



Bacula Enterprise 2019

bacula.us

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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

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

Backups Today



- Backup is the replica of any data that can be used to restore its original form [Guise]
- Challenge: by 2020, the volume of data will double each year reaching 44 zettabytes or 44 trillion GB. [IDC]
- Global deduplication and scalability are key factors to succeed in such scenario



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**



ZABBIX

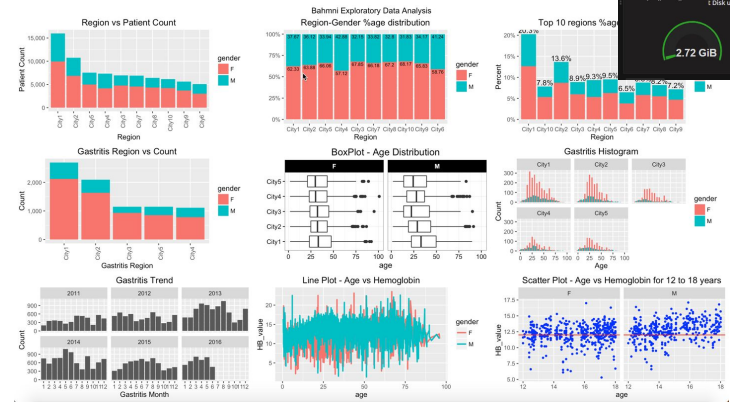
The screenshot shows the Zabbix web interface. At the top, there are navigation tabs for Monitoring, Inventory, Reports, Configuration, and Administration. Below this, there are sections for 'Favourite graphs', 'Favourite systems', and 'Favourite hosts'. A terminal window is open in the foreground, displaying the output of the 'top' command, showing system load, memory usage, and process information.

Nagios®

The screenshot displays a Grafana dashboard with multiple panels. The top row includes 'UP' status indicators, 'Load' graphs, 'Proc' graphs, and 'Used Mem' gauges showing 48.12 GiB and 47.87 GiB. The second row shows another 'UP' status, more 'Load' and 'Proc' graphs, and 'Used Mem' gauges for 35.30 GiB and 29.18 GiB. The bottom row features 'Disk used' gauges for 2.72 GiB and 20.09 GiB, along with several time-series graphs for 'Mem' and 'Proc' usage.



Grafana

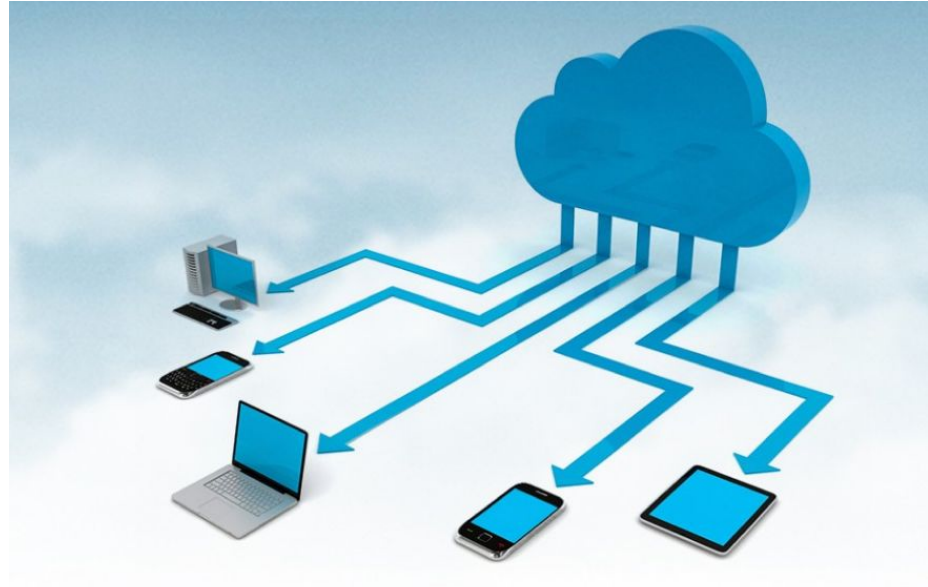


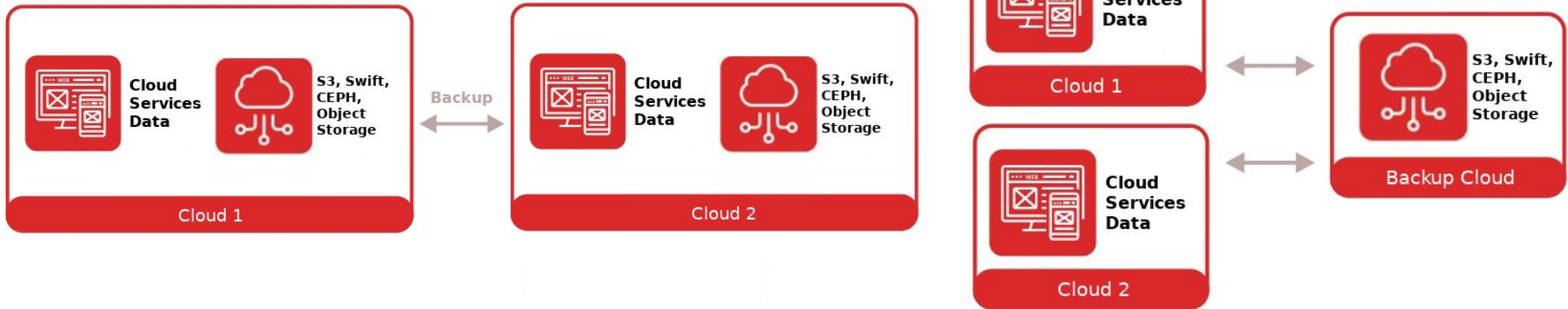
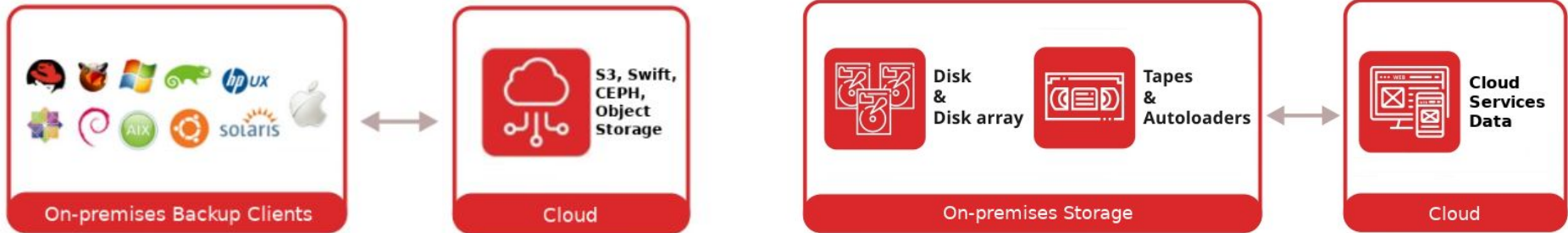
Backups Today



Backup modernization:

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





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 open backup files format

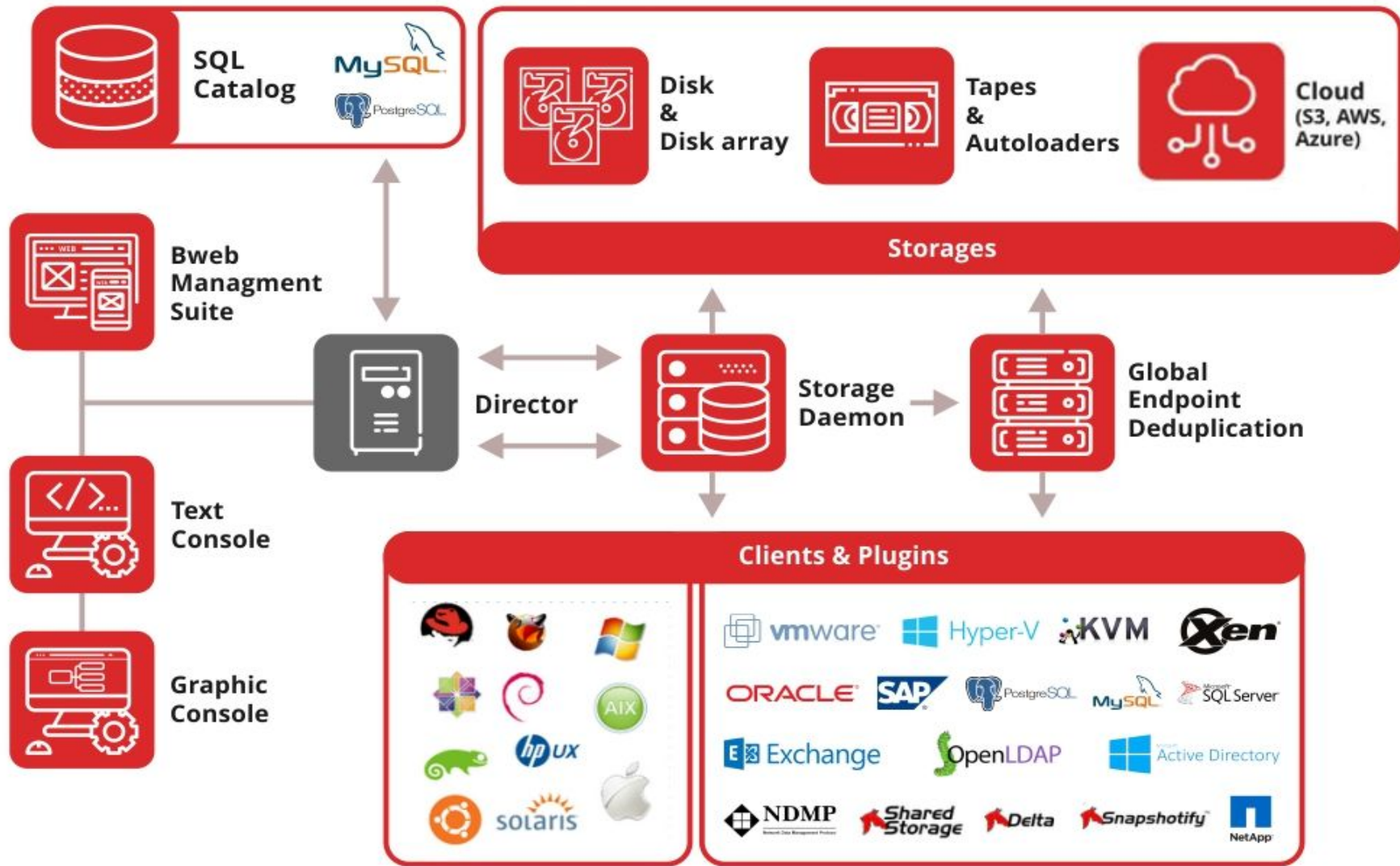
Enterprise

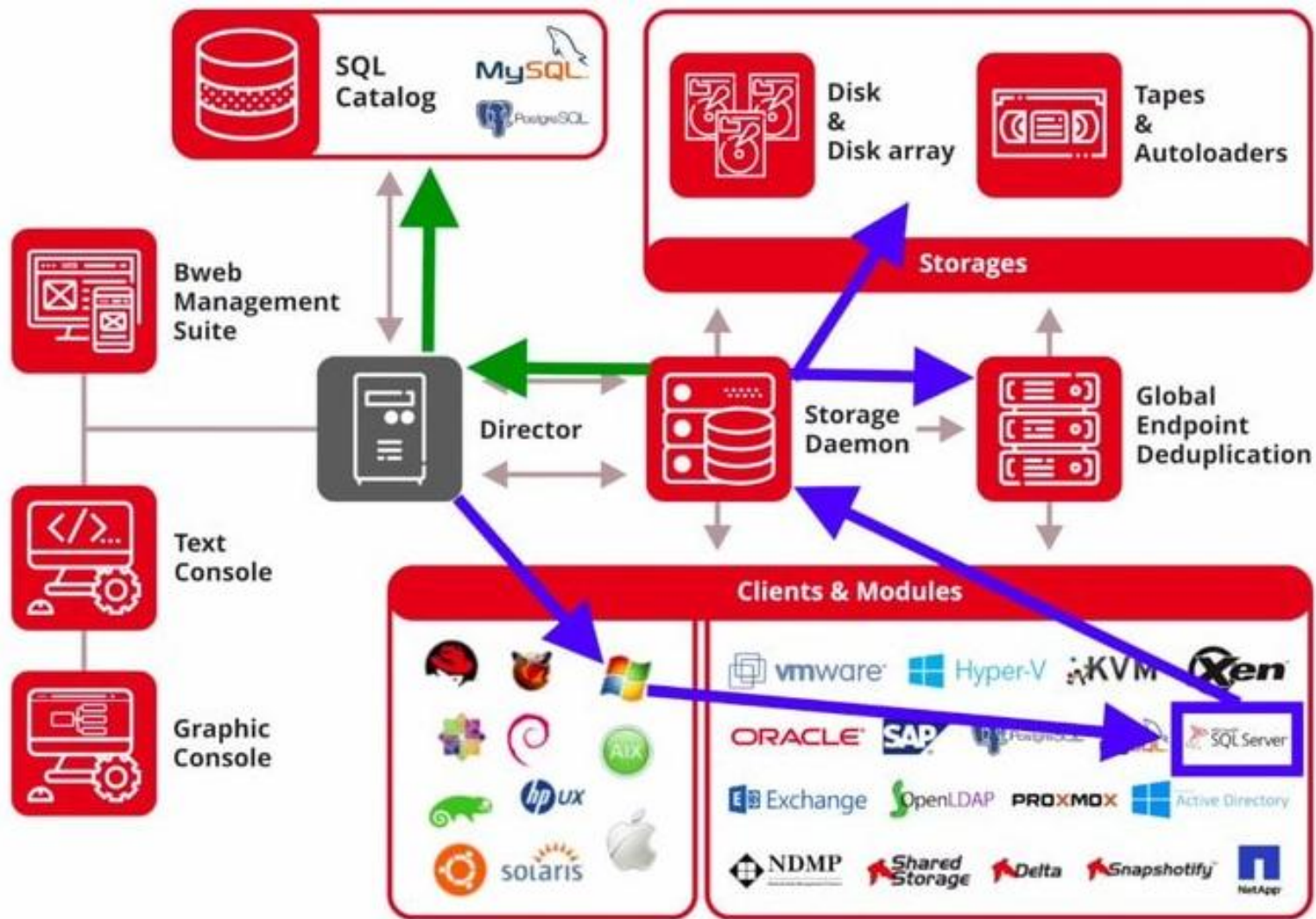
- Paid licensing
- Proprietary code
- Packages approved by developer
- Technical support provided by developer
- Easy-to-use graphic interface
- More than 30 plugins available
- Global deduplication and on the storage side only option
- Open catalog and open backup files format

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

Storage em Nuvem



File Daemon (backup client)

BACULA

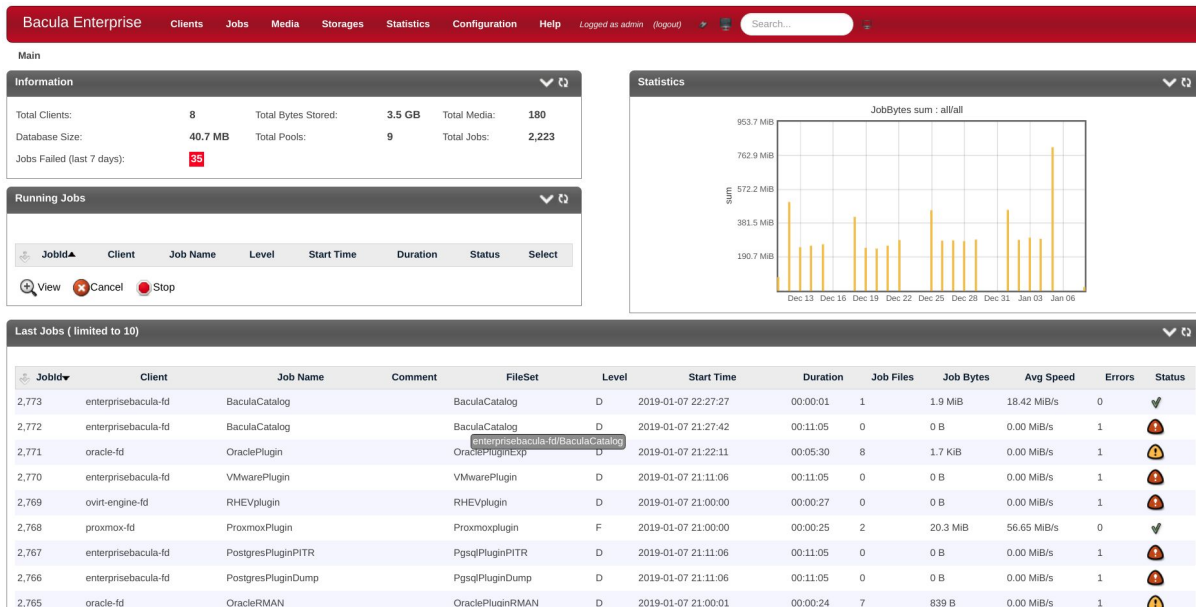


- ★ Secure Authentication (password or encryption key)
- ★ FIPS compliant

- ★ 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 displays the Bacula Enterprise BWeb interface. The top navigation bar includes 'Bacula Enterprise', 'Clients', 'Jobs', 'Media', 'Storages', 'Statistics', 'Configuration', and 'Help'. The user is logged in as 'admin'. The main content area is divided into several sections:

- Information:** Shows system-wide statistics: Total Clients: 8, Total Bytes Stored: 3.5 GB, Total Media: 180, Database Size: 40.7 MB, Total Pools: 9, Total Jobs: 2,223, and Jobs Failed (last 7 days): 35.
- Running Jobs:** A table with columns for JobId, Client, Job Name, Level, Start Time, Duration, Status, and Select. It includes controls for View, Cancel, and Stop.
- Statistics:** A bar chart titled 'JobBytes sum : allfall' showing data from Dec 13 to Jan 06. The y-axis represents 'sum' in MB, ranging from 190.7 MB to 953.7 MB.
- Last Jobs (limited to 10):** A detailed table of recent jobs with columns for JobId, Client, Job Name, Comment, FileSet, Level, Start Time, Duration, Job Files, Job Bytes, Avg Speed, Errors, and Status.

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	⚠



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

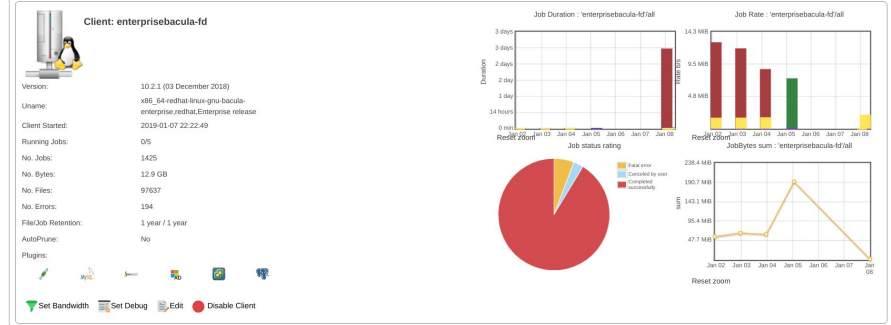
Job Name: OraclePlugin.2019-01-07_22:29:58.21 (2,774)
Processing file: /@ORACLE/cdb1\APEX_040200\user.sql
Speed: 72 B/s
Files Examined: 8
Files Backed up: 8
Bytes done: 
Files done: 
Bytes: 1,748

Job Report: OraclePlugin on oracle-fd (2774)

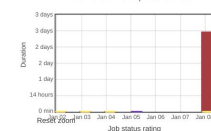
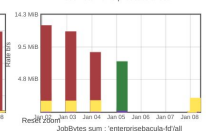
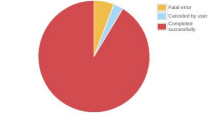
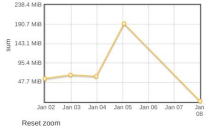
2019-01-07 22:29:50 oracle-fd JobId 2774: DIR and FD clocks differ by -9 seconds, FD automatically compensating.
 2019-01-07 22:38:00 enterprisebacula-dir JobId 2774: Start Backup JobId 2774, Job=OraclePlugin.2019-01-07_22:29:58.21
 2019-01-07 22:38:00 enterprisebacula-dir JobId 2774: Using Device "FileChgr1-Dev2" 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
FileJob Retention: 1 year / 1 year
AutoPrune: No
Plugins:

Job Duration: 'enterprisebacula-fd' 
Job Rate: 'enterprisebacula-fd' 
Job status rating: 
Jobilities sum: 'enterprisebacula-fd' 

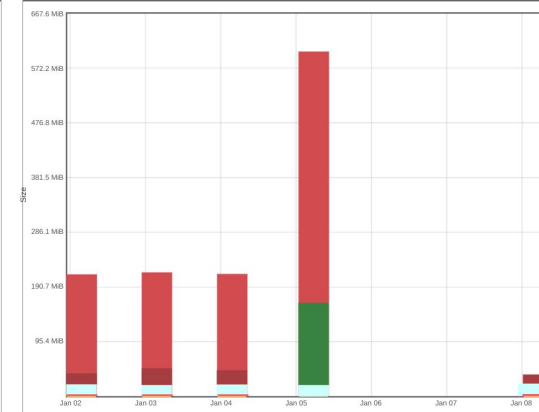
Running Jobs
 No job running on the Client.
Terminated Jobs

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, mssqlPluginCluster, MySQLplugin, NewJob, OraclePlugin

Groups: databases, hypervisors

Current graph


Main - Clients - Clients

Overview

Client Version: 
Client Os: 

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

Edit Fileset VMwarePlugin

Cancel Save Copy Delete

Fileset Name: VMwarePlugin

Description:

Enable VSS:

Ignore Fileset Changes:

Enable Snapshot:

Include:

[-] Add Include list

[Compression Dedup Signature] Plugin: index

Exclude:

VMware resource browser

Path: /ha-datacenter/VMS

- ..
- ..
- centos7minimum
- teste-restore

Cancel Apply selection

Current Changes

Help

To get help about Directives, click on the Directive label and the

Storage Overview

Set Debug Network Test Storage: DedupDisk Refresh: 30 seconds Device: Media Type: Device Type: Device Status:

Legend: Queued Progress Done Error Cancelled Unknown

Uploads: No upload transfer available Downloads: No download transfer available

Device Details:

- Device Type: Cloud
- Media Type: CloudAWS
- Device Status: Not running (Idle)
- Cache (Free/Total): 272.81 GB / 369.98 GB
- Status: Cloud Status

Device Name	Status	Loaded	Volume Name	Slot	Running Jobs/Max. Jobs	Speed
AWS						
					0/20	

Autochanger: FileChgr1

Device Details:

- Device Type: Dedup
- Media Type: Dedup
- Device Status: Not running (Idle)
- Space (Free/Total): 272.81 GB / 369.98 GB

Device Name	Status	Loaded	Volume Name	Slot	Running Jobs/Max. Jobs	Speed
FileChgr1-Dev1				05		
FileChgr1-Dev2				05		

Autochanger: FileChgr2

Device Details:

- Device Type: File

Main - Statistics - Dedup Usage

Global Endpoint Deduplication storage usage

Storage: DedupDisk Refresh interval: 5 minutes

Deduplication Ratio:

Ref ratio: 6.63

Size ratio: 14.13

General:

Version: 10.3

Hash Name: sha512/256

Hash ID: 1

Hole Size: 4.0 MB

Ideal Blocksize: 64.0 KiB

Max Blocksize: 65.0 KiB

Statistics:

Transaction: 2476

Hash Count: 1,205,527

Ref Count: 7,994,509

482.8 GiB

Dedupengine Errors: 0

Containers Errors: 0

Containers statistics

Chunk Used: 1,205,527

Chunk Allocated: 1,889,390

Disk Space Used: 34.2 GiB

Disk Space Allocated: 71.4 GiB

Container Sum Bitarray Capacity: 33.0 MB

Read Chunk: 0

Calc Hash: 784

Update Refont: 0

Query Hash: 2138

New Hash: 681

Vacuum:

Start Time: 2018-10-29 17:14:48

End Time: 2018-10-29 17:14:55

Orphan Addr: undefined

Ref Count: 0

Ref Size: 0 B

34.2 GiB

Actual disk space used

482.8 GiB

Equivalent standard File or Tape storage space

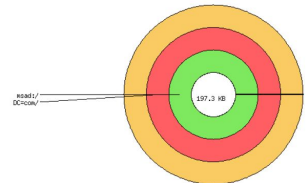
Global Endpoint Deduplication storage containers

ID#	Block Used	Block Capacity	Unused Disk Space	Disk Space	Bitarray Capacity	Usage	Usage Map
1	3	4	1024 B	8.0 KiB	524288	75%	
2	6,483	9,551	6.0 MiB	18.7 MiB	524288	67%	
3	10,941	13,774	6.3 MiB	40.4 MiB	524288	79%	
4	10,628	12,865	8.7 MiB	50.3 MiB	524288	82%	
5	5,574	7,063	7.3 MiB	34.5 MiB	524288	78%	

JobID	Client	Job Name	Comment	FileSet	Level	Start Time	Duration	Job Files	Job Bytes	Avg Speed	Errors	Status
2,784	enterprisebacula-ld	MicrosoftADplugin		MicrosoftADplugin	F	2019-01-07 23:37:41	00:00:02	252	169.8 KiB	0.10 MiB/s	0	✓

Files usage

/ Size go go back



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 (JobDefn) 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:



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

BACULA



- 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 icon with a gear) and 'Download center' (a database icon with a blue arrow). Below this 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	

Below the table, there are sections for 'Backup' details, 'Next Backup', and 'Running jobs'.

Backup

Last Backup:	Wanderlei
Last Backup Time:	05/07/18 16:31:56
Size of the Last Backup:	0 B
Total Size:	51.1 MiB (0 B)

[Backup History](#)

Next Backup

Name	Scheduled Time
Wanderlei	

Running jobs

Name	Start Time	Job Bytes	Job Files	Action
Wanderlei	07/05/18 16:31:56	0	0	View Cancel

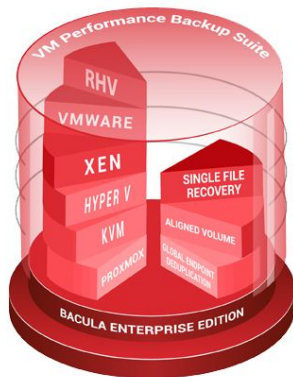
[Refresh jobs](#)

On the right side, there are buttons for 'Select files to restore', 'Restore History', 'Delete Client', and 'Delete this Client'. A note states: 'Client deletion is permanent'.

Plugins



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



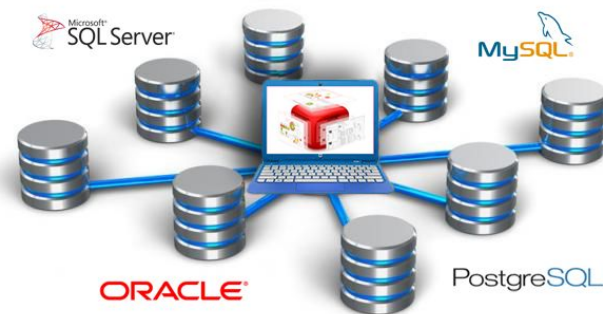
- ★ Clientless Backups
- ★ Auto-discover of new VMs
- ★ Differential backups on block level
- ★ Automatic restore of VMs
- ★ File level granular restore

Plugins



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

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



Plugins

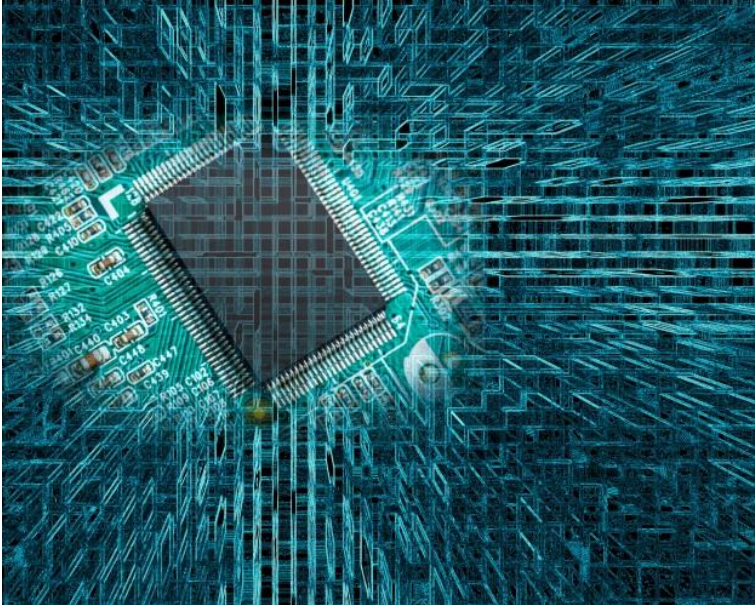


- CDP (Continuous Data Protection)
- Docker
- Bare Metal Linux e Windows
(restore and migration of full machines *physical/virtual/cloud*)
- REST API
- Zimbra
- MS Exchange
- Sharepoint
- VSS
- bpipe
- Delta
- NDMP
- Storage SAN
- Incremental Netapp



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



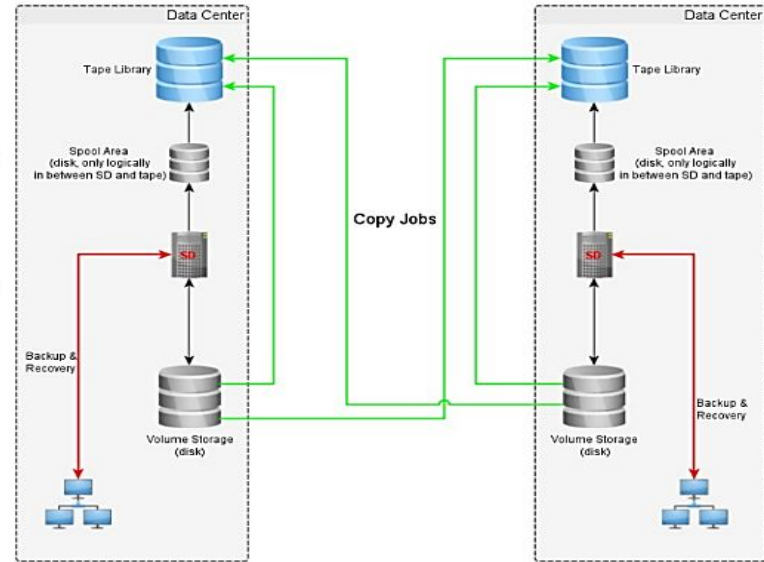
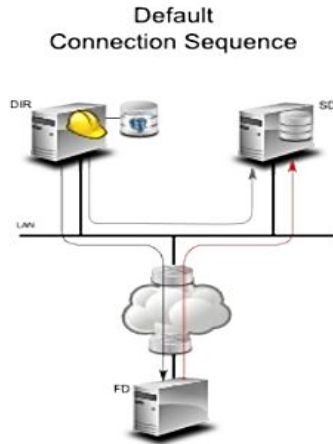
- More than 30 Plugins (hundreds of specialized features)
- Filesystems snapshot support (LVM, ZFS, etc)
- Assures data compatibility for 30 years
- Specific data removal (GDPR compliant)
- Open Catalog
- Volumes generated in open format (can be read by Unix tar and dump)

Data Center Replication

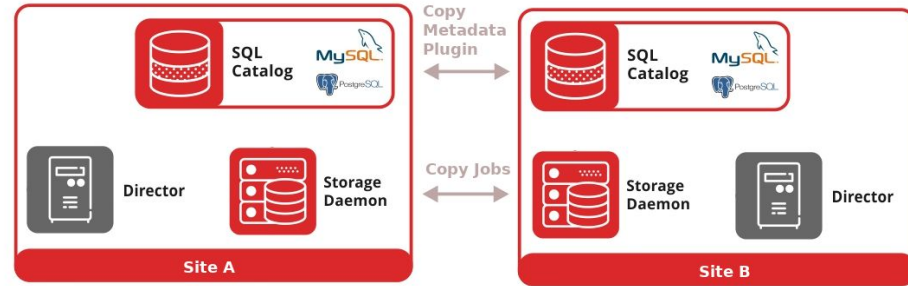
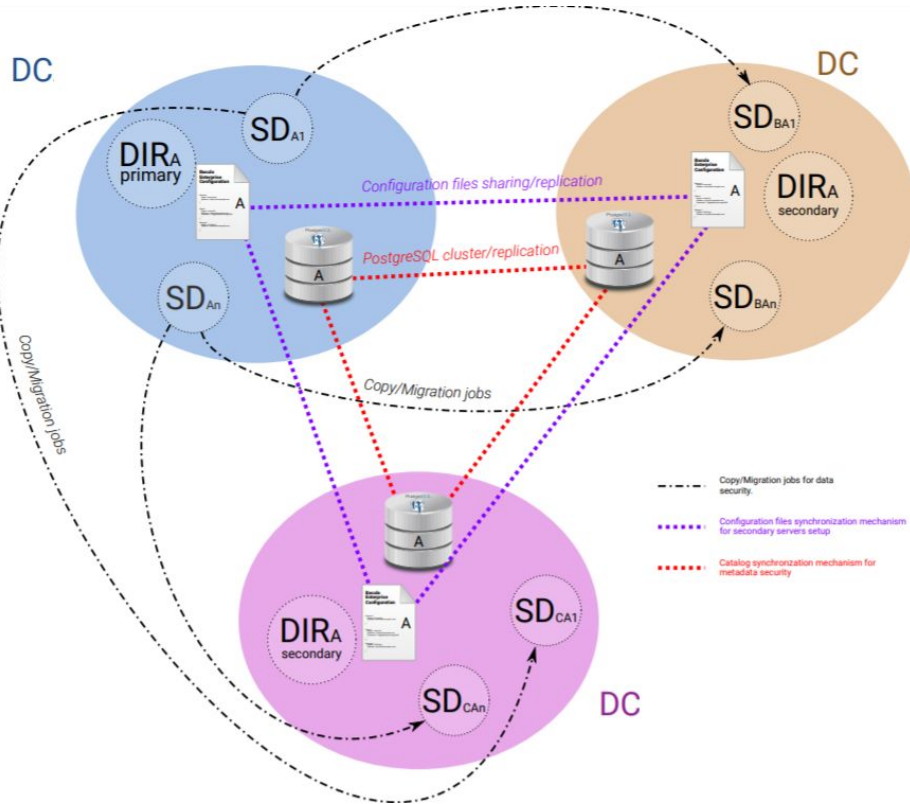
BACULA



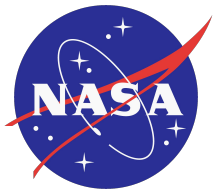
- Catalog Cluster, Config Replication, Copy Job with Metadata Replication or DRBD



Data Center Replication









DATACOM



SOCIC

TERESINA SHOPPING



INSTITUTO FEDERAL



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Carrefour



OABRJ



CÂMARA MUNICIPAL DE CAMPINAS



MINISTÉRIO PÚBLICO DO ESTADO DA PARAÍBA



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)

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