

WORDCAMP

PARA DESARROLLADORES

SEVILLA 2019

WordPress en Alta
Disponibilidad en AWS

Beltran Rueda @beltranrubeo / #WCDevSevilla19



Beltran Rueda @beltranrubo

Un poco sobre mí

- Engineering Manager en Bitnami (ahora VMware) en Sevilla
- Implementación de soluciones para entornos de Producción:
Proveedores de Cloud más populares y Kubernetes
- +12 años en el proyecto
- Padre novato



Objetivos de la sesión

¿Qué soluciones se adaptan mejor a mis necesidades?



¿Qué ventajas nos aporta el Cloud Computing?



¿Cómo montar un WordPress en alta disponibilidad?



Bitnami

“Make awesome software available to everyone, everywhere”

- Instaladores Win, OS X, Linux
- Máquinas Virtuales
- Imágenes de Cloud (e.g. AMIs)
- Contenedores based on Minideb
- Plantillas: CloudFormation, ARM, Terraform, Blueprints, Jinja, etc
- Helm Charts para Kubernetes



Posibles opciones

Máquina Virtual

Desde 3.5 \$/mes
Sitios estáticos
Aconsejable Varnish

Máquina Virtual + RDS

Desde 80 \$/mes
Copias de seguridad
No mantenimiento de la
BBDD

Alta disponibilidad

Desde 240 \$/mes
Replicación
Balanceo de Carga
Cache de BBDD
Gestión de dominio
Gestión del certificado
Seguridad (subnets
privada/publica)

AWS Lightsail: Máquina Virtual

Instance location



You are creating this instance in **Virginia, Zone A** (us-east-1a)

[Change AWS Region and Availability Zone](#)

Pick your instance image

Select a platform



Microsoft Windows
3 blueprints

Select a blueprint

Apps + OS

OS Only



WordPress Multisite
5.0.3-1



LAMP (PHP 5)
5.6.39



LAMP (PHP 7)
7.1.25



Node.js
11.6.0



Joomla
3.9.2



Magento
2.3.0



MEAN
4.0.3-2



Drupal
8.6.7



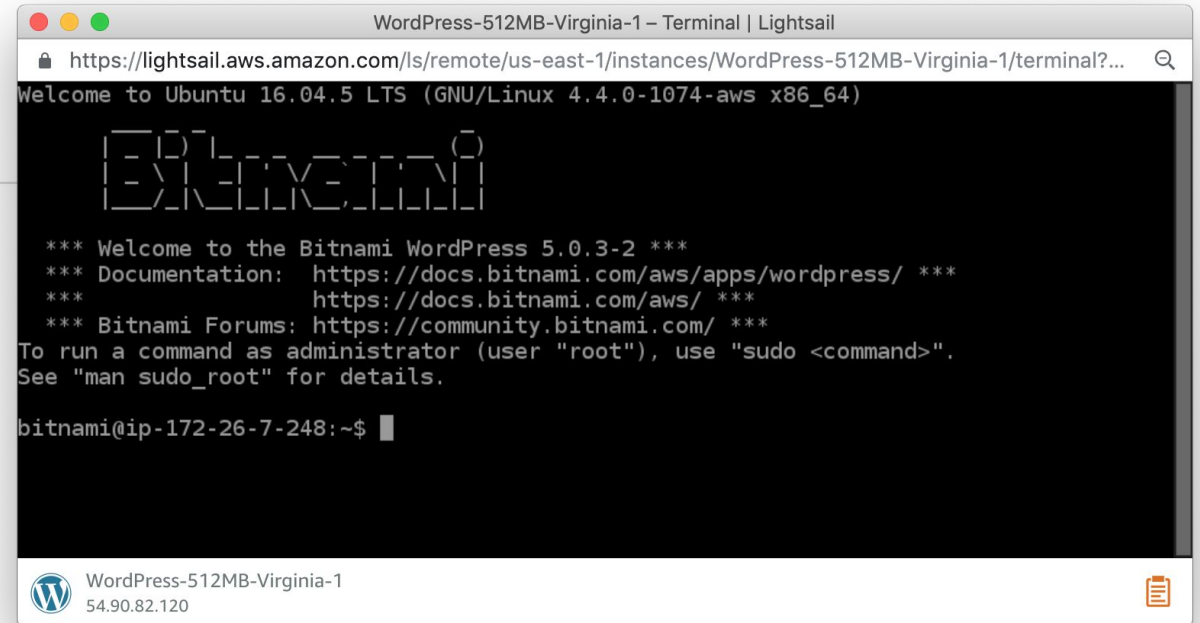
GitLab CE
11.6.4



Redmine
4.0.0



Nginx
1.14.2



Principales Diferencias

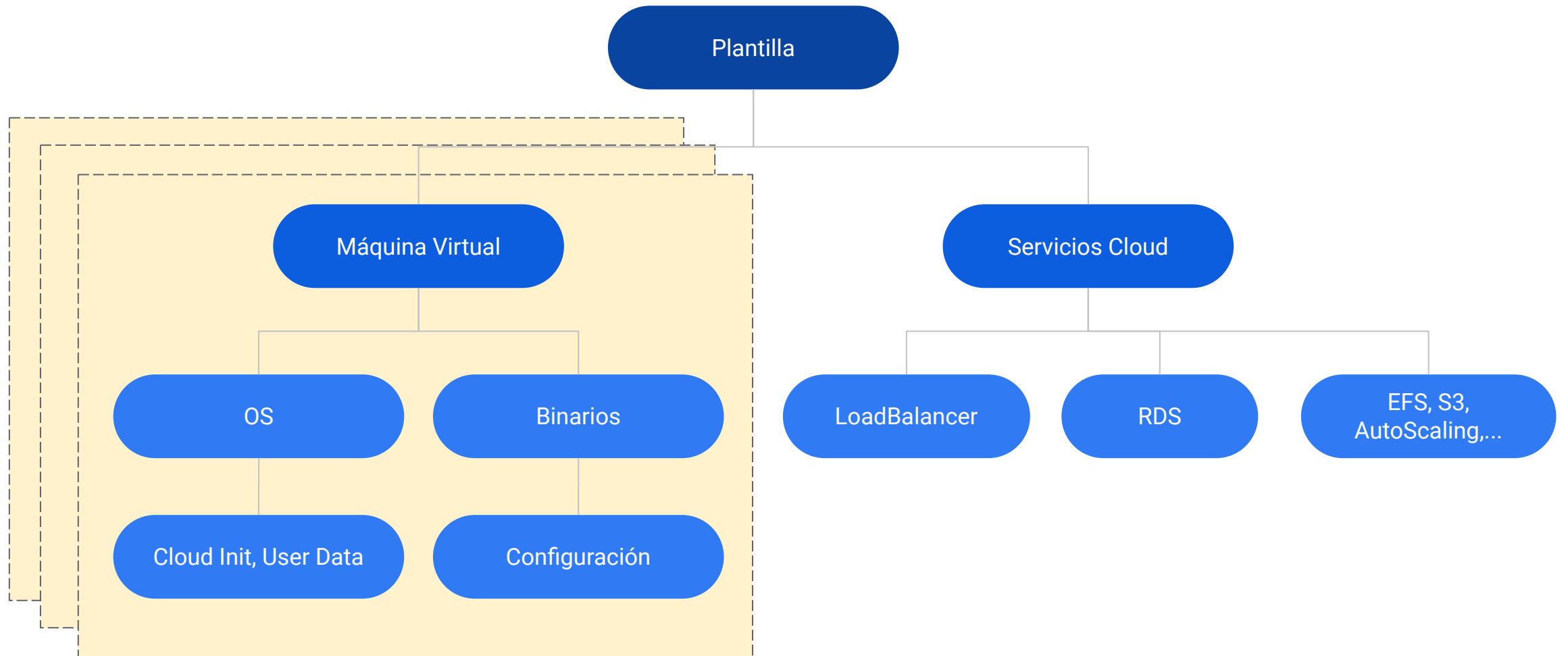
Máquina Virtual

- Una sola VM
- Configuración dentro de la VM
- No requiere orquestación
- Misma configuración en local y en la Cloud
- Mantenimiento manual

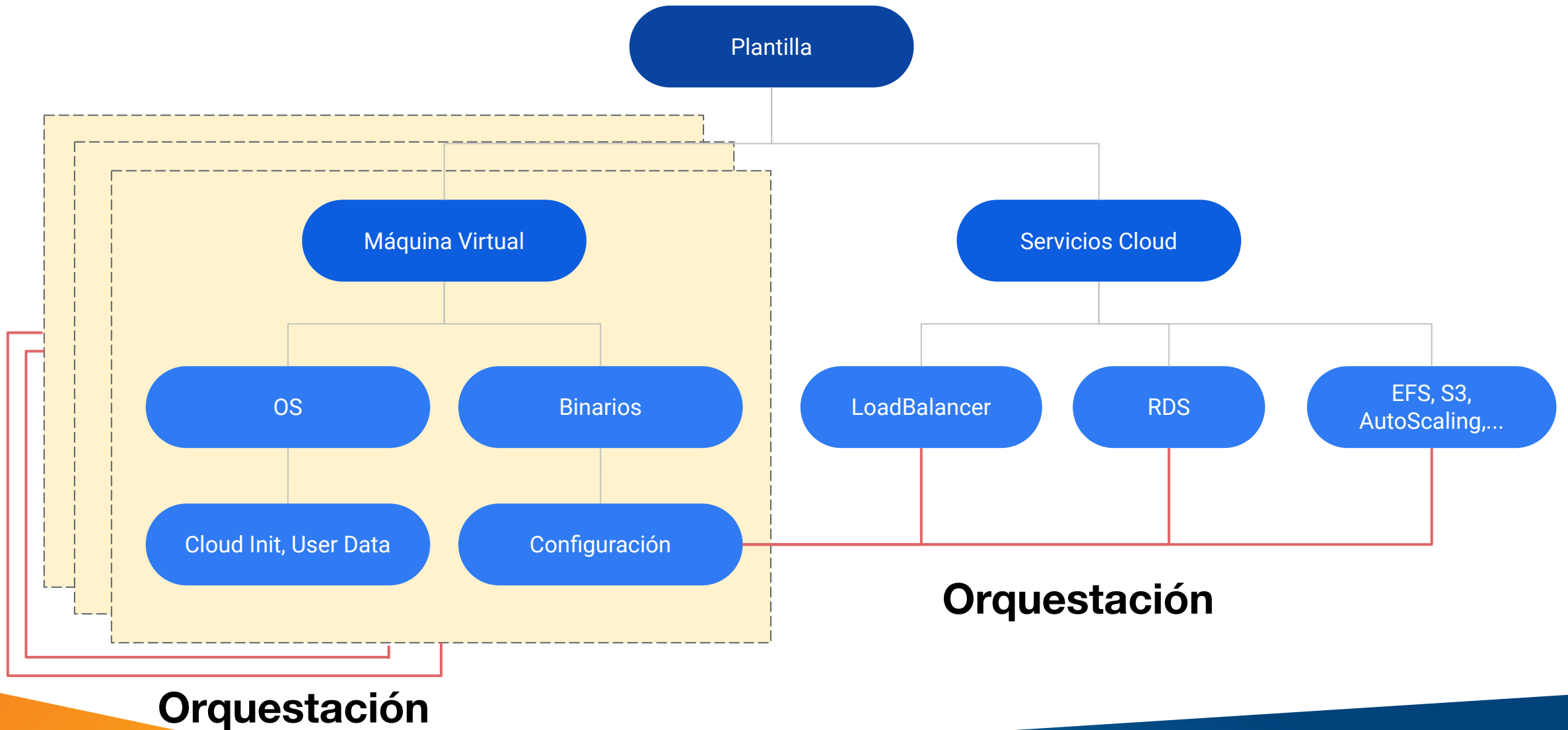
Plantilla

- Configuración dentro y fuera del servidor
- Coordinación entre nodos
- Orquestación de servicios
- Configuración de red
- Distinta plantilla en cada Cloud
- Mantenimiento puede ser automatizado

Sistemas involucrados

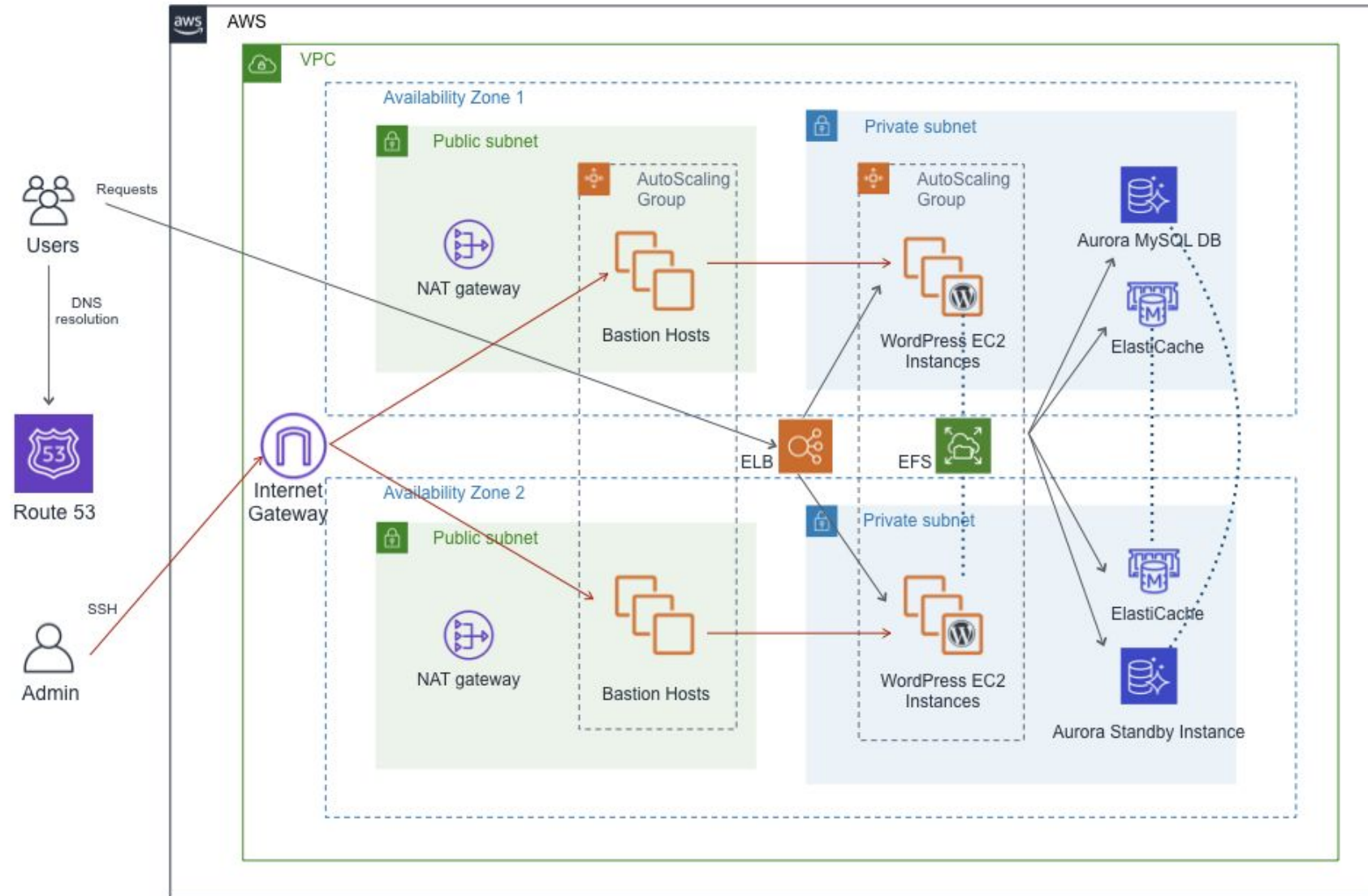


Sistemas involucrados



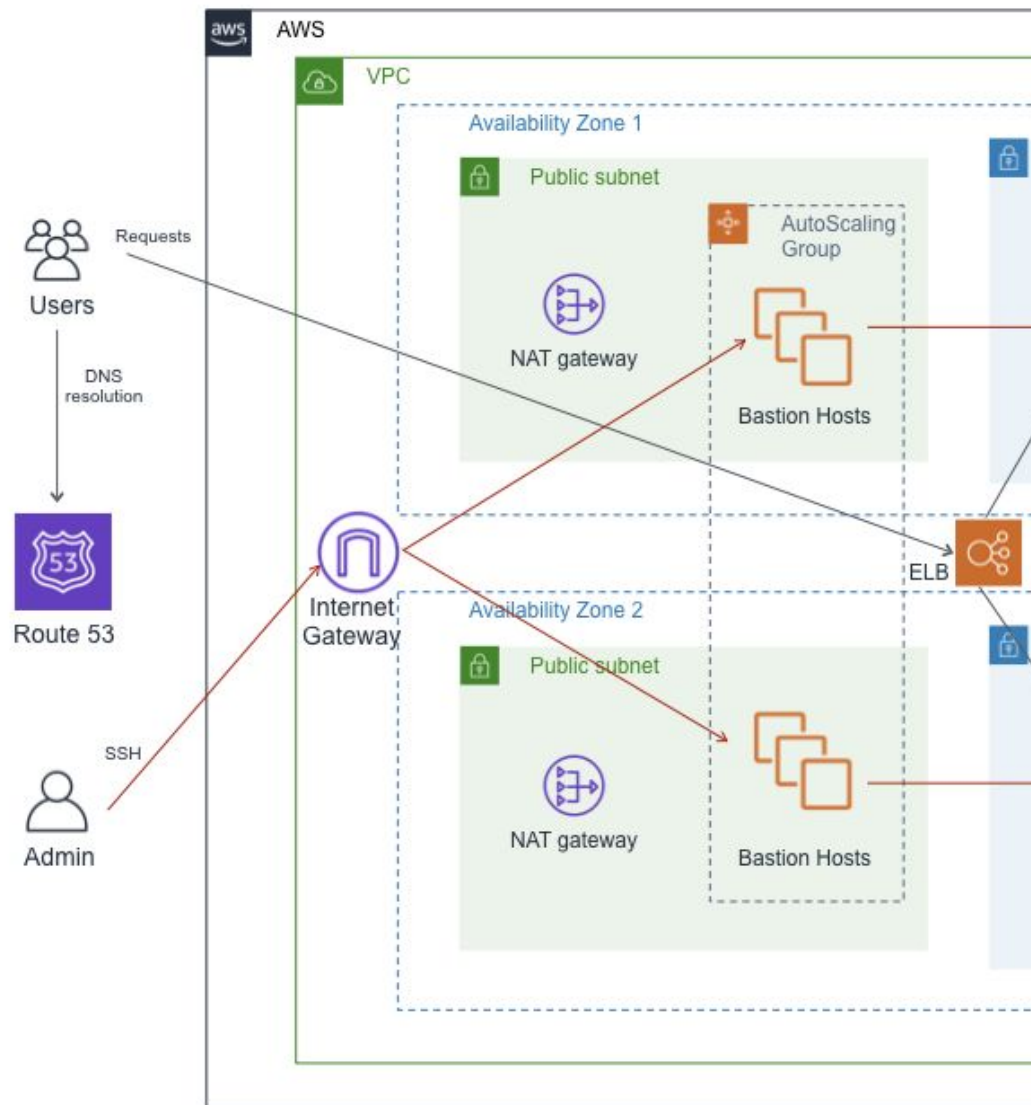
WordPress en Alta Disponibilidad en AWS

<https://aws.amazon.com/quickstart/architecture/wordpress-high-availability-bitnami/>



WordPress en Alta Disponibilidad en AWS

Disponible en AWS Quickstarts

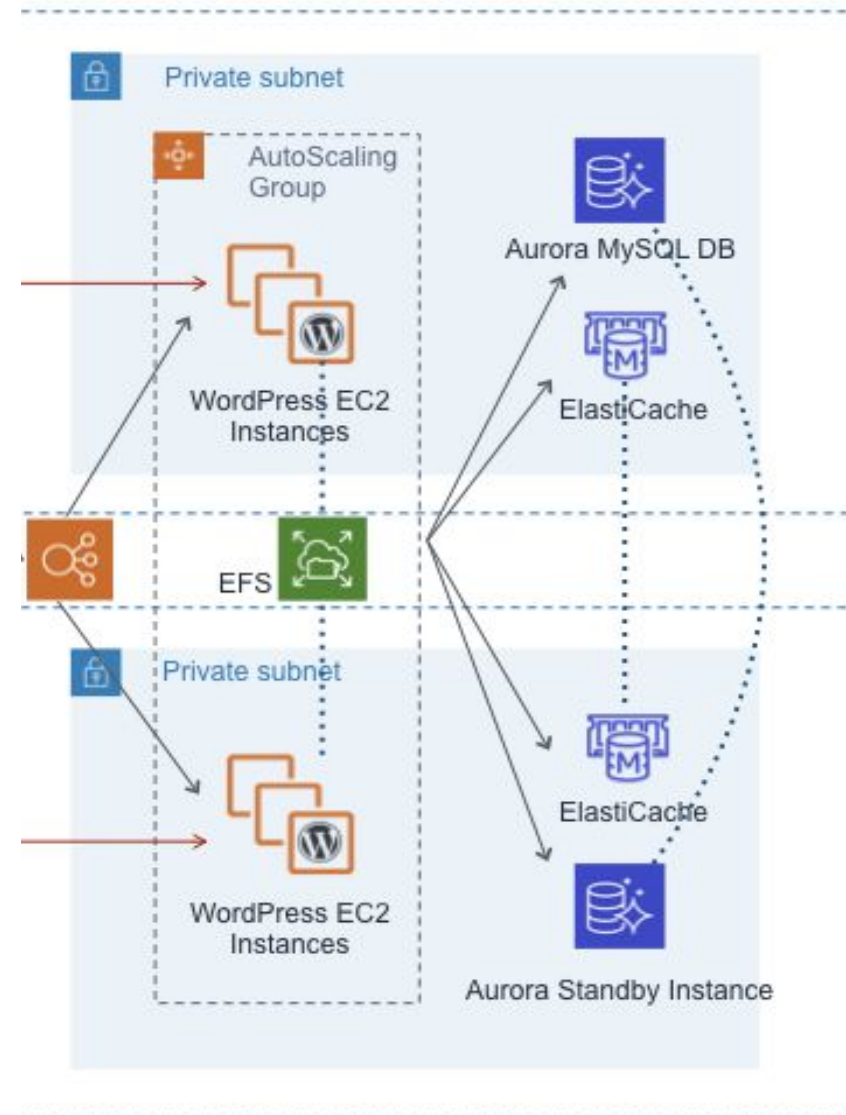


- **Desarrollada con AWS & Automattic**
- AWS Well-Architected template
- Configuración de Dominio (opcional)
- Creación del certificado SSL (opcional) con AWS Lambda
- Elastic Load Balancer
- Configuración de redes pública y privada (Bastion)

WordPress en Alta Disponibilidad en AWS

Disponible en AWS Quickstarts

- AutoScaling Group configurable
- EFS para ficheros compartidos
- ElastiCache (opcional)
- Amazon Aurora RDS
- CloudFront para estaticos (opcional)
- WP-CLI



WordPress en Alta Disponibilidad en AWS

Disponible en AWS Quickstarts

Network Configuration

Availability Zones	<input type="text" value="Search"/>	
		List of Availability Zones to use for the subnets in the VPC. Only two Availability Zones are used for this deployment, and the logical order of your selections is preserved
VPC CIDR	<input type="text" value="10.0.0.0/16"/>	CIDR block for the VPC
Private Subnet 1 CIDR	<input type="text" value="10.0.0.0/19"/>	CIDR block for private subnet 1 located in Availability Zone 1
Private Subnet 2 CIDR	<input type="text" value="10.0.32.0/19"/>	CIDR block for private subnet 2 located in Availability Zone 2
Public Subnet 1 CIDR	<input type="text" value="10.0.128.0/20"/>	CIDR block for the public (DMZ) subnet 1 located in Availability Zone 1
Public Subnet 2 CIDR	<input type="text" value="10.0.144.0/20"/>	CIDR block for the public (DMZ) subnet 2 located in Availability Zone 2
Allowed CIDR for ALB Access	<input type="text" value="10.0.0.0/16"/>	Allowed CIDR block for external web access to the Application Load Balancer

Linux Bastion Configuration

Bastion Instance Type	<input type="text" value="t2.micro"/>	Amazon EC2 instance type for the bastion instances
Bastion AMI OS	<input type="text" value="Amazon-Linux-HVM"/>	The Linux distribution for the AMI to be used for the bastion instances
Allowed Bastion External Access CIDR	<input type="text" value="127.0.0.1/32"/>	Allowed CIDR block for external SSH access to the bastions
SSH KeyPair Name	<input type="text" value="Search"/>	

WordPress en Alta Disponibilidad en AWS

Disponible en AWS Quickstarts

WordPress Webserver Configuration

Admin Password

The WordPress site admin account password (username is 'user')

Instance Size

Select WordPress instance size

Instance enhanced monitoring

Set enhanced monitoring for WordPress instances

Min Number of Instances

Minimum number of WordPress instances in the Auto Scaling group

Max Number of Instances

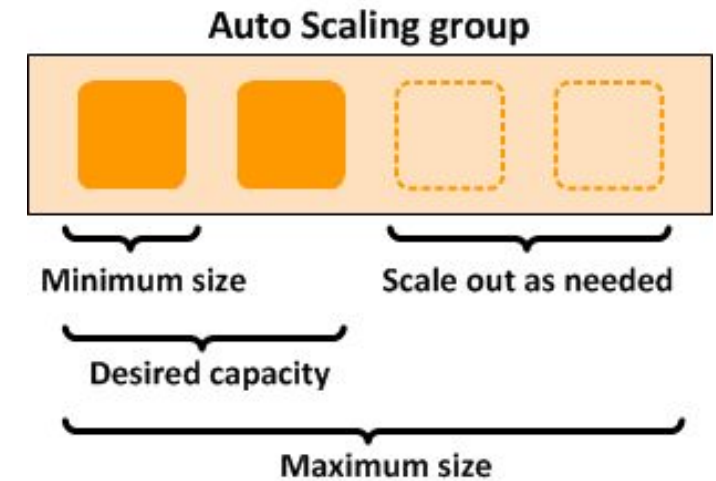
Maximum number of WordPress instances in the Auto Scaling group

Desired Number of Instances

Desired number of WordPress instances in the Auto Scaling group

Autoscaling Notification Email

Email address to notify Auto Scaling operations

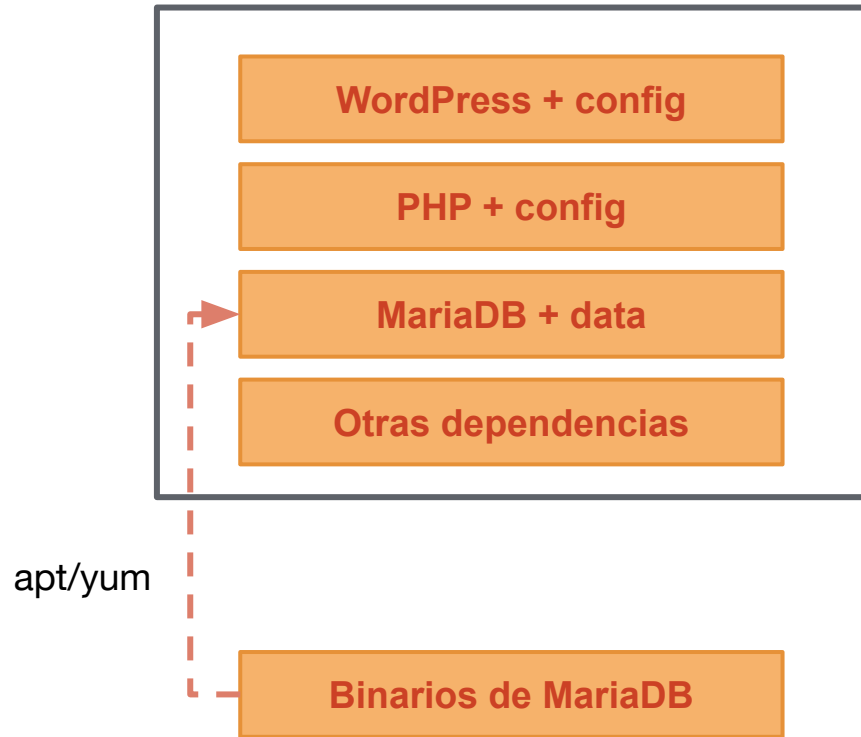


A photograph of a person's hands typing on a white keyboard in front of an Apple iMac monitor. The background is a white surface with a light gray geometric pattern of hexagons. A blue diagonal shape is in the top right, and a green diagonal shape is in the bottom right.

Vale, ya lo tengo desplegado
¿y ahora qué?

¿Cómo mantener los componentes actualizados?

Actualizaciones Tradicionales

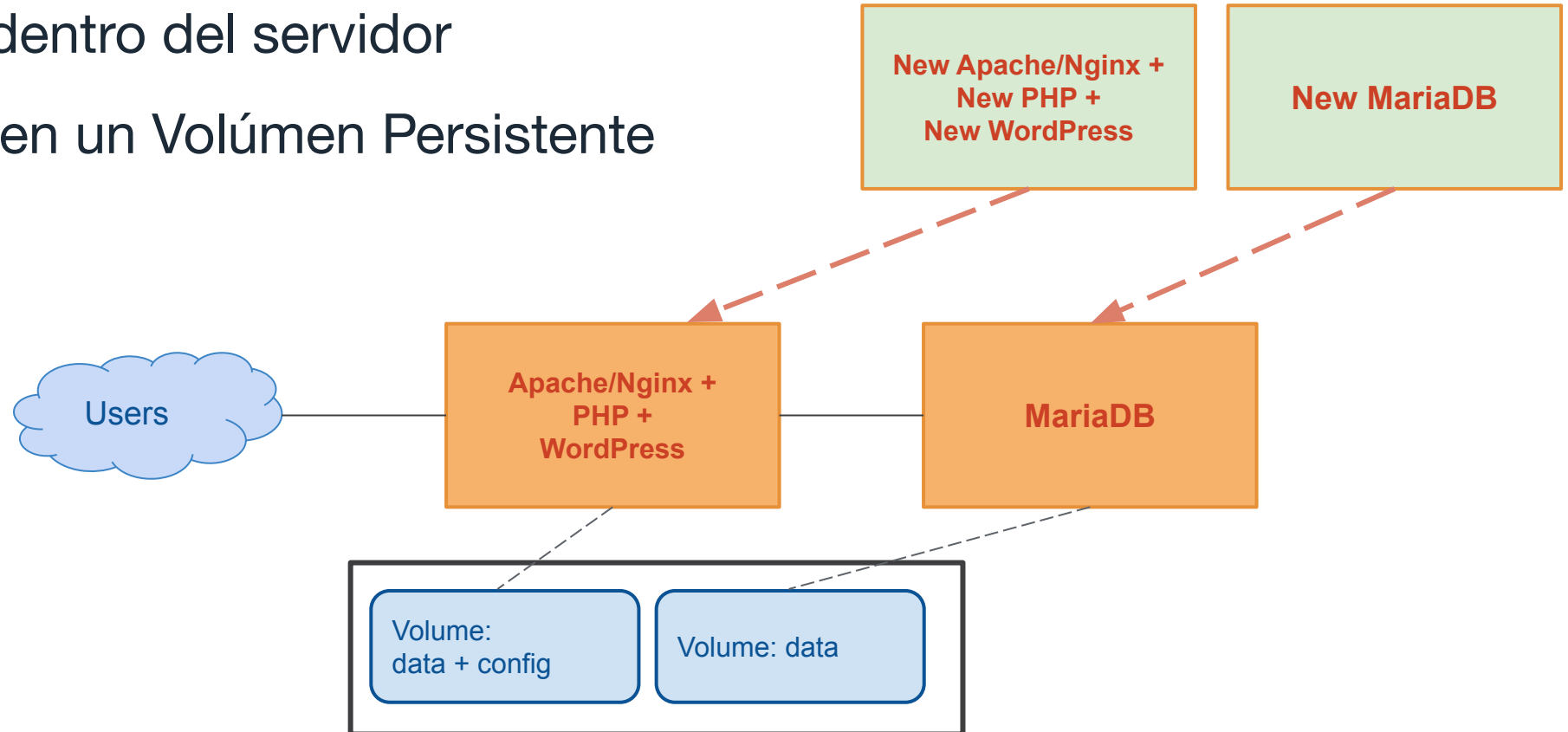


- Sistema sencillo
- Posibles incompatibilidades
- No todas las versiones disponibles, dependencia del OS
- Es necesario un tiempo de inactividad

¿Cómo mantener los componentes actualizados?

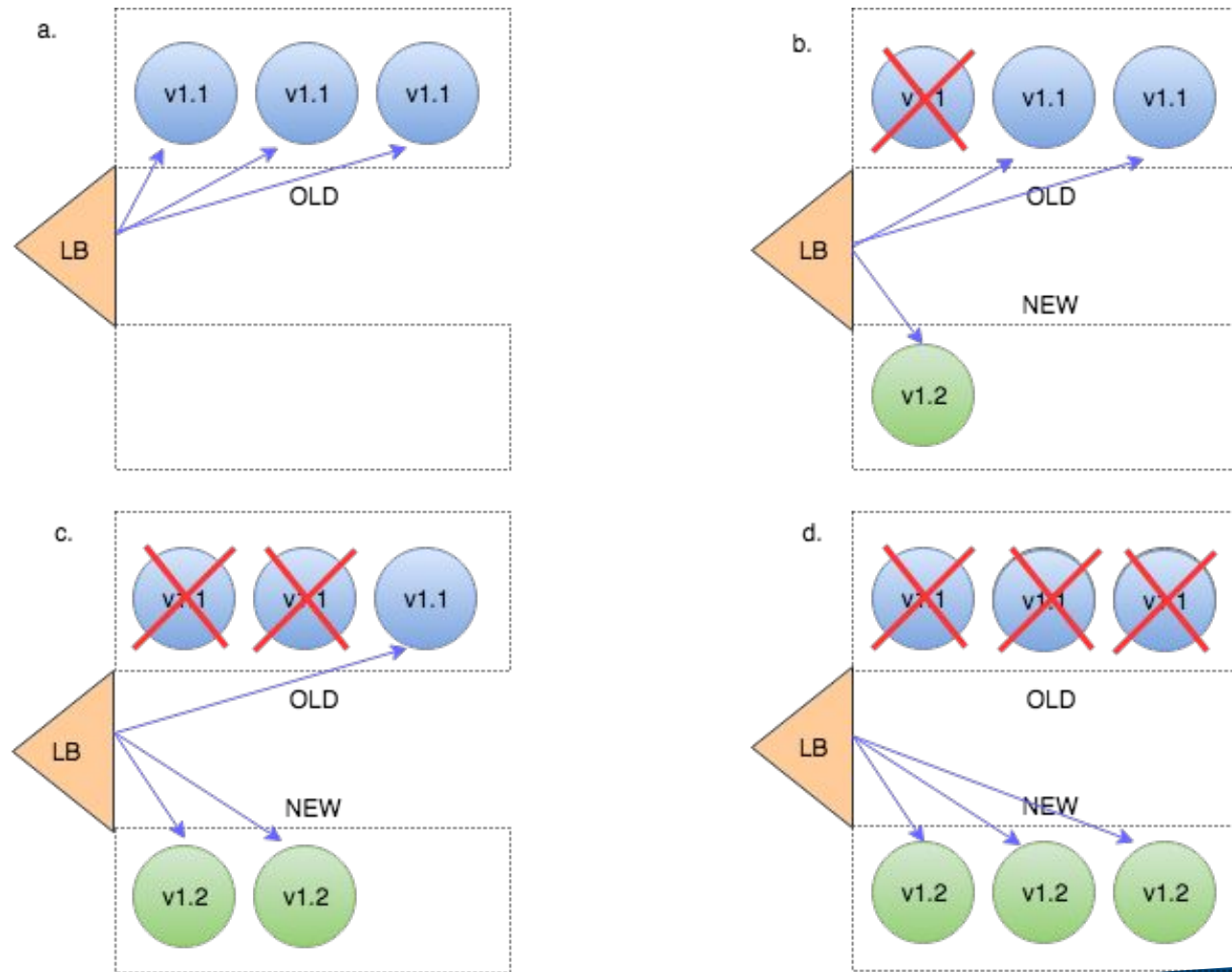
Imágenes inmutables

- Binarios y lógica dentro del servidor
- Datos separados en un Volúmen Persistente



¿Cómo mantener los componentes actualizados?

Auto Scaling and Rolling Updates



¿Cómo mantener los componentes actualizados?

Auto Scaling and Rolling Updates

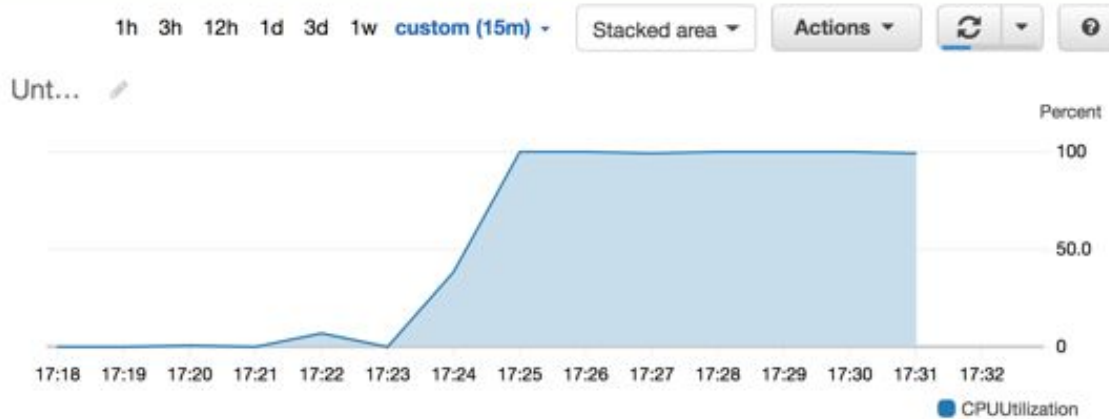
The screenshot displays the AWS Management Console interface for an Auto Scaling Group. The browser address bar shows the URL: `https://us-east-2.console.aws.amazon.com/ec2/autoscaling/home?region=us-east-2#AutoScalingGroups:id=abjimenez-wp-ha-...`. The console header includes the AWS logo, navigation menus for Services and Resource Groups, and user information for 'abjimenez @ stacksdev' in the 'Ohio' region. The left sidebar lists navigation options such as EC2 Dashboard, Events, Tags, Reports, Limits, INSTANCES, and IMAGES. The main content area shows a table of Auto Scaling Groups with a filter set to 'abjimenez-wp-ha-1'. The table has columns for Name, Launch Configuration, Instances, Desired, Min, Max, and Availability Zones. The 'Instances' and 'Desired' columns for the group 'abjimenez-wp-ha-1-We...' are highlighted with a red box, both containing the value '2'. The footer contains a Feedback button, language selection for English (US), and copyright information for Amazon Web Services, Inc. (© 2008 - 2018).

Name	Launch Configuration /	Instances	Desired	Min	Max	Availability Zones
abjimenez-wp-...	abjimenez-wp-ha-1-We...	2	2	2	3	us-east-2a, us-east-2b

¿Cómo mantener los componentes actualizados?

Auto Scaling and Rolling Updates

- CloudWatch
- Dashboards
- Alarms
 - ALARM 1
 - INSUFFICIENT 0
 - OK 1
- Billing
- Events
- Rules
- Event Buses
- Logs
- Insights
- Metrics
- Favorites



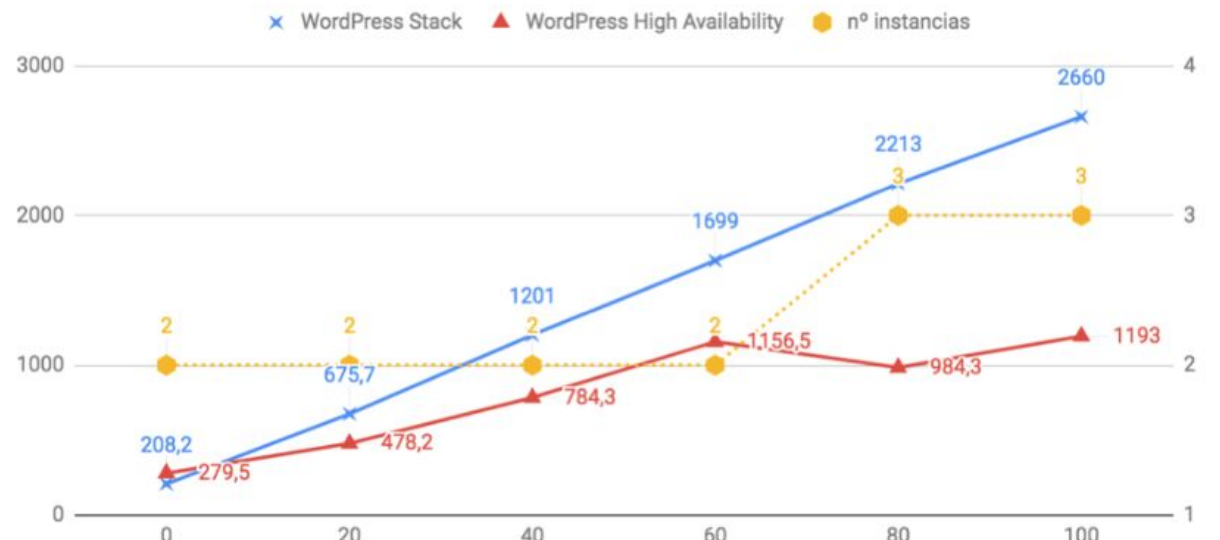
All metrics Graphed metrics (1) Graph options Source

+ Add a math expression Add a math expression

Statistic: Average Period

Label	Details
CPU...	EC2 • CPUUtilization • AutoScalingGrou...

Tiempo de carga (ms) frente a procesos de CPU



¿Cómo mantener los componentes actualizados?

Auto Scaling and Rolling Updates

The screenshot displays the AWS Management Console interface for an Auto Scaling Group. The top navigation bar shows the user is logged in as 'abjimenez @ stacksdev' in the 'Ohio' region. The left sidebar contains navigation options for EC2 Dashboard, Events, Tags, Reports, Limits, INSTANCES, IMAGES, ELASTIC BLOCK STORE, and NETWORK & SECURITY.

The main content area shows the 'Create Auto Scaling group' button and a table of Auto Scaling Groups. A filter is applied to show '1 to 1 of 1 Auto Scaling Groups'. The table has columns for Name, Launch Configuration, Instances, Desired, Min, Max, Availability Zones, and Default Cooldown. The 'Instances' and 'Desired' columns for the group 'abjimenez-wp-...' are highlighted with a red box, showing values of 3.

Below the table, an event log shows a 'Waiting for instance warmup' event. The 'Description' column is highlighted with a red box, containing the text: 'Launching a new EC2 instance: i-09bbe0b6aee09a2dc'. Below this, the 'Cause' section is also highlighted with a red box, explaining that a monitor alarm triggered a policy that changed the desired capacity from 2 to 3, and an instance was started in response to a difference between desired and actual capacity, increasing the capacity from 2 to 3.

Name	Launch Configuration	Instances	Desired	Min	Max	Availability Zones	Default Cooldown
abjimenez-wp-...	abjimenez-wp-ha-1-We...	3	3	2	3	us-east-2a, us-east-2b	300

Status	Description	Start Time	End Time
Waiting for instance warmup	Launching a new EC2 instance: i-09bbe0b6aee09a2dc Description: Launching a new EC2 instance: i-09bbe0b6aee09a2dc Cause: At 2018-11-29T16:28:46Z a monitor alarm TargetTracking-abjimenez-wp-ha-1-WebserverStack-QIYO09YN8U8O-WebServerASG-11DAHP92R48IE-AlarmHigh-5e42f813-3b8b-4e68-8a9d-0c878a47b402 in state ALARM triggered policy abjimenez-wp-ha-1-WebserverStack-QIYO09YN8U8O-WebServerTargetTrackingScalingPolicy-1K6BF1GEKZJVU changing the desired capacity from 2 to 3. At 2018-11-29T16:29:12Z an instance was started in response to a difference between desired and actual capacity, increasing the capacity from 2 to 3.	2018 November 29 17:29:13 UTC+1	

¿Cómo crear tu propia imagen?

Personalizaciones

The screenshot shows the AWS Management Console interface for an EC2 instance. At the top, there are buttons for 'Launch Instance', 'Connect', and 'Actions'. Below these is a search bar and a table of instances. The 'Actions' menu is open, showing options like 'Connect', 'Get Windows Password', 'Create Template From Instance', 'Launch More Like This', 'Instance State', 'Instance Settings', 'Image', 'Networking', and 'CloudWatch Monitoring'. The 'Image' option is highlighted in orange, and a sub-menu is visible with 'Create Image' and 'Bundle Instance (instance store AMI)'. The instance table below shows a single instance named 'WP' with ID 'i-0b1a3312c2b80...', in the 'running' state, with 2/2 status checks passed.



Name	Instance ID	Availability Zone	Instance State	Status Checks
WP	i-0b1a3312c2b80...	us-east-1a	running	2/2 checks ...


¿Cómo crear tu propia imagen de forma automatizada?

Personalizaciones

1. Choose AMI 2. Choose Instance Type 3. Configure Instance **3. Configure Instance** 4. Add Storage 5. Add Tags 6. Configure Security Group 7. Review


Step 3: Configure Instance Details

IAM role ⓘ None   Create new IAM role

Shutdown behavior ⓘ Stop 

Enable termination protection ⓘ Protect against accidental termination

Monitoring ⓘ Enable CloudWatch detailed monitoring
Additional charges apply.

Tenancy ⓘ Shared - Run a shared hardware instance 
Additional charges will apply for dedicated tenancy.

Elastic Inference ⓘ Add an Elastic Inference accelerator
Additional charges apply.

T2/T3 Unlimited ⓘ Enable
Additional charges may apply

▼ Advanced Details

User data ⓘ As text As file Input is already base64 encoded

(Optional)

¿Cómo crear tu propia imagen de forma automatizada?

Personalizaciones

```
#!/bin/bash
cd /opt/bitnami

# Skip the WordPress installation part
SKIP_FIRST_BOOT=1

# You can provide your own WordPress files
git clone git@github.com:whatever wordpress

# Installing a custom system package
sudo apt-get update && sudo apt-get install -y ffmpeg

# Enable a custom Apache module
sudo sed -i -r 's/#LoadModule ratelimit_module/LoadModule ratelimit_module/' apache/conf/httpd.conf

# WP-CLI actions
wp plugin activate jetpack --allow-root
```


WordPress en Alta Disponibilidad en AWS

FAQ

1- ¿EFS tiene algún impacto en el rendimiento?

Nuestros tests indican que no tiene un gran impacto pero dependerá de la configuración. “AllowOverride” está deshabilitado por defecto.

2- ¿Es necesario una CDN?

Es muy recomendable, CloudFront o cualquier otro proveedor.

3- ¿Dónde puedo encontrar más información?

<https://docs.bitnami.com/aws-templates/apps/wordpress-production-ready/>

4 - ¿Cómo crear tu AMI con scripts?

<https://docs.bitnami.com/aws-templates/apps/wordpress-production-ready/configuration/use-custom-ami>



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Gracias

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