FOREMAN: LESSONS LEARNED

AUTOMATED INSTALLATIONS AND HINTS

SVA

// WHOAMI

> Christian Stankowic

> Technical Leader Linux at SVA

> Linux, Virtualization, IaC, Automation

> started with Spacewalk in 2014 and Foreman in 2017

> does a lot of Linux system management projects

> Host of the FOCUS ON: Linux podcast 🇩🇪 🎙️

// AGENDA

> Customer insights

> Automated installation and documentation

> Tips & tricks

// CUSTOMER INSIGHTS

OVERVIEW

The Four Horsemen of Linux system management tools:

> Foreman / Katello

> Uyuni (SUSE/community fork of Spacewalk, since 2018)
>> new UI/UX, Salt IaC, broad distribution support

> Landscape (Canonical, since 2007)
>> very limited feature set, only for Debian-alike, see review

> Oracle Linux Manager
>> mostly irrelevant; fork of outdated Spacewalk 2.10 (*EOL May 2020*)

>> PostgreSQL support replaced with Oracle Database, see review

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> **RBAC**
>> good preset roles, easy to adapt

>> easy to integrate with LDAP and Active Directory

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> **Non-Red Hat** distribution support

> people still get confused with **CV/CCVs concept**
>> 💡 Multiple CVs/host preview in Katello 4.8.0

> new Host/CV UI made things **way** better

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> Use **Orcharhino** if you have more than just RHEL hosts
>> great support for **SUSE Linux Enterprise** and **Ubuntu**

NON-RED HAT SUPPORT IN FOREMAN

> By default, Foreman **only** supported **RPM** distributions
  > adding Debian support was started by ATIX

> Official [Foreman client packages](#) only available for
  > EL7-9

  > SLES 11 (*sic!, EOL 03/2019*) and 12

> Managed clients require additional packages, e.g.:
  > `subscription-manager` / `subscription-manager-rhsm`

  > `katello-host-tools`

  > `apt-transport-katello` (*on Debian-alike*)

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>> `deb-subscription`

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> Orcharhino fills **exactly this gap**

> By request, ATIX decided to also ship the clients public 🎉

oss.atix.de

Subscription Manager for Debian, Ubuntu, and SLES

- Debian/
- Ubuntu/
- SLES/

These open source clients are provided by ATIX. They are independent of the orcharhino clients provided for orcharhino customers.

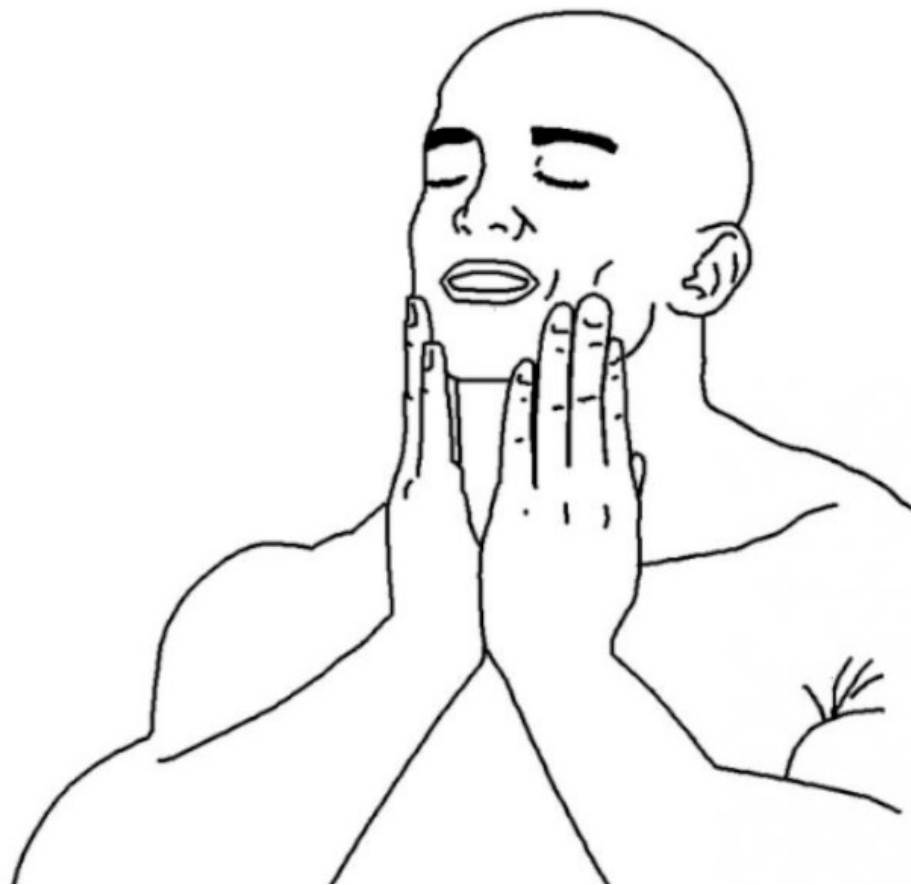## Additional Documentation

Adding DEB Repositories for Debian 11

Adding DEB Repositories for Ubuntu 22.04

Adding RPM Repositories for SLES15SP5

Community Support

Please consult the official Foreman documentation before opening an issue in the Foreman Community Forum.

Enterprise Support

FOREMAN/KATELLO OR UYUNI?

FOREMAN/KATELLO OR UYUNI?

> Uyuni is often considered as "**good-enough**" alternative over Foreman
>> less modular and complex, but still very useful

> offers **broad range** of distribution support*

> Use it, if you **don't need**:
>> broad range of plugins

>> VM deployment

>> Puppet or Chef

>> thin-provisioned software repositories (***on-demand*** *download policy*)

* EL derivatives, openSUSE/SLES, Debian, Ubuntu, Amazon/Alibaba Linux

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> > `theforeman.operations` (*installation and upgrades*)
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> Use a **proper documentation format** that can be Git-controlled, e.g.:
> > AsciiDoc
> > MkDocs

AUTOMATED INSTALLATIONS

> Configure **everything** using Ansible
> > **no** quick & dirty **exceptions**

> > Single Point of Truth

> **Reference** YAML files in docs
> > don't copy that playbook!

> Give **AsciiDoc** a try
> > proper variable substitution

> > various exporters, e.g. **PDF**

> > way more capable than Markdown

DOCUMENTATION EXAMPLE

```
:author: Simone Giertz <s.giertz@shittyrobots.loc>
:project_name: Foreman installation
:date: 09.07.2023
:document_version: 1.0
:customercompany: ACME Ltd.
:customercompany_sub: IT
:customername: Mr. Chad Badguy
:customerstreet: Main St 1
:customercity: 02120 Boston MA

// Foreman information
:foreman_hostname: linmgmt001
:foreman_fqdn: linmgmt01.shittyrobots.loc
:foreman_ip: 10.10.22.42
:foreman_org: Shitty Robots
```

`customer.adoc` - customer configuration

DOCUMENTATION EXAMPLE

Chapter source code:

```
== Prerequisites

.DNS validation
[shell,subs="attributes"]
----
$ nslookup {foreman_ip}
$ nslookup {foreman_fqdn}
----

IMPORTANT: *Double-check* if these
information are correct
```

PDF result:

Prerequisites

DNS validation

```
# nslookup 10.10.22.42
# nslookup linmgmt01.shittyrobots.loc
```

❗ **Double-check** if these information are correct

FOREMAN INSTALLATION

```yaml
___

hosts: foreman-servers
become: true

roles:
  - role: theforeman.operations.foreman_repositories
    foreman_repositories_version: "3.5"
    foreman_repositories_katello_version: "4.7"

  - role: theforeman.operations.installer
    foreman_installer_scenario: katello
    foreman_installer_package: foreman-installer-katello
    foreman_installer_options:
      - '--foreman-initial-organization "Shitty Robots"'
      - '--foreman-initial-admin-password chad'
```

katello.yml

> configures required repositories

> installs Katello scenario

> sets explicit options

FOREMAN INSTALLATION

```
...
tasks:
  - name: "Create Fedora product with a sync plan"
    theforeman.foreman.product:

      ...
      name: "Hannah Montana Linux"
      organization: "Shitty Robots"
      sync_plan: "daily-5am"

  - name: "Create repository"
    theforeman.foreman.repository:

      ...
      name: "os_x86_64"
      content_type: "yum"
      product: "Hannah Montana Linux"
      organization: "Shitty Robots"
      url: "http://[...]"
```

content.yml

> creates a product

> creates a repository

// TIPS & TRICKS

DESIGN TIPPS

> deploy an **dedicated Proxy/Capsule** for production landscapes
> > even for medium/smaller setups (*those might become big later!*)

> > this ensures that hosts can still be patched/controlled if Foreman is down

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> Enable `tuned` daemon
  > use `throughput-performance` for physic, `virtual-guest` for VMs

> Flash storage is king! 💥

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> Flash storage is king! 💥

> see the [Satellite Performance Tuning Guides](#) for big landscapes
  > specific tweaks for particular Satellite services

AUTOMATED INSTALLATIONS TIPPS

> use Ansible **version pinning**

> use official Red Hat collections for Satellite*:

> [redhat.satellite](#)

> [redhat.satellite operations](#)

```
---
collections:
  - name: theforeman.foreman
    version: 3.12.0
  - name: theforeman.operations
    version: 2.0.0
```

* part of `ansible-collection-redhat-satellite` package

USEFUL CONTENT

`theforeman.foreman`

> > [content view version cleanup](#)
>
> > > removes old CV versions, replaces [katello-cvmanager](#)
> >
> > > should be executed regularly
>
> > [convert2rhel](#) – migrates CentOS to RHEL

`theforeman.operations`

> > [backup](#) – configures backup

DYNAMIC INVENTORY

> theforeman.foreman.foreman plugin offers a **Dynamic Inventory**

> no need of manually specifying your Ansible inventory

> content gathered in realtime using the API

> filename **must have** the `.foreman.yml` **postfix**

```
---
plugin: theforeman.foreman.foreman
url: https://foreman.shittyrobots.loc
user: s.giertz
password: chad
host_filters: 'organization="Shitty Robots"'
```

// DEMO CODE

You can find an example for automated installation and documentation on GitHub:

https://github.com/stdevel/foreman-lessons-learned

Feedback and PRs welcome!

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