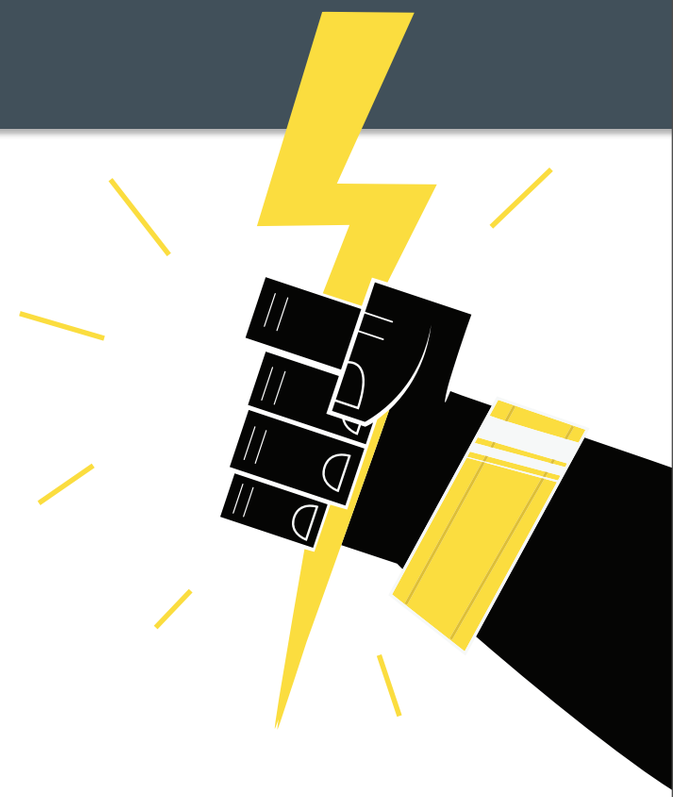
PANTHEON

Building the Drupal Borg

BADCamp October 23nd 2011



Scaling used to be far more complex.

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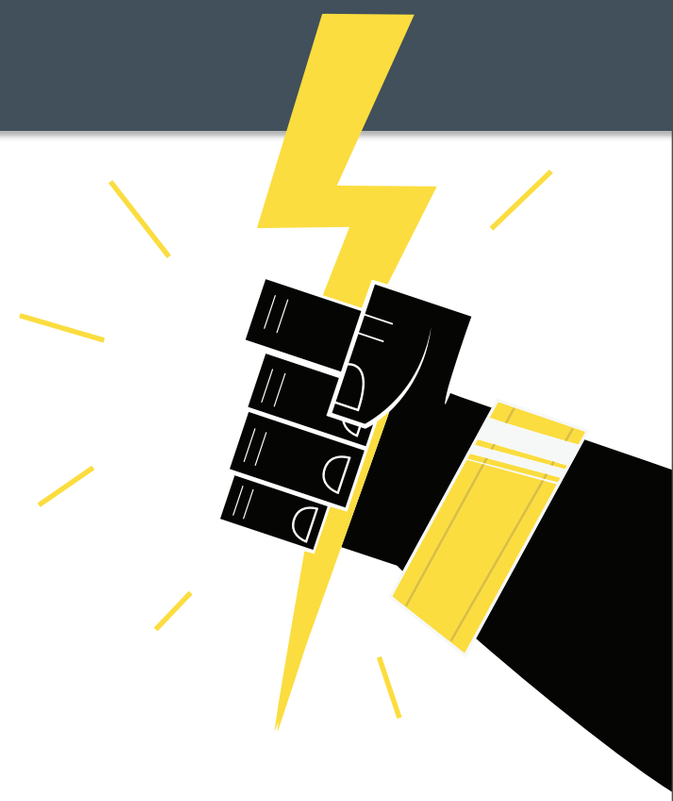
The Late 90's



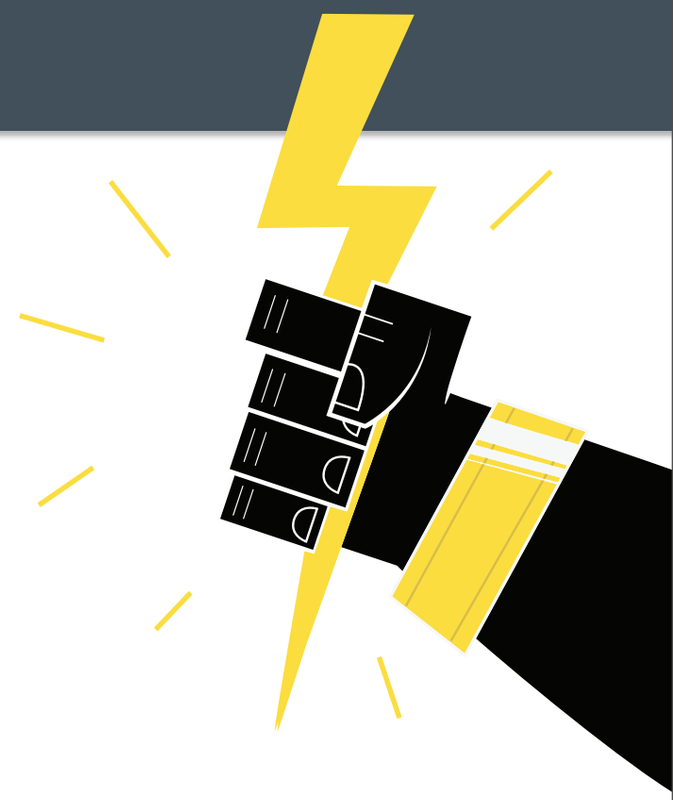
Ease of impleme ntation

Java v1

Use-Cases Covered

PANTHEON

The Late 90's



Ease of impleme ntation

J2EE

Java v1

Use-Cases Covered

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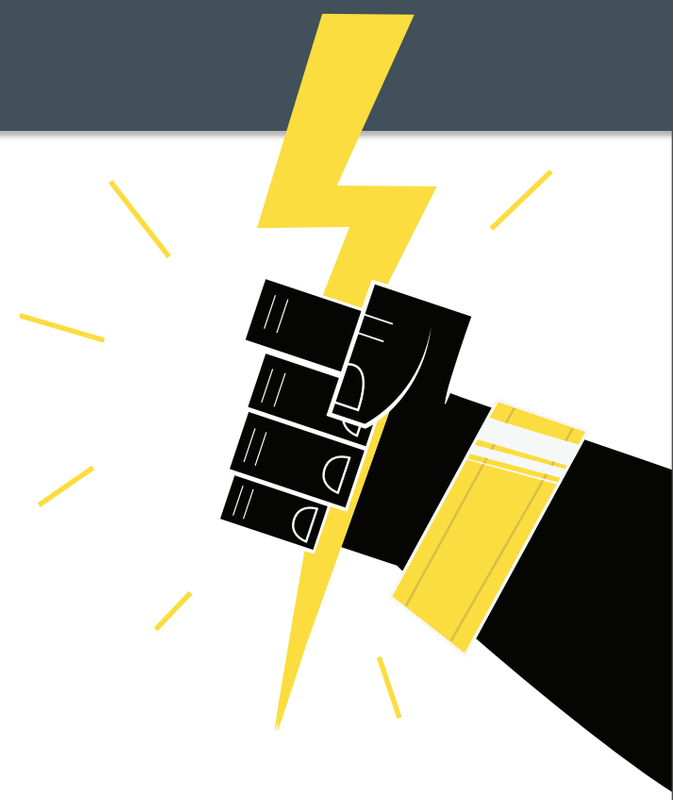
The Late 90's



Ease of impleme ntation

J2EE

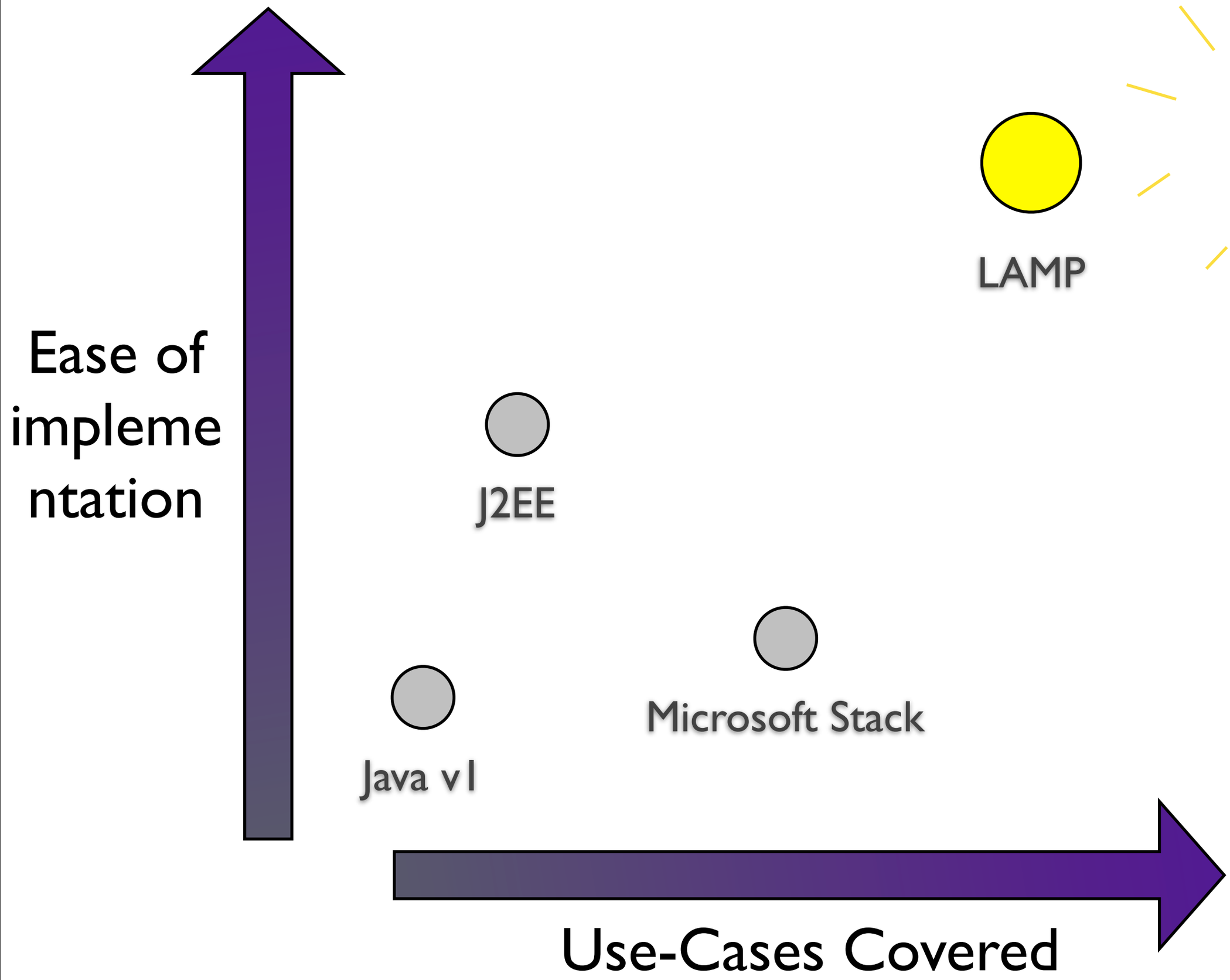
Java v1

Microsoft Stack

Use-Cases Covered

PANTHEON

The Late 90's



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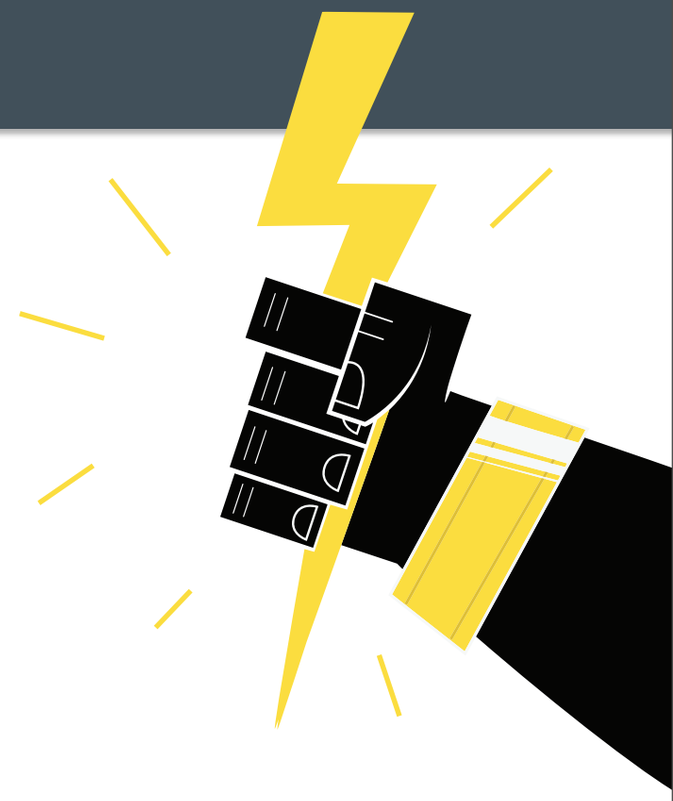
A Dark Time



- All apps written from scratch
- Network databases still immature
- “Publishing HTML” still the goal
- Remember the web in the 90’s?

(sorta sucked)

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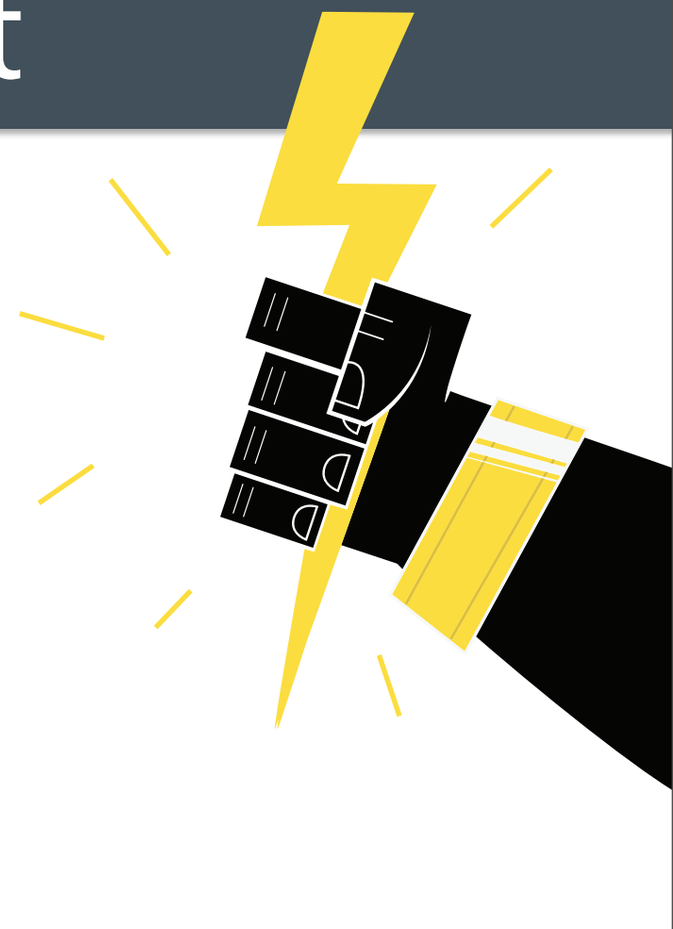
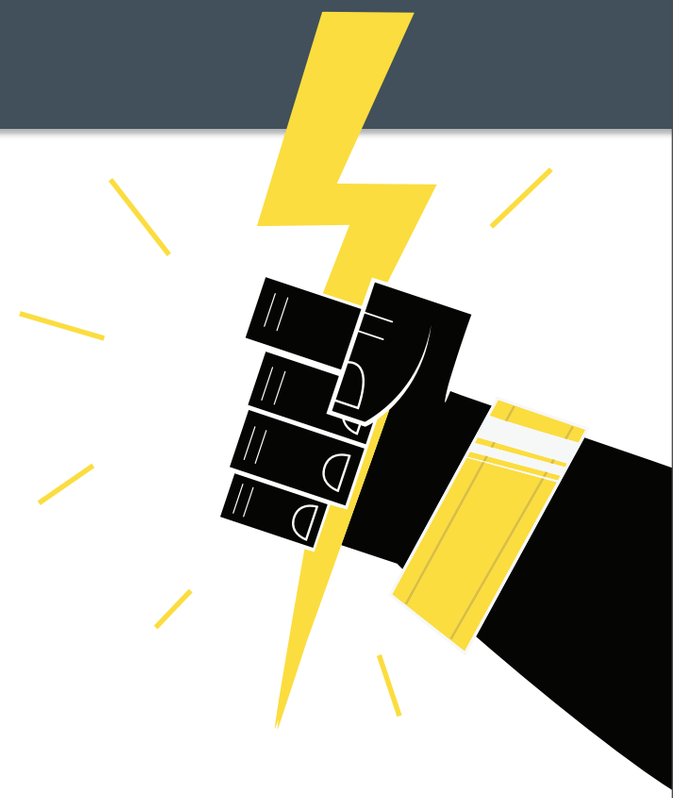
LAMP Shines a Light



- Share-nothing runtime
- Network-connected database
- Free and Open Source
- Runs on any hardware



And so the web grew

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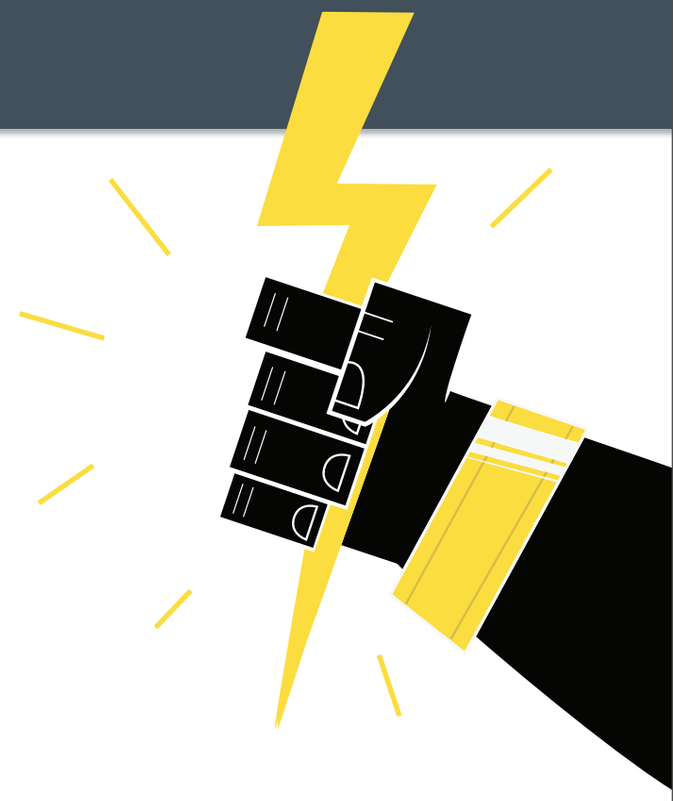
“Web Scale”



- C10k Challenge
- Evented I/O wins
- Nginx and Lighttpd
- Memcache
- Distributed reads

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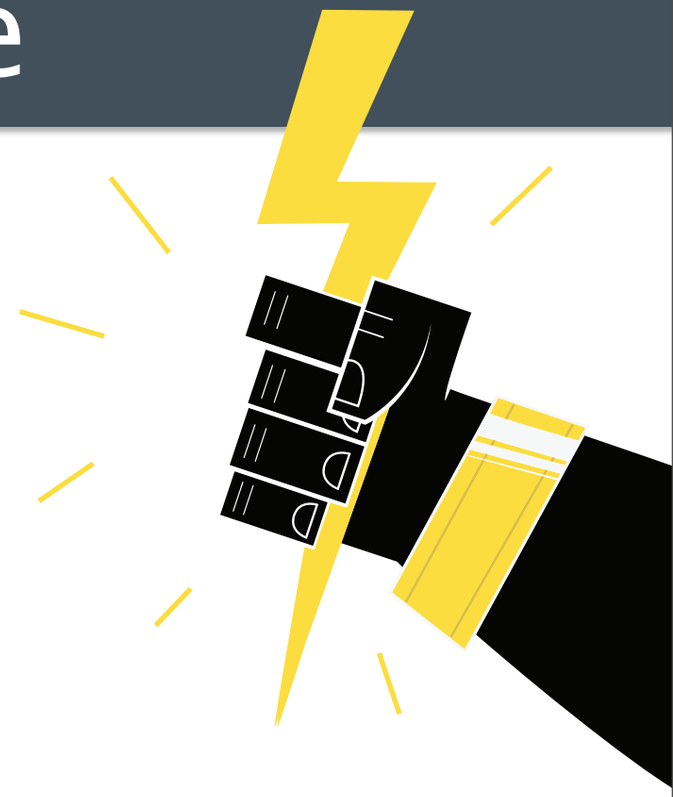
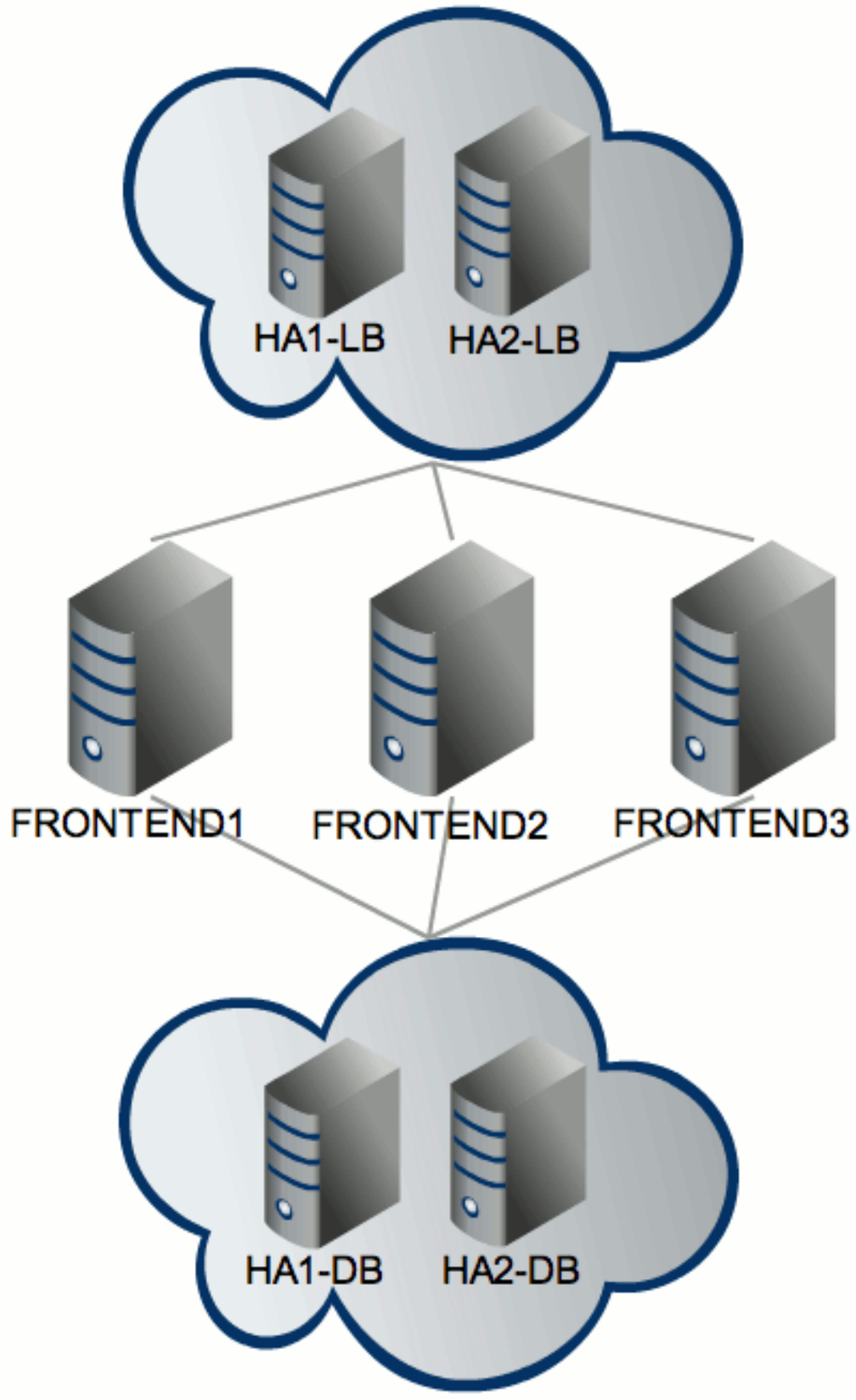
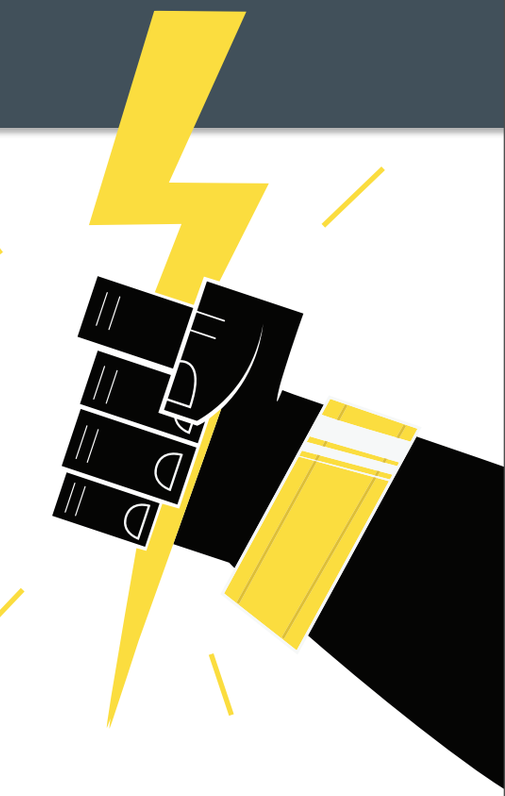
But the Architecture



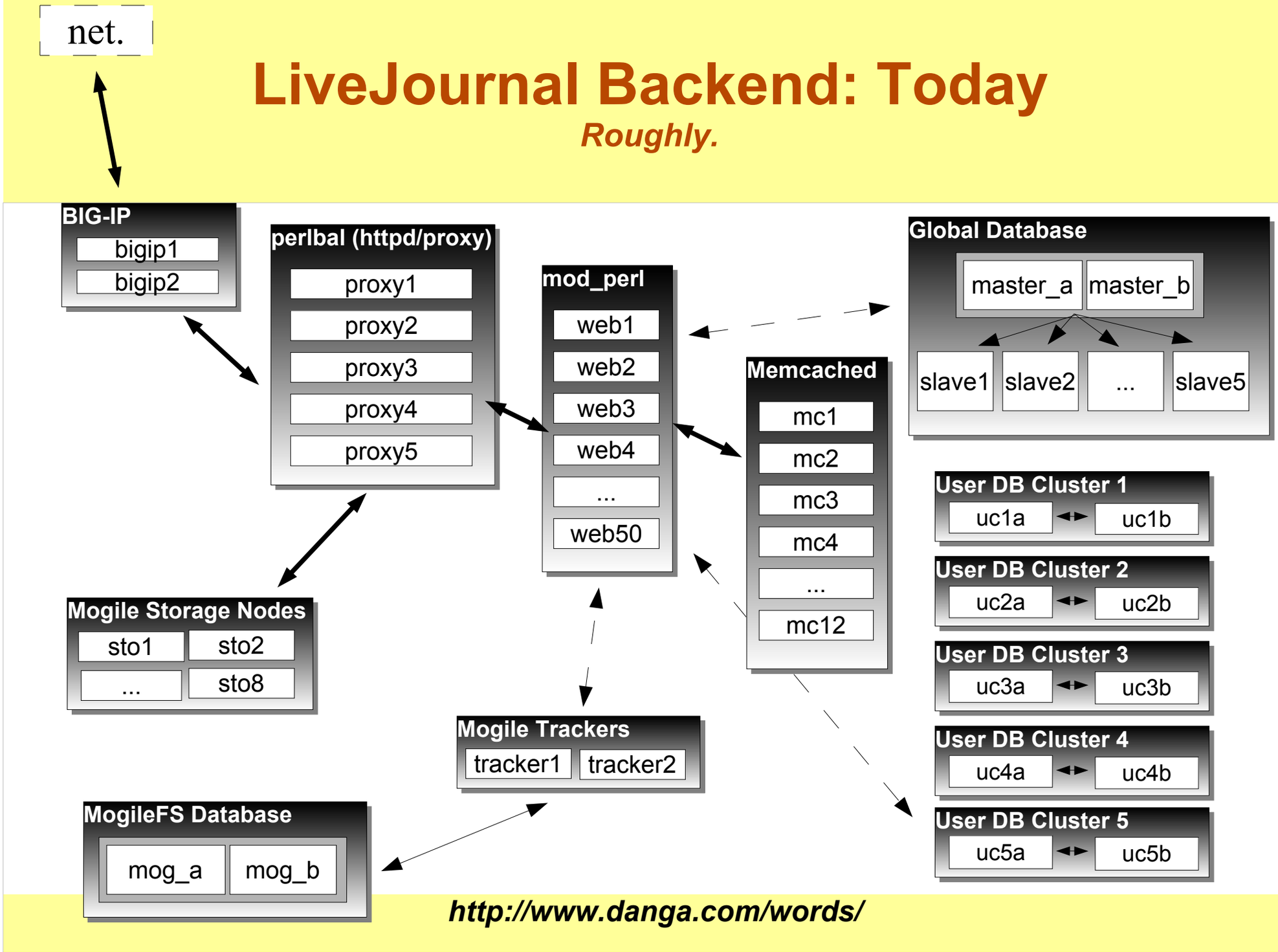


By 2005...



LiveJournal Backend: Today

Roughly.



http://www.danga.com/words/

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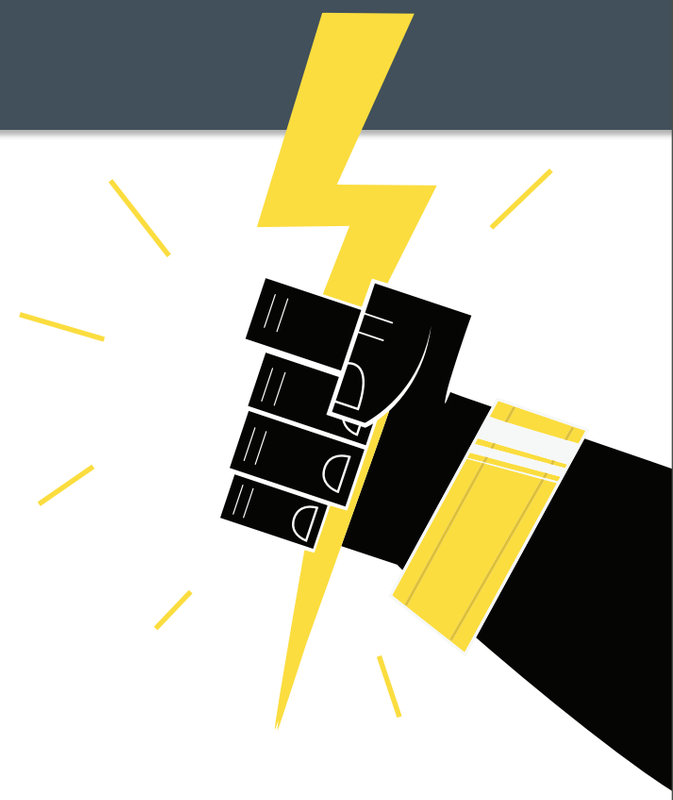
Infrastructure



Ease of implementation

Shared Hosting

VPS

Dedicated Server

HA Web Cluster

Custom Cluster

Use-Cases Covered

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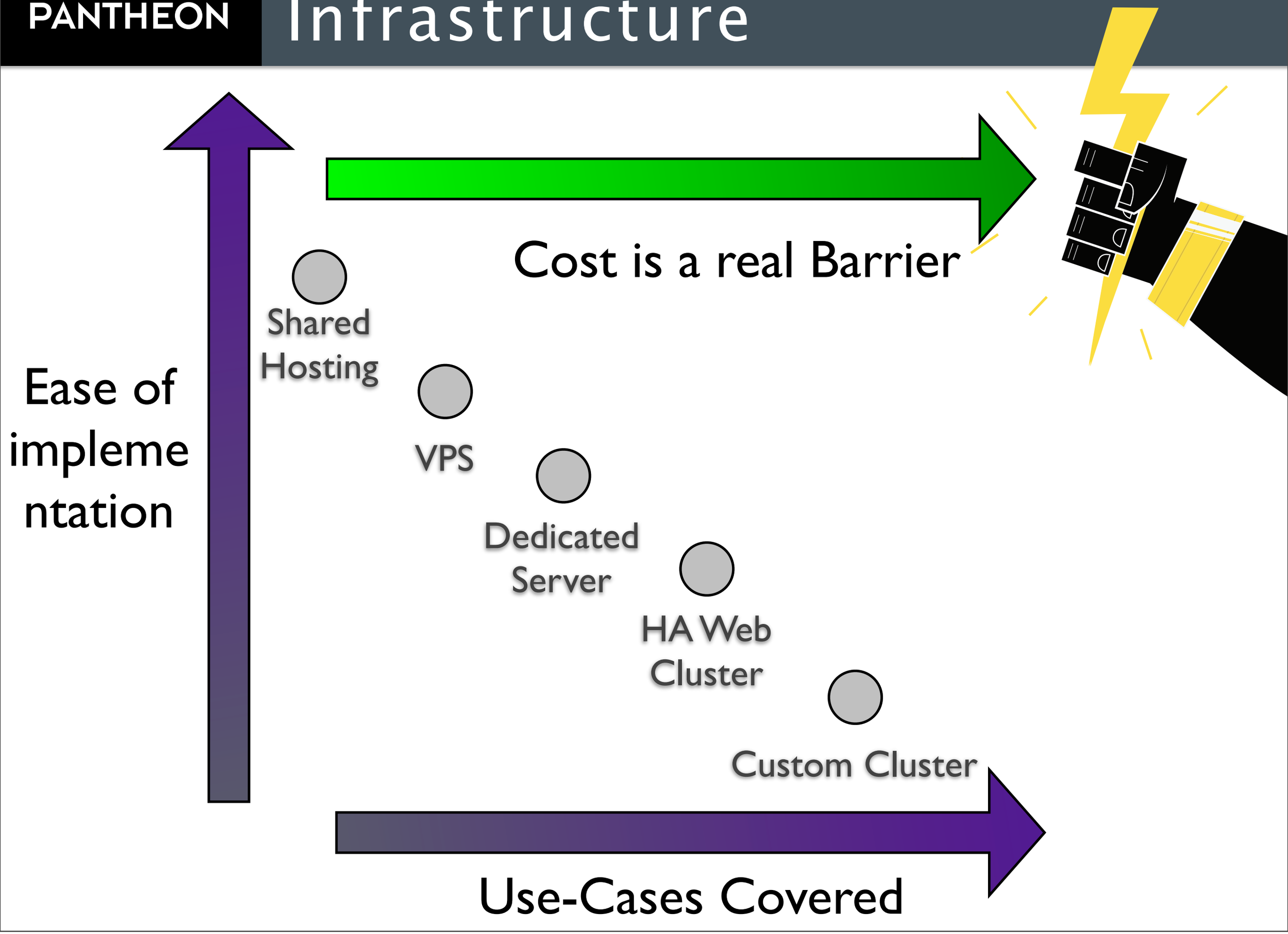
Infrastructure



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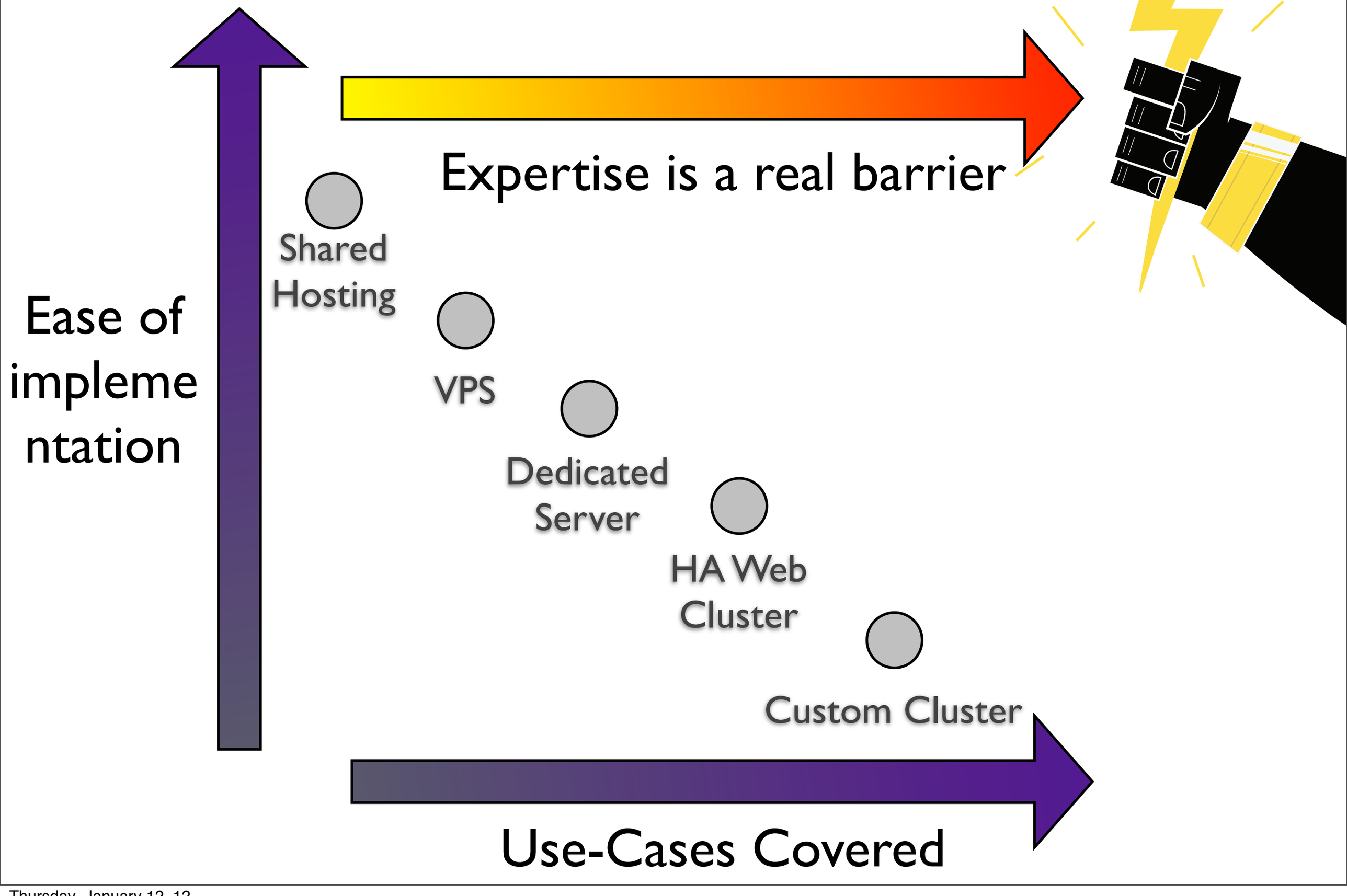
Infrastructure



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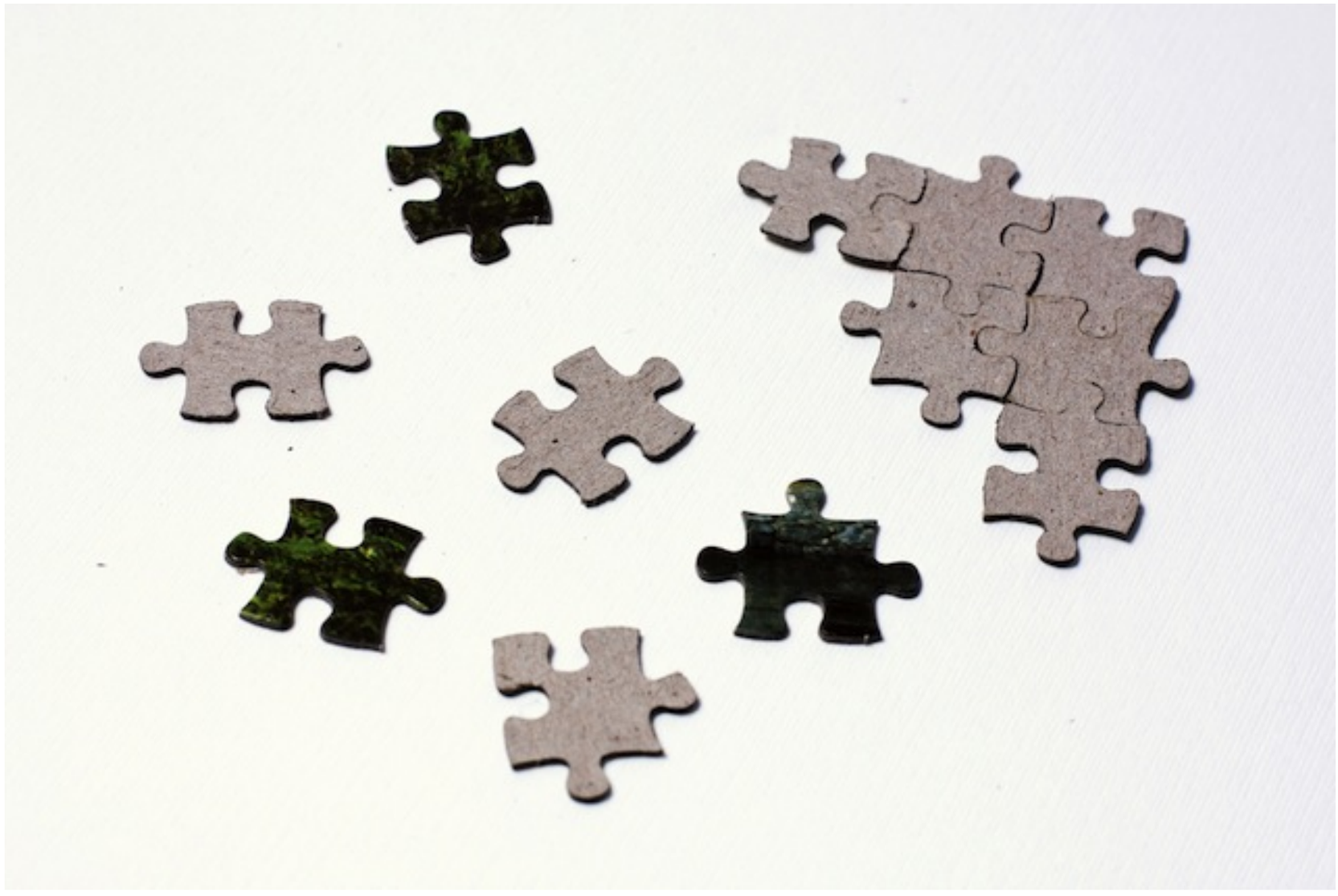
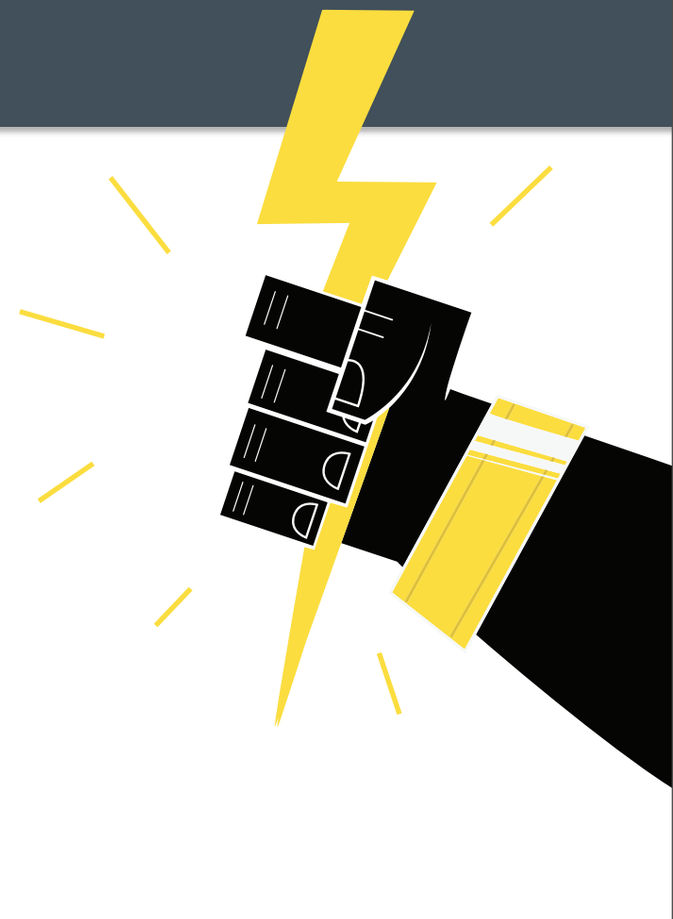
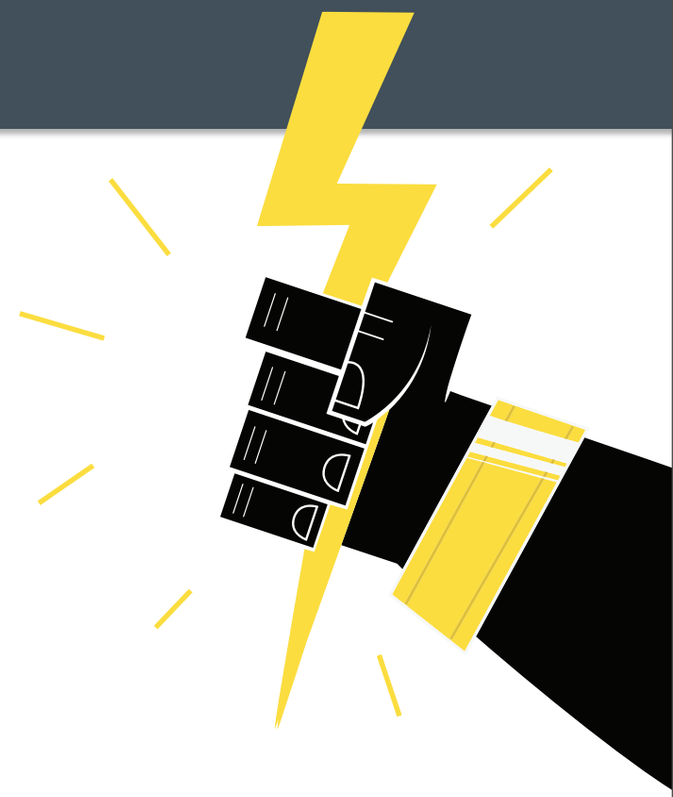
The Units of Scale

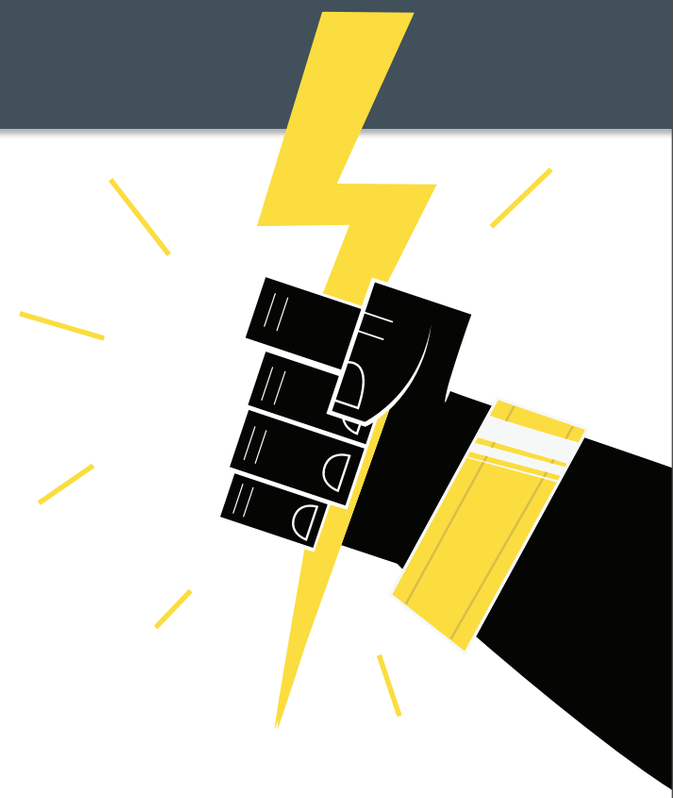




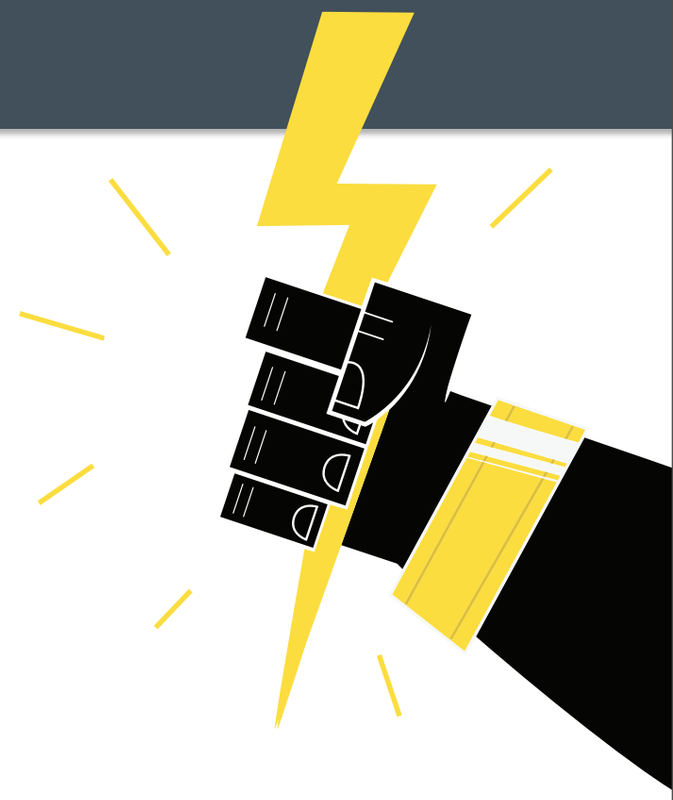
Entire hardware servers is the wrong unit to scale.
Tons of capacity at a chunk.



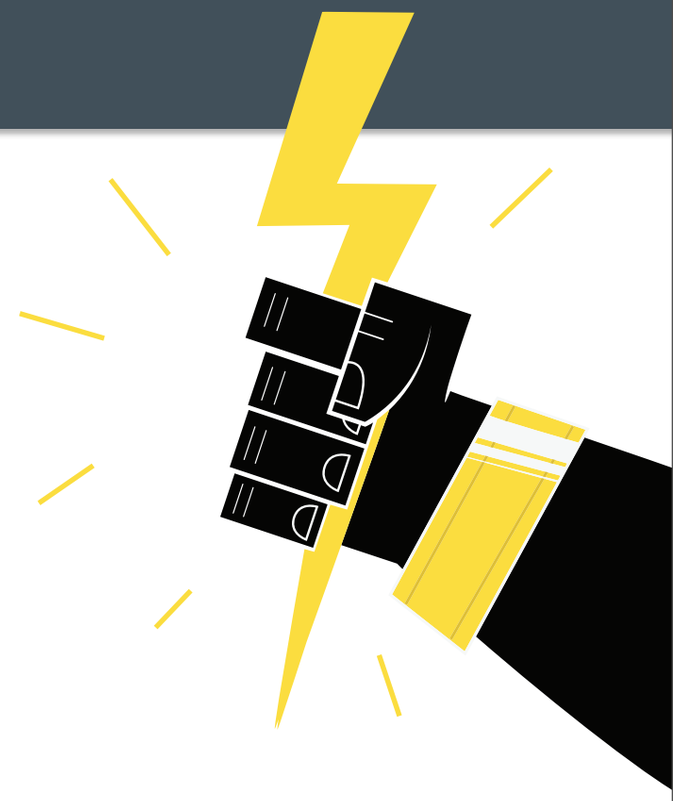
This isn't just about scaling one website



This is about scaling the web

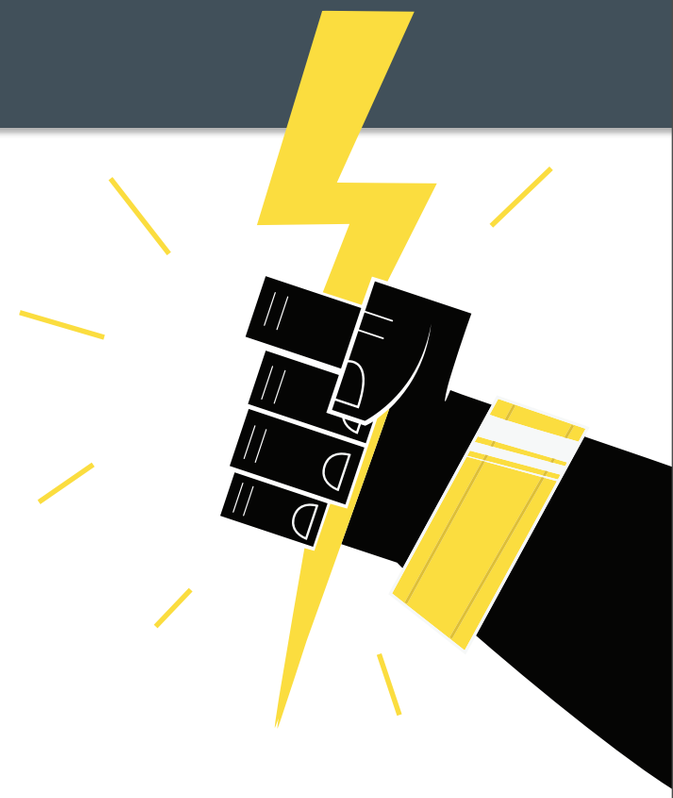


Limited developer talent limits Drupal adoption



Expertise in infrastructure is even more limited

The Challenge



Luckily infrastructure is friendly to automation

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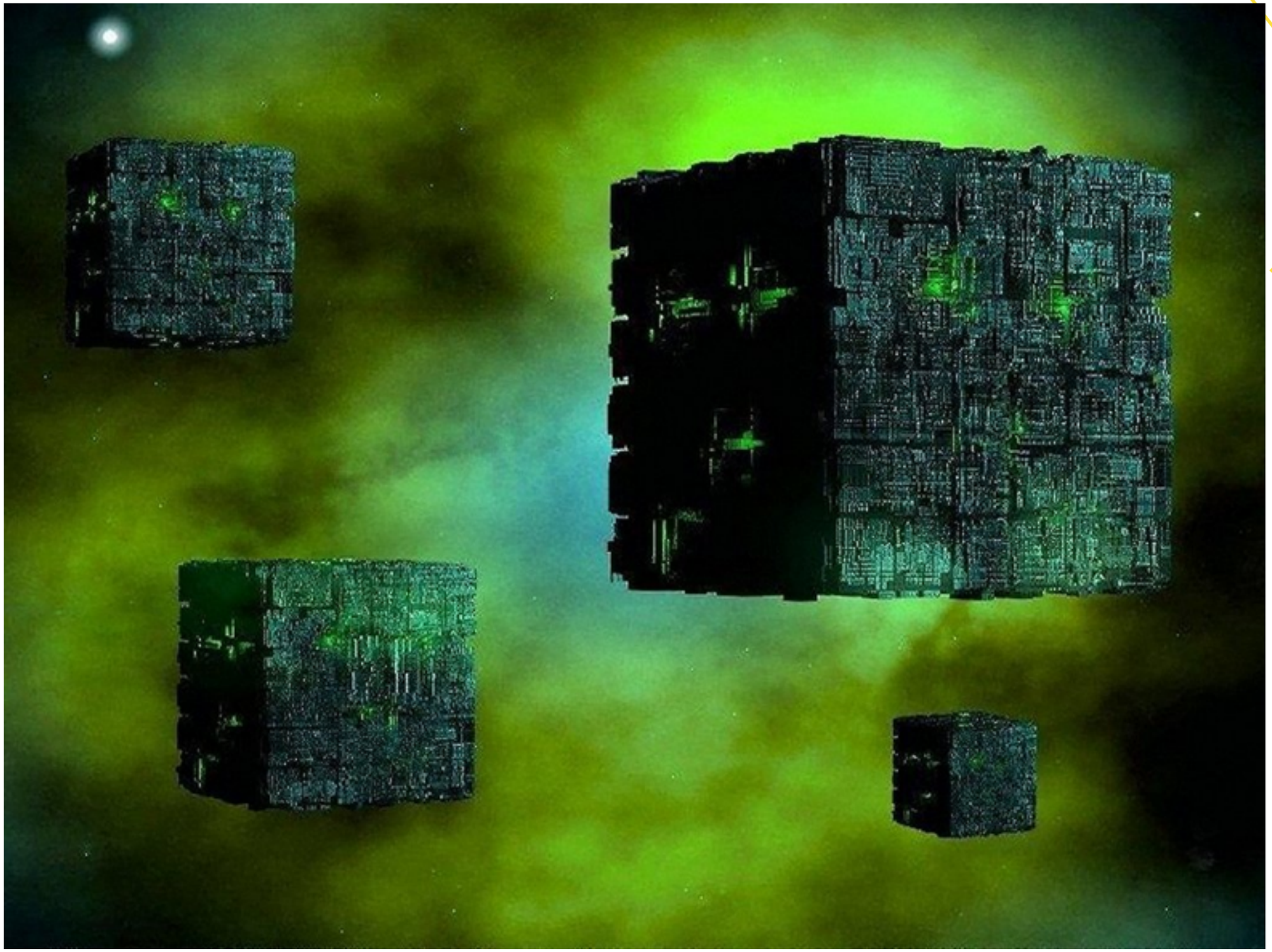
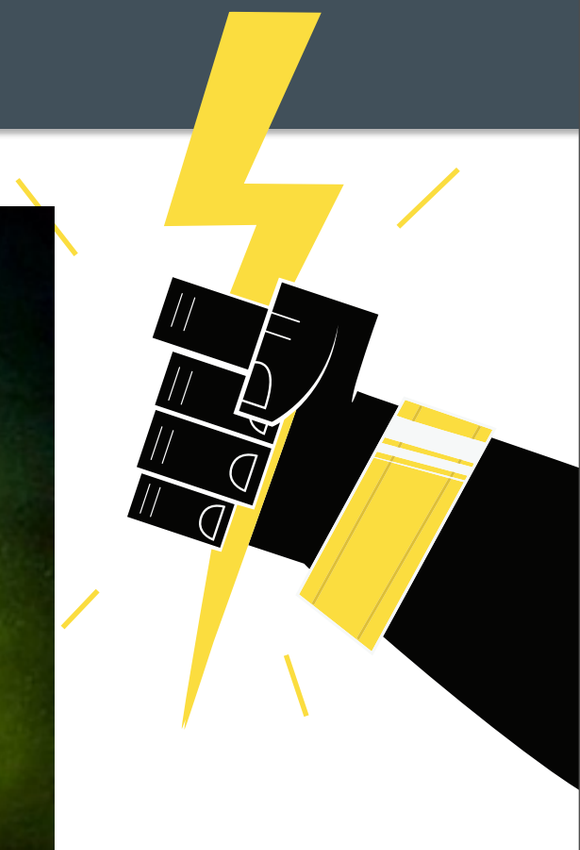
Bring on the Borg!





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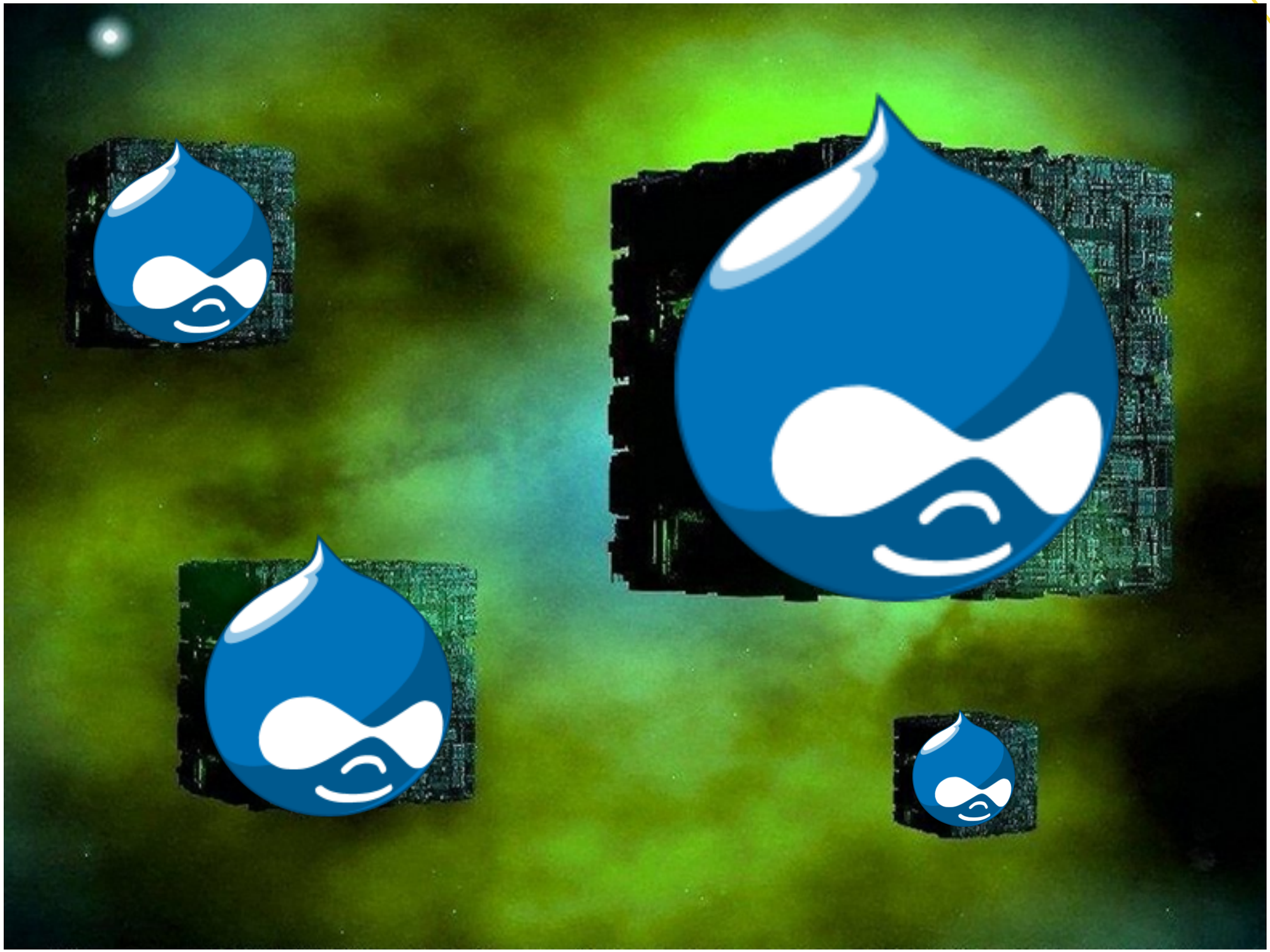

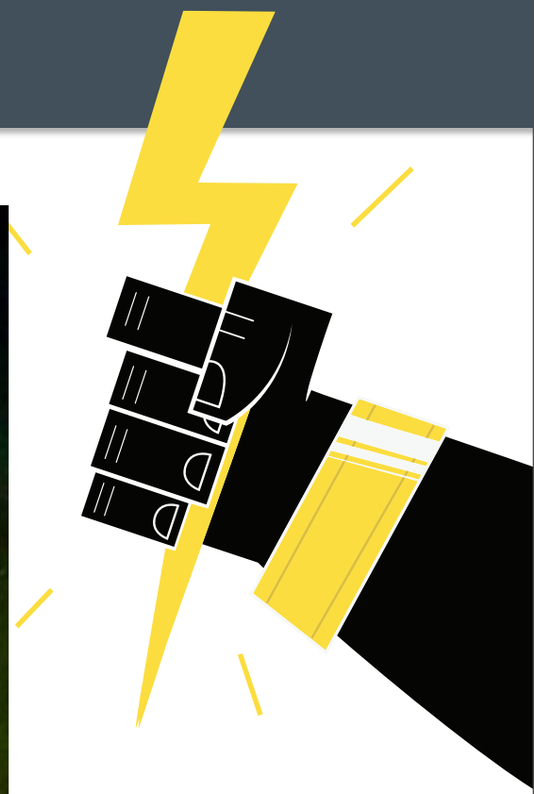

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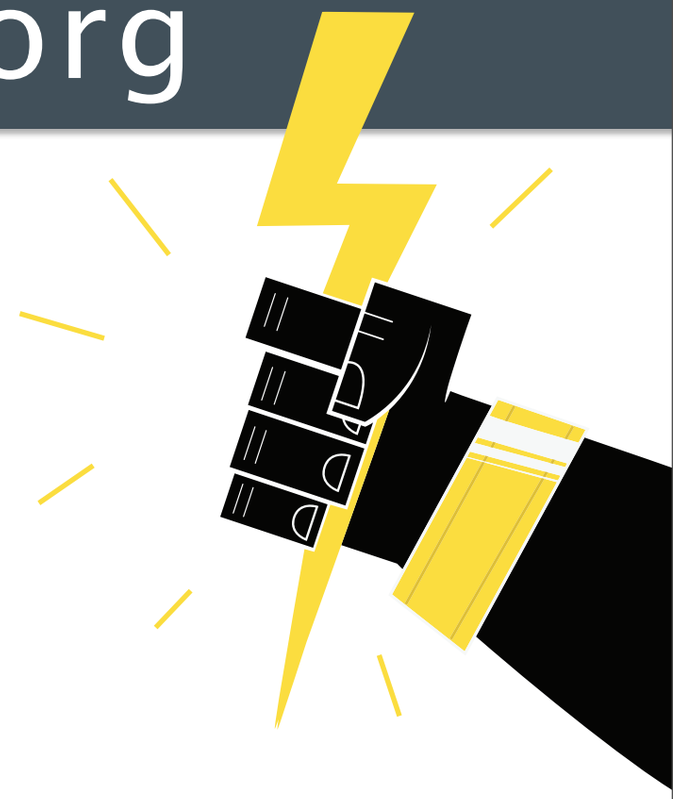
A Brief History of Borg



Google / AppEngine

CfEngine, Puppet, Chef

Heroku

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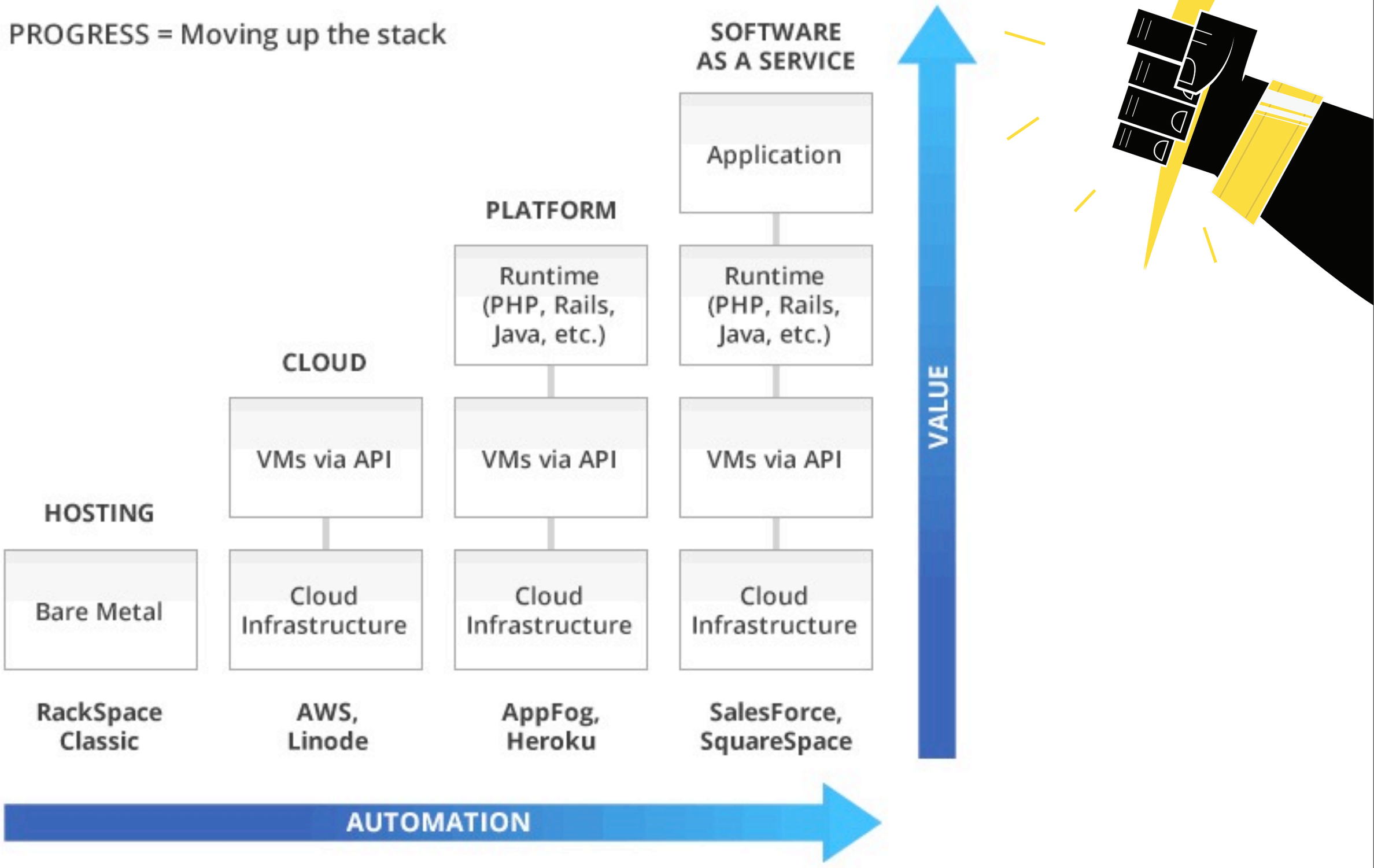
This is how we do it



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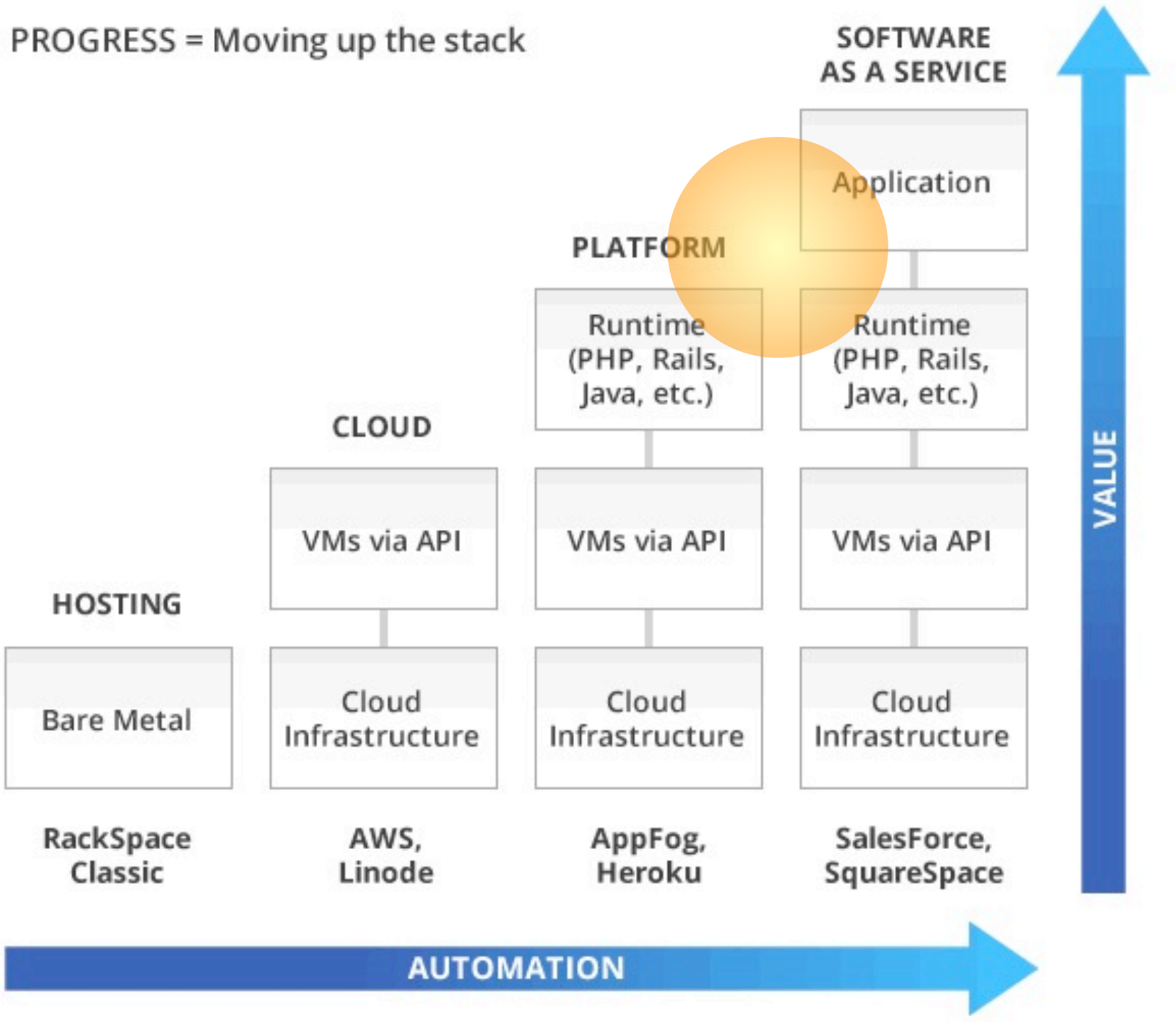
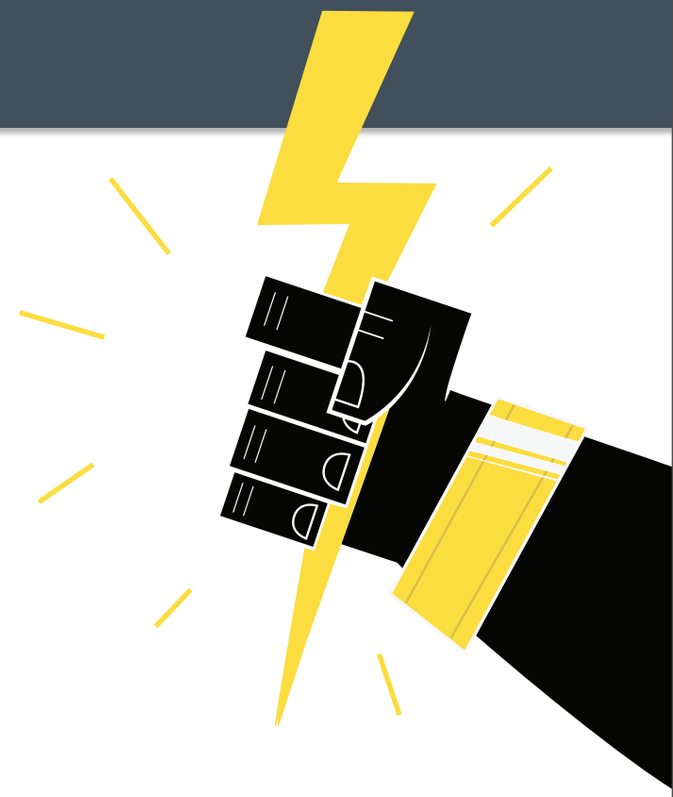
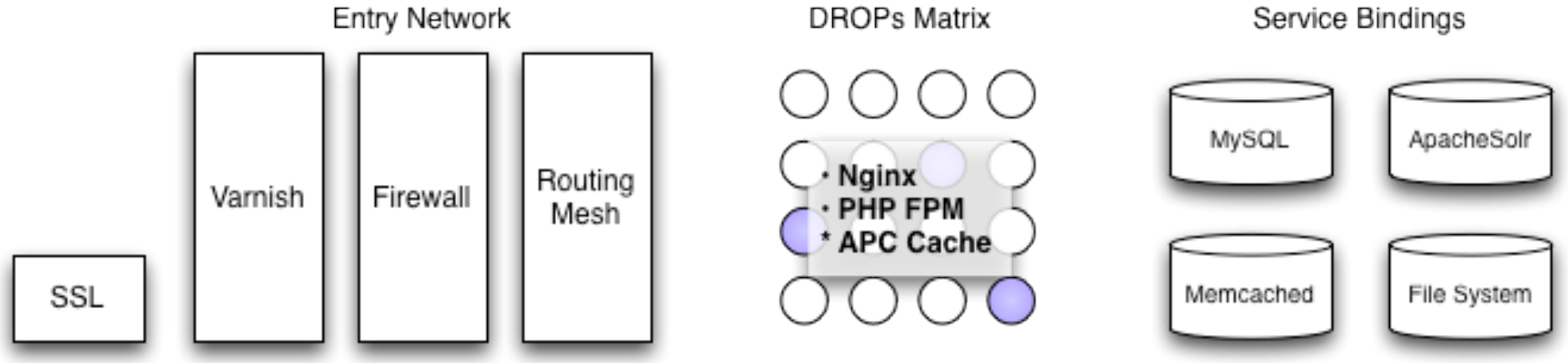


Pantheon is the best of both worlds

Pantheon will un-block Drupal adoption on infrastructure



The High Level View



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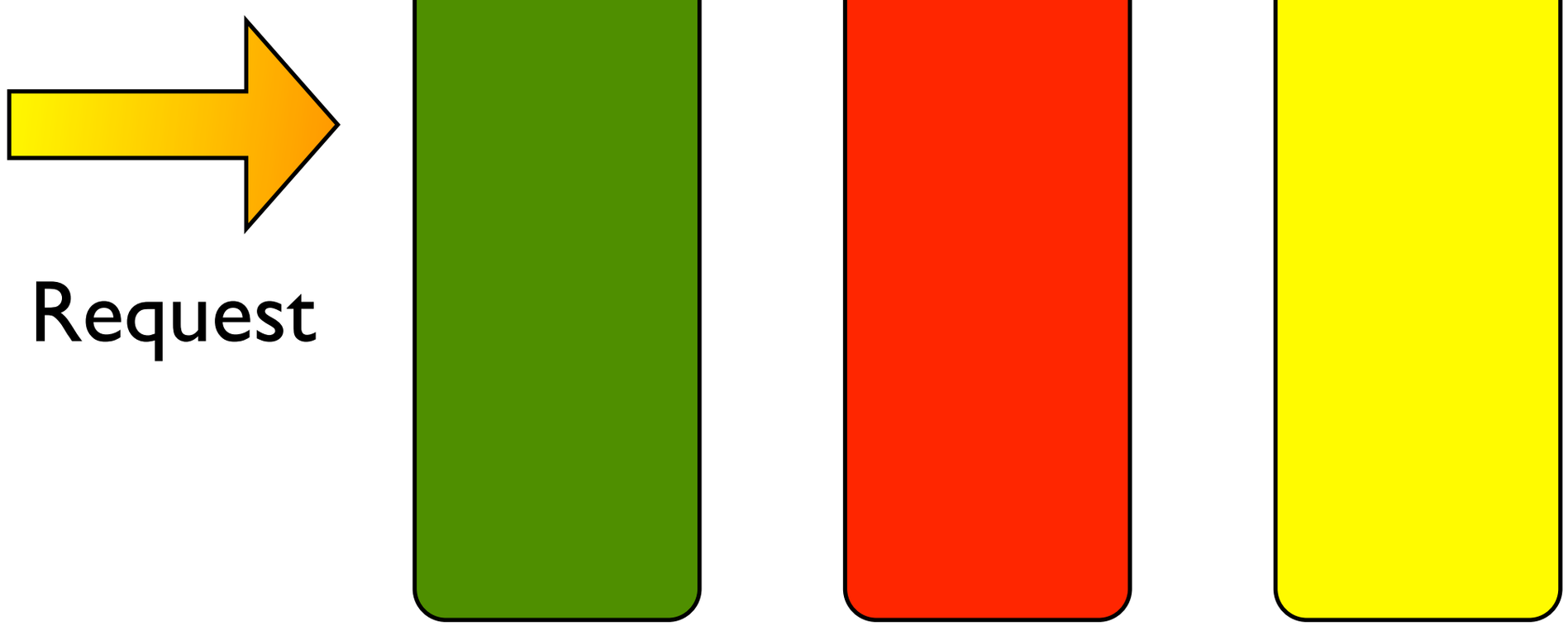
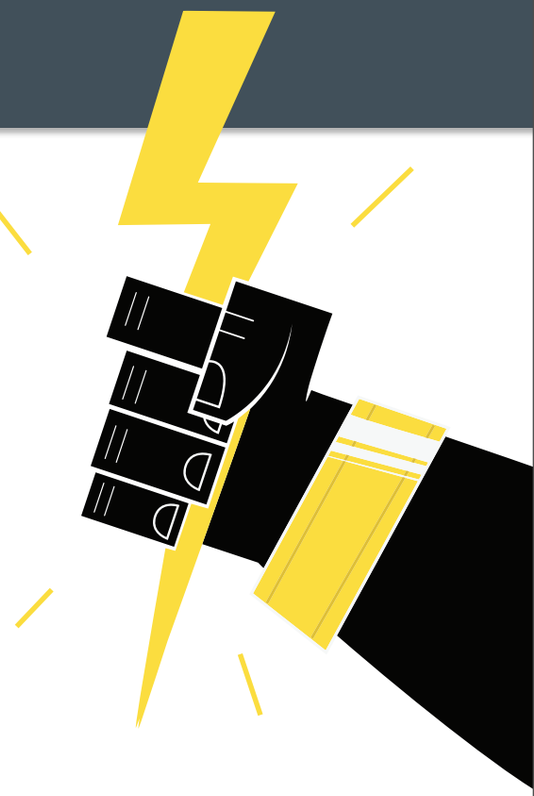
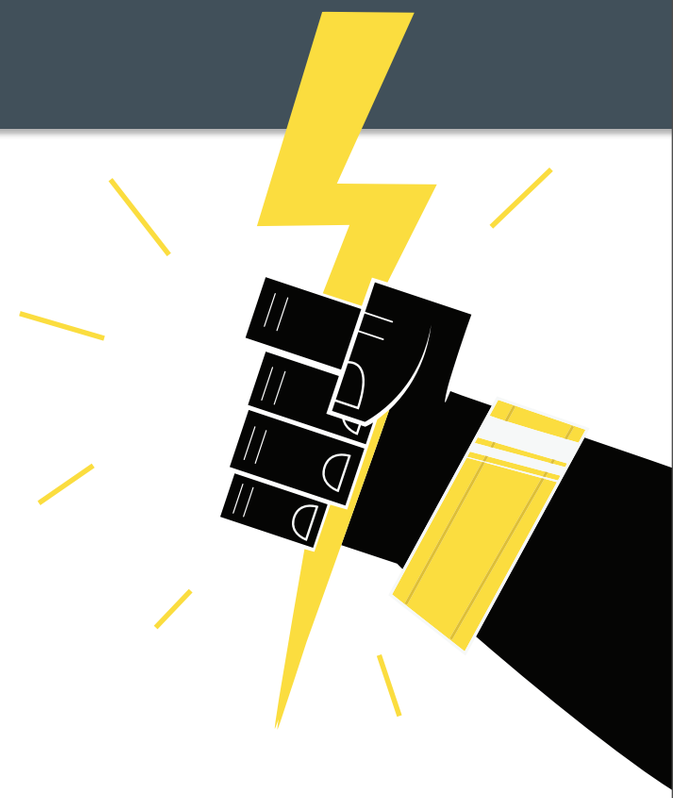
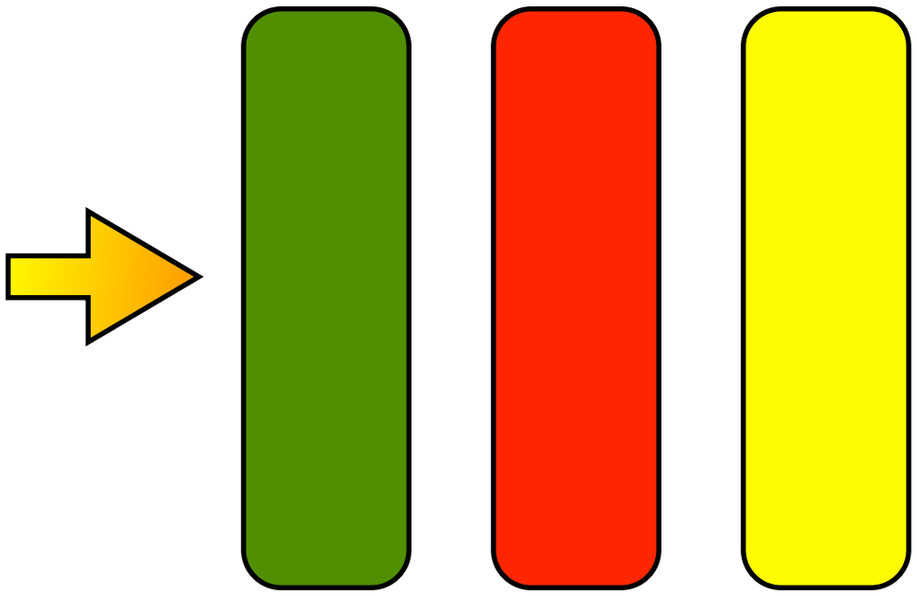
Routing Mesh







Routing Mesh



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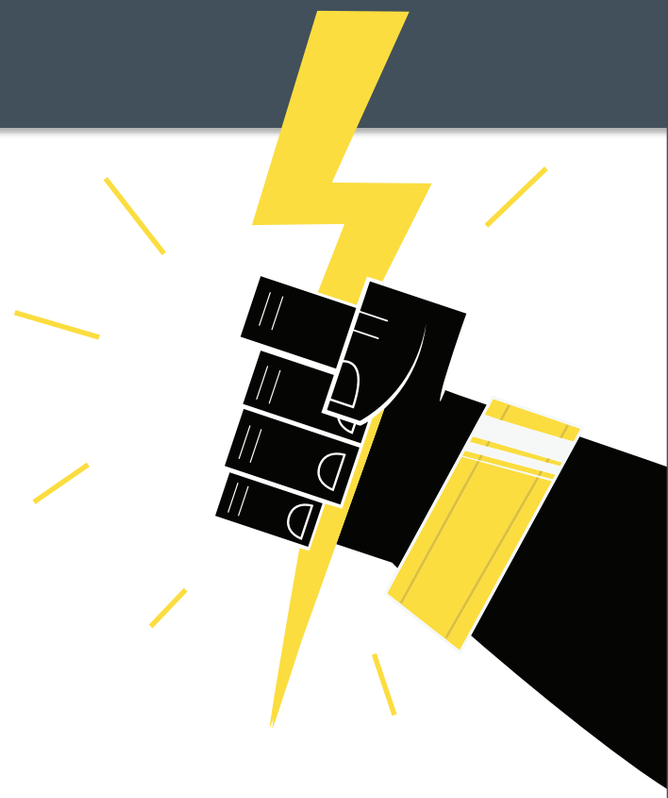
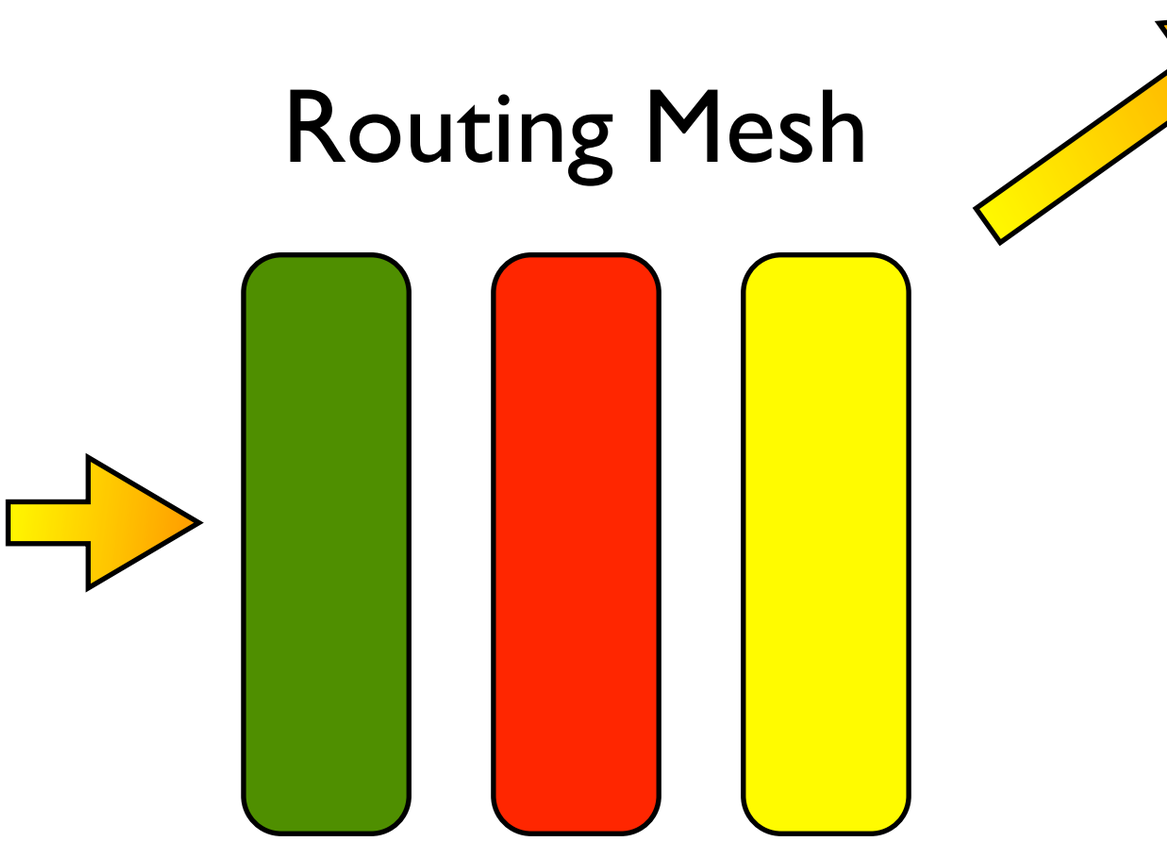
Routing Mesh

Yggdrasil DNS





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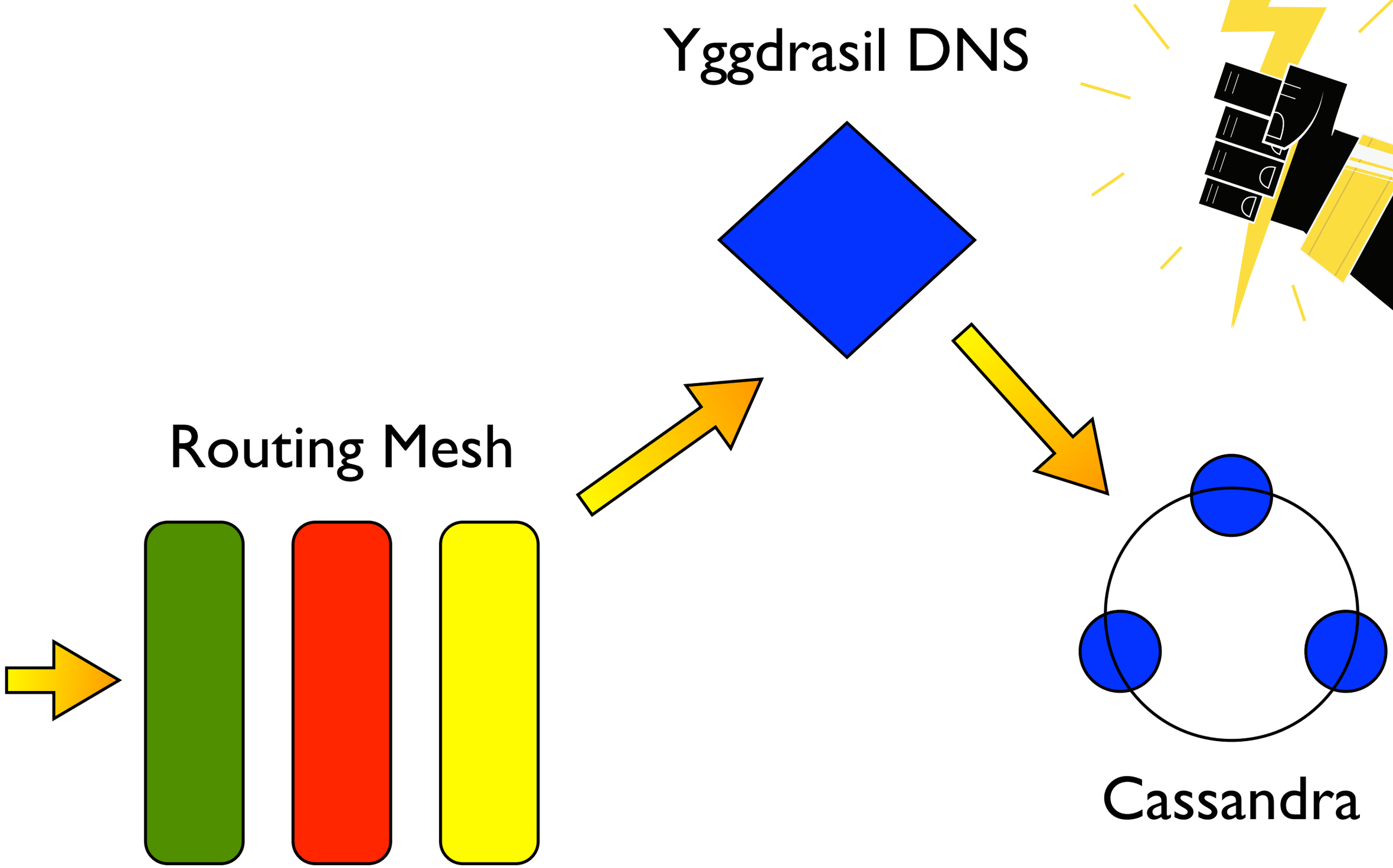

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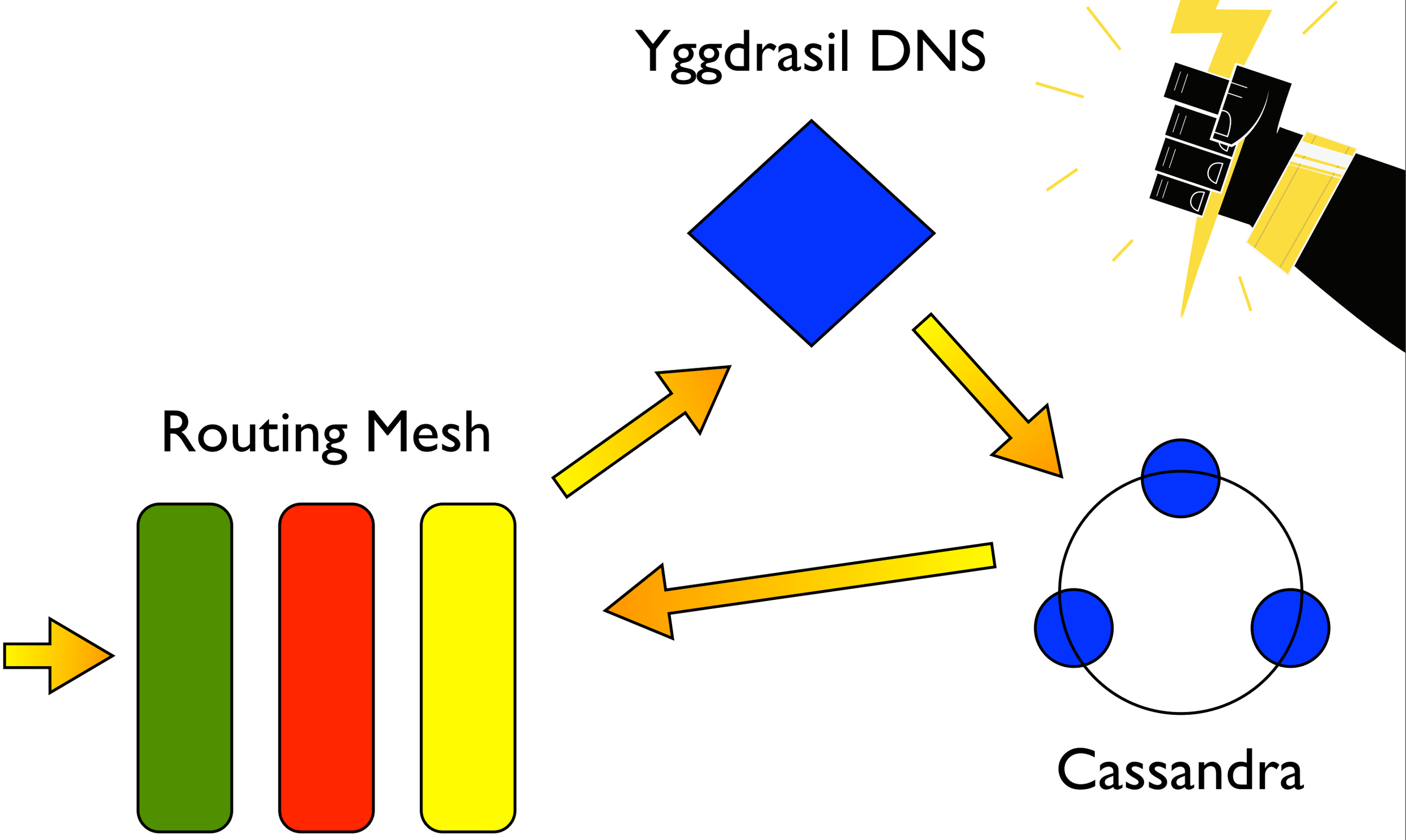

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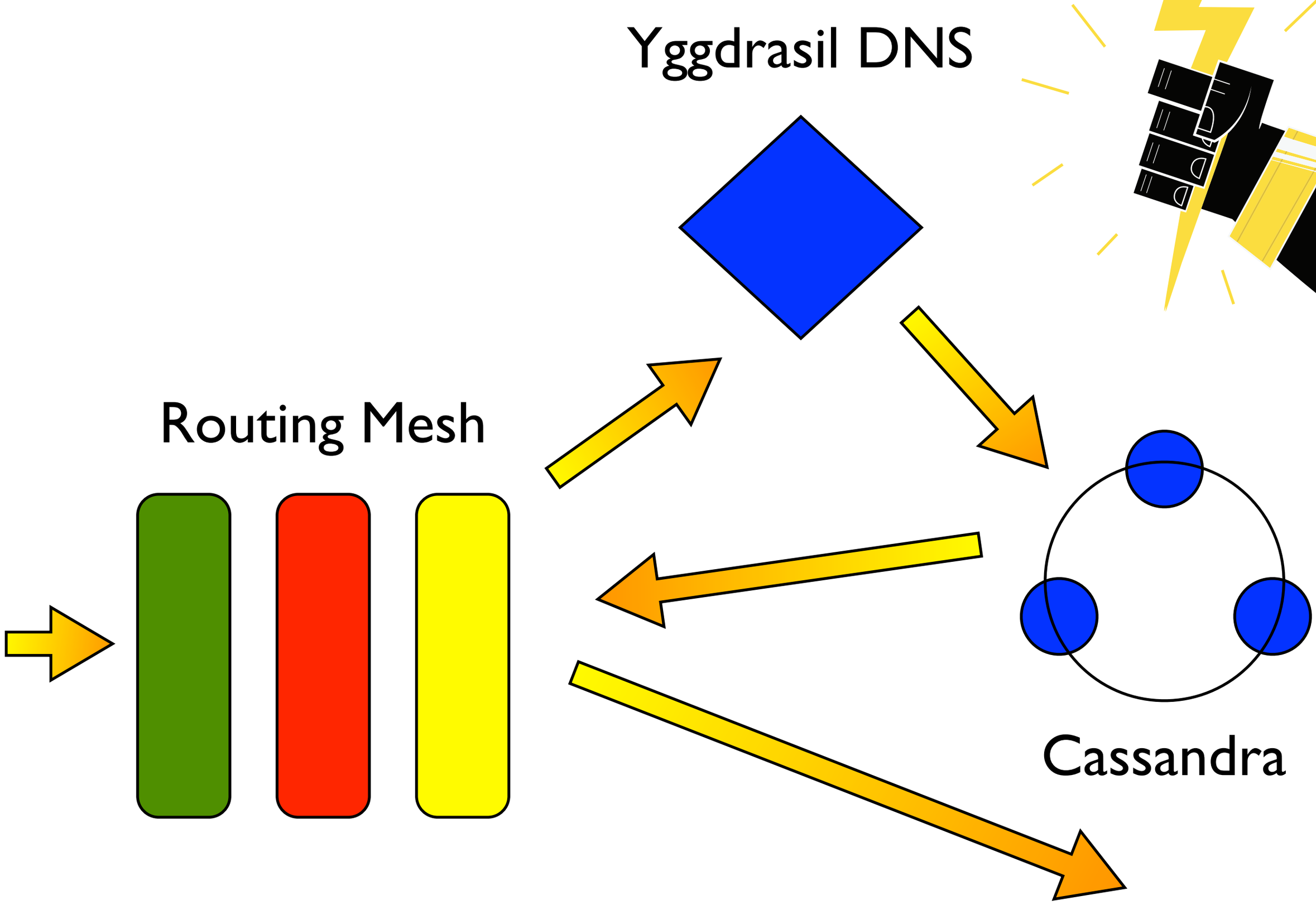

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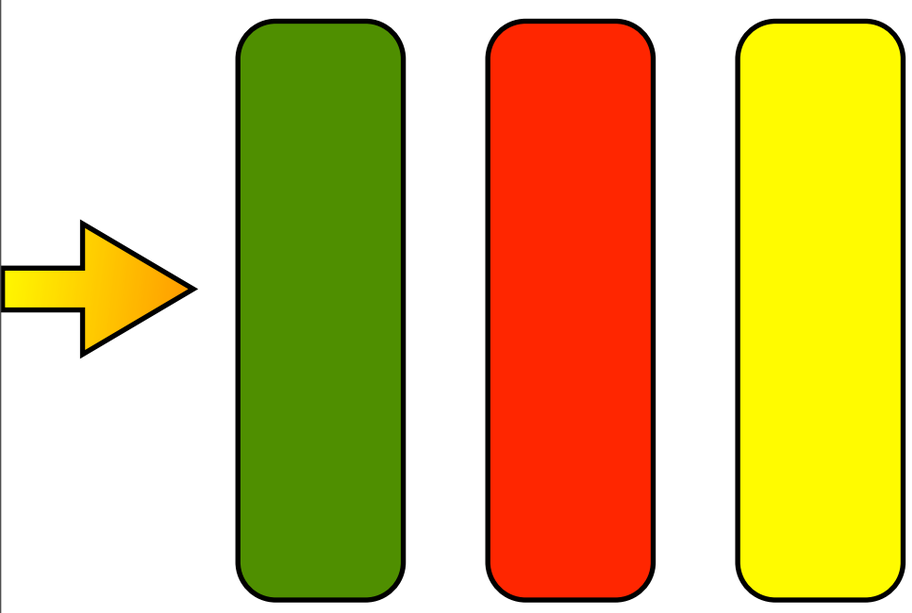

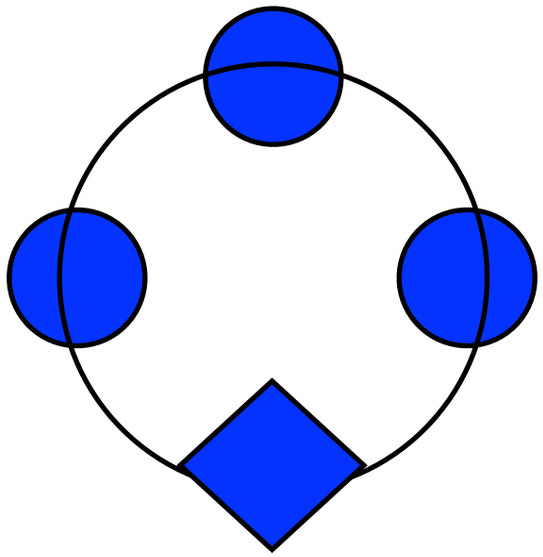

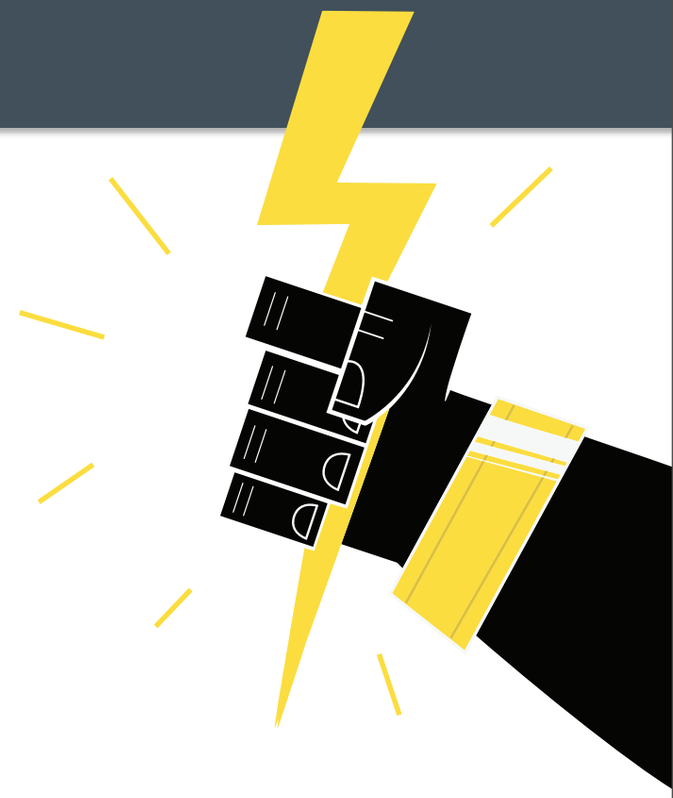

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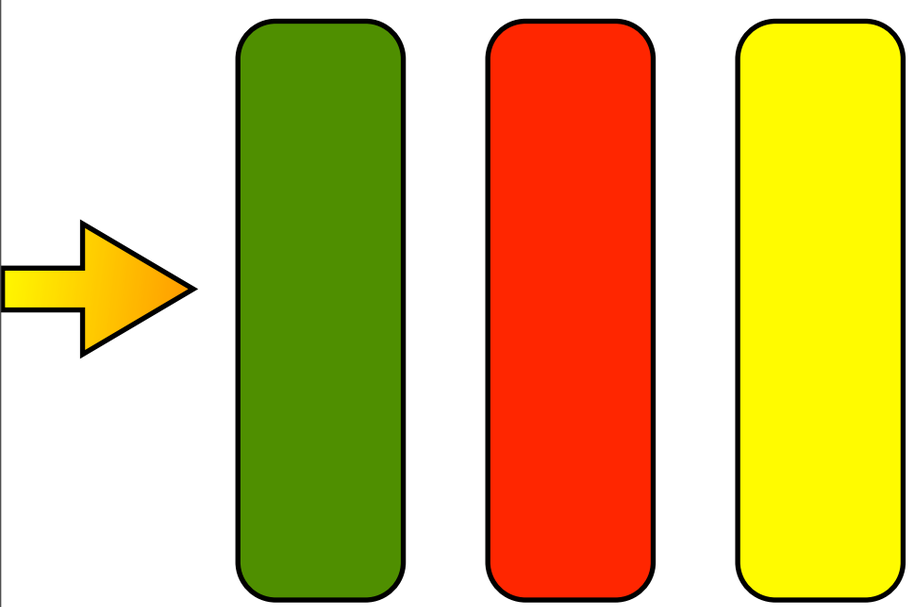
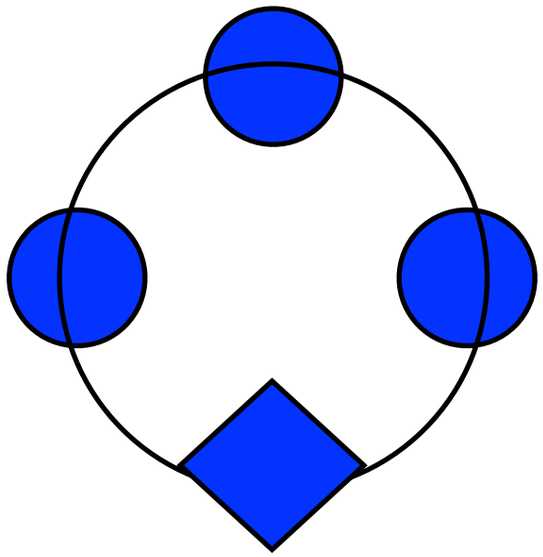
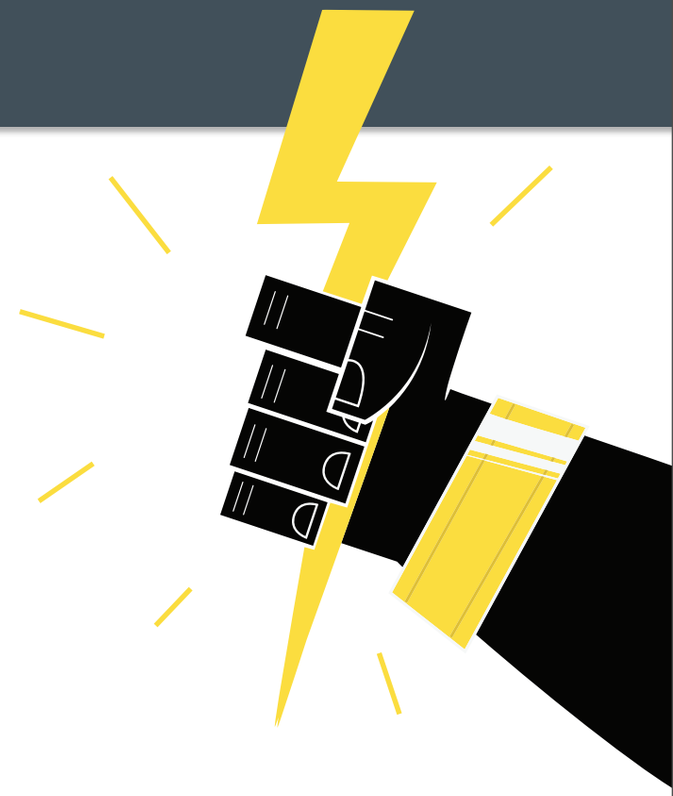
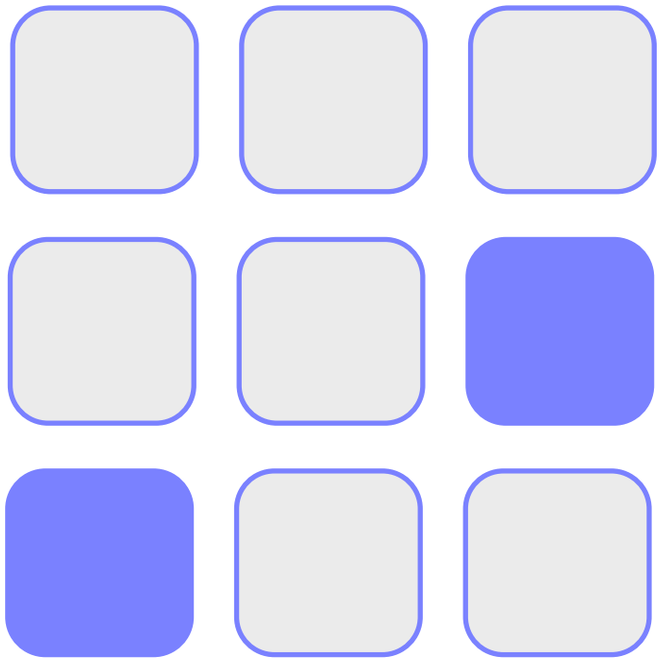




Yggdrasil



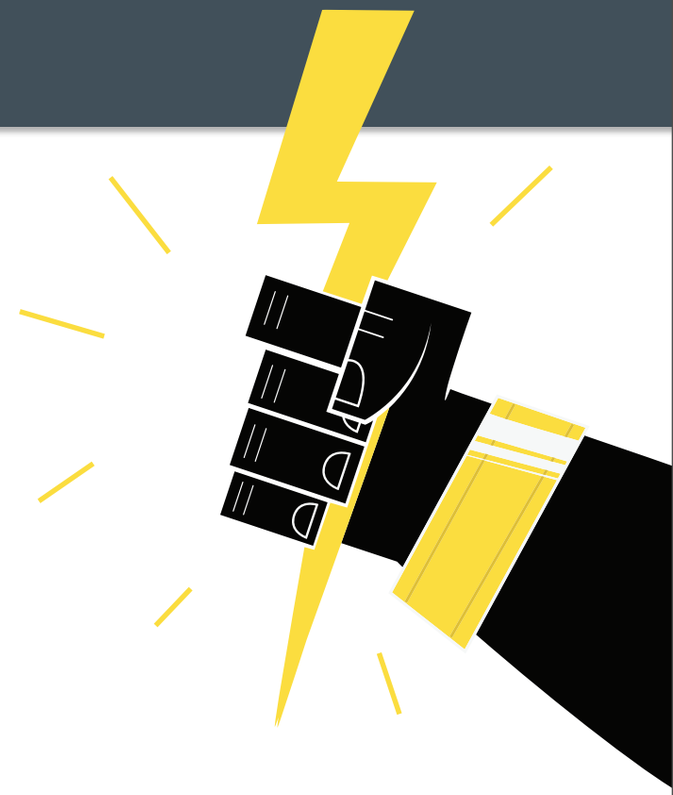


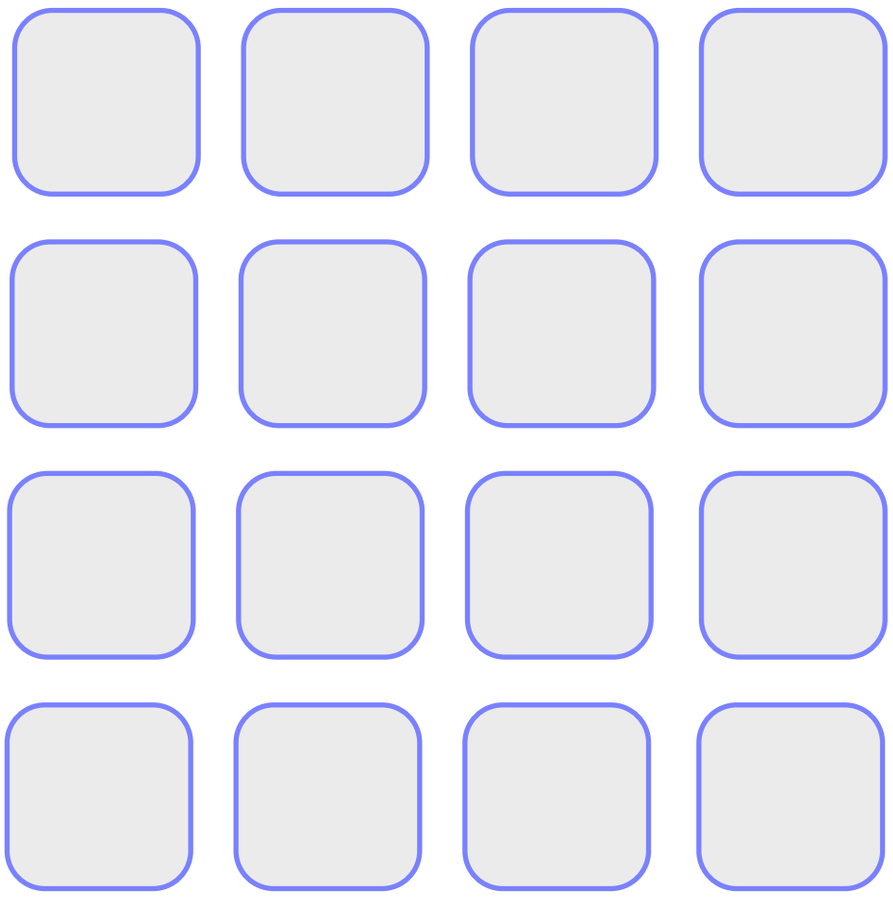
DROPs
Matrix

PANTHEON

DROPs

Provision, Isolate and Scale
at the per-process level.





PANTHEON

DROPs

Provision, Isolate and Scale
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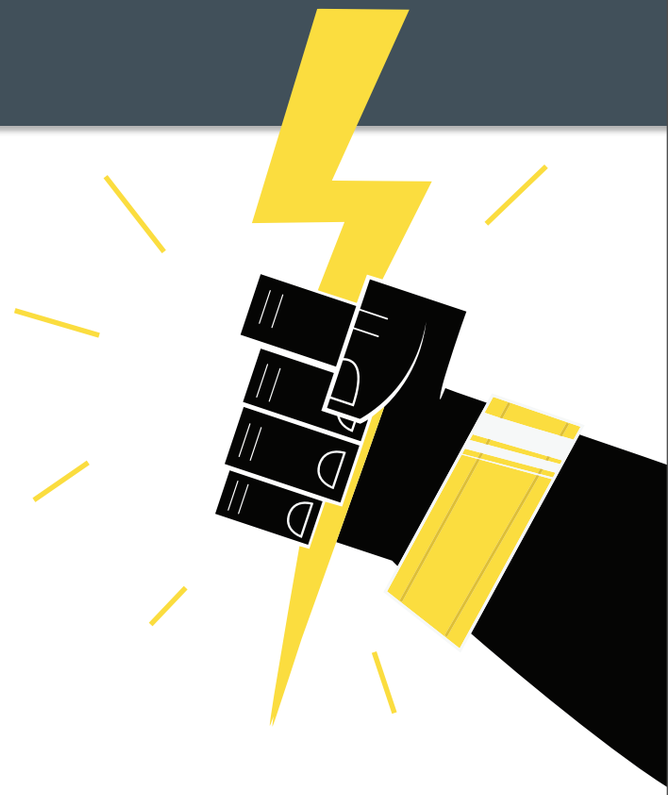
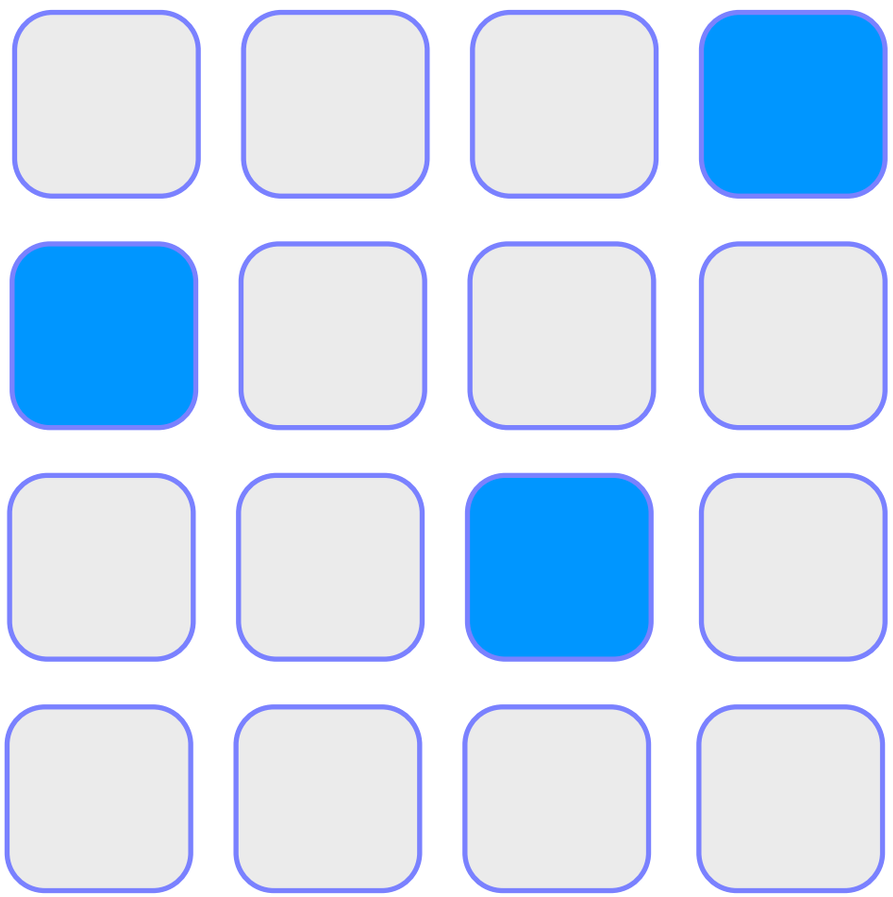
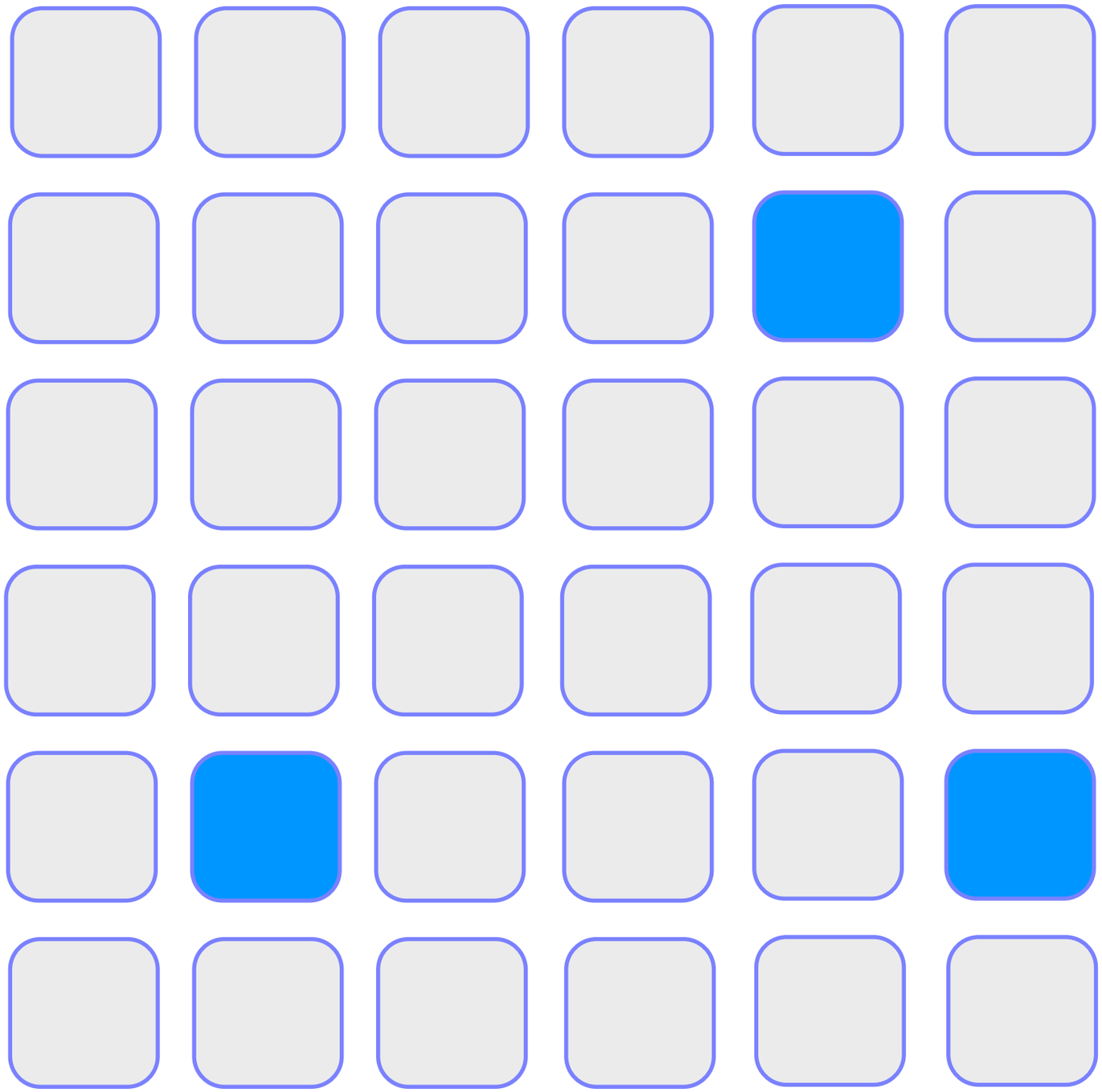
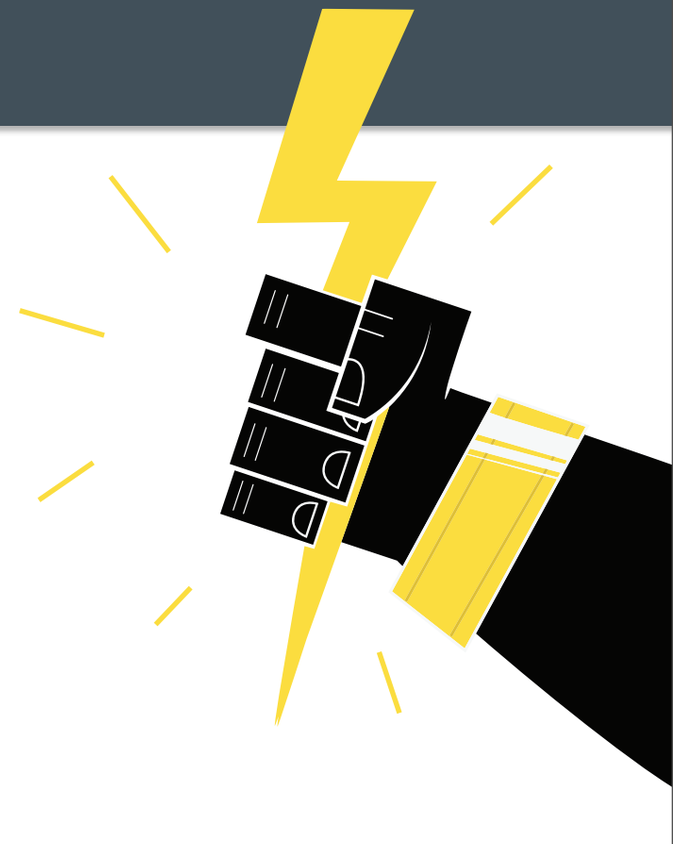




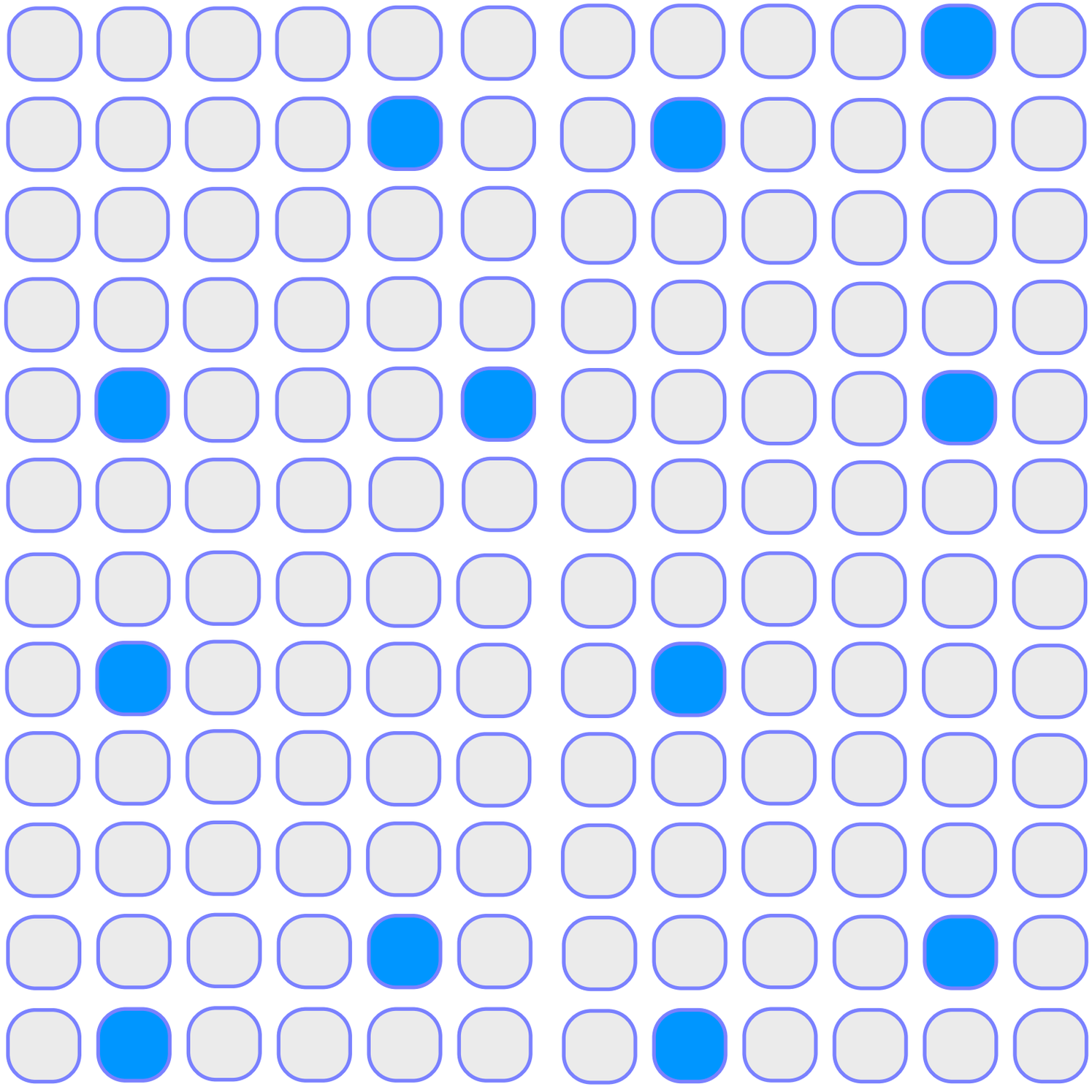
PANTHEON

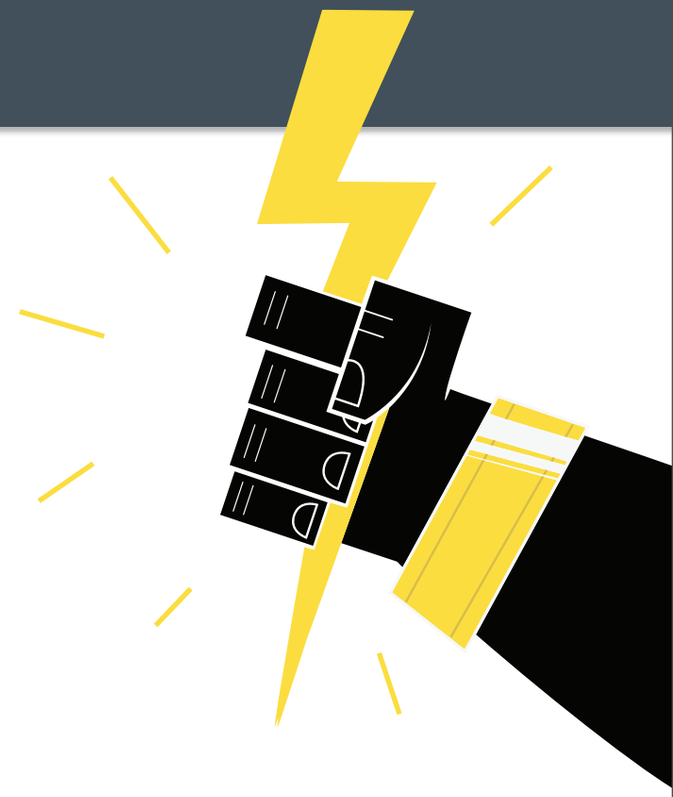
DROPs





We can scale this too

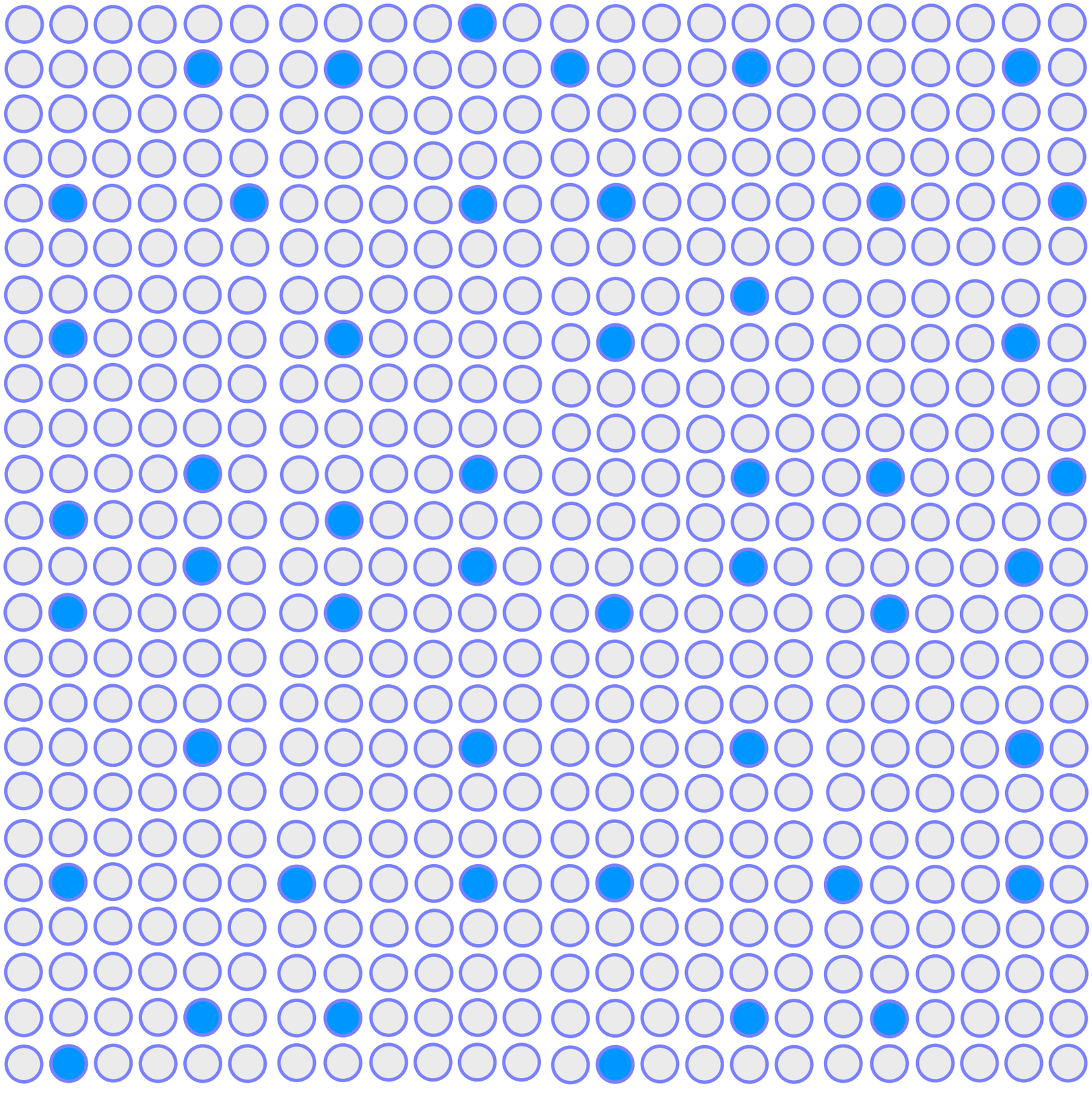


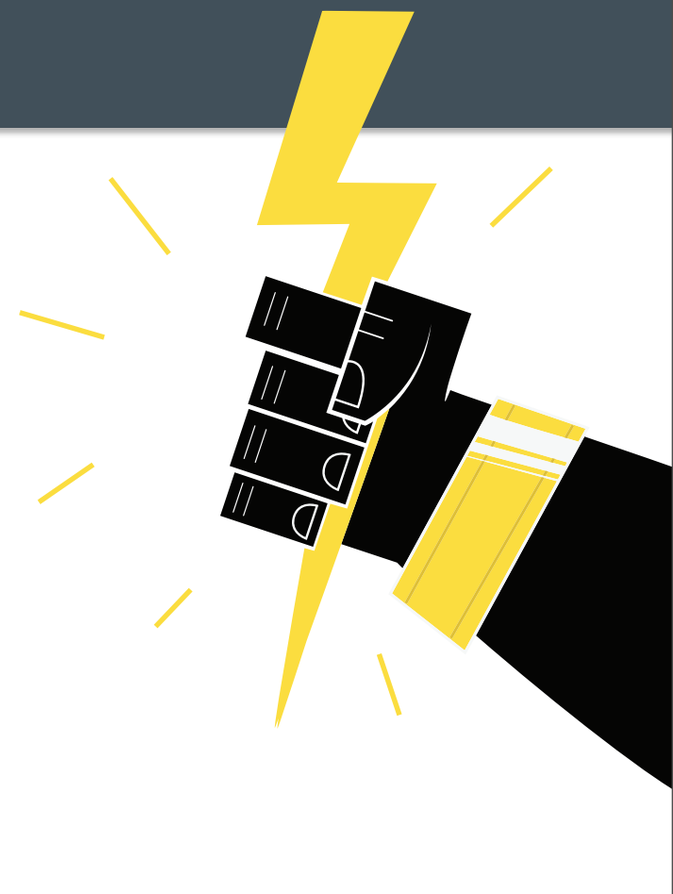


We can scale this too

PANTHEON

DROPs

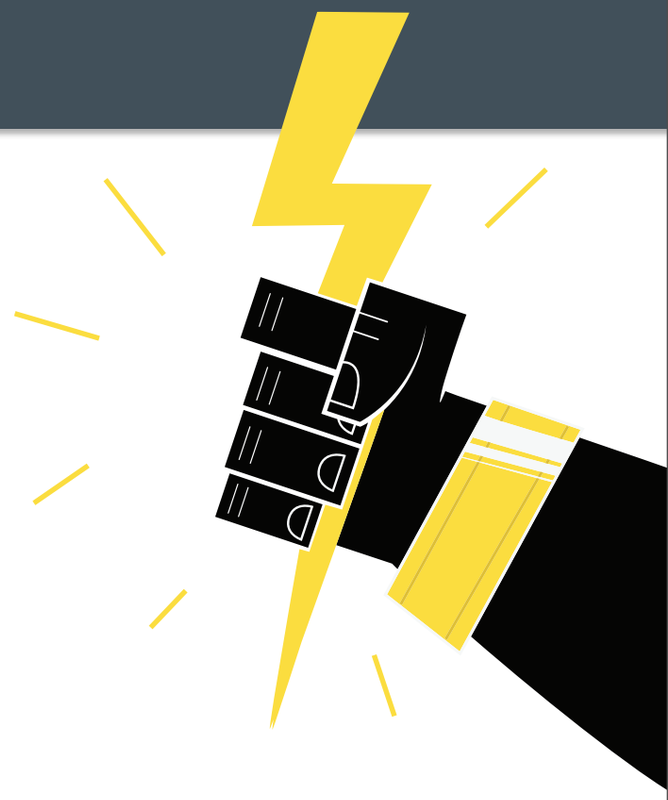


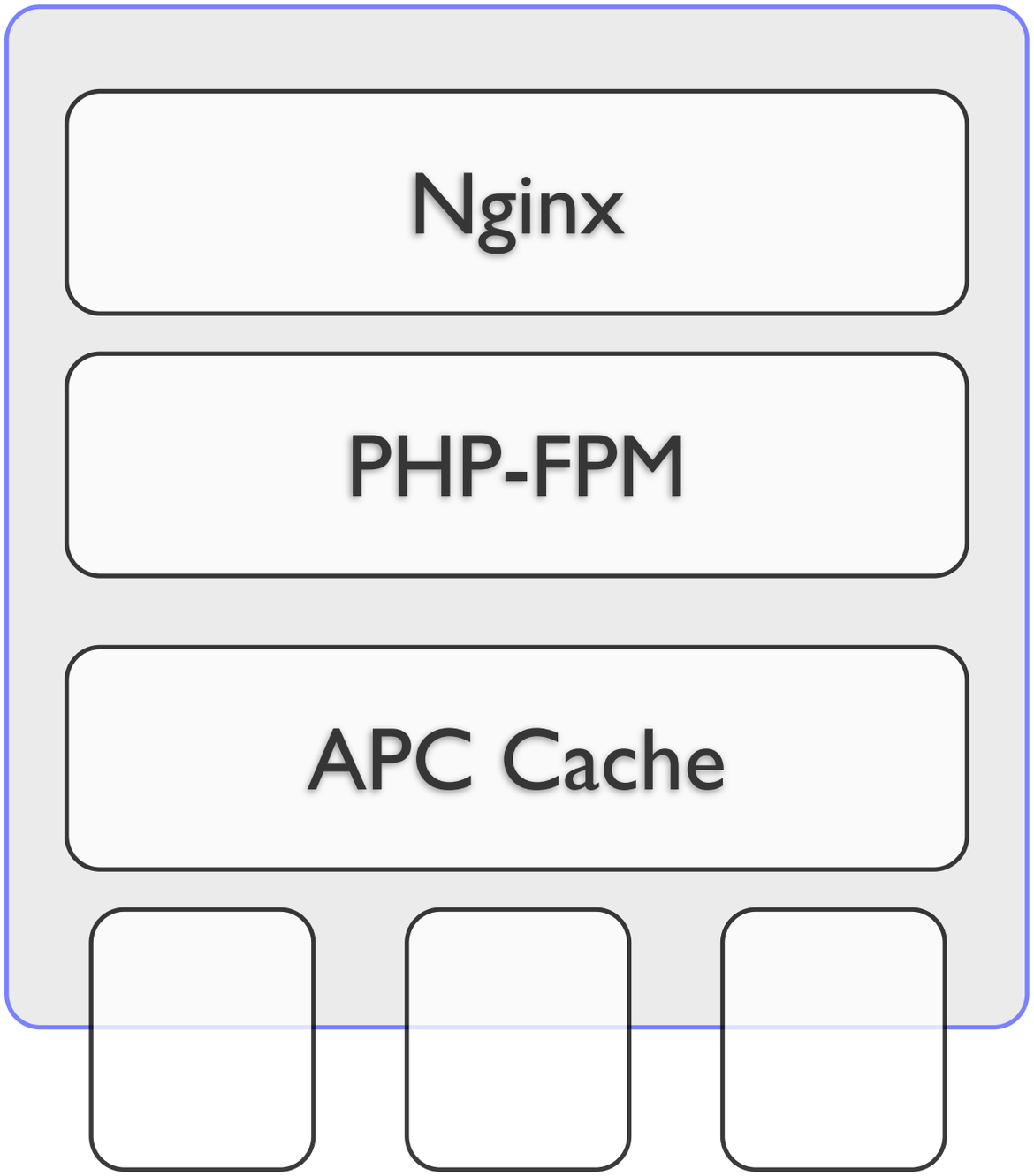


We can scale this too

PANTHEON

Anatomy of a DROP

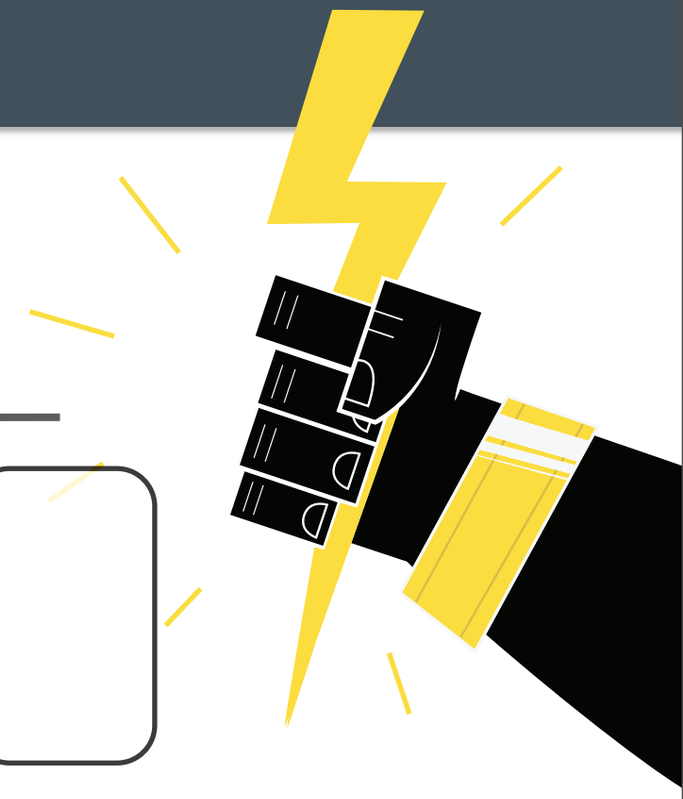




Service Bindings

PANTHEON

Valhalla



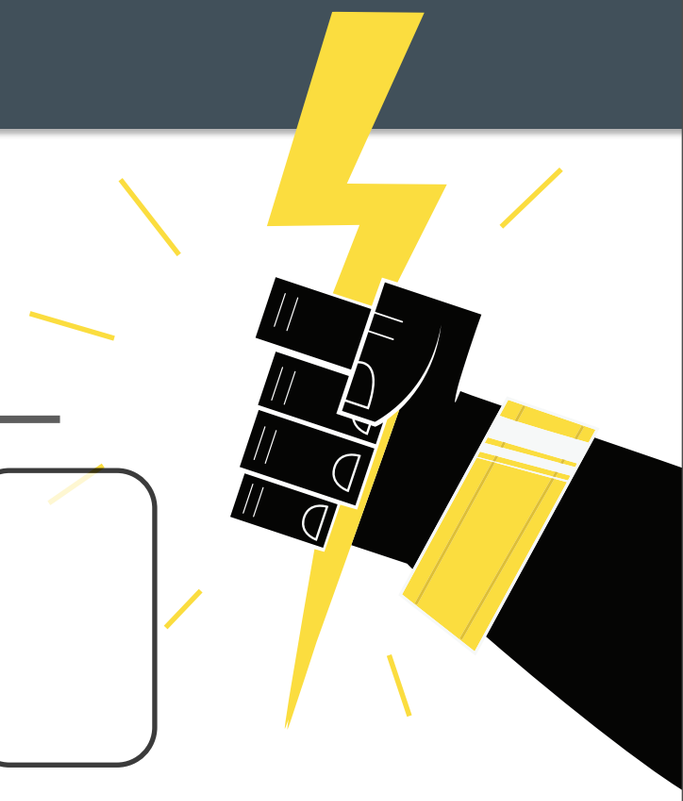
Dev Test Live

Twisted DAV

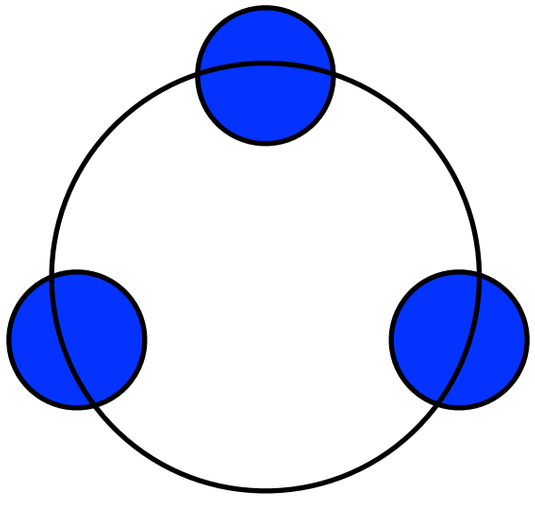
PANTHEON

Valhalla

Dev Test Live



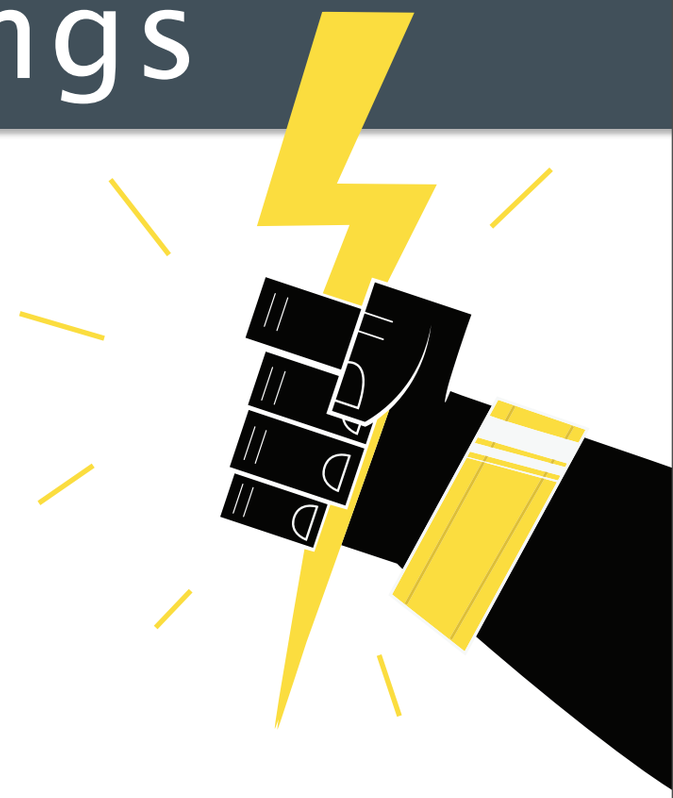
Twisted DAV



Cassandra

PANTHEON

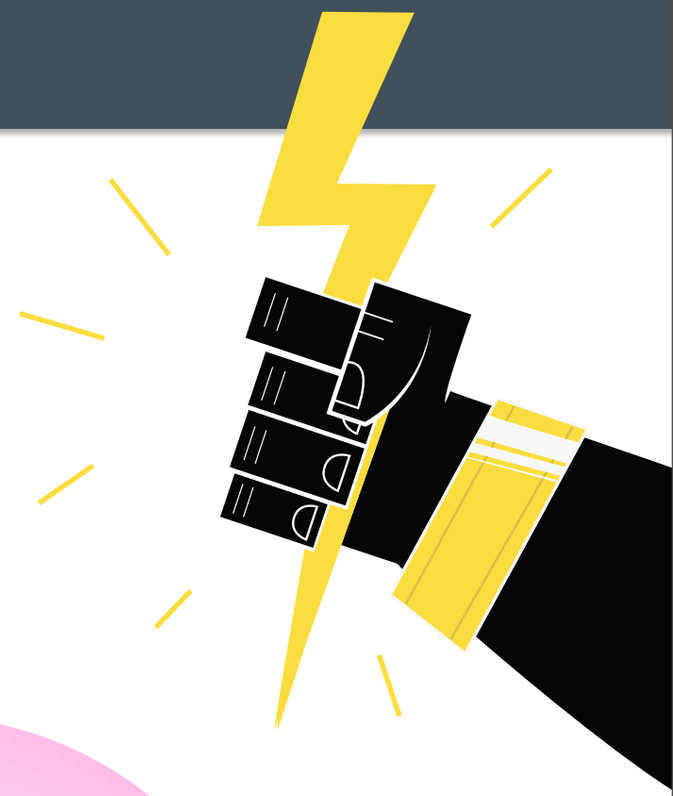
Other Service Bindings

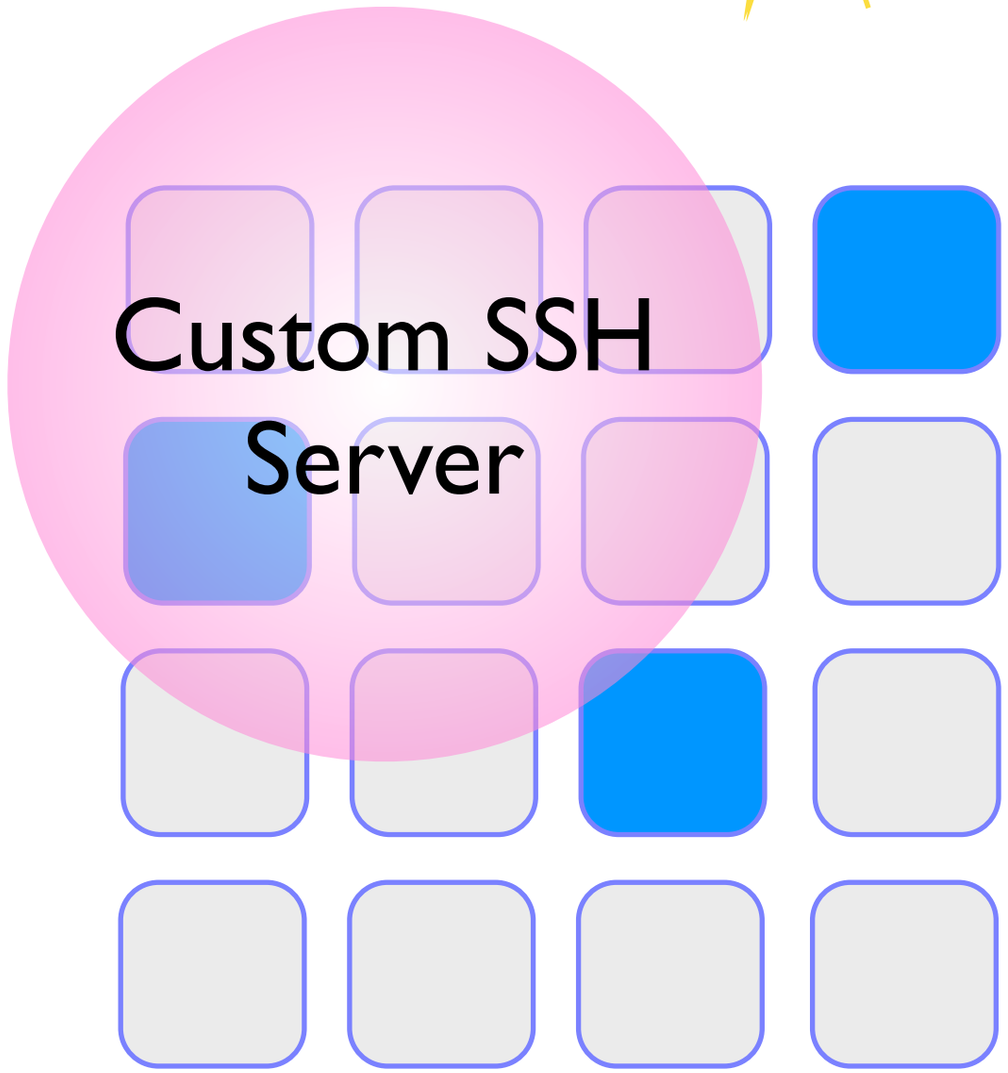


MySQL
MemCache
Solr
Redis?
Cassandra?

PANTHEON

Drush Access



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drush @pantheon cc all
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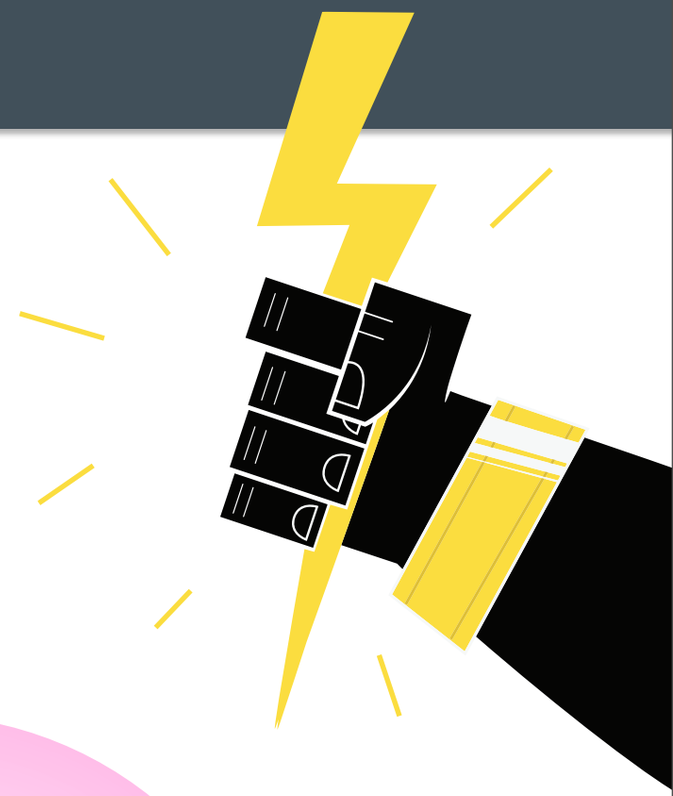
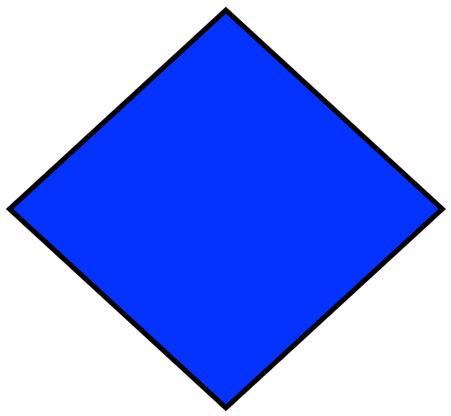
PANTHEON

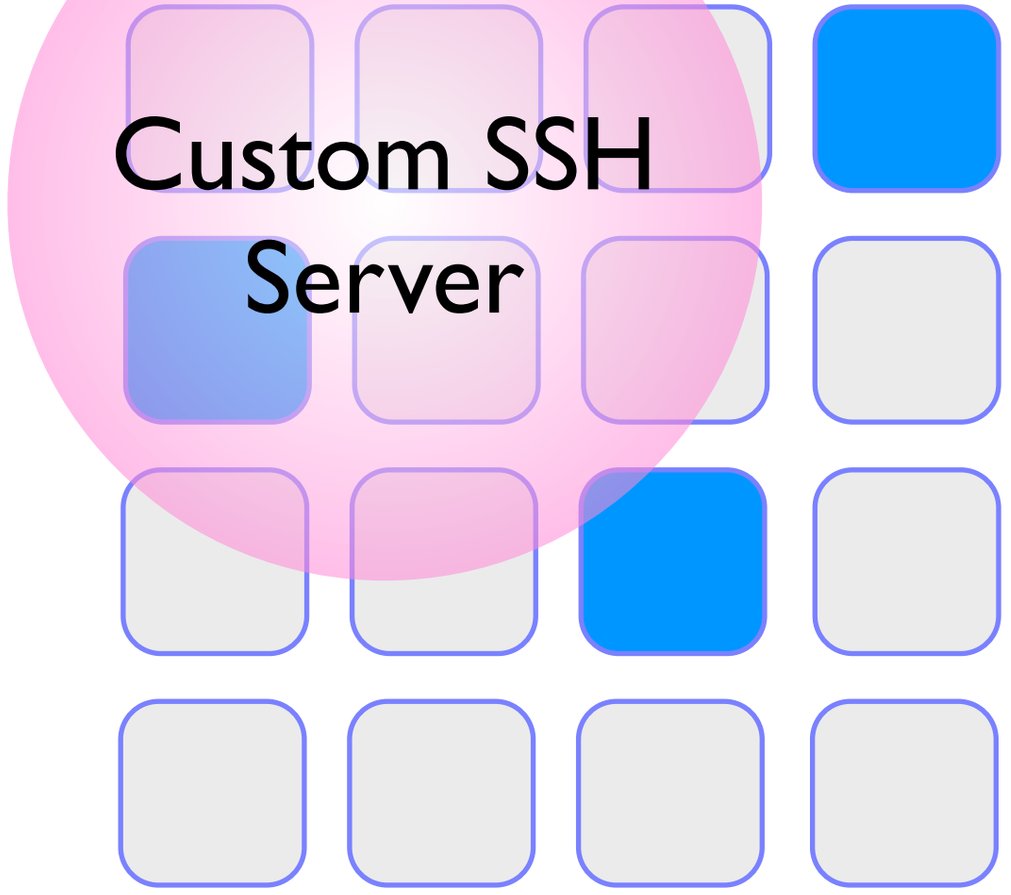
Drush Access



Yggdrasil DNS



Custom SSH Server



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drush @pantheon cc all
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Magic On The Horizon

PANTHEON

Have questions? Contact Zack Rosen

zack@getpantheon.com
1-415-992-7531