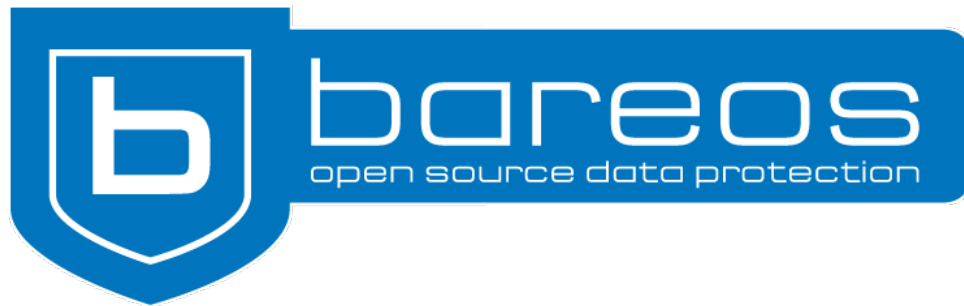


# Bareos Open Source Backup Overview and what's New





# Bareos Introduction

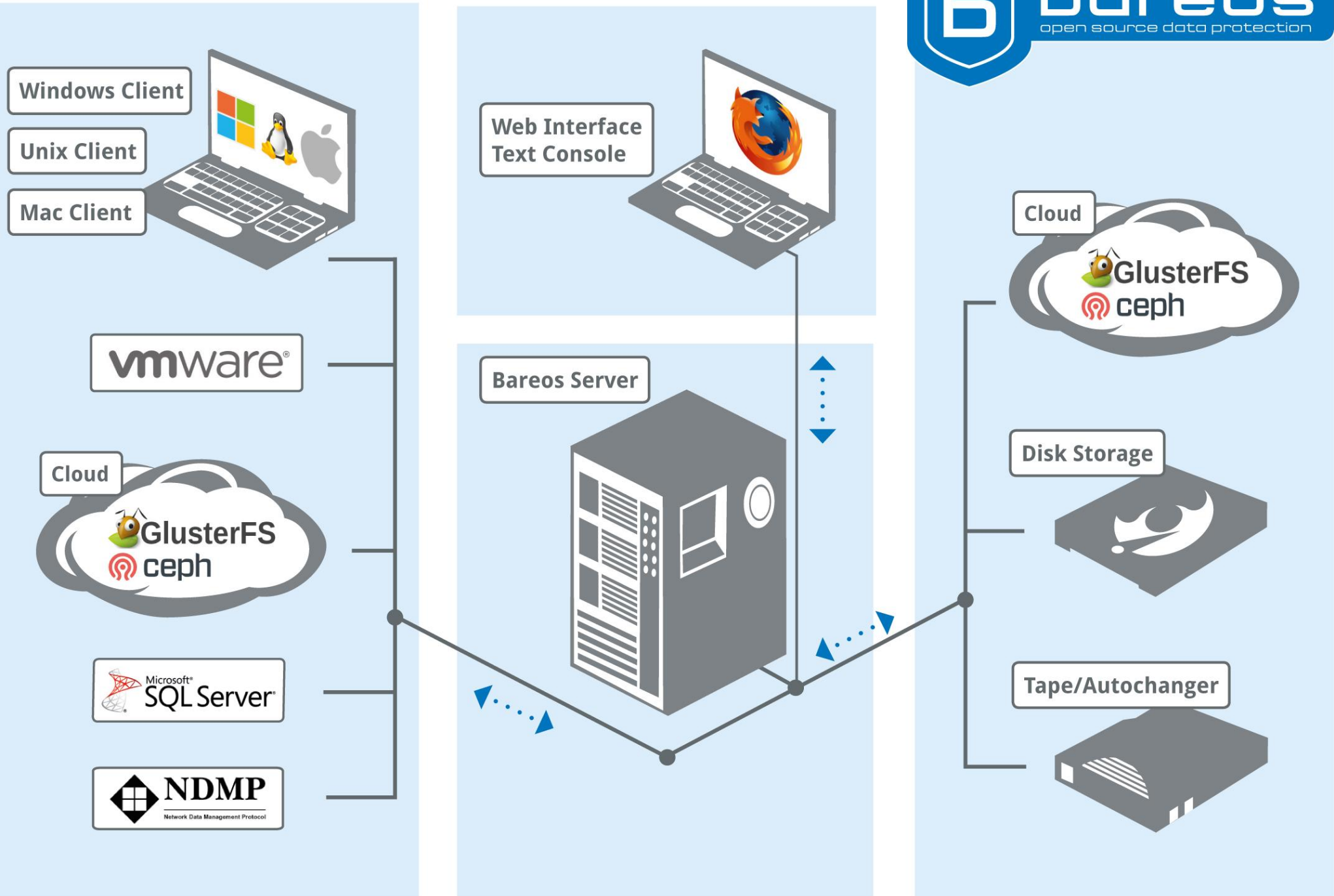
- Bareos is a fork of the bacula.org project
- Fork started by Marco van Wieringen 2010
  - Implement own ideas
  - Speed up development
  - Sustainably ensure open source project
- First Release 2013
- Since then yearly a new major version



# Data Sovereignty – NO vendor lock-in

- Bareos is 100% Open Source:
  - Affero GNU Public License (AGPL)
  - Code cleanup and re-factoring
  - A lot of new features
  - Python Plugin Interface
  - Growing Open Source Community
  - Open Storage Format
  - Only Open Source backup software lets you for sure restore your data whenever you decide

# Bareos Architektur





# Bareos Overview

- All common sense features of a network backup system, like
- Multiplatform support: Linux, Unix, Windows, MacOS
- Scheduler with multi generation support (Full-, differential-, incremental, virtual full, accurate, ...)
- Inventory (“catalog”) in database (MySQL, Postgres)
- Restore via CLI or GUI on any client
- Encrypted data, transport, ACLs, ...
- Backup media: disk, tape, library, cloud
- Scripting interface for pre- and post – jobs, plugin interface



# New Features Overview

- Support for hardware encryption with LTO (4 and upwards) and enterprise tape libraries
- Client-quota support
- Native NDMP Support
- Import/export for tape changer (e.g. export all tapes used by a certain job)
- Bandwidth limitation
- Windows Backup „all (local) drives“ option in fileset definition and Windows File daemon

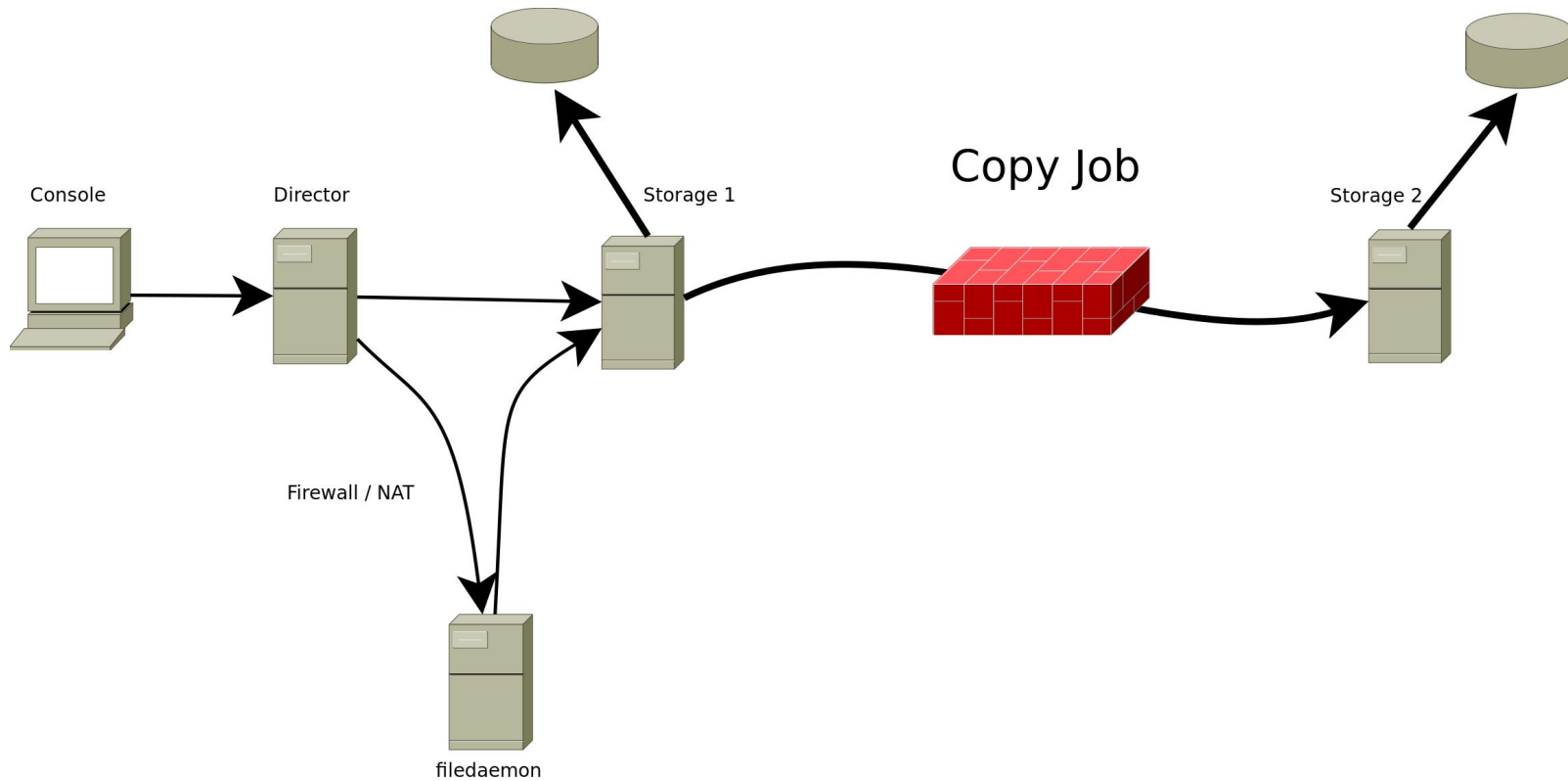
# New Features Overview

- Creating Packages using Open Build Server
  - All packages out of one source
  - All major Linux Distributions
  - MacOS
  - Windows Installer Packages with lean redesign of cross compile makefiles, silent install possible
- Additional / on request: AIX, HP-UX, BSD



# 13.2: Backup Replication

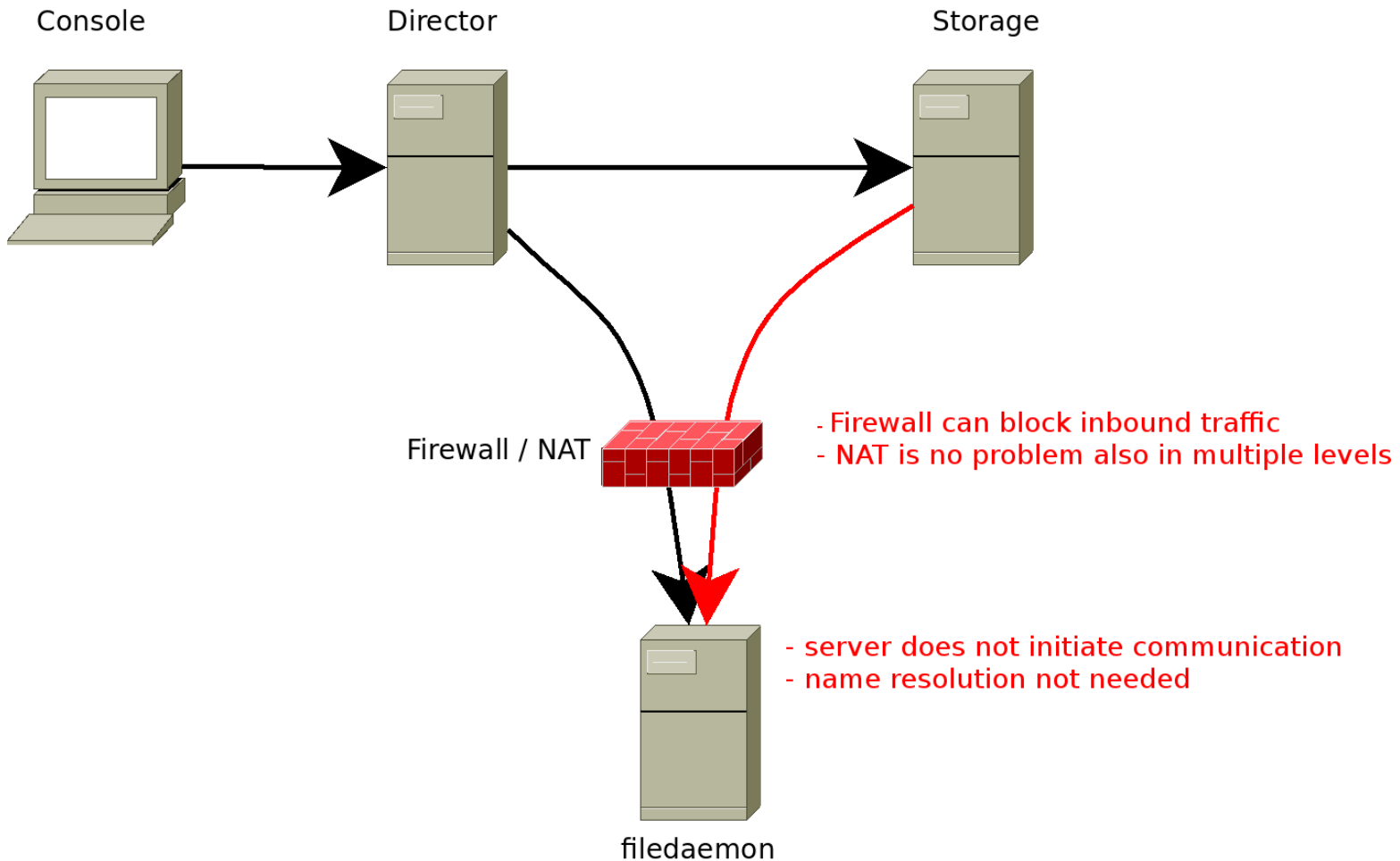
- With new SD to SD communication:





# Backup DMZ Clients (13.2)

## Kommunikation mit "Passive Client":





## New Features in 14.2

- Performance tuning (variable blocksize)
- Storage Abstraction Layer
  - Backup to Cloud Storage (Ceph, Gluster)
- Windows Director / Storage Daemon (disk-only)
- Improved Windows Support (*NotToBackup* Key, VMP, EFS, Windows 2012 Deduped Volume)



## (Some) new Features in 15.2

- VMware Plugin (Disk Images, Incremental)
- WebUI with self service portal restore browser
- Director API
- Secure Erase - sponsored by cardtech for compliance reasons:  
HIPAA, FACTA, GLB, SOx, PCI DSS, ...
- Backup of Ceph / Gluster storage
- Plugins:
  - MySQL, Icinga / Nagios, LDAP



# Bareos 16.2 / 17.2

- Sponsored Developments
  - Director Reload Enhancements
  - Client initiated Backups for roaming users and systems behind firewall
  - NDMP Enhancements
  - S3 compatible storage for backups
- Always Incremental
- WebUI: multi-tenant and multi-language
- Database optimization for very large installations



# Bareos 18.2

- Hassle-free Security:
  - Transport encryption enabled by default using connections passwords as pre-shared keys (TLS-PSK)
- PAM integration for authentication
  - No more clear-text passwords in config for WebUI users
- Modernized legacy code
  - Replaced Autoconf (70000 lines) by CMake (5000 lines)
- Modernized Documentation
  - Converted from LaTeX to reST using Sphinx
  - Includes main Documentation, Developers Guide and Documentation Style Guide
  - see <https://docs.bareos.org/>
- Full List: [https://www.bareos.org/en/whats\\_new.html](https://www.bareos.org/en/whats_new.html)



# Roadmap for 19.x

- Continue to modernize and refactor legacy code
- Replace regression tests by unittests using CTest and GoogleTest
- Support SCSI drive reservation
- Auto-Configuration of multiplied storage devices
- WebUI enhancement: Restore a specific file version
- Modernize CI/CD using Jenkins Pipeline
- Performance enhancement for very high number of files by using PostgreSQL table partitioning
- oVirt/Red Hat Virtualization Plugin
- Red Hat Enterprise Linux 8 packages
- FreeBSD 12 packages



# Web UI Restore Browser

Dashboard Jobs **Restore** Clients Schedules Storages Director admin

**Client**  
amy-fd

**Backup jobs**  
(591) 2016-09-07 21:00:02 - backup-amy - Incremental

**Merge all client filesets**  
Yes

**Merge all related jobs to last full backup of selected backup job**  
Yes

**Restore to client**  
amy-fd

**Restore job**  
RestoreFiles

**Replace files on client**  
never

**Restore location on client**  
/tmp/bareos-restores/

**File selection**

Name	Size	Date
/	0.00 B	1970-01-01 01:00:00
etc/	8.19 KB	2016-08-18 17:59:58
.pwd.lock	0.00 B	2015-07-25 17:47:22
.updated	163 B	2015-12-10 19:27:25
DIR_COLORS	5.11 KB	2016-07-12 13:44:01
DIR_COLORS.256color	5.7 KB	2016-07-12 13:44:01
DIR_COLORS.lightbgcolor	5.13 KB	2016-07-12 13:44:01
GREP_COLORS	94 B	2016-01-12 10:51:54
NetworkManager/	4.1 KB	2016-08-03 09:44:39
X11/	66 B	2015-12-10 19:30:24
adjtime	16 B	2015-07-25 17:51:55
aliases	1.52 KB	2016-02-22 15:11:51
alternatives/	33 B	2016-08-18 17:59:33
anacrontab	541 B	2015-07-13 13:37:17
audisp/	41 B	2016-08-18 17:59:34
audit/	102 B	2016-08-18 17:59:34
avahi/	33 B	2016-04-27 16:16:34
<b>bareos-webui/</b>	<b>61 B</b>	<b>2016-08-18 18:15:32</b>
directors.ini.rpmnew	1.05 KB	2016-08-12 16:57:34
directors.ini.rpmsave	1.04 KB	2016-07-18 18:53:12
<b>bareos/</b>	<b>4.1 KB</b>	<b>2016-08-18 18:00:36</b>
bash_completion.d/	50 B	2016-06-03 14:17:54
bashrc	2.84 KB	2016-02-22 15:11:51
binfmt.d/	6 B	2016-02-01 15:04:04
chkconfig.d/	6 B	2015-11-24 12:58:51
...	...	...

**Restore**



# Web UI Restore specific Version

Restore multiple files **Restore specific file version**

Restore

**Client**  
bareos-fd

**Backup jobs**  
(51) 2019-05-08 11:25:10 - backup-bareos-fd - Incremental

**Merge all client filesets**  
Yes

**Merge all related jobs to last full backup of selected backup job**  
Yes

**Restore to client**  
bareos-fd

**Restore job**  
RestoreFiles

**Replace files on client**  
never

**Restore location on client**  
/tmp/bareos-restores/

**File selection**

Name	Size	Last modification
libbareocats.so.19.1.2	23.21 kiB	2019-04-29 11:38:17
libbareosfind.so	19 B	2019-04-29 11:38:27
libbareosfind.so.19	23 B	2019-04-29 11:38:27
libbareosfind.so.19.1.2	120.34 kiB	2019-04-29 11:38:20
libbareoslmbd.so	19 B	2019-04-29 11:38:27
libbareoslmbd.so.19	23 B	2019-04-29 11:38:27
libbareoslmbd.so.19.1.2	217.39 kiB	2019-04-29 11:37:53
libbareosndmp.so	19 B	2019-04-29 11:38:27
libbareosndmp.so.19	23 B	2019-04-29 11:38:27
libbareosndmp.so.19.1.2	2.42 MiB	2019-04-29 11:37:53
libbareossd.so	567.45 kiB	2019-04-29 11:38:27
libbareossql.so	18 B	2019-04-29 11:38:27
libbareossql.so.19	22 B	2019-04-29 11:38:27
libbareossql.so.19.1.2	251.88 kiB	2019-04-29 11:38:22
logrotate.d/	4 kiB	2019-04-29 11:38:27
make_bareos_tables	3.42 kiB	2019-01-10 15:31:10
make_catalog_backup	3.51 kiB	2019-01-10 15:31:10
make_catalog_backup.pl	3.88 kiB	2019-01-10 15:31:10
man1/	4 kiB	2019-04-29 11:38:27
man8/	4 kiB	2019-04-29 11:38:27
mtx-changer	8.48 kiB	2019-01-10 15:31:10
mtx-changer.conf	1.47 kiB	2019-02-04 10:37:11
plugins/	4 kiB	2019-04-29 11:38:27
query.sql	8.56 kiB	2019-02-04 10:37:11
rc.d/	4 kiB	2019-04-29 11:38:27
tape_options	27 B	2019-04-29 11:38:30
test.txt	29 B	2019-05-08 11:25:04
test/	4 kiB	2019-05-08 11:21:23
timelimit	20.63 kiB	2019-04-29 11:37:53
update_bareos_tables	5 kiB	2019-01-10 15:31:10
working/		

**Selected file**  
test.txt

**Available versions**

Last modification	Size	Checksum
2019-05-08 11:15:08	36 B	/KGOMCO+HApuFMogA7F5Sg
2019-05-08 11:21:35	33 B	kapW4eUeK9R0tPgbV+6rQ
2019-05-08 11:21:42	30 B	7I8FEPddX33yeZ0zPNxGIw
2019-05-08 11:21:51	27 B	9GmbgEQMBA0zH86Yf5zYrw
2019-05-08 11:21:58	24 B	j0fmdY6CRhu4eL8qRej+g
2019-05-08 11:22:05	21 B	0wMy4C2qvzFLGloNgbqDCg
2019-05-08 11:22:13	18 B	IuQAot27ATrPKlh51qtp/A
2019-05-08 11:22:23	16 B	y39eXHZbH8eFRwYu5ncFLg
2019-05-08 11:22:30	14 B	d8WPBFg8hveMUD8Vj j816A
2019-05-08 11:22:38	12 B	86RWLNITTha0/xcM5vKP7g
2019-05-08 11:22:45	10 B	p7Gs01sHL3Go4NRjv064Ig
2019-05-08 11:22:51	8 B	MCwoAD1IcSTZfCQt6U2oVg
2019-05-08 11:22:57	6 B	wHENa08V36iPYAs0a2JAdw
2019-05-08 11:23:03	4 B	bdtAletxniqfCj+VZ30k4A
2019-05-08 11:23:10	2 B	sCyYTkEsqnLS4jWlhyB0Q

**Info tooltip:**  
Job ID: 34  
Volume: Incremental-0002  
User: Group frank.frank  
Last: 2019-05-08  
access: 11:21:42  
Last status: 2019-05-08  
change: 11:21:42

**Restore**





# Publicity

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bareos

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High Activity

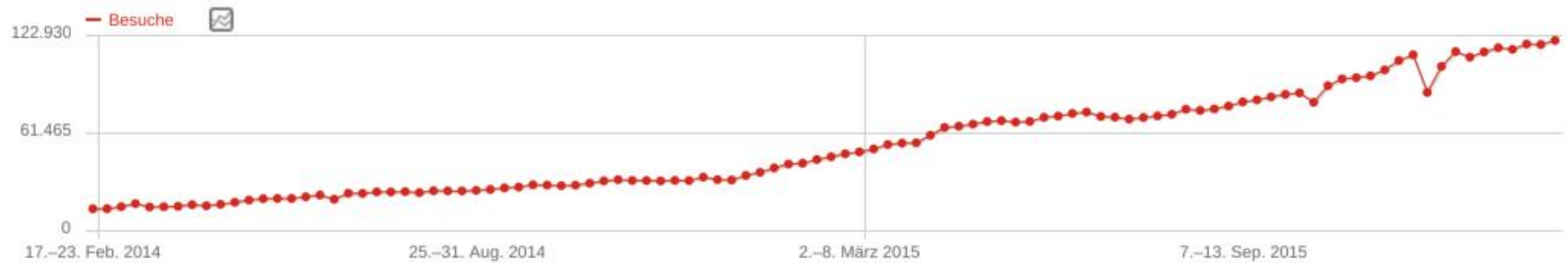
- “ This is one of the largest open-source teams in the world, and is in the top 2% of all project teams on Open Hub.”
- Bareos recommend on SILLS list of open source applications by French government
- 



[Admin Magazine](#) #17 / 2013 Editor's summary:  
*The Bareos fork of Bacula adds new features, expanded functionality, and simplified configuration*

# Downloads

- Weekly unique visits on [download.bareos.org](http://download.bareos.org)



# Command your Data

“

Imagine you are buying a new safe to store important documents and valuables but your vendor keeps the safe's key. If you want to access your valuables later, you may have to pay some extra-fees. This experience is shared by many users of proprietary backup solutions.

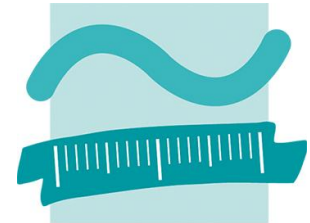
**Philipp Storz**

Managing Director Bareos GmbH & Co. KG



# Customers

- Several Max-Planck-Institutes
- Beuth Hochschule Berlin
- Cardtech: Payment Transaction Provider
- Bavarian State Archives
- Lab Logistics Group
- Mixed industries
  - Public / government
  - Universities / Research
  - SMB
  - Provider
  - Finance



BEUTH HOCHSCHULE  
FÜR TECHNIK  
BERLIN  
University of Applied Sciences



**CARTIKA**  
Web enabling business

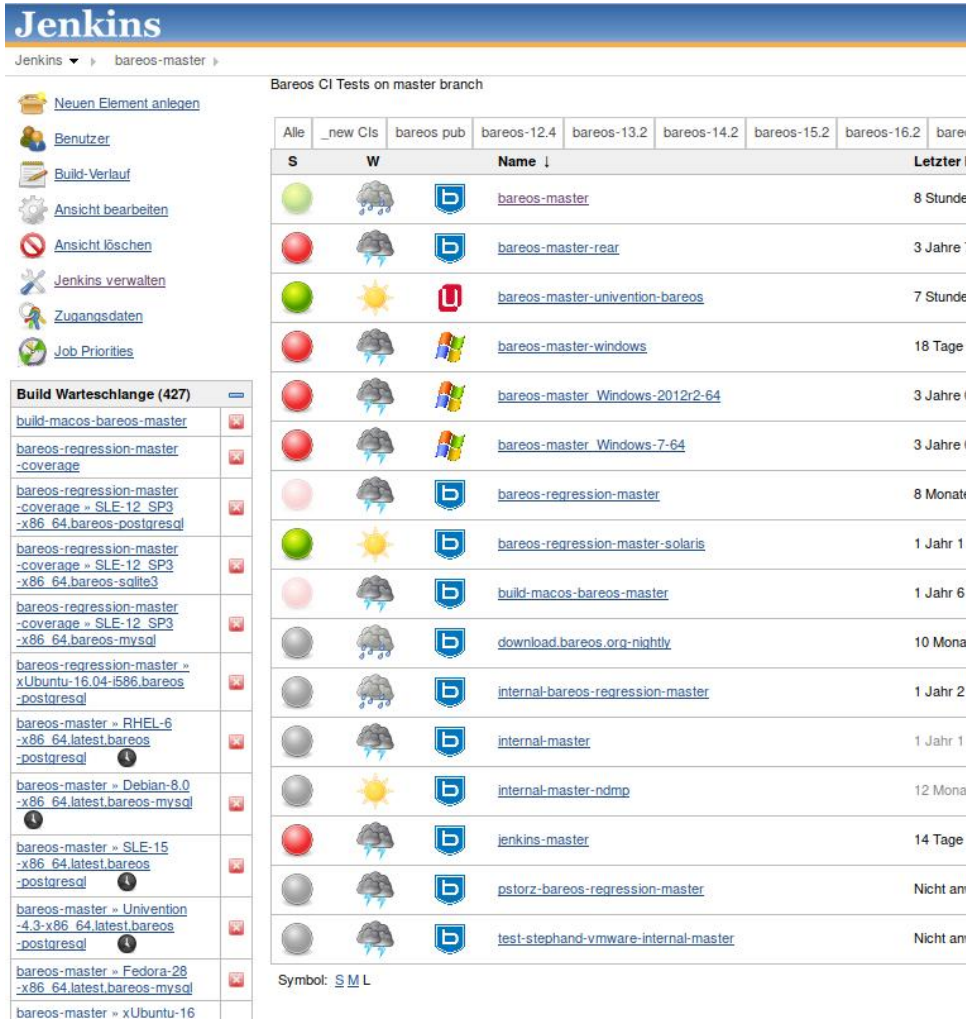


# Standard Development Environment

- Jenkins CI tests, install and test packages on each supported distribution

## Projekt bareos-master

install Bareos, version master



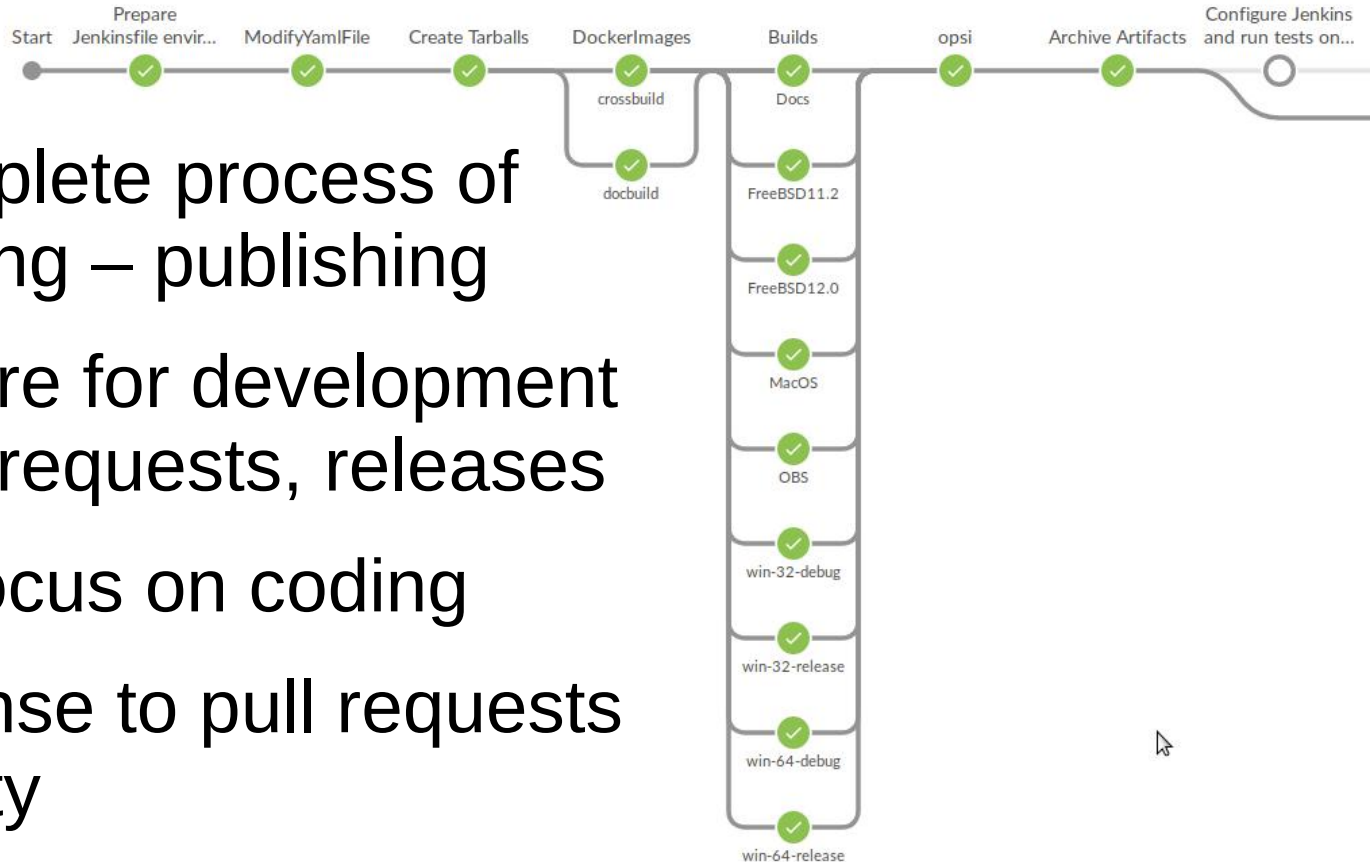
Konfigurationsmatrix	bareos-client-only	bareos-mysql	bareos-postgresql
CentOS-6-x86_64			
CentOS-7-x86_64			
Debian-8.0-i586			
Debian-8.0-x86_64			
Debian-9.0-i586			
Debian-9.0-x86_64			
Fedora-28-x86_64			
Fedora-29-x86_64			
RHEL-6-x86_64			
RHEL-7-x86_64			
SLE-12_SP4-x86_64			
SLE-15-x86_64			
Univention-4.3-x86_64			
openSUSE-Leap_15.0-x86_64			
xUbuntu-14.04-i586			
xUbuntu-14.04-x86_64			
xUbuntu-16.04-i586			
xUbuntu-16.04-x86_64			
xUbuntu-18.04-x86_64			

## Nachgelagerte Projekte

- bareos-master-FreeBSD
- bareos-master-rear
- bareos-master-univention-bareos
- bareos-master-windows
- bareos-regression-master



# Jenkins CI/CD Pipeline



- Automate complete process of building – testing – publishing
- Same procedure for development branches, pull requests, releases
- More time to focus on coding
- Quicker response to pull requests from community



# Free Software + Subscription

- Up2date source code always freely available via GIT  
100% Open Source (A)GPL.
- Public on [download.bareos.org](https://download.bareos.org):
  - Binary packages for all major releases
- Subscription service:
  - Additional intermediate and maintenance releases including quality assurance of binary packages
  - Prerequisite for Bareos support offerings



# Subscription: Terms

- Valid 1 year
- Access to Bareos subscription Repositories
  - Latest updates and patches
  - Quality assured
- Prerequisite for Bareos support offerings
- Right to use the software eternally



# Subscription and support

- Subscription customers can buy additional support packages with guaranteed response time at several service level
- Incident based
- Unlimited support with 24x7 availability possible
- Distribution through partners





## Subscription

from 290€/year

- Building, Testing and Maintenance of software packages for all common operating systems
- Continuous development, bug-fixes and quality assurance
- A backup unit is used either as Bareos - Client, VM\* or as 1TB storage backup capacity for NDMP or cloud storage backup

\*Virtual machine by Plugin

SKU/Description	# Units	price/year
BASB – Basic Subscription per Backup-Server	5	290 €
BASB-10	10	400 €
BASB-100	100	3.000 €
BASB-1000	1.000	20.000 €
BMSSQL Bareos Microsoft SQL Plugin – per MSSQL Server	n/a	290,00 €
BNDMP Bareos NDMP Backup Option – per NDMP Device	10	880,00 €
BCLOUD Bareos Backup of Ceph/Gluster Storages	10	880,00 €
BBMRL Bareos Bare Metal Restore for Linux	1	60,00 €



## Support

from 1000€/year

- Analysis of issues and bug fixes
- Prerequisite: Subscription
- Quickstart only available for installations with max. 15 clients and no plugins.

SKU	Descr.	# Incidents	Service Level	price/year
BASP-Q	Quickstart	3	n/a	1.000 €
BASP-S	Standard	10	2 business days	2.400 €
BASP-A	Advanced	20	Next Business Day	5.000 €
BASP-P	Premier	50	4h at business times	9.800 €
BASP-G	Global	unlimited	1h, 24x7	36.000 €



# Contact and links

- Subscriptions, Support, References, Partners:  
<http://www.bareos.com>
- Community, Documentation, Download:  
<http://www.bareos.org>
- GIT:  
<https://github.com/bareos>
- Bugtracker:  
<https://bugs.bareos.org>