# CHECKMARK IT

**THE ULTIMATE GUIDE TO**

## nimblestorage

## INTRODUCTION

Flash storage technology is quickly evolving from a specialised solution for high-performance data centres into what might be described as the "new normal". Once considered an expensive niche option for large-scale storage, flash technology is emerging as a viable mainstream option for organisations seeking to optimise their infrastructure at a time when the instant availability of data has never been more important.

As such, more and more organisations are now looking to transition their storage footprint to a flash-based or all-flash solution to solve a number of problems:

| | | |
|---|---|---|
| The time involved in managing legacy infrastructure | The high maintenance costs associated with ageing storage systems | Difficulties in delivering predictable application response times or reliable access to business-critical information |

For buyers seeking a flash storage solution that is able to address all of these problems in a way that's simple, reliable, affordable and fully-featured, the newest **Nimble Storage Flash Arrays** from Hewlett Packard Enterprise ( **HPE** ) may offer an ideal option.

This guide aims to provide a comprehensive rundown of the key features and attributes of this next-generation storage technology, and offer an insight into how these sophisticated flash arrays are able to provide a level of resilient, advanced performance that delivers transformative results.

## WHAT ARE NIMBLE FLASH ARRAYS?

HPE's newest Nimble Storage Flash Arrays represent a significant step forward for the highly respected Nimble Storage brand, and marks the first major overhaul of the product line-up since Nimble became part of the HPE family in March 2017.

The design goal of this product range was to deliver the safest, smartest, simplest and most efficient storage infrastructure solution for all types of workload, with performance bolstered not only by the inherent advantages of flash technology, but also by leveraging unique cloud and AI enhancements to deliver industry-leading results.

### THE BASICS AT A GLANCE

With HPE's Nimble Flash Arrays, users will receive predictive, cloud-ready storage solutions optimised for management simplicity, with sophisticated AI features helping to automatically predict and resolve many of the problems encountered by an average data centre.

All of the necessary software is included with each solution, and each Nimble array incorporates modular upgrade capabilities to ensure they remain future-proof and easy to update, even as newer storage technology is made available.

**HPE NIMBLE STORAGE ALL FLASH ARRAY**

### HERE ARE SOME OF THE MOST EYE-CATCHING BENEFITS YOU CAN EXPECT FROM ANY NIMBLE PRODUCT:

- Simple to deploy, use and manage

- Augmented by InfoSight predictive analytics, which prevents most common problems before they occur

- Data can be stored either on-premises or in the cloud, with common data services and mobility between each storage type

- Each array comes with a satisfaction guarantee, all-inclusive software licensing, flat support pricing, no forklift upgrades, and an option to receive a free faster controller upgrade after three years

- Easy to use with many different ecosystems, with deep integration offered for VMware, Microsoft applications, Oracle, Veeam and others

- A 99.9999% ( **six-nines** ) guaranteed availability rate, with Triple+ Parity RAID stability features tolerating three simultaneous drive failures, plus additional protection offered through intra-drive parity

- App-granular FIPS-certified encryption safeguards static data and offers over-the-wire protection, with secure data shredding also built in

This broad range of capabilities makes the Nimble Flash Arrays among the most fully-featured options in HPE's flash storage portfolio, meaning that enterprises of all sizes - from small businesses through to multinational corporations - could potentially benefit from deploying one of these highly adaptable solutions..
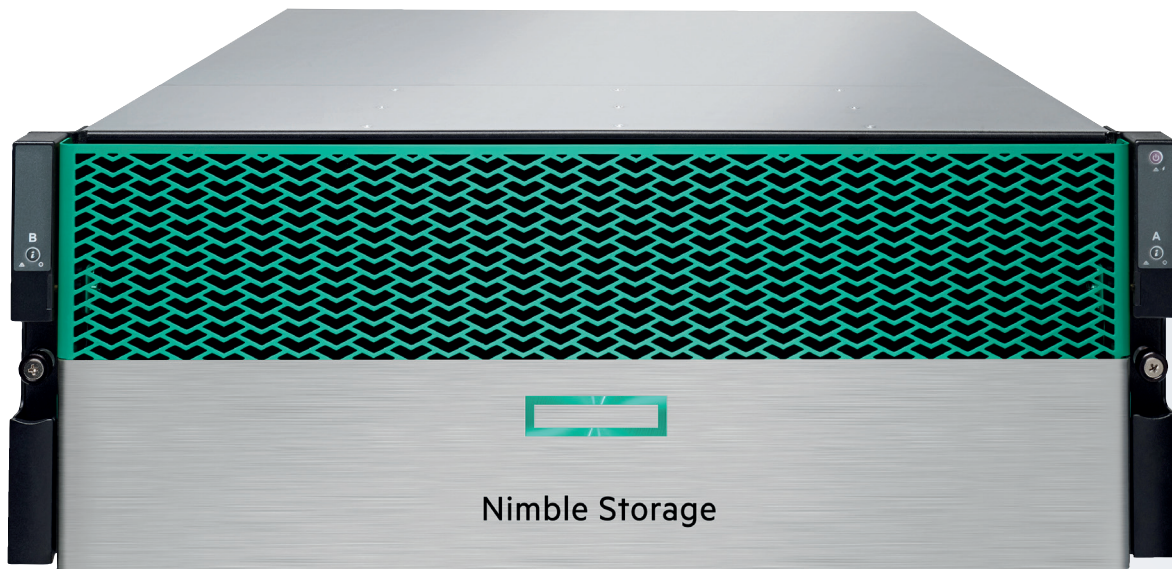
## ALL FLASH VS ADAPTIVE FLASH

The Nimble Flash Array offering is divided into two main product categories - Adaptive Flash Arrays that pair flash-based SSDs with a bank of traditional HDDs, or All Flash Arrays that provide 100% flash storage for an even more advanced performance.

All Flash Arrays are aimed at organisations with performance or latency-sensitive workloads, where maintaining absolutely optimal speed and data accessibility is critical at all times; Adaptive Flash Arrays, meanwhile, are more suitable for mainstream and mixed primary workloads, where the customer may be more focused on achieving a specific cost or price/performance balance, yet are still seeking an array that can perform at a sub-millisecond latency 90% of the time.

## WITH AN HPE NIMBLE STORAGE ADAPTIVE FLASH ARRAY, USERS CAN EXPECT:

- speed and efficiency for mixed workloads, with faster responses and greater efficiency than other hybrid arrays

- write serialisation technology that allows data to be written to the HDDs at flash speeds, defying the physics of mechanical spindles

- the ability to assign and change the service level of any volume at the click of a button, toggling between Auto Flash, All Flash or Minimal Flash

- always-on data reduction delivers fivefold or more space savings without any performance penalty

- secondary storage that does real work, with flash performance letting you use your backup data for development and testing, QA, analytics and more

- synthetic full backups completed in minutes rather than hours, native application-consistent snapshots and replication, and integration with leading backup software

- instant backup data restoration, rapid verification, and the ability to eliminate the need to restore by running workloads directly

- deep integration with Veeam availability software, with array capabilities accessible through the Veeam GUI

- backup and data recovery at a third of the cost, when replicating from all-flash to adaptive flash.

- cost-effective performance with powerful dedupe and compression functions

- simple management, as storage is preconfigured and optimised for a variety of applications out of the box

**HPE NIMBLE STORAGE HF-SERIES**

**WITH AN HPE NIMBLE STORAGE ALL FLASH ARRAY, USERS CAN EXPECT:**

- always-on data services, with MulticloudFlash Fabric allowing seamless application mobility between different storage media

- a lower total cost of ownership than legacy performance disk solutions, and between 33% and 66% lower total cost than other all-flash arrays

- the ability to scale up performance and capacity independently and non-disruptively, allowing four arrays to be managed as one

- up to five times or more data reduction from variable block inline deduplication and compression

- data reduction, snapshots and Triple+ Parity RAID with no performance impact

- sub-millisecond response time for performance-sensitive enterprise workloads

As such, whether your priority is to achieve critical flash performance in all circumstances or to attain the best-optimised cost per gigabyte, the HPE Nimble range can offer plenty of options that combine a price-performance sweet spot with next-generation capabilities.

## HPE CLOUD VOLUMES

All of HPE's Nimble storage solutions are cloud-ready, allowing users to freely move their data between their physical databanks and the enterprise-grade multicloud storage space offered by **HPE Cloud Volumes**.

This offering is designed to address a number of the pain points that many businesses face when using cloud services, including reliability and data loss problems, speed shortfalls that limit app functionality, and the practical difficulties caused by vendor lock-in.

**HPE CLOUD VOLUMES PROVIDE:**

- complete control over your data, with no vendor lock-in

- a platform as easy to use as native cloud storage, with flash performance and fast cloud on-ramping for rapid data migration

- the reliability and features your applications need

- global visibility to manage data, no matter where it is stored

- stronger security made possible by 256-bit granular encryption, which secures each and every data volume in the cloud

These capabilities allow Nimble Flash Array users to enjoy a seamless degree of data mobility, further underlining the benefits of the platform as a solution for organisations that rely on instant and rapid access to their data, as and when they need it.

## KEY FEATURES

The exceptional performance and future-proof qualities of Nimble Storage Flash Arrays are underpinned by a number of shared HPE features and services that are designed to guarantee users a top-notch experience, both now and for years to come.

### HPE INFOSIGHT

**HPE InfoSight** is a predictive analytics feature that forms the core of how Nimble Flash Arrays are able to deliver such a high degree of performance and reliability.

Through a combination of cloud-based predictive analytics and machine learning, InfoSight is able to automatically predict and resolve 86% of problems before they even become an issue, which is how Nimble Flash Arrays are able to provide their signature "six-nines" availability guarantee.

The service operates 24/7 and learns constantly from data gathered across millions of sensors worldwide, meaning InfoSight's performance is always getting better and more reliable.



**DESIGN APPROACH TO PREDICTIVE SUPPORT AUTOMATION**

**HERE ARE SOME OF THE KEY BENEFITS OFFERED BY INFOSIGHT:**

- Reduces the amount of time spent troubleshooting storage issues by 85%

- Aids data-driven planning by predicting capacity, performance and bandwidth needs, before offering multiple scenario models to facilitate decision-making

- Identifies whether VM performance issues are caused by the host, network or storage array; reclaims or repurposes underutilised VM/host resources; and establishes how non-critical VMs are impacting the performance of critical VMs

- Helps to guide firmware upgrade decisions by blacklisting firmware not suitable for a given environment, preventing interoperability issues between storage, server, network and operating systems

- Can identify the root cause of problems automatically, reducing the need to spend time filing reports with engineers

## HPE TIMELESS STORAGE

One of the most important ways in which Nimble Flash Arrays are able to guarantee future-proof performance is through the **HPE Timeless Storage programme**, a service that guarantees users a high standard of performance and availability, as well as opportunities to seamlessly and non-disruptively upgrade their infrastructure to next-generation solutions as they become available.

*These offerings are designed to ensure that users of Nimble Storage Flash Arrays will see the benefits and capabilities of the technology increase over time, rather than depreciating.*

All-inclusive software

No forklift upgrades

Flat support pricing forever

99.9999% guarantee

Cloud ready

Free controller upgrade options

Your satisfaction is guaranteed

## THE HPE TIMELESS STORAGE SCHEME INCORPORATES A NUMBER OF KEY OFFERING AND GUARANTEES:

- ✓ **The 99.9999% guarantee:** the "six-nines" availability pledge is standard across all new and existing Nimble arrays, and entitles users to free support credits if their service falls below this standard

- ✓ **No forklift upgrades:** Nimble Storage solutions are designed to be progressively scaled up in a way that's simple and straightforward, meaning users can break free of the cycle of "rip and replace" upgrade processes

- ✓ **All-inclusive software:** All the necessary software tools are included as part of the basic package, including the core InfoSight offering and essential features such as encryption, replication and snapshots. New NimbleOS updates are also provided free for anyone with a valid support contract

- ✓ **Flat support pricing forever:** Maintenance and support costs are guaranteed to stay the same for the entire lifetime of the array

- ✓ **Free controller upgrade options:** Users of HPE's support services will be able to receive regular controller updates that will incrementally improve performance

## THE HPE STORE MORE GUARANTEE

The **HPE Store More Guarantee** is a new offering applicable to next-generation HPE Nimble Storage products introduced since May 7th 2018, and is designed to guarantee that Nimble Storage All Flash Arrays will continue to deliver the most effective capacity per raw TB of any product in the all-flash array category.
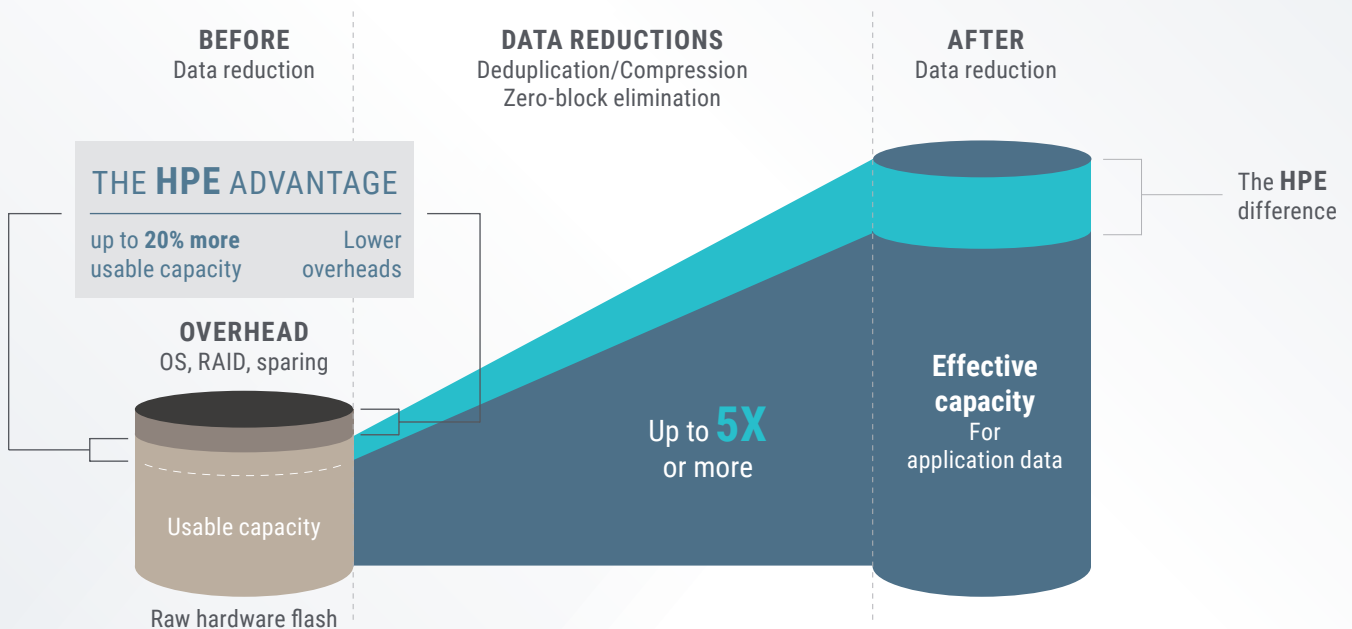
The pledge promises that users are receiving the most capacity-efficient all-flash array on the market at the time of purchase, factoring in not only data reduction ratios, but also how much data can be stored for each unit of flash capacity that is purchased. If they are not immediately convinced, they can request a proof of concept under this guarantee to prove that the Nimble Storage product they are buying lives up to the description.

This global guarantee comes with no strings attached, and if customers find that a competing all-flash product offers a greater effective capacity ratio than their chosen Nimble All Flash Array, then HPE will include additional storage on purchase at no additional cost to make up any capacity shortfall

## READY FOR NVME AND SCM

In order to further ensure that Nimble's flash arrays can serve as forward-looking storage solutions for years to come, these new products have been designed with the latest Storage Class Memory ( **SCM** ) and Non-Volatile Memory Express ( **NVMe** ) advances in mind.

SCM, a new class of storage media, and NVMe, a high-performance communications protocol, are widely seen as the storage technology standards of the future, and as part of HPE's Timeless guarantee, the manufacturer has developed its current flash solutions with this in mind, meaning customers will be able to seamlessly upgrade their systems with SCM and NVMe additions as they gradually enter the mainstream over the next few years.



**BEFORE**
Data reduction

**DATA REDUCTIONS**
Deduplication/Compression
Zero-block elimination

**AFTER**
Data reduction

THE **HPE** ADVANTAGE

up to **20% more** usable capacity

Lower overheads

**OVERHEAD**
OS, RAID, sparing

The **HPE** difference

**Effective capacity**
For application data

Up to **5X** or more

Usable capacity

Raw hardware flash

**HPE EFFECTIVE CAPACITY**
Results taken from tests conducted by HPE Nimble Storage competitive team, March 2018.
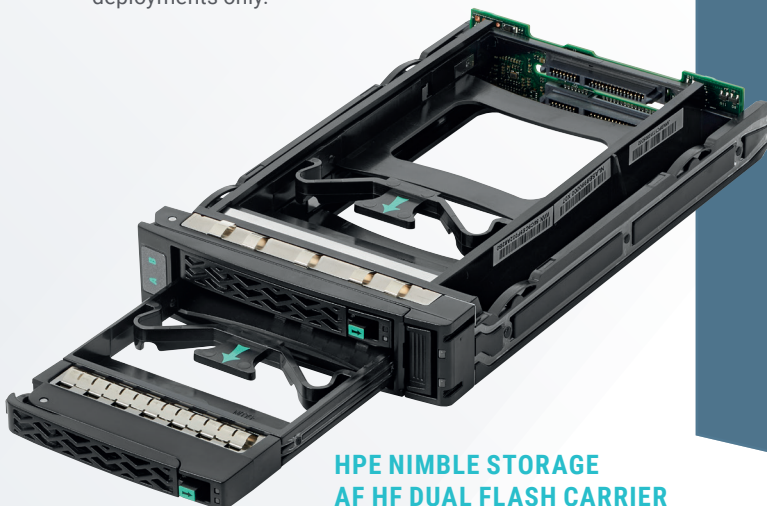
## THE BENEFITS OF NIMBLE STORAGE

HPE's new range of Nimble Storage solutions are designed to provide organisations of all sizes with a truly next-generation approach to managing their data, at a time when speed and accessibility has never been more important.

**WHICHEVER SOLUTION YOU SELECT, YOUR BUSINESS WILL BE ABLE TO BENEFIT FROM THE FOLLOWING KEY ATTRIBUTES:**

- **Predictive responsiveness** - InfoSight Predictive Analytics is the first and only analytics platform built into storage to prevent problems across the infrastructure stack before they arise, while also simplifying operations. As such, it can provide a transformed support experience, avoid disruption and minimise the amount of time spent solving infrastructure issues, making it the number one reason that businesses choose HPE Nimble Storage - and its machine learning capabilities mean that it will only become more effective over time.

- **Multi-cloud support** - the enterprise-grade cloud storage performance offered by HPE Cloud Volumes deliver a single architecture for unified data services, common management and mobility across your entire storage network. This offers a clear advantage over other solutions that lack this hybrid IT-ready approach, or are restricted to on-premises storage deployments only.

- **Reliable speed** - HPE's signature six-nines availability guarantee is made possible by the high-performance and scalable nature of its all-flash, hybrid flash and secondary flash arrays. Combined with the modular nature of the technology and the ability to update infrastructure with minimal disruption, it means that organisations will never have to deal with the kind of slowdown or access problems that can be so damaging to modern business.

- **Radical simplicity** - everything about Nimble Storage has been optimised for simplicity, whether this be at the purchasing, installation or usage stage. Its self-managing, self-maintaining nature takes the pain and hassle out of day-to-day operations, while the robust availability of application plugins, Docker container support and detailed InfoSight executive dashboards will also help to reduce provisioning and capacity planning overhead.

- **Peak efficiency** - Nimble Storage has been developed with industry-leading flash efficiency in mind, thanks to its always-on inline deduplication and compression capabilities, and its quality-of-service controls that enable application and storage consolidation without affecting performance. This allows the technology to achieve a perfect sweet spot of price, performance and capacity, with few tradeoffs.

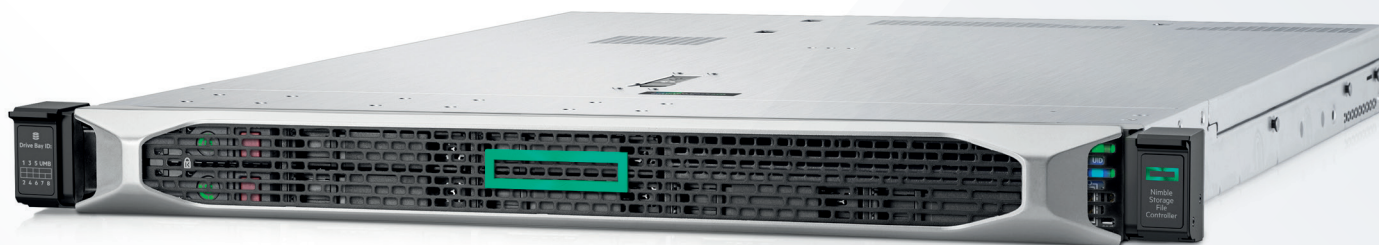**HPE NIMBLE STORAGE AF HF DUAL FLASH CARRIER**

Combined with the future-proof assurances offered by HPE's Timeless and Store More guarantees, this means that Nimble Storage Flash Arrays can represent a long-term storage solution for any organisation - one that's just as able to address the challenges facing businesses today as it is ready for the escalating performance demands and evolving technological status quo that will inevitably emerge in the years to come.
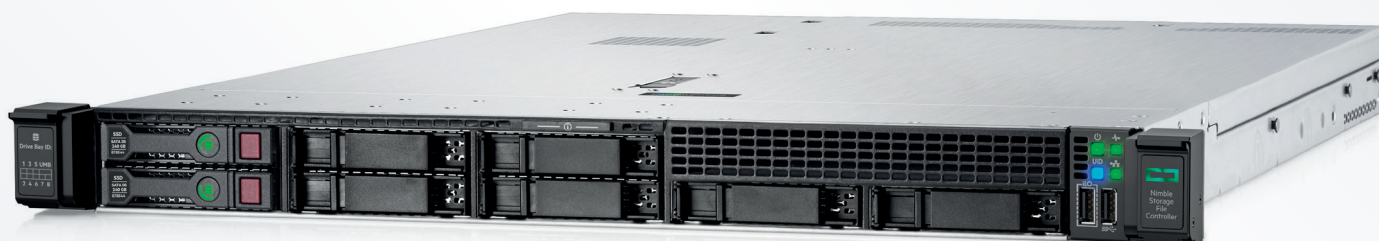
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## CONFIGURATION AND DESIGN OPTIONS

Whether your business requires an all-flash or hybrid flash solution, the Nimble Storage range has a number of different options available to address a broad spectrum of usage requirements and expectations.

Checkmark IT's experienced pre-sales consultants will work with you to discuss your business needs and required outcomes, and to design and scope a solution that is right for your organisation.



**HPE NIMBLE FILE CONTROLLER BEZEL LF**



**HPE NIMBLE FILE CONTROLLER LF**

## ABOUT CHECKMARK IT

If you're interested in investing in Nimble Storage and are looking for a partner organisation to help you scope, design and implement a solution that encapsulates all of your requirements, then get in touch with Checkmark IT.

We work closely with businesses to identify specific IT-related problems and pain points, before devising a tailored solution that addresses all of these issues, in line with the company's needs and expectations.



IT SOLUTIONS



HARDWARE SUPPORT



LEGACY HARDWARE

## OUR CONSULTANTS ARE GUIDED BY OUR FOUR PILLARS OF GREAT SERVICE:

**1** **Knowledgeable staff** - our knowledge of HPE's entire storage portfolio, from Nimble to XP7, is second to none, with accredited specialists - including HPE Master Accredited Solutions Experts - at your disposal to help you meet your objectives.

**2** **Friendly and honest** - you'll always hear the truth when talking to Checkmark IT, as we pride ourselves on being informative and honest, telling you what you need to know instead of what you want to hear. We know that getting the most from your IT systems is your paramount concern, and it's a value we share.

**3** **Speedy and creative** - when tackling projects on behalf of our clients, we aren't afraid to go the extra mile - even if that means implementing a solution quickly or devising an unorthodox approach off the cuff. Indeed, it's earned us a strong reputation for getting things done and finding creative solutions that others may not consider.

**4** **Excellent client relationships** - we build long-standing relationships with our clients for a number of reasons, one of which is the unrivalled after-sales care we offer. Our post-sales service gives us the chance to comprehensively review the performance of the solutions we have implemented, as well as your entire IT strategy and your wider business objectives, to ensure you are truly satisfied with how your IT infrastructure.

# CHECKMARK IT

## CONTACT US

For more information about Checkmark IT and the services we can provide, call us on

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or visit our contact page to find out how you can get in touch.

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