Overview

bareos

Philipp Storz,
bareos GmbH
& Co.KG

Introduction

What is
Bareos?

People

Building

news in stable

New in Beta

Future Project

Overview

What can you expect?

1. What is Bareos?
2. Who are the persons behind Bareos?
3. How is bareos build?
4. What is new in Bareos?
5. What is planned for the future?

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2 What is Bareos?

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7 Future Project

What is Bareos?

- Networkbased multi-platform backup solution
- bacula fork
- License: AGPL
- Massive code cleanup
- Sourcecode hosted at GitHub

Why Bareos?

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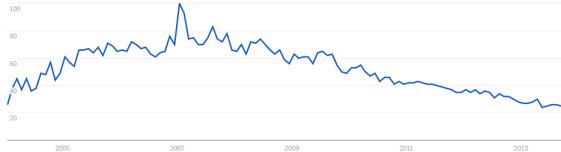
- bacula.org project leader did not accept patches
- New things only in closed source "Bacula Enterprise Edition"
- Activity of bacula community declining
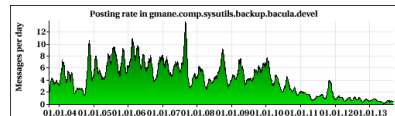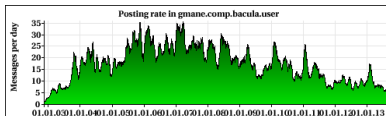
- 100% free software
- continuous development
- compatible to bacula as far as possible
- cleanup the configuration where needed

- orientation on user's requirements
- offer support and subscription to business users
- fair pricemodel and good product to enable continuous development
- offer packages for all common OSes

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Who stands behind Bareos?

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- Marco van Wieringen

- Philipp Storz

- Maik Außendorf

- Stephan Dühr

- Jörg Steffens

- Open Source affine crew
- 100% AGPL
- 100% owner-financed
- 100% made in europe
- no NSA backdoors

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- Sourcecode on GitHub

- https://github.com/bareos/bareos

Sourcecode

- Sourcecode, regressions and Docs at GitHub
- git clone git://github.com/bareos/bareos
- git clone git://github.com/bareos/bareos-regress
- git clone git://github.com/bareos/bareos-docs

Sourcecode Documentation

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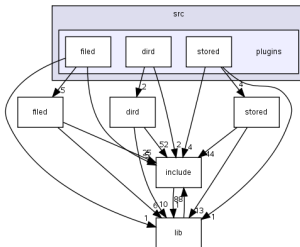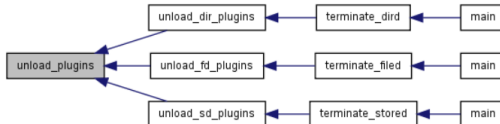
Future Project

- Doxygen Documentation

- http://regress.bareos.org/doxygen/html/

Sourcecode Documentation

- Doxygen Documentation created daily
- http://regress.bareos.org/doxygen/html/
- call/caller graph
- good introduction to sourcecode

Bug- und featuretracking

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- Mantis Bugtracker with anonymous access

- http://bugs.bareos.org/

Bug- und featuretracking

- Bugs und Features are followed here
- Feature Process
    - regression test
    - documentation
    - publishing

Feature Process	regression created, documentation written, published

Regression Tests

- cdash regression tests

- http://regress.bareos.org

Regression Tests

130 tests passed.

Name	Status	Time
changer:incremental-changer	Passed	20s 700ms
changer:two-pool-changer	Passed	6m 8s 620ms
changer:two-volume-changer	Passed	1m 11s 850ms
changer:vol-duration-changer	Passed	1m 25s 260ms
disk:2drive-2job-test	Passed	1m 36s 780ms
disk:2drive-3pool-test	Passed	2m 32s 510ms
disk:2drive-concurrent-test	Passed	2m 50s 820ms
disk:2drive-incremental-2disk	Passed	20s 360ms
disk:2drive-swap-test	Passed	1m 56s 460ms
disk:accurate-test	Passed	6m 44s 230ms
disk:acl-xattr-test	Passed	54s 460ms
disk:action-on-purge-test	Passed	3m 5s 510ms
disk:allowcompress-test	Passed	1m 50s 20ms
disk:allowed-jobcommand-test	Passed	47s 850ms
disk:allowed-scriptdir-test	Passed	10s 330ms
disk:auto-label-test	Passed	1m 8s 880ms
disk:backup-bareos-passive-test	Passed	1m 9s 700ms

- 130 regression tests
- are being run on the sourcecode nightly
- xen vms and solaris
- thanks to mhvtl also tape- and changertests

Package creation

- Open Build Service

- internal Buildsystem based on OBS

Package building

- Open Build Service
- 8 x 2 BuildJob Worker
- Distributions (32 und 64Bit)
    - Rhel und CentOS 5/6
    - Debian 5/6
    - Fedora 16-19
    - SLES11 - SP3
    - Univention 3.1
    - Ubuntu 10.04, 12.04
    - OpenSUSE 11.4-12.3

- Windows cross-compiled
- real 32 / 64Bit programs
    - filedaemon + dlls
    - bconsole
    - bat
    - NSIS installer
    - OPSI package

Continuous Integration

- CI based on Jenkins

- automatic package tests

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Continuous Integration

- XEN VM for every distribution
- tests for all databases
- installation of the packages from the repos
- testbackups and restores
- deinstallation

Publishing

- repos are published via scripts
- nightly repo automatically, others manually

Index of /bareos/release/12.4

	Name	Last modified	Size	Description
	Parent Directory		-	
	CentOS_5/	25-Jun-2013 16:53	-	
	CentOS_6/	25-Jun-2013 16:53	-	
	Debian_6.0/	25-Jun-2013 16:54	-	
	Debian_7.0/	25-Jun-2013 16:54	-	
	Fedora_16/	25-Jun-2013 16:54	-	
	Fedora_17/	25-Jun-2013 16:54	-	
	Fedora_18/	25-Jun-2013 16:54	-	
	RHEL_5/	25-Jun-2013 16:54	-	
	RHEL_6/	25-Jun-2013 16:54	-	
	SLE_11_SP1/	25-Jun-2013 16:54	-	
	SLE_11_SP2/	25-Jun-2013 16:54	-	
	openSUSE_11.4/	25-Jun-2013 16:54	-	
	openSUSE_12.1/	25-Jun-2013 16:54	-	
	openSUSE_12.2/	25-Jun-2013 16:54	-	
	openSUSE_12.3/	25-Jun-2013 16:54	-	
	windows/	25-Jun-2013 16:54	-	
	xUbuntu_10.04/	25-Jun-2013 16:55	-	
	xUbuntu_12.04/	25-Jun-2013 16:55	-	

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Appliance

- Bareos Appliance created with Suse Studio

- automatic creation of the VM with nightly packages

Appliance

bareos 64 bit nightly ☆☆☆☆☆

Published by Philipp Storz   Based on openSUSE 12.3 64-bit x86

Homepage at http://www.bareos.com

bareos (Backup Archiving REcovery Open Sourced) is a open source backup solution.

- full-features bareos enstallation with postgres catalog
- webacula and bacula-web
- mhvtl with tapechanger
- Disk-2-Disk-2-Tape preconfigured
- Formats: Disk Image, ISO Image, Preload ISO, OVF, vmdk, vhd, XEN ,KVM

overview build process

- Building and testing fully automated
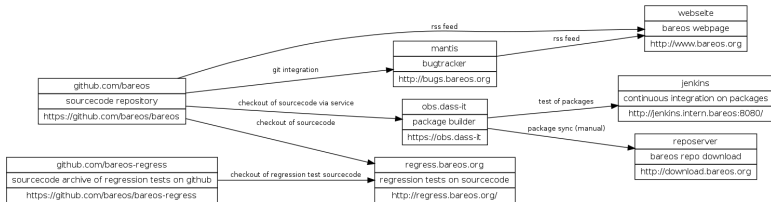
- Featuresprocess tracks tests and docs for new features

Overview

```
Bareos 13.1.0.git.1360842010-4.1 Setup

[/CLIENTNAME=Name of the client ressource]
[/CLIENTPASSWORD=Password to access the client]
[/DIRECTORNAME=Name of Director to access the client and of the Director
accessed by bconsole/BAT]
[/CLIENTADDRESS=Network Address of the client]
[/CLIENTMONITORPASSWORD=Password for monitor access]

[/DIRECTORADDRESS=Network Address of the Director (for bconsole or BAT)]
[/DIRECTORPASSWORD=Password to access Director]

                                                    OK
```

- Windows Installer completely renewed
- 64 Bit packages are 100% 64 Bit Software
- tray-monitor renewed, now really shows something
- all drives
- silent install/uninstall
- MS-SQL Plugin

Configuration engine

- Defaultvalues for Strings
- "Working Directory" and "Pid Directory" not needed anymore
- catalog is automatically chosen
- "Catalog = MyCatalog" not needed anymore in every client resource
- "AutoPrune = no" is now the default for clients
- "Cleaning Prefix = CLN" is default

LTO HW Encryption

Encryption Technology

LTO tape drives, beginning with LTO Ultrium generation 4, use "AES encryption algorithm, with 256-bit keys, in GCM mode." A shorter way to say it mode" or "AES256-GCM." Encrypting at the tape drive level can provide performance and capacity advantages for administrators. Encryption at the compression before encryption, maximizing tape capacities, and allows high performance during backup. Encrypting using an appliance device in latencies that affect backup performance, and requires management of the additional device. Encrypting data at tape speed helps to avoid the nee encryption of data — and the concurrent drain on host performance.

- Standard since LTO-4
- AES256-GCM
- virtually no speed impact
- tape cannot be read without key
- complete bareos integration incl. bextract

Client Quota Support

- originally a patch form Mathew Ife for bacula
- was never accepted to bacula
- Client Quotas
- Hard- und Softquotas
- optionally do not count failed jobs
- if over quota no backup is possible anymore

Import/Export for tapelibraries

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- Libraries have import/export slots
- Tapes can be imported and exported there
- Before that had to be done manually
- with the export command this is done automatically
- import commands puts new tapes automatically in free slots
- export can be called inside of post-backup scripts

Bandwidth Limitation

- was originally in the bacula git repo
- was announced for bacula 5.2
- after some month it "disappeared" in a commit
- was ported to bareos and improved

Console Commands

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- **rerun**
- restart failed jobs exactly as they were configured
- **status scheduler**
- preview of future scheduler triggers
- backview possible if negative values given

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- NDMP Data Management Application (DMA) in Director
- NDMP Tape Agent in Storage
- TAPE AGENT / ROBOT AGENT not supported
- Backup goes directly into the SD and then on tape
- now only possible to backup and restore whole volumes

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- bacula supports gzip and LZO compression
- now also possible lzfast, lz4 und lz4hc
- full integration into bareos
- new streamtypes were defined

SD-SD Replikation

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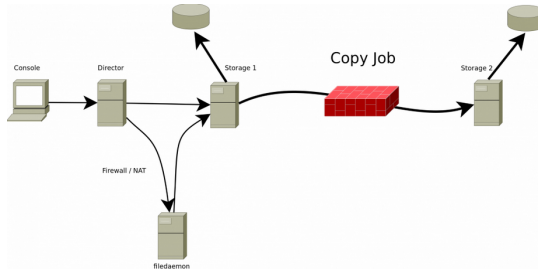
- Before only copy and migration inside of one SD was possible
- Now we can copy and migrate between two SDs.
- Data can be moved or copied over the network also remotely

Kommunikation bisher:
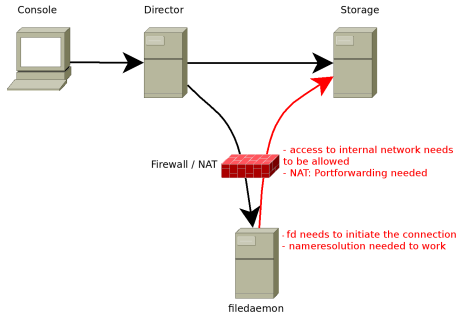
- Before: init of data channel from FD to SD
- fd needs name resolution
- NAT/Firewall requires setup of back channel

Kommunikation mit "Passive Client":
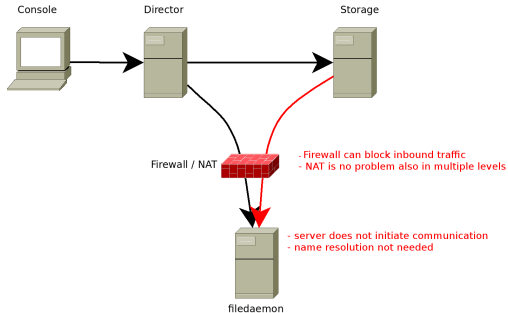
- passive client option reverses the init of the data channel
- all problems solved

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Standard configuration

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- New standardconfiguration for Disk-Only Backup
- Help for parametrizing
- 3 Pools with preconfigured retensions
- Example filesets für Linux und Windows
- automatic labelling
- sending bootstrap per mail
- queryfile is installed

Standard configuration 2

```
#
# Default Bareos Director configuration file for disk-only backup
# (C) 2013 Bareos GmbH & Co.KG
#
# Each configuration item has a reference number that shows
# where this property can be changed in the configuration file.
# Search for the number to find the correct line.
#
# You have to configure the following accoring to your environment:
#
# (#01)Email Address for bareos disaster recovery.
# Specify a mailaddress outside of your backupserver.
# There will be one mail per day.
#
# (#02)Email Address for bareos reports. (Mail Command)
# This mail address will recieve a report about each backup job.
# It will be sent after the backupjob is complete.
# Has to be configured twice ("Standard" and "Daemon" Message Ressources)
#
# (#03)Email Address for bareos operator. (Operator Command)
# This mail address will recieve a mail immediately when the
# bareos system needs an operator intervention.
# May be the same address as in (#02)
#
# This disk-only setup stores all data into @archivedir@
#
# The preconfigured backup scheme is as follows:
#
# Full Backups are done on first Saturday at 21:00 (#04)
# Full Backups are written into the "Full" Pool (#05)
```

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- more standard configs are planned:
    - Tape Changer only
    - Disk-2-Disk-2-Tape
    - Single Tape Only

Security Enhancements

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- Allowed Job Command
  - Before: Client can perform every bareos operation
  - Now client can only do the operations that are allowed
  - operations are: backup, restore, verify, estimate, runscript

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- Allowed Script Dir
  - Before: FD can executa any program/script on client
  - Now: only programs and scripts in the specified directory can be executed
  - Big security enhancement

Overview

VMware

- Image Backup is possible via VCB
- vStorage API allows blockbased backup
- programming examples are problematic

Windows

- Encrypted File System (EFS)
    - needs special calls during backpu
- Mountpoints: Support for VSS
    - Snapshots shall be also created of subvolumes
    - already works in lab
- Deduplicated Volumes
    - deduped files have to be opened specially, otherwise they are always 4kb
    - works in the lab

Configuration engine

- Persistent configuration
- Director also writes out the config
- API for confguration
- Good Webtool for administration and configuration

How to help

- buy a Subscription / Support
- create bugreports
- write documentation
- testing
- programming
    - c/c++
    - Web