

Purpose-built backup appliances add reliability and speed to backup and restore operations. They remain as relevant in a cloud environment as they always have for on-premises operations and are increasing in importance for ransomware protection and recovery.

Purpose-Built Backup Appliances: 2020 Market Results

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Written by: Phil Goodwin, Research Director, Infrastructure Systems, Platforms, and Technologies Group

Introduction

Purpose-built backup appliances (PBBA) have been foundational components to many organizations' backup/recovery infrastructure for more than a decade. The importance of PBBA is illustrated in the numbers: According to IDC, in 2020, the data replication and protection (DR&P) market was approximately \$9.2 billion, while the PBBA market was \$4.33 billion, up from \$4.27 billion in 2019. The PBBA market demonstrated remarkable resilience in a year that proved to be very difficult for many technology sectors and markets.

Despite its size, the PBBA market is relatively specialized and has a limited number of participants. Currently, IDC tracks 10 "named" vendors and several smaller participants in the "other" category. The PBBA market was pioneered more than 15 years ago; IDC has been tracking this market since 2010.

PBBAs have several distinguishing characteristics from other appliance devices and general-purpose storage arrays. These characteristics are:

- » Being able to specifically store backup data sets in the format of the backup software, making it impractical to use the data for other purposes but ideal as a backup target alternative to tape
- » Implementing high rates of data deduplication (usually 10:1 and as high as 65:1) that make it impractical to use the data for tasks other than data restore but ideal for effectively low \$/GB backup retention
- » Enabling highly efficient data replication (largely due to data deduplication) to facilitate rapid backup from remote offices
- » Providing protocol translation (e.g., S3, OpenStack) for data transfer to cloud repositories ("cloud tiering")
- » Protecting against ransomware attacks and rapidly recovering from them by separating the control plane and the data plane with an "air gap" when properly configured and deployed with encryption and immutability

PBBAs have become a cornerstone data protection technology for many organizations that are seeking to optimize and simplify backup and restore operations.

AT A GLANCE

KEY STAT

The PBBA market reached \$4.33 billion in 2020, up 1.5% from 2019, according to IDC.

WHAT'S IMPORTANT

PBBA devices are evolving to address hybrid data protection requirements with faster data restoration and secondary use cases such as thwarting ransomware attacks.

Definitions

For the purposes of this market discussion, IDC identifies the following subsegments of the PBBA market:

- » **Target device:** Target PBBAs are disk arrays with specific functionality (i.e., deduplication, encryption) to house and manage backup data sets. Target devices do not include their own backup software and are intended to work with a wide variety of third-party backup applications.
- » **Integrated device:** Integrated devices are like target devices in configuration and capability, with the addition of installed and bundled backup software.

Despite our attention to these market distinctions for classification purposes, many IT organizations simply view PBBA alternatives based on which system has the desired functionality and convenience of deployment.

It is important to distinguish PBBAs from cloud gateway devices. Although both devices may provide protocol translation and transfer of data from on-premises to the cloud, cloud gateway devices are intended to store data for only short periods of time (primarily as a data transfer buffer). PBBAs are designed to retain data throughout the life of the data backup and facilitate rapid data restore.

Benefits

PBBAs solve several challenges associated with backup. The two primary issues solved are summarized as follows:

- » **Backstopping unreliable tape media and hardware:** Tape hardware, highly mechanical in nature, tends to be more error prone than disk arrays. Moreover, tape media can be lost, stolen, or broken or have unrecoverable errors. Thus, organizations turn to PBBAs as a primary backup target to reduce backup and restore failures caused by tape-related problems.
- » **Speeding up data restore:** As random-access devices, PBBAs can restore individual files very rapidly compared with the time needed to load, mount, search, and stream a tape. This is especially true if the tape has been moved offsite, where the recall process can be hours or days.
- » **Ransomware protection:** Bad actors deploying ransomware have learned to target backup data first so that subsequent attacks on primary data cannot be recovered through backup and thereby force ransom payment. PBBAs can be instrumental in defeating these attacks by protecting backup data through layers of "air gap" (i.e., eliminating a physical connection to the backup that hackers can exploit), data encryption, immutable copies of backup data that cannot be changed by hackers, and access control methods to prevent in-house attacks.

Of course, PBBAs and tape are not mutually exclusive. Many organizations will write one copy of the backup to a PBBA and a second copy to tape, known as disk-to-disk-to-tape (D2D2T). This method offers the advantage of rapid onsite data restore using the PBBA and the safety of tape offsite storage for disaster recovery (DR) or assured data survival; this process may be done either serially or in parallel. More recently, organizations have begun copying data to the cloud in a disk-to-disk-to-cloud (D2D2C) architecture. This approach offers the same data management benefits as D2D2T but can eliminate the need to handle tapes altogether.

When selecting a PBBA system, IT buyers must make a choice between a target device and an integrated device. Target devices can be used with almost any current backup/recovery software, and as such, they can be added to an existing environment seamlessly. Organizations wishing to use their existing backup software will likely choose a target device. Integrated devices have the backup/recovery software pre-installed on the appliance, so the deployment is rapid and simple. Organizations seeking the simplest implementation will likely choose an integrated appliance. The practical benefits of both systems are identical; it is a matter of deployment preference.

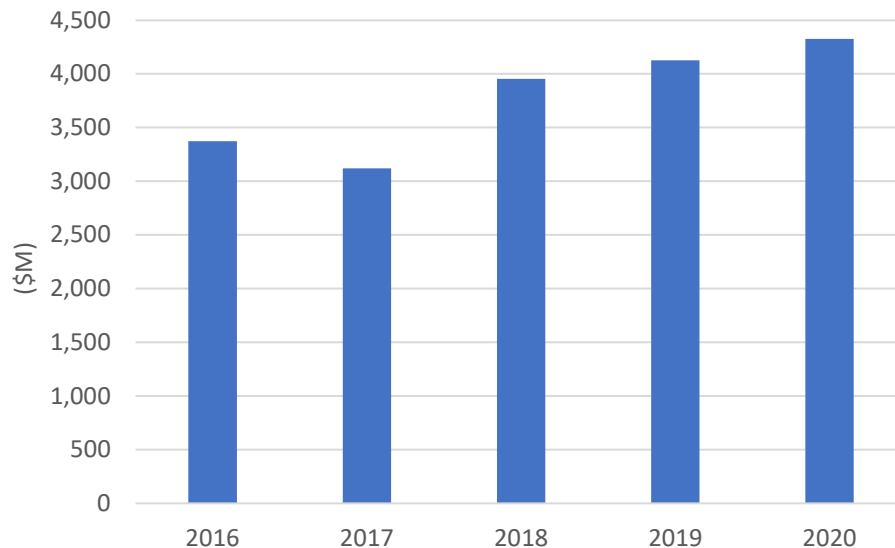
Considerations

The primary shortcoming of PBBAs is that they really serve only one purpose, which is backup/recovery. Because the data is highly deduplicated (i.e., data fragments spread across many blocks) and often stored in the proprietary format of the backup software, the data stores are not available for additional uses such as analytics. In addition, the time needed to "rehydrate" data (i.e., reassemble it from fragmented blocks into complete blocks) may impact restore times. Fortunately, the industry is responding by adding flash storage and different architectural elements to speed data restores as well as opening up the data to secondary use cases.

Trends

The total worldwide value of the PBBA market in 2020 was \$4.33 billion. Figure 1 shows total market value from 2016 through 2020. This value includes target and integrated devices, encompassing both hardware and software included with the devices.

FIGURE 1: **Total Worldwide PBBA Market Size in Revenue, 2016–2020**



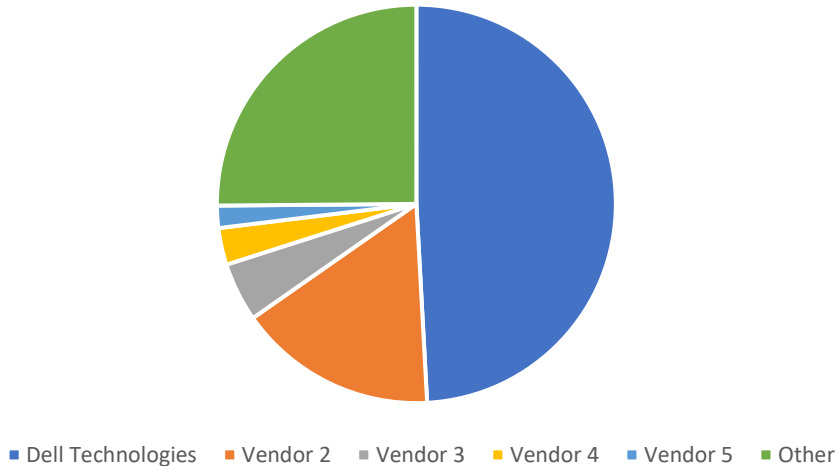
Source: IDC's Worldwide Quarterly Purpose-Built Backup Appliance Tracker, March 2021

Figure 1 illustrates an overall trend of steady growth for the PBBA market over time. When looking at the target and integrated market segments separately, we forecast -1.2% growth for target devices and 2.6% growth for integrated devices in 2021. Currently, target devices constitute approximately two-thirds of the overall market compared with one-third for integrated devices.

In terms of vendor market share, Figure 2 illustrates the share of the top 5 market participants by revenue in 2020. These market share figures are for the total market, including both target and integrated devices.

FIGURE 2: **Market Share of Top 5 PBBA Vendors Plus Other: Full-Year 2020 Results**

PBBA Vendor Share by Revenue, 2020



Source: IDC's Worldwide Quarterly Purpose-Built Backup Appliance Tracker, March 2021

For the full-year results in 2020, Dell Technologies enjoyed a 47% market share, which includes target and integrated devices plus associated software. Dell Technologies has been the market leader by revenue for as long as IDC has been tracking the market. Despite the COVID-19 pandemic, the PBBA market showed remarkable resilience in 2020.

Conclusion

PBBAs provide IT organizations with a solution to common problems associated with backup/recovery operations as well as improve service-level delivery for data restore and availability.

At \$4.33 billion in revenue value, PBBAs represent about one-third of the total spent by IT organizations on backup/recovery hardware and software infrastructure (this does not include the amount spent on tape infrastructure, which IDC estimates to be less than \$1 billion).

Although PBBAs were originally designed to solve tape-related problems, they remain relevant in cloud environments by providing rapid on-premises restore and data replication to the cloud as well as ransomware protection. Throughout the history of the market, Dell Technologies, with help from EMC's acquisition of Data Domain, has been the market leader. Currently, Dell Technologies has more than twice the market share of its next nearest competitor in this market.

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About the Analyst



Phil Goodwin, Research Director, Infrastructure Systems, Platforms, and Technologies Group

Phil Goodwin is a Research Director within IDC's Enterprise Infrastructure practice, covering research on data management. Mr. Goodwin provides detailed insight and analysis on evolving industry trends, vendor performance, and the impact of new technology adoption. He is responsible for producing and delivering timely, in-depth market research with a specific focus on cloud-based and on-premises data protection, business continuity and disaster recovery, and data availability.

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IDC Research, Inc.
140 Kendrick Street
Building B
Needham, MA 02494 USA
T 508.872.8200
F 508.935.4015
Twitter @IDC
idc-insights-community.com
www.idc.com

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