
fudcon
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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?

- 
- 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**

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BoxGrinder

Build

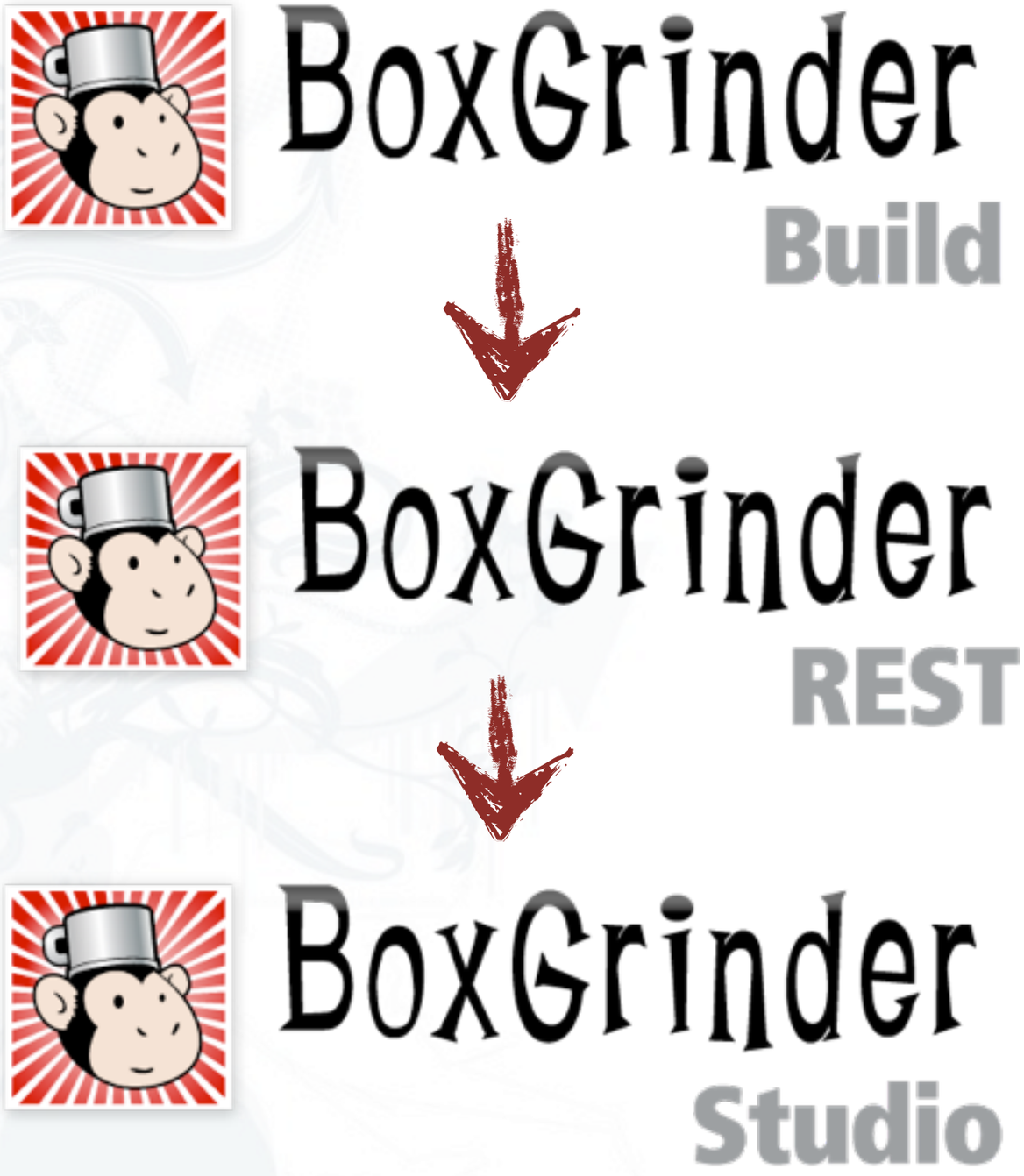
BoxGrinder

REST

BoxGrinder

Studio

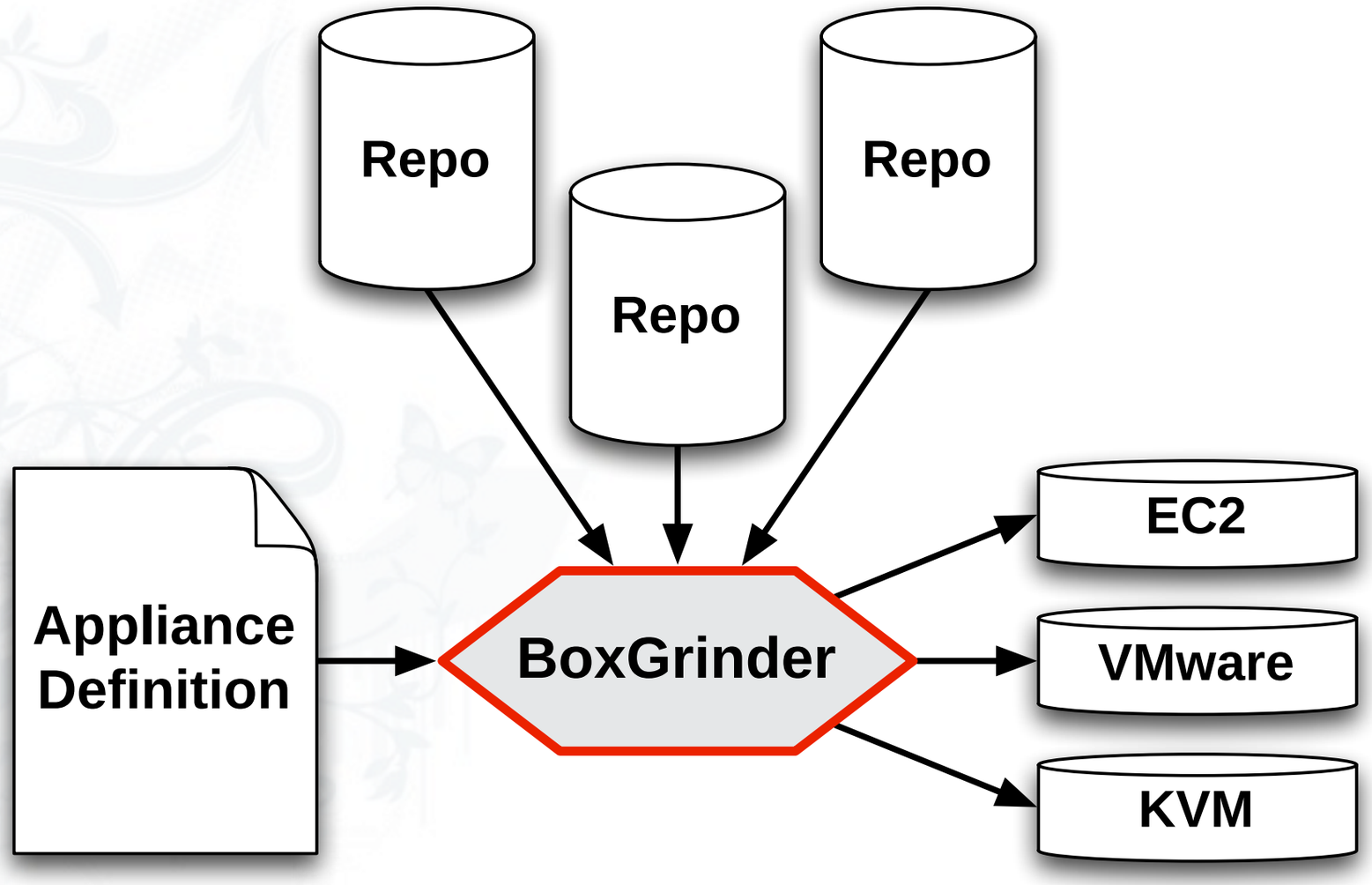
Current status



stable

development

planning


Repo
Repo
Repo
Appliance Definition
BoxGrinder
EC2
VMware
KVM

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.appl`

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://community.jboss.org/wiki/BoxGrinderBuildApplianceDefinitionFile

BoxGrinder

Build

BoxGrinder Build **architecture**

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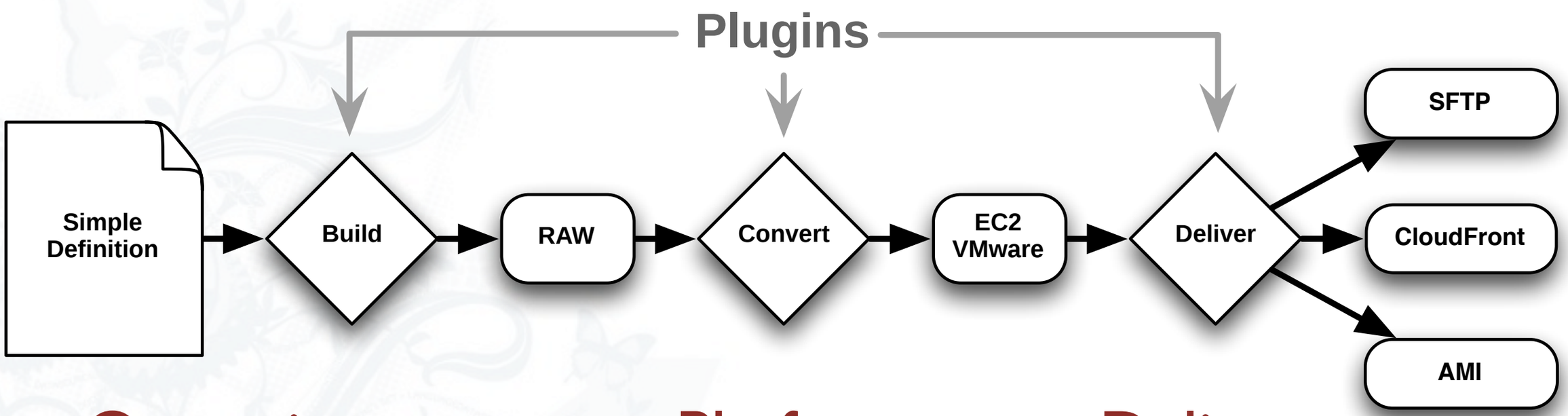
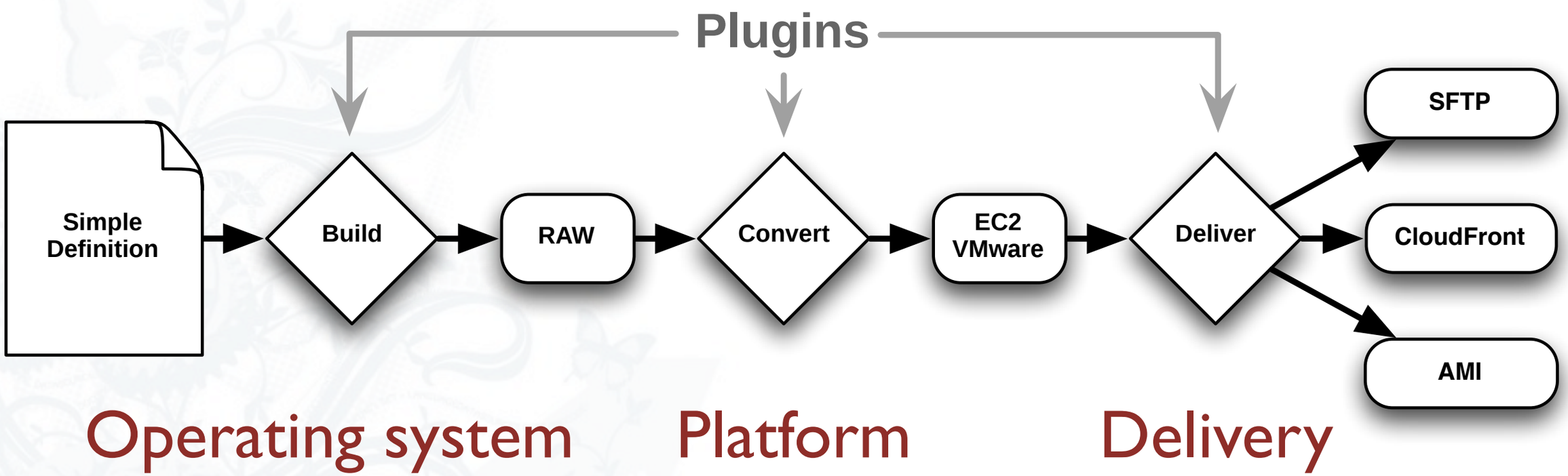


Operating system Platform Delivery



Operating system Platform Delivery

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

http://community.jboss.org/wiki/BoxGrinderBuildHowToWriteAPlugin

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

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BoxGrinder Build installation

1.Install BoxGrinder Build

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

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BoxGrinder Build installation

2.Install plugins you need

```
yum install rubygem-boxgrinder-build-fedora-os-plugin
yum install rubygem-boxgrinder-build-centos-os-plugin
yum install rubygem-boxgrinder-build-rhel-os-plugin

yum install rubygem-boxgrinder-build-ec2-platform-plugin
yum install rubygem-boxgrinder-build-vmware-platform-plugin
yum install rubygem-boxgrinder-build-virtualbox-platform-plugin

yum install rubygem-boxgrinder-build-s3-delivery-plugin
yum install rubygem-boxgrinder-build-local-delivery-plugin
yum install rubygem-boxgrinder-build-sftp-delivery-plugin
```


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://www.jboss.org/boxgrinder/downloads/build/meta-appliance.html

Demo: build a simple appliance

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

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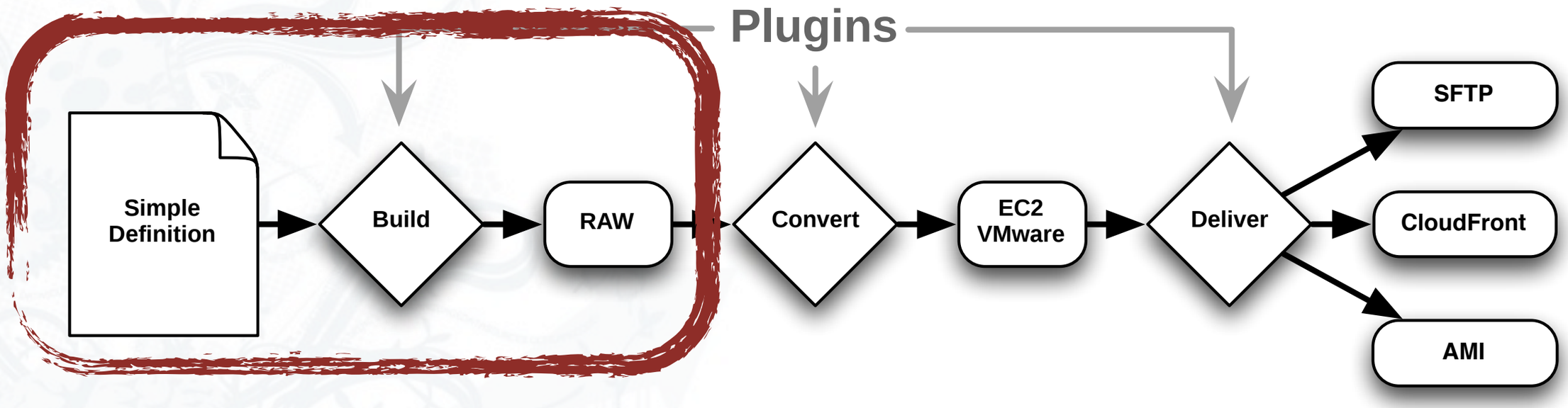
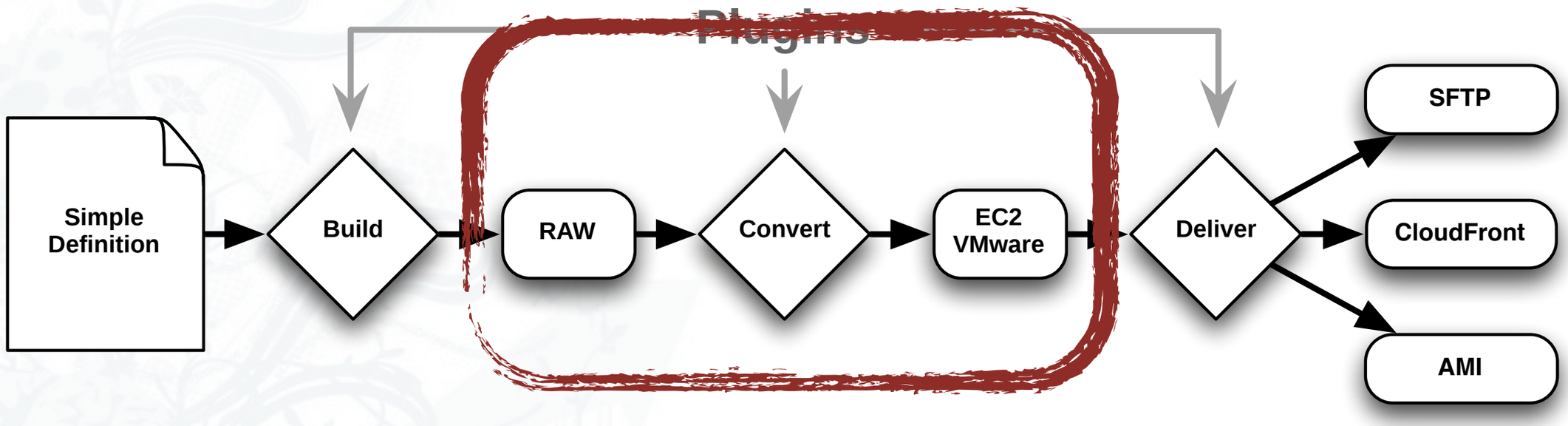
Step 1: create base image



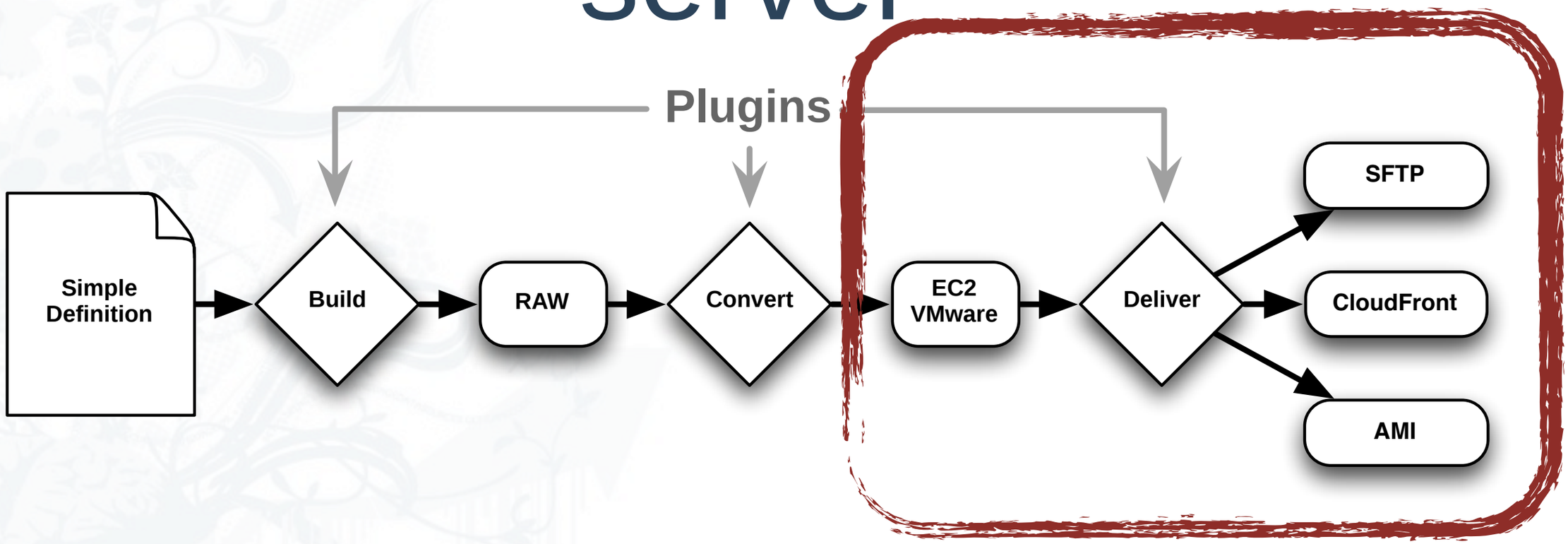

```
boxgrinder build f14-jeos.appl
```


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 back-end.appl -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**

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: **15 minutes** (on EC2, using meta-appliance)

Notes

- If you're building AMI's – **do it on EC2** – this will safe 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://jboss.org/boxgrinder/ # Home page
http://cloudpress.org/ # Blog

#boxgrinder # IRC

@boxgrinder
@marekgoldmann

Thanks!