



# **Einsatz von Bacula in produktiven Umgebungen**

Referent: Marc Richter

**11:00 Uhr**

Begrüßung und Vorstellung des Einsatzumfeldes der vorgestellten Lösungen

**11:05 Uhr**

Kurze Definition der Bacula - Terminologie

**11:20 Uhr**

Vorstellung der Einzelplatzlösungen (Linux Workstations)

**11:25 Uhr**

Vorstellung der Lösung für extern gehostete (z.B. vServer) mit FTP - Backupspace

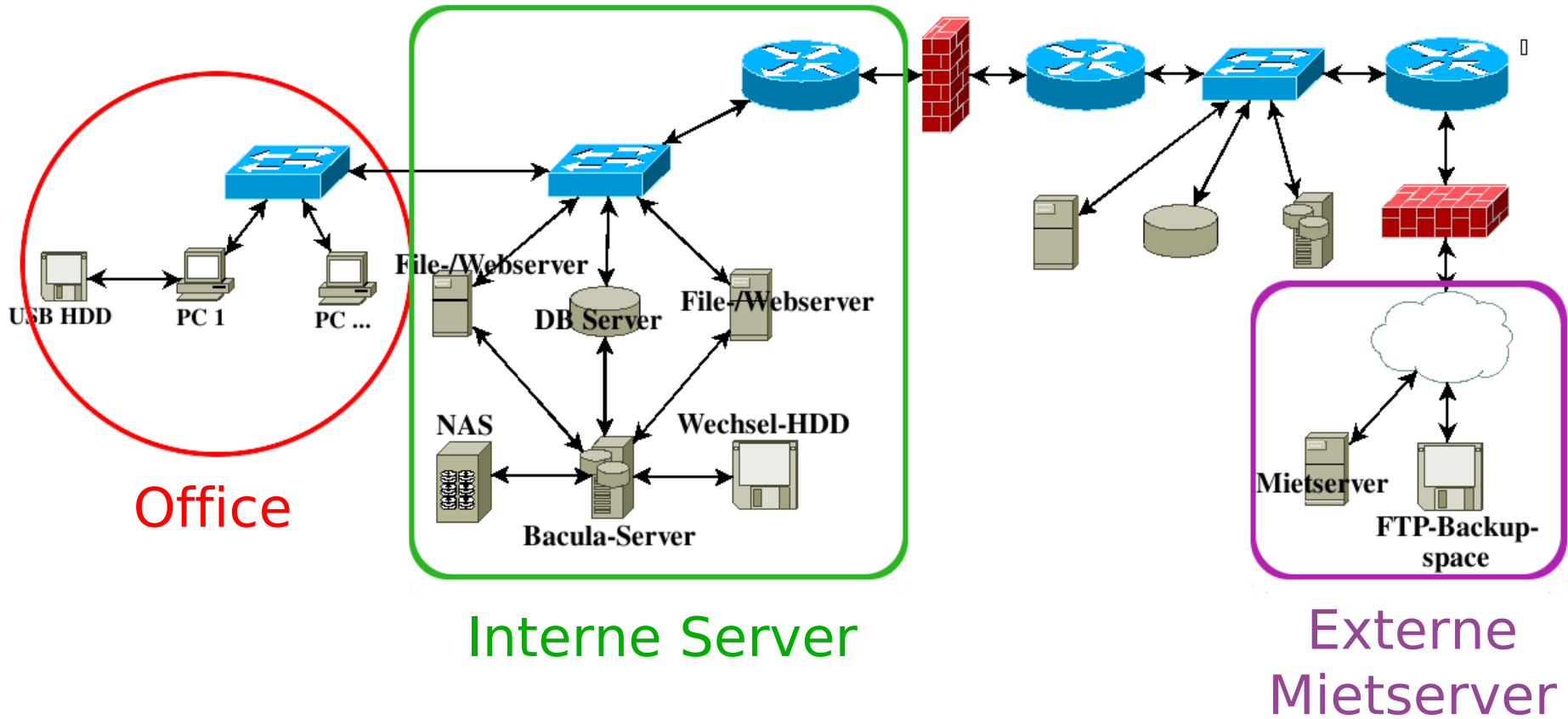
**11:30 Uhr**

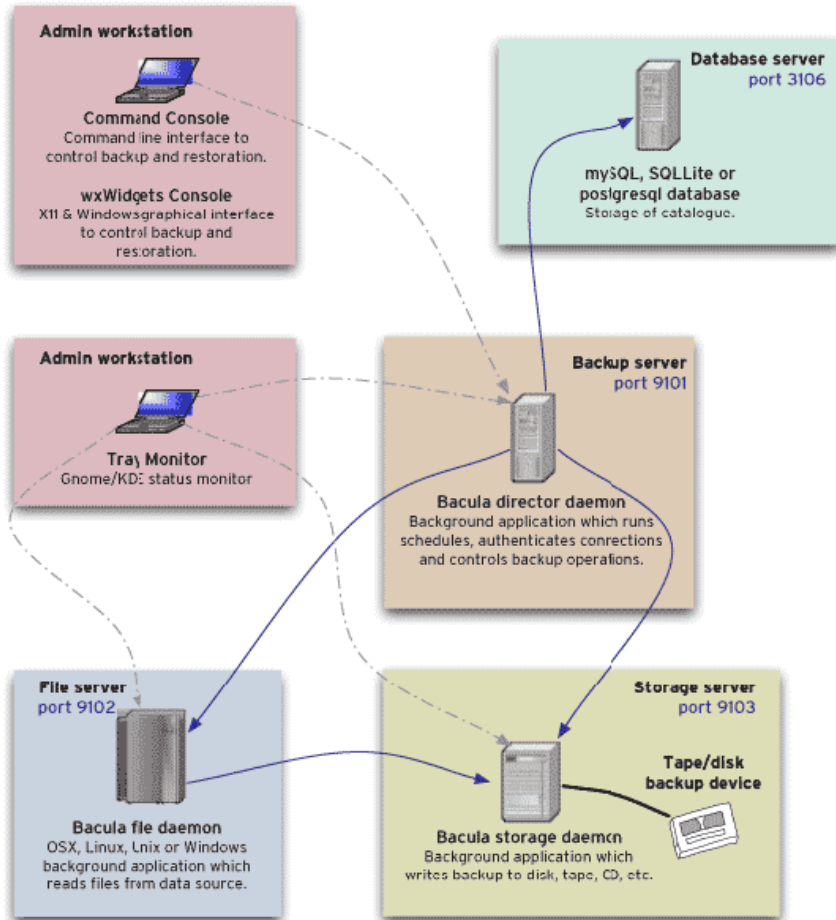
Vorstellung des 2-Pool-Konzeptes mit Wechsel-HDD und NAS Anbindung

**11:45 Uhr - Ende**



- ▶ Düsseldorfer Marketing Agentur, gegründet 1996
- ▶ Betreuung von Kunden bei Web-Applikationen wie zum Beispiel dem CMS TYPO3, E-Commerce und Shopsystemen
- ▶ Begleitet mittelständische und größere Unternehmen vom ersten Schritt der Konzeptionierung ihrer Internetauftritte, über die Gestaltung, bis hin zur finalen Umsetzung und Wartung der Seiten und/oder Shops
- ▶ Hosting der Seiten
- ▶ Derzeit ca. 26 Festangestellte





## Bacula application interactions

Note that these applications may actually run on fewer machines than shown here. You could run everything on one machine if you only wanted to back up a local disk to a local tape or disk.

Port numbers are the default; and can be changed.

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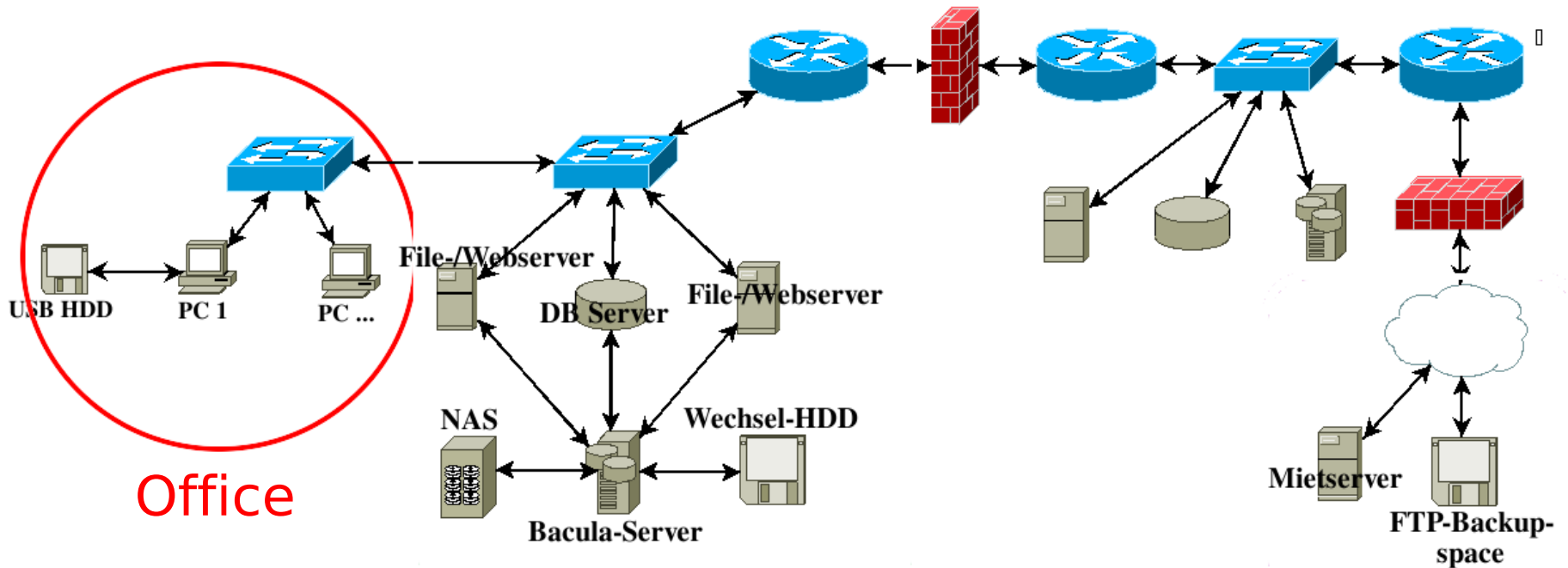
- ▶ **Director ("Server")**  
Verwaltet alles und stellt die Daemonübergreifende Schnittstelle dar.
- ▶ **Storage Daemon**  
Verwaltungseinheit für das Speichern der Daten auf den Volumes.
- ▶ **File Daemon ("Client")**  
Sendet Dateiattribute/-inhalte an den Director und speichert diese beim Wiederherstellen auch wieder.

# Kurze Übersicht zur Terminologie

- ▶ Catalog
- ▶ FileSet
- ▶ Job / JobDef
- ▶ Schedule
- ▶ Volume
- ▶ Pool
- ▶ Console



+ Options  
+ Wildcards



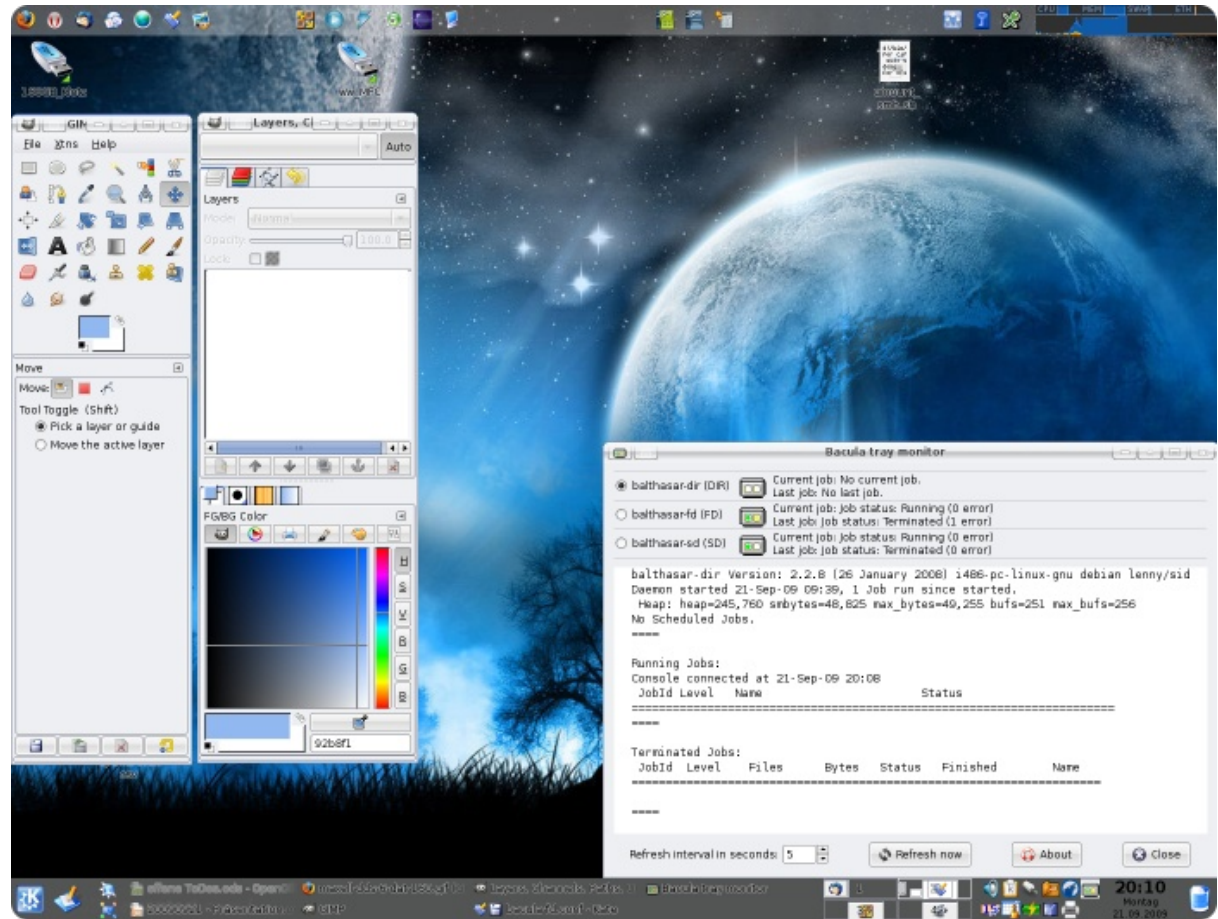
MySQL - Catalog, bacula-dir, bacula-sd und bacula-fd laufen alle auf demselben System und sichern inkrementell auf eine USB HDD.

```
# /etc/bacula/bacula-dir.conf
Director {
  Name      = balthasar-dir
  Password  = "<PASSWORD>"
}

Director {
  Name      = balthasar-mon
  Password  = "<PASSWORD>"
  Monitor   = yes
}

FileDaemon {
  Name      = balthasar-fd
  FDport    = 9102
  WorkingDirectory = /var/lib/bacula
  Pid Directory = /var/run/bacula
  FDAddress = 127.0.0.1
}

Messages {
  Name = Standard
  director = balthasar-dir = all, !skipped, !restored
}
```



Screenshot eines KDE Desktops mit *bacula-tray-monitor*



```
Storage {
  Name           = balthasar-sd
  SDPort        = 9103
  WorkingDirectory = "/var/lib/bacula"
  Pid Directory  = "/var/run/bacula"
  SDAddress      = 127.0.0.1
}

Director {
  Name           = balthasar-dir
  Password      = "<PASSWORD>"
}

Director {
  Name           = balthasar-mon
  Password      = "<PASSWORD>"
  Monitor       = yes
}

Device {
  Name           = FileStorage
  Media Type     = File
  Archive Device = /media/Backups
  LabelMedia     = Yes;
  Random Access  = Yes;
  AutomaticMount = Yes;
  RemovableMedia = no;
  Requires Mount = no;
  AlwaysOpen    = no;
}

Messages {
  Name = Standard
  director = balthasar-dir = all
}
```

```
Device {
  Name           = "monatsbackup_gerade_device"
  Device Type    = "File"
  Media Type     = "Wechselfestplatte"
  Autochanger    = "no"
  Archive Device = "/backup/bacula_wechselrahmen"
  LabelMedia     = "Yes"
  Random Access  = "Yes"
  AutomaticMount = "Yes"
  RemovableMedia = "no"
  AlwaysOpen    = "Yes"
}

Device {
  Name           = "monatsbackup_ungerade_device"
  Device Type    = "File"
  Media Type     = "Wechselfestplatte"
  Autochanger    = "no"
  Archive Device = "/backup/bacula_wechselrahmen"
  LabelMedia     = "Yes"
  Random Access  = "Yes"
  AutomaticMount = "Yes"
  RemovableMedia = "no"
  AlwaysOpen    = "Yes"
}
```

```
# /etc/bacula/bacula-dir.conf
Director {
  Name = balthasar-dir
  DIRport = 9101
  QueryFile = "/etc/bacula/scripts/query.sql"
  WorkingDirectory = "/var/lib/bacula"
  PidDirectory = "/var/run/bacula"
  Maximum Concurrent Jobs = 1
  Password = "<PASSWORD>" # Console password
  Messages = Daemon
  DirAddress = 127.0.0.1
}

Schedule {
  Name = "WeeklyCycle"
  Run = Full 1st sun at 23:05
  Run = Incremental at 23:05
}

Client {
  Name = balthasar-fd
  Address = localhost
  FDPort = 9102
  Catalog = MyCatalog
  Password = "<PASSWORD>" # password for FileDaemon
  File Retention = 14 days
  Job Retention = 14 days
  AutoPrune = yes
}

Storage {
  Name = File
  # Do not use "localhost" here
  Address = localhost
  SDPort = 9103
  Password = "<PASSWORD>"
  Device = FileStorage
  Media Type = File
}
```

```
# /etc/bacula/bacula-dir.conf
Catalog {
  Name = MyCatalog
  DB Address = 127.0.0.1
  dbname = bacula
  user = bacula
  password = "<PASSWORD>"
}

Messages {
  ...
}

Pool {
  Name = Default
  Pool Type = Backup
  Recycle = Yes
  AutoPrune = Yes
  Volume Retention = 14 days
  Maximum Volume Bytes = 2147483648 # 2 GB
  Maximum Volumes = 45
  Label Format = "Bacula_BackupvolumeNr.${NumVols:p/3/0/r}"
}

Console {
  Name = balthasar-mon
  Password = "<PASSWORD>"
  CommandACL = status, .status
}
```

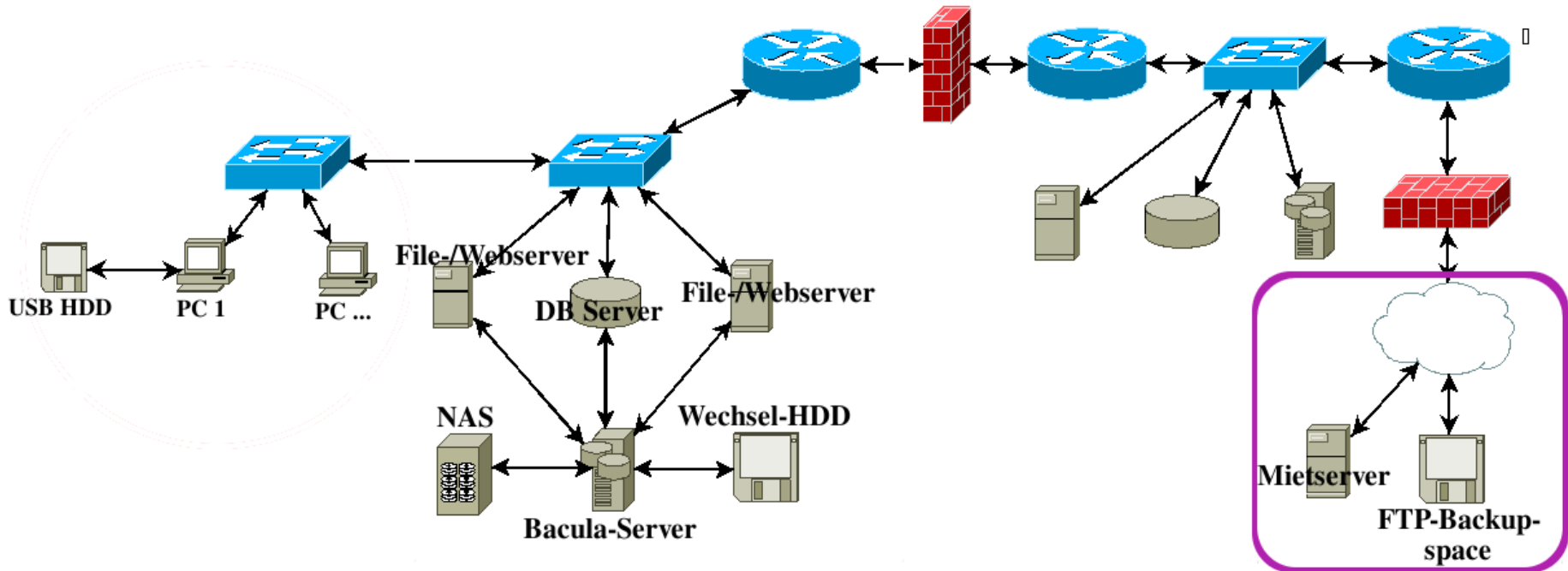
```
# /etc/bacula/bacula-dir.conf
JobDefs {
  Name           = "DefaultJob"
  Type           = Backup
  Level          = Incremental
  Client         = balthasar-fd
  FileSet        = "Full Set"
  Schedule       = "WeeklyCycle"
  Storage        = File
  Messages       = Standard
  Pool           = Default
  Priority        = 10
}

Job {
  Name           = "Backup Meiner WS auf die 160 GB HDD"
  JobDefs        = "DefaultJob"
  Write Bootstrap = "/var/lib/bacula/Client1.bsr"
  Enabled        = yes
  Type           = Backup
  Client         = balthasar-fd
  FileSet        = "Full Set"
  Storage        = File
  Pool           = Default
  Messages       = Standard
  Schedule       = "WeeklyCycle"
}

Job {
  Name           = "RestoreFiles"
  Type           = Restore
  Client         = balthasar-fd
  FileSet        = "Full Set"
  Storage        = File
  Pool           = Default
  Messages       = Standard
  Where          = /tmp/bacula-restores
}
```

```
# /etc/bacula/bacula-dir.conf
# List of files to be backed up
FileSet {
  Name           = "Full Set"
  Include {
    Options {
      signature           = MD5
      compression         = GZIP6
      verify              = pins5
      exclude             = "yes"
      RegexpFile          = "^typo3_src.*\.tar\.(bz2|gz)$"
      RegexpDir           = "typo3temp"
    }
    File           = /home
    File           = /root
    File           = /Backups
    File           = /etc
    File           = /usr/local
    File           = /boot
  }
  Exclude {
    File           = /Backups/bacula
    File           = /dev
    File           = /lost+found
    File           = /mnt
    File           = /media
    File           = /lib/init/rw
    File           = /sys
    File           = /proc
    File           = /tmp
    File           = /.journal
    File           = /.fsck
    File           = /var/lib/mysql
  }
}
```

# Vorstellung der externen FTP Lösung



MySQL - Catalog, bacula-dir, bacula-sd und bacula-fd laufen alle auf demselben System, sichern aber zusätzlich auf einen FTP-Server.

Externe  
Mietserver

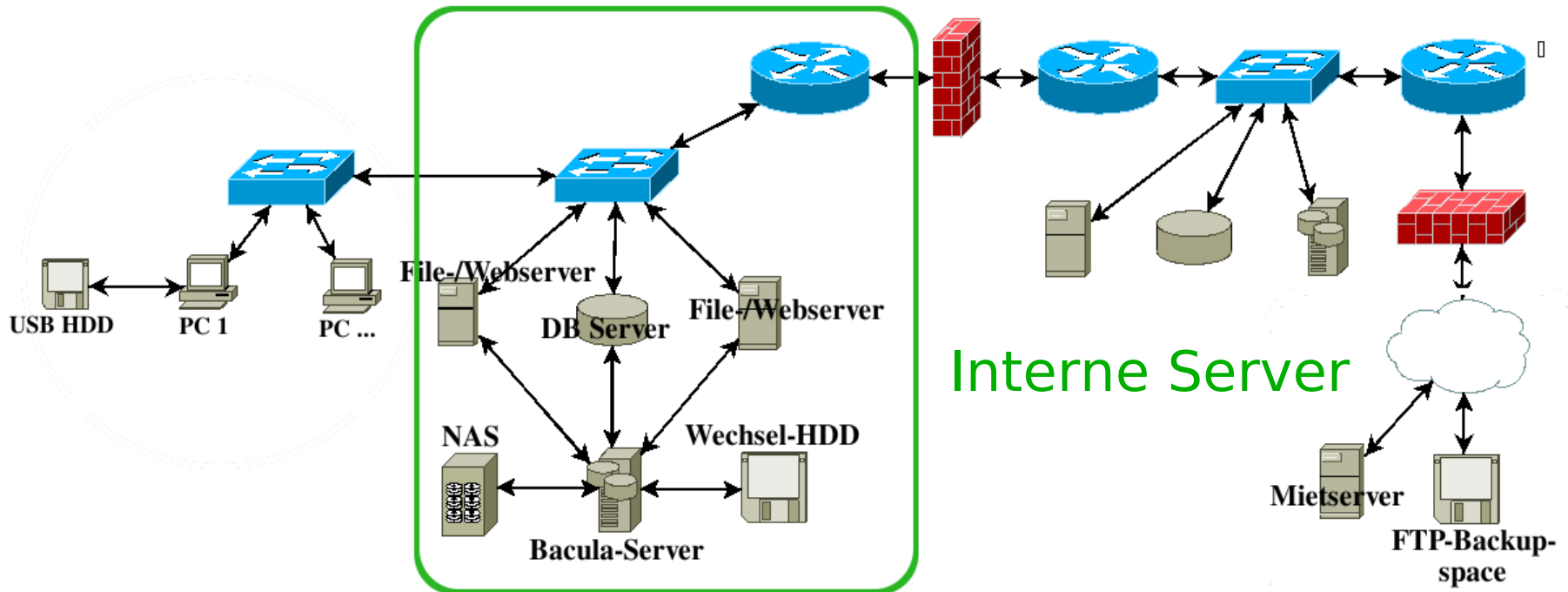
```
# /etc/bacula/bacula-dir.conf
JobDefs {
  Name = "DefaultJobs"
  Type = Backup
  FileSet = "Full Set"
  Schedule = "Daily"
  Storage = File
  Messages = Standard
  Pool = Default
  Priority = 1
}
RunScript {
  RunsWhen = Before
  FailJobOnError = Yes
  Command = "/bacula_helper.sh prerun"
}
RunScript {
  RunsWhen = After
  FailJobOnError = Yes
  Command = "/bacula_helper.sh postrun"
}
}
```

```
#!/bin/bash
DBUSER="bacula"
DBPASS=""
DBHOST="localhost"
BACULA_CATALOG_DB_NAME="bacula_db_catalog"
FTP_SERVER="ftp.hoster.de"
case "$1" in
  prerun)
    for db in wichtig ganz_wichtig; do
      mysqldump ... | gzip > /backup/"$db".gz
    done ;;
  catalog)
    mysqldump ... bacula_catalog | gzip > /backup/catalog.gz
    ncftp -L -u $FTP_SERVER <<EOF

cd /bacula
lcd /backup
rm /bacula/catalog.gz
put catalog.gz
EOF

rm -f /backup/catalog.gz ;;
  postrun)
    for db in wichtig ganz_wichtig; do
      rm -f /backup/"$db".gz
    done
    ncftp -L -u $FTP_SERVER <<EOF

cd /bacula
lcd /backup
rm /bacula/BackupvolumeNr.???
put BackupvolumeNr.???
EOF ;;
*)
  exit 1 ;;
esac
```



Der MySQL Catalog, sowie der bacula-sd laufen auf dem Bacula-Server, der bacula-fd läuft auf jedem "Client" (hier: File-/Webserver, DB Server). Bacula hat 3 Pools: Einer auf dem NAS und zwei auf der Wechsel-HDD.

```
# /etc/bacula/bacula-sd.conf
Device {
  Name           = "monatsbackup_gerade_device"
  Device Type    = "File"
  Media Type     = "Wechselfestplatte"
  Autochanger   = "no"
  Archive Device = "/backup/bacula_wechselrahmen"
  LabelMedia    = "Yes"
  Random Access = "Yes"
  AutomaticMount = "Yes"
  RemovableMedia = "no"
  AlwaysOpen    = "Yes"
}

Device {
  Name           = "monatsbackup_ungerade_device"
  Media Type     = "Wechselfestplatte"
  Archive Device = "/backup/bacula_wechselrahmen"
  ...
}

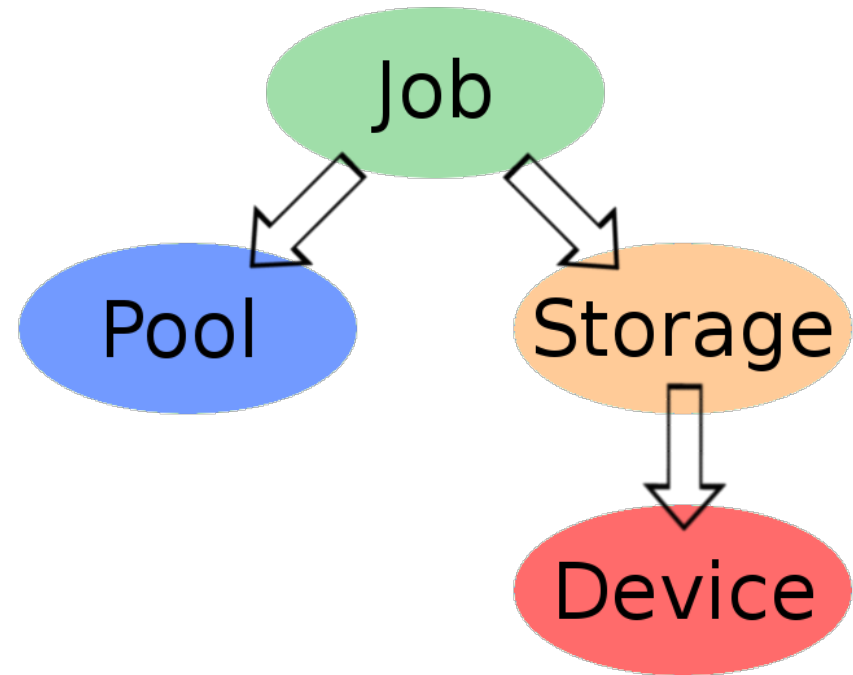
Device {
  Name           = "dailybackup_device"
  Media Type     = "NAS"
  Archive Device = "/backup/bacula_nas/daily"
  ...
}
```

```
# /etc/bacula/bacula-dir.conf
Pool {
  Name           = "Monatssicherung_gerade_Pool"
  Pool Type      = "Backup"
  Maximum Volume Bytes = 4294967296          # 4 GB
  Maximum Volumes = 232
  # 4 GB * 232 Volumes = max 928 GB
  Label Format    = "Monat_gerade_Nr.${NumVols:p/3/0/r}"
  AutoPrune      = "Yes"
  Volume Retention = 55 days
  Recycle        = "Yes"
}

Pool {
  Name           = "Monatssicherung_ungerade_Pool"
  Label Format    = "Monat_ungerade_Nr.${NumVols:p/3/0/r}"
  ...
}

Pool {
  Name           = "Daily_Pool"
  Maximum Volume Bytes = 4294967296          # 4 GB
  Maximum Volumes = 640
  # 4 GB * 640 Volumes = ca. max 2560 GB
  Label Format    = "Tag_VolumeNr.${NumVols:p/3/0/r}"
  Volume Retention = 14 days
  ...
}
```

```
# /etc/bacula/bacula-dir.conf
JobDefs {
  Name      = "Monatsbackup_gerade_JobDefs"
  Type      = "Backup"
  Level     = "Full"
  Pool      = "Monatssicherung_gerade_Pool"
  Schedule  = "Monatsbackup_gerade_Schedule"
  Storage   = "monatsbackup_gerade_Storage"
  Messages  = "Statusmails"
  RunScript {
    RunWhen   = "After"
    Runs On Client = "no"
    Command   = "/bacula_helper.sh postrun"
  }
  RunScript {
    RunWhen   = "Before"
    Runs On Client = "no"
    Command   = "/bacula_helper.sh mount"
  }
}
```







# Vielen Dank