

Ansible VM Bootstrapper

VM System Orchestration

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\$ whoami

Toshaan Bharvani - VanTosh

- From Antwerp, Belgium
- Self-employed engineer/trainer/consultant
<http://www.vantosh.com>
- Involved with Enterprise OS : PEL, RHEL, CentOS, AIX, BSD, SLES, ...
- Likes to keep everything secure : SELinux, WebSec, ...
- Lives in a virtual world : KVM, Xen, LXC, PowerVM, z/VM, ...
- Likes automation : Ansible, Puppet
- Works on both hardware and software side
- Wants to take over the world
- Twitter : [@toshywoshy](#)
- Blog : <http://www.toshaan.com>

Table of contents

What is Ansible?

Ansible for
Virtual Machines

VMInstaller
internals

Practicle Ansible
VMInstaller

Conclusion

The End

- 1 What is Ansible?
- 2 Ansible for Virtual Machines
- 3 VMInstaller internals
- 4 Practicle Ansible VMInstaller
- 5 Conclusion

What is Ansible?

Ansible for
Virtual Machines

VMInstaller
internals

Practice Ansible
VMInstaller

Conclusion

The End

1

What is Ansible?

Introducing



“Ansible is a fictional machine capable of instantaneous or superluminal communication. Typically it is depicted as a lunch-box-sized object with some combination of microphone, speaker, keyboard and display. It can send and receive messages to and from a corresponding device over any distance whatsoever with no delay.”¹

- Configuration Management Tool
- System Orchestration Tool
- Remote Execution/Deployment Tool
- ...

¹Rocannon's World - Ursula K. Le Guin

An overview

What is Ansible?

Ansible for
Virtual Machines

VMInstaller
internals

Practicle Ansible
VMInstaller

Conclusion

The End

- Python2 based
- Server based, agentless²
- uses SSH (can use accelerated mode uses a daemon and port)
- host information in flat files, CMDB, scripts, ...
- executes a task on the host side
- Playbook : combination of tasks with meta information
 - YAML
 - JSON
- Templates : Jinja2
- works where Python2 works³

² Abstraction of SSH and in certain setup an agent might be required, but by default it is not necessary

³ Ansible can actually run without Python on the remote host, however it is not fully supported

Normal Adhoc Mode

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What is Ansible?

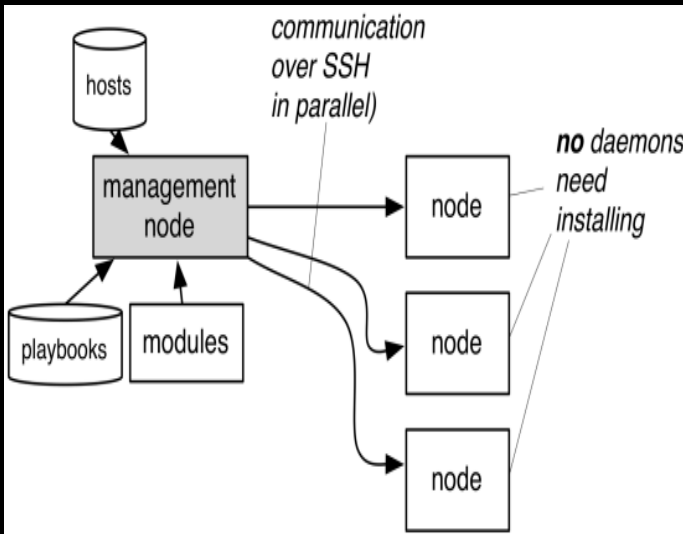
Ansible for
Virtual Machines

VMInstaller
internals

Practicle Ansible
VMInstaller

Conclusion

The End



Delegation Mode

What is Ansible?

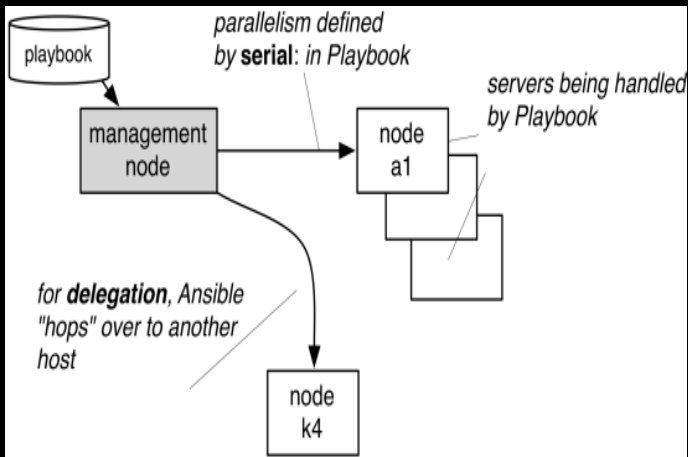
Ansible for
Virtual Machines

VMInstaller
internals

Practicle Ansible
VMInstaller

Conclusion

The End



2

Ansible for Virtual Machines

Inventory Overview

What is Ansible?

Ansible for
Virtual Machines

VMInstaller
internals

Practice Ansible
VMInstaller

Conclusion

The End

- Hypervisors
 - Used to connect to the hypervisor
 - Used to get access to libvirt
- Virtual Machines
 - Hypervisor selection
 - Define hypervisor resources
 - Define virtual resources
- Multi Grouping
 - Datacenter resources
 - Local mirror overrides
 - Cluster settings

Inventory Definitions

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Ansible for
Virtual Machines

VMInstaller
internals

Practice Ansible
VMInstaller

Conclusion

The End

- Flat file based (git)
- CMDB based
- Key Value based (YAML/JSON)
 - "virtualcpus: 16"
 - "virtualsockets: 2"
 - "virtualcores: 4"
 - "virtualthreads: 8"
- Variables need to be set correctly per distribution
- Currently no list of variables (required or optional)

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What is Ansible?

Ansible for
Virtual Machines

**VMInstaller
internals**

Practice Ansible
VMInstaller

Conclusion

The End

3

VMInstaller internals

Mgmt Host Requirements

- Linux machine with Ansible
- Hypervisors already set up⁴
- qemu-img module⁵
- Ansible directory hierachy
- Ansible role VMINSTALLER
- SSH connectivity

⁴The hypervisor installation is not supported with this module

⁵module not in core or extras, available at :

<https://github.com/toshywoshy/ansible-module-library>

Architectures

What is Ansible?

Ansible for
Virtual Machines

VMInstaller
internals

Practice Ansible
VMInstaller

Conclusion

The End

The following architectures are supported for both hypervisors and virtual machines as long as libvirt/qemu is available.

- x86 based machine
 - x86_64/amd64
 - i386/i686
- 64-bit PowerPC based machines⁶
 - Big Endian : ppc64, powerpc
 - Little Endian ppc64le, ppc64el

⁶Hypervisors require : OPAL based power7/power8 machines or PowerVM with libvirt support

Distributions (1)

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Ansible for
Virtual Machines

**VMInstaller
internals**

Practice Ansible
VMInstaller

Conclusion

The End

- CentOS : CentOS6, CentOS7
- Red Hat : RHEL6, RHEL7
- PowerEL : PEL7
- Scientific Linux : SL6, SL7
- Debian : debian7, debian8
- MS Windows : WinSrv2008(r2), WinSrv2012(r2)

Distributions (2)

What is Ansible?

Ansible for
Virtual Machines

**VMInstaller
internals**

Practice Ansible
VMInstaller

Conclusion

The End

- OpenBSD : OpenBSD 5.7, OpenBSD5.8
- FreeBSD : FreeBSD 10.x
- Ubuntu : Ubuntu 14.04LTS, Ubuntu 16.04LTS
- Fedora
- MS Windows : Win7Pro, Win10Pro

4

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Process

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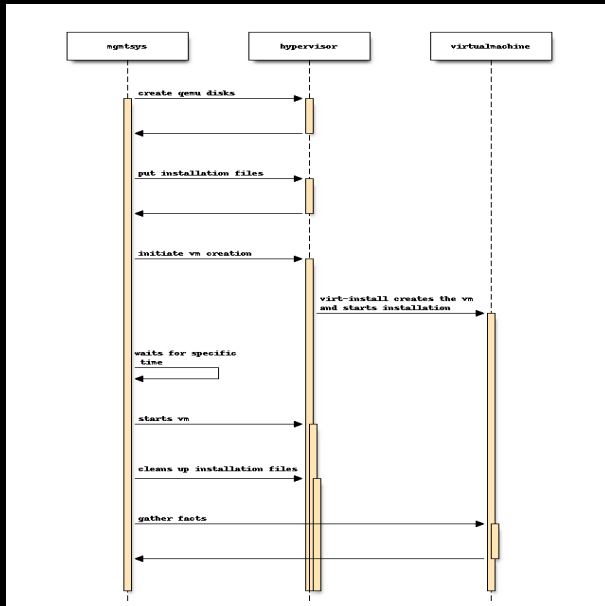
Ansible for
Virtual Machines

VMInstaller
internals

Practicle Ansible
VMInstaller

Conclusion

The End



Demo

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Ansible for
Virtual Machines

VMInstaller
internals

Practicle Ansible
VMInstaller

Conclusion

The End

```
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( DEMO )  
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 \_____/ = (_____/
```

```
[ansible@localhost]~>
```

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What is Ansible?

Ansible for
Virtual Machines

VMInstaller
internals

Practice Ansible
VMInstaller

Conclusion

The End

5

Conclusion

Automation **MUST** [RFC2119] be easy



VM installation with minimum effort

More information

What is Ansible?

Ansible for
Virtual Machines

VMInstaller
internals

Practice Ansible
VMInstaller

Conclusion

The End

- Ansible Role VMINSTALLER : <https://github.com/toshywoshy/ansible-role-vminstaller>
- Ansible Qemu-img module : <https://github.com/toshywoshy/ansible-module-library>
- Ansible : <http://www.ansible.com/>
- Documentation : <http://docs.ansible.com/>
- Github : <https://github.com/ansible/ansible>

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Thank You



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