

MARKET ANALYSIS

Worldwide Purpose-Built Backup Appliance 2012–2016 Forecast and 2011 Vendor Shares

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IDC OPINION

The worldwide purpose-built backup appliance (PBBA) market experienced exceptional growth in 2011. The worldwide PBBA revenue totaled \$2.4 billion in 2011, posting an 43.4% increase over the prior year. The exceptional growth is due to increased use and customer adoption of PBBA systems for backup, recovery, and storage optimization with the use of data deduplication. We believe the customer drivers for increased investment in PBBA solutions result from the need to improve backup window time, to provide faster restore and recovery times, and to enable seamless integration with existing backup applications. As a result, customers continue to aggressively move away from tape-based backup and recovery processes. This trend will continue for the foreseeable future as customers take advantage of PBBA's rich feature sets, particularly for virtual server protection, rapid recovery, and data deduplication. However, tape will still be used and deployed alongside PBBA systems in customer environments — primarily mainframe environments — and as an archive platform for open system customers. We continue to be upbeat on the growth potential of PBBA systems through the forecast period. Key findings for 2011 in the worldwide PBBA market include:

- ☒ At the close of 2011, EMC remained the revenue share leader, commanding 65.5% of the total \$2.4 billion PBBA solutions market. IBM and HP followed, with 15.3% and 4.1% revenue share, respectively. In addition, EMC held the top share position in terms of total worldwide PBBA capacity, with 64.7% of the raw terabytes shipped. IBM held 9.2% of the total worldwide PBBA capacity shipped, while HP held 8.9% for the same period.
- ☒ We expect the total worldwide PBBA revenue will grow robustly with a compound annual growth rate (CAGR) of 19.4%, totaling nearly \$5.9 billion by the close of 2016 — driven by customers' need to augment their existing data protection and recovery infrastructure or to modernize their environments taking advantage of data deduplication.
- ☒ Furthermore, we expect rapid growth in capacity shipped for PBBA solutions as customers continue to curb investments in their tape infrastructure for rapid recovery. We anticipate total capacity shipped will increase at a 56.2% CAGR, totaling nearly 8.6EB at the close of 2016.

IN THIS STUDY

In this IDC study, market share positions for revenue and raw capacity are reported for 11 named PBBA vendors for the full year 2011. In addition, this study provides the market size and five-year forecast for the worldwide PBBA market as part of IDC's Storage Solutions coverage. The five-year forecasts include total factory revenue and raw capacity in terabytes through 2016. Data reported for 2010 and 2011 are based on actual results. The worldwide PBBA market sizing and forecasts cover aggregate results for 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 standalone 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) — or can be tightly integrated with the backup software to catalog, index, schedule, and perform data movement. The PBBA products are deployed in standalone configurations or as gateways. PBBA solutions deployed in a gateway configuration connect to and store backup data on general-purpose storage. Here, the gateway device serves as the component that is purpose built solely for backup and does not support any other workload or application. Regardless of packaging (as an appliance or gateway), PBBAs can have multiple interfaces or protocols. Also, PBBAs often can provide and receive replication to or from remote sites and a secondary PBBA for the purpose of disaster recovery.

IDC has defined two PBBA product categories, integrated systems and target systems:

- ☒ PBBA systems used in conjunction with third-party backup software and designed to integrate in heterogeneous environments are called PBBA backup targets.
- ☒ PBBA systems that are tightly integrated with backup software are called PBBA integrated systems. The PBBA integrated systems can have master or media servers built integrated into the system to orchestrate the backup and movement of data to other systems or removable media such as tape.

However, the five-year worldwide PBBA forecast presented in this analysis is an aggregate forecast for PBBA target and integrated systems. All forecast revenue is reported in terms of factory value, consistent with other IDC hardware and software analyses. IDC includes software revenue for those software products with an

associated and separately purchasable SKU. IDC does not attempt to derive or make a judgment call on the value, and thus revenue, associated with software, which is embedded with and included in the sale of a hardware solution.

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

SITUATION OVERVIEW

Customer strategies for data protection and recovery continue to be dictated by aggressive SLAs, rapid recovery, and ease of integration in existing environments. As a result, firms are embracing more disk-based data protection technologies, including PBBA systems to protect and recover data and applications. These appliances include features such as data deduplication, compression, encryption, and remote replication and present a range of interfaces to the backup server (i.e., NFS, CIFS, VTL, OST).

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, a firm's 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.

The worldwide PBBA market covers products designed for open system and mainframe environments. The open system PBBA systems are, in many cases, designed to supplant tape, while the mainframe PBBA systems are deployed with a large physical tape component. This is true for IBM and Oracle. However, EMC, IBM, and Oracle have brought to market tapeless versions of the mainframe PBBA systems. The worldwide PBBA analysis only reports the disk cache and server engine components of the mainframe market. If physical tape was included, the capacity and market value for mainframe PBBA systems' overall revenue and capacity would be larger. Physical tape is excluded in the worldwide PBBA analysis to normalize comparisons for open and mainframe systems.

In terms of vendor performance in 2011, EMC continued to command a sizable lead in the aggregate worldwide PBBA market, holding 65.5% of the total \$2.4 billion in revenue and 64.7% of the total 927,474TB of raw capacity. EMC continues to invest in its Data Domain offerings with renewed emphasis on the low end, with its entry DD160 being sold exclusively through channel partners. Also, EMC has been expanding its Avamar offerings for larger, more scalable backup and recovery environments, especially for virtual server applications as well as NAS, remote office, desktop, and laptop environments. In addition, EMC has been enhancing its EMC Disk Library for mainframe offering for mainframe tape replacement. EMC's solution focus extends beyond the appliance form factor with its NetWorker data protection

software and its Data Protection Advisor management software, which provides automated analysis and alerting across backup, replication, and virtual environments.

Meanwhile, IBM, holding 15.3% of the total PBBA revenue and 9.2% of overall raw capacity shipped, continues to be dominant in the mainframe PBBA market. IBM has had very good success with its mainframe offerings such as IBM TS7700 Virtualization Engine. The IBM TS7700 Virtualization Engines are designed to support and optimize physical tape infrastructure. However, IBM does have an all-disk implementation designed for multisite replication, with data being migrated to physical tape for archive and disaster recovery. The reported revenue for IBM does not include the physical tape deployment alongside these systems. This was done to normalize the reported revenue to include only the disk portion or cache portion of the system. IBM offers a rich set of open PBBA products with its ProtecTIER systems. IBM continues to ramp its ProtecTIER products to address the disk-based data protection needs of its customers. IBM has had great success with its TS7650G ProtecTIER Deduplication Gateway. This is a highly scalable PBBA gateway that supports third-party storage. Furthermore, IBM has been pursuing the open system PBBA market with smaller, rack-based, preconfigured ProtecTIER appliances designed for small enterprise customers. All ProtecTIER systems have storage optimization its patented HyperFactor data deduplication technology.

HP, holding 4.1% of the total worldwide PBBA share and accounting for 8.9% of the total worldwide capacity share, continues to move its portfolio upmarket. HP's recently introduced B6200 storage system is the company's latest entrée in the PBBA market. The B6200 system augments HP's PBBA offerings for enterprise customers. The B6200 represents an entirely new architecture for HP. HP is focused on a high-density, scale-out, modular architecture with built-in high availability called Autonomic Failover. HP is offering its StoreOnce data deduplication engine as its storage optimization tool embedded in the B6200. HP utilizes the StoreOnce data deduplication engine in its entry and midmarket offerings — the D2D2500 and D2D4000. These systems are offered in rackmountable appliance-based form factors. All HP D2D systems integrate existing IT infrastructure and processes providing both virtual tape library and NAS protocols. Furthermore, the StoreOnce data deduplication algorithm is now included as part of HP's Data Protector offering, providing a single deduplication algorithm across the enterprise without the need for rehydration of data. The HP D2D StoreOnce systems with HP's StoreOnce deduplication engine provide disk-based data protection for datacenters and remote offices. This allows customers to automate and consolidate the backup of multiple servers onto a single, rackmountable appliance.

Symantec, holding 3.5% of the total worldwide PBBA revenue and 3.7% of total raw capacity, continues to use its systems to extend its backup framework to existing and new customers looking to cost-effectively protect their data. Symantec offers appliances for enterprise customers, with NetBackup (5200 and 5000 series), and SMBs, with Backup Exec (3600). The NetBackup 5200 and Backup Exec 3600 series contain the core backup software, server, and storage to function as all-in-one appliances and as building blocks to scale out NetBackup architecture. The appliances support the latest software versions typically three to four months after software availability. Symantec appliances share important common capabilities such as end-to-end deduplication (source, target inline, or postprocess), Symantec V-Ray,

tape support, and replication for disaster recovery. Larger enterprise customers can scale out with multiple NetBackup 5220s and flexible connectivity options providing a scalable way to modernize and extend their protection infrastructure. In addition, the NetBackup AIR capability provides recovery of data replicated to an alternate site or an appliance. The NetBackup 5220 appliance is tuned for virtual backup/recovery, with tight integration for VMware, through VADP, allowing for "proxyless" backup. The Symantec appliances also support Symantec's V-Ray technology, allowing customers to gain greater management and visibility into their protection environment. Also, the NetBackup 5000 series provides a scale-out, global deduplication pool for NetBackup.

Quantum, holding 2.6% of the total worldwide PBBA revenue and 4.5% of total raw capacity, offers one of the most extensive lineups of systems in the marketplace. Quantum offers cost-effective, rack-based appliances for small to medium-sized businesses or branch offices with integrated capacity-on-demand deduplication, with its DXi4000 series systems. All software features such as replication and support for the Symantec OpenStorage API (OST) are included in the base price. Quantum also offers an extensive line of PBBA systems for midmarket customers — its DXi6000 deduplication appliances. The DXi6000 appliances range in size from 8TB to 80TB of usable capacity offering inline data deduplication. These systems offer automated disaster recovery and include all software licenses in the initial purchase price. The DXi6000 systems present with a NAS (CIFS, NFS) interface and offer VM backup support for both traditional and agentless backup software. In addition, the DXi6000 series integrates smoothly with all prevailing backup applications. Quantum's enterprise offering is the DXi8500, with 40–320TB usable capacity. The DXi8500 system offers a broad array of protocol support including deduplication-enabled VTL, CIFS, NFS, and OST, as well as native-mode (non-deduplicating) VTL and NAS shares. In addition, protocols can be supported simultaneously in the same system for greater flexibility in heterogeneous environments. A standard feature on DXi8500 and DXi6700 appliances is DXi Accent software for hybrid-mode deduplication, which increases backup throughput over low-bandwidth networks by moving part of the deduplication process to the backup server. Also, the DXi8500 features an integrated path to tape for both VTL and OST presentations, allowing a direct link to physical tape libraries. All DXi-Series appliances work with Quantum's vmPRO software, which is a VM data protection solution enabling more efficient backup, restoration, and disaster recovery in virtual environments. In addition, Quantum is offering a virtual appliance called the DXi V1000. The DXi V1000 provides backup and disaster recovery for distributed sites, small businesses, and cloud deployments.

Oracle and Fujitsu, holding 1.9% and 1.5% of the total worldwide PBBA revenue share, respectively are focused on large-scale customers and deployments. Also, Oracle and Fujitsu hold 0.8% and 1.2% of the total worldwide PBBA raw capacity shipped in 2011, respectively. Both companies have a long legacy in the data protection and recovery market. Oracle's StorageTek Virtual Storage Manager (VSM) subsystem is designed for mainframe customers and environments. The VSM is designed to be deployed with an all-disk library as a second tier of storage called Virtual Library Extension (VLE). The VLE provides flexibility to keep a larger amount of active data within disk for longer periods of time. This augments capacity for physical tape storage. The revenue associated with the physical tape portion of the VSM is not represented in this analysis. Fujitsu offers its ETERNUS CS800

deduplication appliance, which offers up to 160TB of usable capacity and can present with NAS or VTL protocols. Fujitsu also offers its ETERNUS CS High End data protection appliance for consolidation of backup environments. The ETERNUS CS High End can be deployed in grid architecture for increased scalability. The ETERNUS CS High End supports SAN and Ethernet connectivity as well as VTL, NAS, and WORM for backup and archiving.

Sepaton, holding 1.4% of the total worldwide PBBA revenue share and 0.6% of the total capacity shipped, is focused on large enterprise customers with massive amounts of data and expansive data growth. Sepaton utilizes its patented and trademarked DeltaScale architecture to deliver its grid-based S2100 system offering up to 1.6PB of physical usable capacity. Sepaton's grid architecture allows customers the ability to scale performance and capacity independently, delivering superior TCO. The Sepaton S2100 system scales out with its processing nodes (SEPATON replication engine [SRE]) to provide up to 43.2TB/hour of throughput. Capacity is added with precabled cabinets for nondisruptive expansion. The S2100 system supports Symantec NetBackup OpenStorage (OST) on 10 Gigabit Ethernet concurrently with Fibre Channel tape emulation. In addition, the S2100 system provides multitenancy capabilities with storage pooling to create discrete storage environments or pools within a single appliance. Thus an organization can assign each pool by client, disk type, deduplication configuration, replication priority, backup policy, and backup application. Sepaton continues to refine and enhance its PBBA systems, most recently supporting Symantec's NetBackup OpenStorage Auto Image Replication (A.I.R.) and Optimized Synthetic backup. These features make disk-based backup and disaster recovery more efficient for large data-intensive enterprises.

ExaGrid, holding 1.3% of the total worldwide PBBA revenue share and 2.3% of the total capacity shipped, offers eight disk-based backup appliance models that can be combined into a GRID configuration of up to 320TB raw capacity and allow full backups of up to 130TB. ExaGrid offers a very competitive set of PBBA systems that utilize postprocess deduplication, coupled with disk caching and grid scalability, to achieve aggressive customer SLAs for backup and recovery. ExaGrid's highly scalable GRID architecture for disk backup allows for cost-effective modular expansion by adding full servers including CPU, memory, disk, and I/O to maintain a consistently short backup window as data grows and avoid costly forklift upgrades and product obsolescence. ExaGrid's disk backup systems support all prevailing application software for data protection and recovery, including both physical and virtual environments. ExaGrid is singularly focused on disk-based data protection and disaster recovery solutions and has offices and distribution worldwide. Currently, ExaGrid has more than 4,200 systems installed at more than 1,300 customers.

FalconStor holds 1.1% of total PBBA revenue and 1.8% of total capacity shipped worldwide. FalconStor offers a wide array of data protection and recovery products such as Continuous Data Protector (CDP), Virtual Tape Library (VTL), Network Storage Server (NSS), and File-interface Deduplication System (FDS). FalconStor's solutions are primarily oriented to Fortune 1000 companies in industries such as financial services, telecommunications, aerospace, manufacturing, law, energy production, government, healthcare, and higher education. The FalconStor products covered in this analysis are the VTL and CDP solutions. FalconStor VTL can support

small and ROBO environments through storage appliances and small-footprint virtual appliances and also is available as a high-availability (HA) clustered solution for the enterprise. FalconStor VTL is delivered in a variety of form factors, including as software only, fully configured appliance, or virtual machine. FalconStor continues to enhance its VTL offerings with the 7.5 release. FalconStor VTL 7.5 provides customers with flexible data deduplication options such as inline, postprocess, and concurrent. Other improvements include greater scalability with enhanced OST support, flexible repositories and cluster expansion, more efficient replication, and AES encryption. FalconStor's CDP system is a disk-based continuous data protection solution that provides comprehensive backup, remote replication, and rapid disaster recovery. These features enable customers to have greater availability of their data. The CDP appliance is interoperable with Unix, Linux, and Microsoft Windows environments and protects application-specific data for Microsoft, Oracle, SAP, and other business applications.

Dell, holding 1.0% of the total worldwide PBBA revenue and 1.5% of the total capacity shipped, has been investing in its disk-based data protection and recovery portfolio in the past year, most recently with its AppAssure acquisition. In late 2011, Dell announced its DR4000 disk-based backup, data protection, and recovery solution appliance. The DR4000 is a turnkey target PBBA system that provides deduplication, compression, and replication with RAID 6 protected arrays. The DR4000 supports NFS, CIFS, and OST protocols and is qualified with Commvault Simpana, Symantec NetBackup and Backup Exec, and AppAssure software. It is packaged in a 2U form factor available in 2.7TB, 5.4TB, and 9TB capacities. The DR4000, which is focused on small and midmarket customers, is delivered with all-inclusive licensing that includes OST and replication in the base price. However, the Dell PowerVault DL Backup to Disk Appliance is catered to midsize to large enterprises looking for a turnkey data protection solution, but it is also ideal for SMBs. Dell offers its PowerVault DL Backup to Disk Appliance bundled with Backup Exec 2010 R2 or Simpana, which is ideal for customers desiring an all-in-one appliance. Both versions of DL provide data deduplication, replication, remote monitoring, and archiving. The PowerVault DL Backup to Disk Appliance supports data movement to physical tape.

Tables 1 and 2 provide worldwide revenue and capacity shipped in 2011.

TABLE 1

Worldwide Purpose-Built Backup Appliance Revenue by Vendor, 2011

	Revenue (\$M)	Share (%)
EMC	1,588.4	65.5
IBM	370.1	15.3
HP	100.6	4.1
Symantec	84.1	3.5
Quantum	63.8	2.6
Oracle	45.5	1.9
Fujitsu	36.0	1.5
Sepaton	35.0	1.4
ExaGrid	31.4	1.3
FalconStor	27.7	1.1
Dell	24.5	1.0
Other	16.6	0.7
Total	2,423.6	100.0

Note: Revenue share includes open and mainframe PBBA systems.

Source: IDC, 2012

TABLE 2

Worldwide Purpose-Built Backup Appliance Capacity by Vendor, 2011

	Capacity Shipped (TB)	Share (%)
EMC	599,678	64.7
IBM	85,453	9.2
HP	82,202	8.9
Quantum	41,523	4.5
Symantec	34,587	3.7
ExaGrid	21,636	2.3
FalconStor	16,537	1.8
Dell	14,203	1.5
Fujitsu	11,571	1.2
Oracle	7,534	0.8
Septon	5,443	0.6
Other	7,110	0.8
Total	927,474	100.0

Note: Capacity share includes open and mainframe PBBA systems.

Source: IDC, 2012

Data Deduplication and the Impact on Data Protection

The demand for data deduplication, in both midsize and enterprise environments, is escalating as firms look for ways to keep pace with the near doubling of storage growth annually. This growth is fueled by new applications, the proliferation of virtualization, the creation of electronic document stores and document sharing, use of Web 2.0 technologies, and the retention of digital records. With constrained IT budgets, the need to curb data growth is heightened as firms look to reduce capital and operating costs. From a physical perspective, many datacenter managers are also dealing with limited infrastructure in terms of power, cooling, and floor space. Deduplication is a technology that not only aids in accelerating storage efficiency by reducing cost but also alleviates physically constrained datacenters.

Deduplication also addresses challenges associated with management, backup, and network inefficiency. Firms are deploying data deduplication in a number of places in the infrastructure stack to address practical, real-world challenges. Deduplication is a feature that is increasingly being embedded in backup applications, disk storage systems, file systems, and the like. While today deduplication is a feature closely tied to data protection, over time it is likely that all storage systems will have some form of storage optimization provided natively within its architecture. Nonetheless, deduplication has been a disruptive technology making the use of disk for data protection more economically feasible than ever before.

Virtualization and the Impact on Data and System-Level Protection and Recovery

The proliferation of virtualization has had an impact on how data and systems are protected, backed up, and recovered. Because virtualization has moved well beyond test and development and is mainly used for production applications, the importance of fast, reliable, and efficient backup and recovery has increased in priority. The use of virtualization in business-critical workloads such as ERP and CRM has brought to the surface the need for more richly configured systems and streamlined protection and recovery processes. The adoption of virtualization on server infrastructure has raised several challenges, including network and I/O bottlenecks.

As firms virtualize either their server or their PC environment, they are often re-architecting their backup products and approaches. As a result, changes to existing data protection infrastructure frequently comes on the heels of expanded virtualization efforts. Moreover, there are different methodologies for virtual machine protection. As firms move increasingly critical workloads to virtual machines, they seek to shift to a networked storage infrastructure to benefit from improved service levels around availability, workload balancing, recovery, and the like. The shift to shared storage often brings about a change in backup processes — the use of new protection and recovery methodologies enables avoidance of tape management all together.

Tape Media, Automation, and Drive Spending

The increased use and deployment of disk-based data protection for backup and recovery has arrested the overall spending on tape-based infrastructure in the past several years. The increased popularity and use of general-purpose disk arrays, PBBA systems, and VTLs has provided many customers the ability to have rapid recovery of data and applications. In the past, physical tape systems were the only cost-effective manner to achieve timely recovery. However, disk-based data protection solutions, coupled with data deduplication and replication, now fulfill many of the customer requirements. We do see more customer investment in physical tape infrastructure in the future, especially for deep archive. We see more customer investment in automated tape systems that can support multiple tape drives and hundreds of tape cartridges used as a shared resource, thus consolidating tape systems used for separate applications.

FUTURE OUTLOOK

Forecast and Assumptions

We are very bullish on the long-term outlook for the worldwide PBBA market. At the close of 2011, the aggregate open system and mainframe worldwide PBBA market increased by 43.4%, totaling over \$2.4 billion. In addition, raw capacity increased by 99.4%, totaling 927,474TB. All PBBA market participants benefitted from overall market growth despite the stability in the share positions. We expect total worldwide PBBA revenue will increase by a 19.4% CAGR through 2016, totaling nearly \$5.9 billion (see Table 3). We expect total worldwide PBBA capacity will increase by a 56.2% CAGR, totaling nearly 8.6EB (see Table 4). The top 3 macroeconomic assumptions are outlined in Table 5, and Table 6 spells out the accelerators and inhibitors for the worldwide PBBA market.

TABLE 3

Worldwide Purpose-Built Backup Appliance Revenue, 2010–2016

	2010	2011	2012	2013	2014	2015	2016	2011–2016 CAGR (%)
Revenue (\$M)	1,689.6	2,423.6	3,168.6	3,899.7	4,603.1	5,265.0	5,881.1	19.4
Growth (%)	NA	43.4	30.7	23.1	18.0	14.4	11.7	

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

Source: IDC, 2012

TABLE 4

Worldwide Purpose-Built Backup Appliance Capacity Shipped, 2010–2016

	2010	2011	2012	2013	2014	2015	2016	2011–2016 CAGR (%)
Capacity shipped (TB)	465,215	927,474	1,649,316	2,704,620	4,171,689	6,120,485	8,616,869	56.2
Growth (%)	NA	99.4	77.8	64.0	54.2	46.7	40.8	

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

Source: IDC, 2012

TABLE 5

Top 3 Assumptions for the Worldwide Purpose-Built Backup Appliance Market, 2012–2016

Market Force	IDC Assumption	Significance	Changes to This Assumption That Could Affect Current Forecast	Comments
Economy	<p>GDP growth will remain broadly stable in 2012, 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 2012 (but slightly weaker than 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 growth in this market.</p>	<p>Currently, there is no indication of a double-dip national economic recession.</p>

TABLE 5

Top 3 Assumptions for the Worldwide Purpose-Built Backup Appliance Market, 2012–2016

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 2011. 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 2012. 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	Oil prices will rise in 2012, as a result of rising demand as the global economy picks up. There is some concern that this may have an adverse impact on economic growth in the short term, combined with other inflationary forces. 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 the PBBA forecast.	Oil prices will not have a large impact on PBBA market spending.

Source: IDC, 2012

TABLE 6

Key Forecast Assumptions for the Worldwide Purpose-Built Backup Appliance Market, 2012–2016

Market Force	IDC Assumption	Impact	Accelerator/ Inhibitor/ Neutral	Certainty of Assumption
Macroeconomics				
Economy	GDP growth will remain broadly stable in 2012, 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 2012 (but slightly weaker than 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 2011. 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 2012. We believe the GDP forecasts have accounted for these government actions.	↔	★★★★☆

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Oil prices	Oil prices will rise in 2012, as a result of rising demand as the global economy picks up. There is some concern that this may have an adverse impact on economic growth in the short term, combined with other inflationary forces. 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 2012 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 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, 2012–2016

Market Force	IDC Assumption	Impact	Accelerator/ Inhibitor/ Neutral	Certainty of Assumption
Storage in the cloud	Explosive growth of information in the cloud (and outside 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 organizations' 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 10 GbE 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, 2012–2016**

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, advanced indexing/metadata analytic capabilities and may include requirement of 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, 2012

Market Context

IDC published a forecast update in December 2010 based on two quarters of actual data (see *Worldwide Purpose-Built Backup Appliance 2011–2015 Forecast Update: Explosive Growth in 2011*, IDC #232070, December 2011). This was an update from an initial five-year forecast published for the worldwide PBBA market in *Worldwide Purpose-Built Backup Appliance 2011–2015 Forecast and 2010 Vendor Shares* (IDC #228091, May 2011).

Table 7 and Figure 1 provide a comparison of the forecast update published in December 2011 with the current forecast in terms of worldwide annual revenue and growth rates. The slight decline in the 2011 actual versus the 2011 estimated growth is a result of overcounting software revenue sold with PBBA systems and reflects more aggressive discounting of systems sold. The actual revenue for the worldwide PBBA market totaled slightly over \$2.4 billion rather than the estimated \$2.8 billion in the forecast update in December 2011.

TABLE 7

Worldwide Purpose-Built Backup Appliance Revenue, 2010–2016: Comparison of December 2011 and April 2012 Forecasts (\$M)

	2010	2011	2012	2013	2014	2015	2016	2011–2016 CAGR (%)
April 2012 forecast	1,689.6	2,423.6	3,168.6	3,899.7	4,603.1	5,265.0	5,881.1	19.4
Growth (%)	NA	43.4	30.7	23.1	18.0	14.4	11.7	
December 2011 forecast	1,690.4	2,797.8	3,822.4	4,564.3	5,026.2	5,290.8	NA	NA
Growth (%)	NA	65.5	36.6	19.4	10.1	5.3	NA	

Notes:

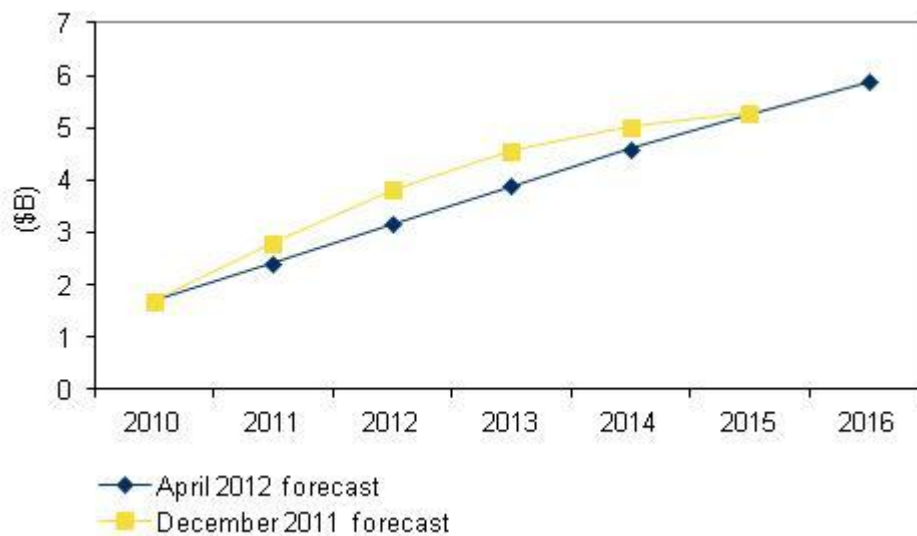
See *Worldwide Purpose-Built Backup Appliance 2011–2015 Forecast Update: Explosive Growth in 2011* (IDC #232070, December 2011) for prior forecast.

Historical market values presented here are as published in prior IDC documents based on the market taxonomies and current U.S. dollar exchange rates existing at the time the data was originally published. For more details, see the Methodology in the Learn More section.

Source: IDC, 2012

FIGURE 1

Worldwide Purpose-Built Backup Appliance Revenue, 2010–2016: Comparison of December 2011 and April 2012 Forecasts



Source: IDC, 2012

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 to customers' existing data protection and disaster recovery frameworks so they need not 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 and security and provide a more cohesive DR approach such as data deduplication, encryption, or replication.
- ☒ Support virtualized server environments enabling customers to use the same tools to safeguard both physical and virtual infrastructure.

LEARN MORE

Related Research

- ☒ *IDC's Worldwide Purpose-Built Backup Appliance and Tracker Taxonomy* (IDC #233040, February 2012)
 - ☒ *Worldwide Purpose-Built Backup Appliance 2011–2015 Forecast Update: Explosive Growth in 2011* (IDC #232070, December 2011)
 - ☒ *Worldwide Purpose-Built Backup Appliance 2011–2015 Forecast and 2010 Vendor Shares* (IDC #228091, May 2011)
-

Methodology

Historical Market Values and Exchange Rates

Historical market values presented here are as published in prior IDC documents based on the market taxonomies and current U.S. dollar exchange rates existing at the time the data was originally published. For markets other than the United States, these as-published values are therefore based on a different exchange rate each year.

Please refer to IDC's regional research studies containing historical forecasts for multiple countries for more accurate regional growth in local currencies. Note that this

discussion applies only to historical values prior to 2011. 2011 and all future years are forecast at a constant exchange rate.

Synopsis

This IDC study presents market share positions for revenue and raw capacity for 11 named purpose-built backup appliance (PBBA) vendors for the full year 2011. In addition, this study provides the market size and five-year forecast for the worldwide PBBA market as part of IDC's Storage Solutions coverage.

"The worldwide purpose-built backup appliance market experienced exceptional growth in 2011. The worldwide PBBA revenue totaled \$2.4 billion in 2011, posting an 43.4% increase over the prior year. The exceptional growth is due to increased use and customer adoption of PBBA systems for backup, recovery, and storage optimization with the use of data deduplication. We believe the customer drivers for increased investment in PBBA solutions result from the need to improve backup window time, to provide faster restore and recovery times, and to enable seamless integration with existing backup applications. As a result, customers continue to aggressively move away from tape-based backup and recovery processes." — Robert Amatruda, research director, Data Protection and Recovery at IDC

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