redhat

Bacula Konferenz 2012

Bacula als ein Bestandteil eines ganzheitlichen System Managements

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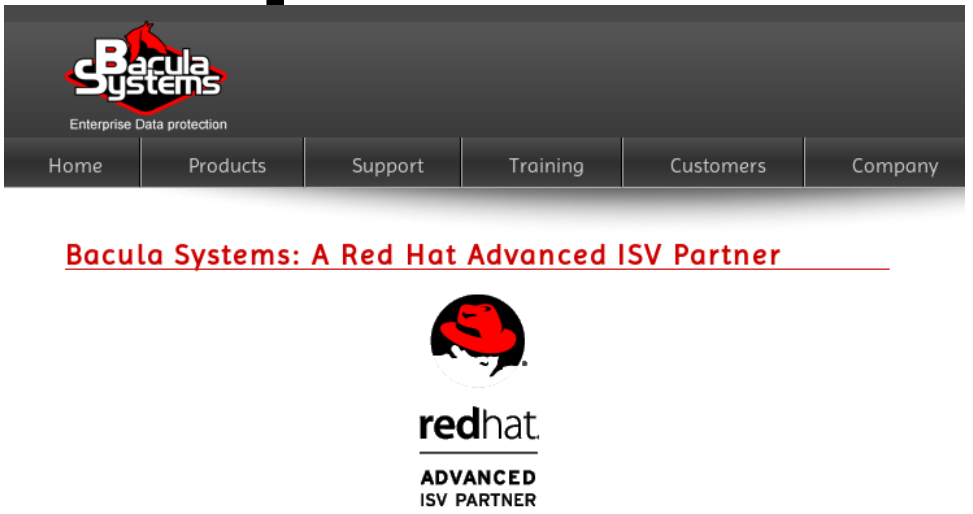
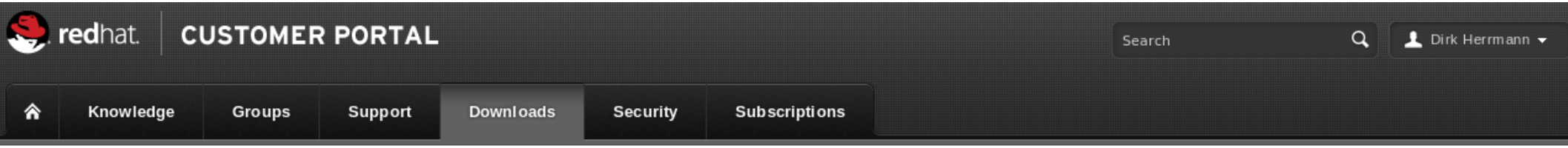
Agenda

- Bacula and Red Hat
- Bacula as part of holistic system management
  - Software Deployment & Configuration
  - Software Lifecycle Management
  - High Availability for Backup Services
  - Restore and Disaster Recovery
- Backup Challenges:
  - Virtualization, Cloud and Big Data
- Q&A

Red Hat – Bacula Partnership



Bacula – a part of RHEL



Package Name	Summary
bacula-client	**Bacula** - The Network Backup Solution
bacula-common	Common **Bacula** utilities
bacula-console	**Bacula** management console
bacula-console-bat	**Bacula** bat console
bacula-debuginfo	Debug information for package **bacula**
bacula-director-common	Common **Bacula** Director files
bacula-director-mysql	**Bacula** Director with MySQL database support
bacula-director-postgresql	**Bacula** Director with PostgresSQL database support
bacula-director-sqlite	**Bacula** Director with sqlite database support
bacula-docs	**Bacula** documentation
bacula-storage-common	Common **Bacula** storage daemon files
bacula-storage-mysql	MySQL **Bacula** storage daemon files
bacula-storage-postgresql	Common **Bacula** storage daemon files
bacula-storage-sqlite	SQLite **Bacula** storage daemon files
bacula-traymonitor	**Bacula** monitor for the Gnome and KDE system tray

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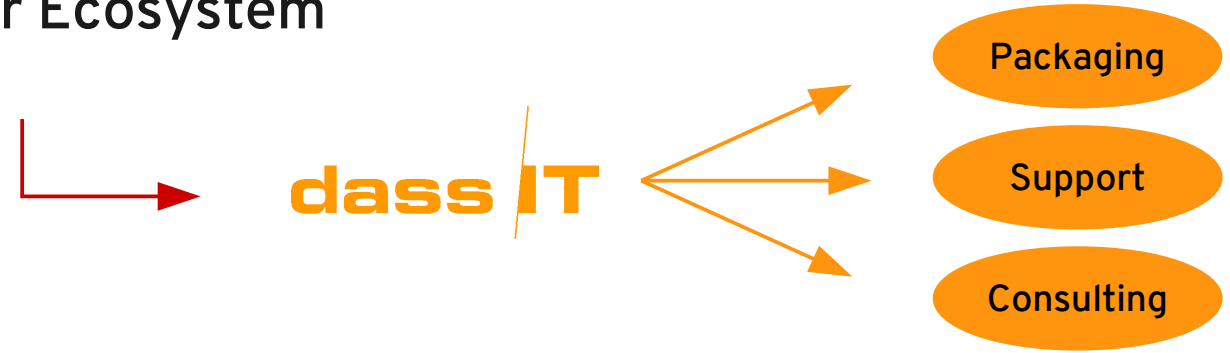
Bacula, Red Hat and Partners

- Open Source
- Enterprise Version with Subscription Model
- Commercial Support
- Certification & ISV Ecosystem
- RHEL contains Bacula Software
- Partner Ecosystem



Bacula and Red Hat Solutions

Products & Solutions

Backup & Restore

- CLOUD
- MIDDLEWARE
- VIRTUALIZATION
- OPERATING SYSTEM
- STORAGE

- Backup Red Hat Products
- Backup Application Data
- Backup Customer Environment
- Backup Customer Data

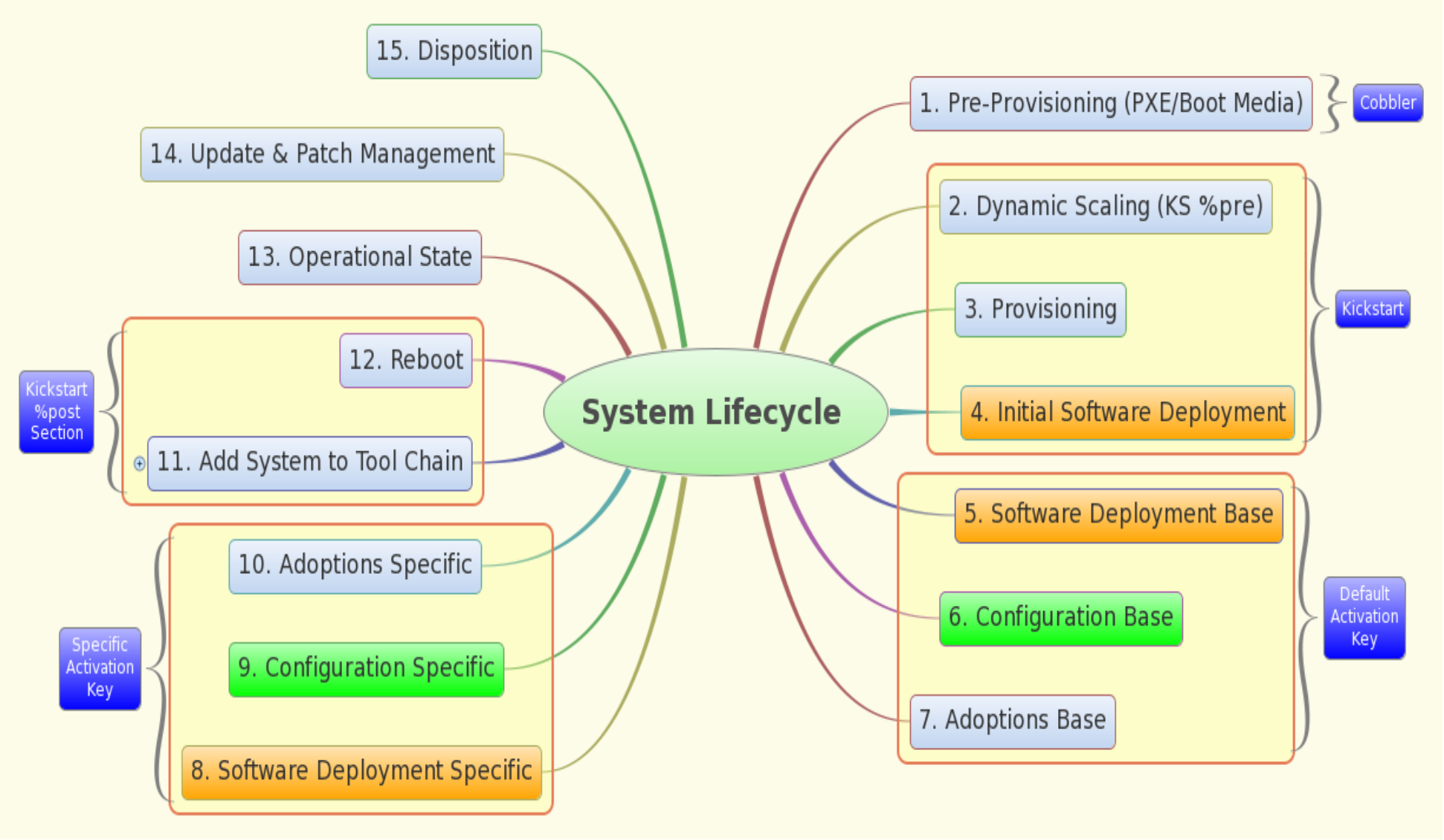
Bacula and Red Hat Solutions

Products & Solutions

Added Value

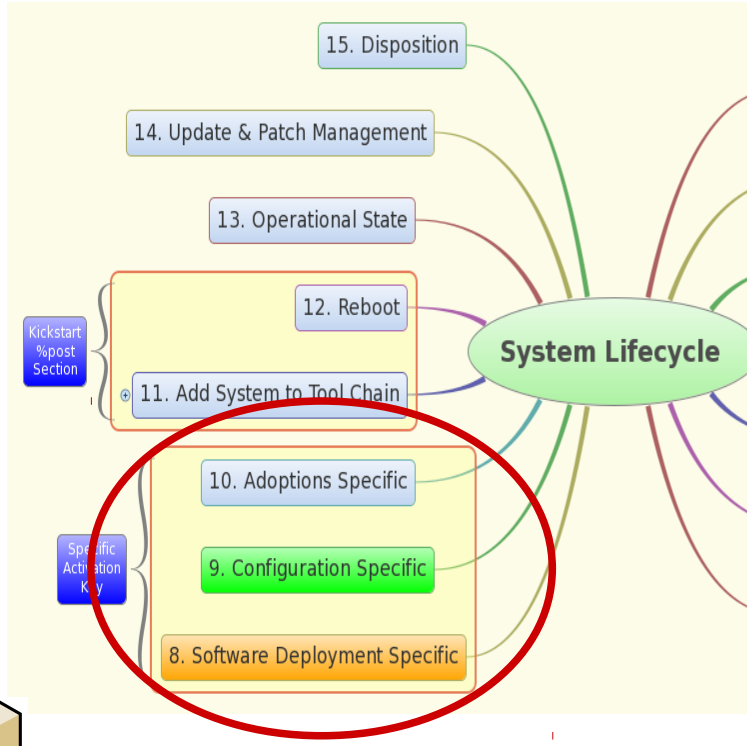
- Software Deployment & Configuration
- Software Lifecycle Management
- Zero Downtime Backup
- High Availability for Bacula Services
- Restore and Disaster Recovery
- Virtualization and Cloud
- Scale-Out Storage for Backup

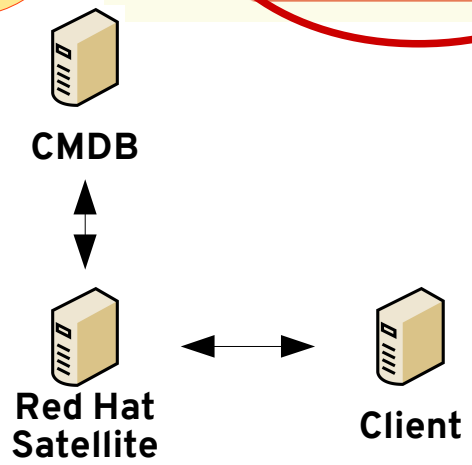
Software Deployment & Configuration



Software Deployment & Configuration

Pre Action	useradd bacula uuidgen
Software (RPM)	bacula-client bacula-common
Configuration Files	/etc/bacula/bacula-fd.conf /etc/bacula/bconsole.conf
Post Action	service bacula-fd start chkconfig bacula-fd on

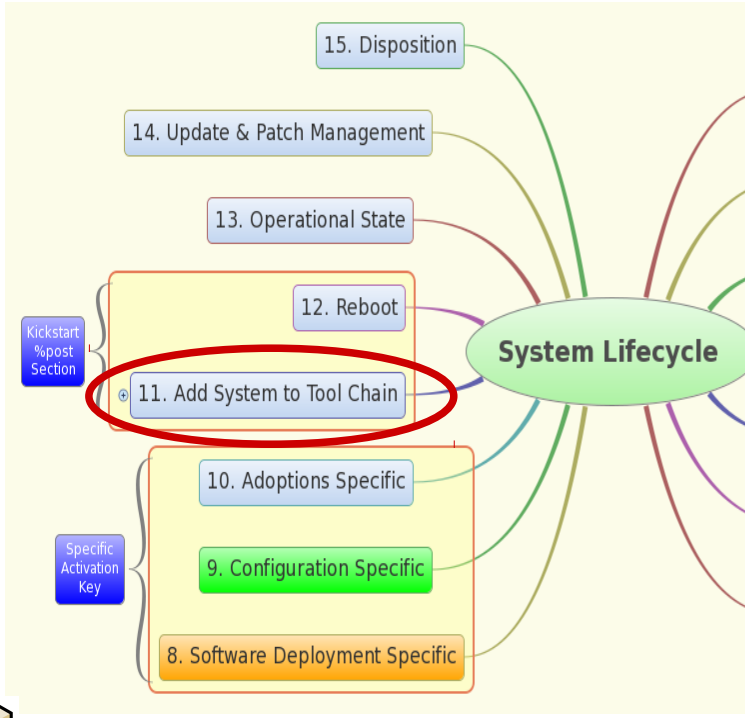


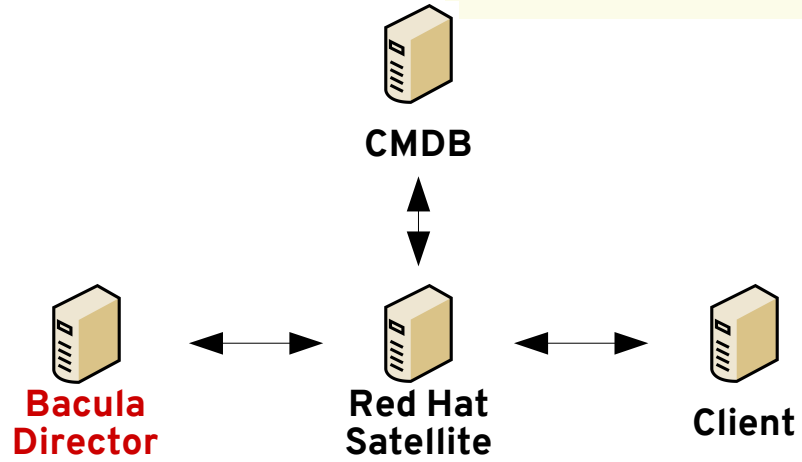


Software Deployment & Configuration

Adding the new host to your Bacula Director

```
#
# Define the main nightly save backup job
#   By default, this job will back up to disk in /tmp
Job {
  Name = "rhelhost19"
  Type = Backup
  Client = rhelhost19-fd
  FileSet = "Full Set"
  Schedule = "WeeklyCycle"
  Storage = File
  Messages = Standard
  Pool = Default
  Write Bootstrap = "/home/bacula/bacula/working/rhelhost19.bsr"
}
# Client (File Services) to backup
Client {
  Name = rhelhost19-fd
  Address = rhelhost19
  FDPort = 9102
  Catalog = MyCatalog
  Password = "20dd1427-b1ed-4d6c-bbc8-7cd235d1e114"
  File Retention = 30d            # 30 days
  Job Retention = 180d            # six months
  AutoPrune = yes                 # Prune expired Jobs/Files
}
```



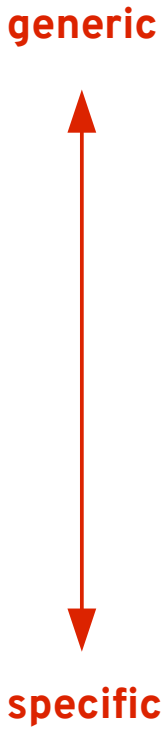


Dynamic Config File Management

Configuration Channel Ranking overrides from general configuration settings to more specific configuration:

pre defined

- Stage specific / generic configuration
- Virtualization type specific overrides
- Location specific overrides
- Application specific overrides
- System specific overrides (locally managed)



Dynamic Config File Management

- Satellite supports macros, which are replaced with system-specific data at deploy time
- Pre-defined macros available:
  - SID, Profile Name, Description, Hostname, IP, ...

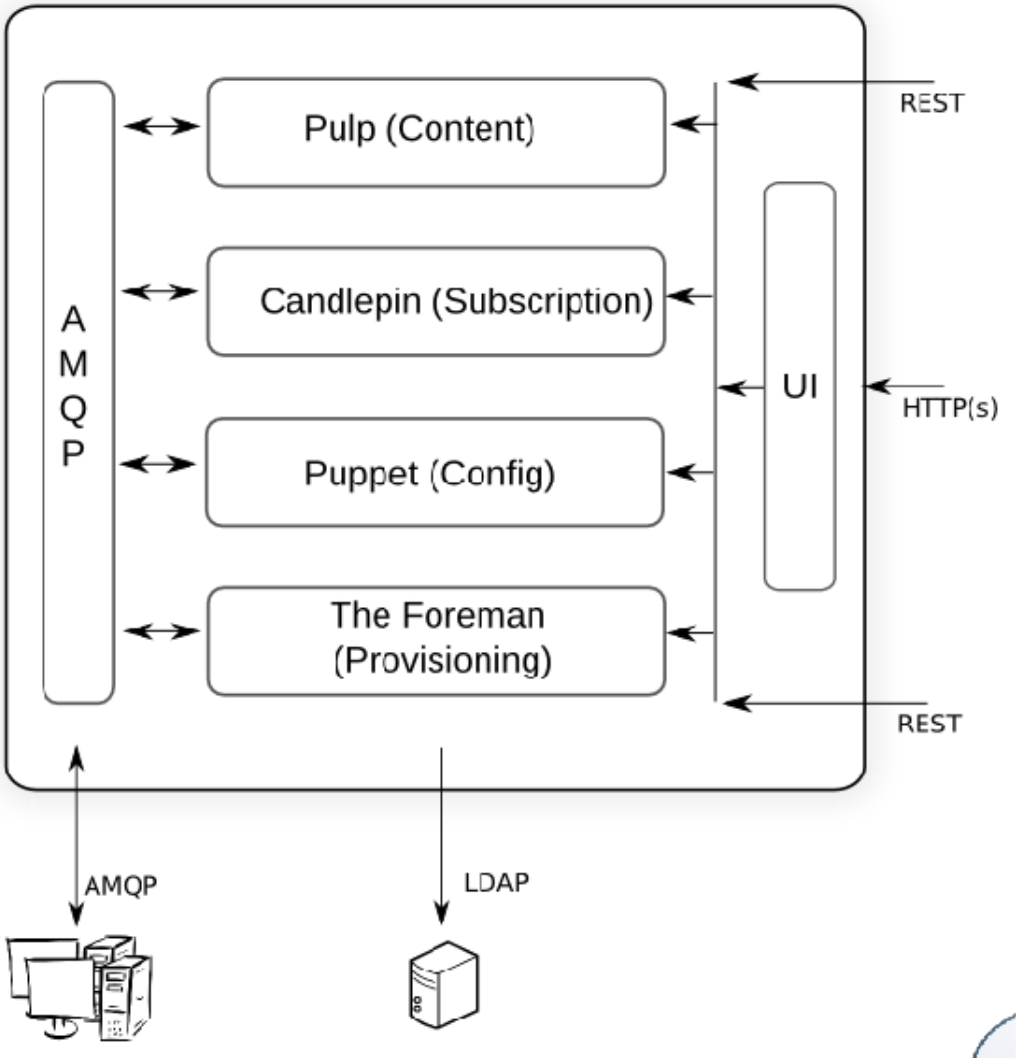
```
hostname={| rhn.system.hostname |}
backup_ip={| rhn.system.net_interface.ip_address(eth0) |}
```

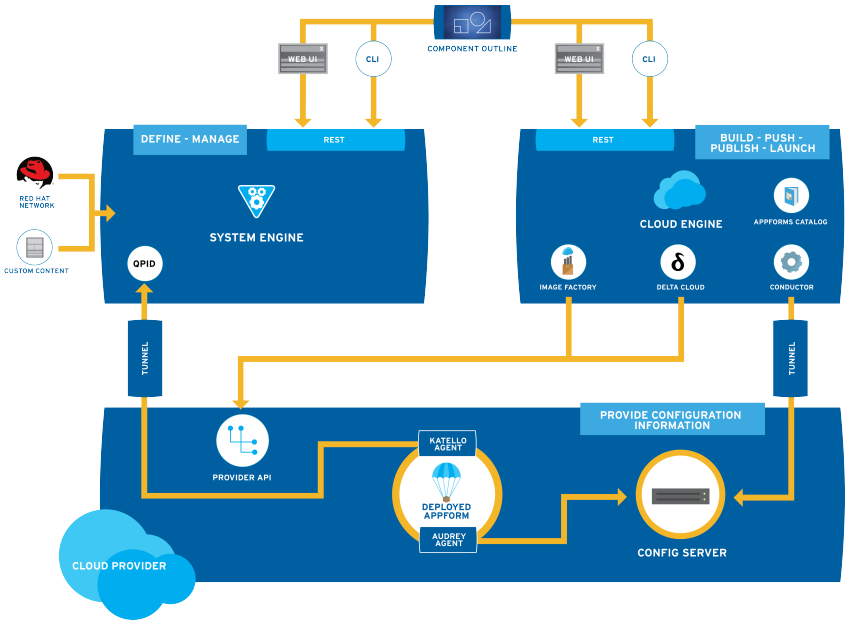
- Custom macros for system information set via the API

```
Director {
  Name =    {| rhn.system.custom_info(baculadir) |}
  Password = "  {| rhn.system.custom_info(baculapass) |}
}
```

- Limitation: Only whole files, no artefacts → Puppet

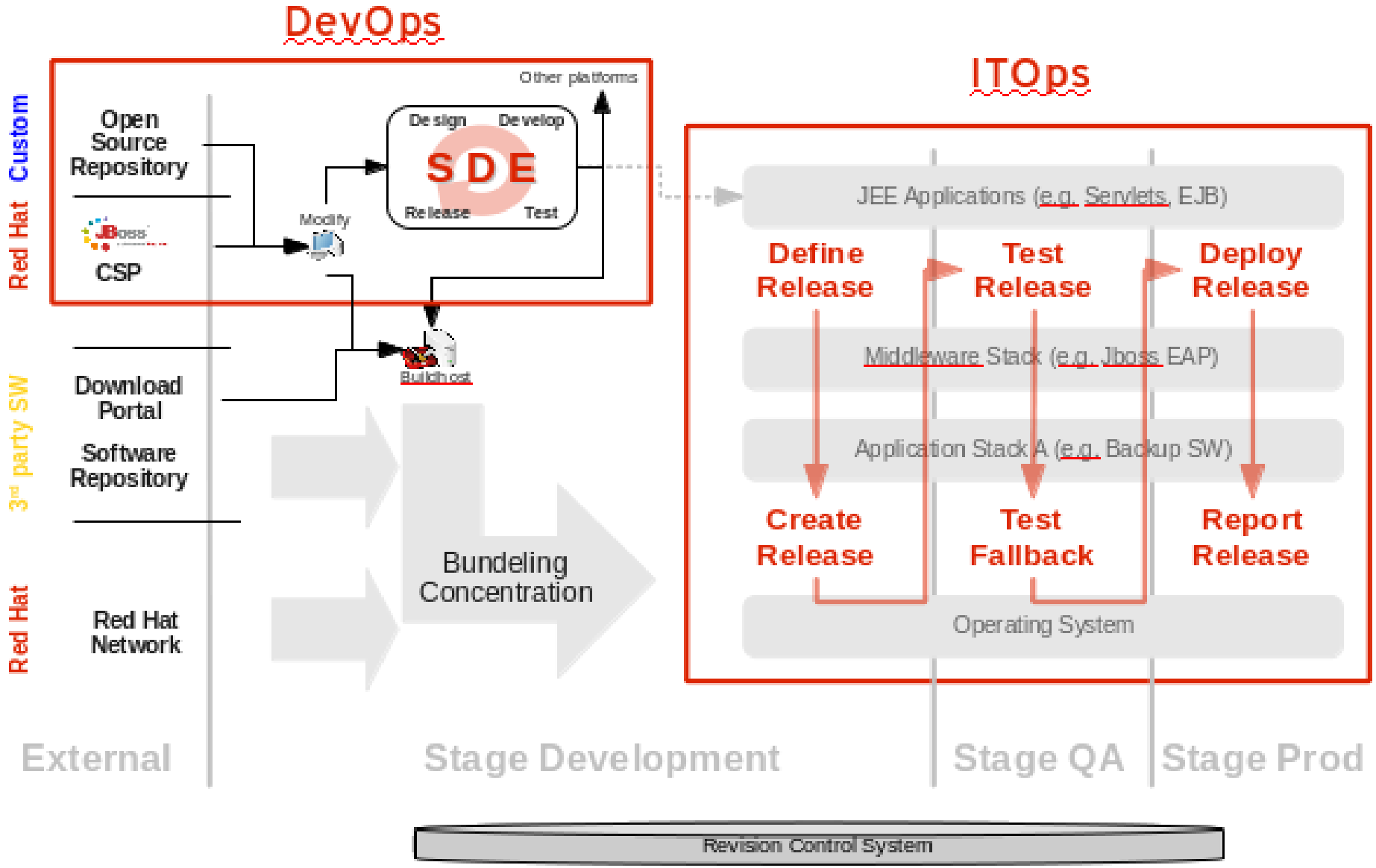
Satellite Next Gen - CloudForms





- New Satellite is CloudForms System Engine
- Umbrella around: Katello (www.katello.org)
- For Bacula Management with Puppet see session “Deployment and Maintenance of Bacula with Puppet” (11.45 a.m.)

Software Lifecycle Management



Backup Categorization

- System (OS + App)
  - Software
  - Configuration
- Application Data
- User Data
- Temporary Data

Backup Categorization

- System (OS + App)
  - Software
  - Configuration

← System Management

- Application Data

← Backup Engine

- User Data

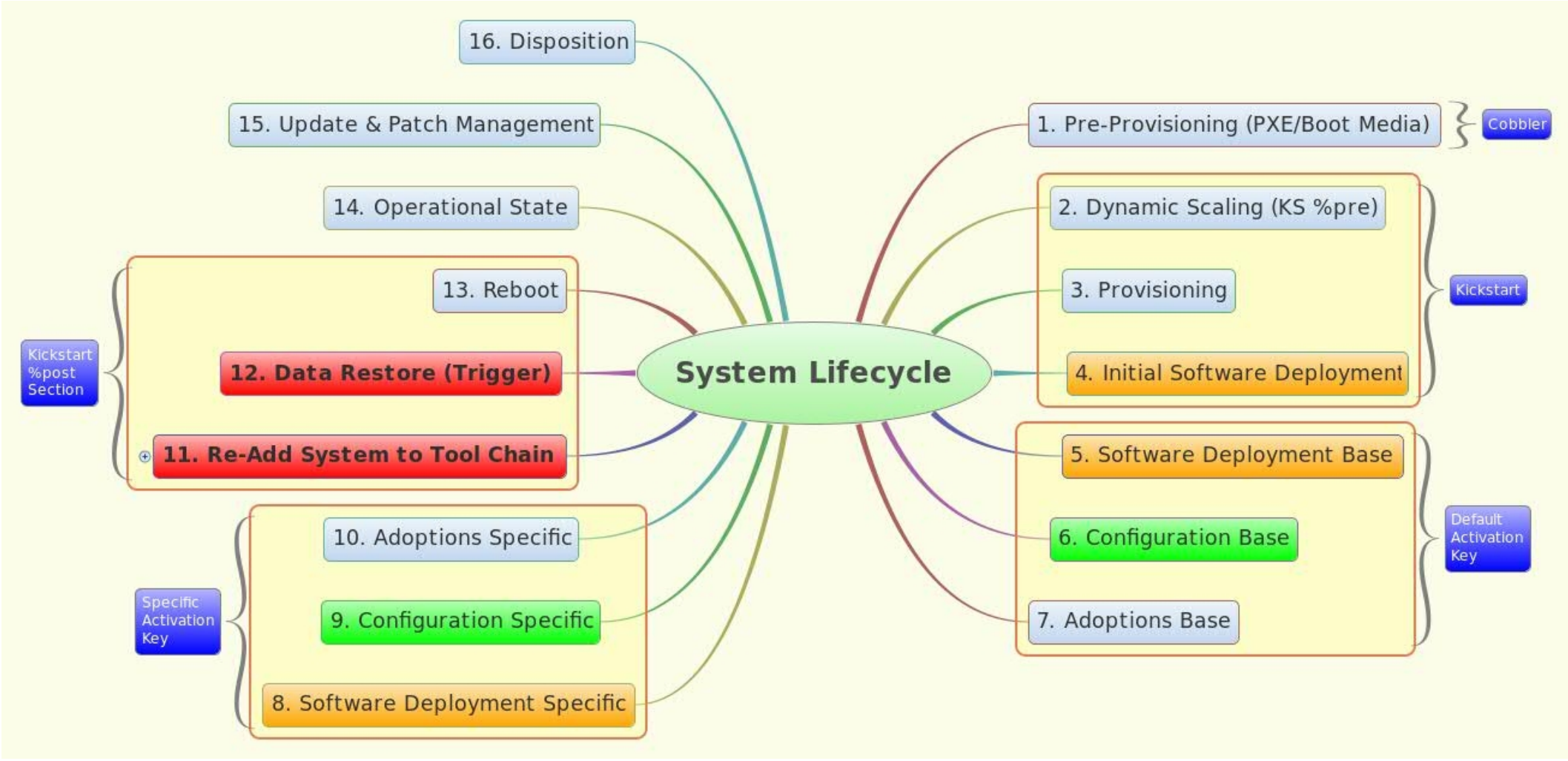
← Backup Engine

- Temporary Data

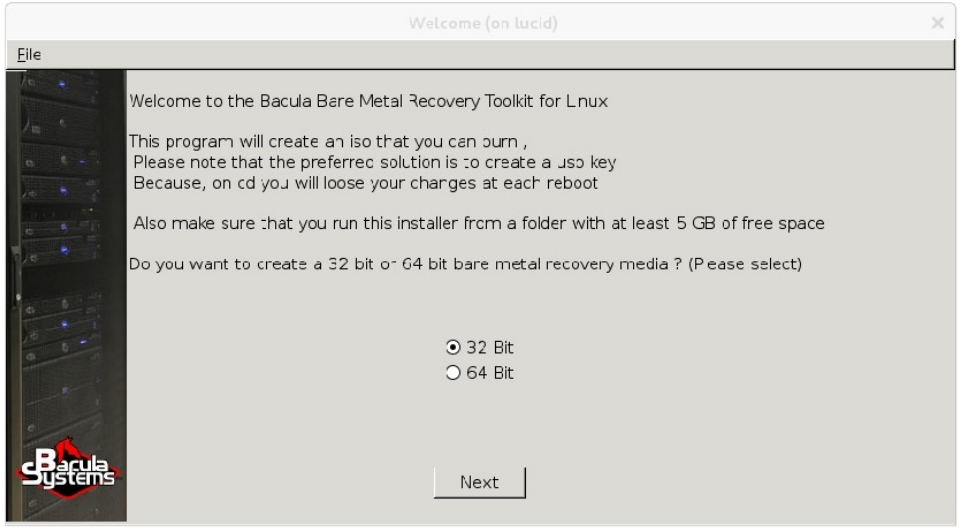
← Scale-out Storage

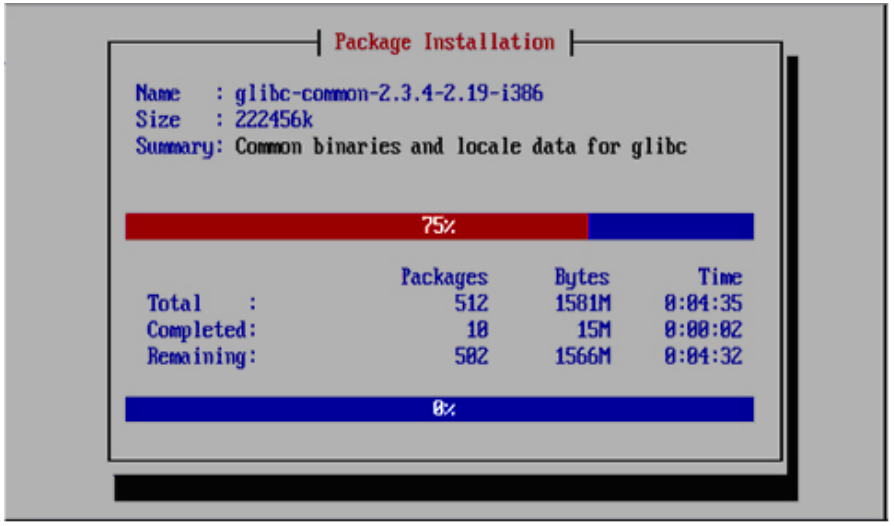
Isolation required !

System Recovery



Bare Metal Recovery





Bacula Linux Bare Metal Recovery

Satellite & Kickstart Installation

- System Re-Provisioning is similar to initial provisioning
- Data Restore could be triggered as %post operation
- Load reduction for backup engine
- Parallel Recovery of Systems & Data

How Satellite supports DisRec

- Satellite can be used as **CMDB** including all information necessary for disaster recovery
- Adaptions **dynamically** possible (HW exchange / Virt)
- Reduce **load** of backup / restore infrastructure (software and configuration restore done by RHNS)
- **Trigger** to backup tool (data restore) possible
- **Undo** Changes (Snapshots and Rollbacks)
- Rapid **Re-Provisioning** (Disaster Recovery)
- DisRec plans could be **tested** (automatically)

High Availability Setup of Bacula

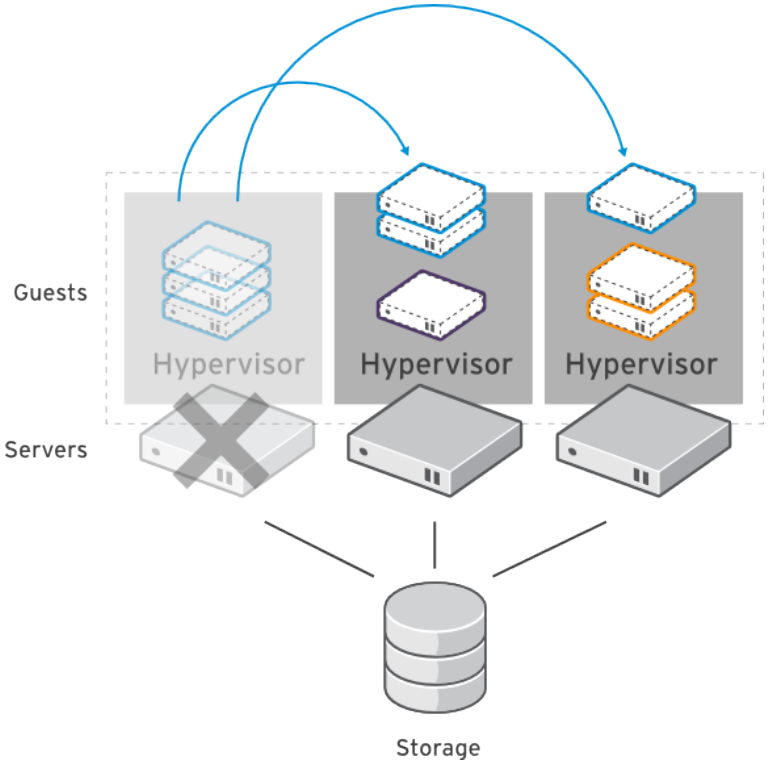
- **Bacula Services:**

  Red Hat Cluster Suite

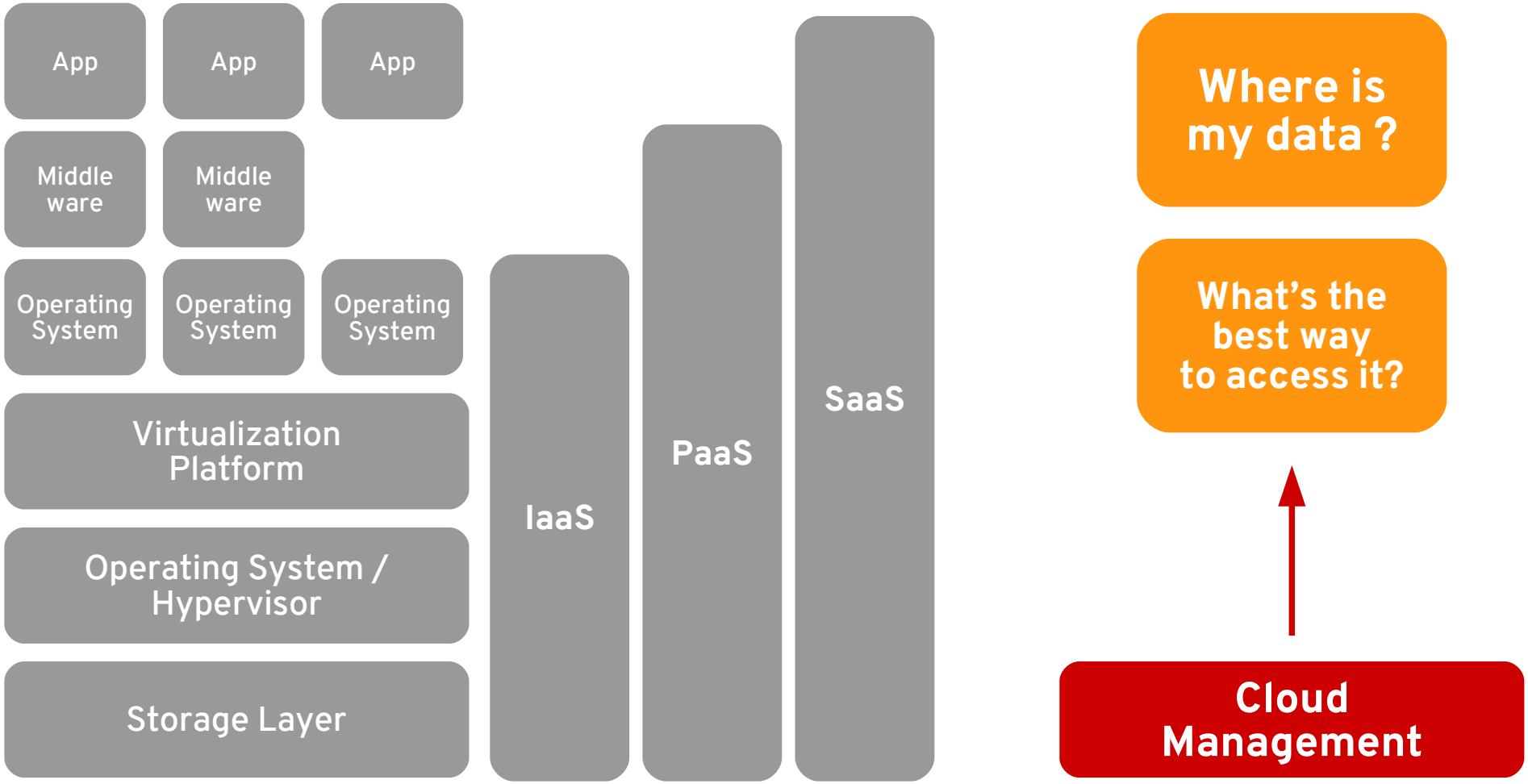
- **Bacula Systems:**

  Red Hat Enterprise Virtualization (RHEV)

```
<rm>
        <failoverdomains>
                <failoverdomain name="bacula-nodes" restricted="1">
                        <failoverdomainnode name="bacula-director1" priority="1"/>
                        <failoverdomainnode name="bacula-director2" priority="2"/>
                </failoverdomain>
        </failoverdomains>
        <resources>
                <ip address="192.168.100.22" monitor_link="1"/>
                <lvm name="bacula_mysql_vg" vg_name="bacula_mysql" lv_name=""/>
                <fs name="mysql_data" mountpoint="/var/lib/mysql" device="/dev/bacula_mysql/mysql_data" fstype="ext4"
1" self_fence="1" />
                <mysql name="bacula-mysql" />
        </resources>
        <service autostart="1" domain="priority-db1" name="prod-db" recovery="relocate">
                <ip ref="192.168.100.22">
                        <lvm ref="bacula_mysql_vg">
                                <fs ref="mysql_data">
                                        <mysql ref="bacula-mysql">
                                                <script file="/etc/init.d/bacula-dir" name="bacula-dir"/>
                                                <script file="/etc/init.d/bacula-sd" name="bacula-sd"/>
                                                <script file="/etc/init.d/bacula-fd" name="bacula-fd"/>
                                        </mysql>
                                </fs>
                        </lvm>
                </ip>
        </service>
</rm>
```



Cloud – Find your (way to) data

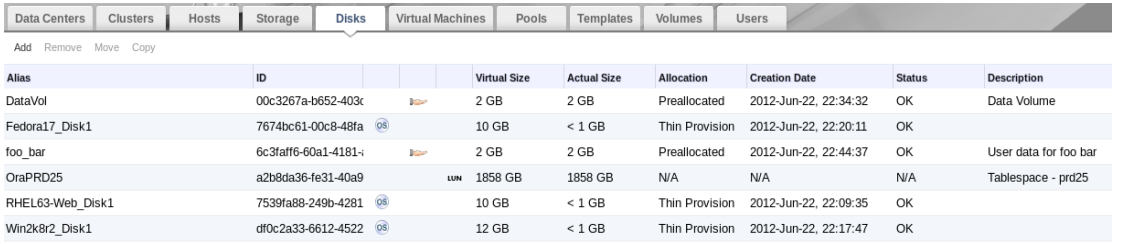


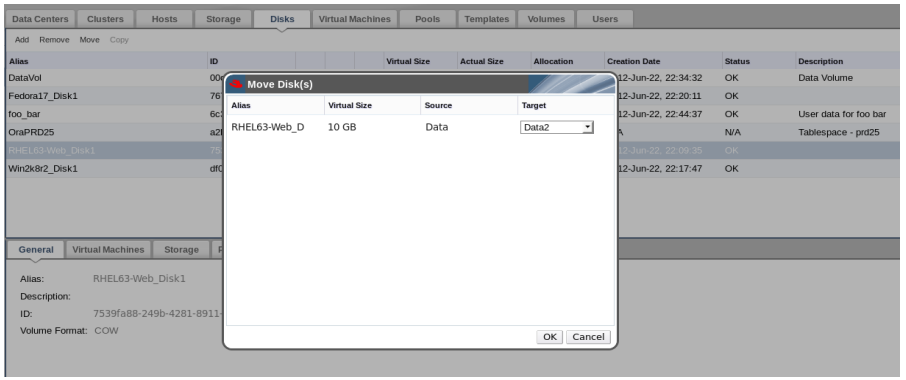
Backup Challenges

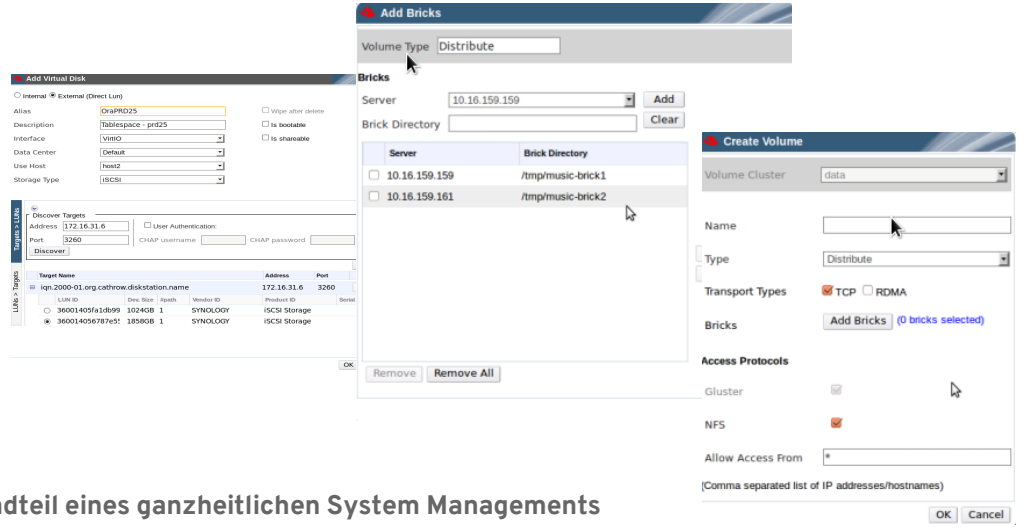
- Storage Centralization (Bottleneck)
- Multi-Layer Architectures (Virtualization)
- Hidden (Storage) Infrastructure (Cloud)
- Replicated and Distributed Storage
- Security and Data Protection
- “3 V’s of Big Data” - Volume, Velocity, Variety
- (In-Memory) NoSQL

Backup Challenges – Virt Platform

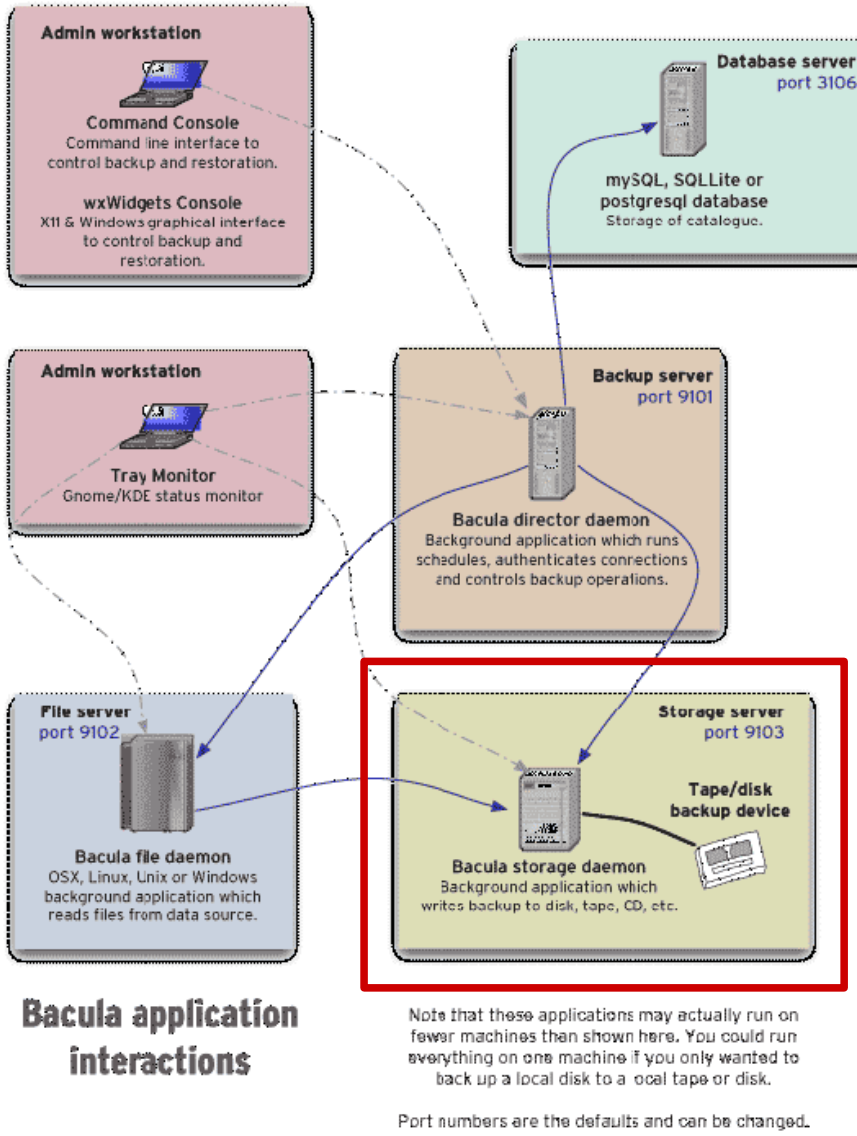
- Storage Virtualization
- Storage Aggregation
- Mixed Storage
- Shared Disks
- Direct LUN Access
- Hot (Un)Plug Disk Images
- Storage (Live) Migration
- Live Snapshots
- Cloud Filesystems







Scale-Out Storage for Backups



Red Hat Storage (Gluster)

GLUSTER COMMUNITY

- Multi-Level Usage
- Multiple Access Protocols
- API and CLI
- High Performance
- Dynamic Scale-Out
- Async & Sync Replication
- Deduplication & Compression
- Backup Staging

Conclusions

- Data not centralized & static anymore
- New IT Trends are challenges but advantages, too
- Backup Management is an essential part of System Management (wider scope)
- Backup Configuration has to be agile as well
- Agile Backup Management needs integration and interfaces (API, CLI) based on open standards
- High volumes and multiple ways need deduplication

Q&A