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How Gilt Avoids Building a "Distributed Monolith"

Kevin Li
kli@gilt.com
Software Engineer @ Gilt
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What is Gilt?

https://www.gilt.com/careers/open-positions/

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What exactly is a Distributed Monolith?

Distributed systems coupled by **binary dependencies**

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Common Examples of Binary Coupling

- Shared common models
- Shared “official” clients
- Shared platform dependencies

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Wait a minute...those sounds great!

CS-100: **D**ont **R**epeat **Y**ourself!!!

MICROSERVICES

Think twice before applying DRY principles across distributed applications.

There are ways to achieve the same benefits of DRY without using dependencies.

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Benefits of Microservices

Independent scalability

Use the best tool for the job

Developer Velocity

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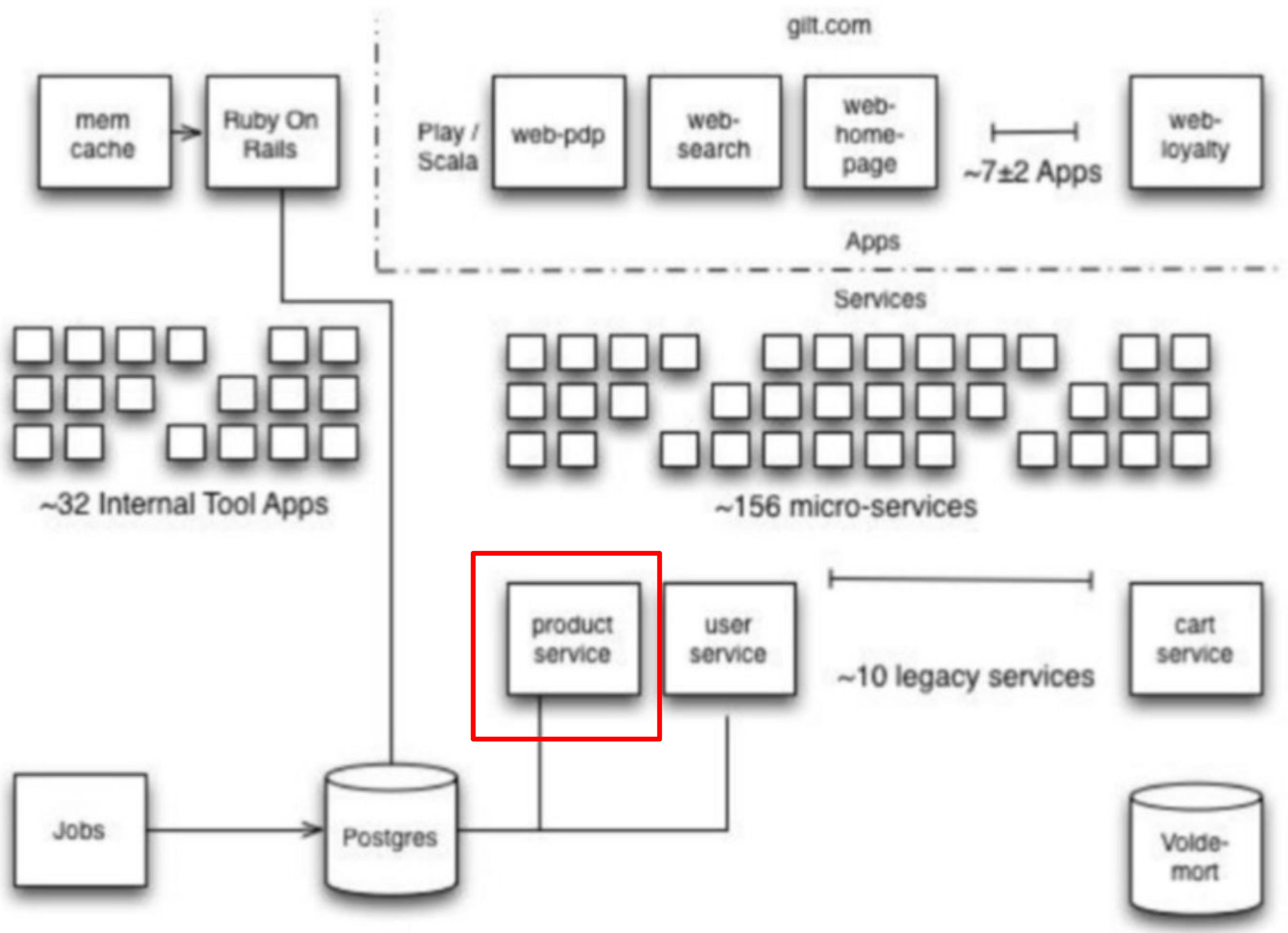
Gilt Microservice Landscape (circa 2014)



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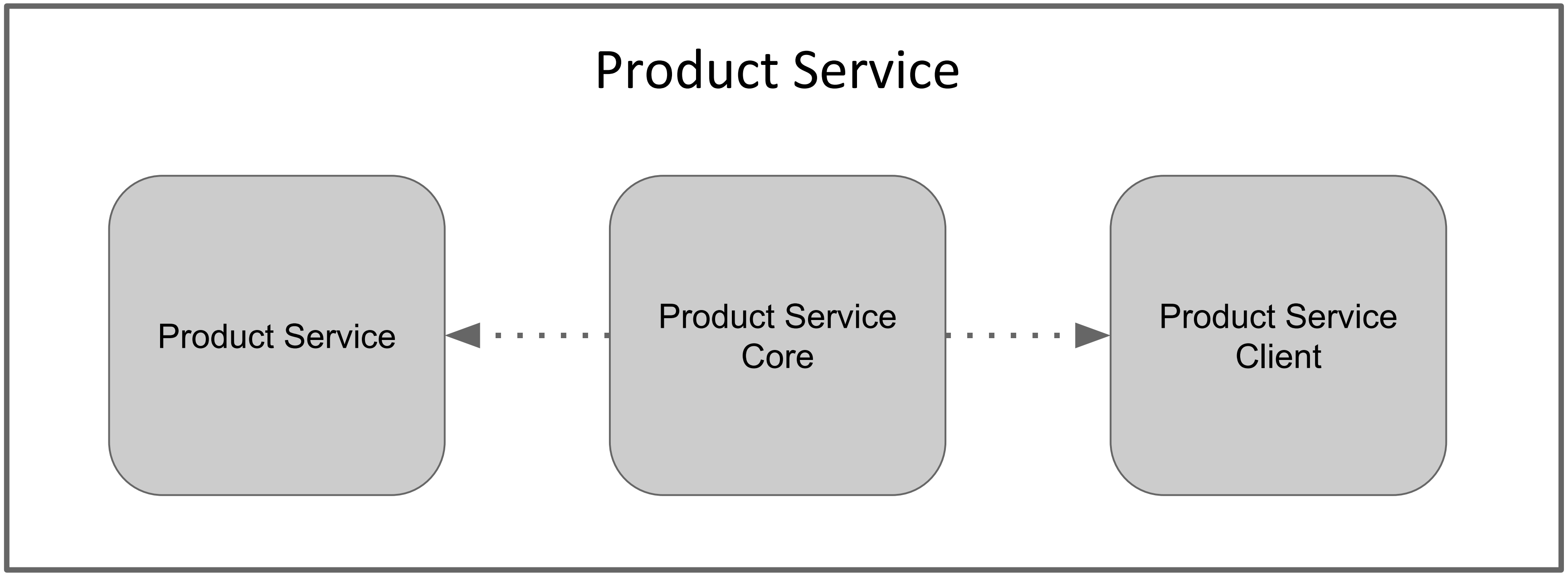
ClientServerCore Framework



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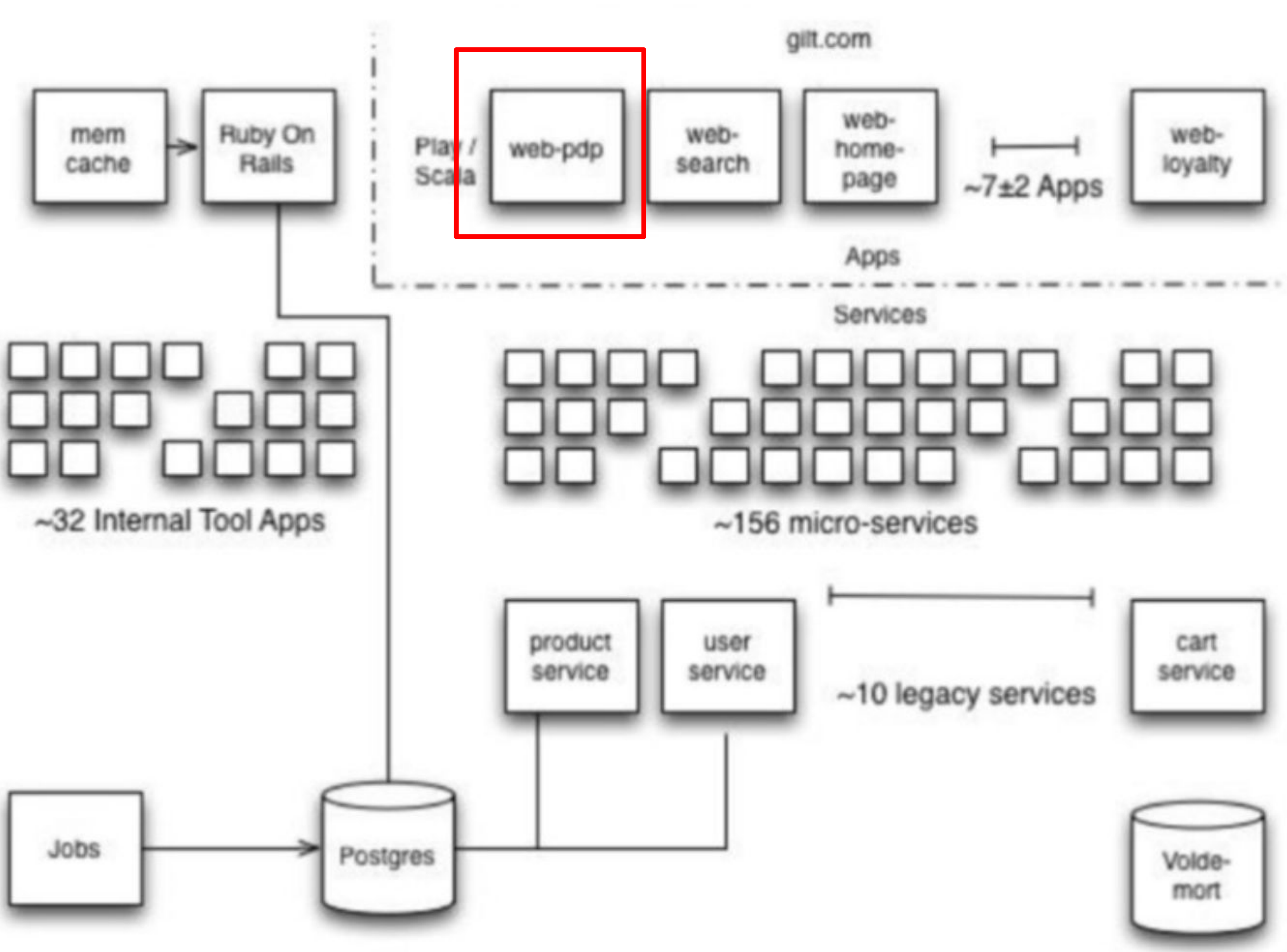
Gilt Microservice Landscape (circa 2013/14)



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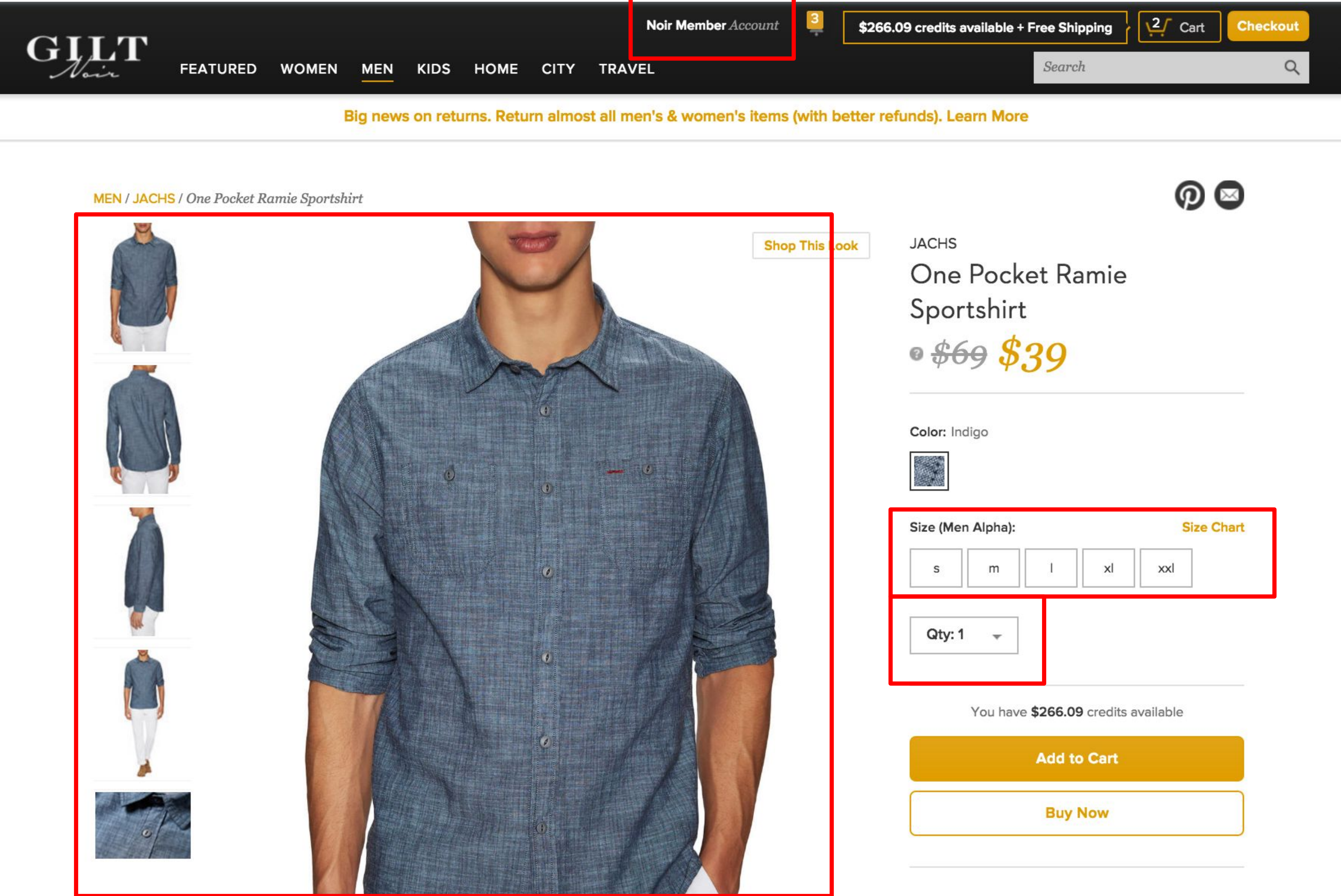
Product Detail Page



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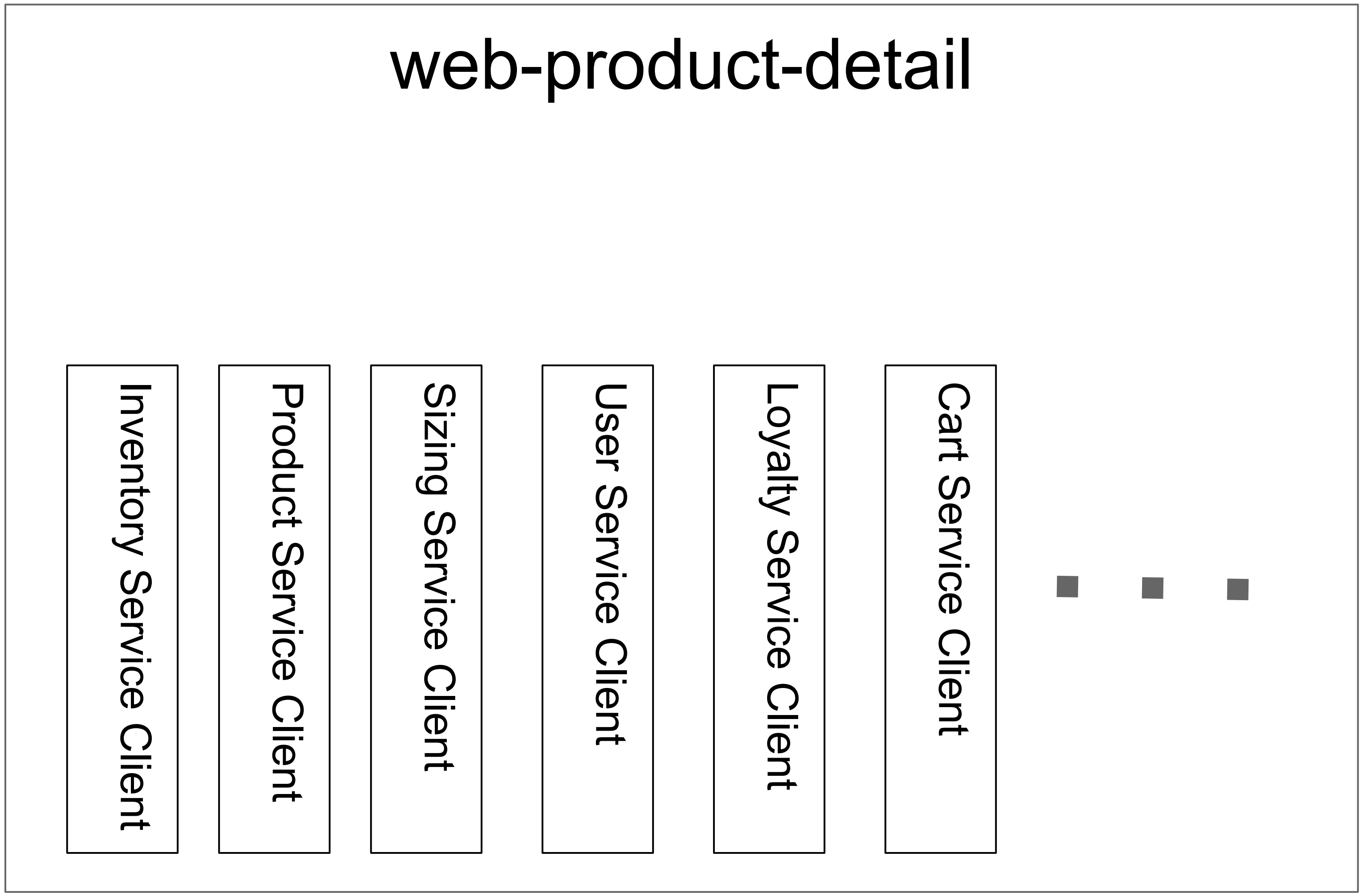

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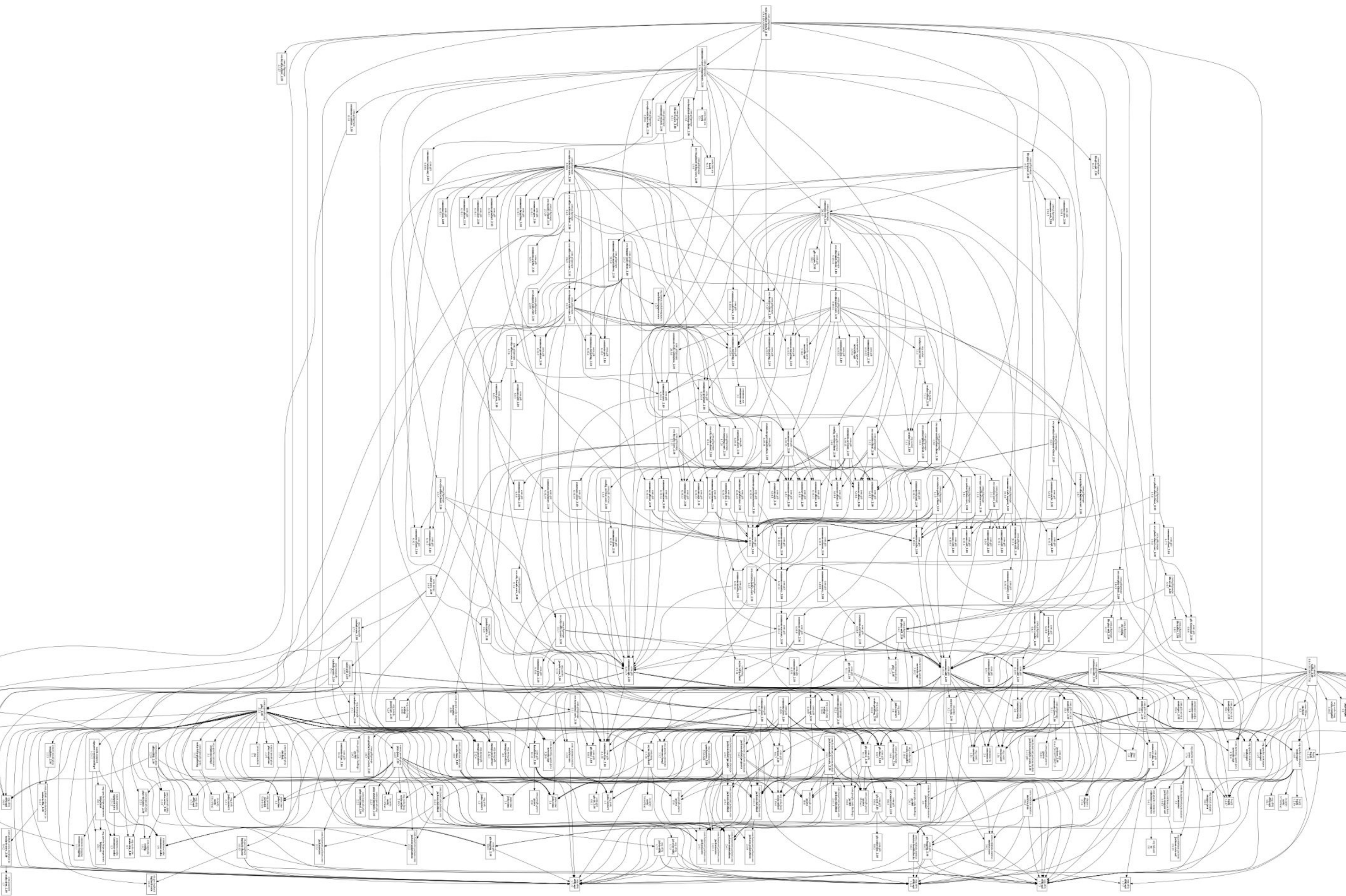
Product Detail Page Dependency Graph



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It worked great...until

- Gilt scaled to 200+ microservices
- Different Scala Versions
- Different Java Versions
- Different Framework Versions

DEPENDENCY HELL!!!

Independent Scalability?

Arguably.

What if a more performant programming language could be used?

What if a different concurrency model or networking stack is faster?

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Use the best tool for the job?

No.

Official Clients Unavailable.

“Rogue” clients are difficult to create and are fragile

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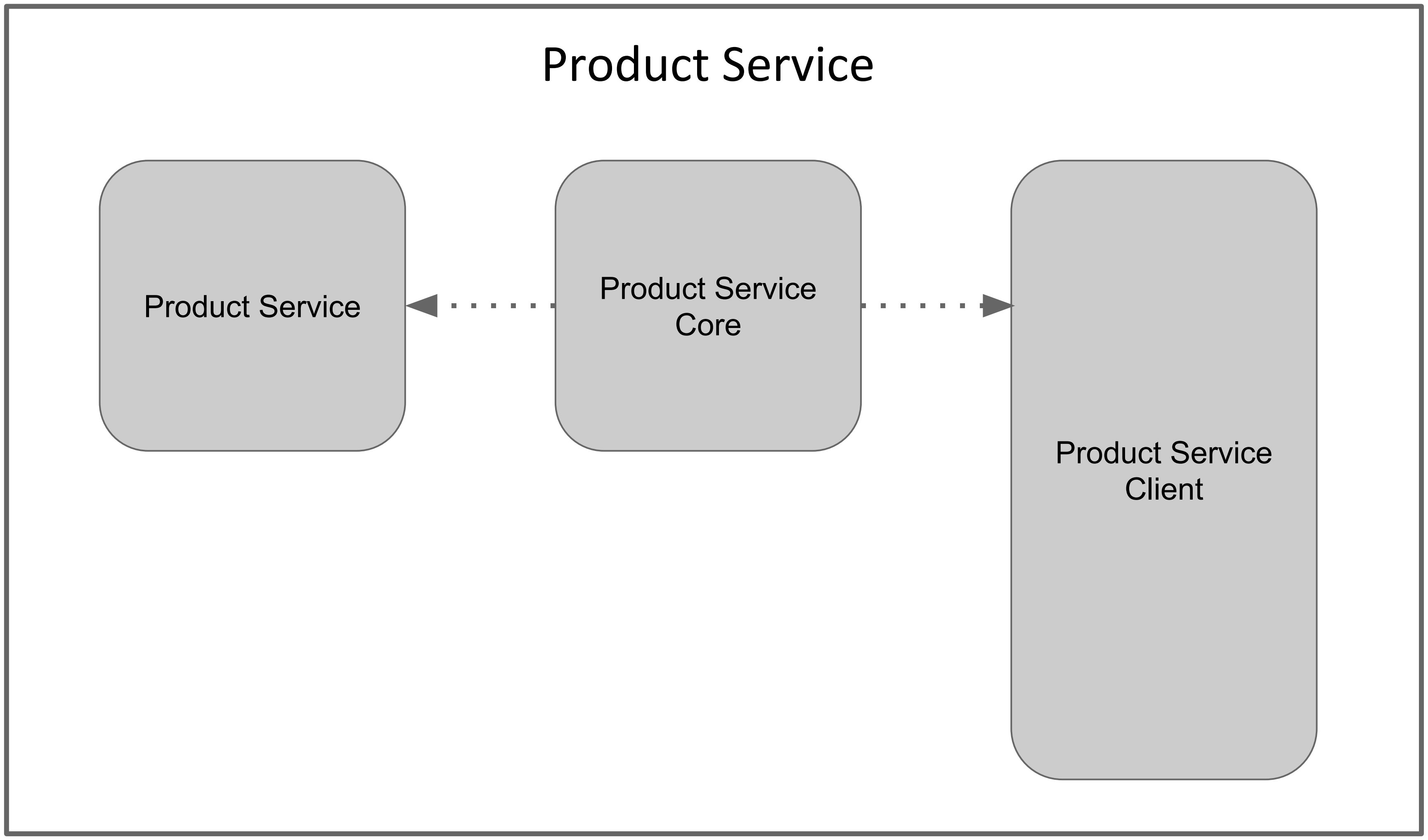
Increasingly "Fat" Client



Developer Velocity?

No.

Cannot independently upgrade dependencies

Takes months to upgrade dependencies across the organization.

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The Solution

Depend on **Standards**, not binaries:

https://github.com/gilt/standards

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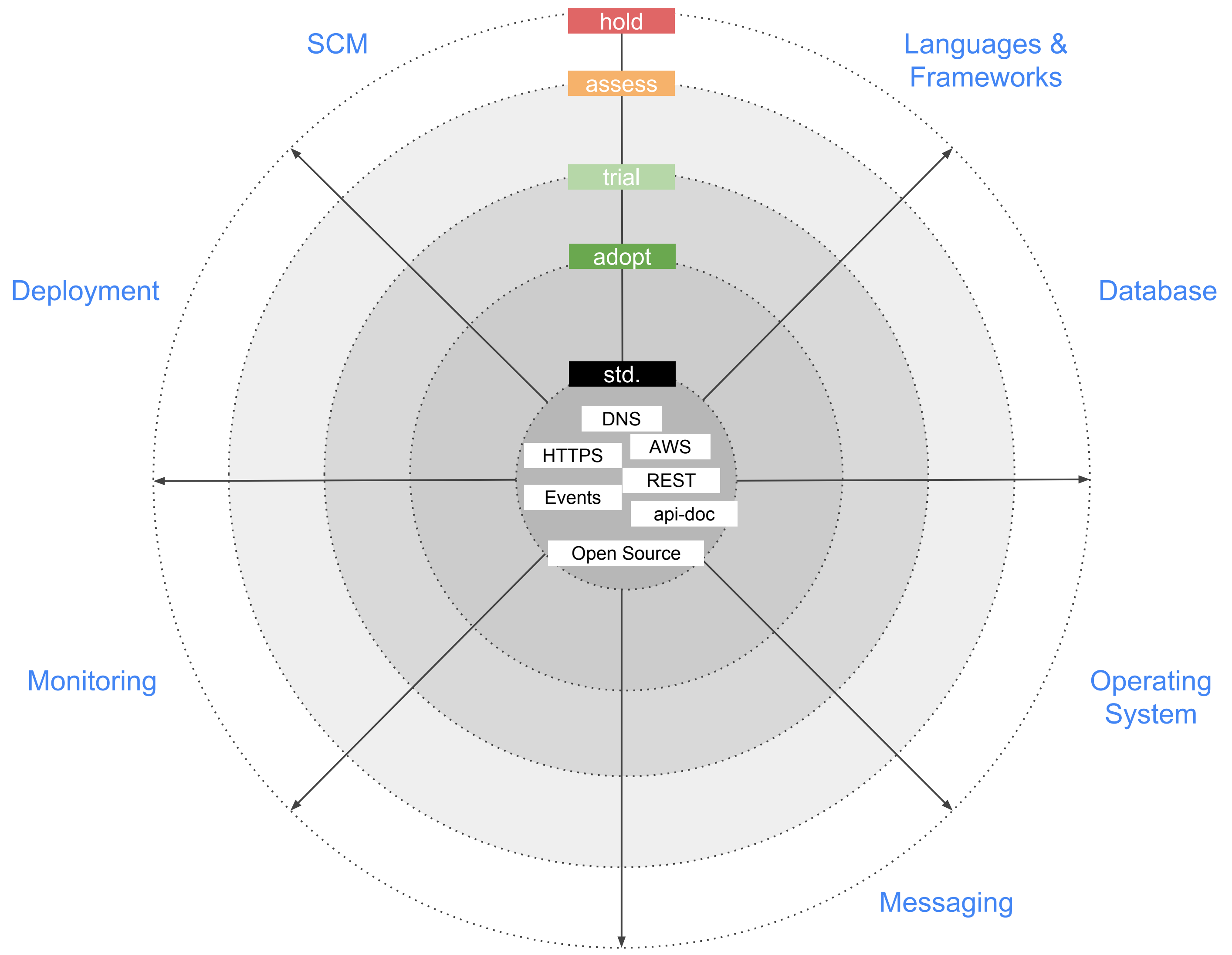
Gilt’s Tech Radar



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But...doesn’t that affect developer velocity?

I don’t want to rewrite a client everytime I need to talk to a service. And I sure as hell don’t want to copy/paste the same client multiple times.

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Schema-first development

With a well defined schema, we can write code generators to create models, serializers and clients for us.

Turns out copy & paste is fine if you’re copying **versioned and programmatically generated code!**

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Swagger

“The World's Most Popular Framework for APIs.”

API schema can be defined in Json or YAML

Wide range of supported languages

https://github.com/zalando/play-swagger

www.swagger.io

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apidoc

Open Source and created by Gilt’s ex-CTO Mike Bryzek

Schema defined in api.json file (swagger also supported)

Client generation for: Play, Node, Ning, Ruby, Android, Go, (Swift in the works)

Convention over configuration

Excellent Play Framework Support

apidoc

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Apidoc Demo!

https://github.com/yuanl1/hot-potato

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How is this better than WSDL?

- Doesn’t hide the fact that you’re going over the wire
- Client is completely restful
- No remote Objects

Summary

- Think twice before adding a binary dependency
- Depend on standards, not binaries
- API first / Schema first development
- Prefer code generation over adding an dependency

Thank You

Thanks to Mike Bryzek for creating and open sourcing apidoc

Thank to Ben Christensen for inspiring this talk with his excellent presentation: https://www.youtube.com/watch?v=-czp0Y4Z36Y

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