

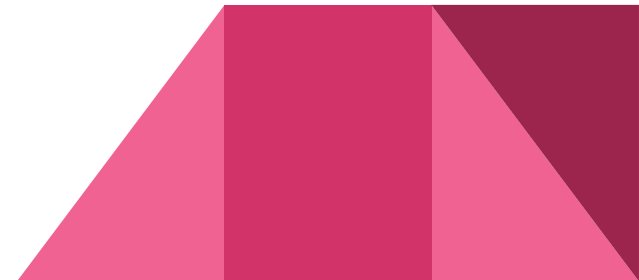
# Lukáš Zapletal

Building dozen bare metal hosts in minutes

@lzap

# Agenda

- Motivation
- Tools
- Screenshot
- Screenshot
- Screenshot
- Screenshot
- Screenshot
- ...





# Virtualization

Datacenter in 2017

# Cloning



# Problem

CHICKEN





Can I drop a Linux image onto bare-metal host?  
Will it work?



YES

& YES



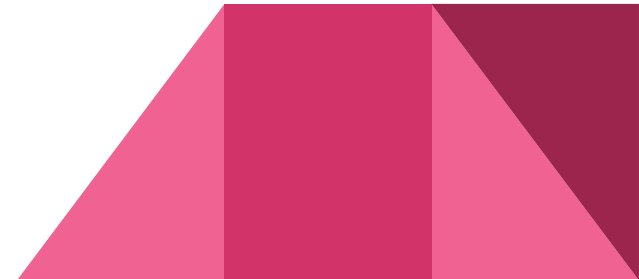
# Image-based provisioning

## Manually created image

- a) Mind the size!
- b) Unconfigure/Depersonalize (virt-sysprep)

## Cloud-init based images

- c) Locked down
- d) Seed via USB, floppy or network

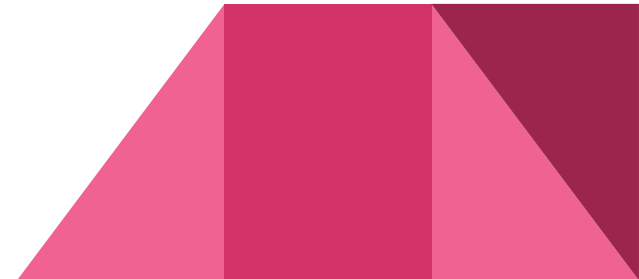


# Image-based provisioning

## Tools (virt-builder)

- a) Fast and highly customizable
- b) Specific size
- c) Generic size

```
virt-builder centos-7.3 --format raw \  
--install "cloud-init" --size 6G \  
--edit '/etc/cloud/cloud.cfg: s/datasource_list:./datasource_list: [None]/' \  
--output centos7.img --root-password password:redhat
```

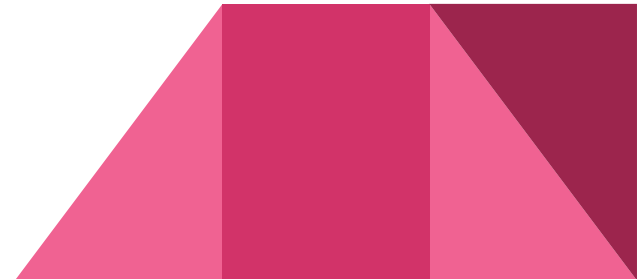


udpcast

# udpcast

```
udp-receiver --file /dev/sda
```

```
udp-sender --file my_image.raw
```



# Foreman Discovery

# Foreman

**FOREMAN** Admin User

Any Context Monitor Hosts Configure Infrastructure Administrator

## chefclient.example.com

Reports from the last  days - 4 reports found

Edit Build Power Off Console Run puppet Delete

**Details**

Audits Facts Reports YAML

Properties Metrics Templates VM

NICs

Properties	
Domain	example.com
Realm	
IP Address	192.168.122.24
MAC Address	52:54:00:e4:25:90
Puppet Environment	development
Host Architecture	x86_64
Operating System	CentOS 7.0
Host group	puppet_managed
Location	Brno
Organization	Ares
Owner	Admin User

### Runtime

last 7 days

Time	Runtime	Config Retrieval
21:26	0	0
21:28	2	0
21:30	4	0
21:32	6	0
21:34	8	0
21:36	10	0
21:38	12	0
21:40	14	0
21:42	18	0
21:44	16	0
21:46	14	0
21:48	10	0
21:50	5	0

### Resources

last 7 days

Time	Applied	Failed	Failed restarts	Skipped	Restarted
21:26	0	0	0	0	0
21:28	0	0.5	0	0	0
21:30	0	1	0	0	0
21:32	0	1.5	0	0	0
21:34	0	2	0	0	0
21:36	0	2.5	0	0	0
21:38	0	3	0	0	0
21:40	0	3.5	0	0	0
21:42	0	4	0	0	0
21:44	0	3.5	0	0	0
21:46	4	0	0	0	0
21:48	2	0	0	0	0
21:50	0	0	0	0	0

# Foreman Discovery

```
[ 0]

[ 0] This is Foreman Discovery 0.5.9999-P, tty1 is reserved for logs.
[ 0] Some interesting facts about this system:
[ 0] hardwareisa: x86_64
[ 0] hardwaremodel: x86_64
[ 0] ipaddress: 192.168.122.5
[ 0] ipaddress_eth0: 192.168.122.5
[ 0] ipaddress_lo: 127.0.0.1
[ 0] macaddress: 52:54:00:D3:84:72
[ 0] macaddress_eth0: 52:54:00:D3:84:72
[ 0] manufacturer: Red Hat
[ 0] memorytotal: 868.63 MB
[ 0] productname: KVM
[ 0] Logs from discovery services now follows:
[ 0] Discovered by SERVER:xx.xx.xx.)
[ 0] Registering host with Foreman (http://xx.xx.xx.xx)

-
```

DEMO



## Welcome to PXE-less provisioning

Select Manual to select primary interface, configure network (no DHCP required), setup server credentials, add custom facts and trigger auto-provisioning via Discovery rules. This will lead to kernel reload (kexec) into installer. Select DHCP to select primary interface and proceed with DHCP configuration and standard discovery without any custom facts. This will reboot the host once the system is provisioned either manually or via Discovery rules.

Manual discovery

Image transfer

Main menu

### Transfer interface

Select primary (provisioning) network interface with connection to server or proxy:

```
3c:97:0e:b1:3e:b7 enp0s25
00:00:00:00:00:00 virbr1
52:54:00:a6:01:5d virbr0-nic
00:00:00:00:00:00 virbr2
52:54:00:60:a7:2b virbr1-nic
00:00:00:00:00:00 virbr0
3c:a9:f4:56:39:f8 wlp3s0 (link up)
```



DHCP

Manual

Cancel

VLAN ID:

### Image transfer - mode

Select udpcast multicast tool or simple HTTP download to download image onto this discovered node.

- UDP reciever
- UDP sender
- HTTP(S) download

Reboot when done

Target volume or file:  
/dev/null

Next

Cancel

### Image transfer - compression

Raw images may contain lots of nulls, it is good idea to compress them. Select (de)compressor to use.

- No compression
- gzip
- bzip2
- xz
- lzop

Next

Cancel

Image transfer - udpcast

Use port range 9000-9100 or change firewall configuration. Switch to console 2 (ALT+F2) or use journalctl to watch progress.

Port (N, N+1): 9000\_\_\_\_\_

Extra options: \_\_\_\_\_

Start

Cancel

### Image transfer - http(s)

Provide URL of a RAW image. When using compression, make sure it's not in a tarball (e.g. raw.gz or img.bz2 instead of tar.gz).

URL:

Start

Cancel

Thanks...

# Credits

[https://commons.wikimedia.org/wiki/File:Egg\\_texture\\_169clue.jpg](https://commons.wikimedia.org/wiki/File:Egg_texture_169clue.jpg)

<https://www.flickr.com/photos/hjmediastudios/7906332058>

<https://www.theforeman.org>

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