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Managing RH/CentOS with SUSE® Manager

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Agenda

- SUSE Manager overview
- SUSE Manager and non-SUSE distributions
- Red Hat/CentOS Maintenance with Expanded Support
 - Who needs it? Why is it so hard?
- Channel setup – laying the groundwork
- Client registration
- Troubleshooting

SUSE Manager Overview

SUSE Manager: Operating System Lifecycle Management

HEALTH MONITORING



- ✓ Gain control
- ✓ Optimize operations
- ✓ Enable innovation

SECURITY

COMPLIANCE



SUSE Manager is Open Source

What is the Spacewalk Project?

- Upstream version of SUSE Manager and Red Hat Network (RHN) Satellite Server 5.X
- Red Hat open sourced RHN Satellite (GPL v2) in June 2008

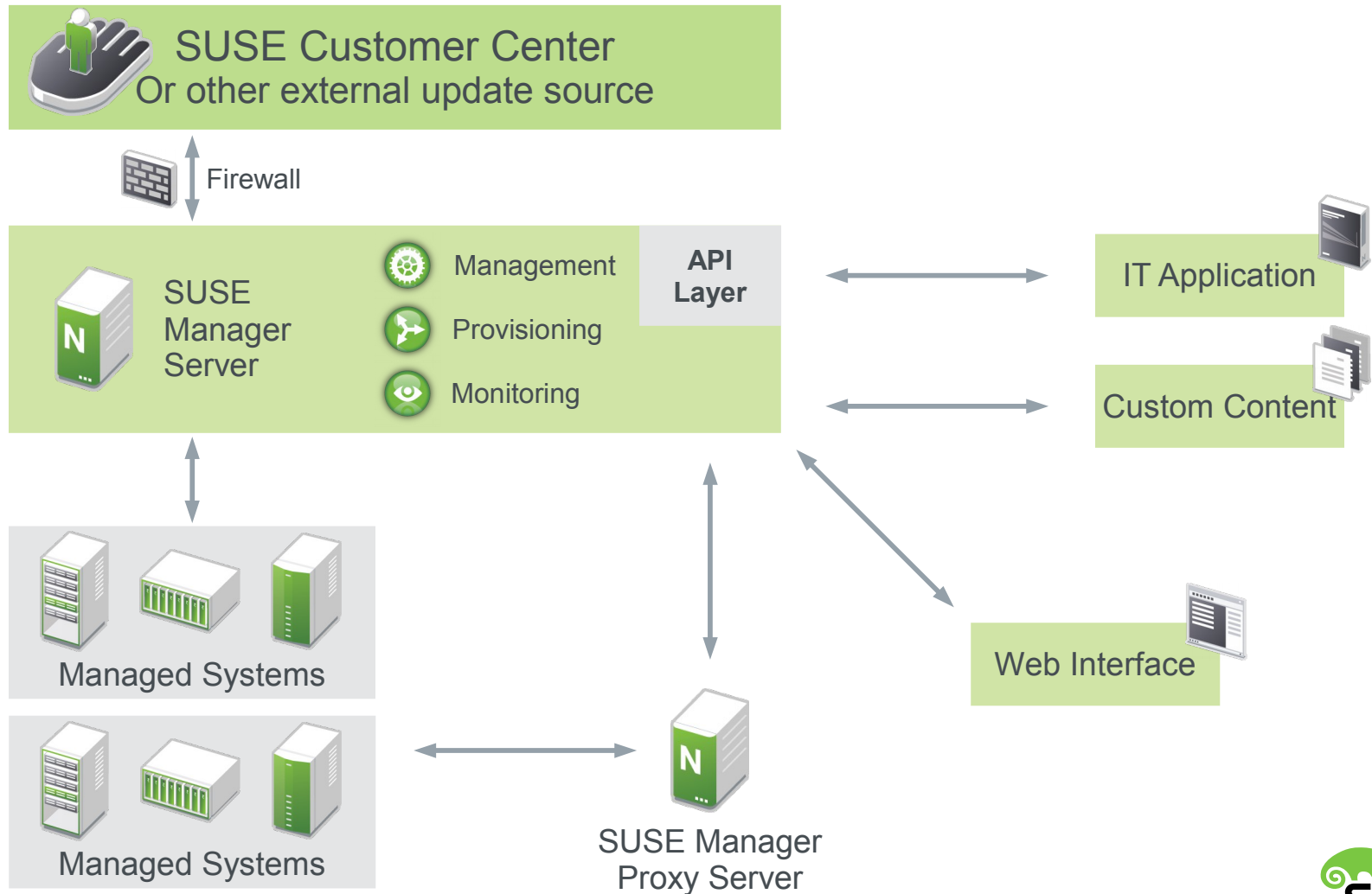


What is the role of SUSE in the Spacewalk Project?

- SUSE Manager is based on Spacewalk, but SUSE has adapted it for SUSE Linux Enterprise
- SUSE is an active contributor to Spacewalk
- SUSE embraces the open source development model and Spacewalk is just one of the many open source projects we support



How Does SUSE Manager Work?



SUSE manager and Non-SUSE Distros

SUSE Manager

Non-SUSE Distributions

- Inherited functionality from Spacewalk
- All or nothing with Red Hat Network
- Package repository info can be replicated from any yum repository
- Red Hat Enterprise Linux/CentOS work fine with the SUSE-supplied res repositories
- Any other distro, no matter how functional through Spacewalk, is technically unsupported

SUSE Manager

Red Hat Based Distributions

- Red Hat connections to Red Hat Network not part of original Spacewalk
- RH/CentOS/OEL work fine with the SUSE-supplied res repos
 - CentOS and OEL have additional packages not patched in res (e.g. libreoffice)
- SUSE supports managing RH/CentOS using expanded support subscriptions
- In principle, support for native updates for RH would allow SUSE to sell SUSE Manager (only) for those instances
- Any other distro, no matter how functional through Spacewalk, is technically unsupported



Red Hat/CentOS Maintenance with Expanded Support

Why Choose SUSE® to Support Red Hat?

- Savings as much as 50% versus your current spend
- No true-ups and price protection for three years
- Entails little disruption to your Red Hat infrastructure
- Transparent to sys admins and end users (no retraining)

Details...

- Support for Red Hat Enterprise Linux or CentOS 5/6/7
- Binary compatible packages to Red Hat Network
- Subscriptions allow for EITHER RHEL, CentOS, or SUSE Linux Enterprise Server



SUSE Manager

Expanded Support 1/2

- Product subscription initially purchased from Red Hat (no SUSE-supplied ISO)
- Maintenance contract between customer and SUSE.
- RPMs are built by SUSE partner, based on Red Hat sources.
- Info on patches provided by SUSE via patchbuilder.
- RPMs and patches are delivered via Customer Center.
- SUSE Manager server delivers full functionality for RH/Centos
- SUSE Manager client works with native package management (yum)



SUSE Manager

Expanded Support 2/2

- Available for Red Hat Enterprise Linux/CentOS x86_64 and i386.
 - 5.2 or newer - becomes 5.12
 - 6.0 or newer - becomes 6.7
 - 7.0 or newer - becomes 7.1
- All or nothing – either ALL RH systems get support from RH or ALL RH systems get support from SUSE
- Access to base media repositories and installation ISO is responsibility of the customer
 - We are not trying to be Red Hat Enterprise Linux
 - Goal would be to move to SUSE Linux Enterprise Server



SUSE Manager Server configuration

SUSE Manager and Expanded Support **Server Configuration for res**

- Minimum of 8GB ram and two CPU/vCPU
 - taskomatic will consume one
- Taskomatic needs at least 3072MB
 - Setting in /etc/rhn/rhn.conf

```
taskomatic.maxmemory=2048
```
- Provision enough disk space – especially in /var/spacewalk where RPM's are stored
 - res6-x86_64 alone uses > 90GB
 - Additional LVM or NFS mount highly recommended

SUSE Manager and Expanded Support

Channel layout and management

- Parent Red Hat Enterprise Server distro/architecture channel has 0 packages
 - No base media provided by SUSE
 - Leave it that way!
- res channel and tools channel provided from SUSE Customer Center with mgr-sync
 - Prepare for a long wait – up to 24 hours for initial channel sync
- Add in base media or installation ISO's as CHILD channels of the RHEL parent
 - These should correlate to what was used in initial deployment – or anaconda errors will occur
 - These are custom channels, but static

SUSE Manager and Expanded Support

Creating Channels for Original Media

- Mount the ISO or NFS on the SUSE Manager server
 - For RHEL6, the root of the base media has the repodata
 - For RHEL5, the Server directory has the repodata
- Create a custom channel as the child of the corresponding distro/architecture
- Create a repository pointing to the mounted ISO or network install point
- Go back to your custom channel and select that repository
 - Initiate a sync from the webUI or with `spacewalk-repo-sync`

SUSE Manager

Channel Sync Process

- Spacewalk-repo-sync is scheduled by taskomatic
- Channel metadata read from repository, compared to what is already in the database
- RPM's get copied to unique (obscured) location under `/var/spacewalk`
 - If the exact RPM exists already in another channel, only a database pointer is created
- RPM metadata is parsed into the database as each is copied
- Errata (patch) info is not processed until all RPM's have been copied and parsed
- Client metadata cache (final step) is created in `/var/cache/rhn/repodata`

Watching the Channel Sync Process

- Individual channel sync logs are in `/var/log/rhn/reposync`
- Taskomatic log is in `/var/log/rhn/rhn_taskomatic-daemon.log`
- Internet speed is helpful but not the only variable
 - Much metadata has to be processed
- You can temporarily force the channel to use pre-downloaded yum repos from SMT
 - `spacewalk-repo-sync -c res6-x86_64 -u file:///location/of/smtrepo`
- Expect errors in initial channel sync – NCC issues, metadata change
 - “No more mirrors to try”
 - “Errata skipped because of missing package”
- Run it again until all is clean – be patient

Connecting Managed Clients

SUSE Manager and Expanded Support

Connecting RHEL Clients

- RHEL 6 clients do not need a bootstrap repository on the SUSE Manager server
 - Satellite/Spacewalk client RPM's are included
- Access to base media is **REQUIRED** on the client for successful bootstrap process
- Create an Activation Key that reflects the proper base/child channels
 - Add child channels, then select the “Deploy Config File at Registration” checkbox, packages will be added

SUSE Manager and Expanded Support

Connecting RHEL Clients - Bootstrap

- Bootstrap script must enable and start the relevant services (rhnsd and/or osad) explicitly
 - RH rpm's do not start them by default
- GPG keys for any and all RPM's used must be listed in the bootstrap script
 - Comma delimited
 - Copied to SUSE Manager server /srv/www/htdocs/pub/
 - Res repositories signed with res.key – already present
 - SUSE repos (including the tools channel) are signed with the SUSE keys – already present
 - Base media GPG keys should be copied there from root of install media and referenced in bootstrap

SUSE Manager and Expanded Support **Connecting CentOS Clients**

- Bootstrap repository must be created on the SUSE Manager server
- Access to base media and the registration repo is **REQUIRED** on the client for successful bootstrap process
- Create an Activation Key that reflects the proper base/child channels
 - Add child channels, then select the “Deploy Config File at Registration” checkbox, packages will be added
- Bootstrap script must enable and start the relevant services (rhnsd and/or osad) explicitly
 - CentOS spacewalk client rpm's do not start them by default

SUSE Manager and Expanded Support

Create Bootstrap Repositories

a. `# mkdir -p /srv/www/htdocs/pub/repositories/rh/6`

b. `# cd /srv/www/htdocs/pub/repositories/rh/6`

c. Get the public spacewalk client files:

```
# wget -r -nH --cut-dirs=5 --no-parent \  
--reject="index.html*" \  
http://spacewalk.redhat.com/yum/2.1-client/RHEL/6/x86_64
```

d. Remove source rpm's

```
# rm *.src.rpm
```

e. CentOS client installation requires two additional packages available from the EPEL repository (>6900 rpm's).

```
# wget -c http://mirrors.kernel.org/fedora-epel/6/x86_64/python-  
hwdata-1.7.3-1.el6.noarch.rpm
```

```
# wget -c http://mirrors.kernel.org/fedora-  
epel/6/x86_64/jabberpy-0.5-0.21.el6.noarch.rpm
```

f. Create the repodata for this client repository:

```
# createrepo .
```

g. Create the rh6-client.repo file on your server in /srv/www/htdocs/pub/ with the following content, making sure to edit the *servername*:

```
[rh6-client]  
name=rh6-client  
baseurl=http://servername/pub/repositories/rh/6  
enabled=1  
gpgcheck=0
```



It's ***SHOWTIME!***

Thank you.



More System Management @SUSECon

- CAS18158: How to use SUSE Manager and CVEs
- FUT20721: SUSE Manager Roadmap
- HO20098: Install and Configure SMT and SUSE Manager for Dummies
- TUT18400: Architecting your SUSE Manager Deployment
- TUT20514: SaltStack and SUSE Manager
- TUT20515: Configuration Management in SUSE Manager 3
- TUT20516: Using SUSE Manager in Heterogeneous Environments
- TUT20829: Implementation of a SUSE-based Solution with SUSE Manager at Apollo-Optik





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Appendix: Red Hat Native Maintenance

Red Hat Native Maintenance - Subscriptions

- Valid Red Hat subscription are required for access to rhn downloads and patch errata
- Software channels: `rhn.redhat.com`
- Errata information: `xmlrpc.rhn.redhat.com`
- Fedora EPEL (Extra Packages for Enterprise Linux) channel supplements the Red Hat channels – providing a few required packages
 - see: <http://fedoraproject.org/wiki/EPEL>

SUSE Manager

Native Maintenance

- Product subscription are purchased from Red Hat.
- Product maintenance and support contract between customer and Red Hat
- RPMs are built by Red Hat.
- Patches (aka Errata) are built by Red Hat.
- Infos on patches are provided by Red Hat via RSS feed and Red Hat Network (RHN).
- RPMs and Patches are delivered via RHN, usually to RHN Satellite.
- SUSE Manager server to manage patches and software.



mrepo - Tool to sync software channels

- mrepo builds a local APT/Yum RPM repository from local ISO files, downloaded updates, and extra packages from 3rd party repositories. It takes care of setting up the ISO files, downloading the RPMs, configuring HTTP access and providing PXE/TFTP resources for remote network installations.
- <http://dag.wieers.com/home-made/mrepo/>

Spacewalk RHN Errata Import

- Several solutions have been developed by various members of the Spacewalk community
- Patch / Errata definitions are published separately from rpm package metadata – server: `xmlrpc.rhn.redhat.com`
- Python / PERL scripting is used with Red Hat Network and Spacewalk APIs to import patch info, package manifest, errata change detail, as well as CVE and bugzilla information
- A good, working option for SM (ya-errata-import) is here: https://github.com/liedekef/spacewalk_scripts

mrepo cookbook: (page 1)

- Install / Activate / Patch a RHEL 5 server
(RHEL 6 works, requires additional packages from outside EPEL)
- Add the RHEL5 supplementary / optional software channel through rhn
- Configure Fedora EPEL repo: Extra Packages for Enterprise Linux (EPEL)
- rpm -ivh \
http://mirrors.kernel.org/fedora-epel/5/x86_64/epel-release-5-4.noarch.rpm
- yum install pyOpenSSL rhn-client-tools rhpl mrepo
- echo "up2date default" > /etc/sysconfig/rhn/sources
- copy 5Server.conf (next slide) to /etc/mrepo.conf.d/
- UUID=\$(uuidgen) ; /bin/echo -e "uuid[comment]=Universally Unique ID for this server\nrhnuuid=\$UUID" > /etc/sysconfig/rhn/up2date-uuid
- gensystemid -u RHN_username --release=5Server --arch=x86_64 \
/srv/mrepo/src/5Server-x86_64/



mrepo cookbook: (page 2)

- `cp `cat /etc/sysconfig/rhn/up2date|grep ^sslCACert=|cut -d= -f2` \
/usr/share/rhn/RHNS-CA-CERT`
- `mkdir -p /srv/mrepo/src/5Server-x86_64`
- `mrepo -ugv`
 - `-u, --update` fetch OS updates
 - `-g, --generate` generate mrepo repositories
 - `-v, --verbose` increase verbosity
- Hurry up and wait... (Full RHEL5 x86_64 Updates channel = ~29GB)
- `spacewalk-repo-sync -c <rhel-5-updates-x86_64> -u \
http://ip-or-fqdn/mrepo/5Server-x86_64/RPMS.updates/`
- Hurry up and wait...

Reference: <https://www.soljerome.com/blog/2011/12/17/mirroring-rhn-with-mrepo-on-rhel6/>



/etc/mrepo.conf

Configuration file for mrepo

The [main] section allows to override mrepo's default settings

The mrepo-example.conf gives an overview of all the possible settings

[main]

srcdir = /var/mrepo

wwwdir = /var/www/mrepo

confdir = /etc/mrepo.conf.d

arch = x86_64

mirrordir-exclude-debug = yes

mirrordir-exclude-srpm = yes

rhngget-download-all = yes

These parms will fully populate the entire back channel of updates.



/etc/mrepo.conf.d/5Server.conf

```
### Name: Red Hat Enterprise Server v5
```

```
### URL: http://www.redhat.com/
```

```
[5Server]
```

```
name = Red Hat Enterprise Server $release ($arch)
```

```
release = 5
```

```
arch = x86_64
```

```
metadata = repomd
```

```
### RHEL5 repositories
```

```
updates = rhns:///rhel-$arch-server-$release
```

```
#vt = rhns://rhn.redhat.com/rhel-$arch-server-$repo-$release
```

```
#supplementary = rhns://rhn.redhat.com/rhel-$arch-server-$repo-$release
```

```
#fastrack = rhns://rhn.redhat.com/rhel-$arch-server-$repo-$release
```

```
#hts = rhns://rhn.redhat.com/rhel-$arch-server-$repo-$release
```



errata cookbook: (page1)

- Download tarball / PERL script with supporting configuration files from git repo linked on previous slide (see also link below.)
- ya-errata-import can be put into a cronjob on the mrepo server
- yum install perl-Text-Unidecode \
perl-Frontier-RPC \
perl-XML-Simple \
perl-Net-SSLeay \
perl-Crypt-SSLeay

** PERL script is being enhanced to correctly reflect errata dates.
** Tarball with a working script will be posted with materials from session.

ya-errata-import may also be run on the SUSE Manager server (needs one rpm outside distro: perl-Text-Unidecode)



errata cookbook: (page 2)

- Edit `ya-errata-import.cfg` to reflect proper usernames –
 - CFG file is sourced as environment variables when the PERL script is executed.
 - This helps with keeps admin creds out of ps ef output.
- Edit `redhat-clone-errata.sh` to reflect proper server names
 - `SPACEWALK=manager-rhn.demo.com`
 - `ya-errata-import.pl` cmdline must be validated for correct channels
 - `/root/ya/ya-errata-import.pl --server manager-rhn.demo.com --channel q3-20120712-rhel-5.2-updates-x86_64 --redhat-channel rhel-x86_64-server-5 --os-version 5 --redhat --startdate 2013-02-01 --publish --debug`
- Review parms for `ya-errata-import.pl` with `'./ya-errata-import.pl --help'`



Links

<https://www.suse.com/products/suse-manager/>
https://www.suse.com/documentation/suse_manager/
<https://www.suse.com/products/expandedsupport/>
<https://www.suse.com/support/>

<http://redhat.com/products/enterprise-linux/rhn-satellite/>
http://en.wikipedia.org/wiki/Red_Hat_Network
http://en.wikipedia.org/wiki/Satellite_%28software%29
https://access.redhat.com/knowledge/docs/Red_Hat_Network_Satellite/
<https://access.redhat.com/security/updates/advisory/>
<https://access.redhat.com/knowledge/articles/28765>
<https://access.redhat.com/knowledge/articles/143253>
<http://spacewalk.redhat.com/>

<http://freecode.com/projects/mrepo>
<https://github.com/dagwieers/mrepo/blob/master/docs/usage.txt>
<http://kmkswamy.blogspot.de/2009/06/howto-privatelocal-mirror-with-mrepo.html>
<https://www.soljerome.com/blog/2011/12/17/mirroring-rhn-with-mrepo-on-rhel6/>
<http://www.codarama.com/drupal/?q=node/4>
<http://www.codarama.com/drupal/sites/default/files/rhn-clone-errata.py.txt>

<http://cve.mitre.org/>

