Barracuda

Backup and Archiving Explained

White Paper

Backup vs. Archiving

The terms backup and archiving are often referenced together and sometimes incorrectly used interchangeably. While both technologies are used to ensure data is protected, it is important to understand the differences. In this document we will explain the different benefits that backup and archiving provide in meeting overall data protection goals.

Backup Explained

Backup is a collection of data stored for the purpose of recovery in case the original data is lost or becomes inaccessible.

Backup Scheduling

Backup is deployed to provide protection in case of accidental file modification or entire system failure. Organizations have various recovery point objectives (RPOs) necessary to meet their requirements. Backup administrators must tailor their backup solutions to protect key systems based on the level of need. Defining RPOs is an important consideration for organizations looking to reduce the impact of missing a file or a system modification.

Traditionally, administrators have configured backups to run at the end of each workday. Administrators build schedules to protect systems during low resource-use times where servers are not as busy. This enables administrators to restore the last revision of the file that day. This backup configuration works for a large number of organizations. However, systems hosting mission-critical applications or file data may need protection that is more frequent. In these situations, organizations must deploy technologies such as near continuous data protection (CDP), which gives administrators the ability to create restore points multiple times per hour. With CDP, organizations can recover files, databases, and systems at additional recovery points, reducing the risk of lost data, especially compared to traditional backups.

Barracuda's All-in-One Backup Solution Meets Any RPO

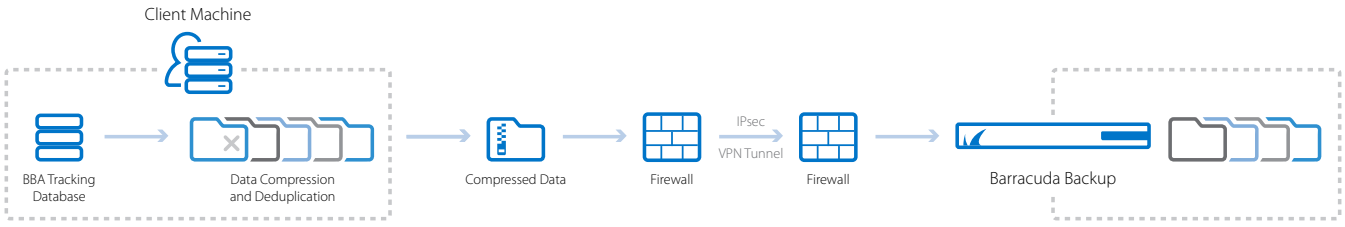
Barracuda Backup is a complete backup solution for physical and virtual environments that includes software, storage, deduplication, and replication. Simple to deploy and easy to manage, Barracuda Backup includes agents for Microsoft Windows, Microsoft applications, Linux, and Microsoft Hyper-V, as well as agentless VMware backup. Source-based deduplication keeps backup windows short and LAN traffic to a minimum, while in-line global deduplication on the backup server optimizes the backup storage footprint.

Organizations can customize their Barracuda Backup deployment to protect specific files or entire systems. Administrators can configure the backup solution to provide a traditional backup methodology by scheduling backups on off-peak hours, or backups to run as often as every 15 minutes. The Backup Agent allows Barracuda Backup to perform source-based deduplication, also known as client-side deduplication, letting organizations easily back up and protect remote systems.

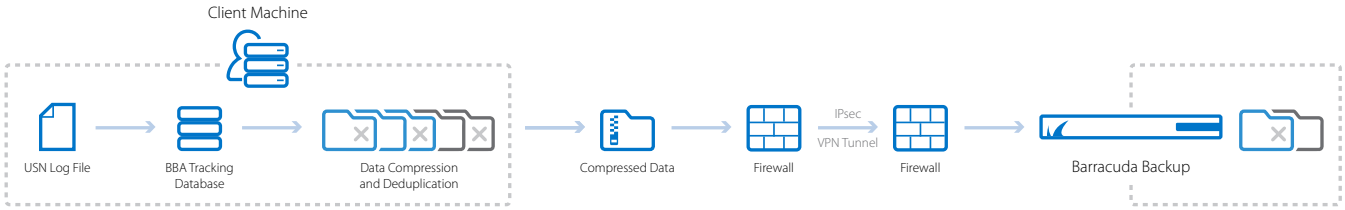
Deduplication

During backup, the local Agent Database keeps track of the unique parts that are sent to the remote Barracuda Backup appliance. This data is Indexed, compressed, and then sent to the appliance, where it is decompressed and further analyzed against data already stored on the local appliance from other data sources. In addition to source deduplication, Barracuda uses Microsoft's USN journal for Microsoft Windows and Microsoft applications to keep track of changes on the local system. The local Barracuda Agent reads the journal log file on each partition to find new or changed files, reducing seek time to find new data.

Initial Backup



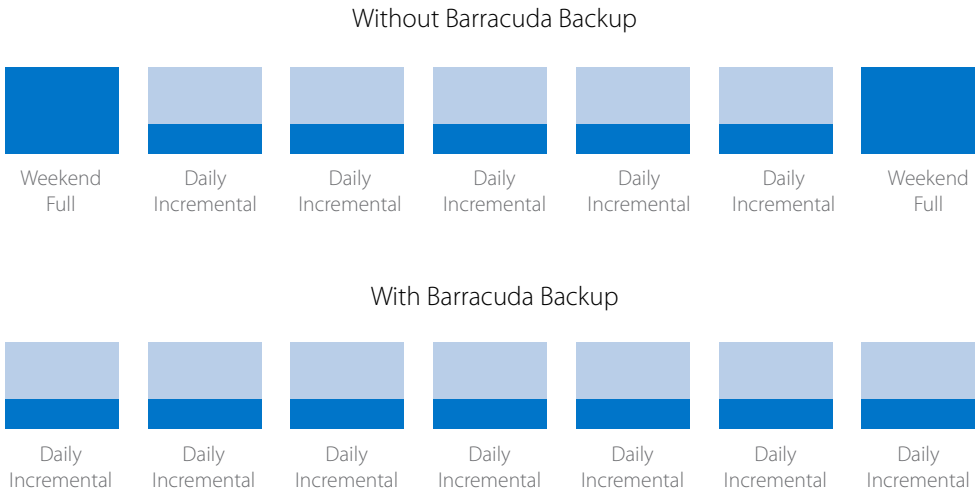
Subsequent Backup



Virtual Environment Benefits

In addition to Barracuda's agent technology, organizations protecting VMware benefit from Barracuda's use of Change Block Tracking (CBT) available in VMware's VDAP API. CBT identifies and tracks block changes to protect new blocks of data, providing more efficient virtual disk backups. This reduces the backup window, while offering the same level of protection as backing up the entire virtual disk. Furthermore, Barracuda reduces initial backup time and virtual disk backup footprint by avoiding the need to send unchanged blocks of data to the Backup appliance.

Barracuda Backup employs an incremental forever methodology to protect virtual machines, file systems, and message-level backups. Incremental forever backups coupled with deduplication reduce backup times, space needed for backups, and replication time. With incremental forever backups, after the initial first full backup, only changed data is sent to the Barracuda Backup appliance. This technology reduces the need to have time-consuming weekly backups. On restores, Barracuda Backup displays each revision as a full backup showing the entire system. Administrators can easily restore individual files or entire systems without playing back full and incremental backups.



Recovery Requirements

Organizations use backup to meet their backup RPO, but also needs solutions to recover files and downed systems quickly. Recovery time objective (RTO) is a fundamental concern for administrators looking to get a mission-critical server back online. RTO is the duration of time and service level within which a file or system must be restored after a disruption. RTO needs vary based on the importance of the server or files on the system. Applications such as Microsoft Exchange and Microsoft SQL require a faster RTO compared to a system like an office print server that will not cause significant financial loss to the organization.

Many organizations have moved mission-critical systems to virtual technologies, including Microsoft Hyper-V and VMware, to mitigate the risk of hardware failure while providing quick restores of entire systems from a snapshot. With the adoption of this technology, the backup industry has developed better ways to handle virtual machines. Loading backup agents on guest machines and treating systems as physical servers is not sufficient. Integration with the hypervisor at the host level to initiate backups and restores is a common way to provide administrators with support for open file backups, file attributes, permissions, and automatic data source detection.

Barracuda on RTO

Barracuda Backup provides fast local restores for appliances on local networks. With Barracuda's LiveBoot, Restore to Copy, and virtual machine image restore technologies, organizations have easy and fast options to recover data. With LiveBoot, organizations protecting VMware environments can utilize the local Barracuda Backup appliance as storage for their environment. The local appliance displays itself as a datastore, allowing administrators to boot VMware backups on the appliance instantly. Once the primary storage for the VMware environment is fixed, administrators can migrate the VMDK files from the Barracuda Backup appliance data store to their production environment. Organizations with an active Instant Replacement (IR) subscription who are replicating to the Barracuda Cloud can boot replicated VMware backups in the Barracuda Cloud. Cloud LiveBoot enables organizations to sandbox test new applications and updates while also verifying backup data integrity without additional hardware. In addition to sandbox, testing administrators can provide the virtual machines with public IP addresses, granting their end users access to applications or services.

In cases of disaster, customers that are replicating to Barracuda Cloud and have maintained IR can have an appliance preloaded with all of their backup data shipped overnight for fast disaster recovery. This gives organizations the option for fast local restores instead of limiting the restore to the download speed of their Internet connection. Organizations with remote or mobile work forces can use Barracuda's integration with Copy to restore data. This integration gives companies the ability to restore files and folders from a backup to folders in Copy, while allowing administrators an easy, secure way to restore important data for remote users.

Archiving

Archiving is a collection of data stored for the primary purpose of long-term preservation and retention.

Many different archiving technologies are employed today. These technologies help organizations meet regulatory requirements, efficiently store large amounts of historic data, and in worst cases, recover from a disaster. With data archiving, backups can become shorter, primary storage needs can be reduced, and total operating costs can be diminished.

Regulations and internal rules frequently drive archiving requirements. These regulations range from keeping Microsoft Exchange Server email for seven years to having the ability to find a file that was deleted from a system years ago. In addition to retaining email and files, this data must also be searchable. Organizations without an efficient archiving solution spend large amounts of money searching for material when it is requested.

Email archiving

Email archiving is one of the largest forms of archiving. With email archiving, organizations look for a complete and affordable solution designed to optimize email storage, meet regulatory compliance and eDiscovery requirements, and provide anytime/anywhere access to old email. Email administrators must find ways to capture, preserve, and easily search all email traffic, while not reducing email server performance. There are great deal of solutions on the market claiming to support key archiving functionality like data preservation, protection of intellectual property, compliance, and even disaster recovery. These solutions, while impressive on paper, tend to have an extremely large learning curve and can be complex to implement, manage, and maintain.

Barracuda Message Archiver: Easy-to-Use, Powerful

The Barracuda Message Archiver integrates with all standards-based email servers and provides powerful search, retrieval, and export capabilities for administrators, auditors, and end-users. The deployment of the Barracuda Message Archiver and proper policies can meet compliance requirements with government and industry regulations. It is easy to configure and manage with an intuitive web interface. The Barracuda Message Archiver stores and indexes email, contacts, calendars, notes, and public folders while providing a simple-to-use search interface in a single appliance. With Barracuda, administrators can import historic mail through Exchange Integration, GroupWise Sync, import PST and NSF files, and standard journal accounts. Administrators can integrate the Message Archiver with Active Directory or LDAP, which allows end users to search and recover historic mail via the web interface, Outlook plugin, or mobile applications for Android and iOS. Easy user access includes the ability to create audit accounts for legal counsel or management to perform search and setup legal holds based on saved search policy.

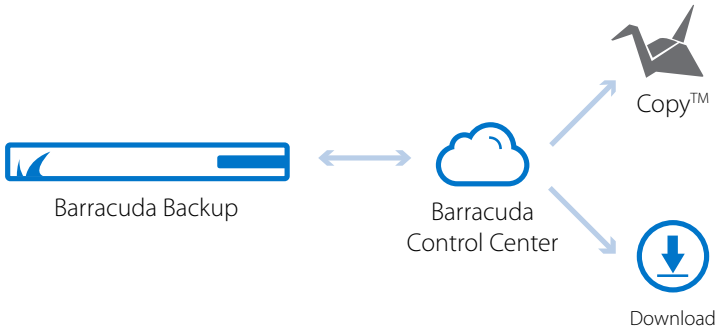
With deployment of the Barracuda Message Archiver, administrators are able to reduce retention policy on backups of their mail servers. In most restores for mail servers, administrators need to restore the most recent version. To meet requirements, organizations often use long-term backups of email systems for compliance and and email restoration for users. With Barracuda Message Archiver, organizations can offer continuous protection of email messages through journaling, while offering end users self-service restore capabilities. This functionality can drastically reduce backup costs while offering additional functionality.

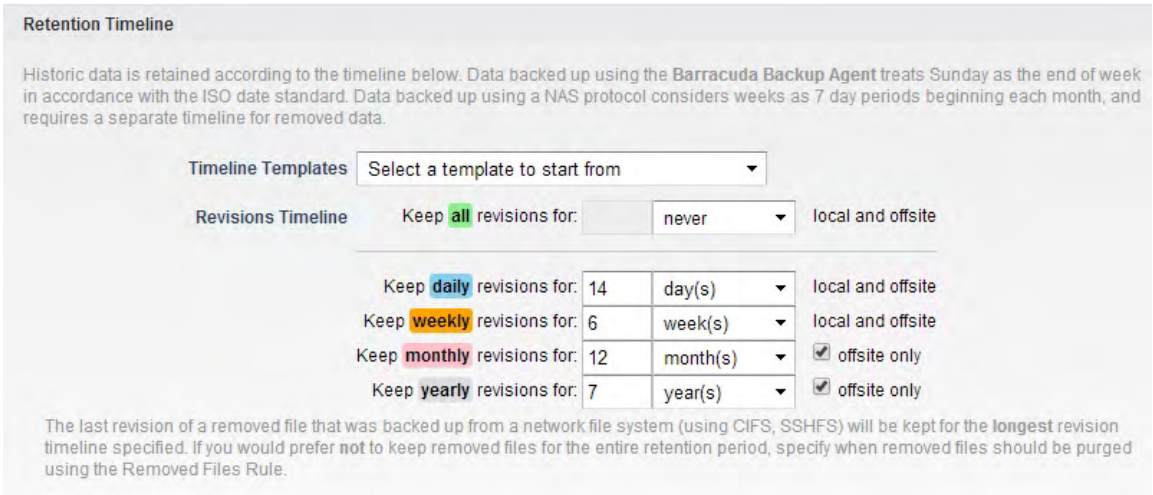
With Barracuda Message Archiver, administrators can enable stubbing to store email attachments or entire messages on the appliance instead of the email server, greatly increasing storage capacity of the mail server's primary storage. When a message is stubbed, the Barracuda Message Archiver can add all attachments, or the entire message, to its own storage database and creates a hyperlink (referred

to as a stub), to the original attachment or message. The attachment from the original message, or if selected, the entire message, is then removed from the Exchange server and replaced with the stubs so that any requests to access the file or message are automatically redirected to, and served from, the Barracuda Message Archiver. Users can easily access the original attachments or emails regardless of what email client is used, including Outlook Web Access and mobile devices.

Backup Archiving

Backup data retention is vital to organizations for both compliance and disaster recovery. With backup archiving, administrators store their data backups for the period of time that meets their internal policies and external rules. This has been accomplished in the past by writing the backup data to external media such as tape drives. Organizations often employ a grandfather-father-son retention policy that keeps the daily and weekly revisions for a shorter period compared to the monthly and yearly revisions that may be stored for years. Administrators generally restore data from daily and weekly revisions; however, in some cases they must pull back monthly or yearly revisions to fix corrupt or missing data from newer revisions. Archives of backup data are frequently stored offsite in a number of locations, depending on the importance of the data and available budget. Courier services can be employed to rotate media and store data securely in safes or other secure locations. Cloud storage for backup and archiving has been adopted in a higher frequency than any other form of long-term storage. Low cost, fast recovery, scalability, and high availability are the main drivers for organizations moving to cloud archiving.





Barracuda Control Center User Interface

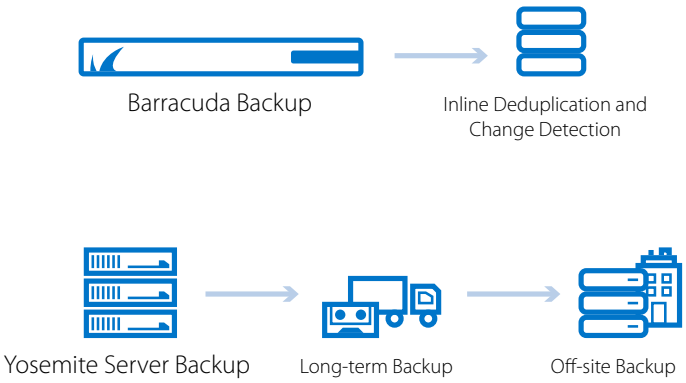
The Barracuda Solution

Barracuda provides organizations with the functionality to perform fast backups to local appliances and replicate data securely to the Barracuda Cloud or another Barracuda Backup appliance. With Barracuda's advanced deduplication, incremental forever technology, and virtual machine backups, organizations can deploy long-term data retention. Organizations can choose to mirror their backup data set to their replication target or implement Offsite Vaulting. With Offsite Vaulting, administrators can chose to store twelve monthly and seven yearly revisions off the local appliance solely at their replication location. When Offsite Vaulting is enabled, storage space on the local appliance is freed up, giving administrators the option to increase retention for daily or weekly revisions. Additionally, with Offsite Vaulting, organizations benefit from a single "pane of glass" interface that allows the administrator to view and search revisions stored offsite. This makes recovery of data that has been archived using Offsite Vaulting extremely simple and fast. Administrators replicating data to the

Barracuda Cloud can download revisions from the cloud, restore data by syncing back to the local appliance, or restore data to Copy. When administrators initiate a restore for data that is stored solely offsite, only unique data is sent to the local appliance—compressed and encrypted. Data is restored as it reaches the local Barracuda Backup appliance.

External Media Archiving

Technologies like cloud storage and replication have made it easier for administrators to manage backup archives; however, there are situations where replication technologies are not the right fit. External media, like tape, is still viable for extended long-term retention and compliance. Tape media can last up to 30 years, which makes tape media an affordable alternative for long-term retention. Investment in existing tape systems, such as media servers and autoloaders, is one reason that some organizations utilize tape systems.



Barracuda Solution

Organizations that need to retain their tape architecture can use Yosemite Server Backup standalone or in conjunction with Barracuda Backup. Barracuda has a rich history with external media backup. Barracuda's Yosemite Server Backup has been protecting environments since 1989. For organizations looking to implement long-term retention but may not want to utilize replication, administrators can deploy Yosemite Server Backup to meet the organization's need. With Yosemite Server Backup, administrators can use existing hardware and tape media to meet their backup and archiving needs. Yosemite Server Backup lets organizations protect both physical and virtual environments, while writing to multiple media formats. Organizations looking for fast local backups and restores and long-term tape archiving can utilizes both Barracuda Backup and Yosemite Server Backup in a unified solution. With Barracuda Backup and Yosemite Server Backup , administrators can perform fast deduplicated backups and restores for their daily and weekly revision needs, while using Yosemite Server Backup to handle long term retention for monthly and yearly backups.

Conclusion

Barracuda Backup, the Barracuda Message Archiver, and Yosemite Server Backup can be deployed to simplify IT and reduce overhead IT costs by utilizing efficient technologies like deduplication. Barracuda's replication and offsite storage gives organizations an affordable solution to secure their data offsite for long-term retention. With the Barracuda Message Archiver, organizations can save time and money by reducing their backup needs and reducing primary storage requirements for Exchange environments. Organizations needing to use external media archival can take advantage of Yosemite Server Backup to use existing tape environments or benefit from single vendor solution for short-term disk backup with long-term tape archival.

To learn more about Barracuda's web security solutions, please visit www.barracuda.com/products or call Barracuda for a free 30-day evaluation at 1-408-342-5400 or 1-888-268-4772 (US & Canada).

About Barracuda Networks, Inc.

Protecting users, applications, and data for more than 150,000 organizations worldwide, Barracuda Networks has developed a global reputation as the go-to leader for powerful, easy-to-use, affordable IT solutions. The company's proven customer-centric business model focuses on delivering high-value, subscription-based IT solutions for security and data protection. For additional information, please visit www.barracuda.com.

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Barracuda Networks
3175 S. Winchester Boulevard
Campbell, CA 95008
United States
408-342-5400
888-268-4772 (US & Canada)
www.barracuda.com
info@barracuda.com