SUSE Manager and Salt
The Three “Cs” of the IT Transformation Challenge

Transform your approach to infrastructure to enable the business to capitalize on new innovations of data”

- Cost
- Complexity
- Compliance
JUST TAME IT

with SUSE Manager
SUSE Manager

Open source infrastructure management solution that empowers IT to:

• Optimize operations while reducing costs
• Reduce complexity and regain control of IT assets
• Ensure compliance with internal security policies and external regulations
• Manage multiple enterprise Linux distributions with a single tool
With SUSE Manager you can:

• Replicate package and patch content from SUSE, or rpm-md repositories
• Create cloned channels for controlled delivery of packages and patches
• Clone by date
• Create landscapes like dev, test, prod, etc.
• Do it as simply or complex as you need!

SUSE Manager Architecture and Topologies
SUSE Manager Ecosystem

- **Directories (SLEPOS, Third Party) (LDAP, Active Directory)**
  - Users
  - Systems
  - Configuration
  - Topology

- **Configuration Management Databases**
  - (CMDB), e.g. ServiceNow
  - Systems
  - Inventory
  - Configuration
  - Topology

- **Virtualization**
  - Public or Private Cloud
  - e.g. VMware vCenter, OpenStack, AWS
  - Systems
  - Topology

- **Monitoring**
  - (e.g. Icinga, Nagios)
  - Systems
  - State
  - Configuration sync

- **external**
  - Configuration Management Systems (Puppet, Chef, ...)
  - Act as an "External Node Qualifier"

- **OS and Container Build Systems**
  - Provide templates and repositories
  - Trigger rebuilds
Where Does Salt Come in?
Challenges

Scale
Thousands of servers to be managed

Parallelize
Tasks should be executed in short time windows or even in parallel

Express
Declarative states
Why Salt?

**Key Strengths:**
- Master and minion, or master-less architecture
- Agent (minion) or agentless (salt-ssh)
- Permanent, encrypted and authenticated connection (ZeroMQ/AES)
- Open API for third-party cloud and software integration
- Asynchronous data collection and command execution
- Lightweight and efficient
- Imperative and Declarative state design
- Strong developer/user community
- Integrates with existing configuration management frameworks
Salt 101
Salt Master

A master server acts as a central control bus for the clients, which are called minions. The minions connect back to the master.
Salt Minions

The minions (clients) connect back to the master, and typically run a daemon called salt-minion.
Execution Modules

Salt comes with a vast library of functions available for execution, called execution modules.
Salt States

Salt States, or the State System is the component of Salt made for configuration management.

- Human readable YAML format
- Additional functions or modules to ensure desired state
- Systems can have many assigned states
- Stored with a .SLS extension
- High State is a compilation of all assigned states
State Module

apache2:
  pkg.installed

httpd:
  service.running:
    - name: apache2
    - enable: True

SuSEfirewall2:
  service.dead

/srv/www/htdocs/index.html:
  file.managed:
    - source: salt://web/index.html
Execution Modules vs. State Modules

DO THIS NOW!

salt '*' user.add joe

Ensure that the system always looks like this

joe:
  user.present
Grains

- Grains are collected for the operating system, domain name, IP address, kernel, OS type, memory, and many other system properties
- Considered unsecured information
Pillar Data

• Pillar is an interface for Salt designed to offer global values that can be distributed to minions

• Considered secured information – such as database user, passwords
SUSE Manager 3 is a Salt Master!

- Salt master is part of the SUSE Manager infrastructure
- Set up for you by default
- Uses `/srv/salt` for user-based content
- Supported Salt minions –:
  - SUSE Linux Enterprise Server 11 SP3, SP4 (all architectures)
  - SUSE Linux Enterprise Server 12 GA, SP1, SP2, etc. (all architectures)
  - RHEL 6, 7 (x86, x86_64 only)
  - CentOS 6, 7 (x86, x86_64 only)
SUSE Manager and Salt Together
System Groups and States

Create a state
Assign state to group
Create a system group
Assign system to group
Apply state
How Does SUSE Manager Use Salt?

Salt Configuration

- Global from Manager RPMs
- Generated by Manager
- User-generated

States

- For organizations
- For groups
- For individual systems
Formulas with Forms
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: [https://github.com/saltstack-formulas](https://github.com/saltstack-formulas)
- Examples: postgresql, users, locale, timezone, apache, wordpress, …

We have extended them with **Forms** that you can fill in from the SUSE Manager UI, so you can customize them as needed!
Formulas are in Your SUSE Manager 3 Now!
SUSE Manager 3 Scalability and High Availability Goals

• Provide a “t-shirt size” approach (S/M/L/XL) to common tuning/configuration options
• Patch more systems faster
• Reduce memory and CPU usage per managed system
• Optimize for low network bandwidth/high network latency scenarios
• Documentation for active-active and active-passive clustered high availability setups
High Availability with SUSE Manager

• SUSE Manager Server and SUSE Manager Proxy can be set up as a two-node cluster using the SUSE Linux Enterprise High Availability Extension

• Pricing for this option is available on request and requires additional professional services
Managing non SUSE Linux Enterprise
Why Manage Red Hat / CentOS with SUSE Manager

• Unique offering that crosses enterprise distributions
• Like many organizations, you have SUSE and RH/CentOS
• Other offerings have fallen short
• Terrific value
• The promise of Salt...
What Does it Take?

Two supported environments

- Expanded support subscription from SUSE
- RH Subscription entitlements – SUSE supports the SUSE Manager functions only, not patch content

Patience and effort can produce an effective management platform
Resources
More Information

Additional resources can be found on our webpage at:
https://www.suse.com/products/suse-manager

Salt Project Community:
https://saltstack.com/community

SUSE Manager public wiki:
https://wiki.microfocus.com/index.php/SUSE_Manager

SUSE Manager 60 day trial download can be found at:
https://www.suse.com/download-linux

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