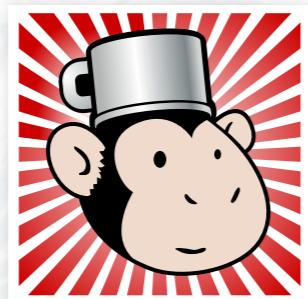




January 13–15, 2012



BoxGrinder

Who's Marek?

- 
- JBoss Developer
 - Lead of  BoxGrinder
 - JBoss AS in Fedora
- Part of **project:odd**
- Electronic music lover



Agenda

- Some background and terminology
- BoxGrinder
 - Appliance definition files
 - Architecture overview
 - Build process
 - Writing a plugin
- Small demo



Some terminology



Appliance is a preconfigured disk image (virtual machine) with operating system and all required applications to do specific job



Appliance examples with tasks

- **Database**
 - Storing data
- **Front-end**
 - Load balancing
- **Back-end**
 - Actual servers



Bake vs. Fry

Bake: Produce a complete virtual machine offline, before first use.

Fry: Produce a complete virtual machine by booting a basic VM and then applying configuration.



Bake!

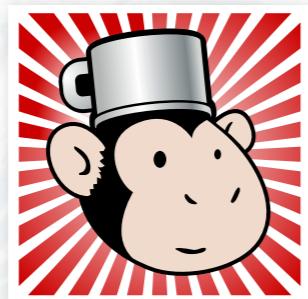
We think **baking** is The Right Way,
especially for developers simply
looking for reliable platforms.



Bake, then fry

If you **bake** an image you can
fry it then later too! Baked
image can be your **start**
point.



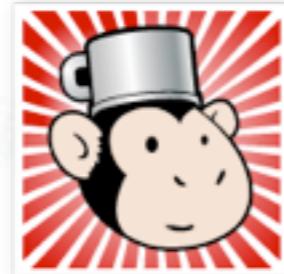


BoxGrinder



BoxGrinder is a family of tools
to grind out **appliances** for
various **platforms**

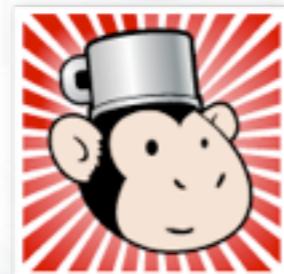




BoxGrinder
Build



BoxGrinder
REST



BoxGrinder
Studio



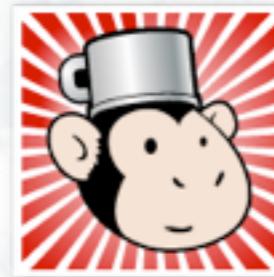
Current status



BoxGrinder
Build



stable



BoxGrinder
REST



slow
development

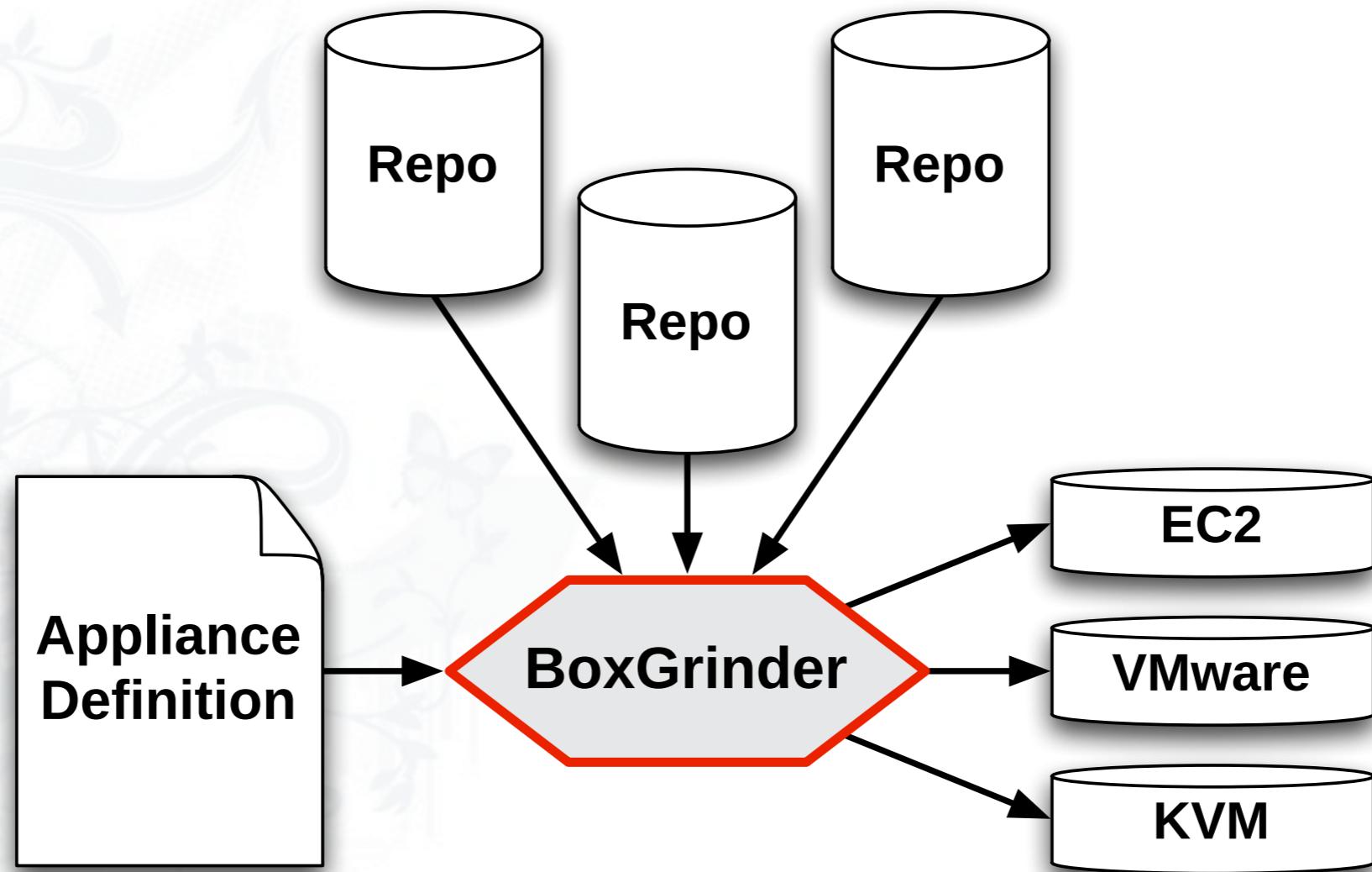


BoxGrinder
Studio



planning





Closer look at appliance definition file



Appliance definition, huh?

- Plain text file – **YAML** format
- Very easy to understand, modify
- Inheritance (mixins)
- More and more powerful



Appliance example

```
name: back-end
version: 1
release: 1
summary: back-end appliance with JBoss AS 6
hardware:
    memory: 512
    partitions:
        "/":
            size: 2
appliances:
    - fedora-base
packages:
    - jboss-as6
    - jboss-as6-cloud-profiles
    - java-1.6.0-openjdk
...
...
```



General information

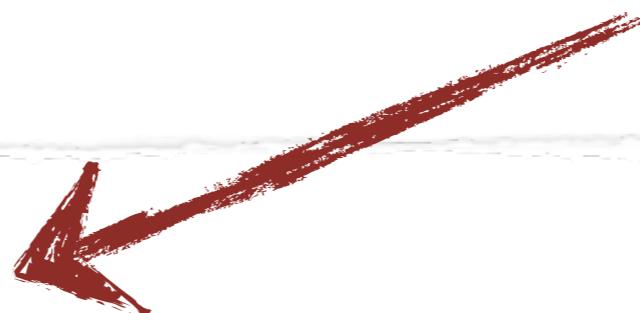
should match the filename: back-end.appl

name: back-end

version: 1

release: 1

summary: back-end appliance with
JBoss AS 6



Hardware

hardware:

memory: 512

partitions:

"":"/"

size: 2

512MB

2GB



Appliance Mix-ins

Mixing in **fedora-base.appl**

appliances:
- fedora-base



back-end.appl

```
name: back-end
version: 1
release: 1
summary: back-end appliance with JBoss AS 6
hardware:
    memory: 512
    partitions:
        "/":
            size: 2
appliances:
    - fedora-base
packages:
    - jboss-as6
    - jboss-as6-cloud-profiles
    - java-1.6.0-openjdk
...
...
```



fedora-base.appl

```
name: fedora-base
summary: Basic Fedora OS
os:
  name: fedora
  version: 14
hardware:
  memory: 256
partitions:
  "/":
    size: 1
packages:
  - @core
  - openssh-server
  - openssh-clients
  - wget
```



Appliance Mix-ins

back-end.appl

fedora-base.appl

overrides

```
hardware:  
  memory: 512  
partitions:  
  "/":  
    size: 2
```

```
hardware:  
  memory: 256  
partitions:  
  "/":  
    size: 1
```



Appliance content

packages:

- jboss-as6
- jboss-as6-cloud-profiles
- java-1.6.0-openjdk



Appliance content

packages:

- jboss-as6
- jboss-as6-cloud-profiles
- java-1.6.0-openjdk

Plus everything from
fedora-base.appl



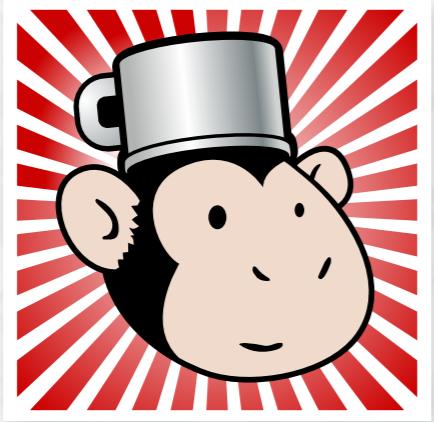
There is a lot more!

- Additional sections
 - **repos**
 - ephemeral repos
 - **files**
 - **post**
 - What should be done **after** you build your appliance
 - Different commands for different platform
 - Using **libguestfs**
- Learn more!



<http://boxgrinder.org/tutorials/appliance-definition/>



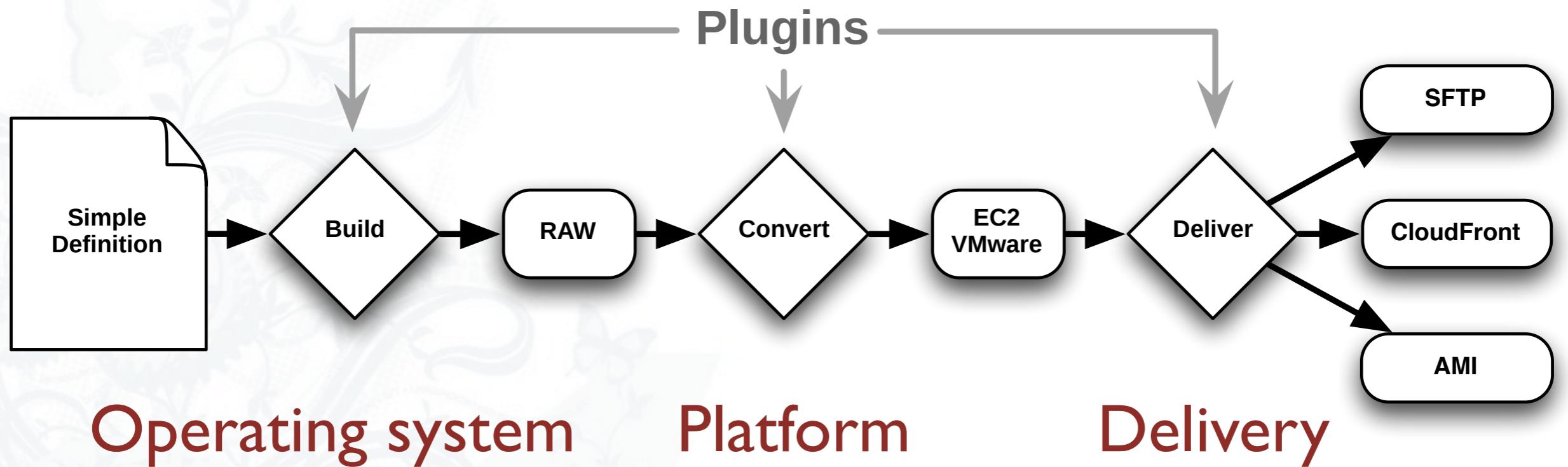


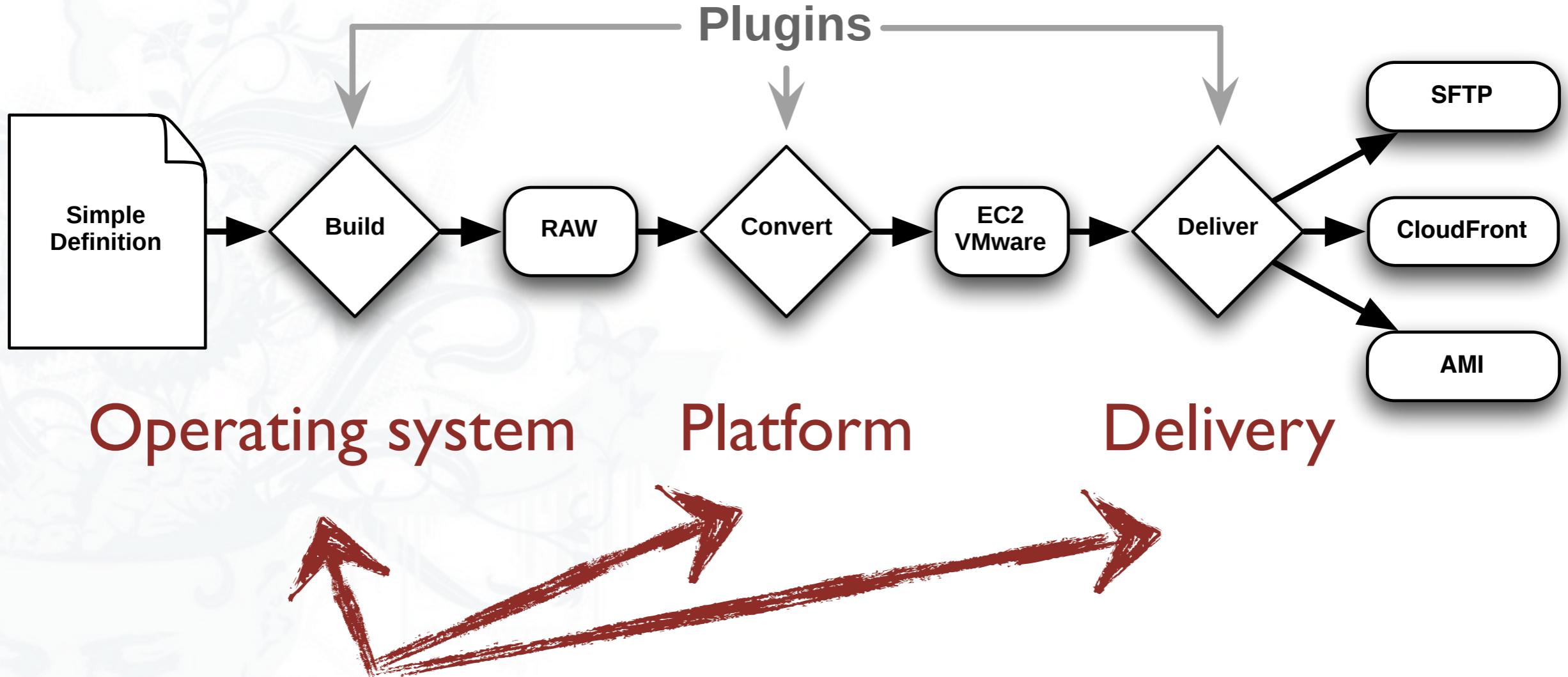
BoxGrinder

Build

BoxGrinder Build architecture







Operating system

Platform

Delivery

Write your **own** plugins, it's easy!

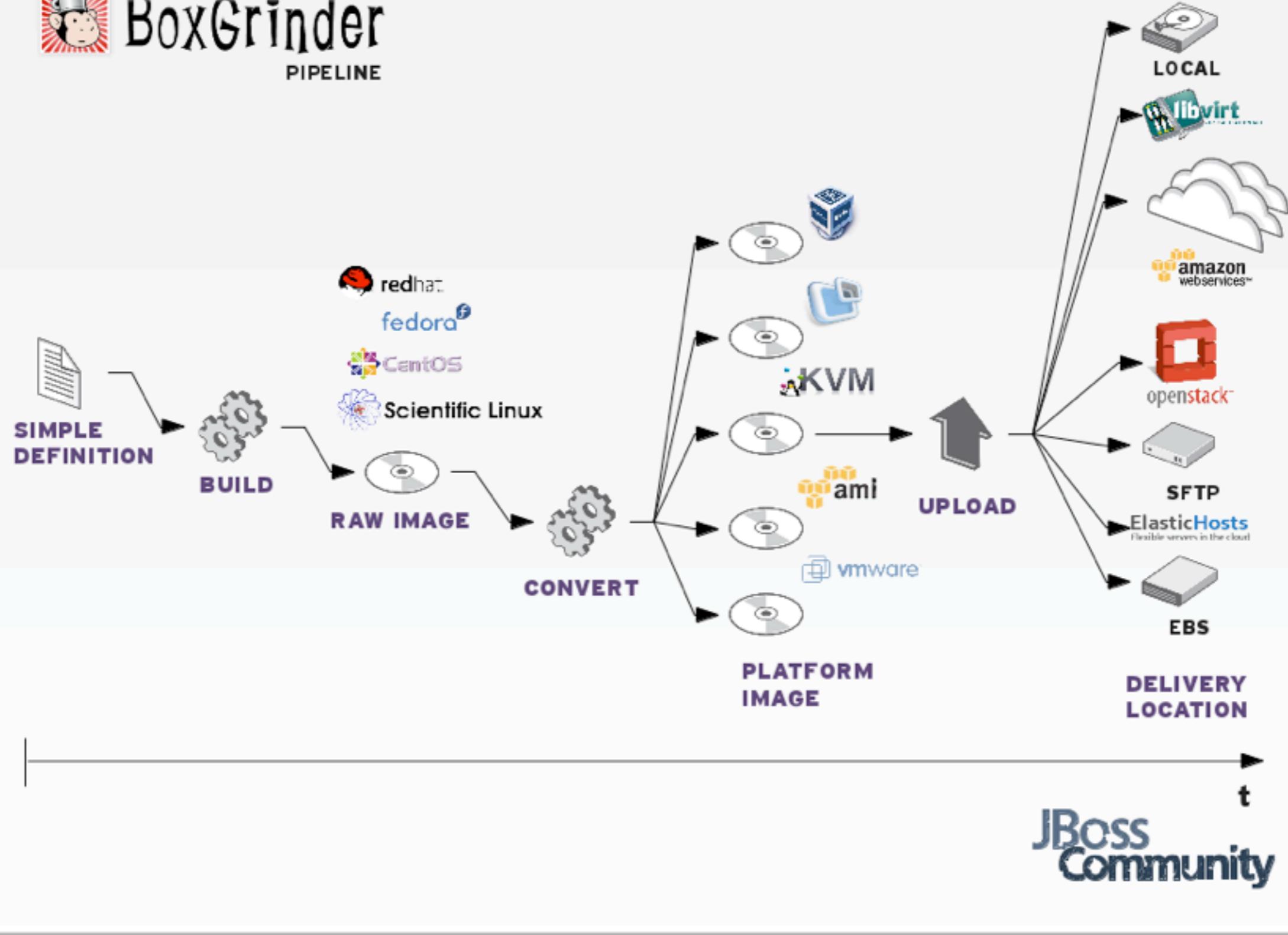
<http://boxgrinder.org/tutorials/how-to-write-a-plugin-for-boxgrinder-build/>





BoxGrinder

Pipeline



Plugin skeleton

```
require 'boxgrinder-build/plugins/base-plugin'

class YourPlugin < BoxGrinder::BasePlugin
  plugin :type => :platform,
          :name => :mycloud,
          :full_name => "MyCloud"

  def execute
    # PLACE YOUR CODE HERE
  end
end
```



How to **install** BoxGrinder Build



The background features a faint, light blue watermark of a floral and butterfly pattern.

fedora™

The word "fedora" is written in a large, bold, blue sans-serif font. A small blue circular logo with a white stylized "f" is positioned above the letter "a".

FUDCon Blacksburg 2012



BoxGrinder Build installation

yum install rubygem-boxgrinder-build



Meta appliance

- A preconfigured appliance to **build other appliances** using BoxGrinder
- Easy to jump in
 - Available for different platforms: Xen, KVM, EC2, VMware
- **Best way** to build EC2 appliances
- <http://boxgrinder.org/download/boxgrinder-build-meta-appliance/>



Demo: build a simple appliance

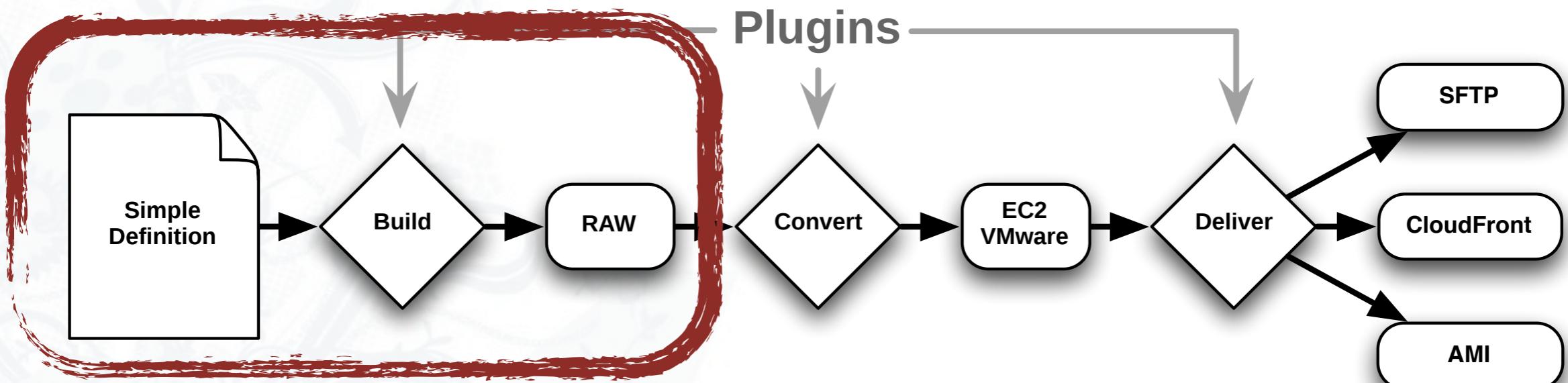


convert and deliver

Demo: ~~build~~ a simple appliance



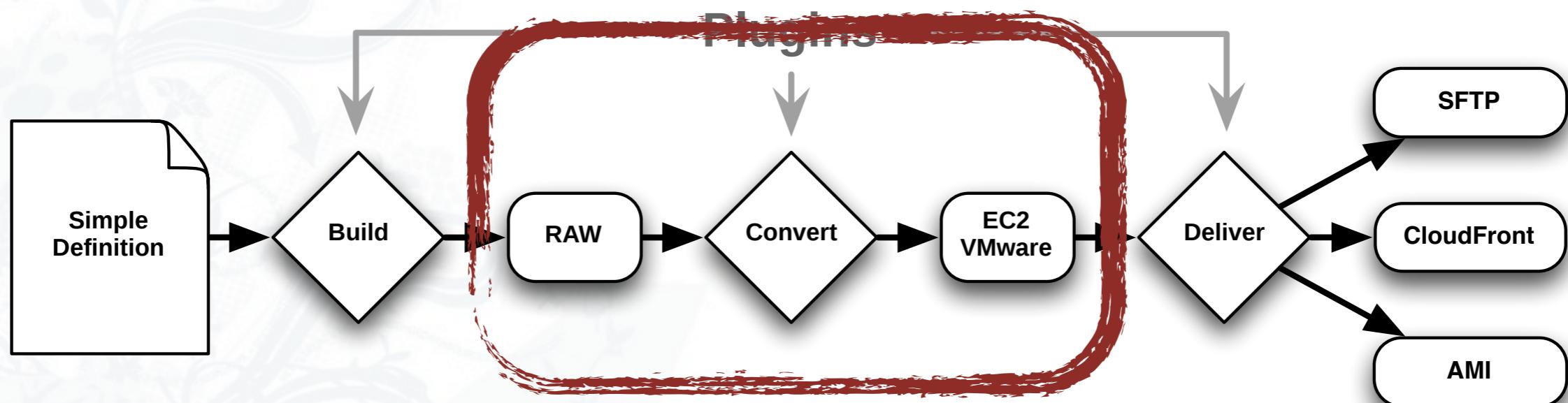
Step 1: create base image



boxgrinder-build f14-jeos.appl



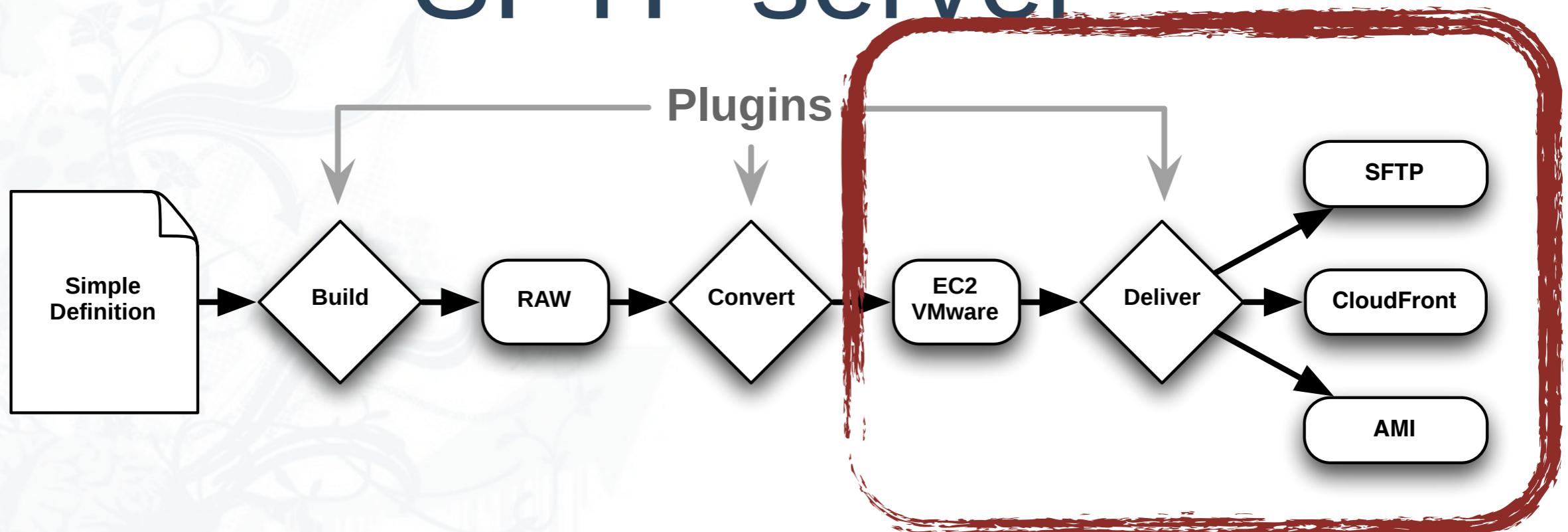
Step 2: convert it to VMware type



```
boxgrinder-build f14-jeos.appl -p vmware  
-p ec2  
...
```



Step 3: deliver it to a SFTP server



```
boxgrinder-build f14-jeos.appl -p vmware -d sftp  
-d ebs  
-d s3
```



Of course you can run the
command just **once** with
same result!

```
boxgrinder-build f14-jeos.appl -p vmware -d sftp
```



What's hot?



BoxGrinder Build features

- Supported OSes: **Fedora (14-16), CentOS (5), Scientific Linux (5-6), RHEL (5-6)**
- Supported platforms: **EC2** (S3-based and EBS-based too!), **KVM**, **VMware**, **VirtualBox**, **VirtualPC**
- Many delivery options: **local**, **SFTP**, **S3** or **CloudFront** as tarred image, **AMI**, **OpenStack**, **libvirt**



BoxGrinder Build features

- **Direct injection of files**
- **Cross-arch builds:** producing i386 images on `x86_64` hosts
- Caching downloaded resources (RPM's)
- **Pretty fast** – from `.appl` to registered AMI: **15 minutes** (on EC2, using meta-appliance)



Notes

- If you're building AMI's – **do it on EC2** – this will save your time (uploading to S3 from your local machine isn't fun...)
- Building **EBS-based AMI's requires** to run BoxGrinder on EC2



Questions?

<http://github.com/boxgrinder/> # Code

<http://boxgrinder.org/> # Home page

<http://boxgrinder.org/blog/> # Blog

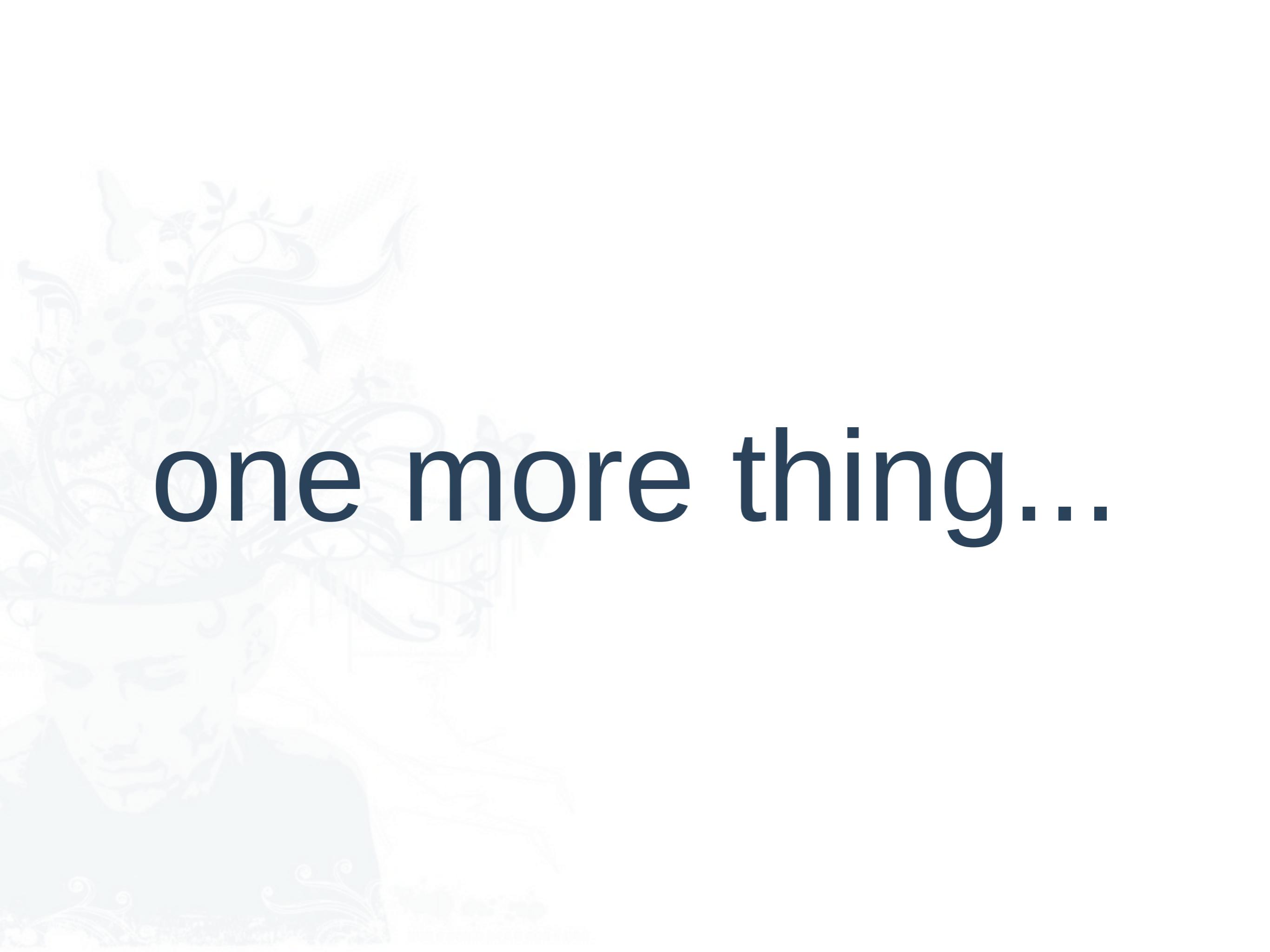
#boxgrinder # IRC



@boxgrinder

@marekgoldmann

@marcsavy



one more thing...

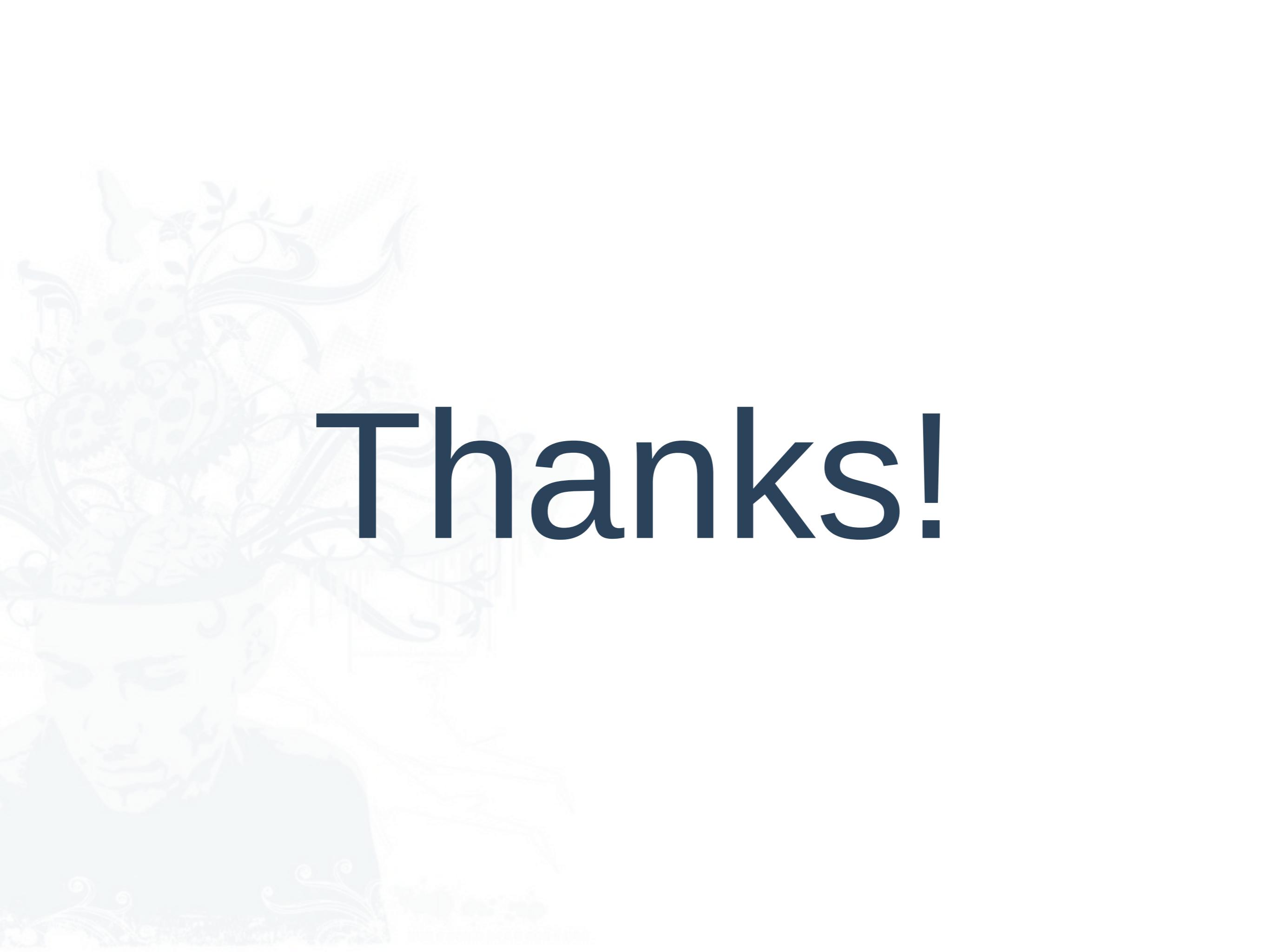
JBoss AS 7

+

fedora[™]

=





Thanks!