



Bacula Enterprise 2021

bacula.lat

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Schedule



- Bacula LATAM & Brasil
- Bacula Systems
- Backups today
- Bacula Community versus Bacula Enterprise
- Architecture of Bacula Enterprise
- Features
- Some cases
- Pricing and purchasing models
- Services

Bacula LATAM & Brasil



- Main branch in Brazil, subsidiary in US (strong presence in Florida)
- Operating in more than 10 countries
- Exclusive software distributor in LATAM
- More than 10 years of experience with backups
- All staff officially certified by Bacula Systems
- Mission: *Provide the best and most affordable Data Backup and Restore Software*

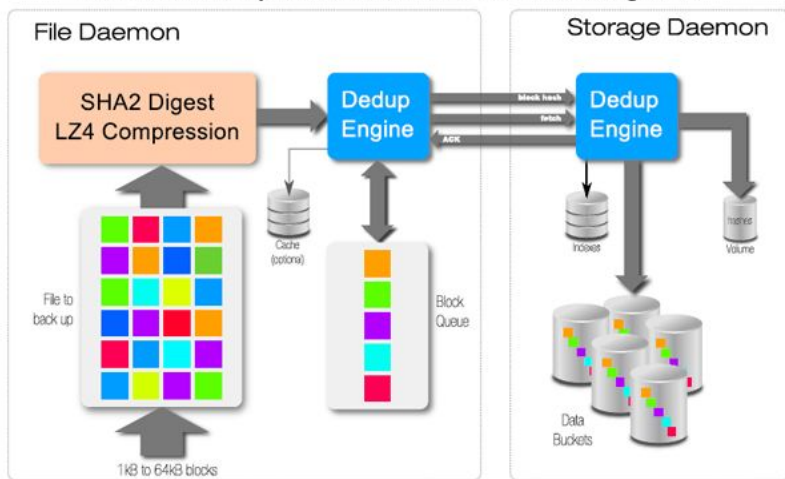
Bacula Systems



- Created by the founder of Autodesk and developer of Bacula Community
- Specialized in backups & restores
- Main branch in Switzerland
- Own offices and distributors in America, Asia, Europe, LATAM and Oceania
- More than 2 million backup clients installed worldwide

- Global deduplication (**source or storage only: Windows, Unix, Linux etc.**).
Up to 99% traffic and storage reduction.
- CBT for other Virtualizations (**RHV, XEN etc.**)
- First Plugins for **Docker, Kubernetes, Proxmox, Hadoop, PostgreSQL and MySQL**;
- Open Catalog and Backup Format (**without entrapment**);
- First to support storage driver in Object Storage (**S3, Glacier, Oracle, Google, Azure, Swift etc.**).

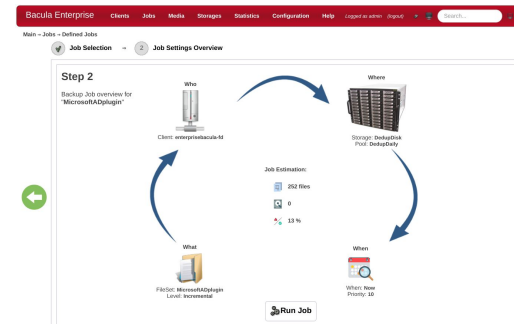
Benefit from Deduplication on both the client and storage side



Other Benefits



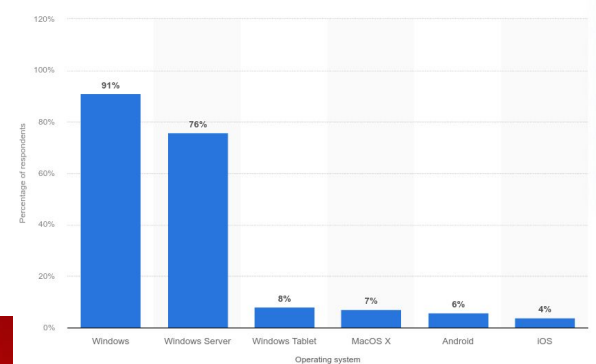
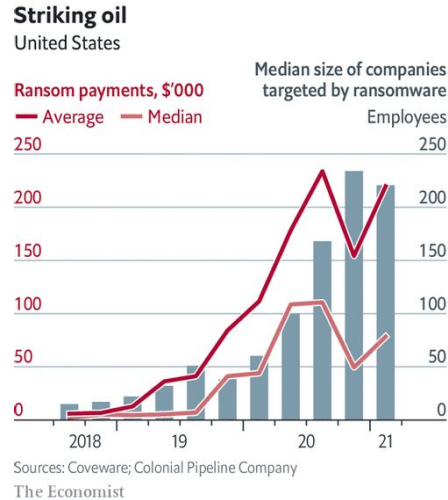
- Very high scalability (few are able to backup **10,000 hosts or more**).
- Own development team, and **it's not a suite!**
- All communications automatically encrypted, with **FIPS certificate**
- Higher number of clients for platforms: **Unix, AIX, HPUX, Power, Debian, Slackware, FreeBSD, RHV, SUSE, Android, Windows, MacOS** etc.
- Most advanced Web interface on the market, not requiring **Java/Flash**. Remote agent **deploy/update** etc.



Ransomware



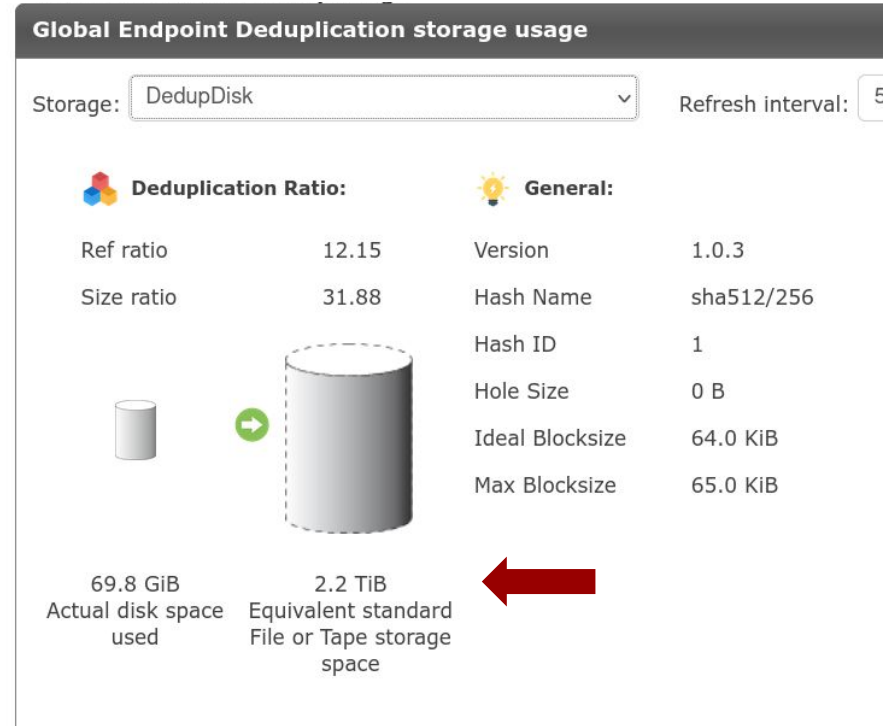
- External catalog
- Dedicated user bacula processes
- Immutable volumes
- Own socket connection
- Linux server primarily
- Native direct writing support for all **tapes, cartridges, VTL, WORM etc.** since the conception



Backups Today



- Backup is the replica of any data that can be used to restore its original form [Guise]
- Challenge: in 2020, the volume of data will double each year reaching **44 zettabytes** or 44 trillion GB. [IDC]
- **Global Deduplication** and Scalability are Key Factors
- **Ransomware** reaffirms the need for backup



Backups Today



MULTI-LEVEL DISASTER RECOVERY



Disaster Recovery: 3 levels

- **Data.** Protecting user and application data (dumps, file copies)
- **Application.** Application continuity (PITR, CDP, plugins to provide specific features)
- **OS.** Reduce the time to recover to its minimum (VM export, CDP, snapshot of FS, Bare Metal)

Backups Today



- Backup softwares **must not be monoliths**. They must, for example, allow data mining of their metadata: “without these kind of features, a backup software becomes stagnant and is not able to grow into the environment” [Guise]
- Must have **Open Format of the Catalog and of the Backup Files**

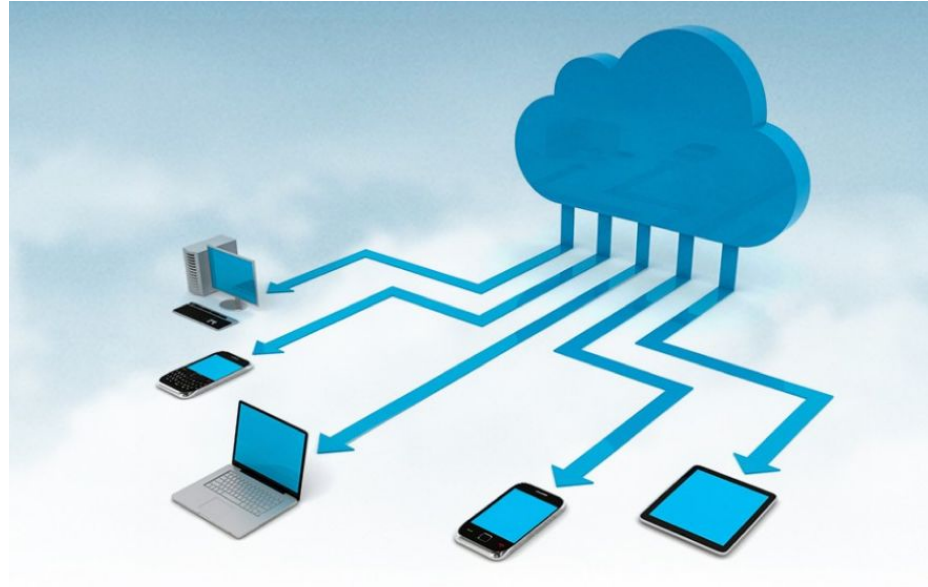


Backups Today



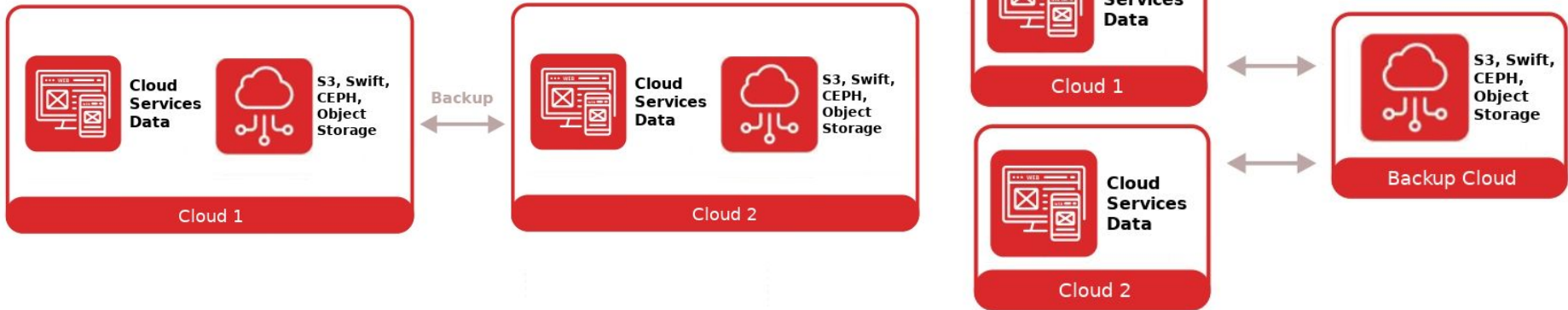
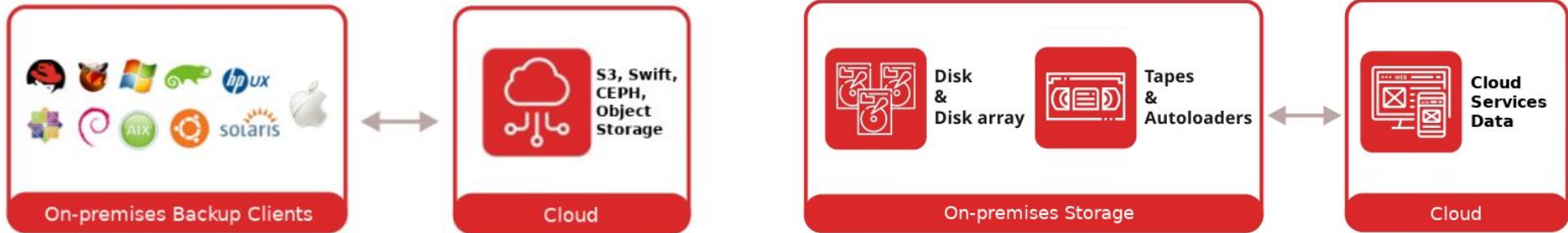
Backup modernization:

- There must be cloud integration [Russel]
- Supporting Object Storage and BaaS are a must



Storage em Nuvem





Bacula

BACULA



- 4^o more popular backup software worldwide
- C/C++, High Portability
- Focused in sustainability, performance and scalability
- Suitable to any company size

Bacula Community versus Bacula Enterprise



Community

- General Public License (GPL)
- Open Source
- Community packages and/or compiled by user
- User must develop plugins and/or scripts
- Open catalog and backup files formats

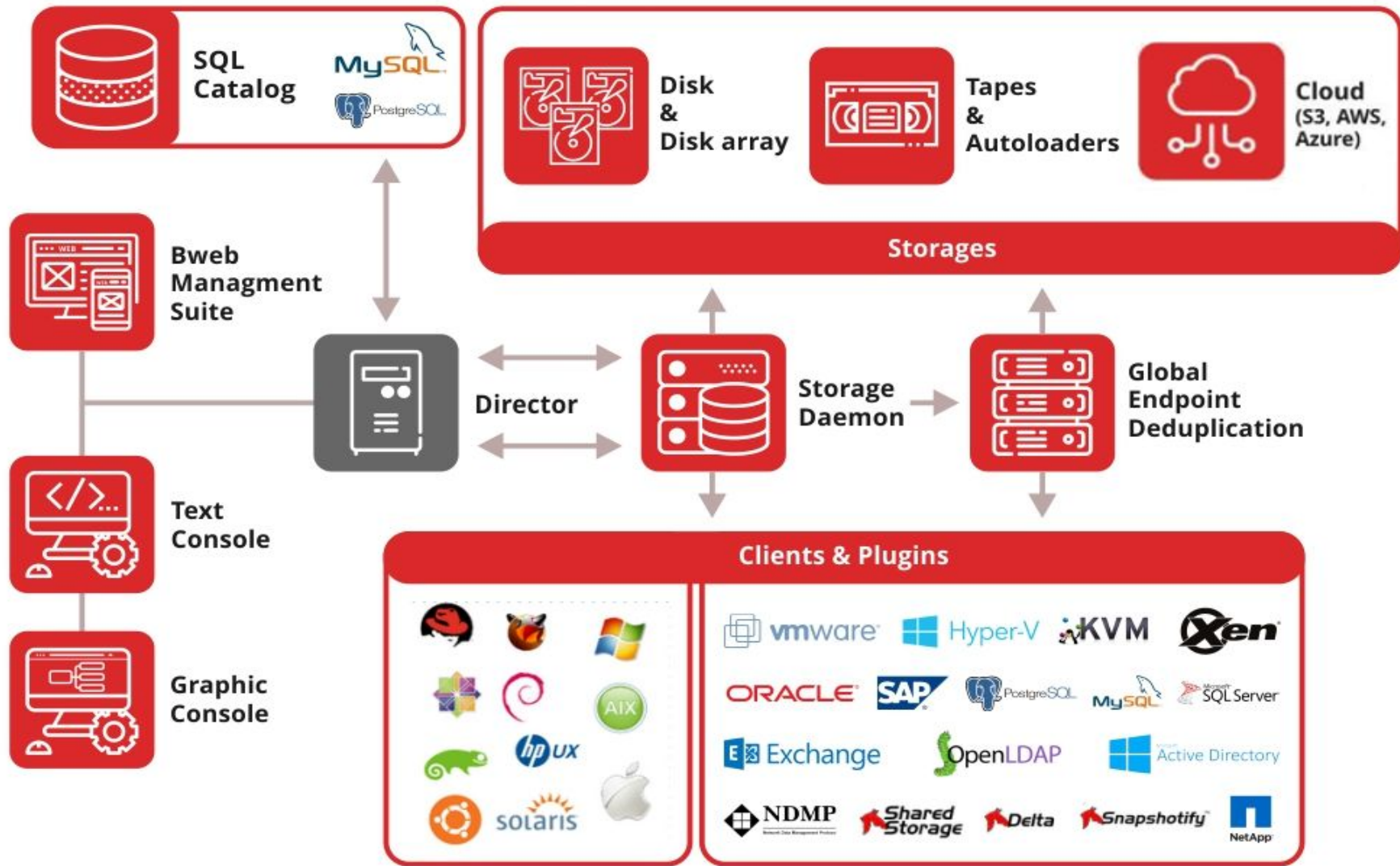
Enterprise

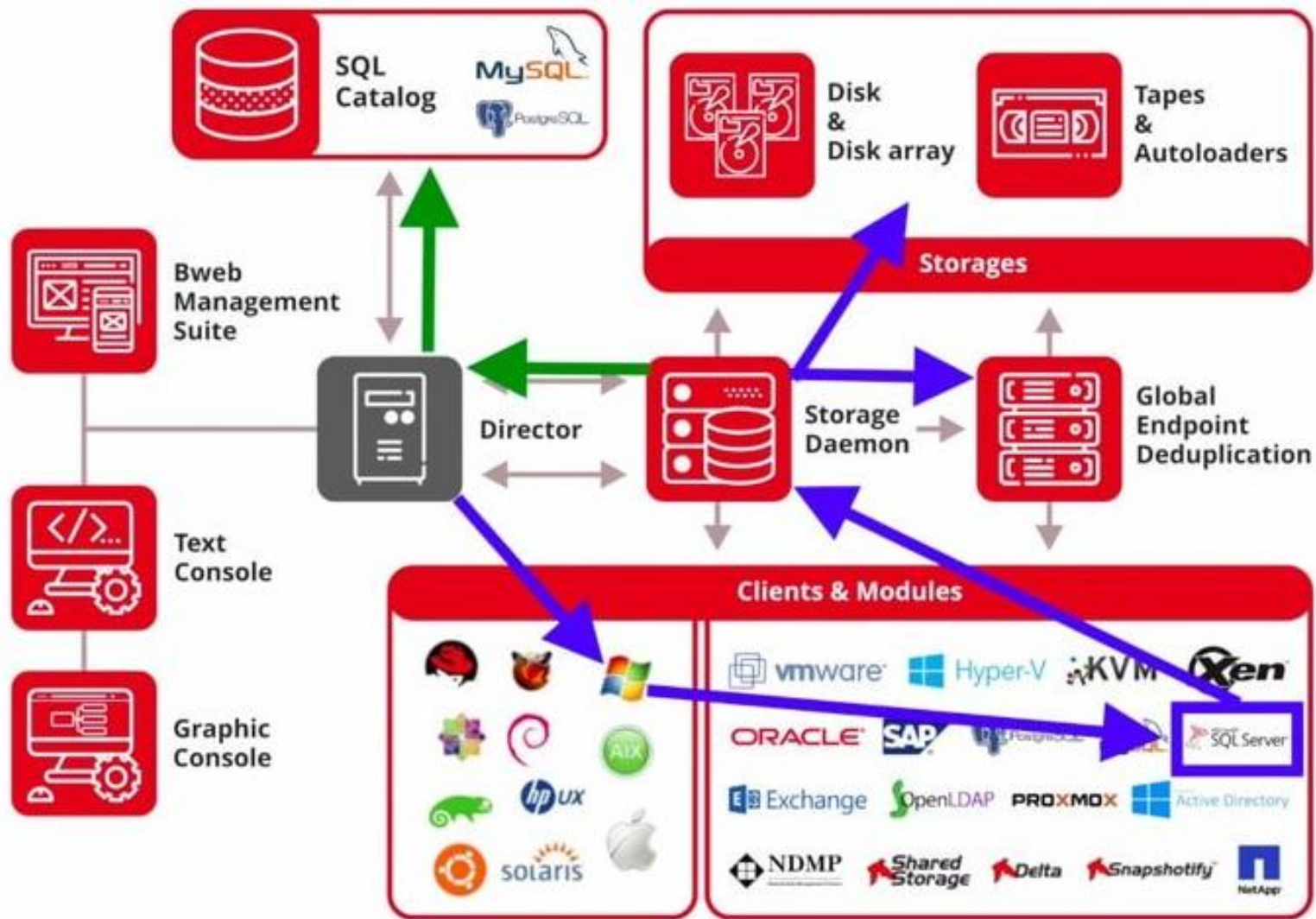
- Paid licensing
- Proprietary code
- Packages approved by the developer
- Technical support provided by the developer
- Easy-to-use advanced graphical interface (BWeb)
- More than 30 plugins available
- Global deduplication and storage-side only options
- Open catalog and backup files formats

Bacula Enterprise versus Backup Leaders (Gartner)



	Plugins	Cloud Support	BaaS	Price
BACULA ENTERPRISE	30	Yes	Yes	Low
COMMVAULT	22	Yes	Yes	Very high
NETBACKUP	14	Yes	No	Alto
SPECTRUM	10	No	No	Very high
EMC	9	No	No	Very high
VEEAM	7	No	Yes	Low
ARCSERVE	4	Yes	Yes	Medium





Director (Backup Server, master)



- Central manager of all jobs and of the authentication of the services
- Allows scheduling, setting configuration, retention times, politics, etc
- ★ Scalable (more than 10.000 clients)
- ★ Can be virtualized
- ★ Focused in automation
- ★ Auto recovers from disasters

Storage Daemon (storage node)

BACULA



- ★ No data volume charges
- ★ Infinite Storage
Daemons linked to the
same Director
- ★ Cloud S3, Swift, CEPH
- ★ Internal and external
disks, RDX
- ★ Auto loaders, tape
libraries, and VTL



- ★ Deduplication on the
storage side through
software or hardware
- ★ 100% compatible with all
LTO and NAS
- ★ Different levels of
compression through
software
- ★ Scalability: more than 600
backup clients per Storage
Daemon

File Daemon (cliente de backup)

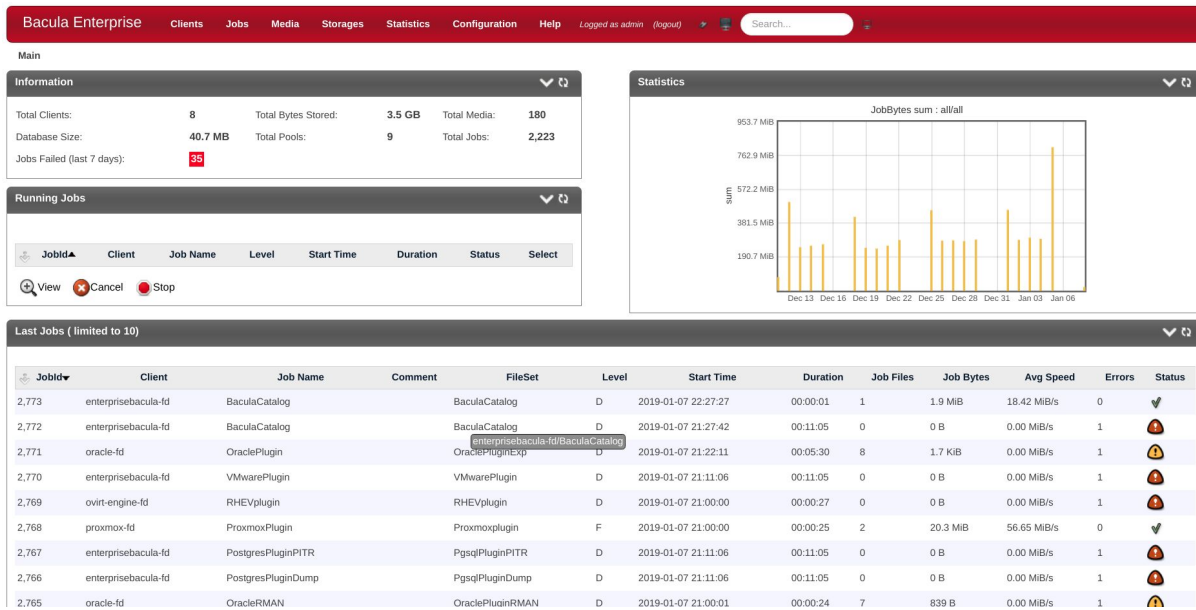


- ★ Secure Authentication (password or encryption key)
- ★ **FIPS compliant**

- ★ Global Deduplication
- ★ Minimum Configuration
- ★ Legacy OS
- ★ Low impact
- ★ Scripts before and after Jobs



- ★ Plug-in free (e.g. Java/Flash)
- ★ Audit of all transactions
- ★ Self-restore profile
- ★ Client groups management
- ★ ACLs (users and profiles)
- ★ Media and storage management
- ★ Monitoring, statistics and reports modules
- ★ Plugins Operations

The screenshot shows the Bacula Enterprise BWeb interface. At the top is a navigation bar with tabs for Clients, Jobs, Media, Storages, Statistics, Configuration, and Help. Below this is a "Main" section with three panels: "Information", "Running Jobs", and "Last Jobs (limited to 10)". The "Information" panel shows summary statistics like Total Clients (8), Database Size (40.7 MB), and Total Jobs (2,223). The "Running Jobs" panel is currently empty. The "Last Jobs" panel contains a table of recent job executions. To the right of the "Main" section is a "Statistics" panel with a bar chart titled "JobBytes sum : allfall" showing data from December to January.

Bacula Enterprise

Clients

Jobs

Media

Storages

Statistics

Configuration

Help

Logged as admin (logout)

Search...

Main

Information

Total Clients: 8 Total Bytes Stored: 3.5 GB Total Media: 180
Database Size: 40.7 MB Total Pools: 9 Total Jobs: 2,223
Jobs Failed (last 7 days): 35

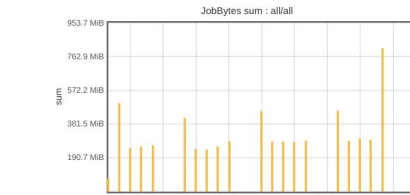
Running Jobs

JobId	Client	Job Name	Level	Start Time	Duration	Status	Select
<input type="button" value="View"/>	<input type="button" value="Cancel"/>	<input type="button" value="Stop"/>					

Last Jobs (limited to 10)

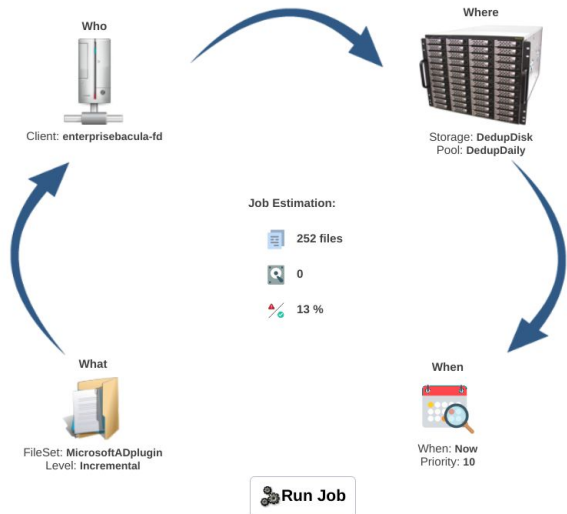
JobId	Client	Job Name	Comment	FileSet	Level	Start Time	Duration	Job Files	Job Bytes	Avg Speed	Errors	Status
2,773	enterprisebacula-fd	BaculaCatalog		BaculaCatalog	D	2019-01-07 22:27:27	00:00:01	1	1.9 MiB	18.42 MiB/s	0	✓
2,772	enterprisebacula-fd	BaculaCatalog		BaculaCatalog	D	2019-01-07 21:27:42	00:11:05	0	0 B	0.00 MiB/s	1	⚠
2,771	oracle-fd	OraclePlugin		OraclePluginExp	D	2019-01-07 21:22:11	00:05:30	8	1.7 KiB	0.00 MiB/s	1	⚠
2,770	enterprisebacula-fd	VMwarePlugin		VMwarePlugin	D	2019-01-07 21:11:06	00:11:05	0	0 B	0.00 MiB/s	1	⚠
2,769	ovirt-engine-fd	RHEVplugin		RHEVplugin	D	2019-01-07 21:00:00	00:00:27	0	0 B	0.00 MiB/s	1	⚠
2,768	proxmox-fd	ProxmoxPlugin		Proxmoxplugin	F	2019-01-07 21:00:00	00:00:25	2	20.3 MiB	56.65 MiB/s	0	✓
2,767	enterprisebacula-fd	PostgresPluginPITR		PgsqPluginPITR	D	2019-01-07 21:11:06	00:11:05	0	0 B	0.00 MiB/s	1	⚠
2,766	enterprisebacula-fd	PostgresPluginDump		PgsqPluginDump	D	2019-01-07 21:11:06	00:11:05	0	0 B	0.00 MiB/s	1	⚠
2,765	oracle-fd	OracleRMAN		OraclePluginRMAN	D	2019-01-07 21:00:01	00:00:24	7	839 B	0.00 MiB/s	1	⚠

Statistics





Step 2

Backup Job overview for "MicrosoftADplugin"



- ★ 100% graphical operation
- ★ User-centered design
- ★ Few clicks operations
- ★ Integration with AD/LDAP
- ★ Backup clients configuration and deployment

Running Job OraclePlugin.2019-01-07_22:29:58_21 on oracle-fd

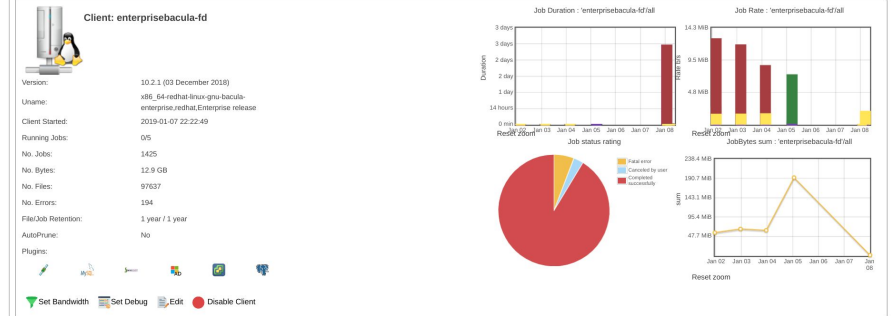
Job Name: OraclePlugin.2019-01-07_22:29:58_21 (2,774)
Processing file: /@ORACLE/cdb1\APEX_040200\user.sql
Speed: 72 B/s
Files Examined: 8
Files Backed up: 8
Bytes done: 
Files done: 
Bytes: 1,748

Job Report: OraclePlugin on oracle-fd (2774)

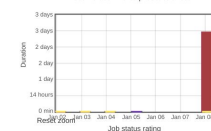
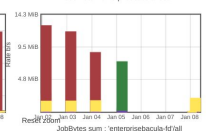
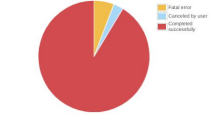
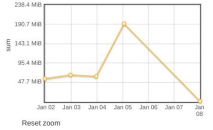
2019-01-07 22:29:50 oracle-fd JobId 2774: DIR and FD clocks differ by -9 seconds, FD automatically compensating.
 2019-01-07 22:38:00 enterprisebacula-dir JobId 2774: Start Backup JobId 2774, Job=OraclePlugin.2019-01-07_22:29:58_21
 2019-01-07 22:38:00 enterprisebacula-dir JobId 2774: Using Device "FileChgr1-Dev2" to write.
 2019-01-07 22:38:00 enterprisebacula-dir JobId 2774: FD compression disabled for this Job because AllowCompress=No in Storage resource.
 2019-01-07 22:38:00 enterprisebacula-sd JobId 2774: Volume "dedupDaily-74" previously written, moving to end of data.
 2019-01-07 22:38:00 enterprisebacula-sd JobId 2774: Ready to append to end of Volume "dedupDaily-74" size=1,922,059

Main - Clients - Client Status enterprisebacula 3 minutes

Client: enterprisebacula-fd



Version: 10.2.1 (03 December 2018)
Uname: x86_64-redhat-linux-gnu-bacula-enterprise-redhat.Enterprise release
Client Started: 2019-01-07 22:22:49
Running Jobs: 0/5
No. Jobs: 1425
No. Bytes: 12.9 GB
No. Files: 97637
No. Errors: 194
File/Job Retention: 1 year / 1 year
AutoPrune: No
Plugins:

Job Duration: 'enterprisebacula-fd' 
Job Rate: 'enterprisebacula-fd' 
Job Status Rating: 
Jobilities sum: 'enterprisebacula-fd' 

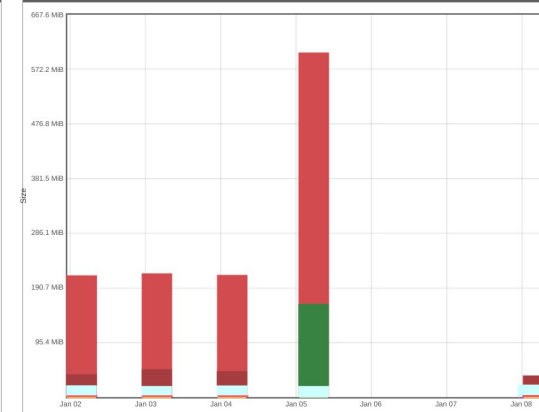
Running Jobs
 No job running on the Client.
Terminated Jobs

Main - Statistics - Statistics

Options

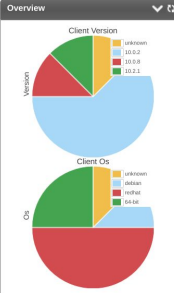
Level: Any **Status:** OK
Age: This week **Size:** Width: 800 Height: 600
Clients: enterprisebacula-fd, hyper-fd, mssql-fd, oracle-fd, ovirt-engine-fd, proxmox-fd, test, test-fd
Job Name: BackupImages, BackupVideo, BaculaAdminTask, BaculaAudio, BaculaCatalog, BaculaConfigurations, BaculaFileCompressor, HypervPlugin, LDAPPlugin, MicrosoftADplugin, mssqlBacula, MSSQLPluginCluster, MySQLplugin, NewJob, OraclePlugin

Groups: databases, hypervisors

Current graph


Main - Clients - Clients

Overview



Client Version: 10.2.1 (03 Dec 2018), 10.10.8, 10.2.1.2
Client OS: Unknown, Debian, Oracle, S4-L4

Clients

Name	Select	Desc	Auto Prune	File Retention	Job Retention
enterprisebacula-fd	<input type="checkbox"/>	10.2.1 (03Dec18) x86_64-redhat-linux-gnu-bacula-enterprise-redhat.Enterprise release	0	365 days	365 days
hyper-fd	<input type="checkbox"/>	10.0.2 (30May18) Microsoft (build 9200), 64-bit,Cross-compile,Win64	0	365 days	365 days
mssql-fd	<input type="checkbox"/>	10.0.8 (22Oct18) Microsoft (build 9200), 64-bit,Cross-compile,Win64	0	365 days	365 days
oracle-fd	<input type="checkbox"/>	10.0.2 (30May18) x86_64-redhat-linux-gnu-bacula-enterprise-redhat,	0	365 days	365 days
ovirt-engine-fd	<input type="checkbox"/>	10.0.2 (30May18) x86_64-redhat-linux-gnu-bacula-enterprise-redhat,	0	365 days	365 days
proxmox-fd	<input type="checkbox"/>	10.0.2 (30May18) x86_64-pc-linux-gnu-bacula-enterprise,debian.9.0	0	365 days	365 days
test	<input type="checkbox"/>	10.0.2 (30May18) x86_64-pc-linux-gnu-bacula-enterprise,debian.9.0	0	365 days	365 days
test-fd	<input type="checkbox"/>	10.0.2 (30May18) x86_64-redhat-linux-gnu-bacula-enterprise-redhat,	0	365 days	365 days

BWeb Wizards

BACULA



Bacula Enterprise Workset Clients Jobs FileSets Schedules Pools Consoles Storages Messages

Configure new Backup Policy 1/3

This assistant will guide you to create a new Retention Policy. The optimal Pool and Schedule configuration will be computed from your requirements, and a Job template (JobDefa) will be created. If you have special requirements such as keeping the first backup of the year during 5 years, we recommend to add it later manually.

Recovery Window
The Recovery Window represents the period over your files will be available for restore, and the period over Recovery Points will be taken.

30 Days

Recovery Points
The number of recovery points (Full, Differential and Incremental backup Job) that Bacula will Keep. For example, having 30 Recovery Points over a Recovery Window of 30 days means that Bacula will run a backup everyday. Having 60 Recovery Points over 30 days means that Bacula will run a backup twice a day.

30

File Copies
How many copies of each file should be kept on your Storage area? Depending on your requirements, you may want to avoid keeping all eggs in one basket.

4

Refresh Estimation Cancel Next

Resource Usage Estimation

Estimation Data
Backup Size: 10 GB
Change Rate: 10 %

Estimation Results
Full Backup Size: 40.0 GB
Incremental Backup Size: 26.0 GB
Average Total Size: 66.0 GB
Peak Size: 66.0 GB

Size / Number of Copies


Size	Number of Copies
74.5 GB	1
59.9 GB	2
37.3 GB	3
15.4 GB	4

Bacula Enterprise Workset Clients Jobs FileSets Schedules Pools Consoles

Configure new Backup Job resource 5/5

When?
Finally, you need to specify when the Backup Job should run. If the Schedule is not yet defined in the configuration, just add it now.

Schedule Name: [dropdown]



Cancel Prev Next

Jobs FileSets Schedules Pools Consoles

2/3

ts, you need now to specify your Backup requirements such and how much time the Job can run.

Can run after: 03 : 00 AM

Should be canceled after: 2 Hours

Cancel Prev Next

<http://www.bacula.com.br/demo-online-bweb-bacula-enterprise/>

Self-Service Backup



- Regular users may deploy and/or restore backups
- Billing and quota management
- Allows **Backup-as-a-Service - BaaS**

The screenshot displays the Bacula self-service backup interface. At the top, there are two icons: "My data" (a database cylinder with a gear) and "Download center" (a database cylinder with a blue arrow). Below these is a "Backup job list" section with filters for Level (Any), Status (Any), and a date range (Since: To:). The "Items number" is set to 10. A table lists backup jobs for the client "Wanderlei".

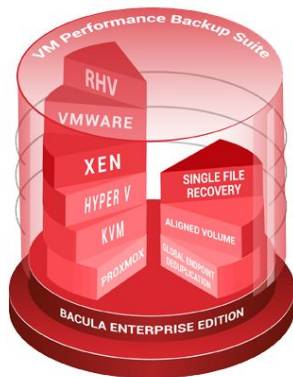
Job name	Level	Start time	Duration	Job files	Job bytes	Avg speed	Errors	Status
Wanderlei	F	07/05/18 16:31:56	00:01:09	66	51.0 MiB	0.74 MiB/s	0	

The interface also includes sections for "Backup" details (Last Backup, Last Backup Time, Size of the Last Backup, Total Size), "Next Backup" (Name, Scheduled Time), and "Running jobs" (Name, Start Time, Job Bytes, Job Files, Action). On the right side, there are buttons for "Select files to restore", "Restore History", "Delete Client", and "Delete this Client".

Plugins



- VMware
- Hyper-v
- KVM
- Xen
- Proxmox
- RHEL/oVirt
- Nutanix



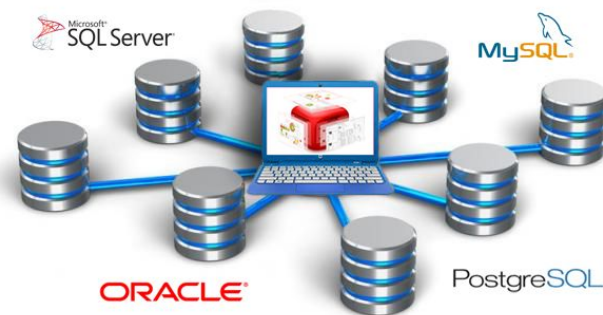
- ★ Clientless Backups
- ★ Auto-discover of new VMs
- ★ Differential backups on block level
- ★ Automatic restore of VMs
- ★ File level granular restore
- ★ Instant Recovery

Plugins



- MYSQL
- PostgreSQL
- Oracle
- SAP
- SAP Hana
- Sybase ASE
- MS SQL Server
- Active Directory
- LDAP
- MongoDB
- Hadoop
- DB2
- Cassandra

- ★ Auto-discover of new databases
- ★ Parallelism
- ★ Differential e incremental backups
- ★ PITR/Archive Log
- ★ Granular and automatic restores
- ★ Clusters backups



Plugins

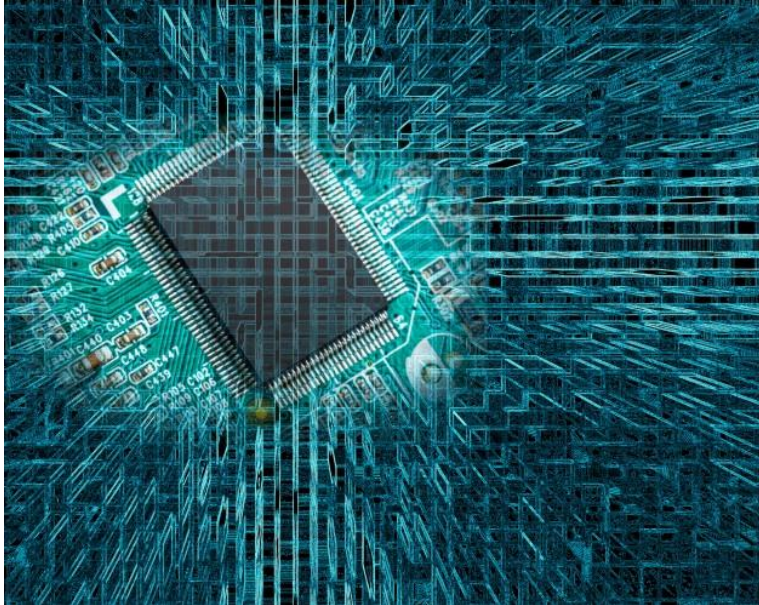


- CDP (File and VM* Replication)
- Docker, Kubernetes, OpenShift
- Hadoop
- Bare Metal Linux, Windows
(restore and migration of full machines *physical/virtual/cloud*)
- Zimbra, MS Exchange
- Sharepoint
- VSS
- Snapshot Linux
- **Office 365**
- bpipe
- Delta
- NDMP
- Shared Storage SAN
- Incremental Netapp
- Cloud (Oracle, Amazon Glacier, Google, Azure, Swift, and S3)



Other Features

BACULA



- Multi-volume backups
- Multi-backups to the same volume
- Firewall traversing and NAT - backups started by backup clients
- Incremental and differential backups
- Network traffic compression
- Copy and migration jobs
- Bandwidth limitation
- No memory leak
- Volumes automated recycle
- GFS and other backup strategies compliant

Exclusive Features



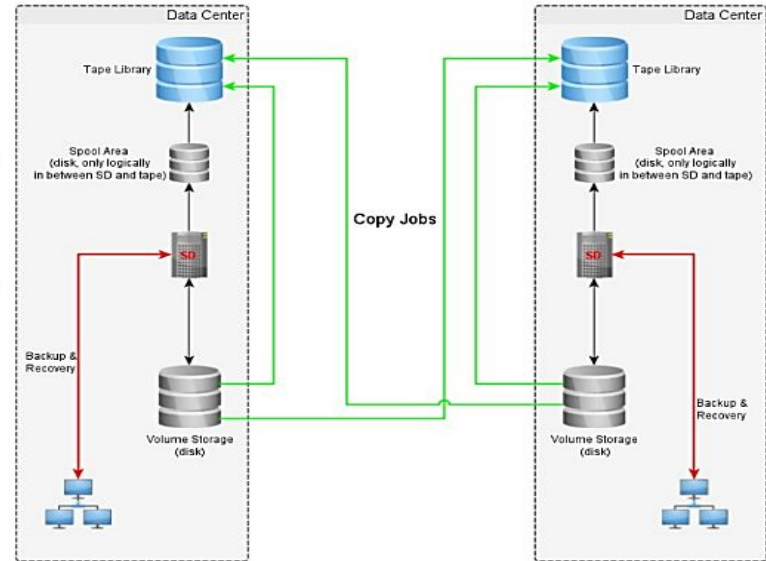
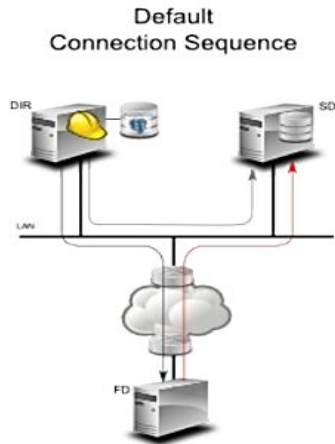
- OS bacula user bacula processes and immutable volumes
- More than 30 Plugins (hundreds of specialized features)
- Filesystems snapshot support (LVM, ZFS, etc)
- Assures data compatibility for 30 years
- Specific data removal (GPDR compliant)
- Open Catalog
- Open format backup Volume

Data Center Replication

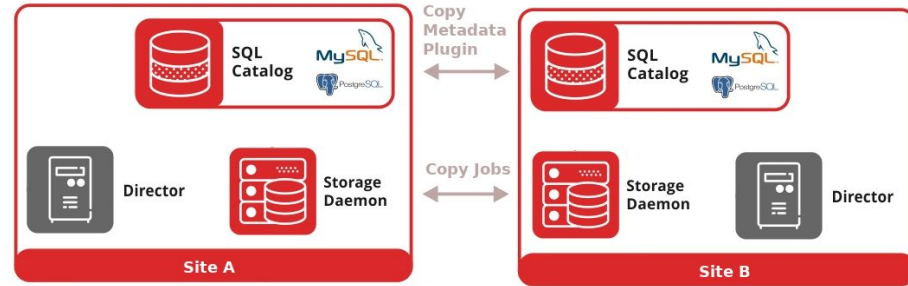
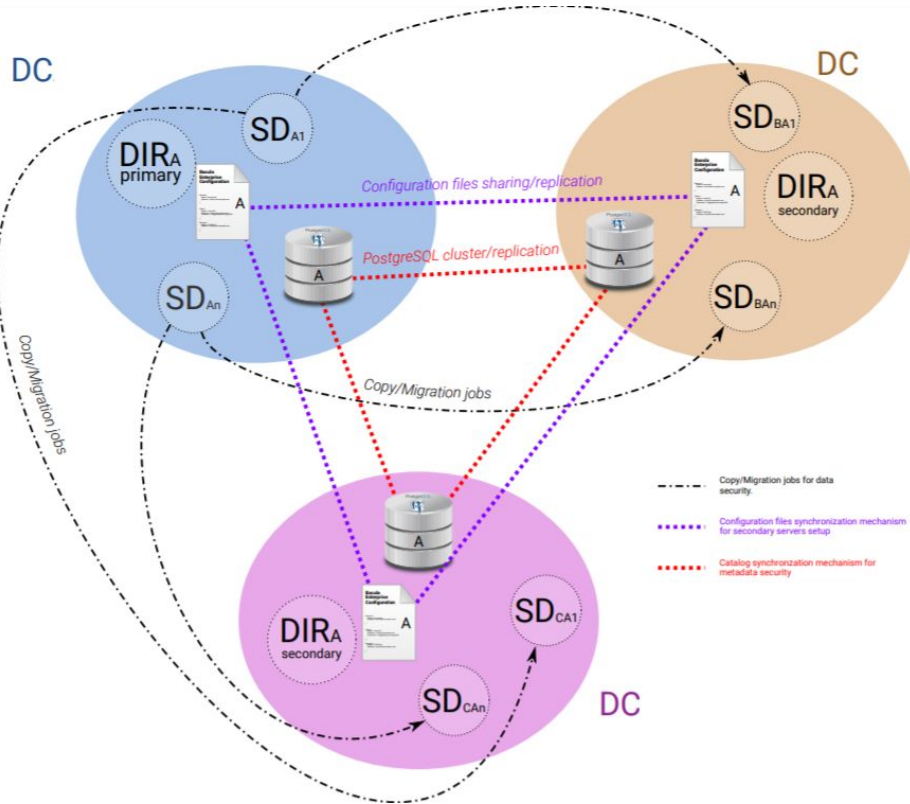
BACULA



- Catalog Cluster, Config Replication, Copy Job with Metadata Replication or DRBD



Data Center Replication



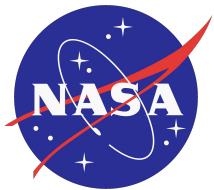


Alcatel-Lucent



Service. Productivity. Provider.







Hisense

Unimed



POUPEX

Algar
Tech



LOCAWEB



TERESINA
SHOPPING



StanleyBlack&Decker

Rio Energy

DATACOM



NASSAU



TRT MG

TRIBUNAL REGIONAL DO
TRABALHO DA 3ª REGIÃO



Binário
Cloud

NASSAU



UNICAMP

OABRJ



MINISTÉRIO PÚBLICO
ESTADO DE RORAIMA



MINISTÉRIO PÚBLICO
DO ESTADO DA PARAÍBA



CÂMARA MUNICIPAL DE
CAMPINAS



PREFEITURA DE
APARECIDA
Fazendo cada vez mais

TRT
15ª

Cost Reduction



Up to 77% of economy

- Backup specialists
- Simplified licensing
- Lean structure



Annual Pricing - Factors of Sizing



(1)

**Backup Clients Quantity (VMs,
Servers, Desktops etc.)**

- Ranges

(1-25; 26-50; 51-200; 201-500;
1001-2000; 2001-5000)

(2)

Plugins of choice

- Illimited use
- Fixed price

Licensing Levels



	SMB	Standard	Bronze	Silver	Gold	Platinum	
Subscription Basics	Maximum File daemons	25	50	200	500	2000	5000
	Authorized Contacts	1	1	2	3	5	5
	Number of platforms	2	4	All	All	All	All
	Web Support	● ⁽¹⁾	●	●	●	●	●
	Phone Support	○ ⁽²⁾	○	○	●	●	●
	Bacula Systems Certified Binaries	●	●	●	●	●	●
Response Commitment	Severity 1	○	1 D ⁽⁴⁾	6 H ⁽³⁾	4 H	1 H	1 H
	Severity 2	○	2 D	1 D	6 H	2 H	2 H
	Severity 3	○	3 D	3 D	1 D	1 D	1 D
	Severity 4	○	4 D	4 D	2 D	2 D	2 D
Additional services	Access to Plugins	○	● ⁽⁵⁾	●	●	●	●
	Access to Deduplication Volumes	○	○	○	●	●	●
	Access to Professional Services	○	●	●	●	●	●
	Access to Senior developers	○	○	○	○	●	●
	Access to funded development	○	○	○	●	●	●
	Training seats included per year ⁽⁶⁾	—	—	—	—	—	1
	PostgreSQL Catalog support	○	○	○	●	●	●

⁽¹⁾ ● Included in the subscription

⁽²⁾ ○ Not included - Not an option

⁽³⁾ H: Business Hours

⁽⁵⁾ ● Not included - Option to purchase

⁽⁶⁾ "Administrator I" or "Administrator II" courses

⁽⁴⁾ D: Business Days

Purchase Options



(1)

Subscription

- Same licensing price every year to keep using the software and to keep guarantee (technical support and updates)

(2)

Perpetual Licensing

- Greater initial investment
- May use the last updated version in a perpetual way
- 20% of purchase price annually to keep guarantee (technical support and updates)

Licensing Rights



- Correctional and evolutionary updates of all purchased modules
- Bacula Systems technical support
- Exclusive download repository
- Higher levels:
 - roadmap participation and feature requests;
 - Seat on official training (Bacula Systems in Switzerland).

Adicional Services



- Certified in-company deployment
- Certified in-company training
- Complementary technical support with customized SLA
- Backup Management Outsourcing (any backup software and/or combined backup softwares)

Bibliographical Reference



- P. d. Guise, "Enterprise Systems Backup and Recovery". CRC Press, 2008.
- "The Digital Universe of Opportunities: Rich Data and the Increasing Value of the Internet of Things." [Online]. Available: <https://www.emc.com/leadership/digital-universe/2014iview/executive-summary.htm>
- D. Russell, P. Rinnen, and R. Rhame, "Magic Quadrant for Data Center Backup and Recovery Software", 2016.
- D. Russel, "The Future of Backup May Not Be Backup", 2011.
- H. Camacho, A. Brambila and A. Peña, "A Cloud Environment for Backup and Data Storage", 2014.
- V. Javaraiah, "Backup for cloud and disaster recovery for consumers and SMBs", in Advanced Networks and Telecommunication Systems, 2011 IEEE 5th International Conference on. IEEE, 2011, pp. 13.
- M. Pokharel, S. Lee, and J. S. Park, "Disaster Recovery for System Architecture Using Cloud Computing." IEEE, Jul. 2010.
- Z. Jian-hua and Z. Nan, "Cloud Computing-based Data Storage and Disaster Recovery." IEEE, 2011.



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