

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

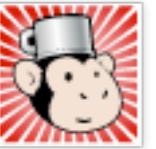
**Bake:** Produce a complete virtual machine offline, before first use.

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



# Bake!

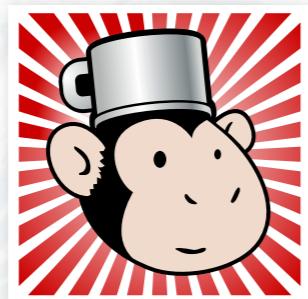
We think **baking** is The Right Way,  
especially for developers simply  
looking for reliable platforms.



# 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



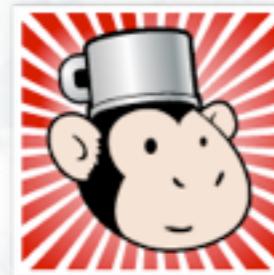
## Current status



BoxGrinder  
Build



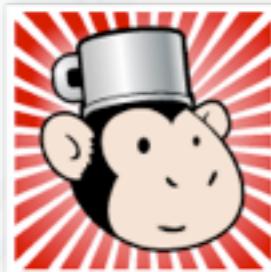
stable



BoxGrinder  
REST



slow  
development

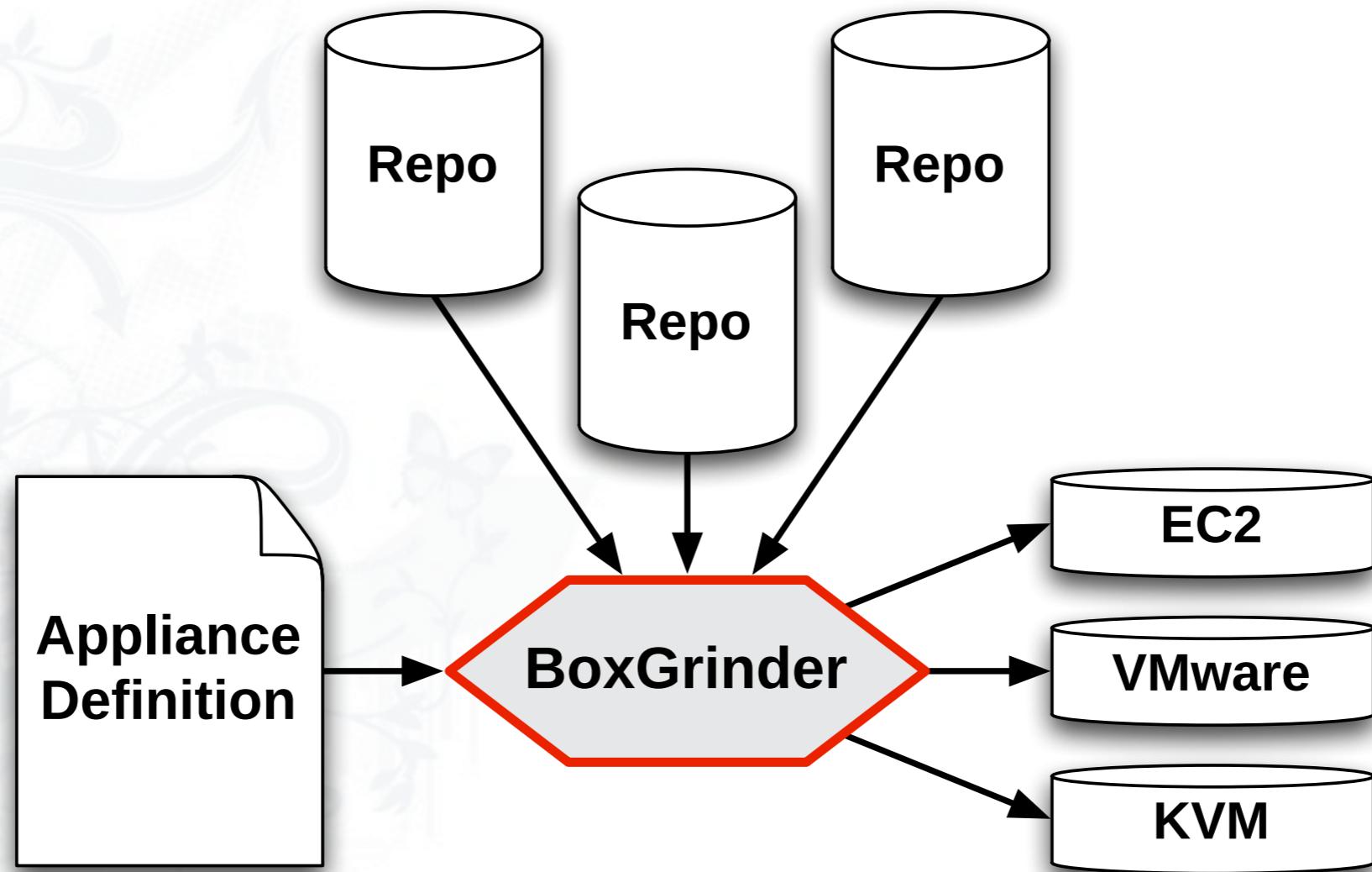


BoxGrinder  
Studio



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

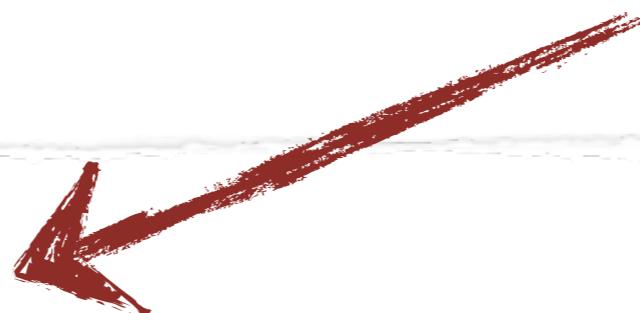
should match the filename: back-end.appl

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**



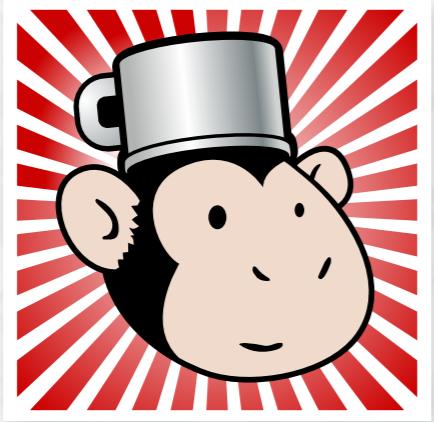
# There is a lot more!

- 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/>



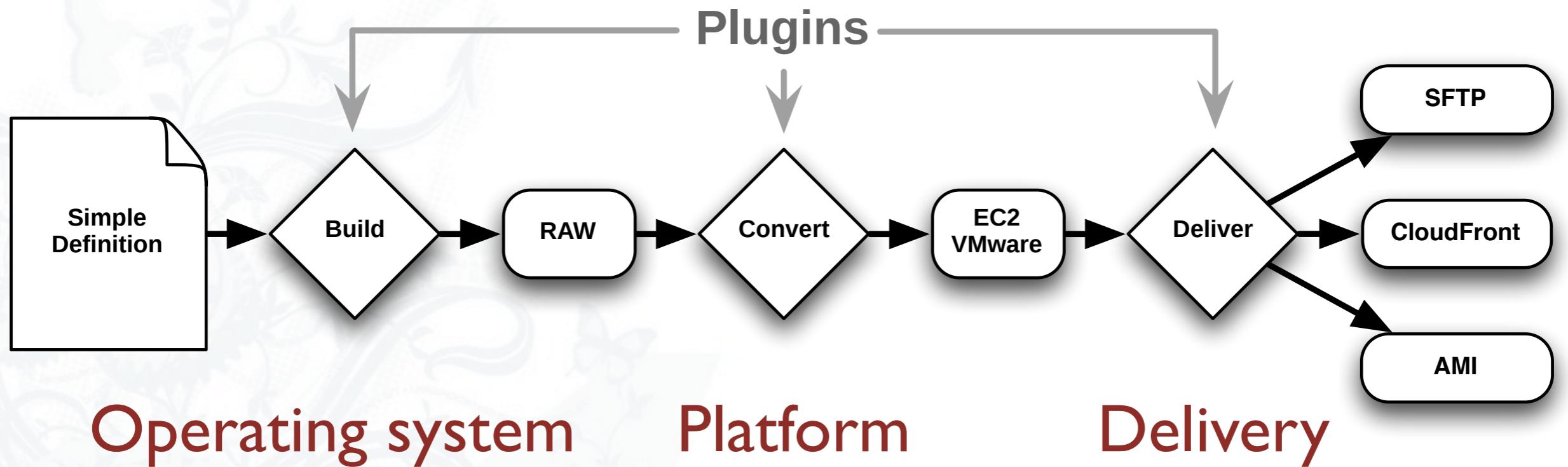


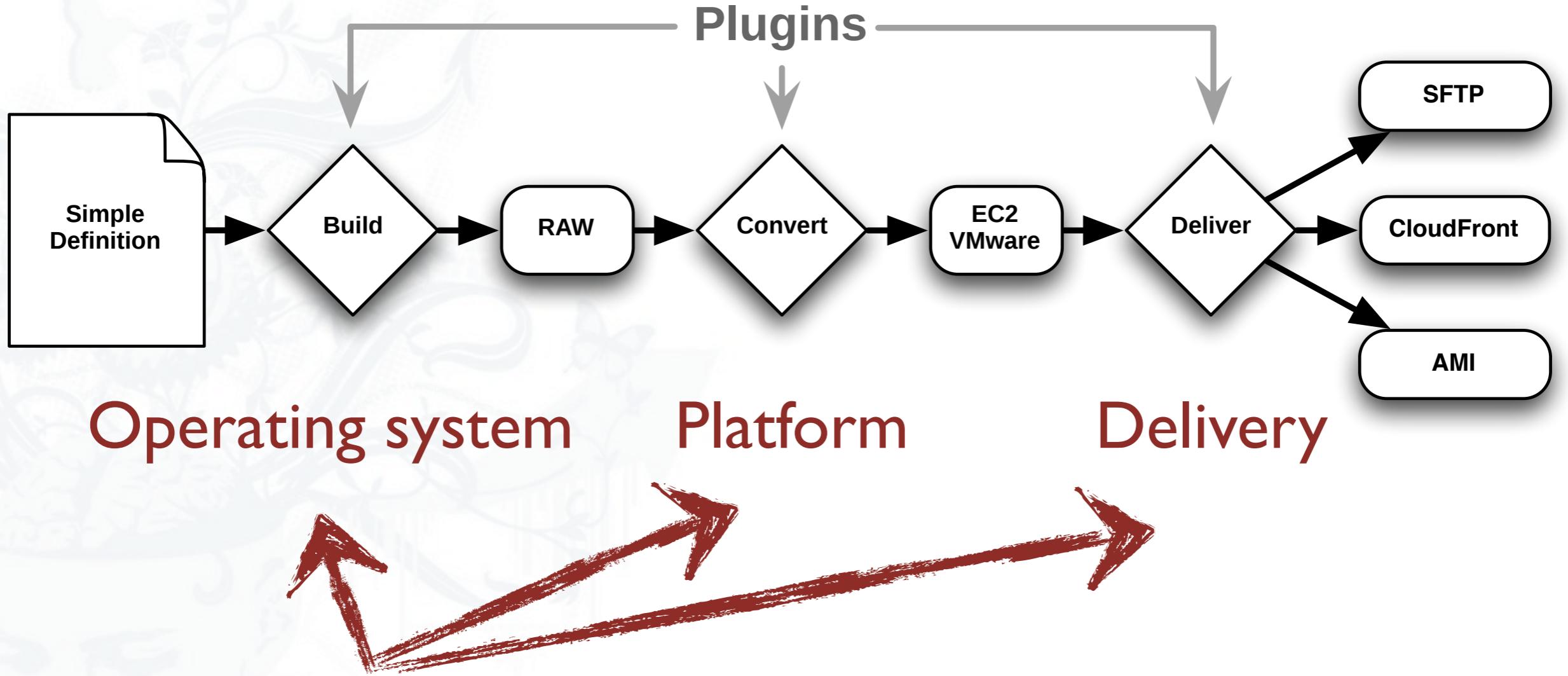
# BoxGrinder

## Build

# BoxGrinder Build architecture







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

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



# Plugin skeleton

```
require 'boxgrinder-build/managers/plugin-manager'  
require 'boxgrinder-build/plugins/base-plugin'  
  
class YourPlugin < BoxGrinder::BasePlugin  
  def execute  
    # PLACE YOUR CODE HERE  
  end  
end  
  
plugin :class => YourPlugin,  
       :type => :platform,  
       :name => :mycloud,  
       :full_name => "MyCloud"
```



# Plugin skeleton

```
require 'boxgrinder-build/managers/plugin-manager'  
require 'boxgrinder-build/plugins/base-plugin'  
  
class YourPlugin < BoxGrinder::BasePlugin  
  def execute  
    # PLACE YOUR CODE HERE  
  end  
end  
  
plugin :class => YourPlugin,  
       :type => :platform, ←  
       :name => :mycloud,  
       :full_name => "MyCloud"
```

This will be removed  
in future releases



# How to **install** BoxGrinder Build





**fedora**™



# 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

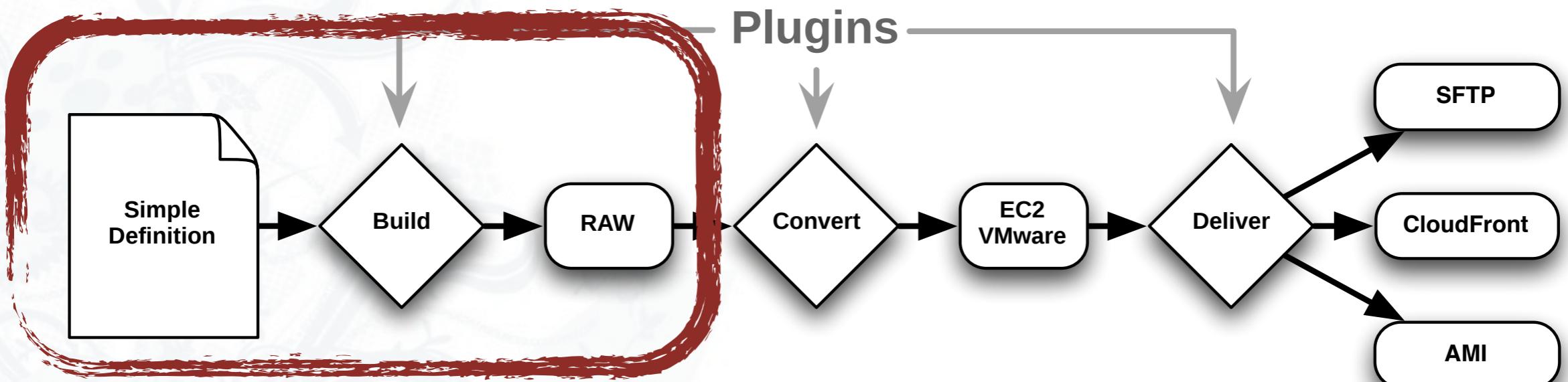


# convert and deliver

## Demo: ~~build~~ a simple appliance



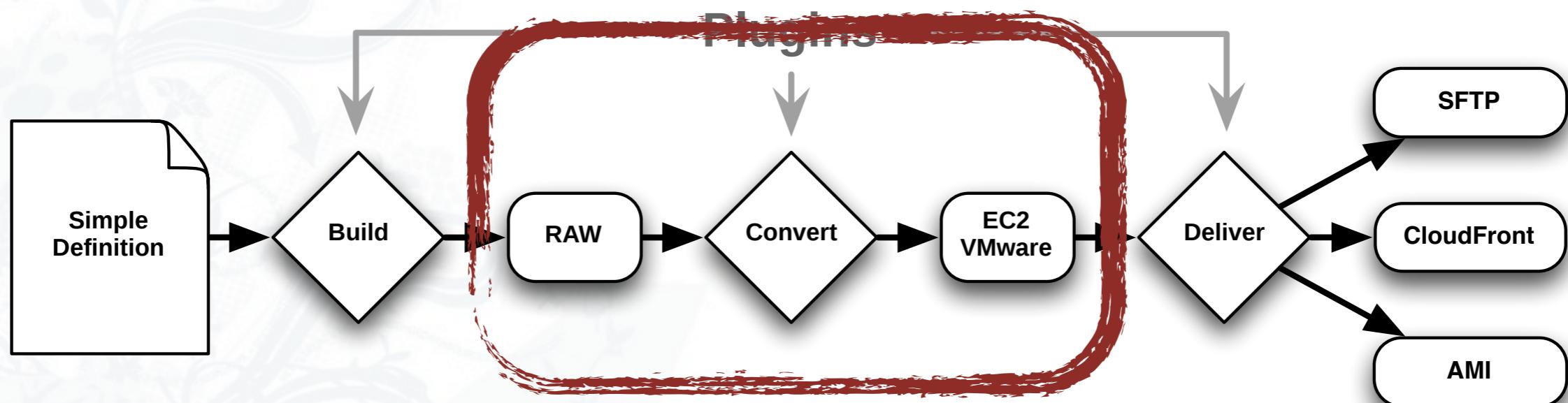
# Step 1: create base image



**boxgrinder-build f14-jeos.appl**



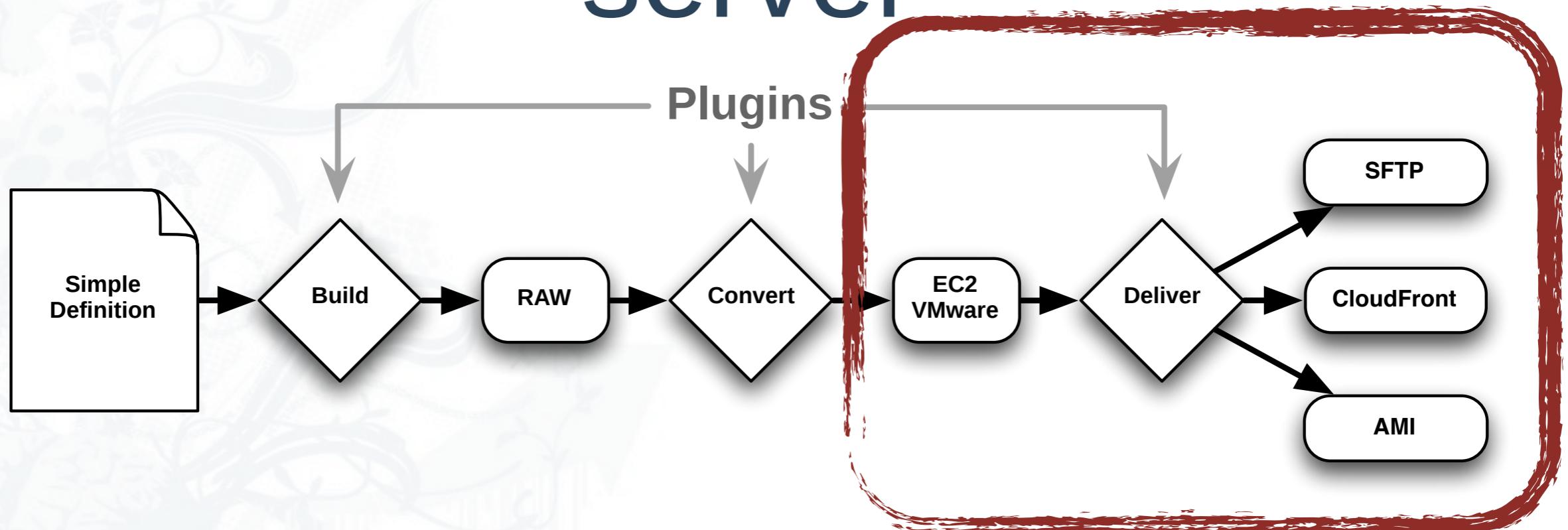
# Step 2: convert it to VMware type



```
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**
- Many delivery options: **local**, **SFTP**, **S3** or **CloudFront** as tarred image, **AMI**



# 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

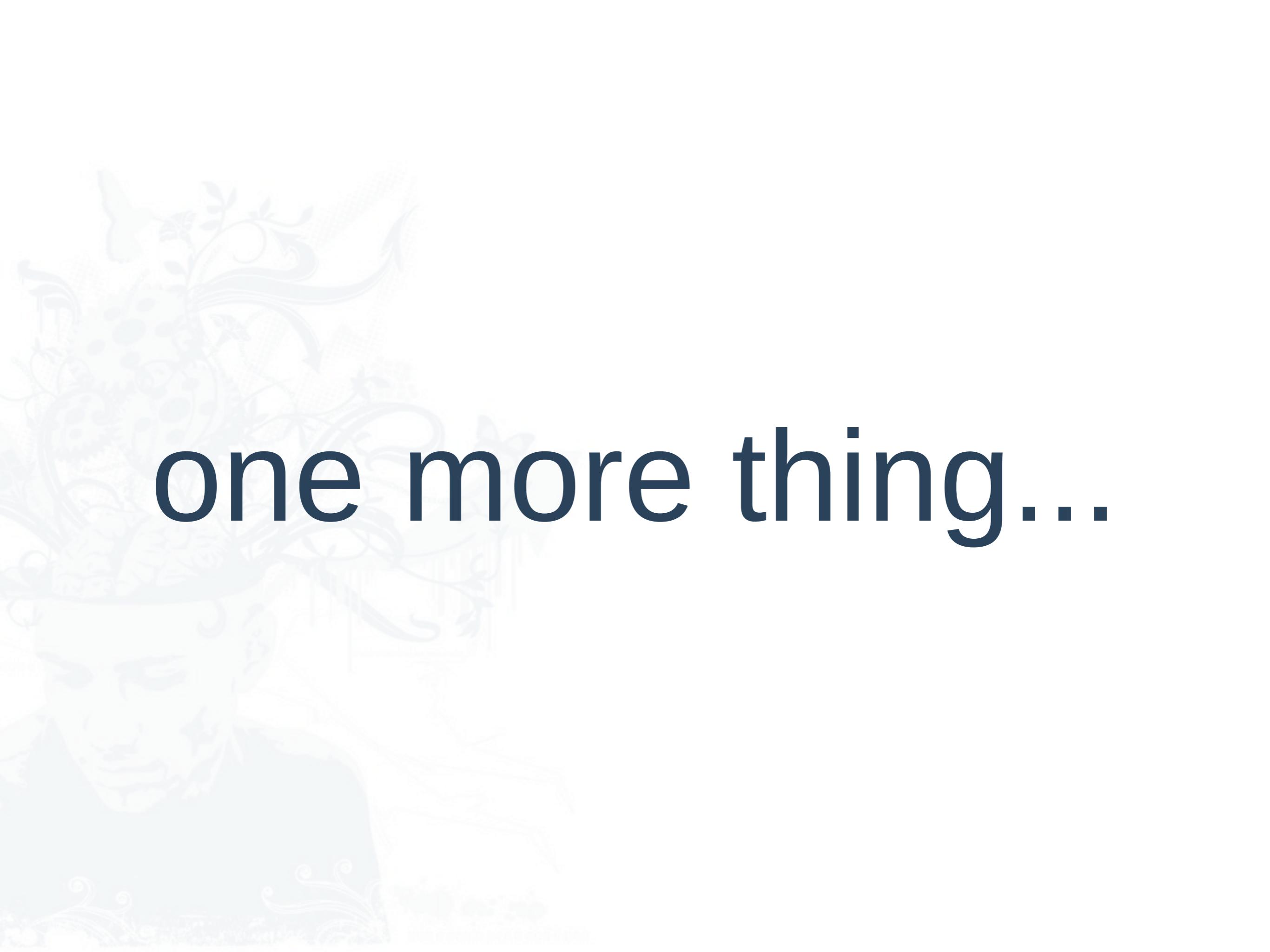
#boxgrinder # IRC



@boxgrinder

@marekgoldmann

@marcsavy



one more thing...

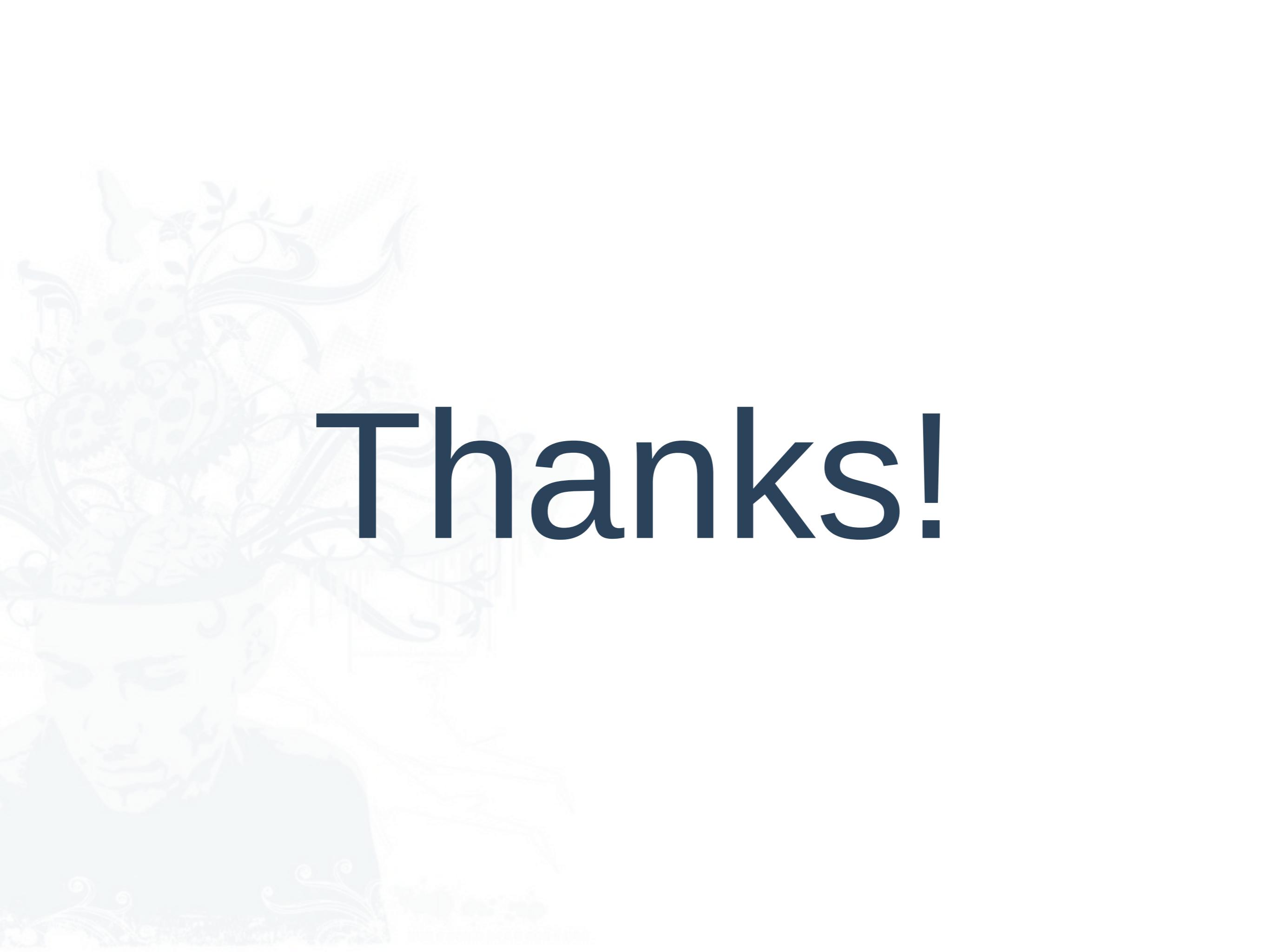
# JBoss AS 7

+

**fedora**<sup>™</sup>

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# Thanks!