April 16, 2013

Building “Cloudy” Apps

OpenStack Summit April 2013 - Portland, Oregon

The End

1. Enable Scaling
2. Expect Failure

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Know Your Audience

- How many of you are attending your **first** OpenStack Summit?
- How many of you have attended a **Rackspace Training** class before?
- How many of you know which **track** this talk is listed under?
- How many of you are just **getting started** with OpenStack?
- How many of you are **Developers**?
- How many of you are **Operators**?
- How many of you are **both**?
- How many of you are **neither**?
- How many of you consider yourself to be **technical**?
- How many of you have access to a working **OpenStack Cluster**?
- How many of you know **what** OpenStack is?
- How many of you know which **projects** make up OpenStack?
- How many of you have ever written a **production application** for the cloud?
- How many of you remember the **end** of my talk?

Know Your Speaker

Tony Campbell

Director of Training and Certification

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training.rackspace.com

www.rackertalent.com

@CloudTrainMe

tonycampbell

Know Your Speaker

Broadcast Communications / English / Theater

Sun Microsystems

eCommerce in 1997

Hitachi Data Systems

eBenefits Start Up

Rackspace

Know Your Speaker

Rackspace (The last 10 years)

Web Development - Rackspace.com

Software Development - MyRackspace

The “Original” Rackspace Cloud - Mosso

Rackspace Private Cloud and OpenStack

Software Development

My Happy Place

Software

Development

Hardware

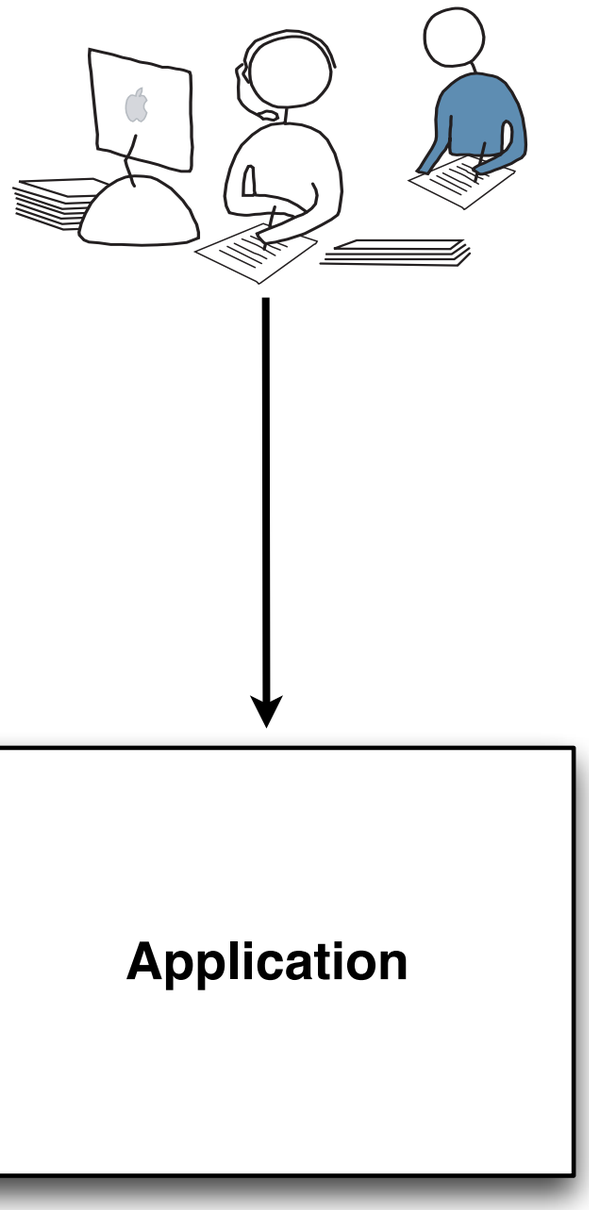
Management

Before the Cloud

Throwback Applications

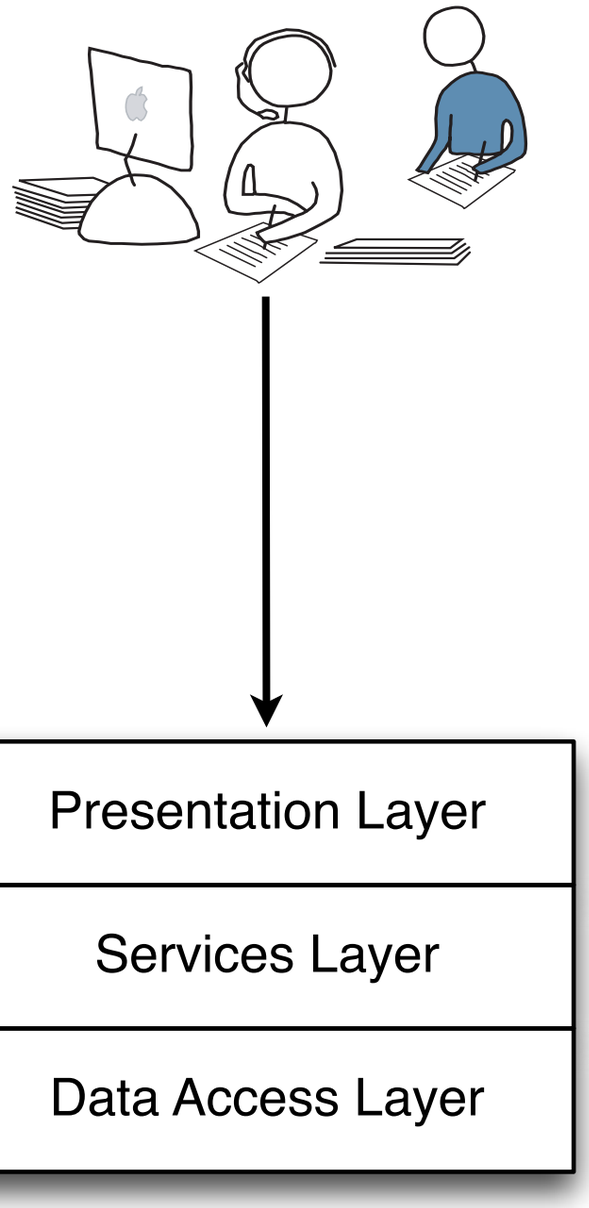
Once upon a time

Writing Apps that Users Used



Once upon a time

Developers wrote applications



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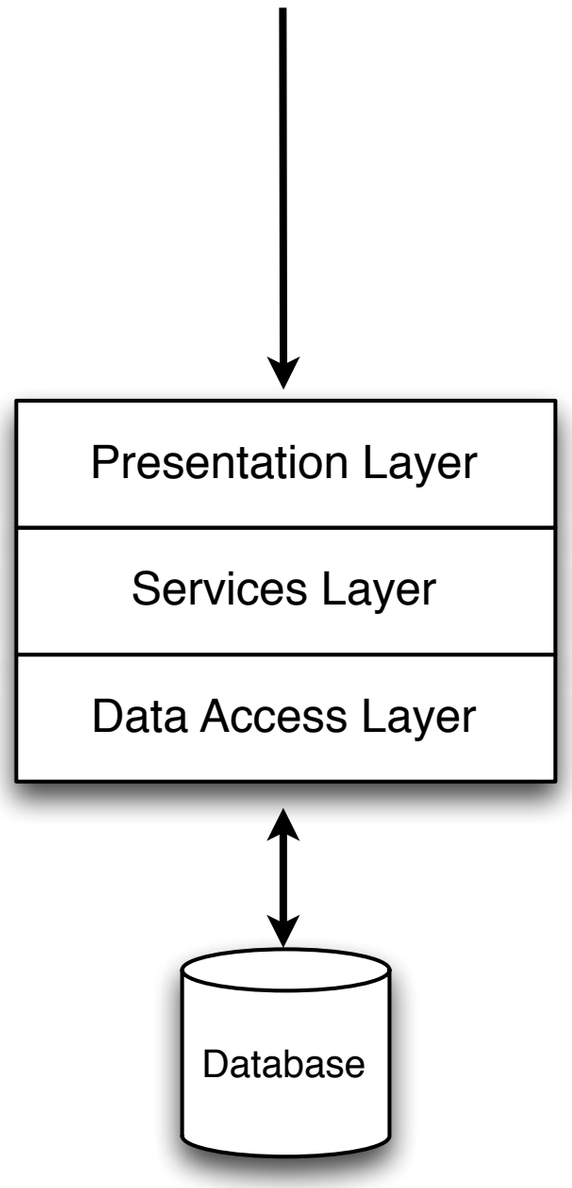

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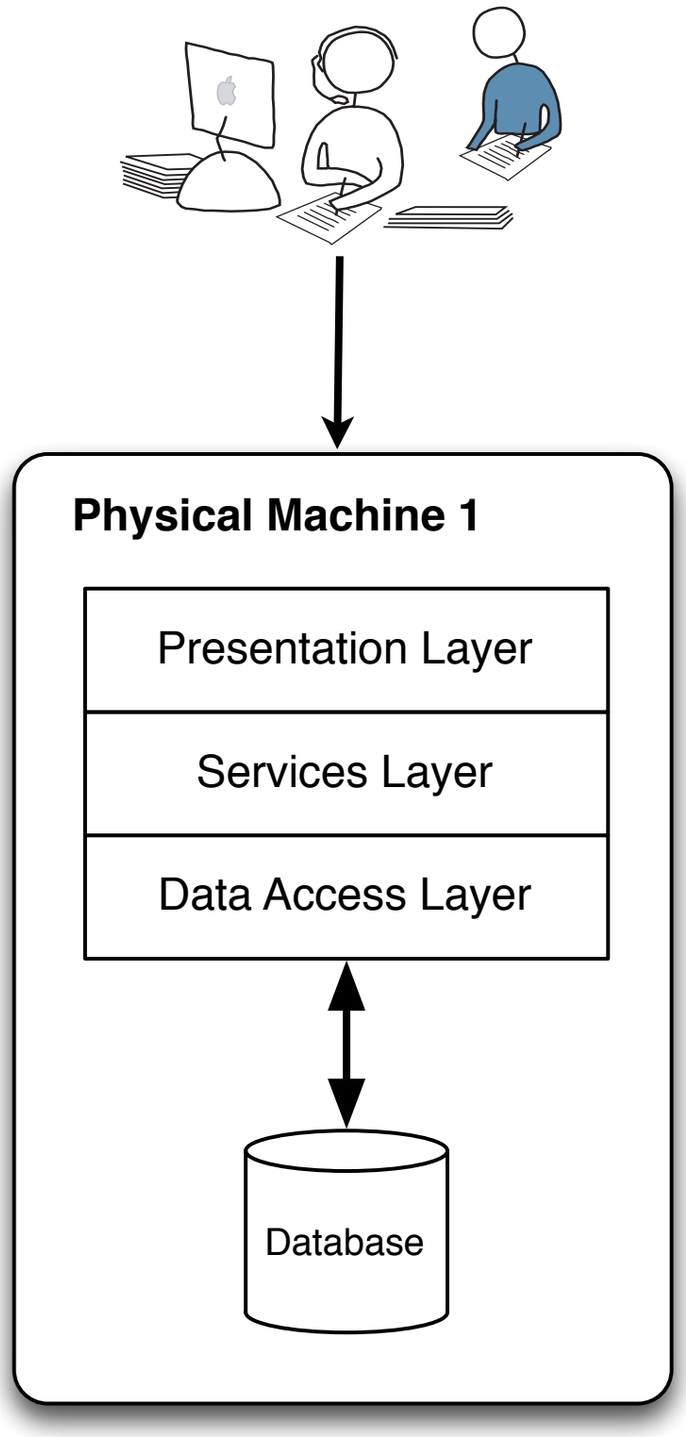

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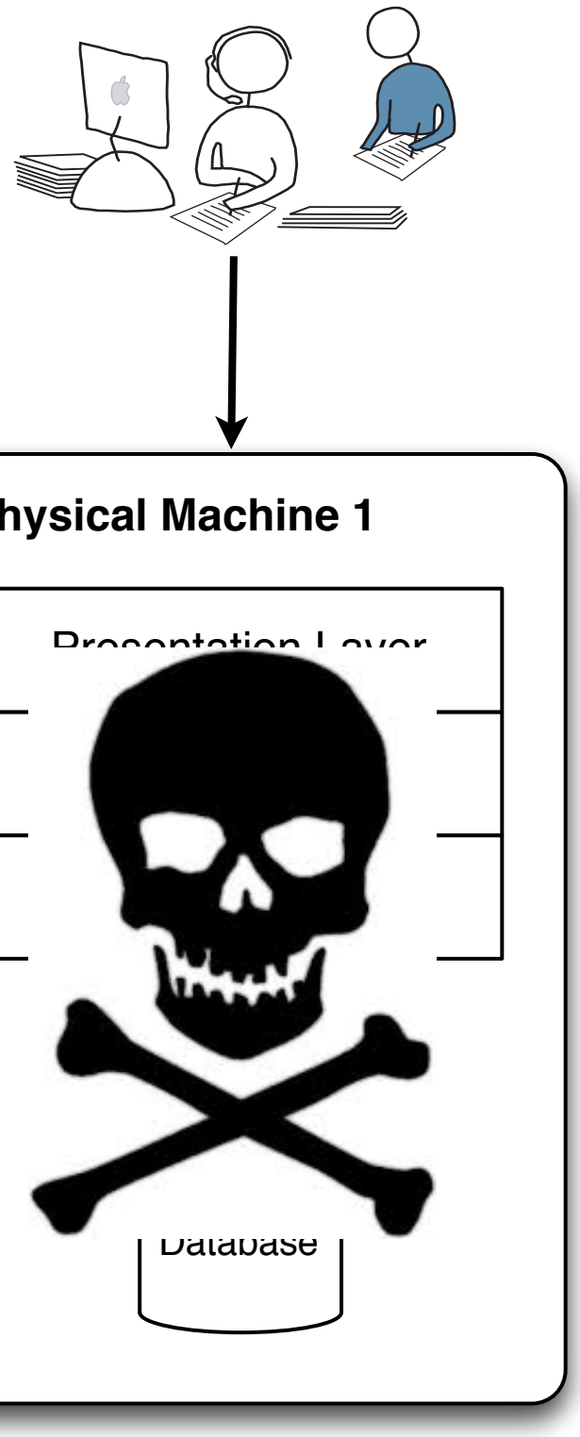

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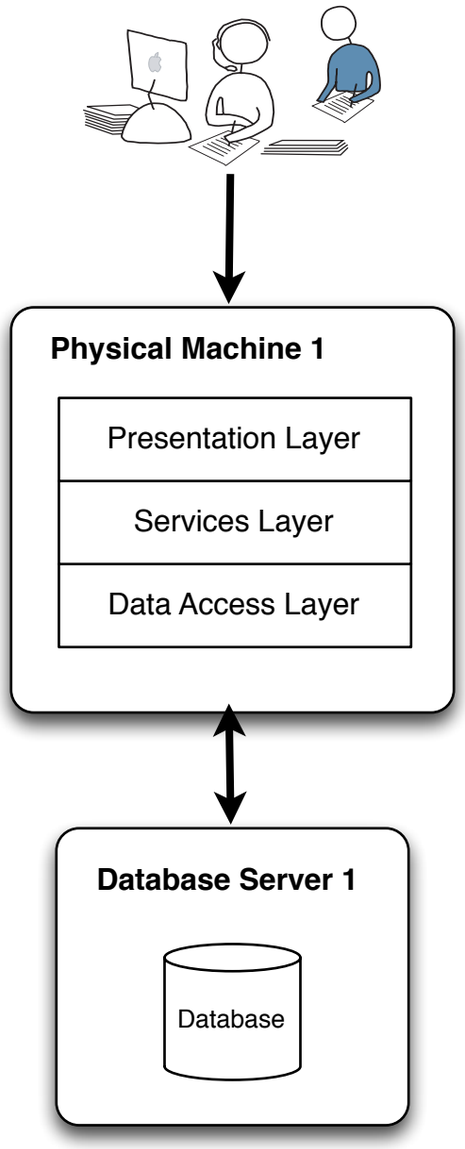

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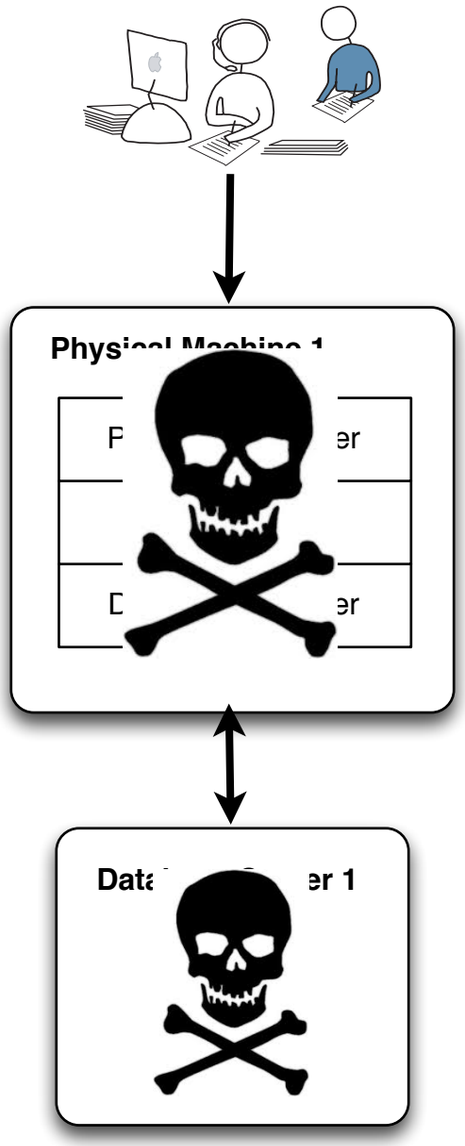

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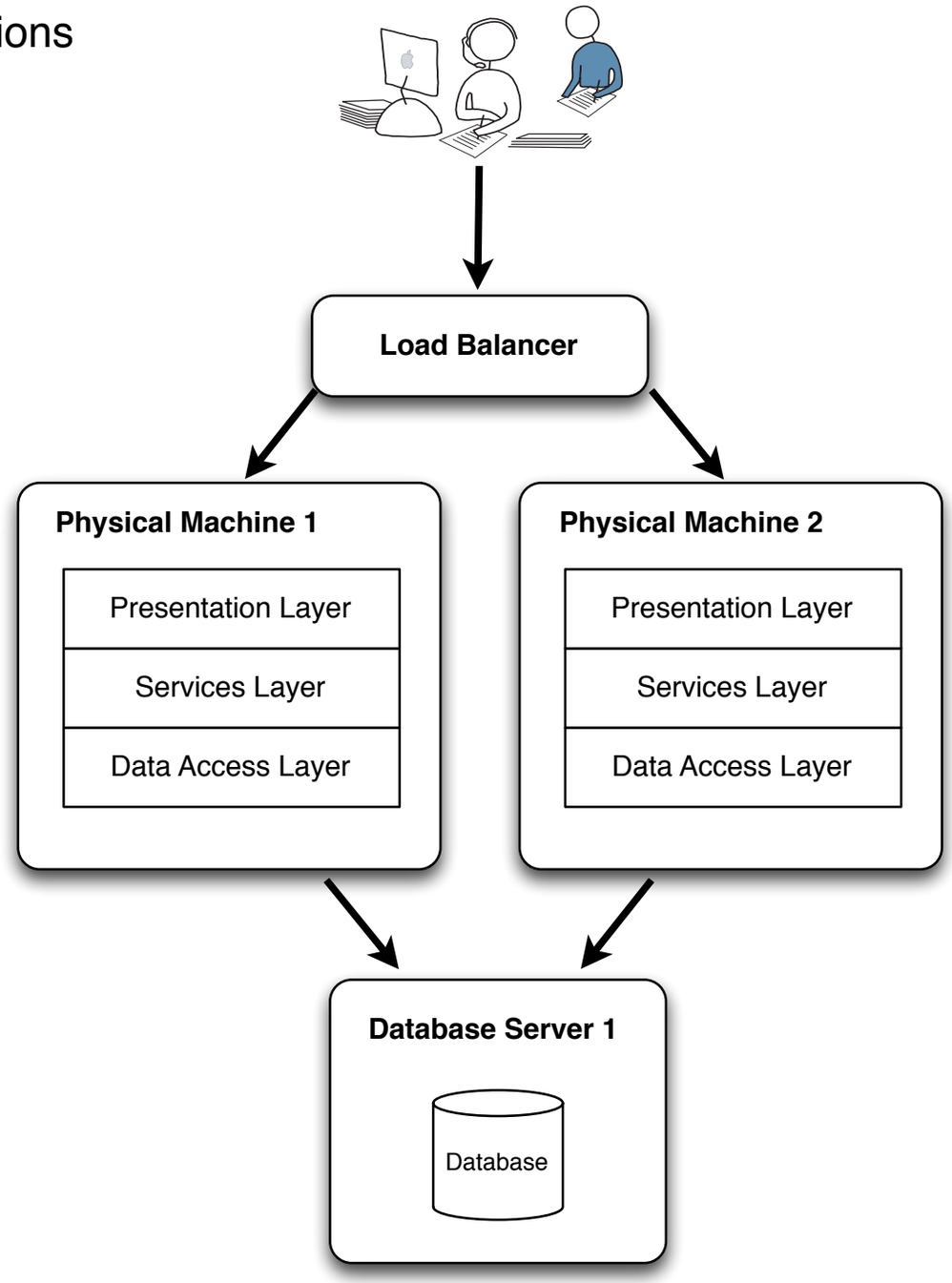

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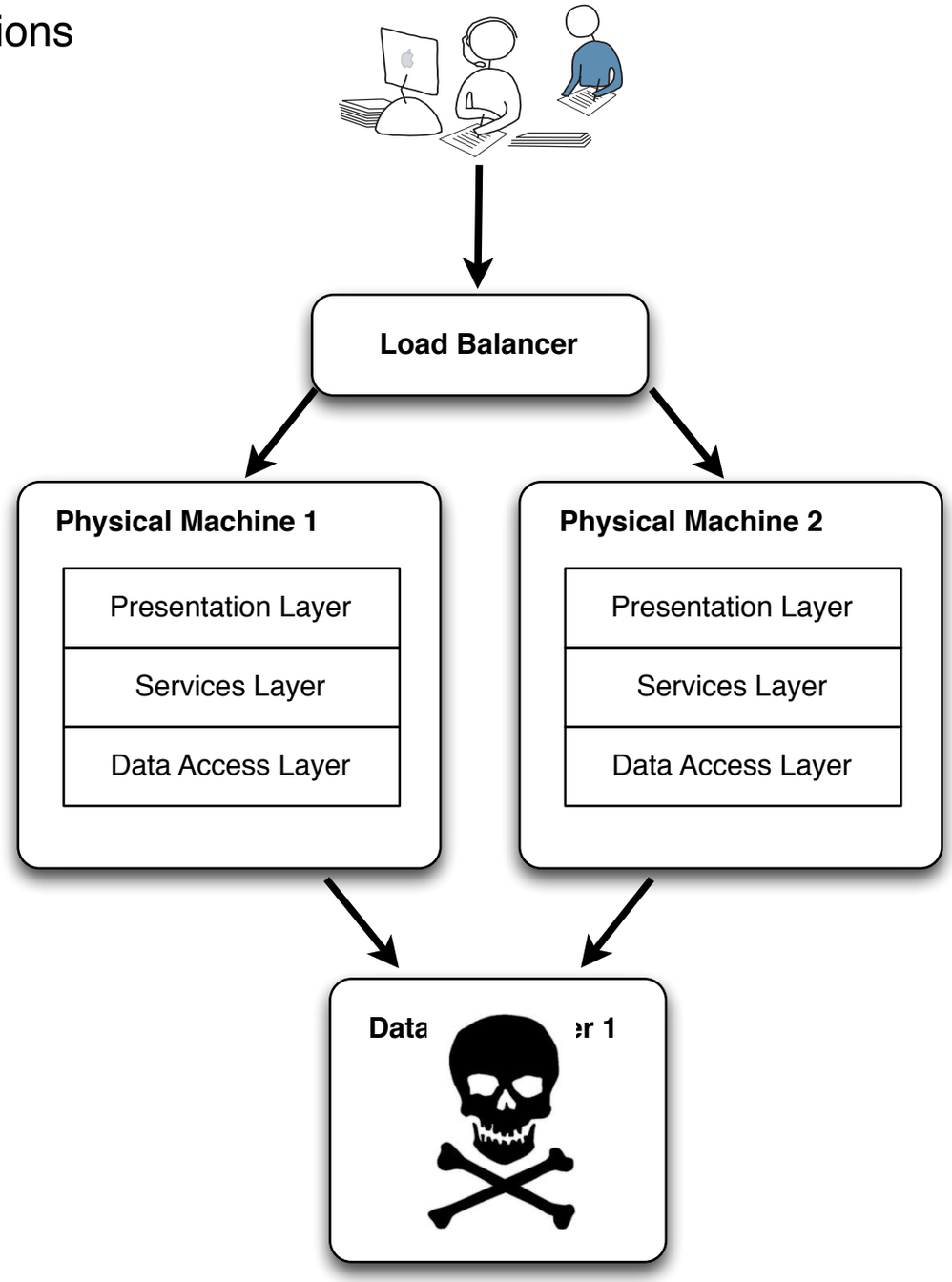

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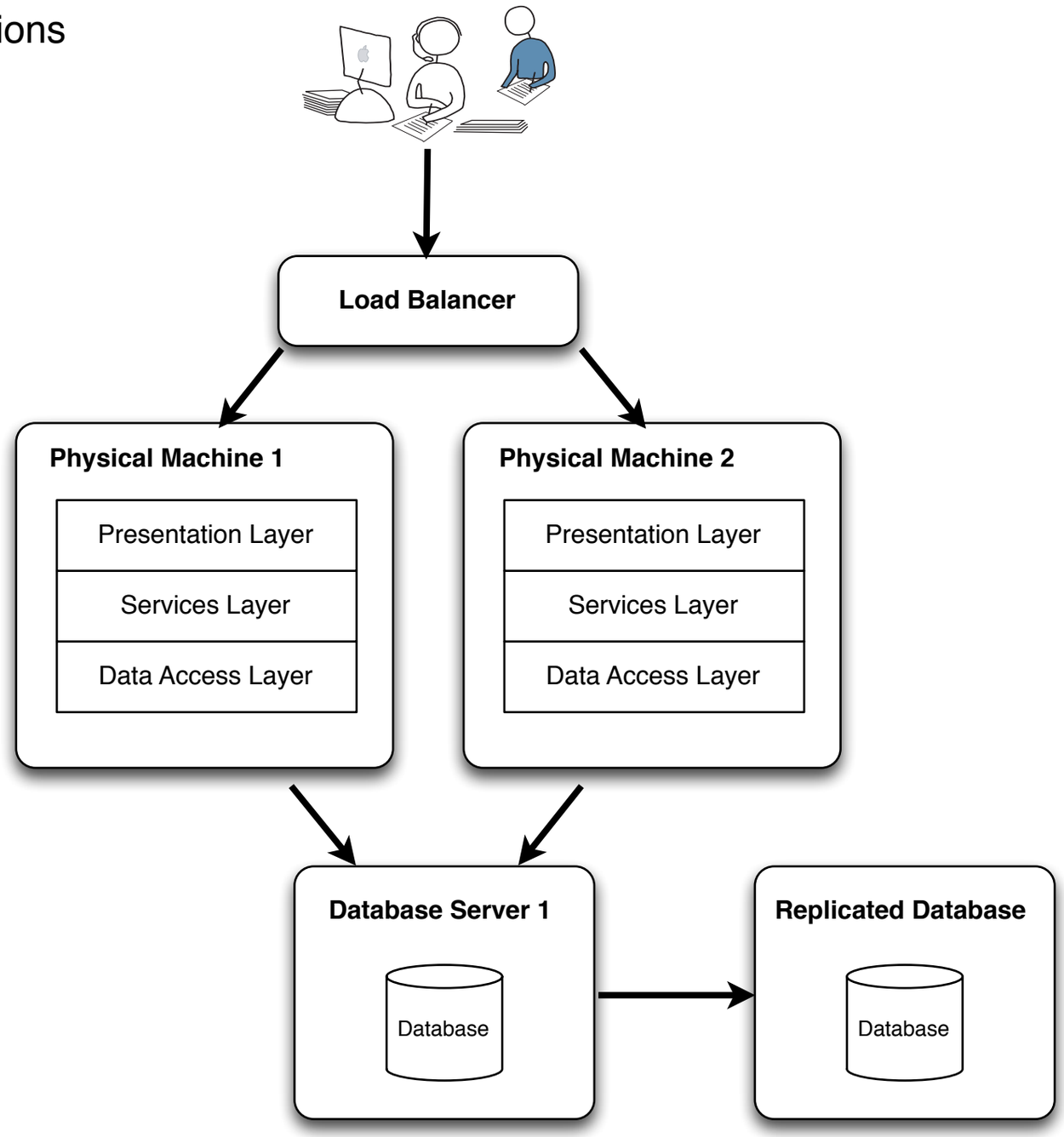
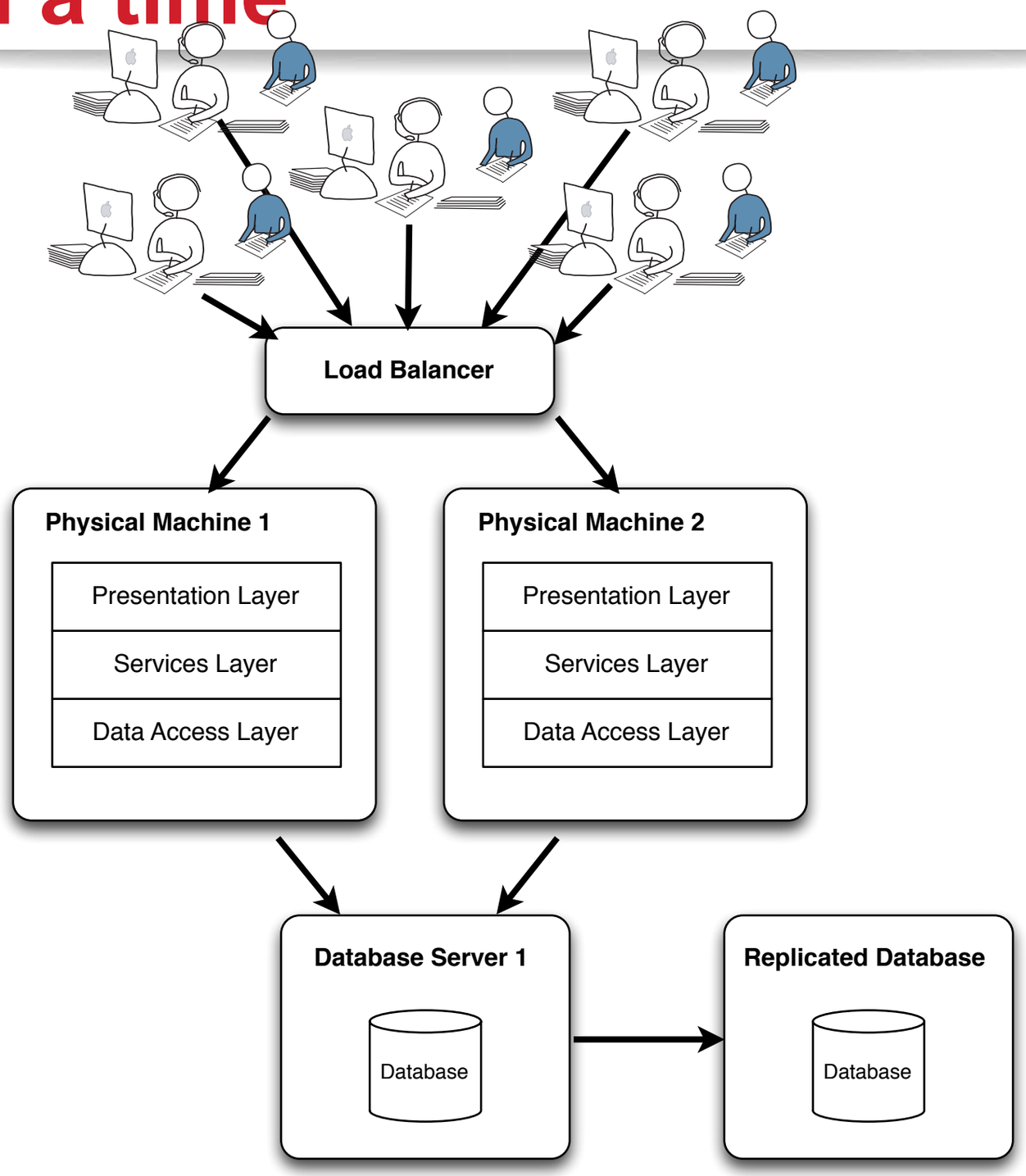


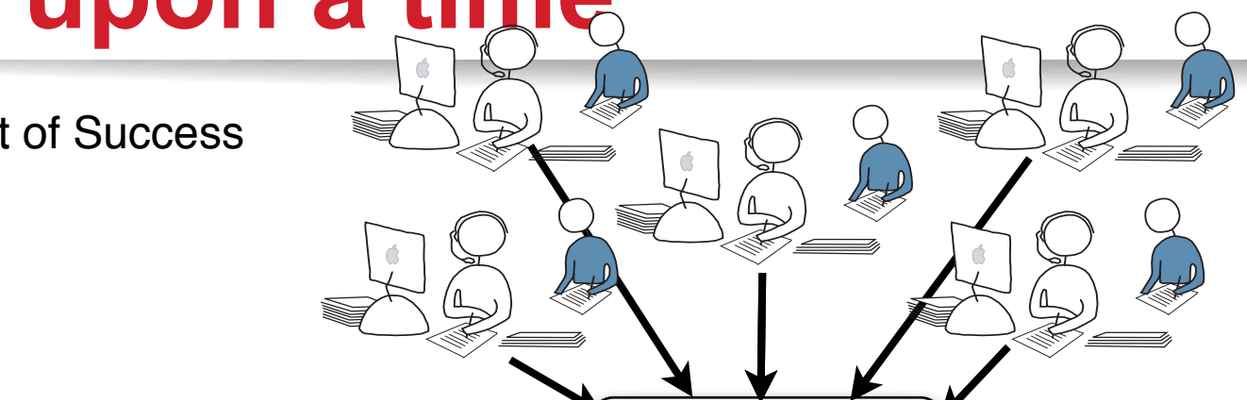
Once upon a time

The Cost of Success



Once upon a time

The Cost of Success



Load Balancer 1

Physical Machine 1

- Presentation Layer
- Services Layer
- Data Access Layer

Physical Machine 2

- Presentation Layer
- Services Layer
- Data Access Layer

Physical Machine 3

- Presentation Layer
- Services Layer
- Data Access Layer

Database Server 1

Replicated Database

Just in Case

Physical Machine X

Physical Machine X

Physical Machine X

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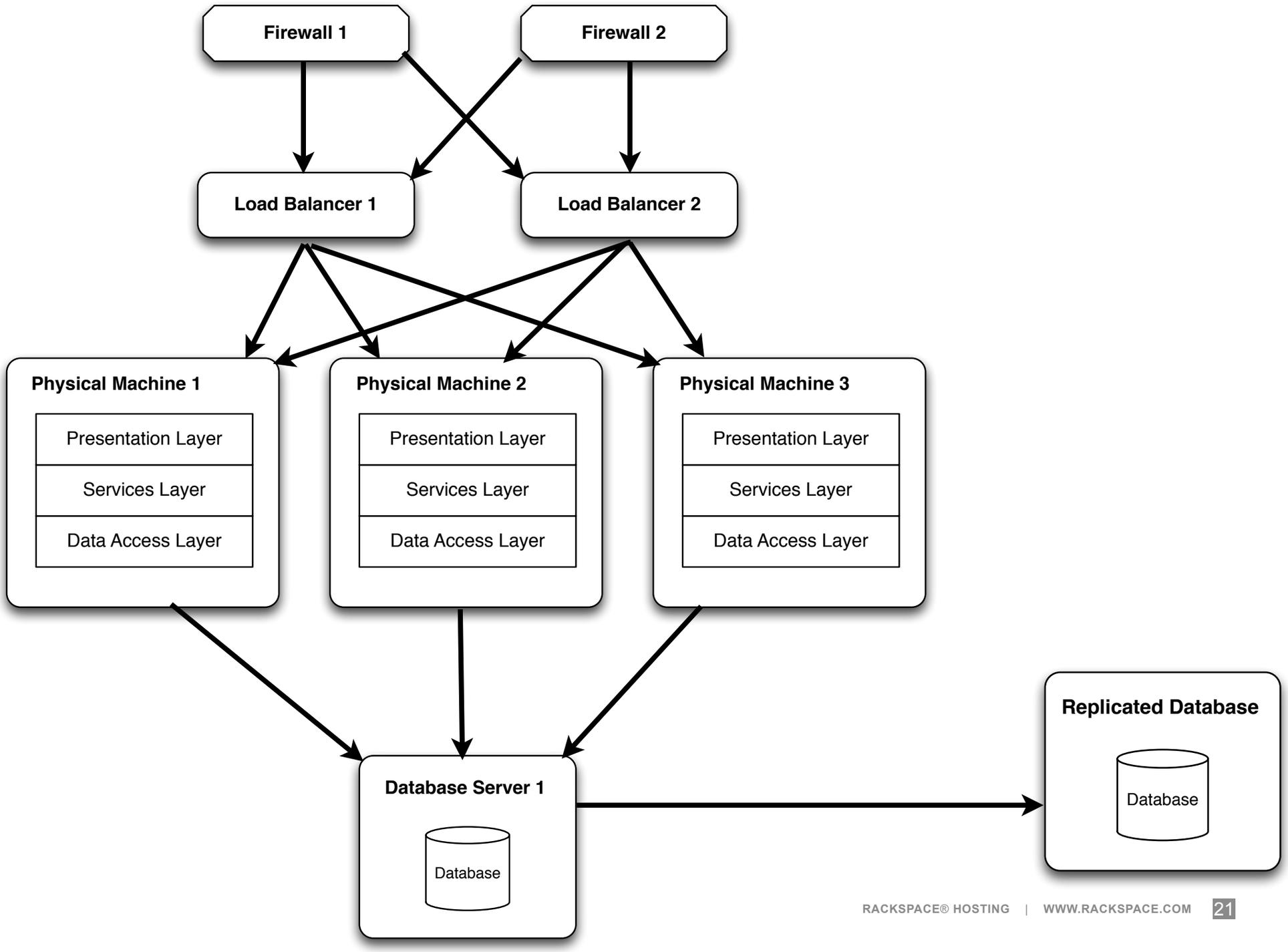
Once upon a time

HA Networking



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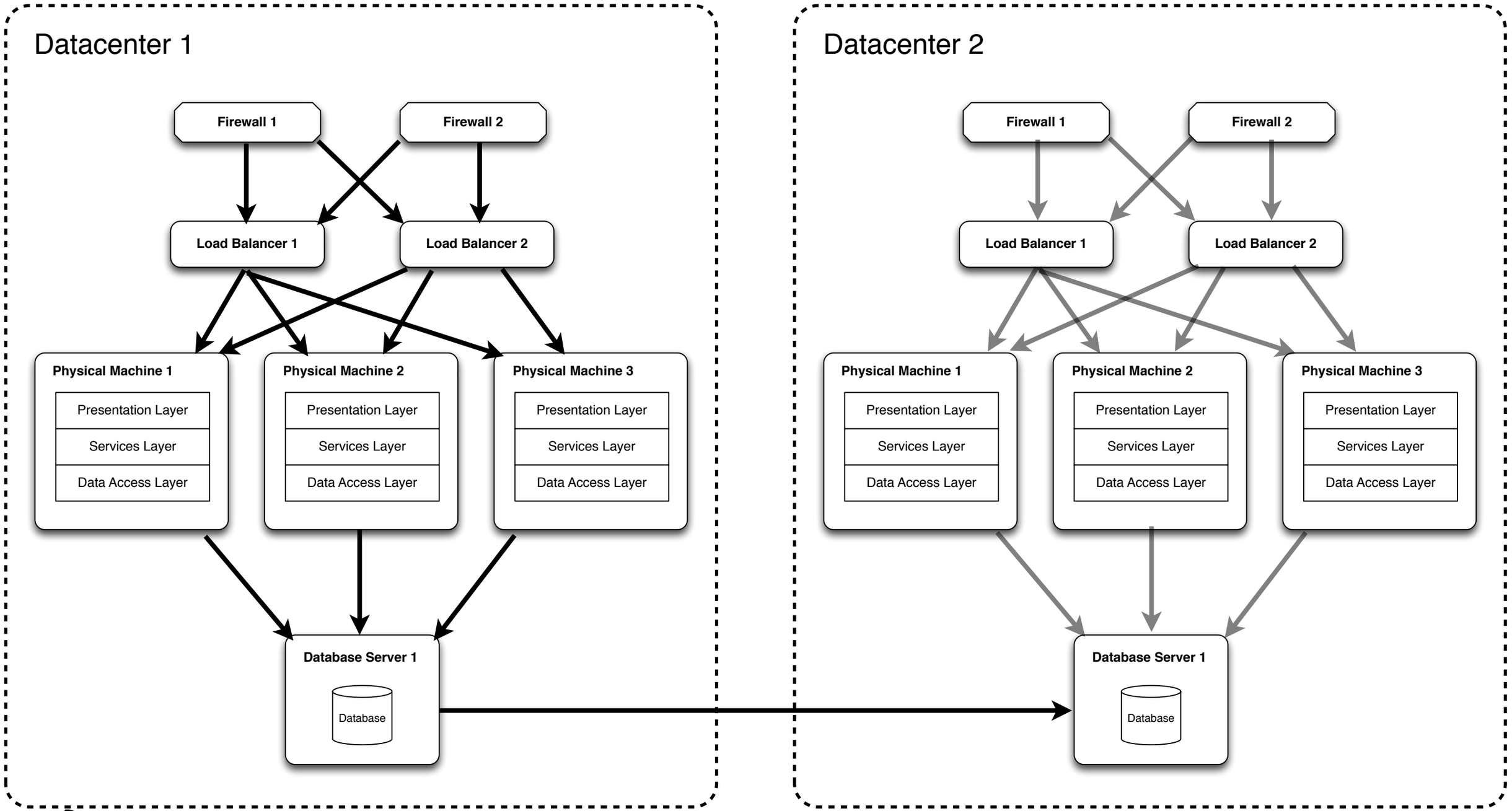
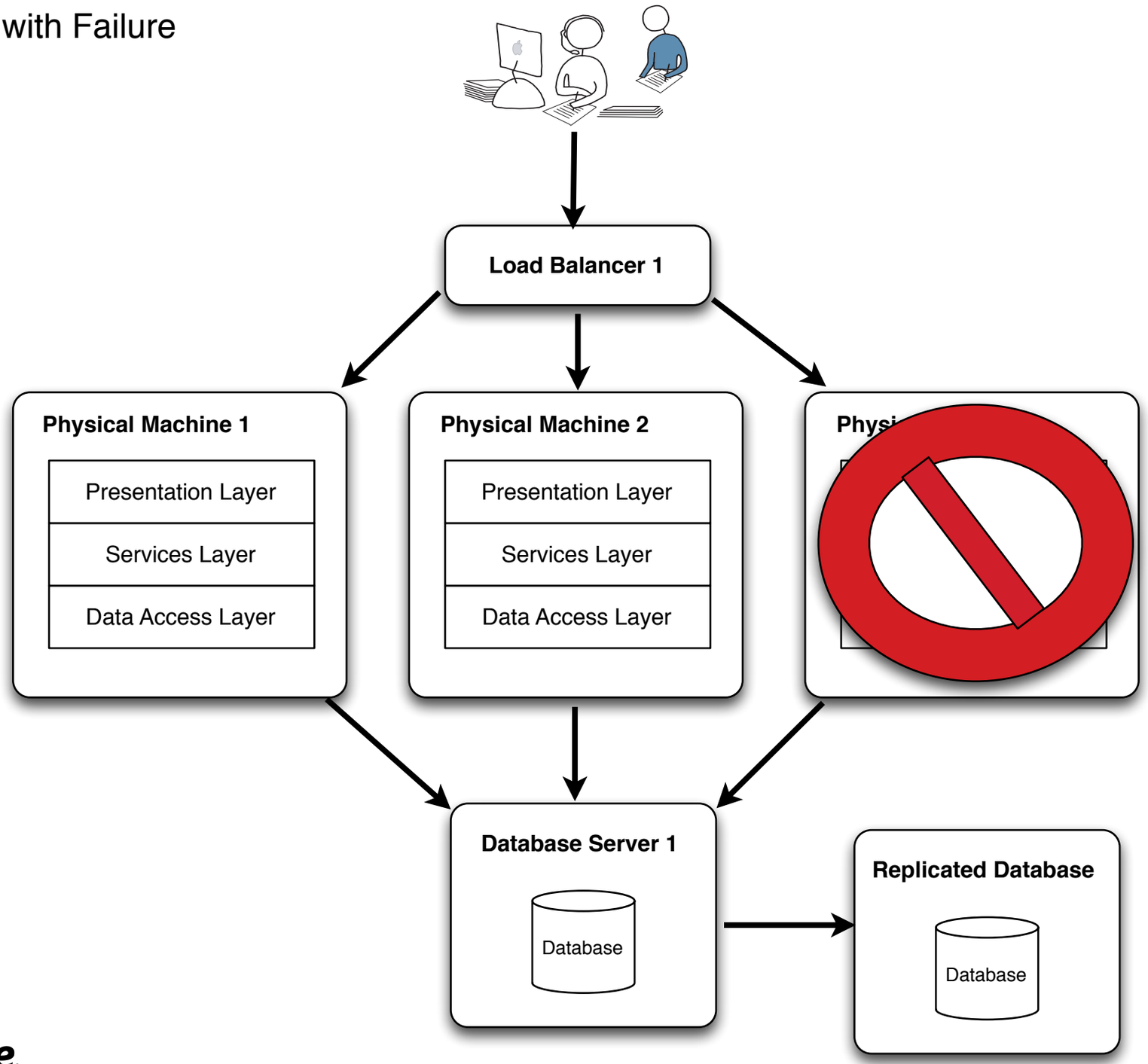


Once upon a time - Failure Scenarios

Once upon a time - Failure Scenarios

Dealing with Failure



Once upon a time - Failure Scenarios

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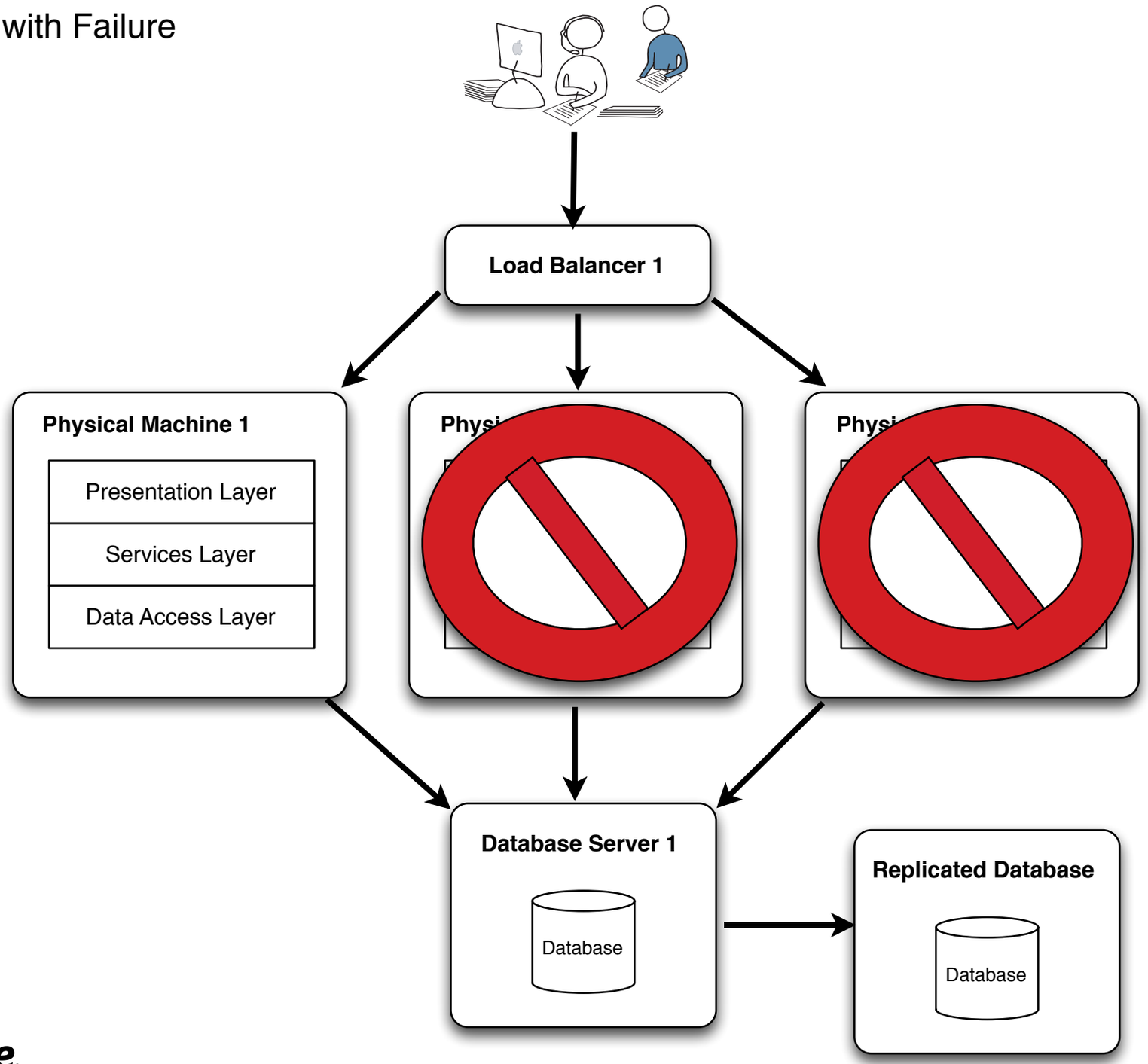
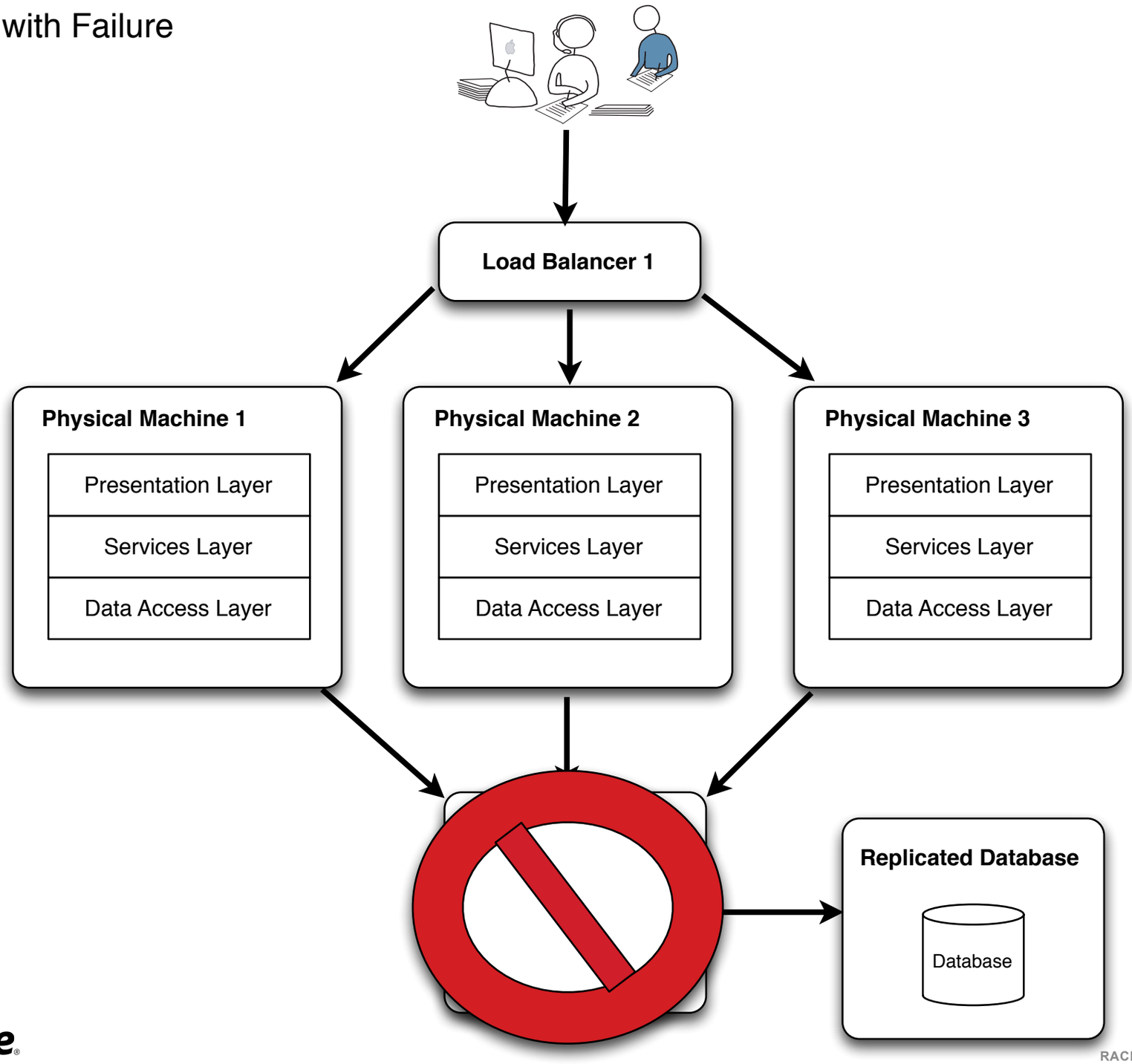


Once upon a time - Failure Scenarios

Dealing with Failure



OpenStack in 60 Seconds

But who’s counting?

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My Happy Place

Software

Hardware

Development

Management

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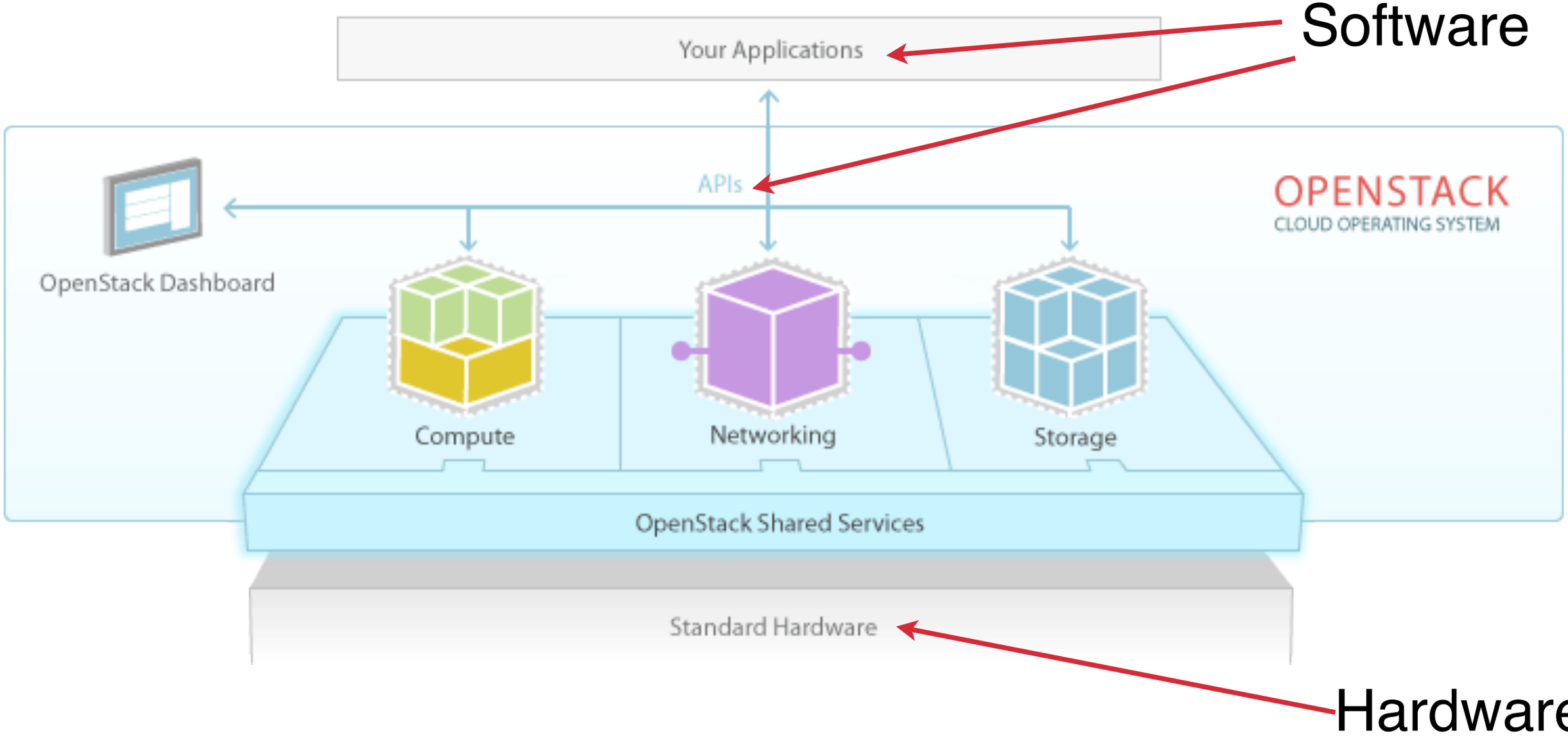
OpenStack in 60* seconds



*** I reserve the right to take more than 60 seconds**

OpenStack in 60* seconds

- Cracking the code (names)
  - Nova
  - Swift
  - Glance
  - Keystone
  - Horizon
  - Cinder
  - Quantum

*** I reserve the right to take more than 60 seconds**

Make It “Cloudy”

The End

1. Enable Scaling

2. Expect Failure

The Questions

1. How is my **application** going to handle **success**?

2. How is my **application** going to handle **failure**?

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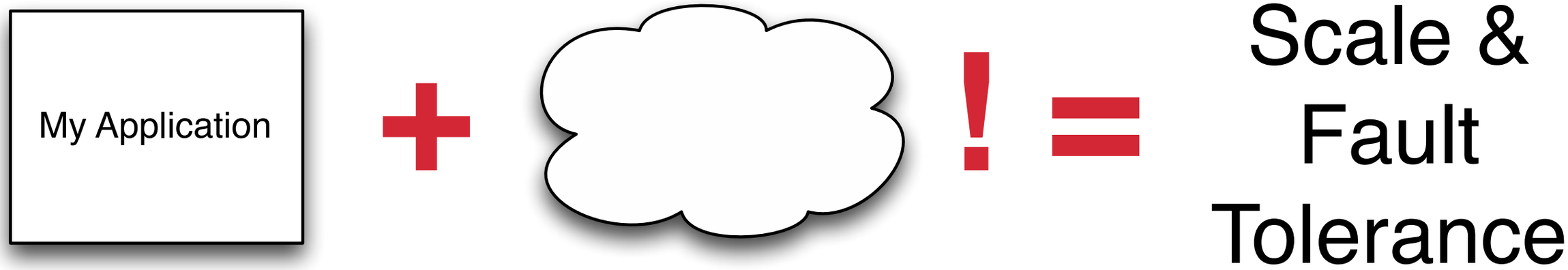
The Benefits

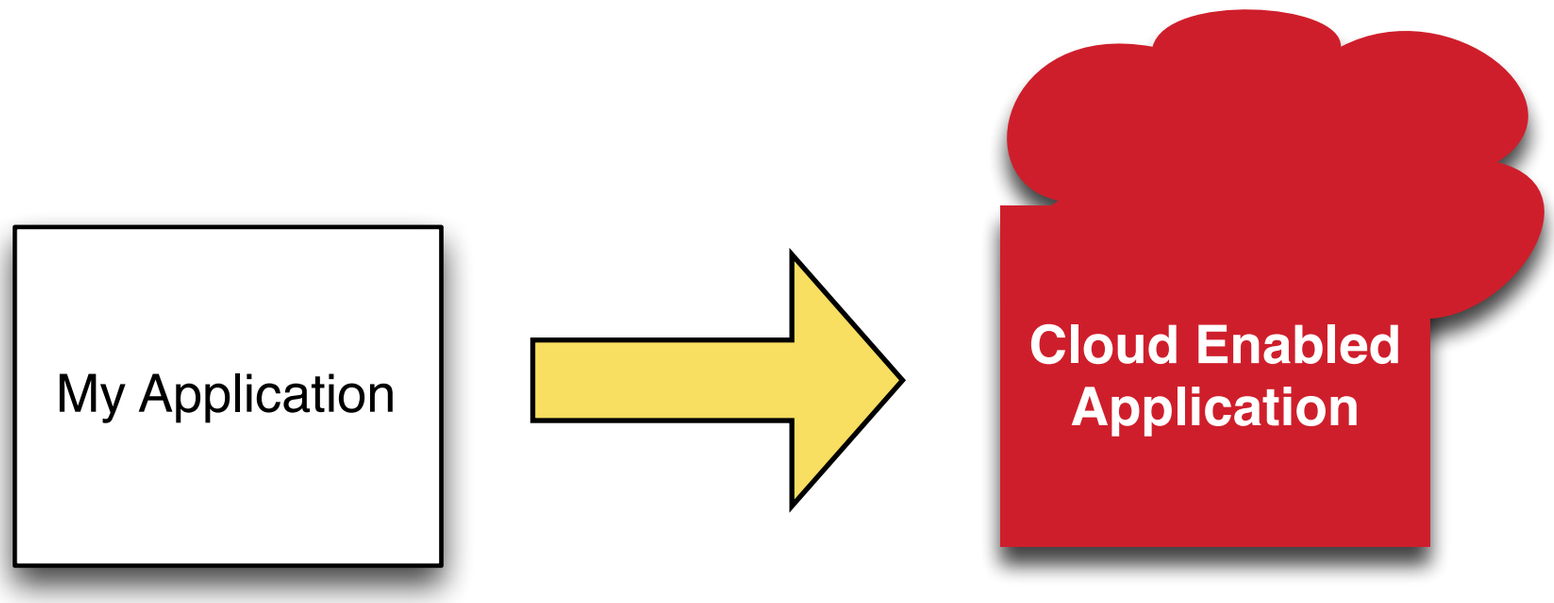
1 Cloud can provide powerful options for **scaling your application**

2 Cloud can help your application **handle failure elegantly**

The Benefits !instant



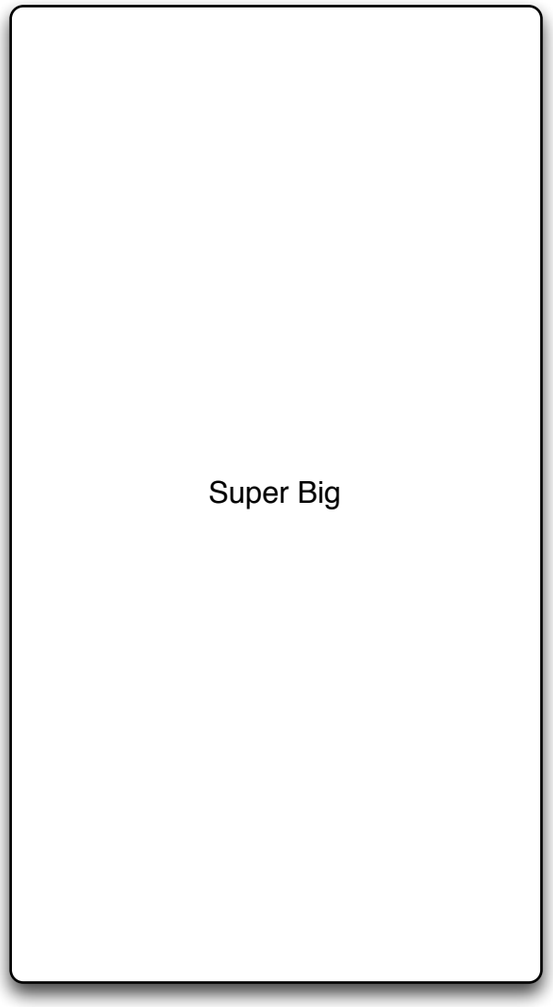
Cloud Enable Your App



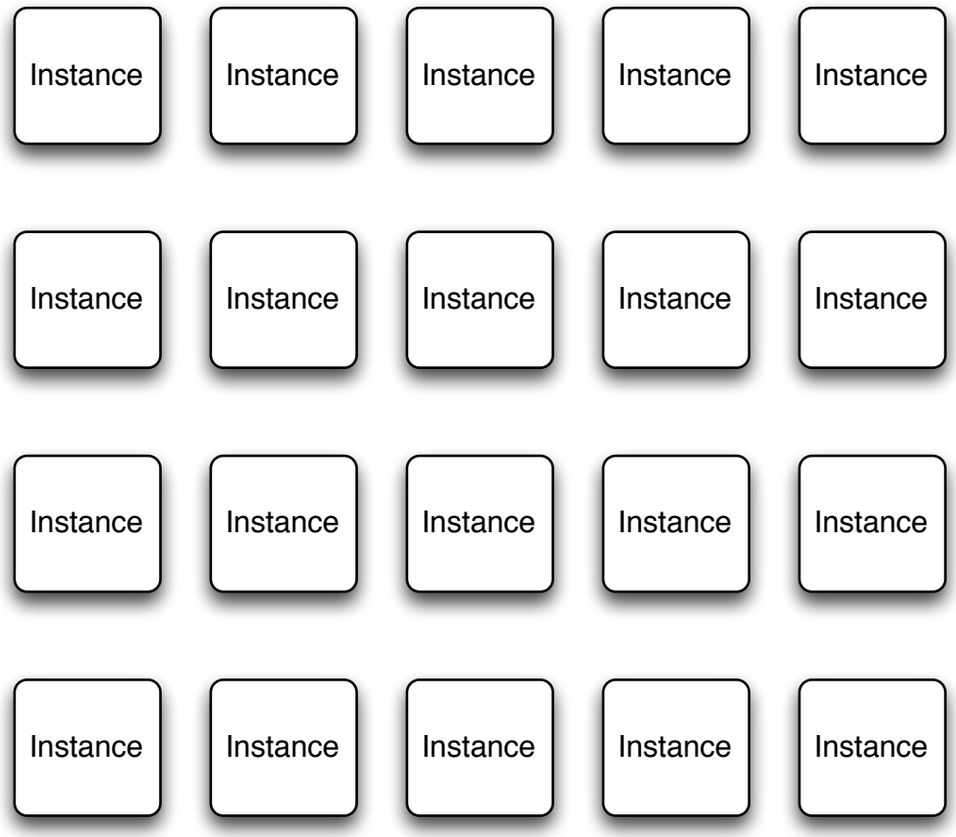
Horizontal Scaling

Don’t buy a bigger box, just get more boxes

Scaling in a Cloud World



Vertical



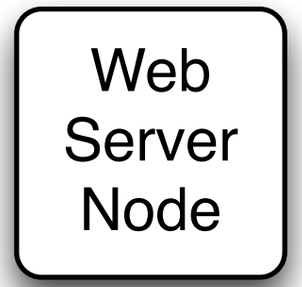
Horizontal

Componentized

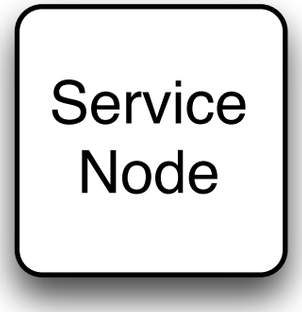
Break your app into components

“Componentize” your application

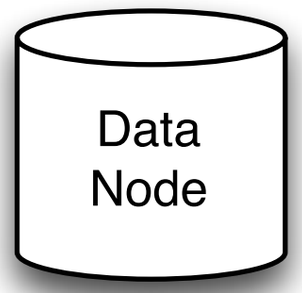
Identify your Node Types



Running the web server
May leverage a web framework
Serves the user interface



Only accessible by the web server nodes
Specialized to deliver discrete functionality
Stateless and autonomous



Interacts with the datastore
Read only from the web server nodes
Read / Write from the service nodes

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“Componentize” your application

Identify your Node Types

Service Node

Only accessible by the web server nodes
Specialized to deliver discrete functionality
Stateless and autonomous

Registration Service Node

Billing Service Node

Idea Service Node

Auth Service Node

Report Service Node

Admin Service Node

Service Oriented Architecture

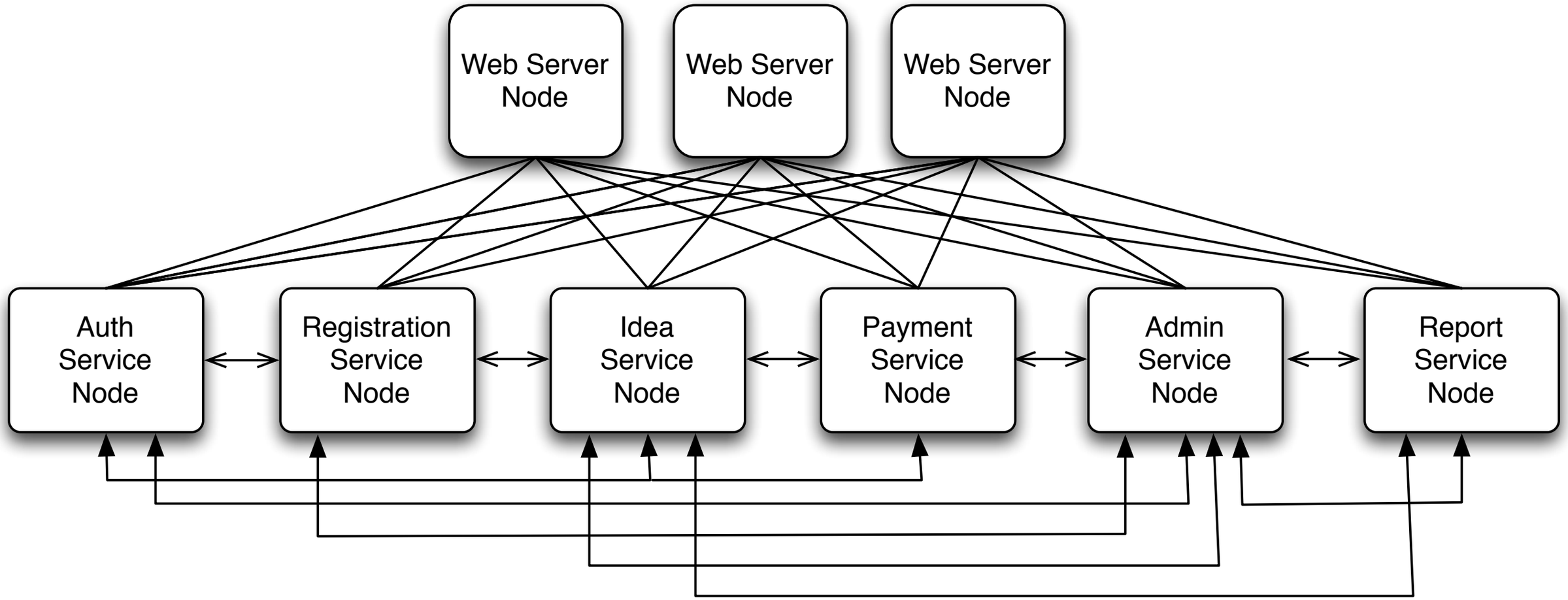
How you “Componentize” your application will determine how you scale your application

Loosely Coupled & Autonomous

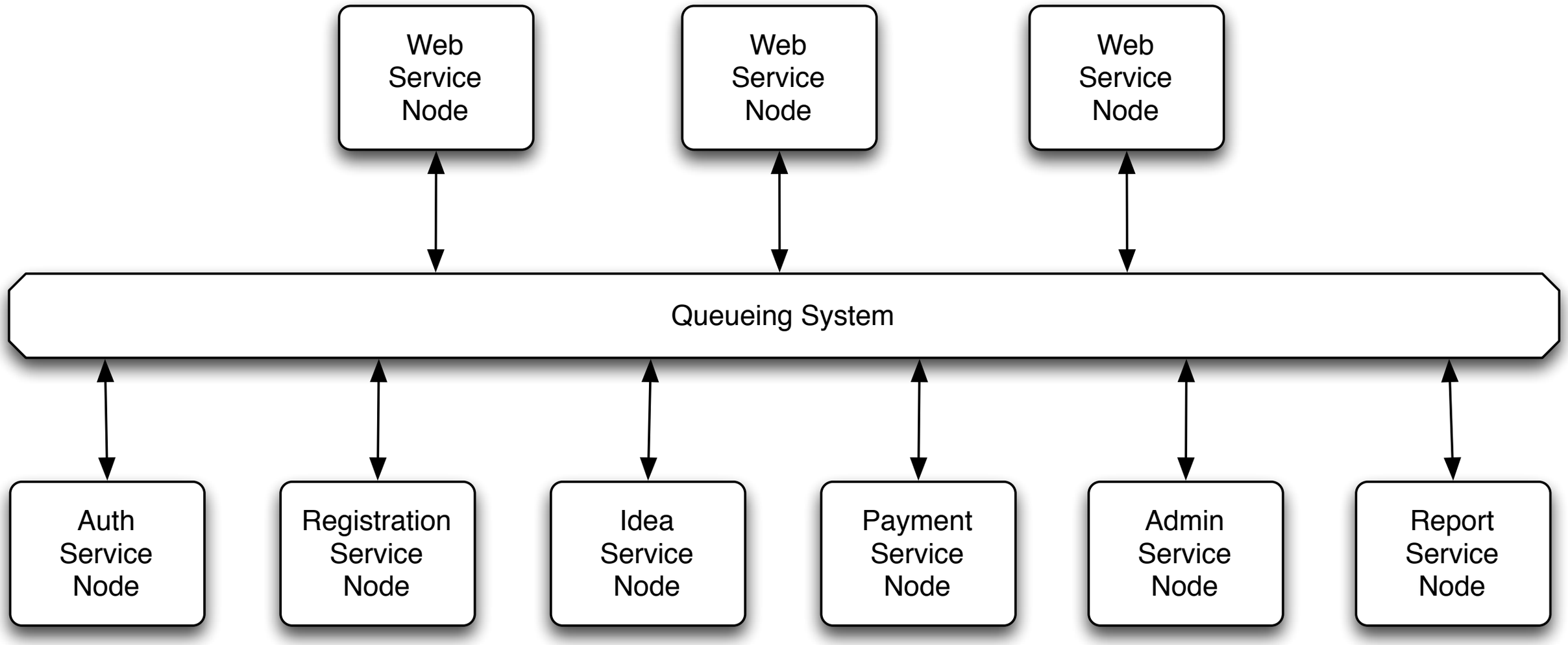
Lets keep it on a need to know basis

Loosely Coupled & Autonomous

NOT!



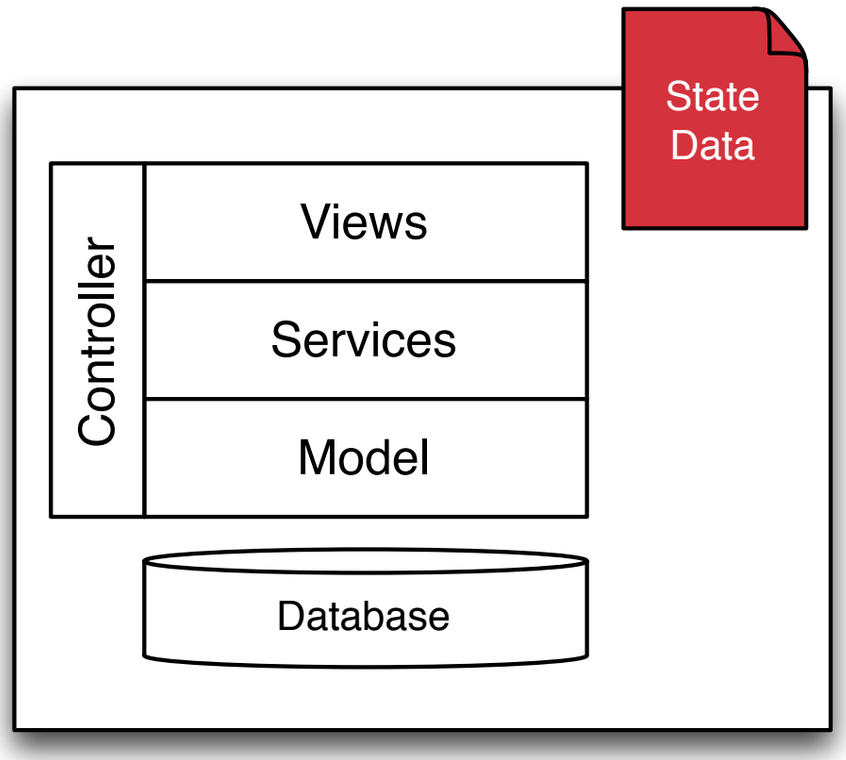
Loosely Coupled & Autonomous

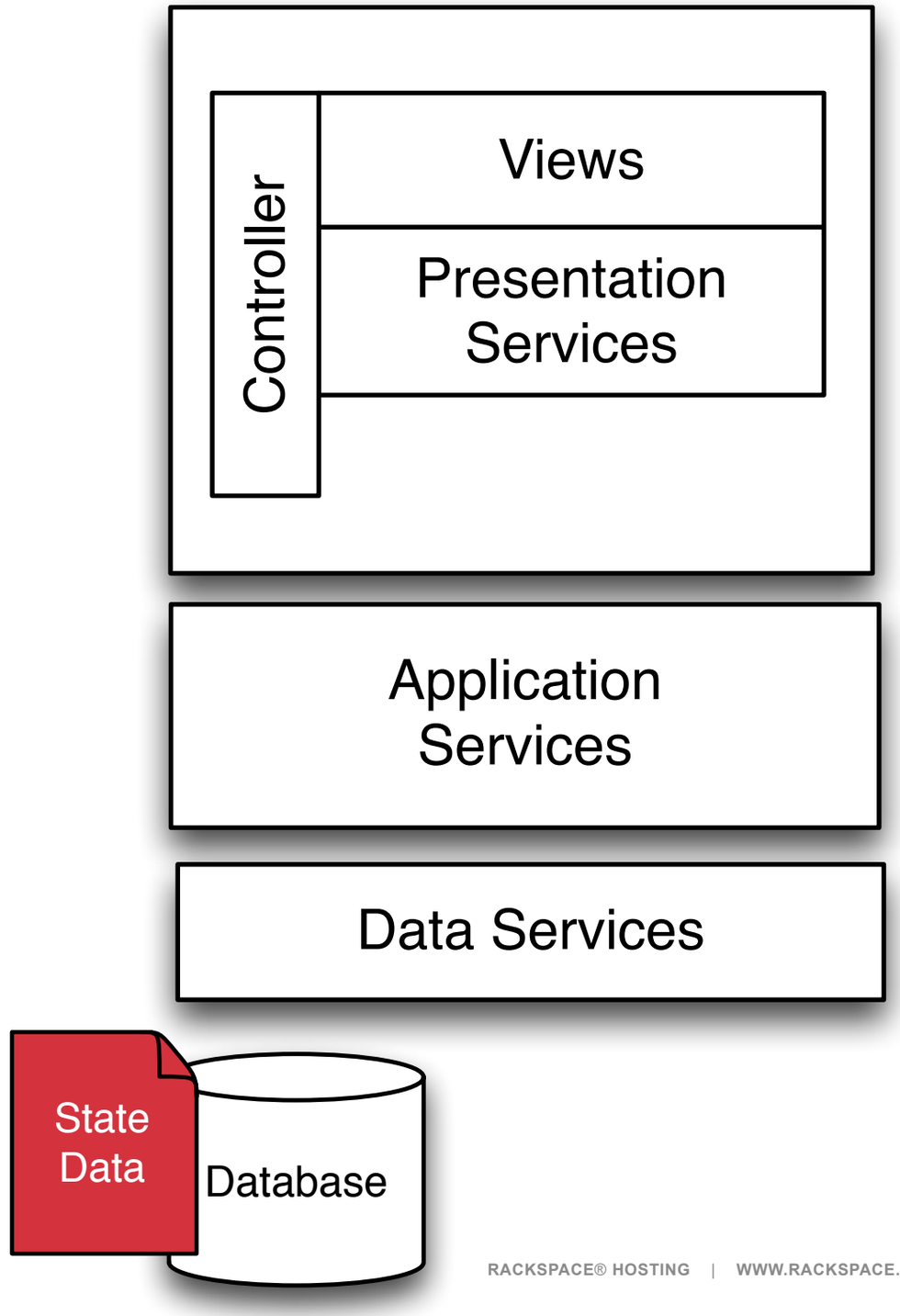


Stateless Nodes

Not necessarily a stateless application

Stateless Nodes





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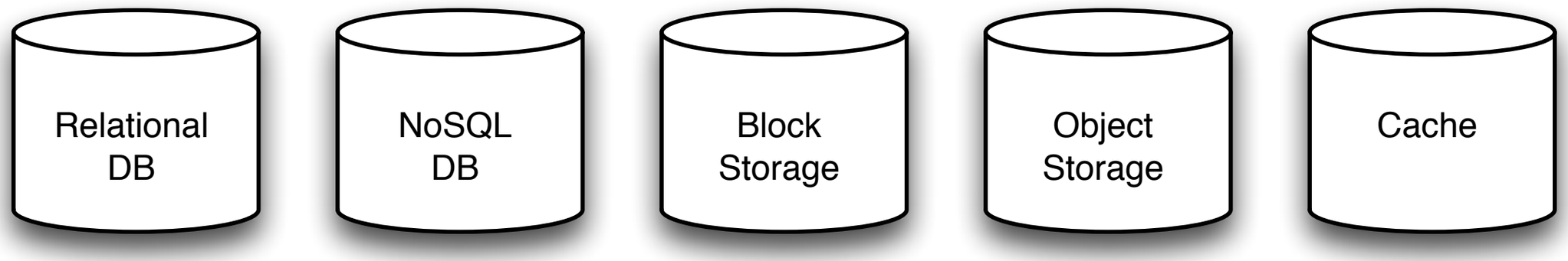
Persistent Storage

Where does all my data live?

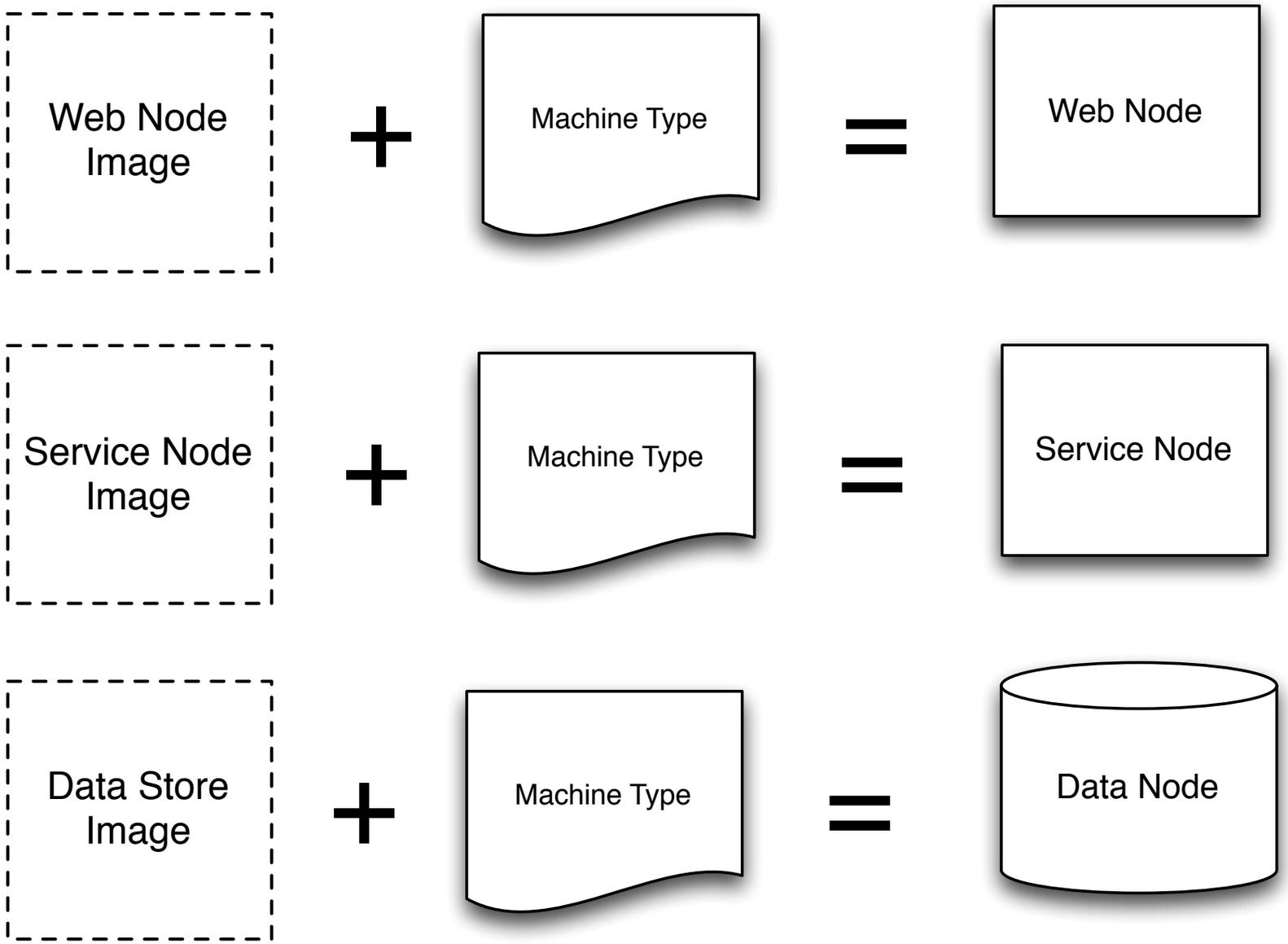
Persistent Storage



Images

The key to being scale ready

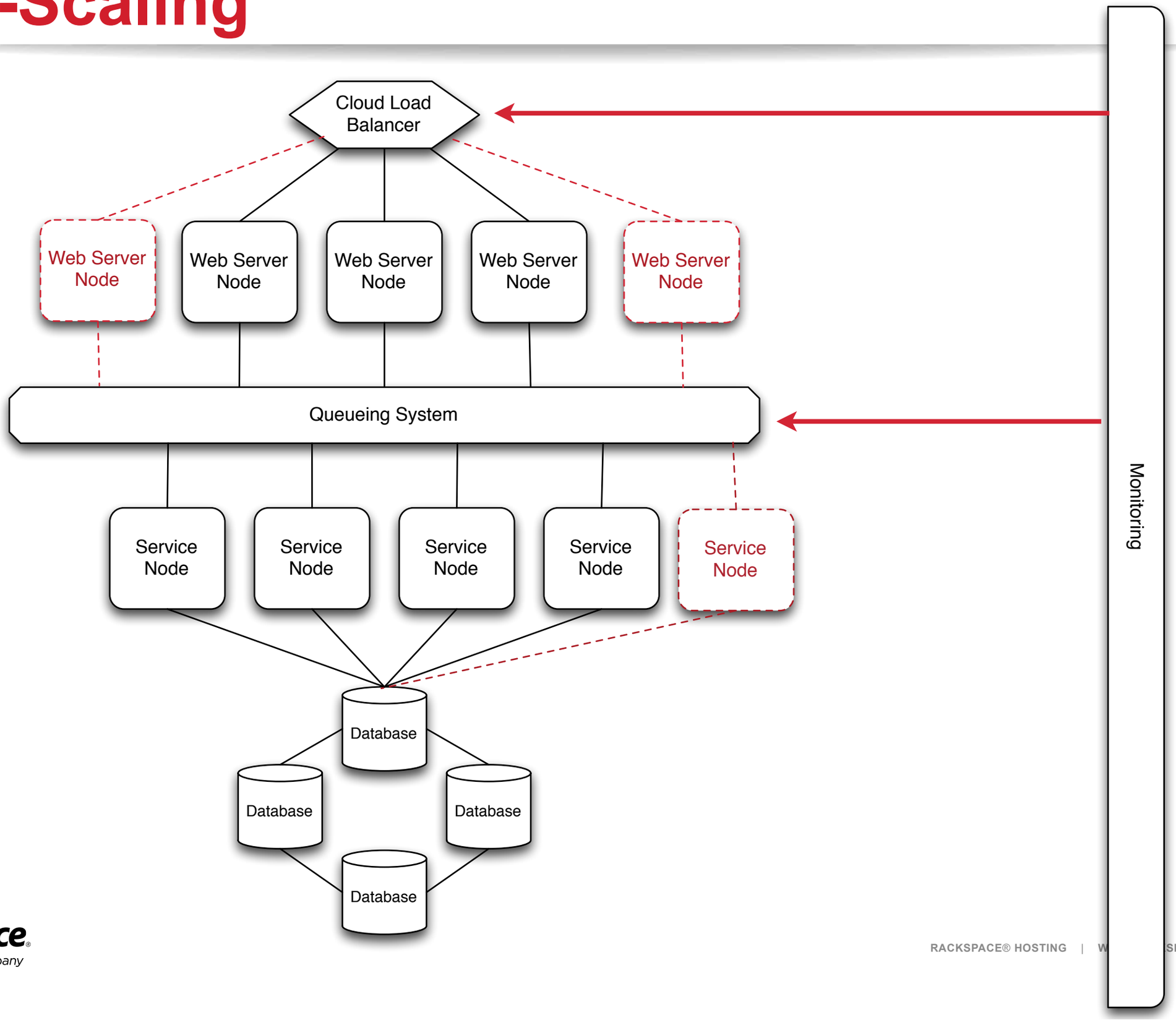
Images


Web Node Image
+
Machine Type
=
Web Node
Service Node Image
+
Machine Type
=
Service Node
Data Store Image
+
Machine Type
=
Data Node

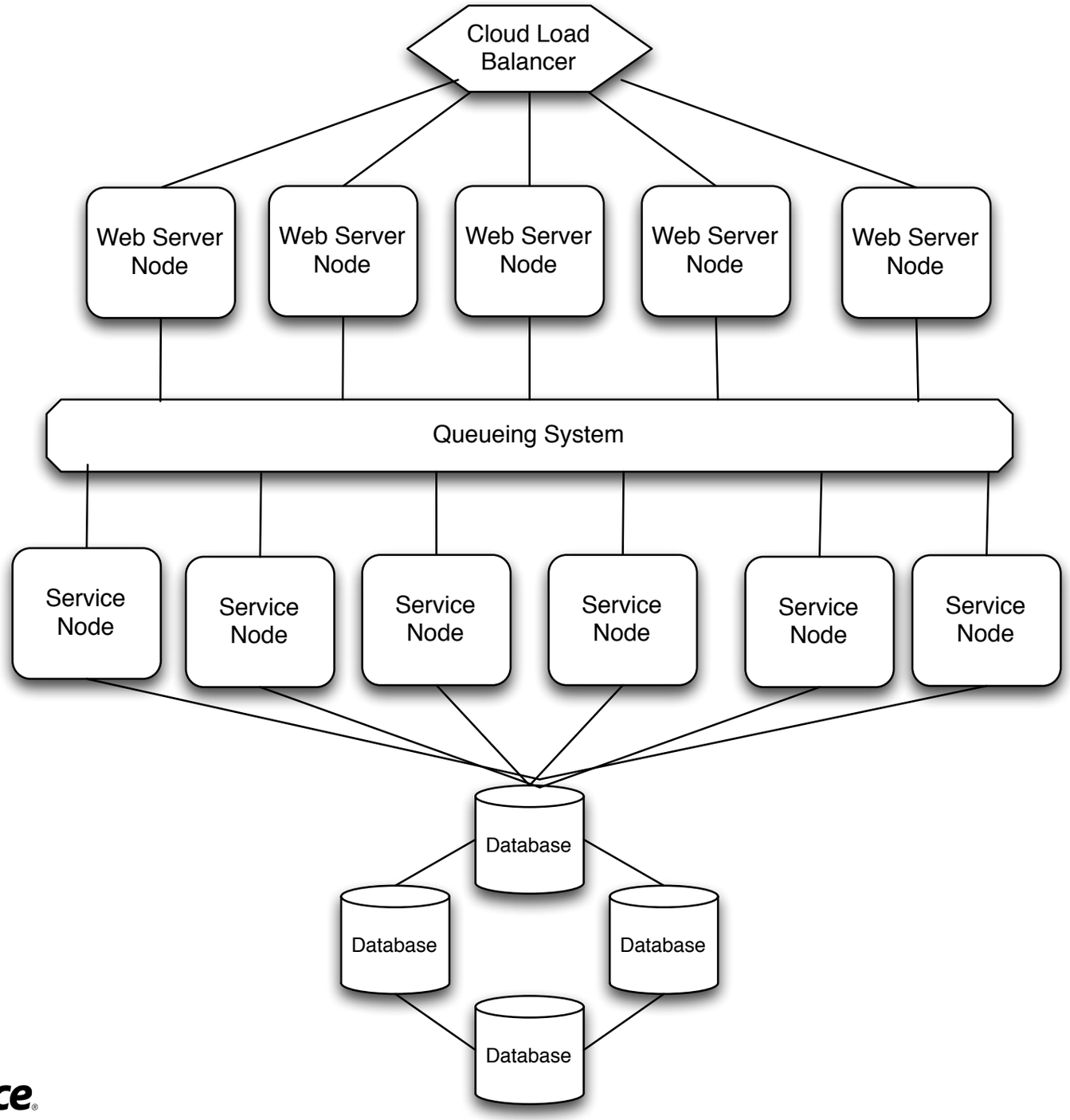
Smart Scaling

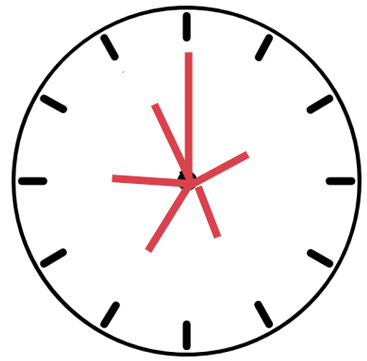
It’s Alive!

Auto-Scaling



Cost-Scaling

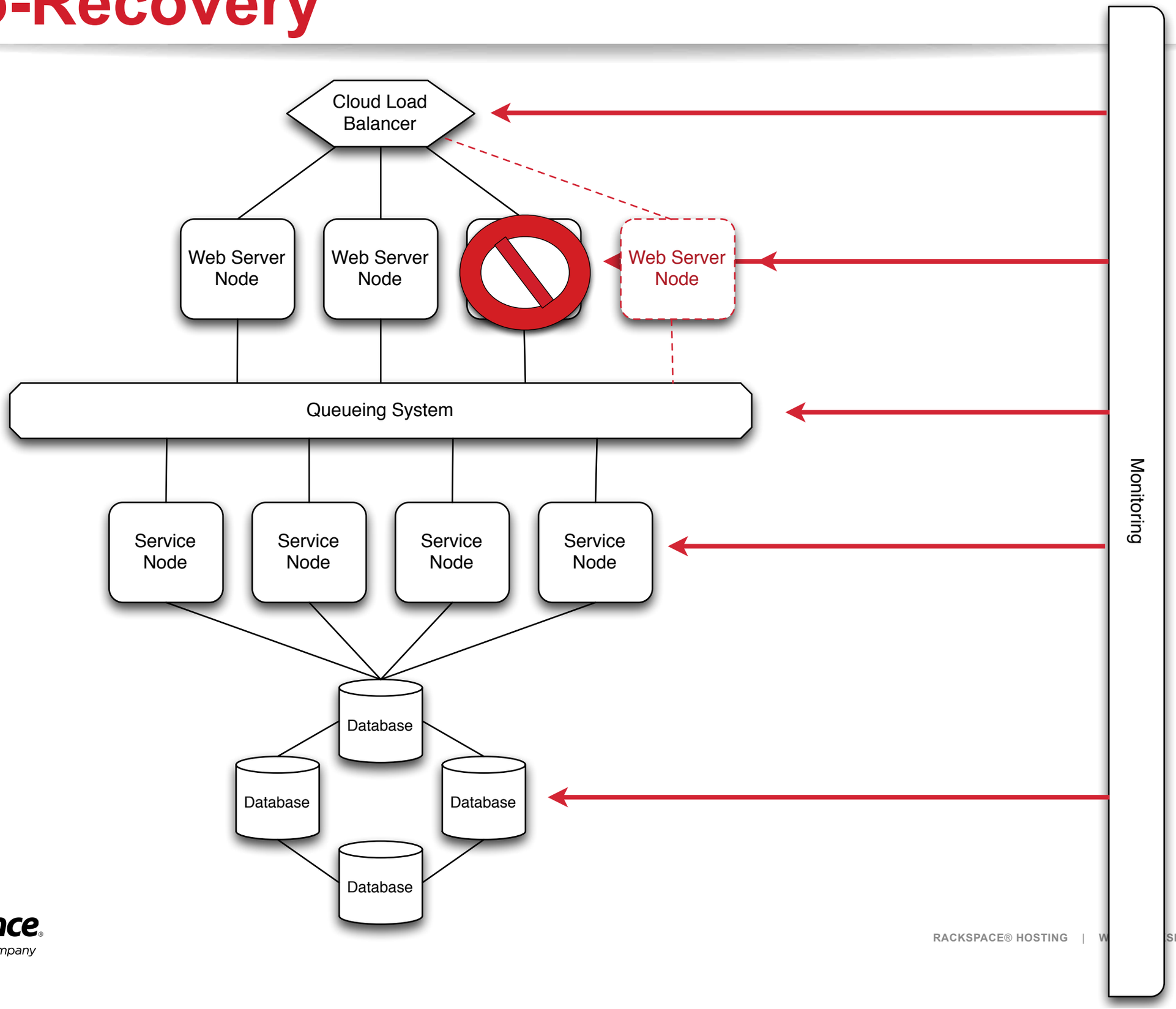




Failure Recovery

Expect Failure and Code For It

Auto-Recovery



The End

1. Enable Scaling

2. Expect Failure

Questions

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We’re Training

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