SUSE® Manager
Roads to the Future of IT Infrastructure Lifecycle Management

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Once upon a time ...
Stories of Digital Transformation
Help, my SAP goes HANA!
SUSE Manager
Infrastructure
Dev(Sec)Ops
Where are we today?
HEALTH MONITORING

SUSE Manager

Asset Management
Provisioning
Package Management
Patch Management
Configuration Management
Redeployment

SECURITY

COMPLIANCE
50 → 5,000
Help, my SAP goes HANA!
Setting the stage

• I have no Linux experience
• Those HANA boxes are the only SUSE I have
• Nothing can go into production if I haven’t staged and tested it before
• “Follow the SAP Notes”, they said!
Making the SAP admin happy ...

- SUSE Manager installation not just easy, but super-easy
- Best practices included: Salt Formulas for SAP HANA and HA Clusters!
- Staging of content without scripts and CLI commands
- Ready for the Public Cloud!
- Containers? Check!
From Brick & Mortar to Bits & Beacons

Re-building the Retail Experience
Setting the stage

• I have only a handful of guys to manage a lot of systems
• And I mean a lot!
• And it’s getting more!
• We don’t only have SUSE. There’s some Red Hat, CentOS, and Ubuntu as well!
• My bandwidth to the store is a real issue! Sometimes there’s no network at all.
• I don’t want to patch, but I have to!
Wait, there’s more!

• Our “digital experience” guys want to deploy new stuff as VMs or even containers every week!

• Let them dream on. After all, it takes us over two years to roll our a new Service Pack to all our stores!

• We used to have just cash registers and a branch server. Now there’s digital signage, beacons, cameras, sensors, WiFi for the customers, you name it!
Making the Retail admin happy ...

- Make it easy to fully automate rolling out hundreds or thousands of stores with Salt
- Scale to 50,000 managed nodes and more!
- Highly scalable distributed Monitoring with Salt, Prometheus, and Grafana
- Multi-OS support
- Offline capabilities for the store
- Bandwidth management
- Take the pain out of patching (test in the labs, roll out in waves)
... and also the application teams:

- Provide a solid, fully remote-manageable HA Virtual Machine (and later Container) runtime in the store
- Handle deployment of VMs and containers to the stores
- Hook into IoT frameworks like EdgeX for both management and monitoring
SUSE Manager 3.2
SUSE Manager 3.2 – Looking back

- **Formulas with Forms** improved/extended to model even complex parameters (e.g. for user management) and fully API-enabled. *Allows clean separation of concerns between experts preparing secure organization defaults and day-to-day admins.*
- **Salt states** can now be created and edited completely from the UI.
- **Salt support action chains** *(update Salt through Salt, reboots, …)*
- **Secure your images and running instances and keep them compliant** with integrated **KIWI image building** for Virtual Machines and physical installation images.
- **SUSE Manager for Retail**
What are “Formulas with Forms”?  

Formulas  
- Salt’s approach to packaging configuration directives into bundles that can be applied as a whole.  
- There is a GitHub project with ready-to-use Formulas  
- Examples: postgresql, users, locale, timezone, apache, wordpress, …

We’ve extended them with Forms that you can fill in from the SUSE Manager UI, so you can customize them as needed!
### HD Partitions

#### Partition Boot

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Boot</td>
</tr>
<tr>
<td>Mountpoint</td>
<td>/boot</td>
</tr>
<tr>
<td>Size in GB</td>
<td></td>
</tr>
</tbody>
</table>

#### Partition Root

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
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<td>Mountpoint</td>
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<tr>
<td>Size in GB</td>
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SUSE Manager 4.0
Content Lifecycle Management

DEV -> QA -> PROD
Create a new Content Lifecycle Project

Project Properties

Label:

Name:

Description:
<table>
<thead>
<tr>
<th>Environment Lifecycle</th>
<th></th>
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<tbody>
<tr>
<td><strong>mydevel</strong></td>
<td></td>
</tr>
<tr>
<td>Description:</td>
<td>mydevel</td>
</tr>
<tr>
<td>Version:</td>
<td>not built</td>
</tr>
<tr>
<td><strong>myprod</strong></td>
<td></td>
</tr>
<tr>
<td>Description:</td>
<td>myprod</td>
</tr>
<tr>
<td>Version:</td>
<td>not built</td>
</tr>
</tbody>
</table>
Monitoring

Prometheus

Grafana
Dashboard
SLES for SAP (HANA)
Virtualization Management (TBD)
Extending OS support

- Ubuntu LTS (in 3.2.6/3.2.7)
- openSUSE Leap 42.3 and 15
- Others (CentOS, Debian, OEL) based on demand
SLE 15 Base Product

- Consistent with other SLE-based products like SLES for SAP Applications
- One compact installation media for all
Language, Keyboard and Product Selection

Language
- English (US)

Keyboard Layout
- English (US)

Keyboard Test

Product to Install
- SUSE Linux Enterprise Server 15 SP1 Beta3
- SUSE Linux Enterprise High Performance Computing 15 SP1 Beta3
- SUSE Linux Enterprise Real Time 15 SP1 Beta3
- SUSE Linux Enterprise Server for SAP Applications 15 SP1 Beta3
- SUSE Manager Server 4.0 Beta1
- SUSE Manager Proxy 4.0 Beta1
- SUSE Manager Retail Branch Server 4.0 Beta1
- SUSE Linux Enterprise Desktop 15 SP1 Beta3
System Roles are predefined use cases which tailor the system for the selected scenario.

- **SUSE Manager Server**
  - Ideal management solution
- **SUSE Manager Retail Server**
  - Ideal option for retail environment
  - Additional functionality for retail
- **Minimal**
  - Minimal software selection for SUSE Linux Enterprise.
Beyond 4.0
Monitoring with “AI”
Actionable Insights

Prometheus

Grafana Dashboard
... and more:

- Advanced image building (e.g. Salt states)
- Security scanning/auditing and enforcement from physical to container, from the datacenter to the public cloud
- Asset Management (with Salt)
Delivering Digital Transformation
Numerous Models Increase Complexity
This is in an early stage!
Not even “Sneak Preview”!
<table>
<thead>
<tr>
<th>Name</th>
<th>Status</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Joe’s OpenStack</td>
<td>Ok</td>
<td>OpenStack</td>
</tr>
<tr>
<td>Pete’s Storage Cluster</td>
<td>Installing xxxx</td>
<td>Ceph</td>
</tr>
<tr>
<td>Yaroslav’s CAP</td>
<td>Needs patching!</td>
<td>Cloud Foundry</td>
</tr>
<tr>
<td>AJ’s Kubernetes</td>
<td>DOWN</td>
<td>Kubernetes (non-HA)</td>
</tr>
</tbody>
</table>
Add Cluster

- OpenStack (large)
- OpenStack (medium)
- OpenStack (small)
- SES (large)
- SES (medium)
- SES (small)
- CAP (large)
- CAP (medium)
- CAP (small)
Add Cluster

Name: __________________

Lots of other questions
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<th>Tags</th>
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<td>5TB</td>
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<td>HPE</td>
<td>unassigned</td>
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<tr>
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<td>32</td>
<td>32GB</td>
<td>10TB</td>
<td>Storage, cool</td>
<td>Dell</td>
<td>unassigned</td>
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<td>charlie</td>
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<td>128GB</td>
<td>4TB</td>
<td>Compute</td>
<td>Dell</td>
<td>reserved</td>
</tr>
<tr>
<td>dora</td>
<td>72</td>
<td>64GB</td>
<td>4TB</td>
<td>other</td>
<td>Lenovo</td>
<td>unassigned</td>
</tr>
<tr>
<td>ender</td>
<td>86</td>
<td>12GB</td>
<td>10TB</td>
<td>-</td>
<td>HPE</td>
<td>unassigned</td>
</tr>
<tr>
<td>Name</td>
<td>Status</td>
<td>Type</td>
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SUSE Manager: Where the journey is going

Linux System Lifecycle Management

→

Cluster Lifecycle Management
How can I try SUSE Manager out?
Public Beta on suse.com!
Please welcome Uyuni, the new upstream project for SUSE Manager!

https://www.uyuni-project.org

@UyuniProject

uyuni-announce+subscribe@opensuse.org
Thank you!
Backup Material
Content Lifecycle

Moving packages across multiple stages, like DEV, QA, Production, is a core feature of SUSE Manager. However, it’s only available on a CLI level yet.

- Provide channel staging ability in UI
- Keep and improve CLI staging ability
- Document staging better, provide best practices
- Manage stages (devel, test, production, ...)
  - add, remove, rename
- Promote sets of channels from one stage to another
Monitoring Vision

Vision: SUSE Manager can provision, configure, and automate monitoring infrastructure

- Self-monitoring:
  - Documentation on monitoring best practices for SUSE Manager Server and Proxy
  - Enable SUSE Manager to export metrics about its health

- Monitoring automation:
  - Auto-provision Prometheus node exporter on minions
  - Ship maintained versions of Prometheus (backend) and Grafana (frontend)
  - Provision Prometheus monitoring hosts
  - Deploy and configure Grafana visualization tool
  - Enable alerting based on monitoring
Monitoring: Prometheus with Grafana/Stratos

- SDI Admin
- Grafsana
  - Dashboards
- Prometheus
- Uyuni
- Bare Metal SLES
- Grafana
- Kubernetes Cluster
- Cloud Foundry
- Containers
- PaaS
- Stratos
- Kubernetes Cluster
- Cloud Foundry
- Containers
- PaaS
- Stratos
- Kubernetes Cluster
- OpenStack
- Kubernetes Cluster
- Ceph (with Rook)
SUSE Manager

### Configuration Management
- Full UI for Salt-based config management
- Significant improvements to Formulas with Forms

### Product Integration & Supported Platforms
- SUSE Linux Enterprise 15 (client) support
- Ubuntu support**
- SUSE Manager for retail (PXE with image support, KIWI-based image building)

### Monitoring
- Prometheus/Grafana "self-monitoring" documentation**

### Containers & Cloud
- VM building with Salt & KIWI

** Requires SUSE Linux Enterprise Server 12 SP3/SP4

### Version 3.2 (2018)

#### Configuration Management
- Content (patch and configuration) staging UI & improved API
- Templates for HA cluster and SAP workload setup**

#### Product Integration & Supported Platforms
- Better integration with SUSE CaaS Platform, SUSE Enterprise Storage, SUSE OpenStack Cloud
- openSUSE, Debian, CentOS support**
- Single sign-on support

#### SDI Management
- Maintenance windows**
- Improved virtualization management**

#### Security & Compliance
- Salt-based security audit & remediation

#### Monitoring & Trouble Shooting
- Provide actionable insights from data correlation
- Automated remote support data collection

### Version 4.0 (2019)

#### Configuration Management
- Config drift management
- Support for cluster orchestration (HA, SUSE CaaS Platform, SUSE Enterprise Storage)
- CI/CD Integration with existing Terraform and GitLab/Gitty instances

#### Product Integration & Supported Platforms
- Integration with the complete SUSE SDI stack (SUSE CaaS Platform, SUSE Cloud Application Platform, SUSE Enterprise Storage, SUSE OpenStack Cloud)
- Basic management of Windows clients (TBD)

#### SDI Management
- Manage and monitor the complete SDI stack

#### Subscription Management
- Public cloud data gatherer

#### Monitoring
- Grafana dashboard plugins for SUSE CaaS Platform, SUSE Enterprise Storage
- Log management (TBD)

** Based on SLES 15 SP2

### Version 4.1 (2020)

#### Configuration Management
- Fully integrate Terraform and GitLab/Gitty

#### Product Integration & Supported Platforms
- Edge IT/IoT device management
- Salt-based next generation bare metal installation framework

#### Security & Compliance
- Salt-based security audit & remediation

#### SDI Management
- Multi-cloud capabilities
- Powerful virtualization management for large distributed environments
- Optimized for Edge IT management

#### Monitoring & Trouble Shooting
- Provide actionable insights from data correlation
- Automated remote support data collection

#### Containers & Cloud
- All components shipping as containers (TBD)

** Item delivered post GA

Information is forward looking and subject to change at any time.

** Based on SLES 15 SP1

Based on SLES 15 SP3
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