

How to Achieve Breakthrough Business Continuity

While Keeping Costs and Complexity Under Control

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Introduction

In today's environment, business continuity is a necessity. As organizations embrace digital transformation and turn to IT for critical operations, downtime can be crippling. Those that are able to tolerate technology failures transparently—so the business remains up and running—can drive dramatic gains in competitive advantage, customer engagement and business innovation.

However, achieving the highest levels of business continuity, with zero recovery point objectives (RPOs) and recovery time objectives (RTOs), has been possible only for the largest companies and their most business-critical applications. The associated costs and complexity have simply been too much for most organizations to achieve those levels.

That is no longer the case.

This white paper discusses an innovative active/active stretched cluster technology that allows companies of all sizes to achieve the highest levels of business continuity without the associated costs and complexities of the past.

Chapter 1: Why Business Continuity, and Why Now?

Organizations of all sizes are fully embracing digital transformation, big data analytics, the Internet of Things, cloud computing, social networking and other digital drivers of competitive differentiation and innovation. IDC says we have reached a tipping point, whereby more than half of global GDP will be accounted for by digitally transformed enterprises by 2023.¹

The common foundation connecting these initiatives is digital data. In this environment, data, in all its volume and variety, must be available when and where it is needed—no matter what. When data is unavailable, everything collapses. Profits and revenues disappear, morale suffers, customer engagement diminishes, applications become unavailable, innovation halts, and regulatory compliance is threatened.

As companies increase their reliance on digital data, business continuity has become much more critical to success—and downtime has become much more costly.

Application downtime now costs the average enterprise \$20.1 million globally in lost revenue and productivity, with lost data from mission-critical application downtime costing organizations more than \$102,000 per hour, according to the 2019 Cloud Data Management Report.² The average cost of a data breach in 2019 was nearly \$4 million, and had increased by 12% over the period 2014-2019, reflecting the growing impact of downtime as companies move further down the digital transformation journey.³

Chapter 2: Barriers to Bullet-Proof Business Continuity

The goal for most organizations is to not just minimize downtime but eliminate it altogether. The largest organizations—those with seemingly unlimited IT budgets—have been able to spend their way to this level of reliability

¹“Top 10 Predictions for 2020 From IDC,” Forbes, Oct. 29, 2019

²“Cloud Data Management Report,” Veeam, June 2019

³“2019 Cost of a Data Breach Report,” Ponemon Institute and IBM, July 23, 2019



for some of their most business-critical applications. But that is extremely costly, in terms of not only dollars, but also IT time, complexity and resources.

Getting to the point where organizations can achieve zero RPOs and RTOs has typically involved investments of hundreds of thousands of dollars in infrastructure, extremely complex implementations requiring specialized skills, and the need for a third failover site with external gateways.

Typically, this type of investment and commitment has been limited to the most critical applications for extremely large organizations, such as major financial services companies, web-scale online retailers and a few others. But for most organizations, the goal of achieving zero RPOs and RTOs has been nothing but a dream.

Chapter 3: Turning the Dream into Reality

As is often the case with technology, yesterday's dream is today's reality. This is now true with extreme business continuity, whereby organizations of virtually any size can achieve RPOs and RTOs of zero without having to go through the costs and complexities involved in owning or maintaining a mediator at a third site.

The technology innovation enabling this breakthrough in business continuity is an active/active stretched cluster solution with transparent failover, which is functionality that is native to the all-flash storage array. The solution is



software-based, leveraging two all-flash storage arrays that are typically deployed within a single data center or across a campus or metropolitan area.

This new technology, called Purity ActiveCluster, was developed by Pure Storage and is available as part of the Pure Storage FlashArray. To most observers of all-flash storage, it will come as no surprise that this innovation was developed by Pure Storage, because the company has been a pioneer and innovator since the market's inception.

With ActiveCluster, Pure has focused its attention specifically on business continuity, where it has already been a leader in delivering six-nines availability on its FlashArray product. ActiveCluster implements an innovative approach to the basic challenge of deploying and managing a quorum witness at a third site. ActiveCluster uses Pure1 Cloud Mediator, which is a software-as-a-service-based quorum witness.

With the Pure1 Cloud Mediator, organizations deploying ActiveCluster can achieve RPOs and RTOs of zero without the need for a third site. Failovers happen safely, automatically and transparently. If an array fails, the Cloud Mediator ensures that hosts simply access data on the other array.

Chapter 4: Benefits of ActiveCluster

The ActiveCluster model addresses the biggest challenges facing organizations when it comes to achieving always-on business continuity, which is attaining zero RPOs and RTOs without driving IT costs and complexities through the roof.

From a cost standpoint, ActiveCluster is extremely efficient. It is built into the Purity operating environment and available as a simple upgrade. It requires no additional licenses or fees, no external appliances and no third backup site.

For some customers, the only significant incremental expense is the price of an additional array, and that cost is marginal compared with the hundreds of thousands of dollars it would cost to achieve this level of business continuity using competing stretched cluster solutions.

Organizations also save money, as well as time, through the dramatic simplicity of the Purity ActiveCluster. Unlike typical stretched cluster deployments, which can be exceedingly complex to set up, an ActiveCluster can be launched in minutes using four steps:

1. Connect the arrays
2. Create a stretched pod
3. Create a volume
4. Connect hosts

The ActiveCluster leverages two arrays. They are typically located across a campus or metropolitan distance but can be in the same data center—even in the same rack. Through synchronous replication for a given storage volume, a host can connect to both arrays simultaneously, and if there is a failure at one site then failover happens automatically, without interruption in the service. This multisite active/active design is at the core of ActiveCluster's reduced complexity.

Unlike active/passive implementations, ActiveCluster serves I/O on a given volume from both sides simultaneously. IT teams don't have to worry about the complexity of managing virtual machine or database affinity to one site. Application latency is optimized with reads served locally.

Additional ActiveCluster benefits include:

- **Global protection:** Active Cluster can be used for multisite protection with a configuration of three data centers. Sites A and B are in ActiveCluster mode, while a third site—located across the country or continent—is configured as an asynchronous replication target that intelligently pulls data from both site A and site B. For example, a large financial services firm based in Manhattan could use ActiveCluster in New York and New Jersey, while also replicating asynchronously to San Francisco or London.
- **Non-disruptive migrations:** Agility means heavily consolidated environments need the flexibility to move and balance workloads across a pool of all-flash storage systems. One of the ways ActiveCluster can be used is to non-disruptively move application workloads from one array to another.
- **High availability in the cloud:** With ActiveCluster, organizations can achieve the highest level of availability for applications running in the public cloud. Pure's Cloud Block Store allows use of ActiveCluster technology between two availability zones in Amazon Web Services (AWS) to provide high-availability for mission-critical applications.

Chapter 5: Leveraging ActiveCluster for Business Advantage

With digital transformation, big data analytics and other modern business initiatives, every organization is under pressure to improve availability and reduce downtime. So, the reality is that ActiveCluster can benefit just about any business.

In particular, organizations that operate data centers within a localized or regionalized area, such as a campus or metropolitan region, reap significant benefits of ActiveCluster because it is designed specifically for their needs. Additionally, Pure's Intelligent asynchronous replication provides robust out-of-region disaster recovery protection. This allows customers to maintain disaster recovery RPO through ActiveCluster array or replication link failure to enable integrated business continuity and disaster recovery.

As for applications and workloads, mission-critical deployments will be the business use cases that are likely to benefit initially from ActiveCluster solutions, especially those that are customer-facing—where any downtime directly affects revenue and customer engagement.

Companies in industries such as financial services, healthcare, media, telecommunications, and online retail all benefit from achieving greater business continuity without the typical costs and complexity. In addition to business continuity, organizations can leverage ActiveCluster to improve disaster recovery, simplify application migrations and drive overall improvements in reliability for a wide range of applications and workloads.

Conclusion

Bullet-proof business continuity with zero RPOs and RTOs has typically been available only to the business elites. However, with Purity ActiveCluster from Pure Storage, organizations are seeing the democratization of business continuity. Now any company can achieve the highest levels of availability without breaking the bank or breaking the back of its IT team.

To learn more about how your organization can leverage the next paradigm in business availability, please visit the [ActiveCluster](#) landing page at [PureStorage.com](#).
