

# OPEN SOURCE CLOUD COMPUTING FORUM

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## BoxGrinder

Bob McWhirter

JBoss Fellow

Chief Architect of Cloud Computing for JBoss Middleware



# Bob McWhirter

- JBoss Fellow
- Chief Architect of Cloud Computing for JBoss Middleware
- Founder of...
  - The Codehaus
  - Drools Rule Engine
  - Groovy Language
  - TorqueBox



# BoxGrinder

Making it easy to grind out server configurations for a multitude of virtualization fabrics.

# Background

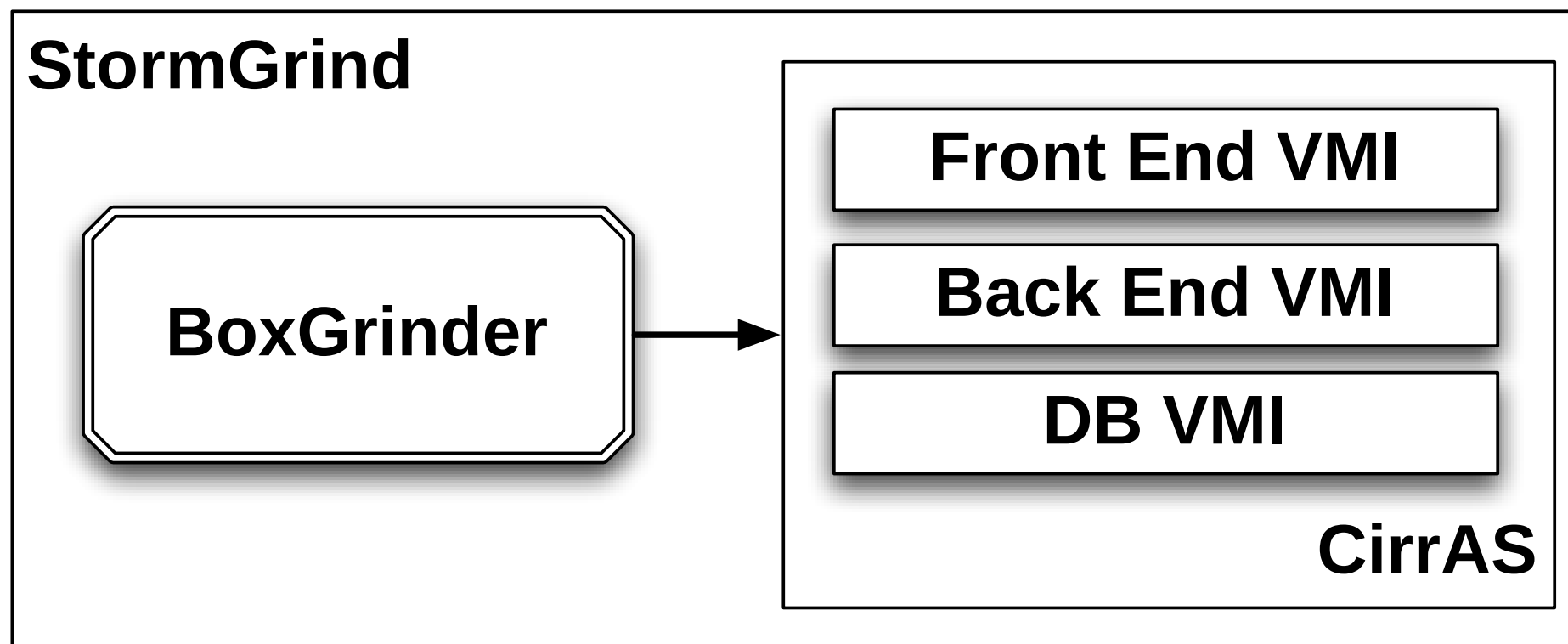
BoxGrinder grew out of our own need for tooling to produce cloud-ready images of JBoss projects.

# Background

The BoxGrinder suite of projects is currently lead by Marek Goldmann.

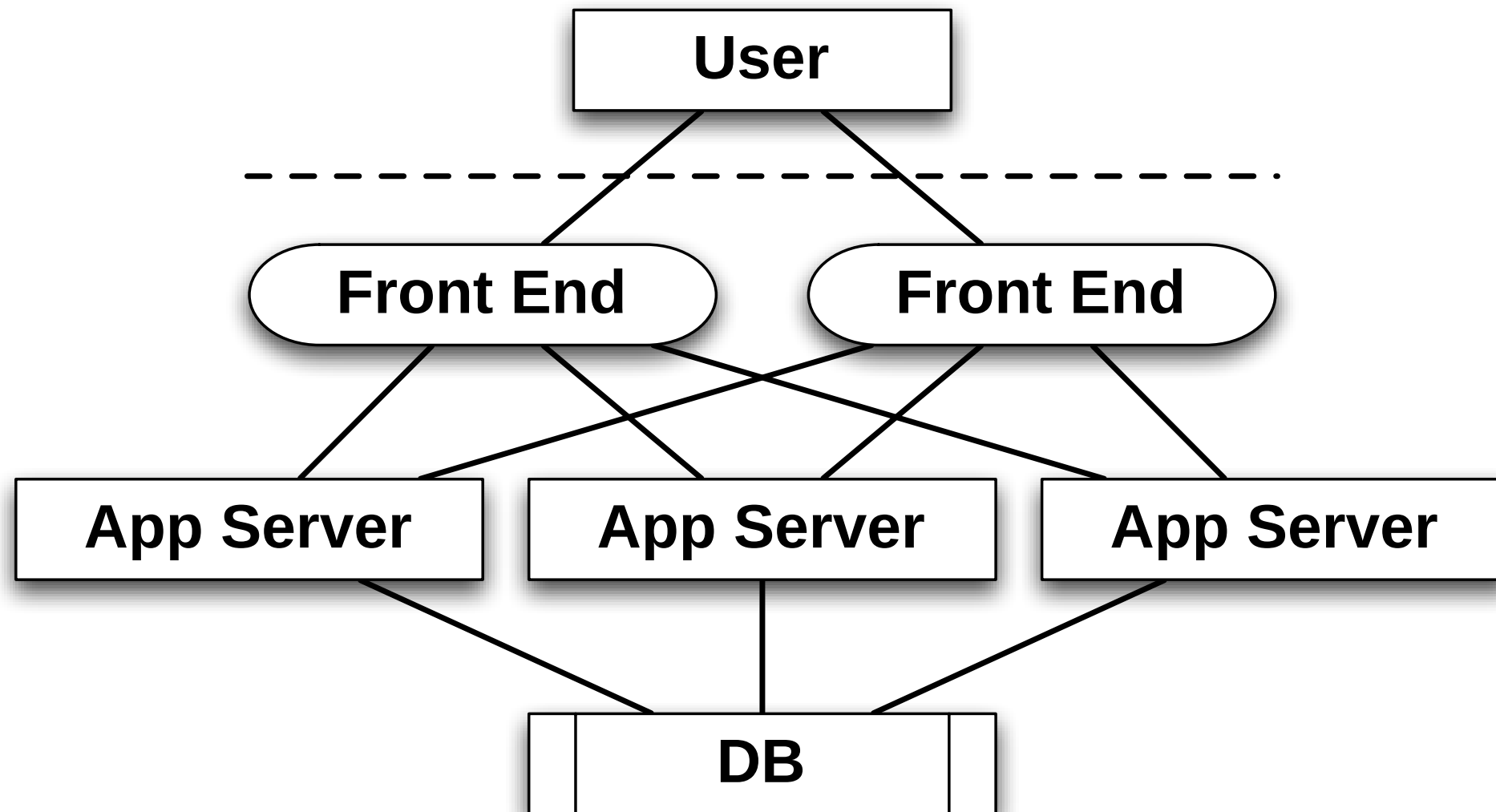
BoxGrinder is part of the StormGrind family, which includes appliances produced for JBoss use-cases (CirrAS).

# StormGrind

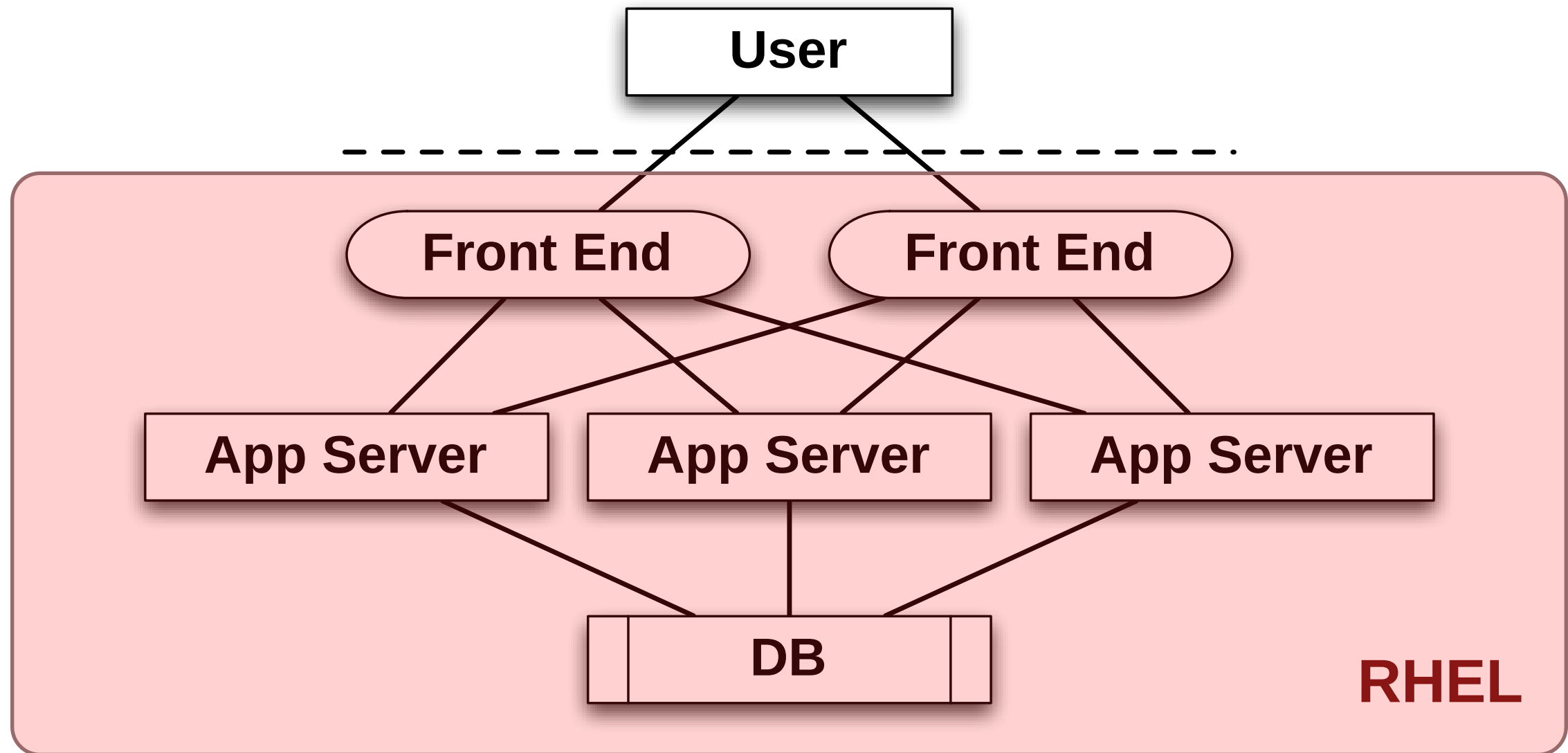




# The *Diagram*

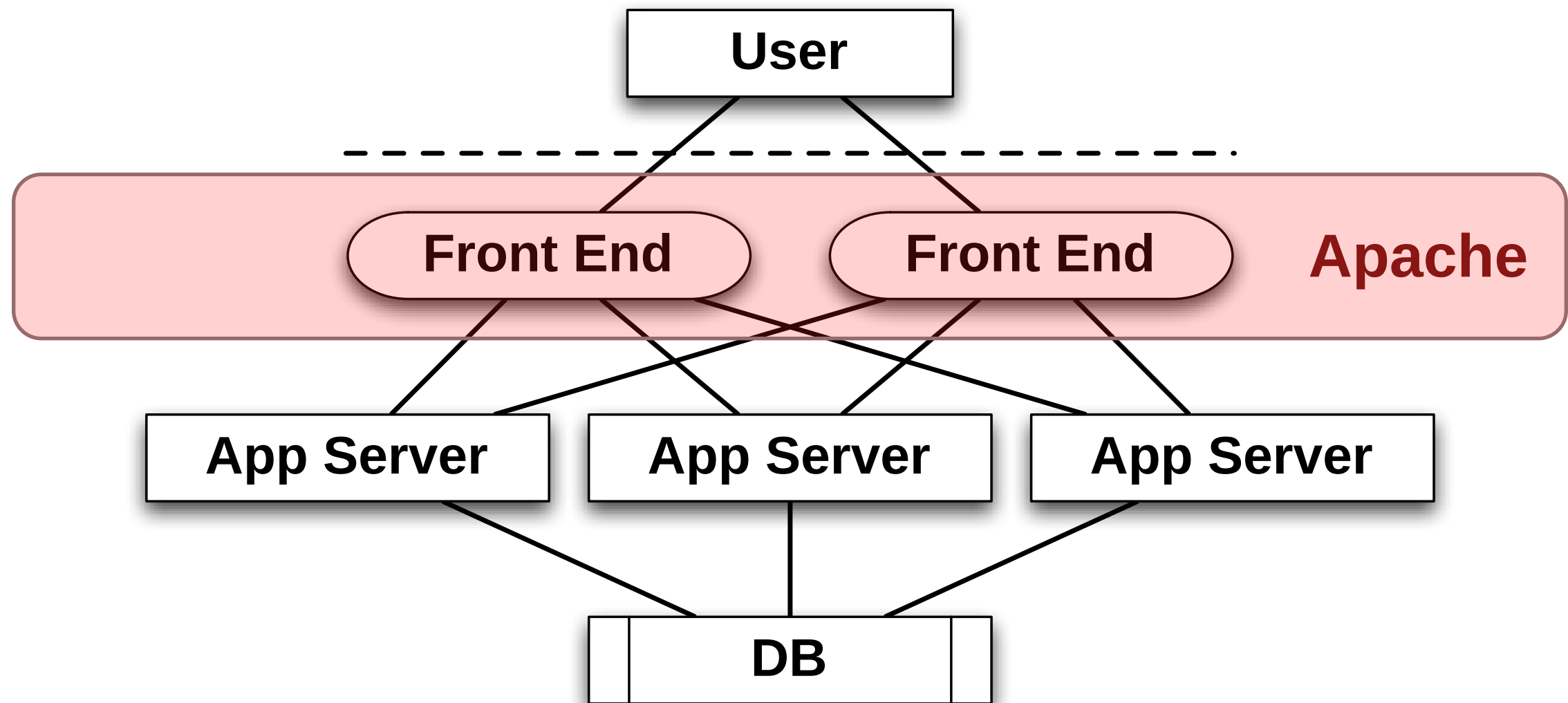


# Assumptions

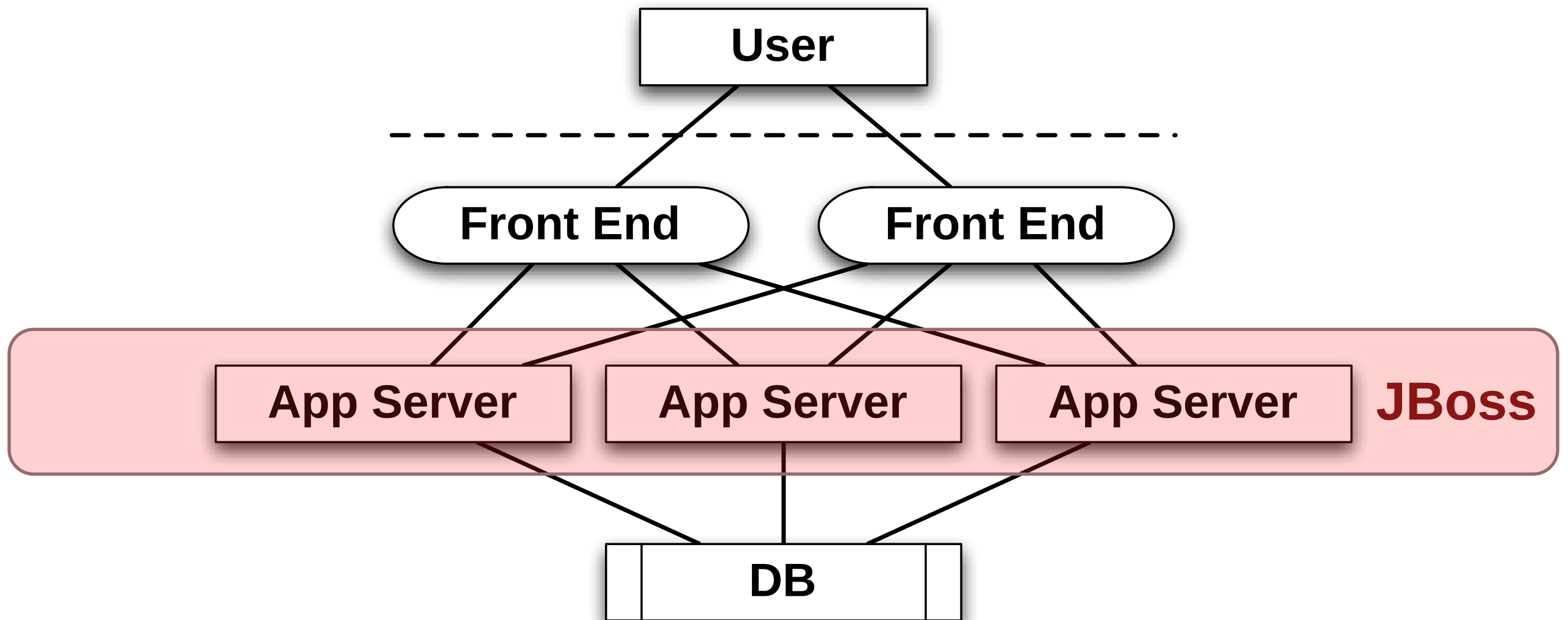




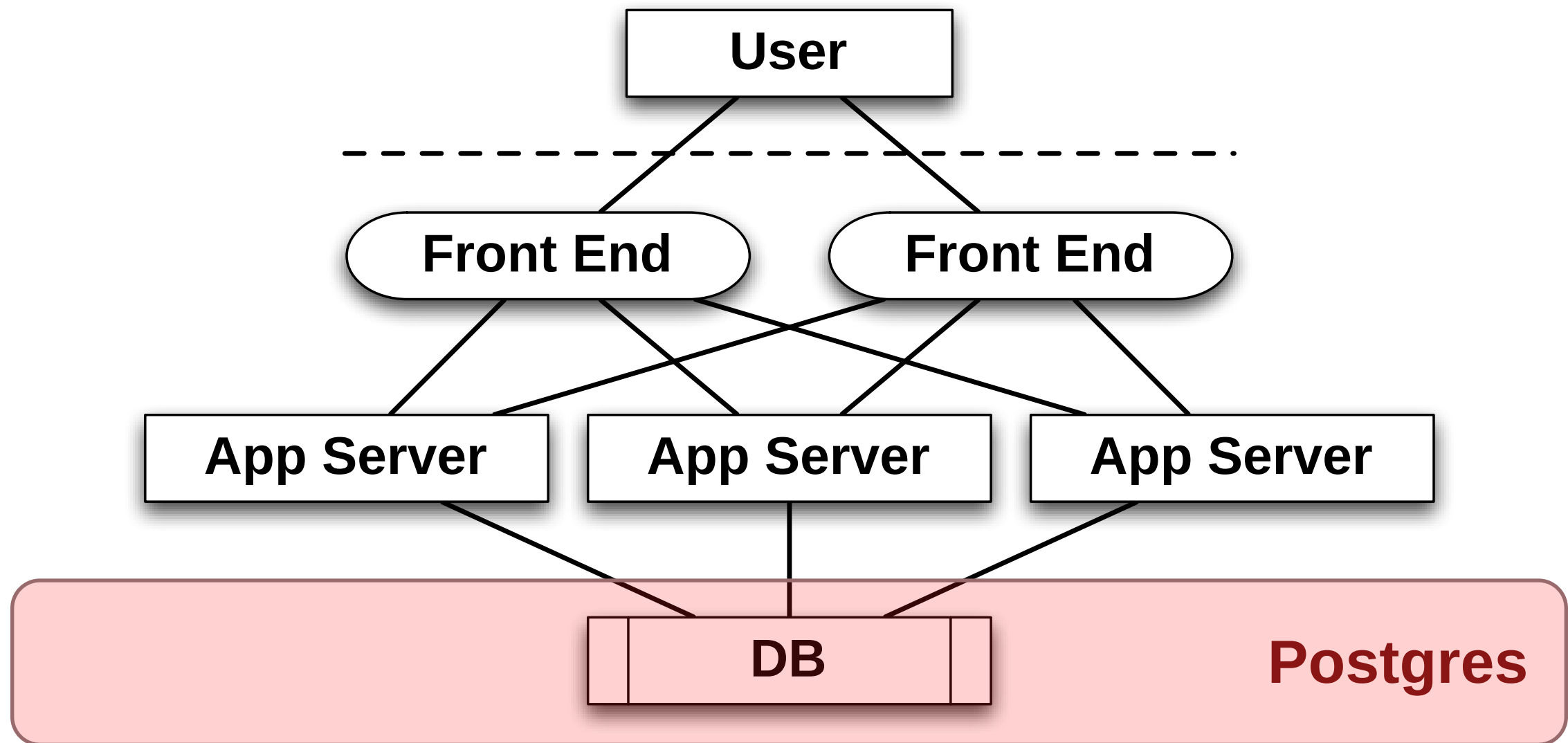
# Assumptions



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# Assumptions



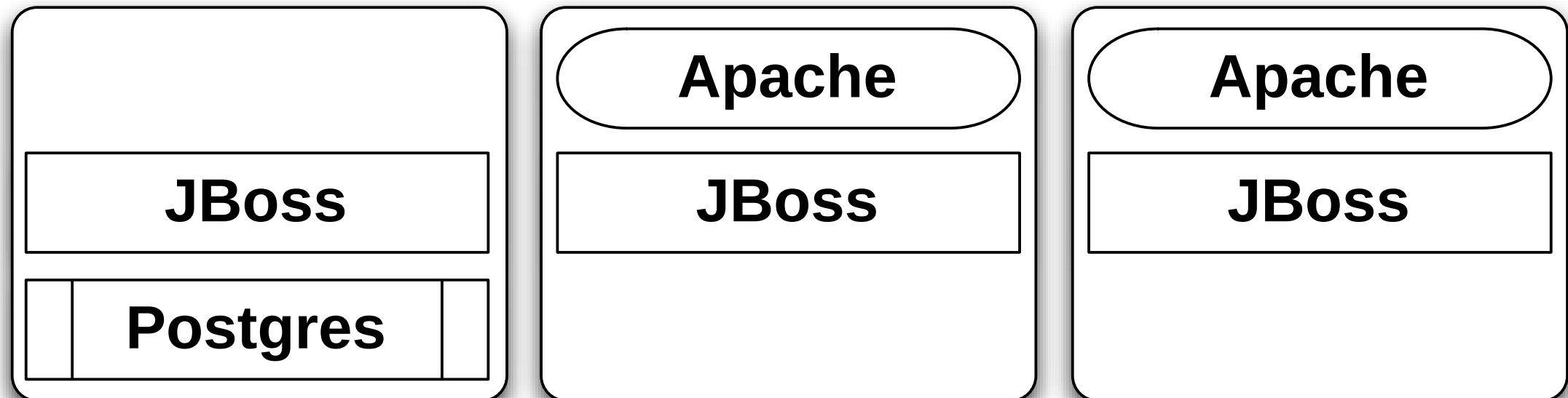


# But really...

Before the cloud, we might draw a diagram with 6 servers, but we only have 3 servers.

Each server gets services shoe-horned on where-ever they fit.

# Shoe Horning

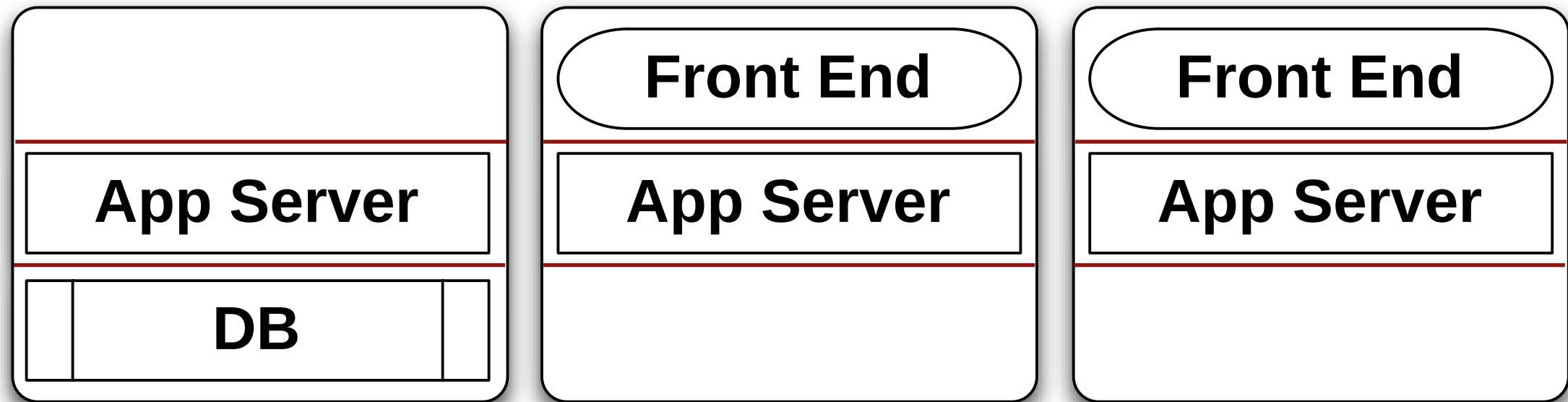


# ...no, really

With virtualization, we can still manage those 3 physical servers as though they match our 6 ideal servers.



# Virtualizing



# Server Image as Unit of Deployment

Instead of a variety of packages as unit of deployment, a single whole server image becomes a reproducible deployable unit.

# Benefits: Replicable

Easily replicate environment from development, testing, staging and production. Scale each replicant as appropriate.



# Benefits: DR

By imbuing operational knowledge into server images, disaster-recovery can mean simply setting up another instance somewhere else.

# BoxGrinder

- Creates servers based upon Fedora (and RHEL in the future)
- A layered architecture
  - Core image-building library
  - REST-exposed service
  - Web UI (forthcoming)

# Abstract Appliances

“Of course it’s Fedora 12”

“It needs JBoss for clustering”

“Let’s go with 64-bit”

***What more do you need to know?***



# Abstract Appliances

Specify preferences for CPU count, RAM and disk partition information.

# Mixed Appliances

All appliances may build upon the JeOS (Just enough OS) appliance.

They may mix in multiple other full or partial appliance definitions.

Mix in corporate packages for capabilities and configuration.

# Define Appliances

Being Red Hat, an appliance is defined as a collection of RPMs.

# Example

```
name: httpd
summary: Appliance with Apache HTTPD
appliances:
  - jeos
packages:
  includes:
    - httpd
```

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```

# Better Example

```
name: your-appliance
summary: This describes your appliance
os:
  name: fedora
  version: 12
  password: weakpassword
image:
  cpus: 2
  memory: 512
  partitions:
    - root: "/"
      size: 10
packages:
  includes:
    - httpd
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```



# BoxGrinder-Build

`rake appliance:httpd`

# Appliance Targets

- Amazon EC2
- Xen
- KVM
- VMware
- others (VirtualBox, etc)

# Appliance Targets

**32-bit**

**64-bit**

# Portfolios

It's easy to grind out a portfolio of server images that are tailor-made to function together.

The StormGrind CirrAS suite of images provide all 3 tiers (front-end, appserver, database), for all virtualization fabrics, 32- and 64-bit.

# Efficient

Can build a typical raw image in about 4 minutes. Conversion to VMware for vSphere takes another 2 minutes.



# BoxGrinder-REST

BoxGrinder-REST exposes appliance-building as a network-accessible service.

# BoxGrinder-REST



# Async Tasks

Long-running (several minute) appliance grinding tasks run asynchronously using JBoss queueing.

# Build Farm

BoxGrinder-REST is adding support for using a farm of nodes (possibly on-demand) to perform the appliance grinding.

# BoxGrinder Studio

BoxGrinder Studio is in the works to add a web UI to make creation of specialized cloud appliances even easier.



# Bottom Line

BoxGrinder lets you think & design abstractly, while still preparing you to run in a multitude of concrete cloud environments.

# Community

## Web

<http://jboss.org/stormgrind>

## Twitter

@stormgrind

## IRC

#stormgrind on irc.freenode.net

# Q&A