



Enterprise × Laravel

A CASE STUDY OF HOW OLX.PH USES LARAVEL
AT THE FOREFRONT OF ITS OPERATIONS



About your speaker

Kyle Domingo

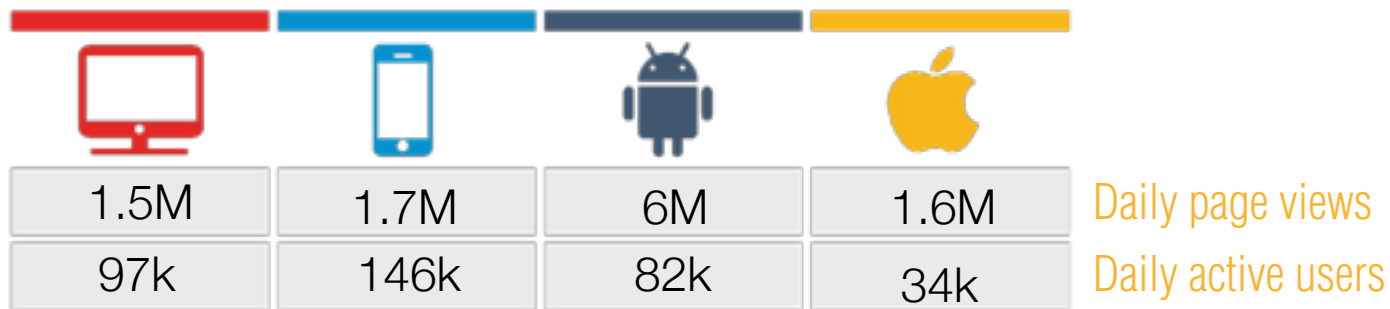
Senior Software Engineer (web) at OLX
Philippines - joined 2013

Writing PHP professionally since 2007



About OLX.ph

- 2006 - Started **Sulit.com.ph**
- 2009 - Naspers Classifieds funding
- 2014 - Global branding to **OLX**



100M page views per month for web



Starting web development

- Bare PHP
- Shared hosting
- FTP the files
- minimal configuration
- done



Starting web development

- Requirements start to pile up
- Dependencies between modules pile up
- Maintenance hell



What is an **Enterprise application**?

- Lines of code?
- Traffic?
- Company goals/requirements?



What is an Enterprise application?

...complex, scalable, distributed, component-based, and **mission-critical**... They are **data-centric**, user-friendly, and must meet stringent requirements for **security**, administration, and maintenance. In short, they are **highly complex systems**.

[https://msdn.microsoft.com/en-us/library/aa267045\(v=vs.60\).aspx](https://msdn.microsoft.com/en-us/library/aa267045(v=vs.60).aspx)



Laravel

- Started out in 2011 as replacement for Codeigniter
- Traffic?
- Company goals/requirements?

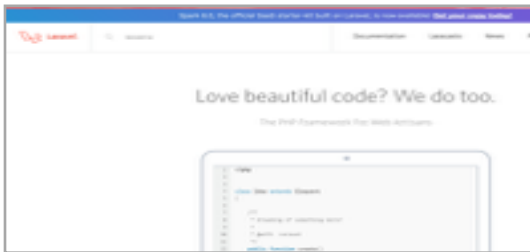


Laravel is PHP

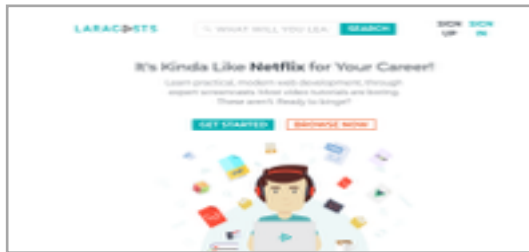
- Can laravel do enterprise? Can PHP?
- The web runs/ran on PHP. Wikipedia, Facebook, Wordpress
- Laravel is good where PHP is good
- Laravel is also subject to PHP's bad practices
- A framework forces you to work within a frame.



Can **Laravel** do “enterprise”?



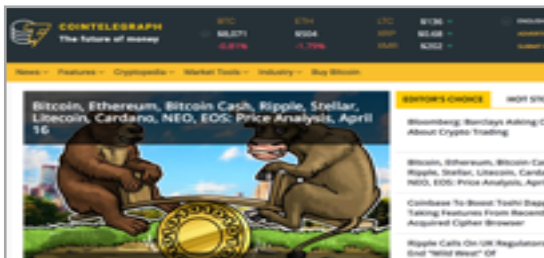
laravel.com



laracasts.com



gamesmart.com
35k users, 2.5M req/24h, 100k new users/24h*



cointelegraph.com**
57M pageviews, 6M unique visitors/mo++



tsikot.com***



olx.ph

* <https://laracasts.com/discuss/channels/laravel/laravel-and-large-apps> ** <https://www.wappalyzer.com/technologies/laravel> *** <https://laracasts.com/discuss/channels/general-discussion/whats-the-most-popular-laravel-sites>
++ <https://cointelegraph.com/advertise-with-bitcoins>



OLX Philippines' road to Laravel

- 🤝 2016 called for a collaboration between **OLX Philippines** and **Indonesia** to build a **cross-platform** frontend
- **Laravel** was decided to be the common framework known by everyone involved



Key considerations for enterprise app

Responsive



Engaging



Reliable



Secure



Fast



Maintainable



Scalable





Responsive

- Mobile first
- We are in the mobile-era (mobile web accounts for 60% vs desktop web)
- Non-responsive web 1.0 will lose their mobile users
- We use Zurb Foundation for modular CSS



Responsive

- Laravel makes this easy through blade templates
- Completely separate mobile site vs responsive



Engaging

- Users have to keep coming back
- Progressive Web Apps are **app-like**, **installable** and live on the user's home screen. They offer an immersive **full screen experience** with help from a web app manifest file and can even **re-engage** users with web push notifications.

<https://developers.google.com/web/progressive-web-apps/>

- Recommendations from browsing behavior



Secure

- **https**
- **OWASP** Secure Coding Practices
 - Validate input - `Validator::make()`
 - Sanitize output - `{{{ }}`,
 - CSRF - tokens
 - Authentication - Route grouping
 - Database security - Eloquent, prepared statements
- Enforceable in **code reviews**



Secure - Payments

- **PCI DSS** - Payment Card Industry Data Security Standard
accept card payment, **and** store, process and transmit cardholder data
- Headache vs availing of payment providers who are already PCI compliant



Fast

- Frontend
 - CDN (Akamai)
 - minimal design, svg icons to reduce redundancy (less things to cache in browser)
 - Modularized JS, CSS (elixir, gulp)
 - Accelerated Mobile Pages



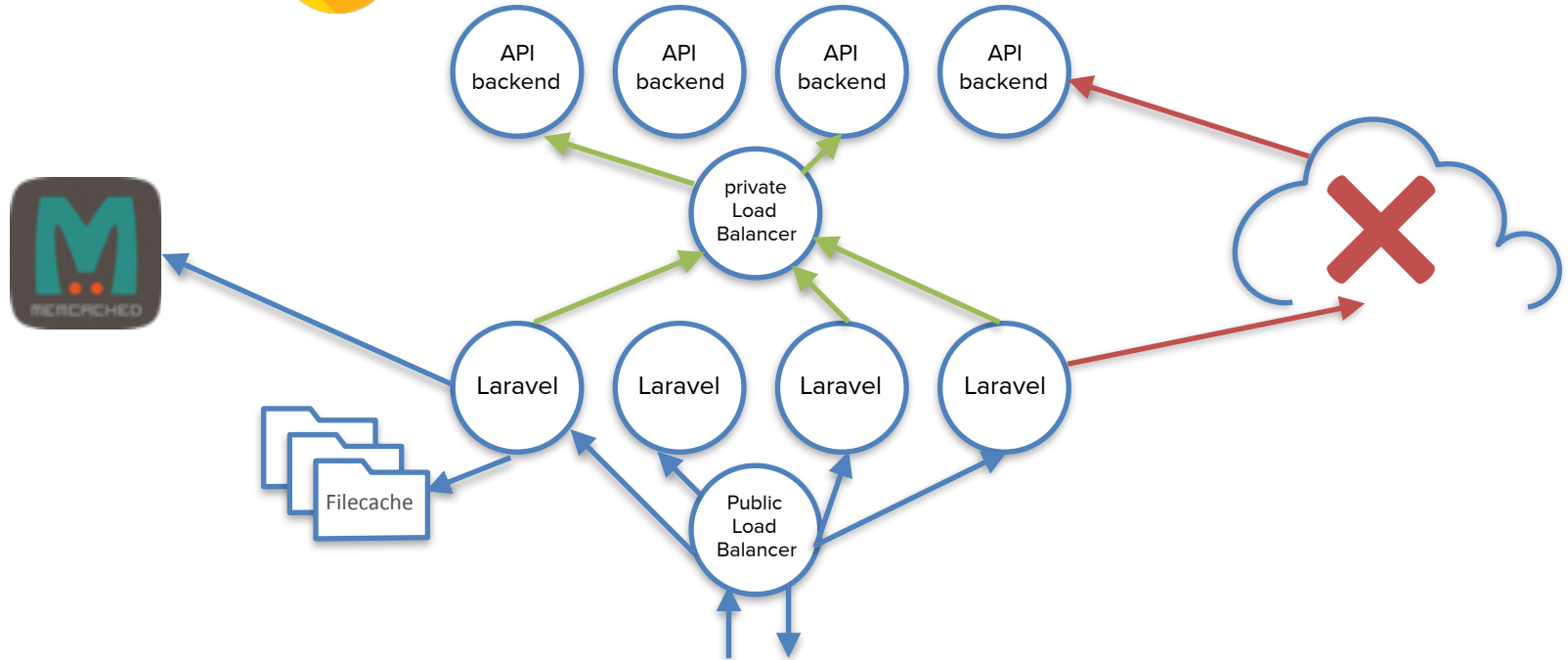
Fast

```
elixir(function(mix) {  
  mix  
    .sass('app.scss', 'public/ph/css/all.css', {  
      includePaths: [  
        './resources/assets/bower_components/foundation-sites/scss/',  
        './resources/assets/bower_components/motion-ui/'  
      ]  
    })  
  
    .scripts([  
      'ph/jquery.min.js',  
      'ph/foundation.min.js',  
      'ph/app.js',  
      'ph/util.js'  
      // ...  
    ], 'public/ph/js/core.js')  
  
    // Boost - sponsor  
    .scripts([  
      'ph/jquery/jquery.tagsinput.js',  
      'ph/boost/sponsor.js'  
    ], 'public/ph/js/ofb/boost/sponsor.js')  
  
    // PAYMENT PAGE  
    .scripts([  
      'ph/pay/pay.js'  
    ], 'public/ph/js/ofb/pay/pay.js')
```



Fast

- Backend
 - **Proper indexing** of db tables, denormalized columns
 - **Caching**: local file, redis, memcached
 - **Infra** optimisations (api endpoints are routed internally)
 - API response caching
 - Profile your apps for bottlenecks (xdebug)





Fast

- Laravel
 - Combine files in **config/**
php artisan config:cache
(catch: cannot use **.env**)
 - **php artisan route:cache**
(catch: cannot use closures as routes)



Maintainable

- Dependency management using **composer**.
- **vendor/** is gitignored and cannot be touched so modules can be upgraded
- Coding standards **PSR-2** and Autoloading standards **PSR-4**
- Enforced in **code review** via pull requests
- Continuous integration/testing using Athena, Jenkins, and Behat
<https://athena-oss.github.io>



Scalable - Available

- **Redundant** - Failovers and replicas on different zones, master-slave for DB write-read
- **Shared-nothing** architecture. Individual application instances can act independently and can be taken down or spinned up at any time
- **DDoS** mitigation (Akamai)
- Failures are **monitored** (newrelic, victorops)



Scalable - Available

20 hosts

Host name	Apdex	Resp. time	Throughput	Error Rate	CPU usage	Memory
prod-web-1-0130900b7a0c3d1 20 app instances	1.00%	118 ms	875 rpm	0.0503 %	67 %	800 MB
prod-web-1-0146a0017468b7a6a 10 app instances	0.99%	122 ms	805 rpm	0.0828 %	68 %	790 MB
prod-web-1-02279c770ac38af01 20 app instances	0.99%	119 ms	867 rpm	0.10 %	74 %	800 MB
prod-web-1-030079a0c04a03d 20 app instances	1.00%	124 ms	840 rpm	0.0903 %	66 %	800 MB
prod-web-1-0512f88a05b732b 20 app instances	1.00%	126 ms	840 rpm	0.0793 %	66 %	800 MB
prod-web-1-056400021c3a8b3d1 20 app instances	0.99%	114 ms	867 rpm	0.11 %	70 %	860 MB
prod-web-1-05f6b0d0c1719f14b 20 app instances	1.00%	118 ms	867 rpm	0.0503 %	67 %	800 MB
prod-web-1-06a72f008b0e108b2d1 20 app instances	1.00%	120 ms	800 rpm	0.0903 %	69 %	800 MB
prod-web-1-06b0b0c7ac4b8f78d 20 app instances	1.00%	118 ms	875 rpm	0.0794 %	67 %	800 MB
prod-web-1-071a046010c343ab 20 app instances	0.99%	126 ms	821 rpm	0.0801 %	64 %	800 MB

/App\Http\Controllers\AdvertsController@listings	40.9%
/App\LenApiController@getForwardAnonymousNoCaching	16.2%
/App\Http\Controllers\AdvertsController@details	12.2%
/App\Http\Controllers\AdController@manageAds	6.59%
/App\Http\Controllers\UserController@getProfile	5.44%
/App\Http\Controllers\IndexController@index	3%
/App\...\Controllers\AdvertActionsController@genericTracking	2.78%
/App\Http\Controllers\ApiController@getForward	2.17%
/App\Http\Controllers\MessagesController@threads	1.93%
/App\Http\Controllers\BoostController@refresh	1.18%
/App\Http\Controllers\PayController@pay	0.98%
/App\...\Controllers\CrmController@getRecommendations	0.74%
/App\Http\Controllers\AdController@imageUpload	0.71%
/App\Http\Controllers\KeywordSuggest@getSuggestions	0.64%
/App\Http\Controllers\...\Controller@markAsRec	0.61%

Newrelic for app-level reporting



Scalable - Available



VictorOps APP 8:40 PM

OPENED - Incident 4793 for (P24 Sync Queue has exceeded the 1800sec limit):
Oldest item in queue was fetched at 2018-04-02 20:07:13

NOTIFY: Trying to contact ribbaluyos for #4793, sending EMAIL

NOTIFY: Trying to contact agaldones for #4793, sending PUSH,SMS

NOTIFY: Trying to contact agaldones for #4793, sending PHONE

ACKNOWLEDGED - Incident 4793 for (P24 Sync Queue has exceeded the 1800sec limit):
Oldest item in queue was fetched at 2018-04-02 20:07:13

NOTIFY: Cancelled paging ribbaluyos

NOTIFY: Cancelled paging agaldones

VictorOps API for code-level incident reporting
with Slack integration



Scalable - Performant

- 20 server instances for Laravel (4cpu 16gb)
- 28 for Backend
- 1 for master DB (16cpu 64gb) for writes
- 4 lower spec slave DB for reads



Reliable

- Reliably up 99% of the time
- Reliably fast
- Reliably secure
- Reliably enjoyable user experience



Further reading

- SOLID
 - Single responsibility
 - Open/Closed
 - Liskov substitution
 - Interface segregation
 - Dependency inversion
- Forge <https://serversforhackers.com/scaling-laravel/forged>





forge.laravel.com


Laravel Forge | PHP Hosting For Artisans Route 53 Management Console DigitalOcean - Droplets scaling-laravel/forge.scalinglaravel.com: An exam...

FORGE Servers ▾ Sites ▾ Recipes Search... Chris Fido ▾





Create Server


Digital Ocean


AWS



Custom VPS

Active Servers

Name	IP Address	PHP Version	Status	Connection
 serversforhackers	34.225.247.122	7.1	 Active	 Successful 

Recent Events

Server	Event	When	Output
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<https://serversforhackers.com/scaling-laravel/forge>

digitalocean.com



“**Laravel** won’t automatically make your app amazing to maintain for 10 years.”

—Taylor Otwell



“Bad developer can write **bad app**
with any framework.”

—Matt Stauffer (author Laravel: Up and Running)



Q&A

Questions?