

MARKET ANALYSIS

Worldwide Purpose-Built Backup Appliance 2011–2015 Forecast and 2010 Vendor Shares

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IDC OPINION

Increasingly, disk systems are being placed in the data protection path in many customer environments. The use of disk in the data protection process relieves many of the backup bottlenecks associated with using traditional storage methodologies — such as tape. Customers are demanding faster backup, restore, and recovery. Additionally, customers need storage optimization tools, such as data deduplication, to control their explosive data growth. As a result, many customers are augmenting or foregoing further investments in physical tape infrastructure in favor of purpose-built backup appliances (PBBAs). PBBAs are typically tightly coupled with application software and utilize technologies such as data deduplication and replication. In addition, IDC research indicates that over the past several years, the customer drivers for increased investment in PBBA solutions result from the need to improve backup window time, provide faster restore and recovery times, and enable seamless integration with existing backup applications. In addition, the accelerated adoption of virtual servers and desktops is causing IT organizations to review and modernize their data protection architectures and processes with PBBA solutions. Furthermore, PBBAs allow customers a good measure of investment protection by allowing them to extend the longevity of existing data protection infrastructure such as software and hardware. IDC finds:

- ☒ At the close of 2010, EMC emerged as the revenue share leader commanding 64.2% of the nearly \$1.7 billion market. IBM held 16.5% of the total PBBA revenue share accounting for its open system and mainframe offerings, while HP held 4.7% of the total PBBA revenue share exiting 2010.
- ☒ In addition, EMC held the top share position in terms of total worldwide PBBA capacity, with 52.7% of the raw terabytes shipped. IBM held 18.3% of the total worldwide PBBA capacity shipped, while HP held 10.5% for the same period.
- ☒ The worldwide PBBA market totaled nearly \$1.7 billion in 2010. In addition, there were 468,000TB of raw capacity shipped during the same period. We anticipate the worldwide PBBA market will grow robustly with a compound annual growth rate (CAGR) of 16.6%, totaling well over \$3.6 billion by the close of 2015. Furthermore, we expect a rapid growth in terabytes being shipped for PBBA solutions as customers continue to forego investments in their tape infrastructure. We anticipate total capacity shipped will increase at a 78.1% CAGR, totaling over 8.4PB at the close of 2015.

IN THIS STUDY

In this IDC study, market share positions for revenue and raw capacity are reported for eight named PBBA vendors for the full year 2010. In addition, this study provides the market size and initial five-year forecast for the worldwide PBBA market as part of IDC's Storage Solutions coverage. The five-year forecast reports total factory revenue and raw capacity in terabytes through 2015. The worldwide PBBA market covers both open system– and mainframe-attached products.

Methodology

IDC gathered primary data for this study from telephone and personal interviews with vendors offering PBBA solutions. For the most part, IDC assumed vendor-supplied data to be accurate. IDC made adjustments on a case-by-case basis to reflect our judgment and market knowledge. Data was consistently cross-checked with available industry sources. When detailed information was unavailable, IDC interpolated known data from all available sources.

IDC defines a purpose-built backup appliance as a disk-based solution that utilizes software, disk arrays, server engine(s), or nodes that are used for a target for backup data and specifically data coming from a backup application (e.g., NetWorker, NetBackup, TSM, and Backup Exec). These products are stand-alone disk systems purpose built to serve as a target for backup. In addition, a PBBA can perform data reduction or deduplication.

Furthermore, a PBBA can also be deployed in a gateway configuration and thus connect to and store backup data on general-purpose storage. Here, the gateway device is serving as the component that is purpose built solely for backup and not supporting any other workload or application. Regardless of packaging (as an appliance or gateway), PBBAs could have multiple interfaces and present as a virtual tape library (VTL) using Fibre Channel (FC)/iSCSI or a NAS system using NFS/CIFS protocols. Additionally, these systems can support Symantec's OpenStorage (OST) API and NDMP. PBBAs often can provide and receive replication to or from remote sites and a secondary PBBA for the purpose of disaster recovery.

IDC will focus on single-purpose systems that include disk drives, server engines, controllers, and software needed to enable disk-based backup functionality. Revenue and capacity for both local and any remote PBBA systems will be included as well as any software revenue to replicate backup data between systems. IDC will capture upgrade revenue from additional components sold to add capacity or enhance performance at time of initial sale. Furthermore, revenue and capacity for disk systems behind PBBA gateways will be included in the analysis. IDC will report revenue as vendor-recognized revenue and under the brand of the product at time of sale. This will alleviate double counting of revenue and capacity from OEM sales. This analysis will cover open system and mainframe products. However, the majority of the mainframe PBBAs tend to be deployed solely as VTL-interfaced systems.

IDC is reporting the following metrics for the total worldwide PBBA market:

- ☒ Revenue and raw capacity (terabytes) share for eight named PBBA vendors for 2010
- ☒ Five-year worldwide PBBA revenue and raw terabyte forecasts

Note: All numbers in this document may not be exact due to rounding.

SITUATION OVERVIEW

The worldwide PBBA market comprises a wide array of products that are designed as backup targets and provide rapid recovery. PBBA solutions are designed for capacity optimization utilizing data deduplication that enables customers to manage their ever-growing volumes of backup data. We believe customers are gravitating toward deployment of PBBA solutions as a way to control their data protection capital and operational expenditures. Also, PBBA solutions provide customers a way to extend their existing investments in data protection hardware and software without having to change any existing process. In many cases, firms' investments in data protection software and hardware solutions are very costly and are not subject to rapid replacement cycles. Thus, PBBAs allow customers to have a great deal of coexistence with regard to software and hardware.

Over the past several years, from a vendor perspective, a tremendous amount of investment has been made in PBBA solutions. Many of the leading primary storage vendors have made key and strategic acquisitions to bolster their PBBA portfolio and are leveraging complementary distribution channels. This is particularly true for EMC with its acquisition of Avamar and later Data Domain. IBM acquired Diligent Technologies for its ProtecTIER gateway and appliance products to augment its existing mainframe and open system-attached VTL systems. Other vendors have pursued a partner strategy. For example, Dell tightly integrated Symantec's Backup Exec and CommVault's Simpana software with RAID arrays specifically designed for backup, adding key features such as data reduction and replication. HP has approached the PBBA market in a blended manner partnering for its high-end VLS appliances and gateways while investing heavily in its own D2D solutions along with its data deduplication software — StoreOnce.

Quantum continues to invest in and refine its PBBA solutions for remote office customers and datacenter solutions alike. Quantum initially offered its appliances solely as a VTL with the intent to offer customers a cost-effective way to extend their tape infrastructure and gain the benefits of disk-based recovery. Later on, Quantum offered a broader array of PBBA systems that supported file system interfaces and now support Symantec's OpenStorage API. Meanwhile, PBBA vendors such as FalconStor and SEPATON continue to pursue the VTL product approach. Both companies have a long history in developing and OEMing their VTL code to first-tier OEMs. However, while both companies support open storage initiatives such as OST, their product focus remains VTL focused. Many large customers still support large physical tape deployments and need the benefits of disk-based solutions to improve

their operational challenges, such as shrinking backup windows and more stringent recovery time and point objectives.

Other notable PBBA vendors in this analysis but not called out by name are ExaGrid Systems, Fujitsu, and Symantec. ExaGrid is offering scalable, disk-based appliances that offer deduplication and are designed for tape replacement rather than extension or augmentation. Fujitsu has offered its ETERNUS CS disk appliance for some time. Fujitsu's ETERNUS CS is aimed at larger customers that need to align their disk and tape operations with the benefits of storage optimization such as deduplication. Symantec is the last PBBA market entrant. Symantec entered the PBBA market in late 2010 with appliances tightly coupled with its NetBackup software. Symantec will be offering an expanded portfolio of PBBA systems based on its NetBackup and Backup Exec software. Symantec's entrée into the PBBA market is a watershed event. The introduction of PBBA solutions represents a change in channel for Symantec from solely a packaged storage software vendor to a purveyor of optimized appliances. For example, Symantec will bundle its NetBackup PureDisk deduplication software on a preconfigured, prepackaged appliance.

Exiting 2010, EMC commanded a sizable lead in PBBA revenue and raw terabytes shipped. EMC held 64.2% of the total worldwide PBBA revenue and 52.7% of total raw terabytes shipped. EMC, since its acquisition of Avamar in 2006 and Data Domain in 2009, has done a very good job of selling these solutions through complementary channels as well as targeting existing EMC primary storage customers. EMC is particularly strong in the open system-attached PBBA market while it is beginning to penetrate the mainframe-attached market with its recent acquisition of Bus-Tech. IBM holds 16.5% of the total worldwide PBBA revenue share and 18.3% share of the total raw capacity shipped. IBM's strengths are its mainframe-attached ProtecTIER Gateway solutions and TS7700 VTL offerings. However, IBM has made significant investments in its open system-attached ProtecTIER appliances in recent months with new products supporting OST and data deduplication. This places IBM in a stronger competitive position relative to EMC.

HP and Quantum have posted very good results in the PBBA market. HP held 4.7% of the total worldwide PBBA revenue and 10.5% of the total raw capacity shipped worldwide. HP has made significant enhancements to its D2D systems with StoreOnce deduplication capability, 64-bit architecture, NFS/CIFS, iSCSI, and FC connectivity as well as OST. This is in addition to HP's VLS family of scalable, multinode systems designed for large datacenter customers that need FC connectivity. Quantum closed 2010 holding 3.0% of the total worldwide PBBA revenue share and a very respectable 5.7% share of the total PBBA capacity shipped. Quantum has a PBBA based on its DXi family of disk-based products that offer data deduplication, replication, and OST. Quantum has a family of DXi systems for datacenters, midrange systems, and systems designed for smaller companies or ROBO protection (see Tables 1 and 2).

TABLE 1

Worldwide Purpose-Built Backup Appliance Revenue by Vendor, 2010

	Revenue (\$M)	Share (%)
EMC	1,085.7	64.2
IBM	278.9	16.5
HP	78.9	4.7
Oracle	52.1	3.1
Quantum	50.4	3.0
SEPATON	27.9	1.6
FalconStor	17.5	1.0
Dell	17.3	1.0
Other	81.9	4.8
Total	1,690.4	100.0

Note: Revenue share includes open and mainframe PBBA systems.

Source: IDC, 2011

TABLE 2

Worldwide Purpose-Built Backup Appliance Capacity by Vendor, 2010

	Capacity (TB)	Share (%)
EMC	246,573	52.7
IBM	85,715	18.3
HP	49,117	10.5
Quantum	26,476	5.7
FalconStor	12,533	2.7
Oracle	8,038	1.7
Dell	7,321	1.6
SEPATON	4,231	0.9
Other	27,997	6.0
Total	468,000	100.0

Note: Capacity share includes open and mainframe PBBA systems.

Source: IDC, 2011

FUTURE OUTLOOK

Forecast and Assumptions

We expect the worldwide PBBA market will experience very robust growth over the next five years. We anticipate total worldwide revenue in the PBBA market will grow at a 16.6% CAGR from nearly \$1.7 billion in 2010 to well over \$3.6 billion exiting 2015 (see Table 3). In terms of capacity growth, we expect total worldwide raw PBBA capacity will grow at a 78.1% CAGR from 468,000TB to nearly 8.4PB by 2015 (see Table 4). See Tables 5 and 6 for assumptions related to this forecast.

The rapid and robust PBBA market growth is due to strong customer adoption. We believe PBBA solutions — by enabling customers to alleviate the pain points and bottlenecks associated with data protection, namely backup and recovery — have clearly demonstrated their value and utility. More importantly, integration of PBBA systems allows customers the ability to gain the benefits of storage optimization such as data deduplication and replication without having to rearchitect their existing data protection infrastructure.

TABLE 3

Worldwide Purpose-Built Backup Appliance Revenue, 2010–2015

	2010	2011	2012	2013	2014	2015	2010–2015 CAGR (%)
Revenue (\$M)	1,690.4	2,103.0	2,476.5	2,878.3	3,294.5	3,645.3	16.6
Growth (%)	NA	24.4	17.8	16.2	14.5	10.6	

Note: See Table 5 for top 3 assumptions and Table 6 for key forecast assumptions.

Source: IDC, 2011

TABLE 4

Worldwide Purpose-Built Backup Appliance Capacity, 2010–2015

	2010	2011	2012	2013	2014	2015	2010–2015 CAGR (%)
Capacity (TB)	468,000	891,183	1,609,842	2,865,003	5,003,218	8,395,246	78.1
Growth (%)	NA	90.4	80.6	78.0	74.6	67.8	

Note: See Table 5 for top 3 assumptions and Table 6 for key forecast assumptions.

Source: IDC, 2011

TABLE 5**Top 3 Assumptions for the Worldwide Purpose-Built Backup Appliance Market, 2011–2015**

Market Force	IDC Assumption	Significance	Changes to This Assumption That Could Affect Current Forecast	Comments
Economy	<p>IDC assumes that GDP growth will remain broadly stable in 2011, with no double-dip recession in spite of some downside risk factors. Worldwide GDP growth will drop to around 3% (from 4% in 2010), primarily because the surging rebound in emerging markets will plateau into a more sustainable trend. The U.S. economy will perform strongly, with GDP growth accelerating slightly to more than 3%. Assuming no return of the sovereign debt crisis, Western Europe will also see continued growth in 2011 (but slightly weaker than in 2010 due partly to government austerity programs). Japan will struggle to maintain momentum, with much weaker growth than last year, but other economies in Asia/Pacific will continue to perform strongly.</p>	<p>A down economy affects business and consumer confidence, availability of credit and private investment, and internal funding.</p>	<p>Another significant national economic recession could adversely impact the growth in this market.</p>	<p>Currently, there is no indication of a double-dip economic recession.</p>

TABLE 5**Top 3 Assumptions for the Worldwide Purpose-Built Backup Appliance Market, 2011–2015**

Market Force	IDC Assumption	Significance	Changes to This Assumption That Could Affect Current Forecast	Comments
Fiscal stimulus packages	Stimulus spending probably helped many economies avoid a longer, deeper recession and drove much of the momentum in 2010. The positive benefits of previous stimulus measures will gradually wane in the next 12 months, but some trickle-through effects will persist. Tighter fiscal policy in most economies will likely have a contractionary effect on private demand and economic activity in the short term.	The stimulus packages and bailouts seem to have averted disaster, but the positive benefits will wane in 2011. We believe the GDP forecasts have accounted for these government actions.	Fiscal stimulus could help propel spending growth of the overall IT market.	Fiscal stimulus may not be a significant driver of PBBA market growth.
Oil prices	IDC assumes oil prices will rise in 2011, as a result of rising demand as the global economy picks up. There is some concern that this, combined with other inflationary forces, may have an adverse impact on economic growth in the short term. Our baseline assumption is that prices will remain within a range that doesn't derail the economic recovery.	While lower oil prices help spur lagging consumer spending, higher prices signal that demand is rising.	Oil prices will not have a large impact on PBBA during the forecast period.	Oil prices will not have a large impact on PBBA market spending.

Source: IDC, 2011

TABLE 6

Key Forecast Assumptions for the Worldwide Purpose-Built Backup Appliance Market, 2011–2015

Market Force	IDC Assumption	Impact	Accelerator/ Inhibitor/ Neutral	Certainty of Assumption
Macroeconomics				
Economy	IDC assumes that GDP growth will remain broadly stable in 2011, with no double-dip recession in spite of some downside risk factors. Worldwide GDP growth will drop to around 3% (from 4% in 2010), primarily because the surging rebound in emerging markets will plateau into a more sustainable trend. The U.S. economy will perform strongly, with GDP growth accelerating slightly to more than 3%. Assuming no return of the sovereign debt crisis, Western Europe will also see continued growth in 2011 (but slightly weaker than in 2010 due partly to government austerity programs). Japan will struggle to maintain momentum, with much weaker growth than last year, but other economies in Asia/Pacific will continue to perform strongly.	High. A down economy affects business and consumer confidence, availability of credit and private investment, and internal funding.	↔	★★★★☆
Fiscal stimulus packages	Stimulus spending probably helped many economies avoid a longer, deeper recession and drove much of the momentum in 2010. The positive benefits of previous stimulus measures will gradually wane in the next 12 months, but some trickle-through effects will persist. Tighter fiscal policy in most economies will likely have a contractionary effect on private demand and economic activity in the short term.	Moderate. The stimulus packages and bailouts seem to have averted disaster, but the positive benefits will wane in 2011. We believe the GDP forecasts have accounted for these government actions.	↔	★★★★☆

TABLE 6

Key Forecast Assumptions for the Worldwide Purpose-Built Backup Appliance Market, 2011–2015

Market Force	IDC Assumption	Impact	Accelerator/ Inhibitor/ Neutral	Certainty of Assumption
Oil prices	IDC assumes oil prices will rise in 2011, as a result of rising demand as the global economy picks up. There is some concern that this, combined with other inflationary forces, may have an adverse impact on economic growth in the short term. Our baseline assumption is that prices will remain within a range that doesn't derail the economic recovery.	Low. While lower oil prices help spur lagging consumer spending, higher prices signal that demand is rising.	↔	★★☆☆☆
Technology/ industry developments				
Server consolidation	Concerns about the manageability and efficiency of information in distributed file servers will force many companies to undertake consolidation programs for file assets.	High. Consolidation will drive demand for entry NAS and clustered NAS appliance/gateway solutions as well as spur demand for more intelligent data management capabilities that scale across multiple FBS systems.	↑	★★★★★
Massive scale-out storage	Massive scale-out storage systems will begin to have a more visible effect on the market in 2011 as many content depots and cloud service providers begin to build out large content and compute-centric environments. The impact of this new model on sales of more traditional environments will be more significant in the cloud service market than in the traditional enterprise market.	Moderate. Massive scale storage systems will account for a significant amount of storage capacity, but their extremely low dollar-per-gigabyte levels will inhibit hardware revenue growth.	↑	★★★★★

TABLE 6

Key Forecast Assumptions for the Worldwide Purpose-Built Backup Appliance Market, 2011–2015

Market Force	IDC Assumption	Impact	Accelerator/ Inhibitor/ Neutral	Certainty of Assumption
Storage in the cloud	Explosive growth of information in (and outside of) the cloud will, more than in any other infrastructure category, drive demand for storage systems with a lesser impact on software and services.	Moderate. Cloud-based storage is still an evolving architecture. While it will generate significant interest from certain types of organizations (e.g., content delivery network providers), overall, it will cause a shift of end-user spending from traditional on-premise storage implementations to cloud services. There will be a bigger impact on certain categories of storage systems, specifically in file servers and clustered NAS.	↓	★★★★☆
Convergence	Convergence is a complex phenomenon working at many levels — in the case of storage, networking, and processing in the datacenter, this is driven by an organization's desire to deploy scalable virtualized datacenters. One option for enabling converged IT infrastructure is greater use of FBS solutions for image loading and data management. This development, in conjunction with 10GbE deployments, may drive accelerated demand for NAS appliances and gateways.	High. Convergence will drive new competitive dynamics, offer new applications and functions to customers, and strain the legal and regulatory systems. It will also drive increased ICT spending.	↑	★★★★☆☆

TABLE 6

Key Forecast Assumptions for the Worldwide Purpose-Built Backup Appliance Market, 2011–2015

Market Force	IDC Assumption	Impact	Accelerator/ Inhibitor/ Neutral	Certainty of Assumption
Long-term archiving and data management	The optimization of storage infrastructure and storage/data management services in long-term and active archive environments will see opportunity.	Moderate. The strain on IT resources to manage growing volumes of file data in archives will necessitate increased demand for FBS storage solutions designed for maximum efficiency, minimal storage management, and advanced indexing/metadata analytic capabilities and may require support for a tape tier and a cloud tier.	↑	★★★★☆

Legend: ★☆☆☆☆ very low, ★★☆☆☆ low, ★★★☆☆ moderate, ★★★★☆ high, ★★★★★ very high

Note: Economic, political, technology, and industry assumptions for the entire storage market can be found in *Worldwide Enterprise Storage Systems 2010–2014 Forecast Update: Better Expectations on 2010 Growth, No Changes to Long-Term Outlook* (IDC #224618, August 2010).

Source: IDC, 2011

Market Context

This is IDC's first worldwide PBBA forecast, so there is no earlier forecast with which to compare the current forecast.

ESSENTIAL GUIDANCE

We expect vigorous customer adoption of PBBA solutions for the foreseeable future. From a vendor perspective, IDC believes that it's sound and prudent advice to do the following:

- ☒ Demonstrate the utility and value of using PBBA solutions in concert with existing data protection infrastructure — software and hardware.
- ☒ Provide nondisruptive integration of PBBA solutions in customers' existing data protection and disaster recovery frameworks so they do not need to change any procedures and policies.
- ☒ Support seamless data movement from PBBA systems to physical tape to support archive and disaster recovery.

- ☒ Support industry-standard interfaces, APIs, and application software to ease deployment.
- ☒ Add features that optimize storage efficiency, such as data deduplication.
- ☒ Support virtualized server environments enabling customers to use the same tools to safeguard both physical and virtual infrastructure.
- ☒ Link with or enable cloud storage initiatives.

LEARN MORE

Related Research

- ☒ *Data Deduplication Gaining Adoption and Enabling Disk-Based Data Protection and Recovery* (IDC #227924, April 2011)
- ☒ *Worldwide Branded Tape 1Q10–4Q10 Vendor Analysis* (IDC #227914, April 2011)
- ☒ *IDC's Worldwide Disk-Based Data Protection and Recovery Taxonomy, 2011* (IDC #227713, April 2011)

Synopsis

This IDC study includes market share positions for revenue and raw capacity for eight named purpose-built backup appliance (PBBA) vendors for the full year 2010. In addition, this study provides the market size and initial five-year forecast for the worldwide PBBA market as part of IDC's Storage Solutions coverage. The five-year forecast reports total factory revenue and raw capacity in terabytes through 2015. The worldwide PBBA market covers both open system– and mainframe-attached products.

"IDC research indicates that over the past several years, the customer drivers for increased investment in purpose-built backup appliance solutions result from the need to improve backup window time, provide faster restore and recovery times, and enable seamless integration with existing backup applications. In addition, the accelerated adoption of virtual servers and desktops is causing IT organizations to review and modernize their data protection architectures and processes with PBBA solutions. Furthermore, PBBAs allow customers a good measure of investment protection by allowing them to extend the longevity in existing data protection infrastructure such as software and hardware." — Robert Amatruda, research director, Data Protection and Recovery at IDC

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