



运维社区-Saltstack

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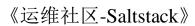
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1 Saltstack 概述

1.1 Saltstack 介绍

Saltstack 是一个新的基础设施管理工具。目前处于快速发展阶段,可以看做是强化的 Func+弱 化的 Puppet 的组合。间接的反映出了 saltstack 的两大功能: 远程执行和配置管理。

Saltstack 使用 Python 开发的,非常简单易用和轻量级的管理工具。由 Master 和 Minion 构成, 通过 ZeroMO 进行通信。

1.2 Saltstack 安装配置

对于 Centos 和 RedHat 用户,使用 yum 安装时最直接和快捷的。安装最新版本的 epel 仓库 [root@-node1 ~]# rpm -ivh http://mirrors.ustc.edu.cn/fedora/epel//6/x86 64/epel-release-6-8.noarch.rpm

1.2.1 Master 安装配置

服务器端安装

[root@master ~]#yum install -y salt-master

1.2.2 Minion 安装配置

[root@minion ~]# yum install –y salt-minion

客户端配置

[root@minion ~]# vim /etc/salt/minion

master: 192.168.0.11 (修改 master 为 master 的 I P地址)

id: (客户端的 id。默认不设置会取客户端的 FODN 主机名)

客户端启动

[root@minion ~]# /etc/init.d/salt-minion start

客户端日志

[root@minion ~]# tail -f /var/log/salt/minion



1.3 Master 与 Minion 的通信

1.3.1 Master 与 Minion 认证

1.minion 在第一次启动时,会在/etc/salt/pki/minion/(该路径在/etc/salt/minion 里面设置)下自动 生成 minion.pem(private key)和 minion.pub(public key),然后将 minion.pub 发送给 master。

2.master 在接收到 minion 的 public key 后,通过 salt-key 命令 accept minion public key,这样在 master 的/etc/salt/pki/master/minions 下的将会存放以 minion id 命名的 public key,然后 master 就能对 minion 发送指令了。

1.3.2 Master 与 Minion 的连接

Saltstack master 启动后默认监听 4505 和 4506 两个端口。4505(publish_port)为 salt 的消息发布系统,4506(ret_port)为 salt 客户端与服务端通信的端口。如果使用 lsof 查看 4505 端口,会发现所有的 Minion 在 4505 端口持续保持在 ESTABLISHED 状态。

[root@ops-node1 master]# lsof -i:4505

1.4 Master 端 Key 认证

在上面一个小节已经提到了 Master 与 Minion 的认证方式,具体的认证命令为 salt-key,常用的有如下命令。

- -a ACCEPT, --accept=ACCEPT Accept the following key
- -A, --accept-all Accept all pending keys
- -r REJECT, --reject=REJECT Reject the specified public key
- -R, --reject-all Reject all pending keys
- -d DELETE, --delete=DELETE Delete the named key
- -D, --delete-all Delete all keys
- 例: [root@master ~]# salt-key --accept=web-node1.unixhot.com

1.5 Salt 命令介绍

命令 功能描述



	•	
salt	Salt 主命令,比如执行命令模块	
satl-cp	复制文件到指定的系统上去	
salt-key	和 Minion 之间进行身份验证	
salt-master	Master 主守护进程,用于控制 Minion	
salt-run	前端命令执行	
salt-syndic	Salt syndic 守护进程,用于多级 salt-master 使用	
备注:具体命令的详细内容,可以查看 man 手册。		

2 Saltstack 命令执行

2.1 cmd. run

Saltstack 可以远程执行 shell 命令,使用 cmd.run。如:

```
IDLE
                  JCPU
    TTY
    pts/0
```

但是由于 cmd.run 可以执行所有的命令,所以不建议在生产环境中使用 cmd.run, 同时, saltstack 提 供了大量的命令模块可以使用。

2.2 内置执行模块

官方模块地址: http://docs.saltstack.com/ref/modules/all/index.html

下面介绍几个常用的内置命令模块

[root@master ~]# salt 'web-node1.unixhot.com' disk.usage

3 Saltstack 配置管理

Salt 使用 State 模块文件进行配置管理,使用 YAML 编写,以.sls 结尾。如果进行配置管理首先



需要再 Master 的配置文件中指定"file roots"的选项, Salt 支持环境的配置, 比如测试环境和生产环境 但是 base 环境是必须的。而且 Base 环境必须包含入口文件 top.sls。

3.1 Saltstack 配置管理流程

3.1.1 设置 file_roots

修改 Master 配置文件,指定 File_roots。

[root@openstack-controller-node1 ~]# vim /etc/salt/master

file_roots:

base:

- /etc/salt/base

test:

- /etc/salt/test

prod:

- /etc/salt/prod

dev:

-/etc/salt/dev

然后在/etc/salt 建立相应的目录。注意:修改完后重启/etc/init.d/salt-master restart

3.1.2 设置 top.sls

在 top.sls 入口文件设置环境(如生产、开发、测试对应不同的 minion 和模块)。

[root@openstack-controller-node1 ~]# vim /etc/salt/base/top.sls

base:

'ftest-node1.unixhot.com':

- init

解释: 所有的 Minion 均执行 base 目录下的 init.sls, 我需要再 init.sls 进行系统初始化的一些配置。

3.1.3 设置模块 init.sls



[root@openstack-controller-node1 ~]# vim /etc/salt/base/init.sls (注意空格和缩进)

/etc/resolv.conf:

file.managed:

- source: salt://files/resolv.conf

- mode: 644

- owner: root

- group: root

创建 file 目录,并将需要再各个 Minion 上生效的 resolv.conf 复制进行。

[root@openstack-controller-node1 ~]# mkdir /etc/salt/base/files

[root@openstack-controller-node1 ~]# cp /etc/resolv.conf /etc/salt/base/files

3.1.4 测试状态

对于大批量的配置管理,在执行前测试是必要的。Saltstack 提供了测试的选项。

[root@openstack-controller-node1 base]# salt 'ftest-node1.unixhot.com' state.highstate -v test=True

3.1.5 Master 主动推送状态

[root@openstack-controller-node1 base]# salt 'ftest-node1.unixhot.com' state.highstate

3.1.6 Minion 主动拉取状态

如果想让 Minion 定期的来 Master 拉取状态。Saltstack 也是支持的。

3.2 Saltstack 配置管理

Saltstack 使用 salt.states 进行状态配置管理,其中包含了多个模块,设置文件管理、用户和组管 理、权限管理、软件包管理、LVM管理、磁盘管理等等。官方的模块请参考:

http://docs.saltstack.com/py-modindex.html

下面将常见的应用例子列出来,仅供参考。



3.2.1 使用 saltstack 管理文件

在 4.1-4.5 章节的例子中, 其实已经讲解了 saltstack 对于文件的管理。

官方模块文档 http://docs.saltstack.com/ref/states/all/salt.states.file.html#module-salt.states.file

例:

/etc/resolv.conf:

file.managed:

- source: salt://files/resolv.conf

- mode: 644

- user: root

- group: root

3.2.2 使用 saltstack 管理软件包

Saltstack 管理软件包的写法几乎是最简单的,当然有复杂的写法,可以参考官方文档。官方文档:

http://docs.saltstack.com/ref/states/all/salt.states.pkg.html#module-salt.states.pkg

例: 使用 saltstack 在所有机器上安装并管理 tree 命令。

tree:

pkg. installed

还可以使用软件包列表的方式, 比如需要再优化安装的系统上增加一些管理命令。

initpkgs:

例:

pkg.installed:

- pkgs:
 - tree
 - lrzsz

3.2.3 使用 saltstack 管理用户和组

Saltstack 使用 salt.states.user 和 salt.states.group 来管理系统的用户和组。

官方文档: http://docs.saltstack.com/ref/states/all/salt.states.group.html#module-salt.states.group



jboss:

group.present:

- gid: 501

user.present:

- fullname: jboss

- password: 此处可以填写加密后的用户密码。即/etc/shadow 里面的 Hash 串。

- shell: /bin/bash

- home: /home/jboss

- uid: 501

- gid: 501

- groups:

- jboss

(注意:如果组不存在,执行会报错,所以本文先创建的 jboss 组,后创建了 Jboss 用户)

3.2.4 使用 saltstack 管理服务

对于服务、守护进程的启动、关闭和重启。可以使用 saltstack 顺利完成。

官方模块文档: http://docs.saltstack.com/ref/states/all/salt.states.service.html#module-salt.states.service 例:

3.2.5 使用 saltstack 管理计划任务

相信计划任务的管理是每个系统工程师都必须要面对,尤其面对服务器数量在 100 台以上,没有统一的计划任务管理将会一个非常混乱的状态。

4 Salt Stack Pillar



5 Salt Stack Grians

6 Salt Stack Returners

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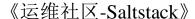
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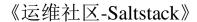
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