Evolution of WordPress and Migration to AWS

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The internet is a word designed to scare.
2008 single server
2010 virtualization
2011 urban sprawl
2012 consolidation
An exception has occurred at 0028:C0040687C0040687C0040687C0040687C0040687C0040687C0040687C0040687C0040687C0040687 in VxD. This was called from 0028:C0040687C0040687C0040687C0040687C0040687C0040687C0040687C0040687C0040687C0040687C0040687C0040687C0040687 in VxD.

It may be possible to continue normally.

• Press any key to attempt to continue.
• Press CTRL+ALT+DEL to restart your computer. You will lose any unsaved information in all applications.

Press any key to continue...
Load balancers use HAproxy and keepalived. HTTP traffic is routed round-robin to varnish cache nodes.

Cache nodes use Varnish HTTP only (for now) Round-robin to web servers

Web nodes with Apache, PHP, GlusterFS across nodes, W3TC caching for unauthenticated HTTPS

WordPress application uses HyperDB for automatic failover to other DB nodes.

Database nodes using MySQL, Galera Cluster for multi-master.

HTTPS traffic is decrypted at the load balancer, headers added, re-encrypted and sent to web nodes in a round robin state

2014
Load balancers use HAproxy and keepalived. HTTP traffic is routed round-robin to varnish cache nodes.

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Web nodes with Apache/PHP. GlusterFS across nodes. W3TC caching for unauthenticated HTTPS.

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Primary Network Flow
Failover Network Flow

mixed HTTP(S) traffic

future expansion
AWS Tools that work well for us

EC2

OpsWorks

RDS

EFS

CloudWatch

S3
Load balancers use HAproxy and a custom failover script. HTTP traffic is routed round-robin to Varnish cache nodes.

Cache nodes use Varnish Round-robin to web servers if necessary.

Web nodes with Apache/PHP/Shibboleth. EFS across nodes for web content.

RDS Master R/W covers all zones. Read-only hot spare replica for failover.

HTTPS traffic is decrypted at the load balancer, headers added, origin and destination check, sent to Varnish cache in a round robin state. Sticky sessions.

Mixed HTTP(S) traffic

CloudWatch
OpsWorks

EFS (PROD)

RDS
RDS HA

EIP

EC2

EC2

EC2

AZ A

AZ B

S3

EFS (DEV)

CODE REPOSITORIES
BAMBOO
BITBUCKET

ON-CAMPUS SERVER

LOGGING
BACKUPS
MAINTENANCE
CACHE CONTROL

2017
Reflection

- There’s no “right way” to do HA WordPress on AWS
- LOTS of trial and error
- LOTS of reading documentation
- Asking for LOTS of help from experts
- This takes time, and LOTS of it
Without storytelling there can be no victories.