

JUDCon

JBoss Users & Developers Conference

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BoxGrinder



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Agenda

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

Who's Marek?



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- JBoss Developer
 - Cloud-related projects: lead of  BoxGrinder
- Part of **project:odd**
- Electronic music lover

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



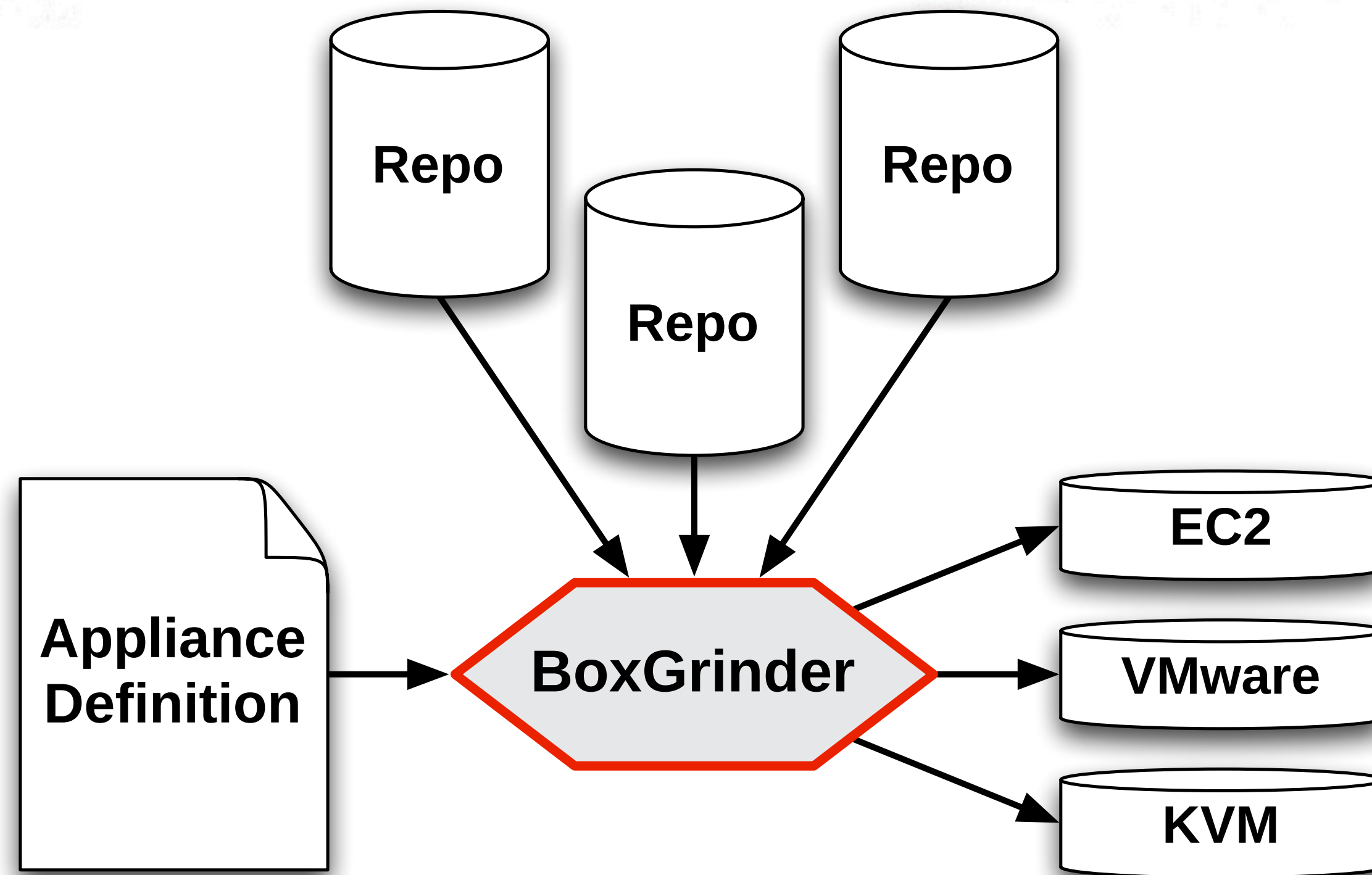
development



BoxGrinder
Studio



planning



Closer look at **appliance definition file**

Appliance definition, huh?

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

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

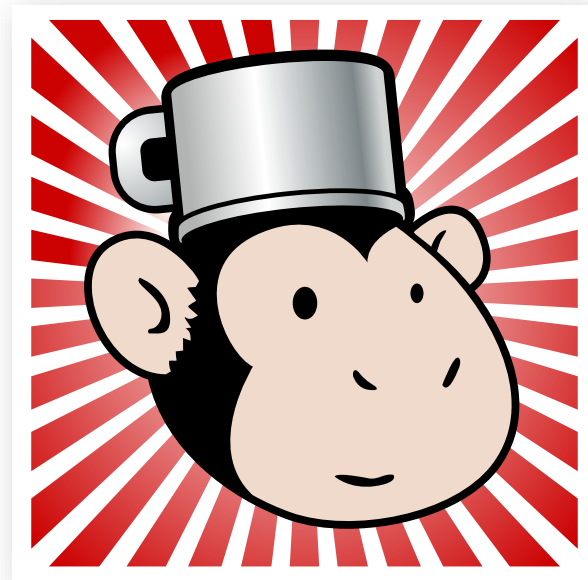
Plus everything from
fedora-base.app1

There is a lot more!

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



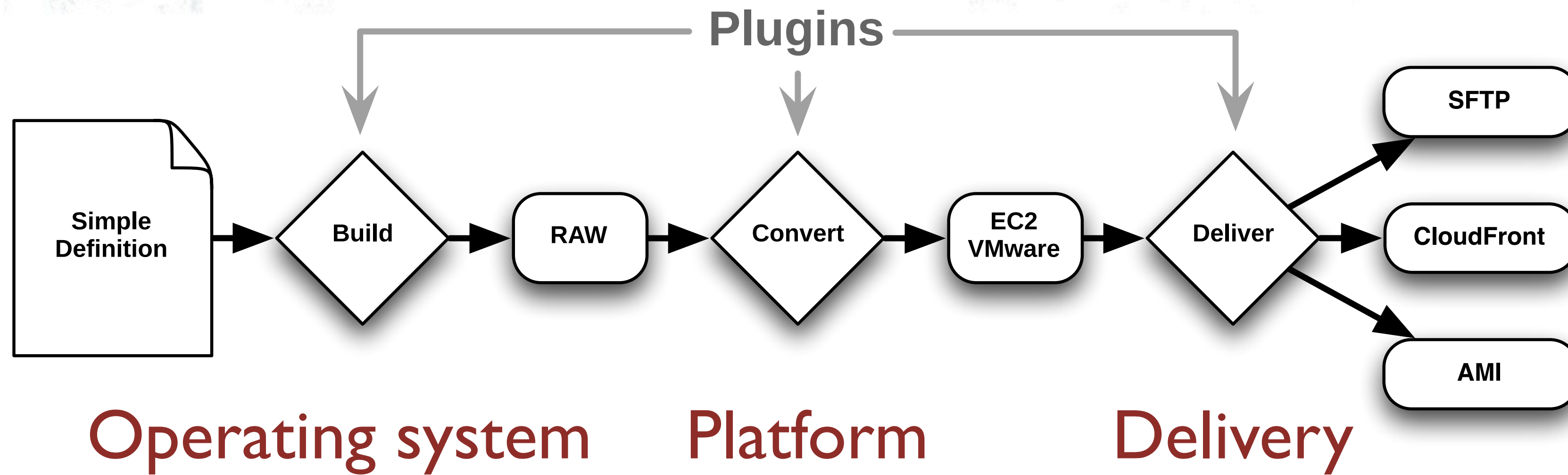
<http://boxgrinder.org/tutorials/appliance-definition/>

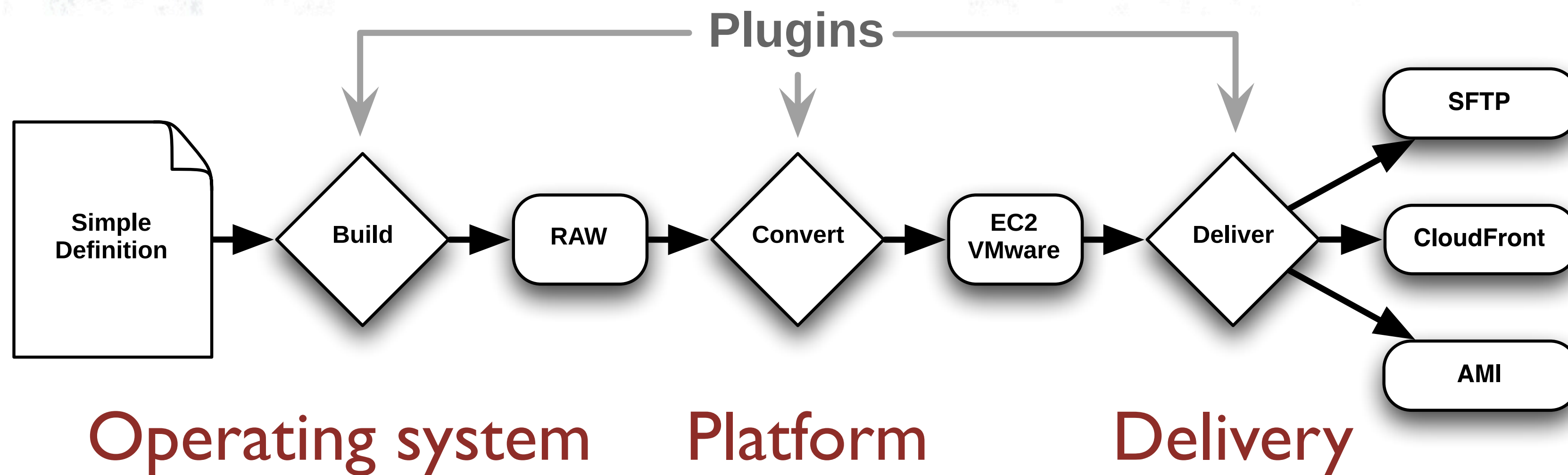


BoxGrinder

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/plugins/base-plugin'  
  
class YourPlugin < BoxGrinder::BasePlugin  
  def execute  
    # PLACE YOUR CODE HERE  
  end  
end
```


Plugin registration

```
require 'boxgrinder-build/managers/plugin-manager'  
require 'xyz-your-plugin/your-plugin'
```

```
plugin :class => YourPlugin,  
      :type => :platform,  
      :name => :mycloud,  
      :full_name => "MyCloud"
```

How to **install** BoxGrinder Build

fedora 

```
yum install rubygem-boxgrinder-build
```

Meta appliance

A preconfigured appliance to **build other appliances** using BoxGrinder

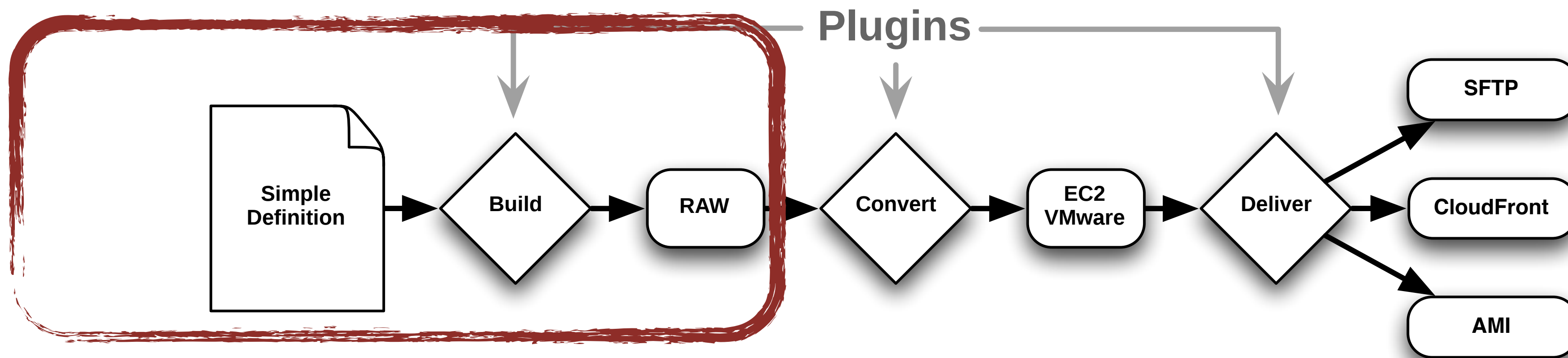
- Easy to jump in
- Available for different platforms: Xen, KVM, EC2, VMware
- **Best way** to build EC2 appliances

<http://boxgrinder.org/download/boxgrinder-build-meta-appliance/>

Demo: build a simple appliance

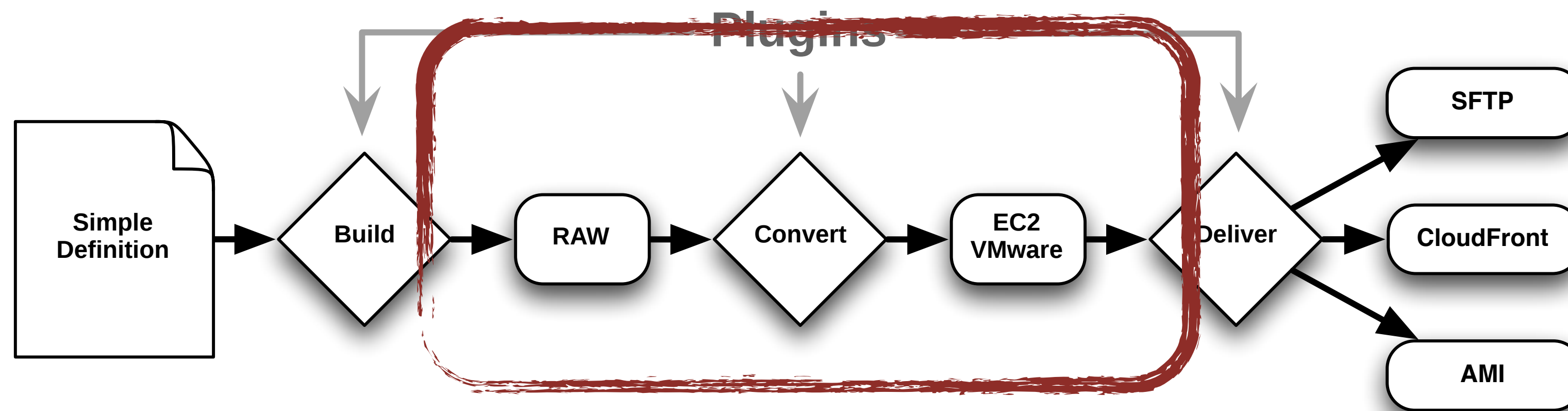
convert and deliver
Demo: ~~build~~ a simple appliance

Step 1: create base image



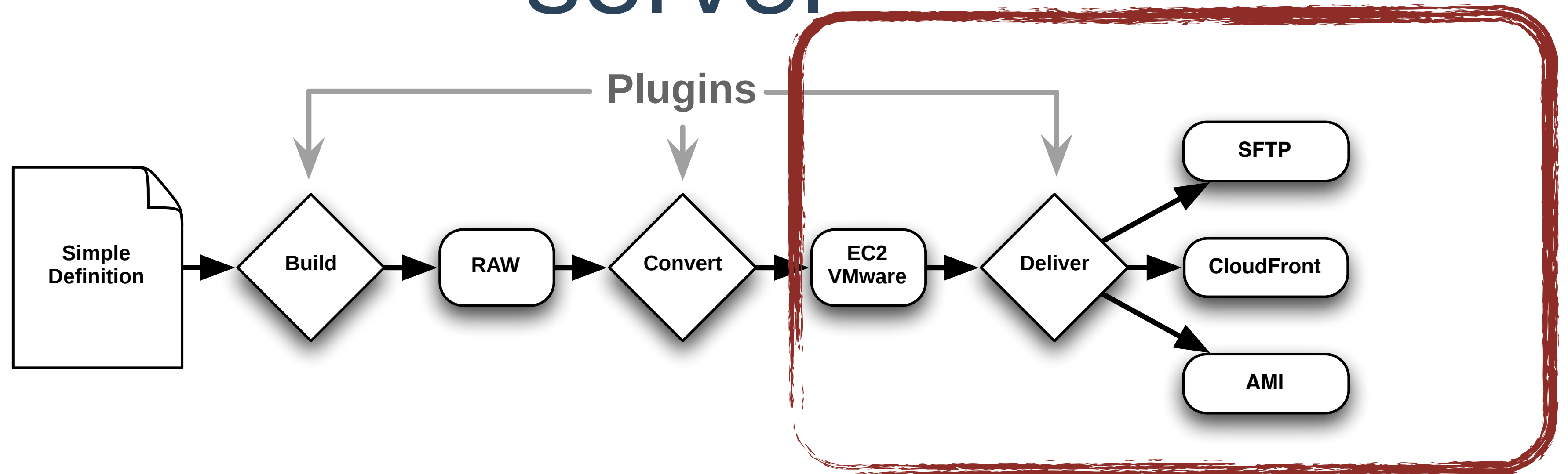
```
boxgrinder-build f14-jeos.app1
```


Step 2: convert it to VMware type



```
boxgrinder-build f14-jeos.app1 -p vmware  
-p ec2  
...
```

Step 3: deliver it to a SFTP server



```
boxgrinder-build f14-jeos.app1 -p vmware -d sftp  
-d ebs  
-d s3
```

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

```
boxgrinder-build f14-jeos.app1 -p vmware -d sftp
```

What's **hot**?

BoxGrinder Build features

- **Supported OSes: Fedora, CentOS, RHEL**
- **Supported platforms: EC2** (S3-based and EBS-based too!), **KVM, VMware, VirtualBox**
- **Many delivery options: local, SFTP, S3 or CloudFront** as tarred image, **AMI**
- **Many public clouds supported:** EC2, ElasticHosts, Serverlove, Open Hosting, SKALI Cloud, CloudSigma (coming)

BoxGrinder Build features

- **Cross-arch builds:** producing i386 images on x86_64 hosts
- Caching downloaded resources (RPM's)
- **Pretty fast** – from .appl to registered AMI: **20 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/>

<http://boxgrinder.org/>

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

IRC: **#boxgrinder**



@boxgrinder

@marekgoldmann

Thanks!