

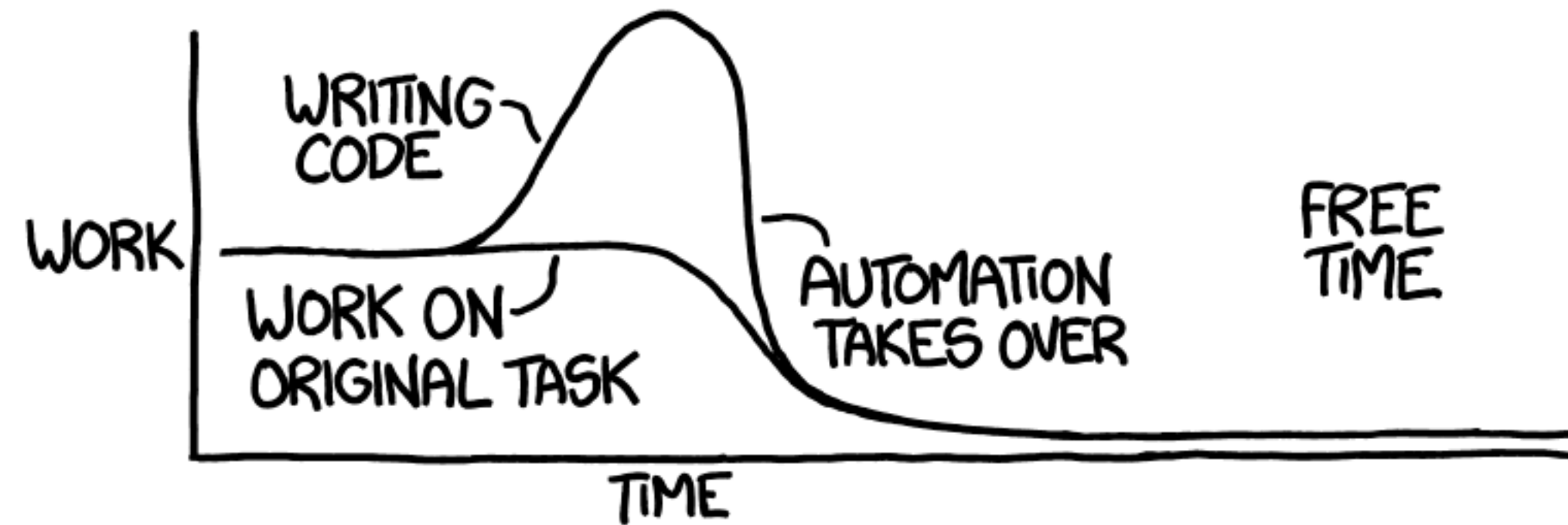
Ansible und AWX - Langweilige Tasks automatisieren

ampoff / steffen - Chaostreff Ludwigsburg

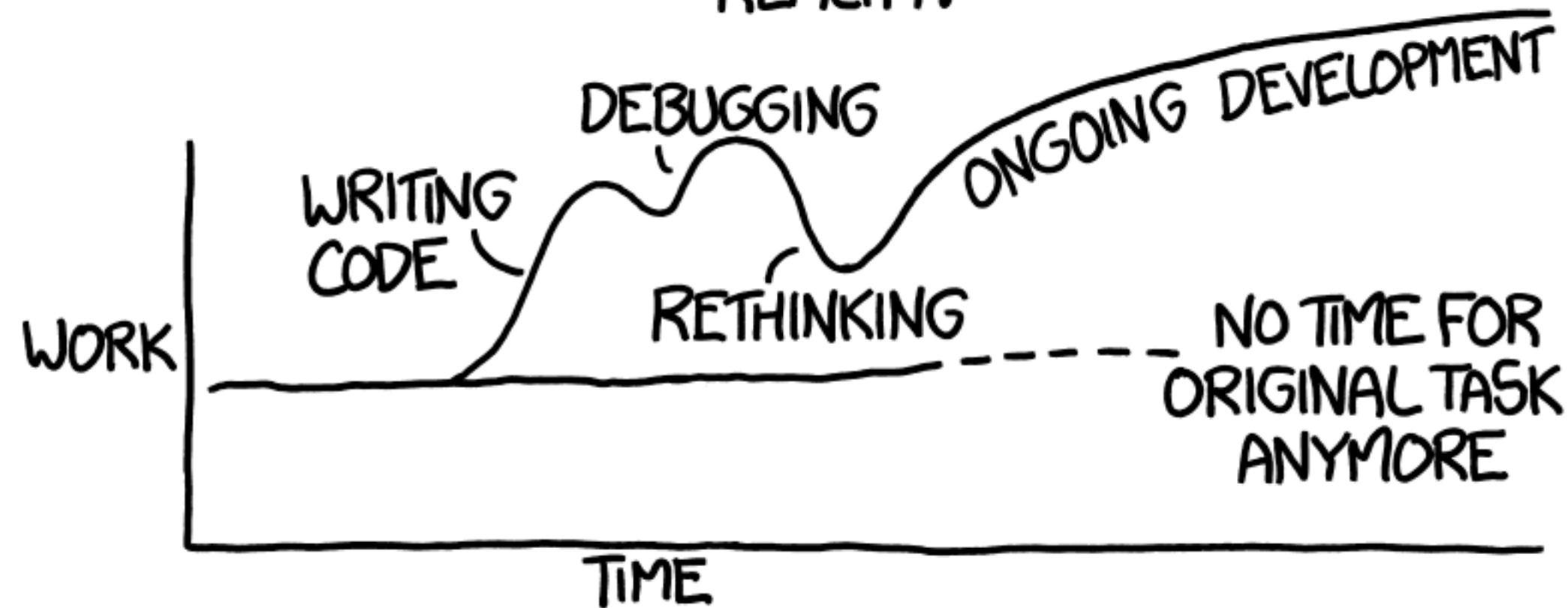
21.07.2020

"I SPEND A LOT OF TIME ON THIS TASK.
I SHOULD WRITE A PROGRAM AUTOMATING IT!"

THEORY:



REALITY:





Orchestrierung - Konfiguration -
Administration

- ❖ Seit 2012
- ❖ GPL
- ❖ Ansible Inc.
- ❖ 2015 von RedHat übernommen

<https://www.ansible.com/>



Web-basiertes User Interface, REST
API und Task Engine für Ansible

- ❖ Seit ~2017
- ❖ GPL
- ❖ Ansible Inc.
- ❖ Quelloffener Upstream von RH
Tower

<https://github.com/ansible/awx>

Was kann man damit machen?

Von einem zentralen System aus viele Systeme administrieren

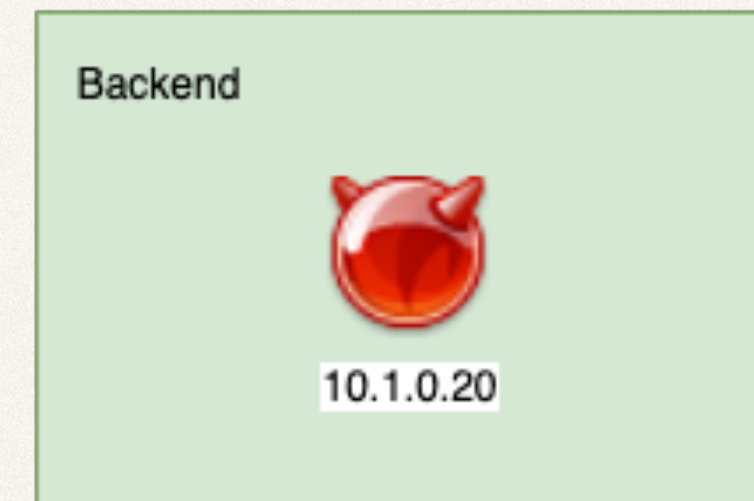
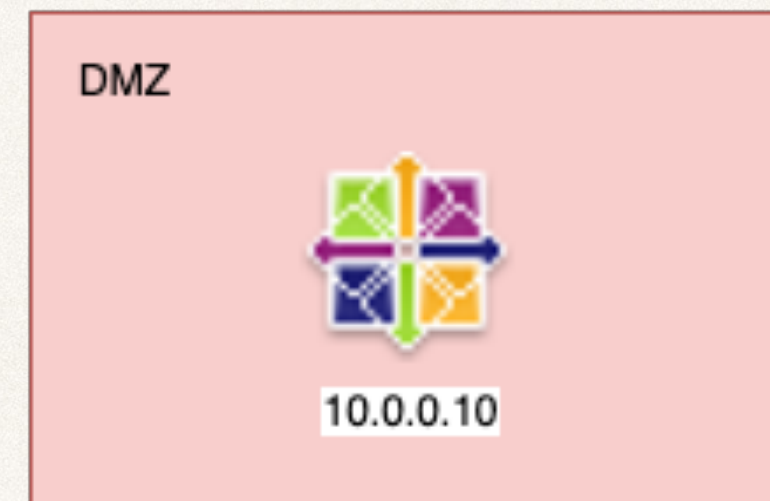
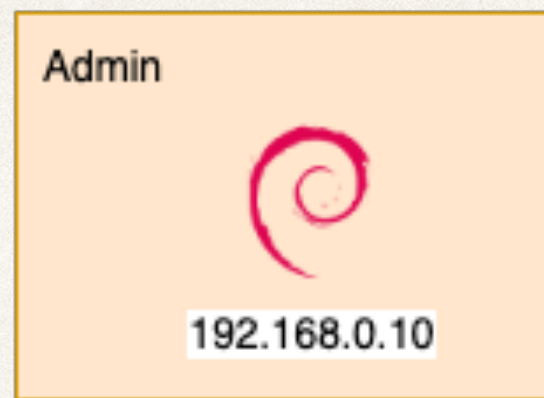
Remote Befehle ausführen

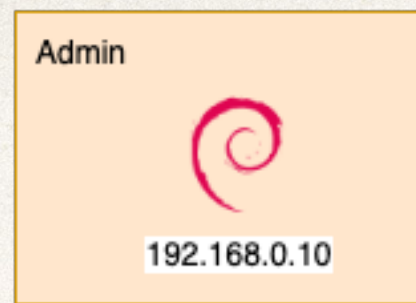
Prozesse abbilden

...

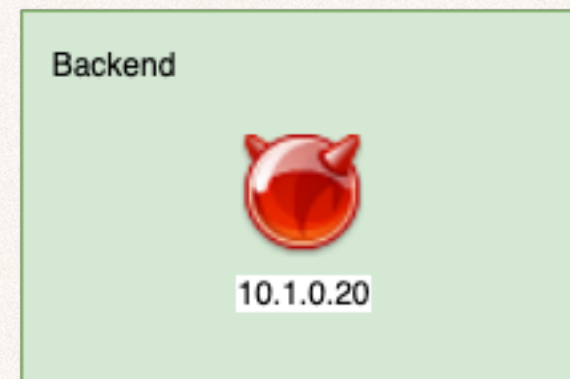
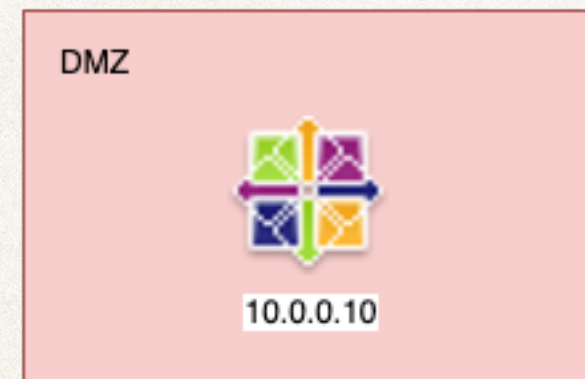
Was kann man damit machen? Ein Beispiel:

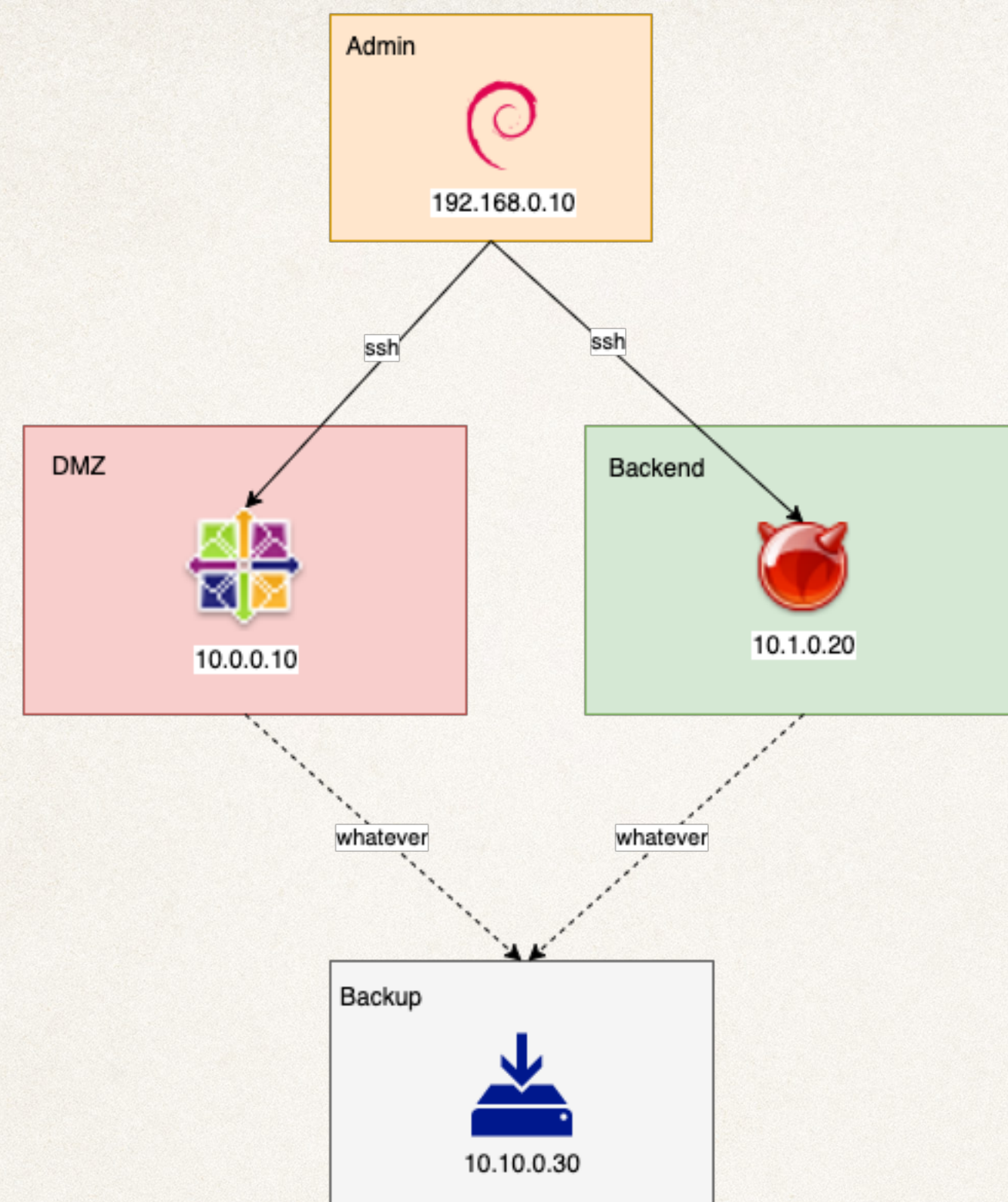
Täglich ein Backup von zwei Servern, CentOS und FreeBSD, erstellen,
anschließend ein Update durchführen und
eine E-Mail mit dem Ergebnis verschicken.



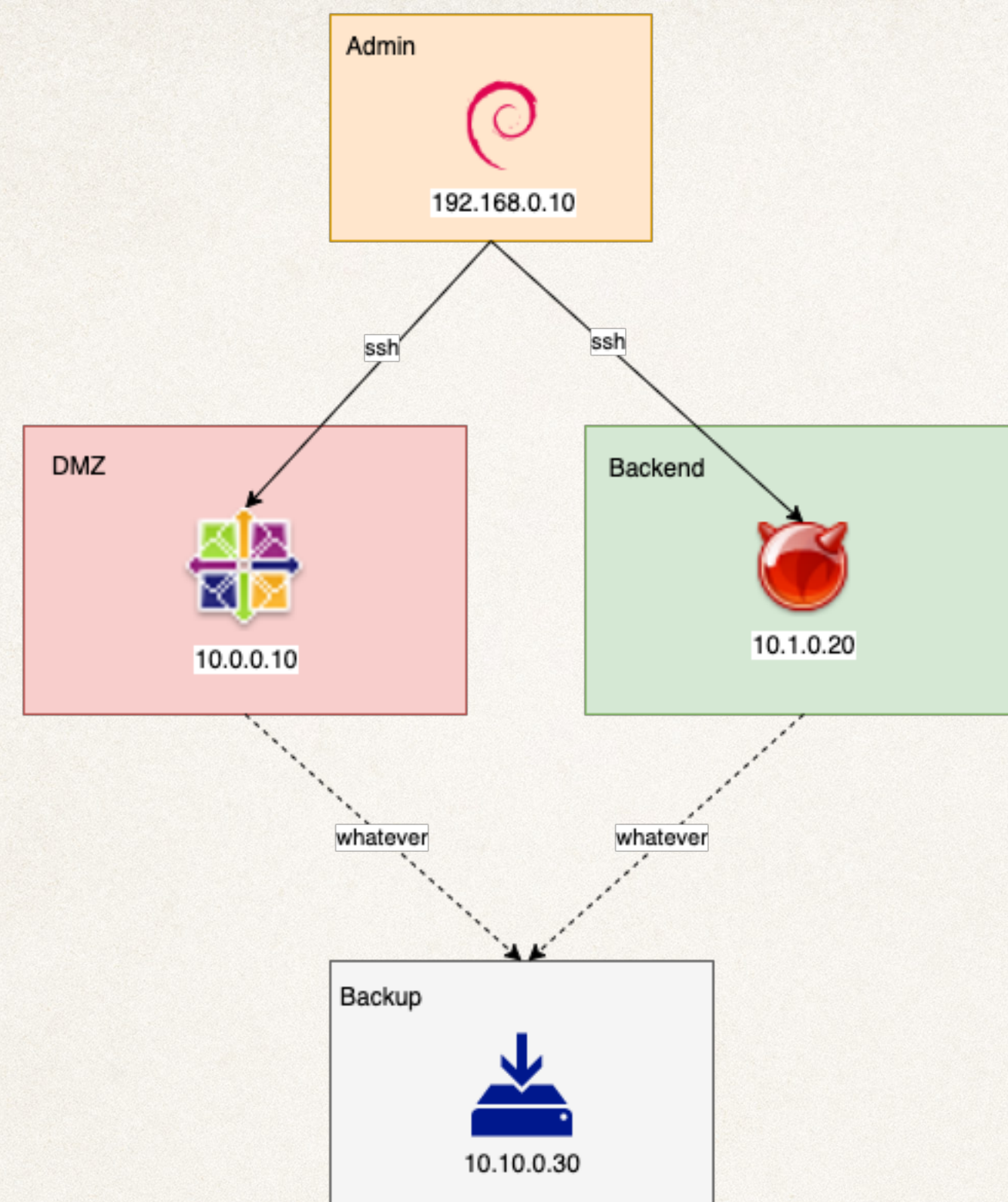


Ansible arbeitet mit ssh, Python und YAML
und benötigt keine Node-Komponente und muss
nur auf einem zentralen System -
im Beispiel 192.168.0.10 - installiert sein.





Ansible arbeitet mit ssh, Python und YAML



Ansible arbeitet mit ssh, Python und YAML

ssh-Vorbereitung auf 192.168.0.10

~/.ssh/config

Host dmz

Hostname 10.0.0.10

User ansible

IdentityFile ~/.ssh/privkey

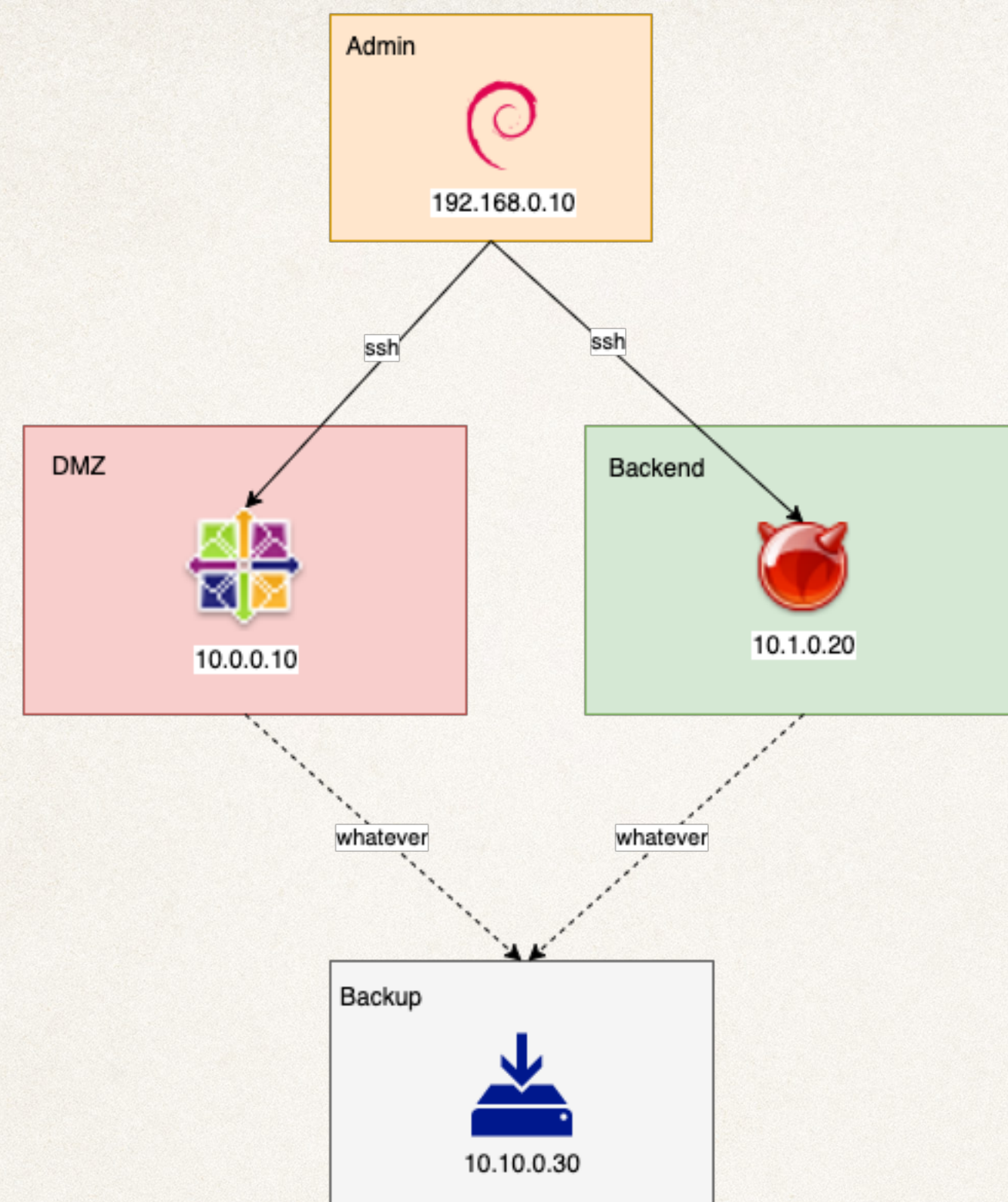
~/.ssh/config

Host backend

Hostname 10.1.0.20

User ansible

IdentityFile ~/.ssh/privkey



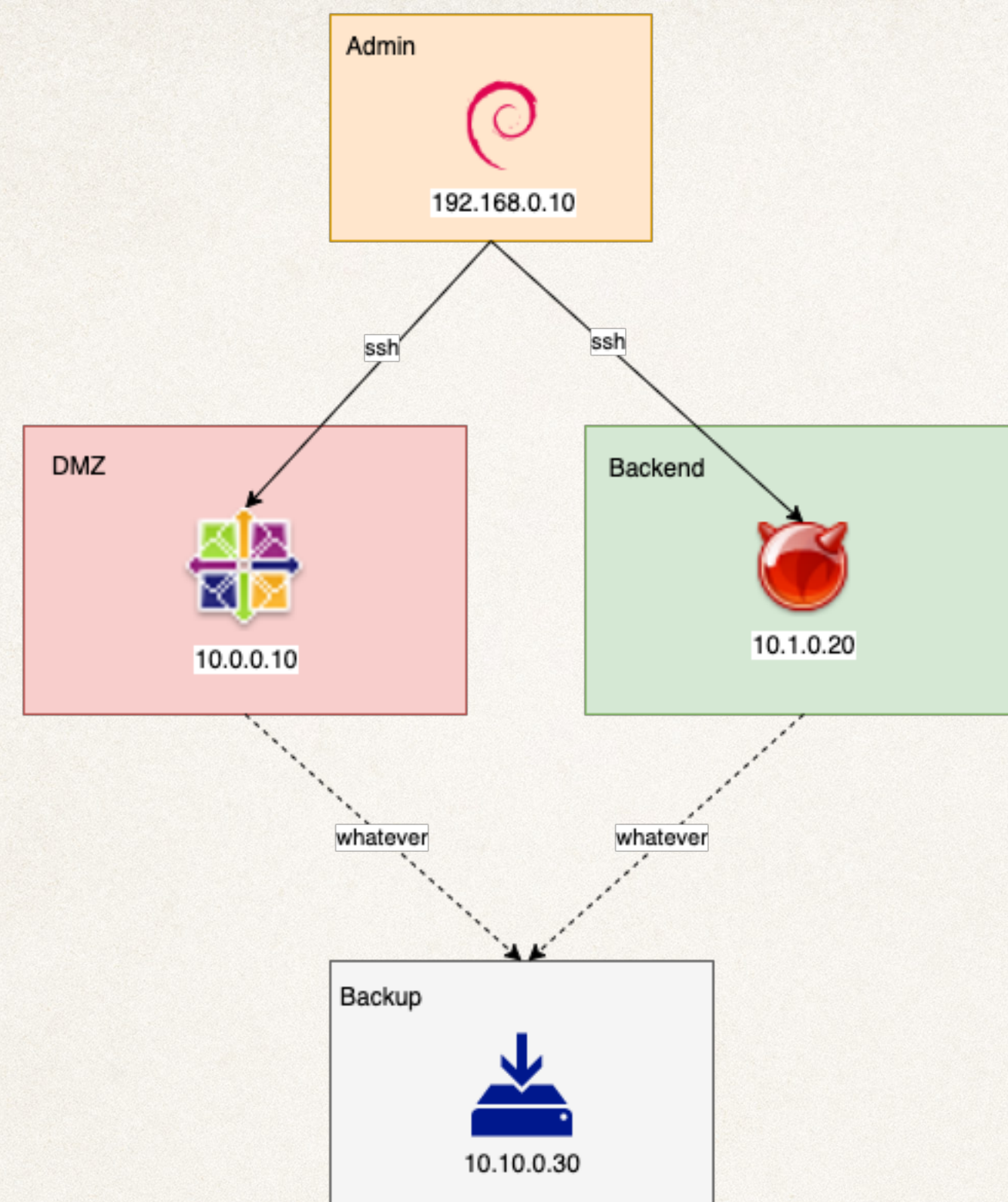
Ansible arbeitet mit ssh, Python und YAML

ssh-Vorbereitungen auf 10.0.0.10 und 10.1.0.20

```
$ adduser ansible && usermod -aG wheel ansible  
$ visudo {%wheel  ALL=(ALL)      NOPASSWD: ALL}
```

~/.ssh/authorized_keys

```
ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAQDRLHU  
e5c0EIEuhg+hTmYaS8Rz5qndCIp8AY42ABv2tD4Glohxe+  
e6dkGCk7
```

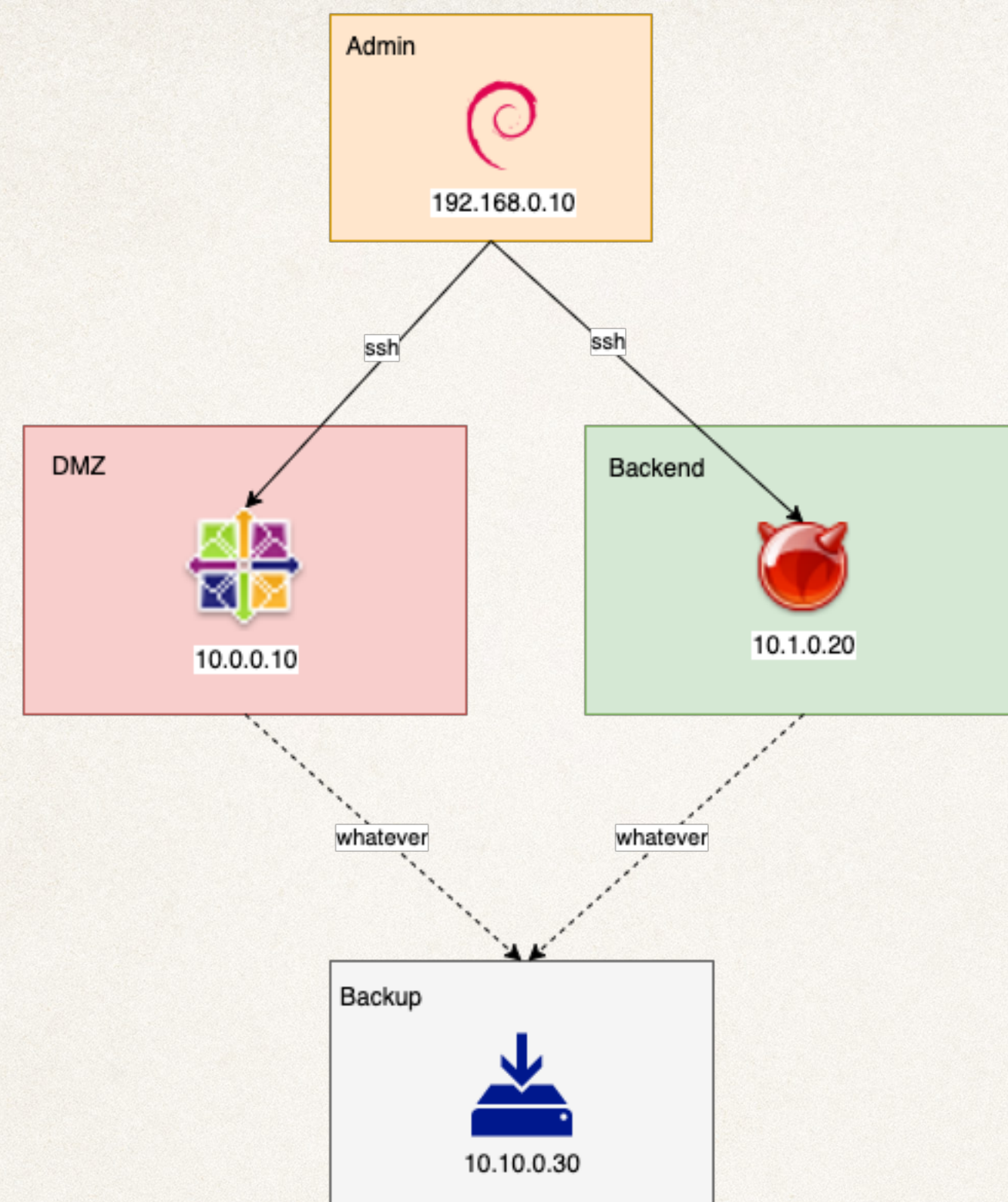



Inventory file auf 192.168.0.10

/etc/ansible/inventory

10.0.0.10

[backend]
10.1.0.20



Inventory file auf 192.168.0.10

/etc/ansible/inventory

```
10.0.0.10
```

```
sftp[1:50].fuuuuu.org
```

```
[backend]
```

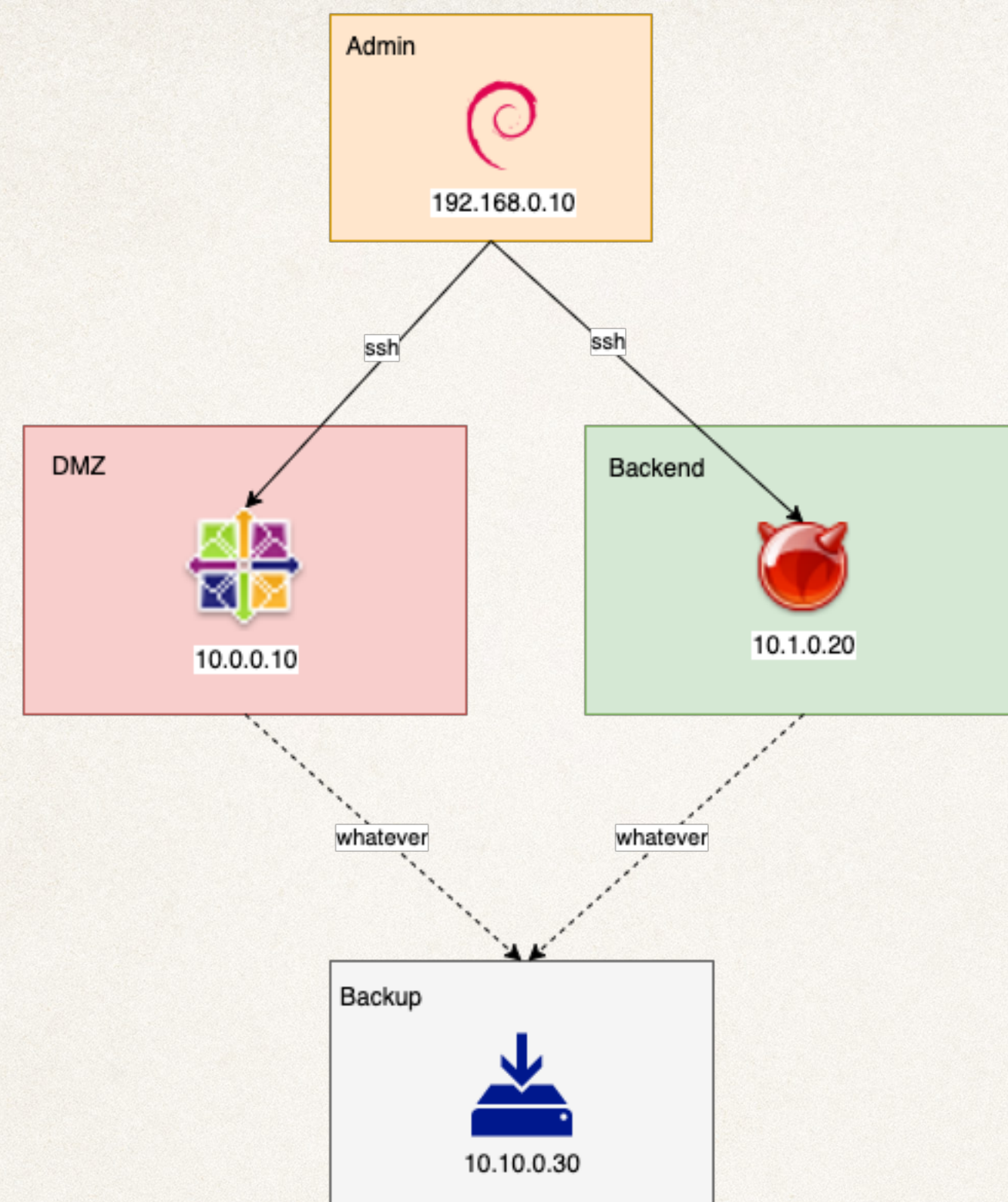
```
10.1.0.20
```

```
[rwest]
```

```
10.1.0.20
```

```
[backend:children]
```

```
rwest
```

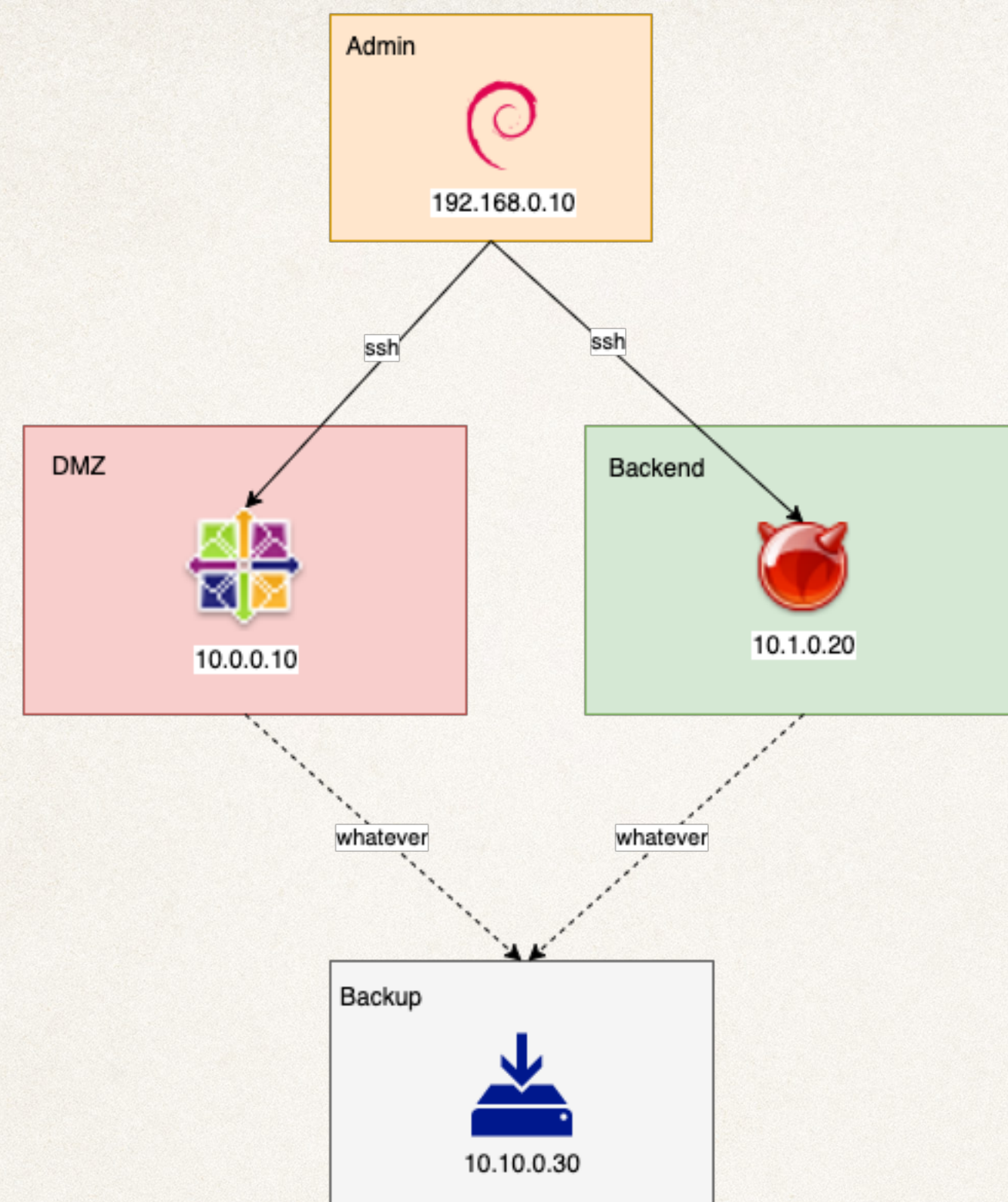



Ad-hoc - Kommandos

```
$ ansible FILTER [-m MODUL] -a OPTIONS
```

```
$ ansible localhost -a "date"
```

```
localhost | CHANGED | rc=0 >>  
So 14. Jun 11:44:16 CEST 2020
```

Ad-hoc - Kommandos

```
$ ansible FILTER [-m MODUL] -a OPTIONS
```

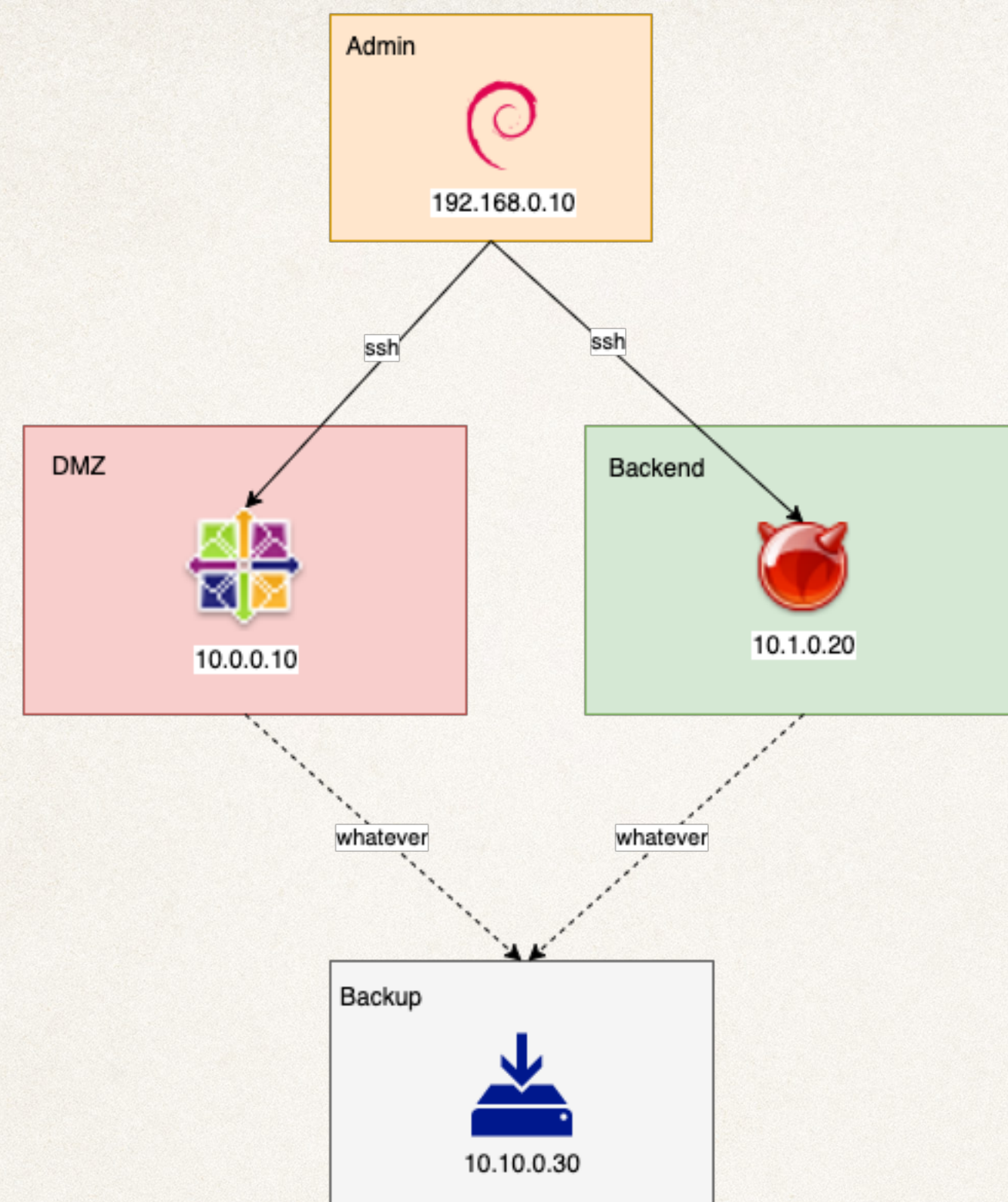
```
$ ansible localhost -a "date"
```

```
localhost | CHANGED | rc=0 >>  
So 14. Jun 11:44:16 CEST 2020
```

```
$ ansible all -a "date"
```

```
10.0.0.10 | CHANGED | rc=0 >>  
So 14. Jun 11:44:16 CEST 2020
```

```
10.1.0.20 | CHANGED | rc=0 >>  
So 14. Jun 11:44:17 CEST 2020
```

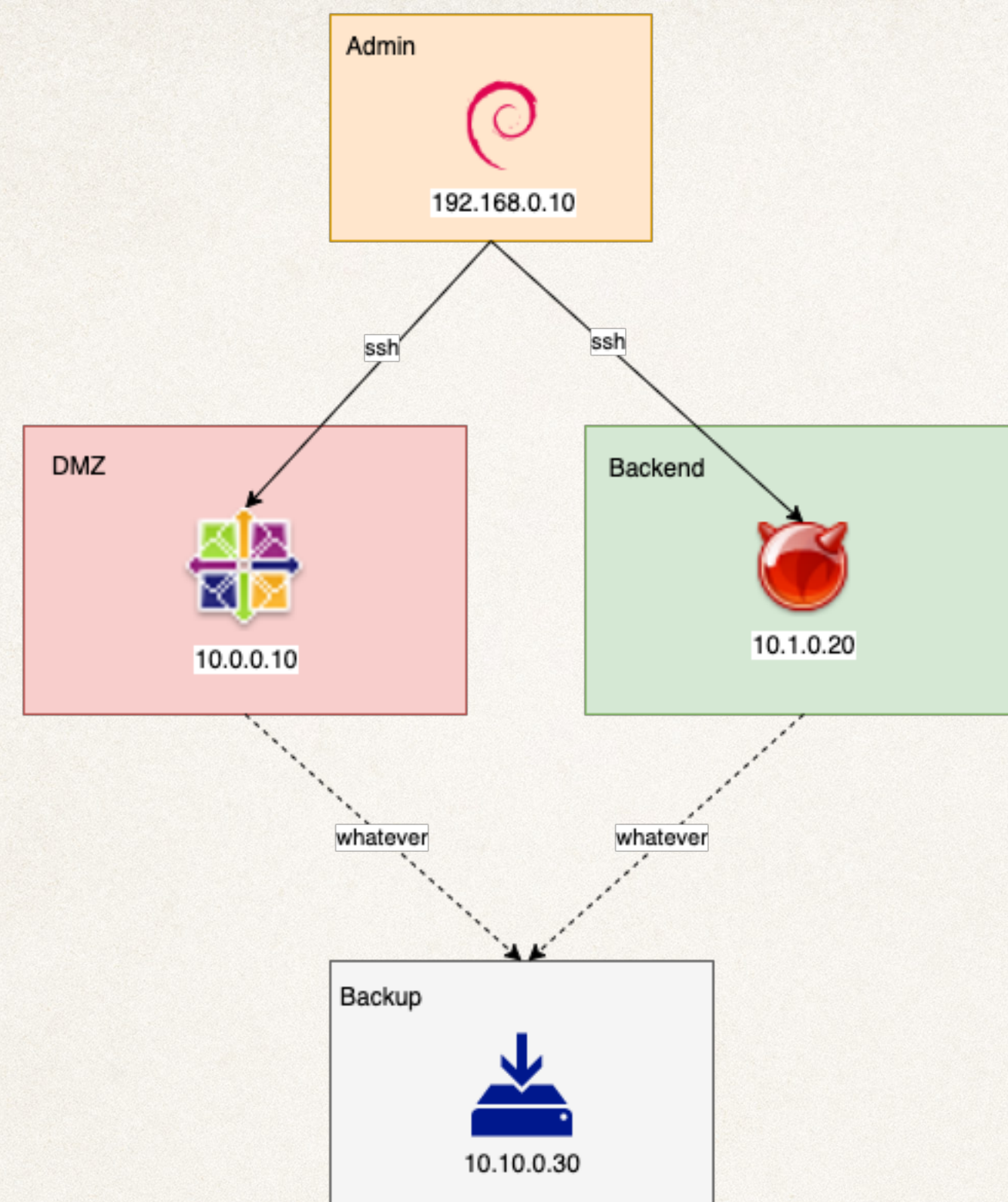
Module

```
$ ansible FILTER [-m MODUL] -a OPTIONS
```

```
$ ansible localhost -m shell -a "ls > test.txt"
```

```
localhost | CHANGED | rc=0 >>
```

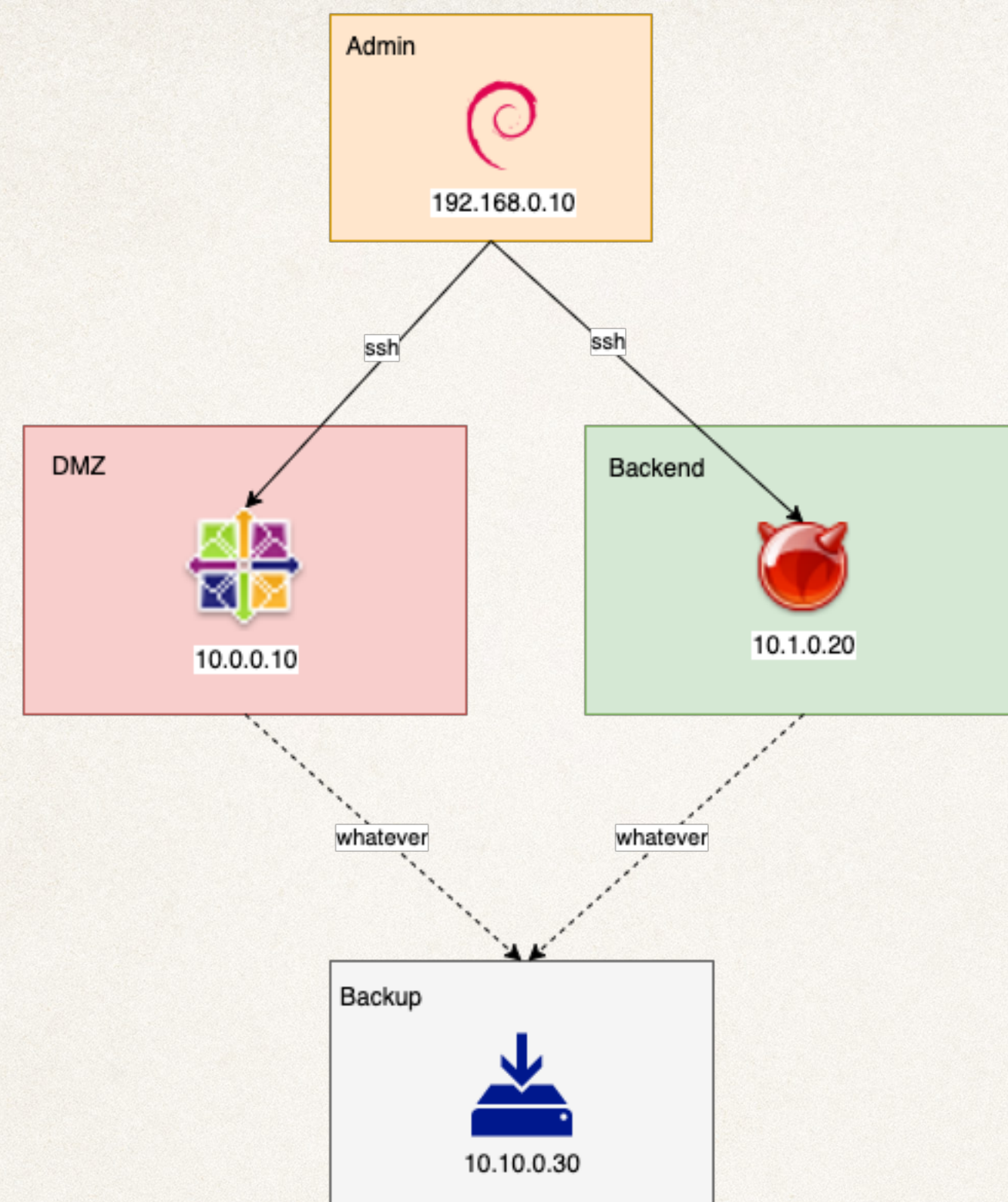
```
$ ansible all -m fetch -a "src=/etc/t.conf dest=/backup/t.conf"
```

Playbooks

Als yaml-File auf 192.168.0.10
/somewhere/awx/playbooks/startmaria.yml

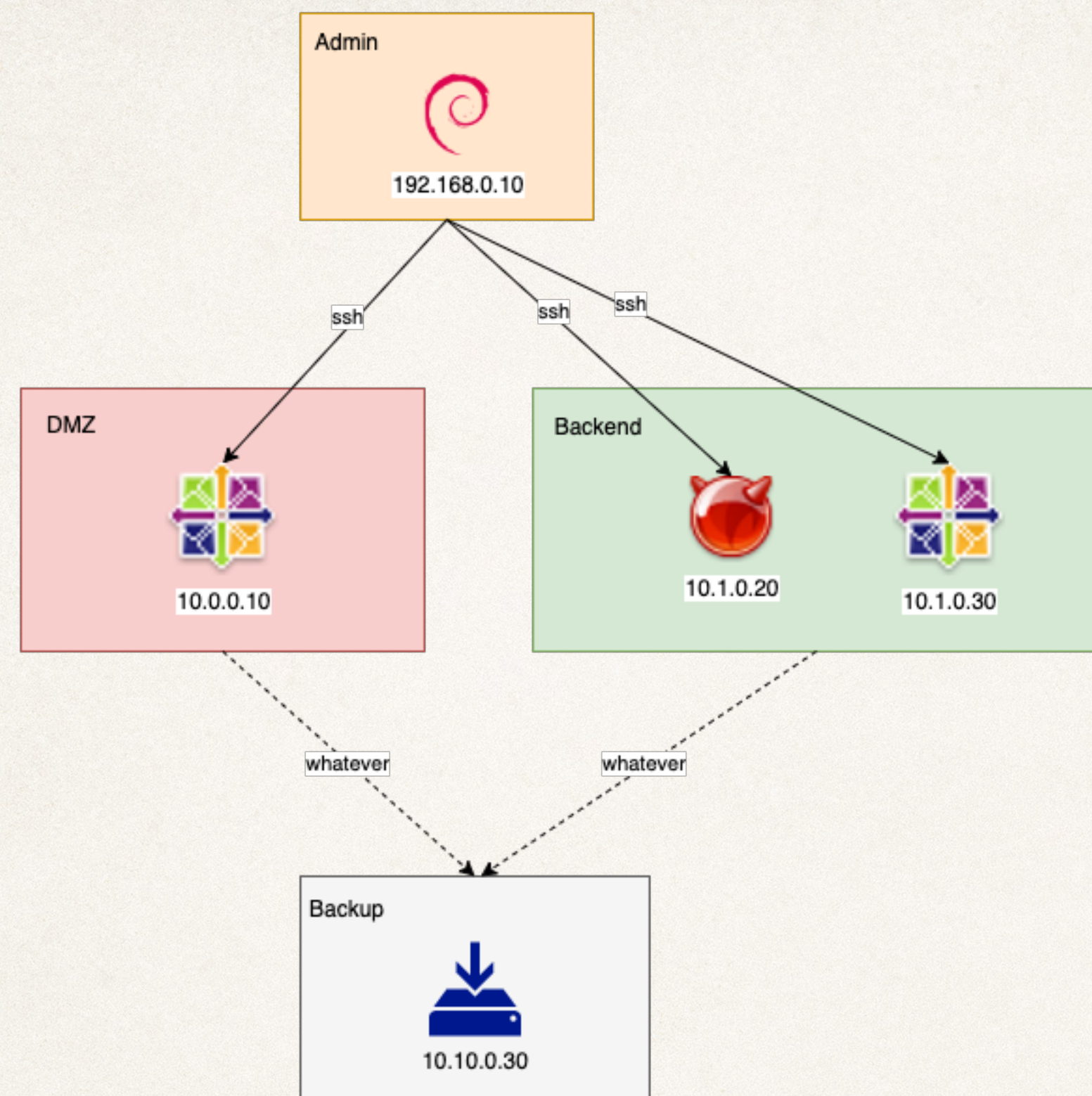
- hosts: backend
- tasks:
 - name: start mariadb
 - service:
 - name: mariadb
 - state: started
 - become: yes



Playbooks

Als yaml-File auf 192.168.0.10

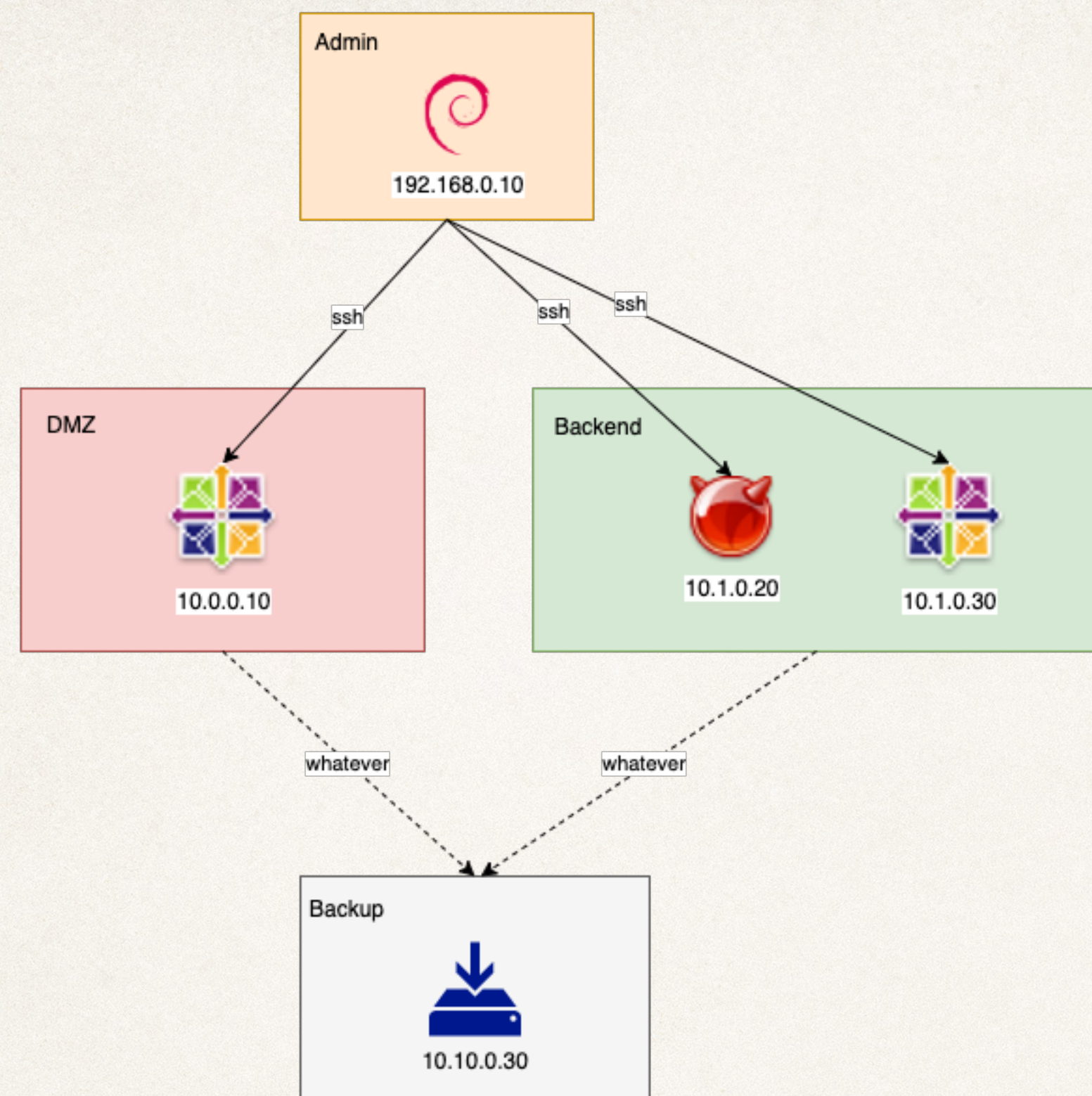
```
$ ansible-playbook startmaria.yml
```

Playbooks

Als yaml-File auf 192.168.0.10
/somewhere/awx/playbooks/startmaria.yml

- hosts: backend
- tasks:
 - name: start mariadb
 - service:
 - name: mariadb
 - state: started
 - become: yes



Playbooks

/somewhere/awx/playbooks/stopstartmaria.yml

- hosts: backend
- tasks:
 - name: stop mariadb
service:
 - name: mariadb
 - state: stopped
 - become: yes
 - name: copy config
copy:
 - src: /var/store/app01/my.conf
 - dest: /etc/my.conf

Facts

Ansible sammelt Informationen zu allen verwalteten System als json-Facts.

Facts

Ansible sammelt Informationen zu allen verwalteten System als json-Facts.

z.B. setup-Modul

```
$ ansible dmz -m setup
```

```
localhost | SUCCESS => {
  "ansible_facts": {
    "ansible_all_ipv4_addresses": [
      "172.17.0.1",
      "172.19.0.1",
      "172.18.0.1",
      "172.21.0.1",
      "172.20.0.1",
      „192.168.0.10“

    "ansible_architecture": "x86_64",
    "ansible_bios_date": "10/16/2012",
    "ansible_bios_version": „9HKT54AUS“,
    "ansible_br_16ceb90e8f84": {
      "active": false,
      "device": "br-16ceb90e8f84",
      "features": {
        "esp_hw_offload": "off [fixed]",
        "esp_tx_csum_hw_offload": "off [fixed]",

    "vgs": {

    "centos": {
      "num_lvs": "3",
      "block_total": 13100800,
      "block_used": 5002141,
      "device": "/dev/mapper/centos-root",
      "fstype": "xfs",
      "inode_available": 25520635,
```


AWX

Web-basiertes User Interface, REST API und Task Engine für Ansible



- ☰
- VIEWS
- Dashboard
- Jobs
- Schedules
- My View
- RESOURCES
- Templates
- Credentials
- Projects
- Inventories
- Inventory Scripts
- ACCESS
- Organizations
- Users
- Teams
- ADMINISTRATION
- Credential Types
- Notifications
- Management Jobs
- Instance Groups
- Applications
- Settings

DASHBOARD



5

HOSTS

0

FAILED HOSTS

1

INVENTORIES

0

INVENTORY SYNC FAILURES

5

PROJECTS

0

PROJECT SYNC FAILURES

JOB STATUS

PERIOD

PAST MONTH

 JOB TYPE

ALL

 VIEW

ALL



RECENTLY USED TEMPLATES

[VIEW ALL](#)

NAME	ACTIVITY	ACTIONS
Backup_Update_All		
Update		
Backup LZA		
Backup Bitwarden		
Create ZFS snapshot		

RECENT JOB RUNS

[VIEW ALL](#)

NAME	TIME
Backup_Update_All	14.6.2020 02:19:00
Update	14.6.2020 02:18:59
Backup LZA	14.6.2020 02:17:51
Backup Bitwarden	14.6.2020 02:03:17
Backup_Update_All	13.6.2020 02:23:12



- ☰
- VIEWS
- Dashboard

Jobs

Schedules

My View
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Users

Teams
- ADMINISTRATION
- Credential Types

Notifications

Management Jobs

Instance Groups

Applications

Settings

All

- DETAILS
- PERMISSIONS
- GROUPS
- HOSTS
- SOURCES
- COMPLETED JOBS

SEARCH

Q

KEY

RUN COMMANDS

+

HOSTS ^		DESCRIPTION ⚡	RELATED GROUPS	ACTIONS	
☐	✓	192.168. [REDACTED]	nemesis	internal ✕	
☐	✓	192.168. [REDACTED]	jupiter	internal ✕	
☐	✓	192.168. [REDACTED]	pizza	internal ✕	
☐	✓	[REDACTED]	[REDACTED]	external ✕	
☐	✓	[REDACTED]	[REDACTED]	external ✕	

ITEMS 1 - 5

- INVENTORIES
- HOSTS

SEARCH

Q

KEY

+

NAME ^	TYPE ^	ORGANIZATION ^	ACTIONS
All	Inventory	Default	

ITEMS 1 - 1

VIEW

- Dashboard
- Jobs
- Schedules
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- RESOURCES
- Templates
- Credentials

PROJECTS

- Inventories
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- ADMINISTRATION
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- Settings

Create ZFS Snapshot

DETAILS

PERMISSIONS

NOTIFICATIONS

JOB TEMPLATES

SCHEDULES

* NAME

Create ZFS Snapshot

DESCRIPTION

* ORGANIZATION ?

Q

Default

* SCM TYPE

Git

SOURCE DETAILS

* SCM URL ?

http://[REDACTED]/steffen/awx

SCM CREDENTIAL

Q

SCM BRANCH/TAG/COMMIT ?

SCM REFSPEC ?

SCM UPDATE OPTIONS

☐ CLEAN ?

☐ DELETE ON UPDATE ?

☐ UPDATE REVISION ON LAUNCH ?

☐ ALLOW BRANCH OVERRIDE ?

CANCEL

SAVE

PROJECTS 5

SEARCH

Q

KEY

+

		Compact	Expanded	Name (Ascending) ▾
●	Backup Bitwarden	GIT		↺
●	Backup LZA	GIT		↺
●	Create ZFS Snapshot	GIT		↺
●	Poweroff	GIT		↺
●	Update	GIT		↺

ITEMS 1 - 1



VIEWS

- Dashboard
- Jobs
- Schedules
- My View

RESOURCES

- Templates
- Credentials
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- Inventory Scripts

ACCESS

- Organizations
- Users
- Teams

ADMINISTRATION

- Credential Types
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- Applications
- Settings

TEMPLATES



TEMPLATES 6

SEARCH



KEY



Compact

Expanded

Name (Ascending) ▾

Backup Bitwarden

Job Template



Backup LZA

Job Template



Backup_Update_All

Workflow Template



Start a job using this template



Create ZFS snapshot

Job Template



Poweroff

Job Template

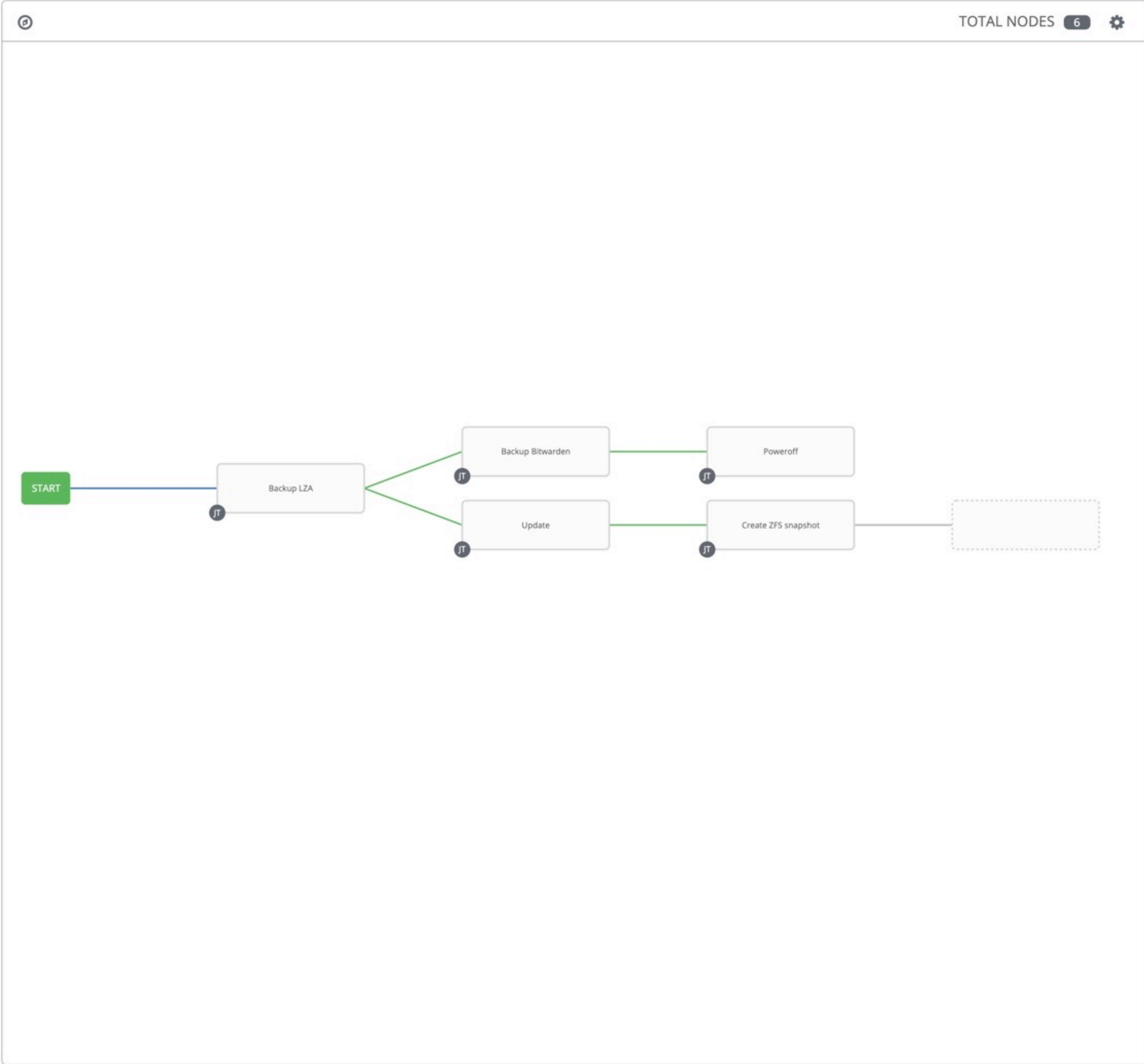


Update

Job Template



ITEMS 1 - 6



ADD A NODE

Template

SEARCH

KEY

- ☐ Backup Bitwarden
- ☐ Backup LZA
- ☐ Backup_Update_All

Workflow
- ☐ chaoslb

Workflow
- ☐ Create ZFS snapshot
- ☐ Poweroff
- ☐ Update

ITEMS 1 - 7

* RUN

On Success

* CONVERGENCE

Any

The inventory of this node will not be overridden by the parent workflow inventory.

CANCEL

SELECT



VIEWS

Dashboard

Jobs

Schedules

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Inventory Scripts

ACCESS

Organizations

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Teams

ADMINISTRATION

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Instance Groups

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Settings



CREATE SCHEDULE



* NAME

Schedule name

* START DATE

15.6.2020

* START TIME (HH24:MM:SS)

0 : 0 : 0

* LOCAL TIME ZONE

Europe/Berlin

* REPEAT FREQUENCY

None (run once)

None (run once)

Minute

Hour

Day

Week

Month

CANCEL

SAVE

chaoslb

DETAILS

PERMISSIONS

NOTIFICATIONS

COMPLETED JOBS



PLEASE ADD ITEMS TO THIS LIST

TEMPLATES 7

SEARCH



KEY



Compact

Expanded

Name (Ascending)

Backup Bitwarden

Job Template



Backup LZA

Job Template



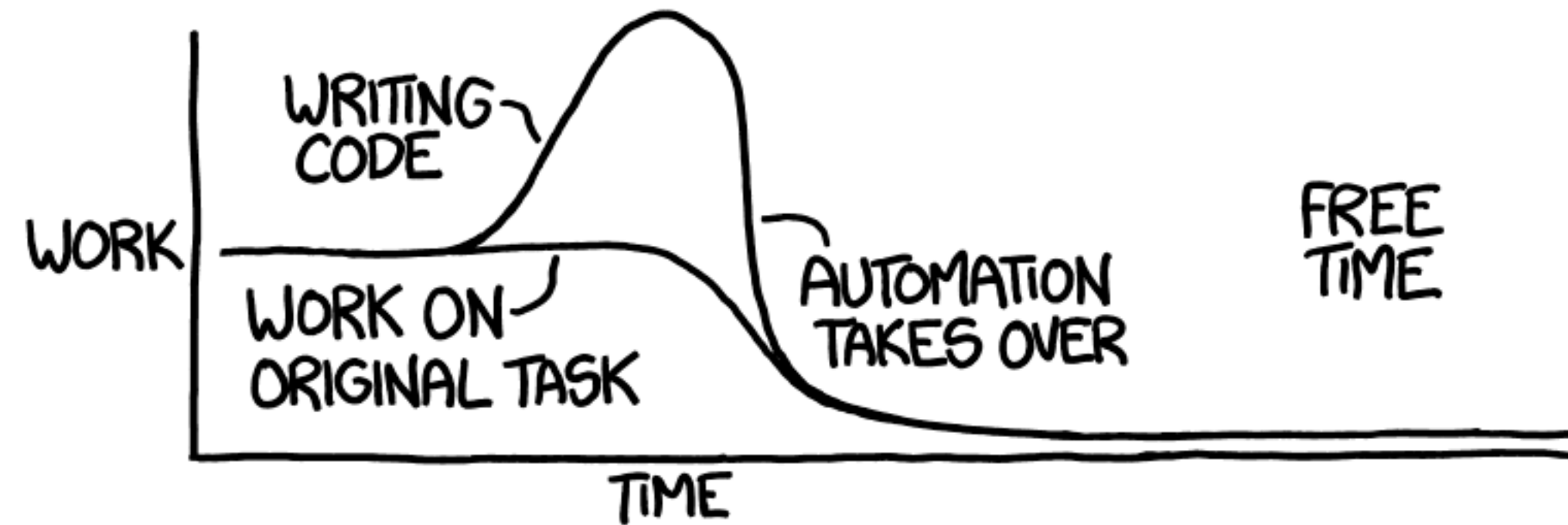
Backup_Update_All

Workflow Template

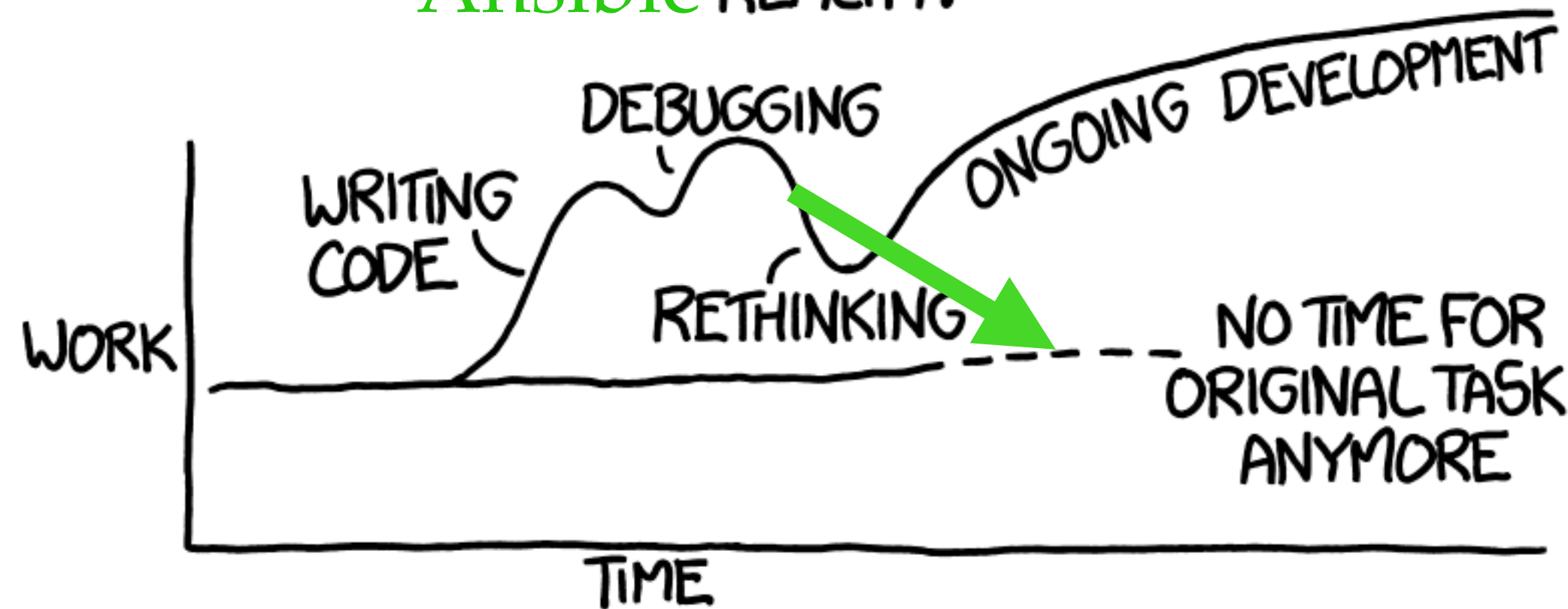


"I SPEND A LOT OF TIME ON THIS TASK.
I SHOULD WRITE A PROGRAM AUTOMATING IT!"

THEORY:



Ansible REALITY:





That's all Folks!