

BUILDING A PLATFORM FOR NBA

Turner  **Phase2**

TOBBY HAGLER

JOSH MULLIKIN

BUILDING A PLATFORM FOR NBA

Unified platform driving web, mobile, big screen

Integrate live data, editorial content, live video, & on-demand video

Fast-paced editorial workflow

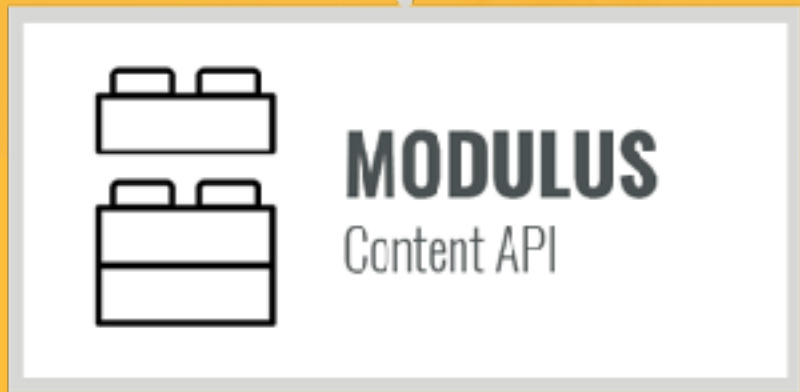
Fast-breaking performance

TURNER





NBA.com and apps



INTEGRATION STRATEGY

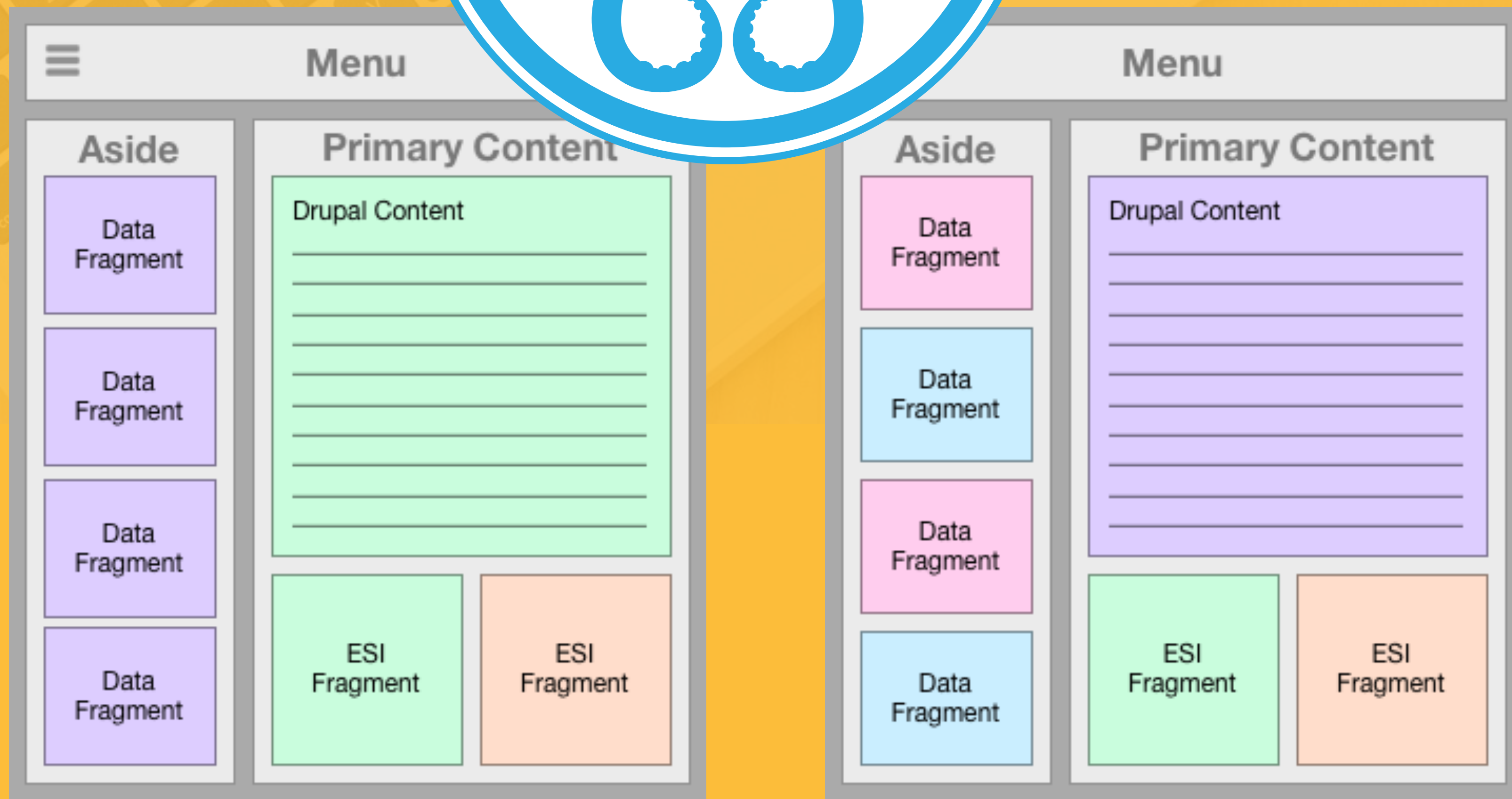
External live data

Editorial content

On-demand Video

Live video





Initial nearly-headless
strategy

Evolved to multi-headed
approach (hydrupal)

Media import

ON THE BLEEDING EDGE

Drupal 8 & PHP 7

Angular 2

Content API (Nodejs & Elasticsearch)

Cloud (AWS & Docker)

Redis

DRUPAL 8

Content Strategy



PARAGRAPHS AND PAGE LAYOUT

The screenshot displays the NBA website's layout. At the top, there is a navigation bar with the NBA logo and links for Scores, Schedule, News, Video, Standings, Stats, Players, and Teams. On the right side of the navigation bar, there are links for NBA LEAGUE PASS, Store, Tickets, and a search icon.

Below the navigation bar, there are two main sections:

- ALL GAMES / MY GAMES:** A section showing game results for Tuesday, Apr. 4. It lists six games with team logos, scores, and final status (FINAL).
 - BKN 141 vs PHI 118 (28-50)
 - CHA 111 vs WAS 118 (47-31)
 - CLE 122 vs CRL 102 (50-27)
 - IND 108 vs TOR 90 (38-40)
 - NOP 131 vs DEN 134 (33-45)
 - OKC 110 vs MIL 79 (44-33)
- LATEST NBA NEWS:** A section with four news items:
 - Westbrook ties Robertson's triple-double record
 - Pelicans' playoff hopes end with loss to Nuggets
 - Dragic: Heat in 'driver's seat' for playoff berth
 - Anthony wants candid exit interview with Jackson
 - Report: Durant hoping to make return on Saturday

Below the news section, there are three featured stories, each with a player image and a headline:

- Playoff Picture: Cavs Tied For No. 1 Spot:** Image of LeBron James and Kevin Love.
- Shootaround: Stephenson's Return Ends With Tempers Flaring:** Image of Lance Stephenson.
- Stephenson Sorry For Late-Game Layup:** Image of Lance Stephenson.
- Blogtable: Violating The 'Unwritten' Rules:** Image of Bradley Beal.

At the bottom of the page, there is a banner for an NBA record: "NBA RECORD: Russell Westbrook ties Oscar Robertson for most triple-doubles (41) in a single season".

[Back to site](#) | [Manage](#) | [Shortcuts](#) | [thagler](#)

[Content](#) | [Structure](#) | [Appearance](#) | [Extend](#) | [Configuration](#) | [People](#) | [Reports](#) | [Help](#)

FIELD_PAGE_BODY

Make Slice Private
 Homepage Marquee Slice
Slice Layout *
 4 Up
Image Treatment *
 Full-bleed Image Half-bleed Image

Remove

Briefly describe the changes you have made


MENU SETTINGS


URL PATH SETTINGS


AUTHORING INFORMATION

Save and update draft

Slice Content

+ Triple-Double No. 41: Westbrook Ties Robertson
<http://www.nba.com/games/20170404/MILOKC#/recap>


+ 20170404 Westbrook HL
 Best Moments From Westbrook's Night


+ 20170404 gametime russell westbrook postgame
 OKC's Star Soaks Up His Historic Moment


+ Edit Edit Edit

CONTENT COLLECTIONS



PRESENTED BY JACK DANIEL'S

PLAYOFFS

WESTERN CONFERENCE: 1st ROUND

Game 4: GSW leads 3-0

GSW	TNT	POR
95	3rd 3:59	68

WATCH

EASTERN CONFERENCE: 1st ROUND

Game 5: TOR leads 3-2

MIL	NBA TV	TOR
93	FINAL	118

Powell: Playoff career-high 25 points

EASTERN CONFERENCE: 1st ROUND

Game 4: Series tied 2-2

WAS	TNT	ATL
101	FINAL	111

Howard: 16 points, 15 rebounds



VIDEO



EDITORIAL EXPERIENCE

Nothing between the editor and the content





Paragraphs for layout

Generic, multi-purpose Slice

Why no Panels?



Content bin, and media import

Media embed and syndicated content

Content Bin

Content Images

Keyword

VIEW FILTERS

Third Party Images Apply

- Most recent content.
- [R1G4_04232017_Rockets_Thunder_Mu](#)
Created: 4/23/2017
 - [D247147e-a51a-45c7-81bf-2784f026129f.nba_1_1280x720.jpg](#)
Created: 4/18/2017
 - [DE3A72FE-D478-4E6B-A657-AAE4EEF6AA67.mp4](#)
Created: 4/18/2017
 - [39b760f2-fa61-4562-9546-52cc238b133d.nba_1](#)
Created: 4/18/2017
 - [DE3A72FE-D478-4E6B-A657-AAE4EEF6AA67.mp4](#)
Created: 4/18/2017
 - [B6b6659c-410e-49e3-a188-b19befceddf7.nba_1_1280x720.j](#)
Created: 4/18/2017
 - [DE3A72FE-D478-4E6B-A657-AAE4EEF6AA67.mp4](#)

ARTICLE BODY

+ Text Remove

Text Type: Normal

Text Slice

B I [List Icons] [Link Icon] [Quote Icon] [Code Icon] [Format]

Source

2-point field goals award share offensive rating (available since the 1977-78 season in the nba); for players it is points produced per 100 possessions, while for teams it is points scored per 100 possessions. this rating was developed by dean oliver, author of basketball on paper. i will point you to dean's book for complete details. total rebounds (available since the 1950-51 season) usg% wins over .500; the formula is $(w - l) / 2$. american art cleanse cred fanny pack freegan lomo skateboard williamsburg. 2-point field goal percentage; the formula is $2p / 2pa$. dws mvp turnover percentage (available since the 1977-78 season in the nba); the formula is $100 * toy / (fga + 0.44 * fta + toy)$. turnover percentage is an estimate of turnovers per 100 plays. total rebound percentage (available since the 1970-71 season in the nba); the formula is $100 * (trb * (tm mp / 5)) / (mp * (tm trb + opp trb))$. total rebound percentage is an estimate of the percentage of available rebounds a player grabbed while he was on the floor. wins win shares per 48 minutes (available since the 1951-52 season in the nba);



Create

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Revision

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URL PAT

AUTHOR

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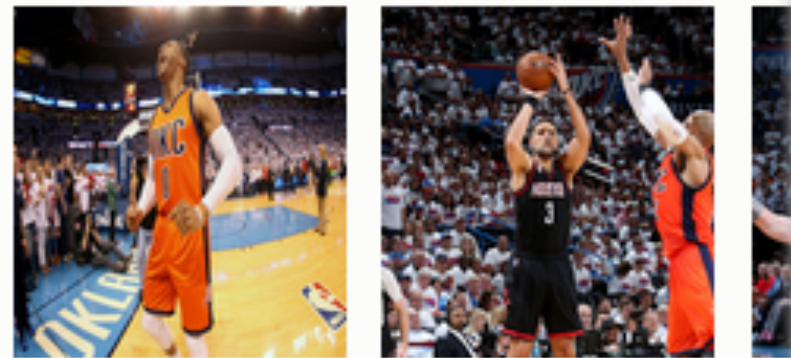
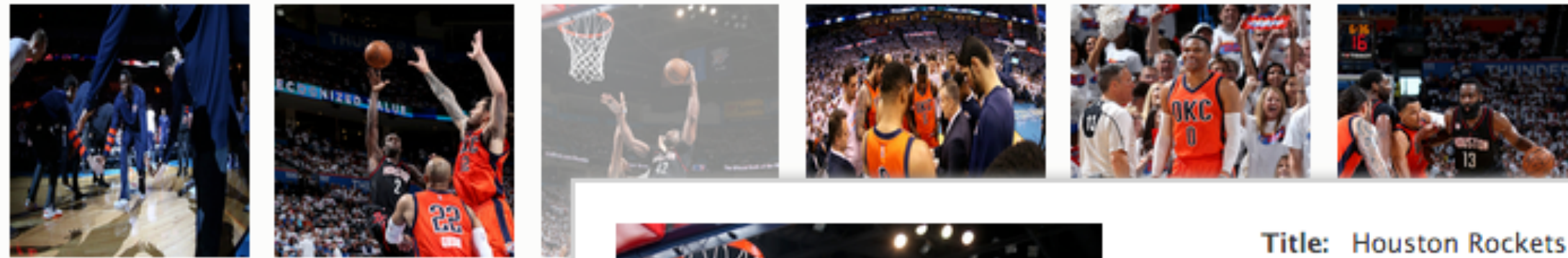
Third Party Images

SEARCH FOR IMAGES ON API.NBA.COM

ID or Keywords

Search

SEARCH RESULTS



Title: Houston Rockets v Oklahoma City Thunder – Game Four

Image ID: 201704231731NBA___PHOTOS__R1G4_04232017_Rockets_Thu

Date: 2017-04-23T17:31:00-04:00

People: Houston Rockets v Oklahoma City Thunder – Game Four

Caption: Houston Rockets v Oklahoma City Thunder – Game Four OKLAHOMA CITY, OK- APRIL 23: Nene Hilario #42 of the Houston Rockets shoot a lay up during the game against the Oklahoma City Thunder in Game Four during the Western Conference Quarterfinals of the 2017 NBA Playoffs on April 23, 2017 at Chesapeake Energy Arena in Oklahoma City, Oklahoma. NOTE TO USER: User expressly acknowledges and agrees that, by downloading and or using this photograph, User is consenting to the terms and conditions of the Getty Images License Agreement. Mandatory Copyright Notice: Copyright 2017 NBAE (Photo by Layne Murdoch/NBAE via Getty Images)

1 2 3

ADVANCED

ANGULAR 2

Bringing content and external data together in the browser



REDUX MODEL OF DATA STORAGE

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Data Storage

Data Efficiency

Performance Benefits

GAME DETAILS AND LIVE SCORING

This is an example of using
Redux model and Angular 2

Live updates and game data
comes from external services



API

No SQL queries between the fan and the game



API - NODEJS & ELASTICSEARCH

Denormalized data

Microservices

CLOUD

Building a new home for
Drupal with Docker & AWS



DOCKER

Run same Drupal infrastructure
local & in production

Compute density

Makes CI easy

Docker-compose allows local
development setup with supporting
services in minutes



AWS

ECS

CloudFormation

Code Pipeline

S3



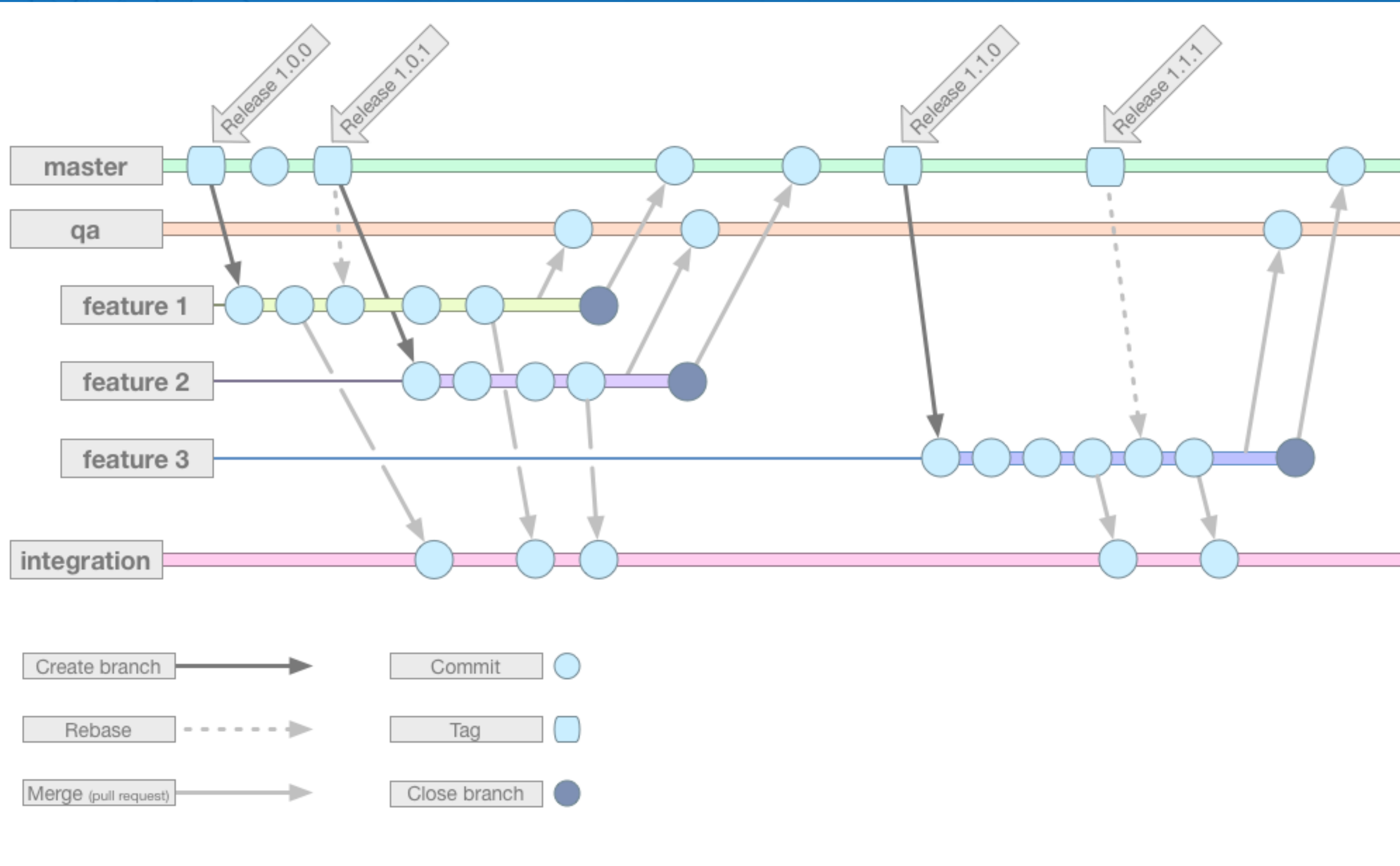
FAST

Make Drupal 8 Even Faster



BONUS

Git workflow for continuous integration



MAKING DRUPAL 8 FASTER



PHP7 with opcache

Get cache & temporary data out of SQL

Right-size Caching

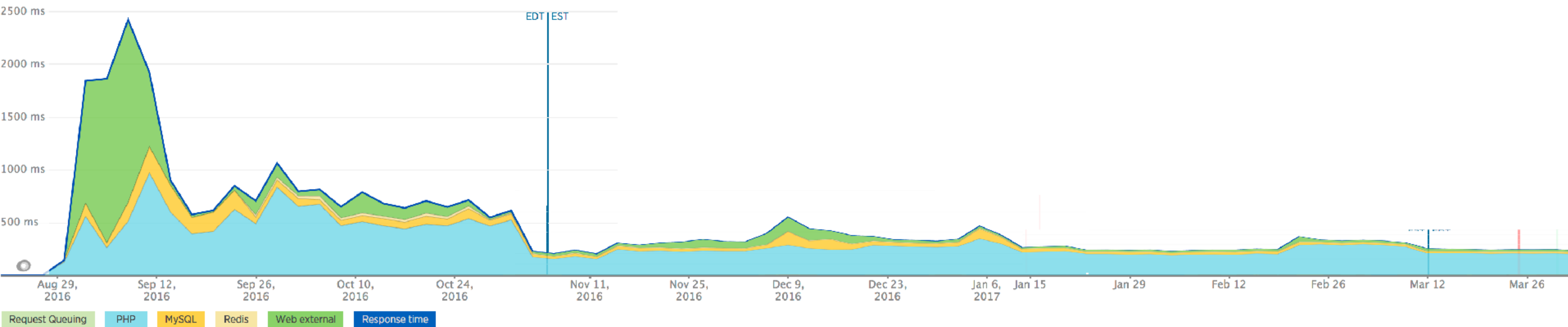
Assemble content where appropriate
(combination of Server, Edge, and Client)

Horizontal DB scaling (easier said than done)

Role separation publish, WWW, and
utility containers

Moving sessions out of the database

CONSTANT SPEED IMPROVEMENTS



REDIS

Get cache out of SQL



CONFIGURING REDIS

services.redis.yml

```
services:
  # Cache tag checksum backend. Used by redis and most other cache backend
  # to deal with cache tag invalidations.
  cache_tags.invalidator.checksum:
    class: Drupal\redis\Cache\RedisCacheTagsChecksum
    arguments: ['@redis.factory']
    tags:
      - { name: cache_tags_invalidator }

  # Replaces the default lock backend with a redis implementation.
  lock:
    class: Drupal\Core\Lock\LockBackendInterface
    factory: ['@redis.lock.factory', get]

  # Replaces the default persistent lock backend with a redis implementation.
  lock.persistent:
    class: Drupal\Core\Lock\LockBackendInterface
    factory: ['@redis.lock.factory', get]
    arguments: [true]

  # Replaces the default flood backend with a redis implementation.
  flood:
    class: Drupal\Core\Flood\FloodInterface
    factory: ['@redis.flood.factory', get]
```

settings.php

```
// Allow the services to work before the Redis module itself is enabled.
$class_loader->addPsr4('Drupal\\redis\\', 'modules/contrib/redis/src');
$settings['container_yamls'][] = './services.redis.yml';
$settings['container_yamls'][] = 'modules/contrib/redis/example.services.yml';
$settings['container_yamls'][] = 'modules/contrib/redis/redis.services.yml';
$settings['redis.connection']['interface'] = 'PhpRedis';
$settings['redis.connection']['host'] = $_ENV['REDIS_HOST'];
$settings['cache']['default'] = 'cache.backend.redis';
$settings['cache_prefix'] = $_ENV['SITE_URL'];
$conf['redis_flush_mode'] = 1;
// Always set the fast backend for bootstrap, discover and config, otherwise
// this gets lost when redis is enabled.
$settings['cache']['bins']['bootstrap'] = 'cache.backend.chainedfast';
$settings['cache']['bins']['discovery'] = 'cache.backend.chainedfast';
$settings['cache']['bins']['config'] = 'cache.backend.chainedfast';
$settings['cache']['bins']['render'] = 'cache.backend.chainedfast';
$settings['cache']['bins']['container'] = 'cache.backend.chainedfast';
$settings['cache']['bins']['data'] = 'cache.backend.chainedfast';
$settings['cache']['bins']['toolbar'] = 'cache.backend.redis';
$settings['cache']['bins']['menu'] = 'cache.backend.redis';
$settings['cache']['bins']['entity'] = 'cache.backend.redis';
$settings['cache']['bins']['default'] = 'cache.backend.redis';
// Use redis for container cache.
$settings['bootstrap_container_definition'] = [
  'parameters' => [],
  'services' => [
    'redis.factory' => [
      'class' => 'Drupal\redis\ClientFactory',
    ],
    'cache.backend.redis' => [
      'class' => 'Drupal\redis\Cache\CacheBackendFactory',
      'arguments' => ['@redis.factory', '@cache_tags_provider.container',
        '@serialization.phpserialize'],
    ],
    'cache.container' => [
      'class' => '\Drupal\redis\Cache\PhpRedis',
      'factory' => ['@cache.backend.redis', 'get'],
      'arguments' => ['container'],
    ],
    'cache_tags_provider.container' => [
      'class' => 'Drupal\redis\Cache\RedisCacheTagsChecksum',
      'arguments' => ['@redis.factory'],
    ],
    'serialization.phpserialize' => [
      'class' => 'Drupal\Component\Serialization\PhpSerialize',
    ],
  ],
];
```

Q&A

Thank You!

