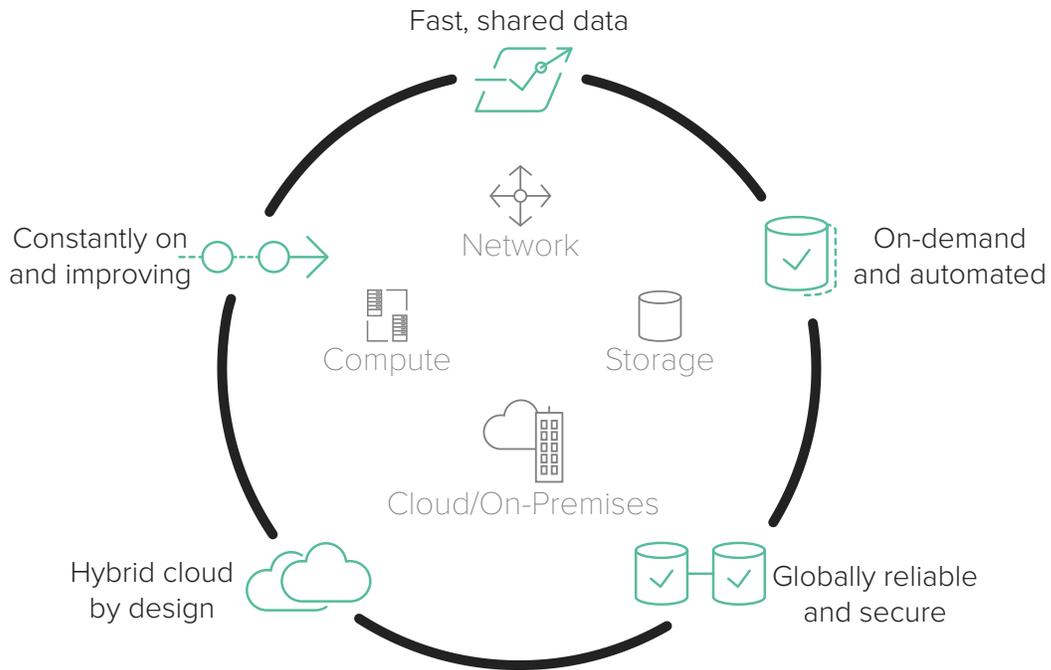
Data-Centric Architecture

Figure 1. A data-centric architecture is always available and ready to improve in-flight.

Downtime Is Not an Option

Imagine ordering goods online. People no longer passively wait for the package to arrive on their doorsteps. Instead, they expect notifications at every step of the way. If something is wrong with the order, they demand that action is taken immediately. While the human element never goes away, the systems that enable these processes are increasingly automated. And if any of these systems go down — including retrieval of data — the business ramifications can be enormous. Are our expectations in business settings any less?

In other words, a data-centric architecture needs to be available 24/7/365. Today's data-dependent economy means that organizations simply can't afford downtime, whether it's planned or not. Machine processes rely on the IT environment, and any disruption can be critical. The days of off-hours windows when employees and customers don't need to access data are over. So, too, are the days when a small hiccup in data access didn't have far-reaching effects.

The reality is that machines don't sleep. They are constantly ingesting massive streams of data at high velocity. If you skip a beat, they know — and it can negatively impact productivity and success. At the same time, businesses need to be able to take advantage of the latest technologies, without worrying about technology obsolescence.

As a result, the tenet "constantly on and improving" is critical when creating a data-centric architecture. The best way to think about it is that, just as the opportunity to create advantage with data is constantly increasing in business, the use cases to apply that value, and the systems which serve them, are also maturing. This evolution is constant and challenging, yet necessary.

Until recently, would you have expected general IT or product-generation upgrades to happen with zero data downtime, or the freedom to upgrade without making infrastructure customers plan for an interruption? But how do organizations address the challenge of implementing an IT infrastructure that can grow and improve at the same time it's being used? It comes down to designing to deliver a non-disruptive upgrade (NDU) — that is, a software upgrade, hardware expansion, or platform replacement that does not impact data availability or performance.

Pure Storage®: Constantly on and Improving

Everything at Pure is engineered to make the power of data available, whether from the data center or distributed, in the cloud or on premises. Pure's Evergreen™ Storage starts with a real architecture difference; it has been engineered from the beginning to deliver NDUs. That's because we saw the need for customers to be "constantly on and improving" from the start, long before it was codified into the greater vision of a data-centric architecture. It is then extended into a subscription model so that organizations get the most current storage technology while balancing operating expenses (OpEx).

Pure's architecture is unique and defined by hardware and software that is modular, stateless, scalable, field-serviceable, and field-upgradable. Then, components can be independently upgraded — even mixed and matched — online and without disruption, which means you can always take advantage of industry innovations in CPU and flash.

Finally, Pure's Evergreen Storage architecture is flexible and can be updated to meet your needs as your business grows. For instance, you can upgrade controllers if you need increased performance or maximum capacity. If you're facing data growth, you can simply get more scale and density by adding or upgrading capacity. And you can gain more powerful features as you need them by upgrading software and connectivity.

In addition to the NDU nature of Pure's Evergreen Storage architecture, the Evergreen Storage ownership model supports an organization's data-centric architecture by giving customers a subscription that keeps storage fresh and modern. Customers can upgrade their storage to increase performance and capacity, or get up to date with the latest Pure technology, via full trade-in credits on controllers (Upgrade Flex), included controller upgrades every three years (Free Every Three), and by never needing to re-buy capacity they already own (Capacity Consolidation). And all Evergreen Storage subscriptions include all array software, including updates and even new features, now and into the future.

With Pure's Evergreen Storage, expanding and improving storage performance, capacity, density, and features is simple and cost-effective for 10 years or more, eliminating the need to re-buy storage every 4–5 years, as with legacy storage.[2] Meanwhile, there is no downtime, performance impact, or data migration required, because we deliver NDU everything — with data-in-place upgrades of Pure Storage controllers and flash arrays — all while running at 100 percent performance.

When you choose Evergreen Storage subscriptions, you'll also get our Right-Size Guarantee, which assures you the effective capacity that you need, up to the life of the array — without risk.[2]

Pure also offers Pure1®, a cloud-based data-management platform powered by the Pure1 Meta™ artificial intelligence (AI) and machine learning (ML) engine, which monitors and optimizes hybrid data-storage infrastructure across multiple private and public clouds. It lets you maximize operational efficiency of IT infrastructure with predictive forecasting, capacity and performance planning, and seamless upgrades using intelligent workload planner and hardware simulations.

Moving Toward the Right Data-Centric Architecture for Your Business

Your organization and the world it inhabits are increasingly data-centric; at the end of the day, data is today's currency. And when you put in place a data-centric architecture that meets the particular needs of your organization, you're closer to turning data into information and intelligence. That is at the heart of our business: Pure was founded on the first principles of making data effortless and efficient. We started with a vision of the data platform just working — and working fast.

As you evolve to a data-centric architecture, there are defining characteristics that you can work toward to modernize and evolve your infrastructure. Storage plays a key role in that evolution. And when it comes to a data centric architecture that is constantly on and improving, Pure delivers multi-dimensional improvements to your infrastructure over time.

FOR MORE INFORMATION

Contact a Pure representative today to learn about a constantly on and improving data-centric architecture.

1   Digitalist. "Data: The New Currency." December 2017
    www.digitalistmag.com/cio-knowledge/2017/12/11/data-new-currency-05592449.

2   Pure Storage. "Evergreen Storage: A Subscription to Innovation." 2018.
    www.purestorage.com/content/dam/purestorage/pdf/datasheets/ps_ds_evergreen-storage_04.pdf.