

MicroProfile at IBM:

Enabling creation of Cloud Native applications
and Microservices with Liberty

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MicroProfile

PRESENTATIONS

FAQ

CONTRIBUTORS

JOIN THE DISCUSSION

SEE THE CODE

MicroProfile.io

Optimizing Enterprise Java for a microservices architecture

Names you might recognize...



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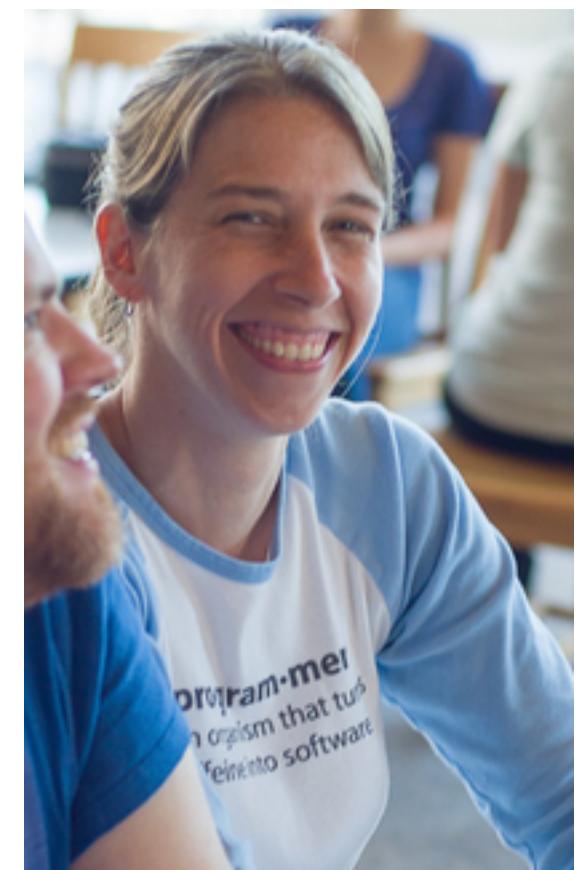
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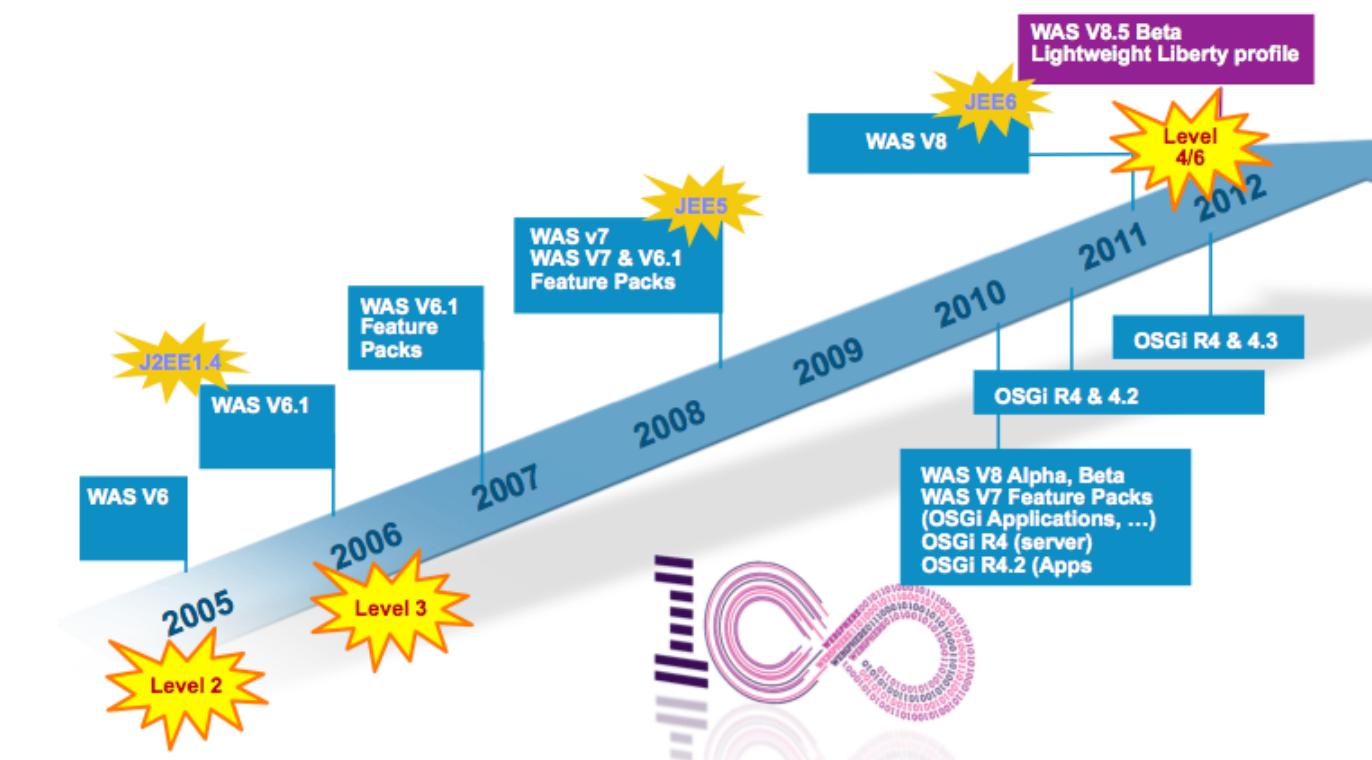


WebSphere Liberty

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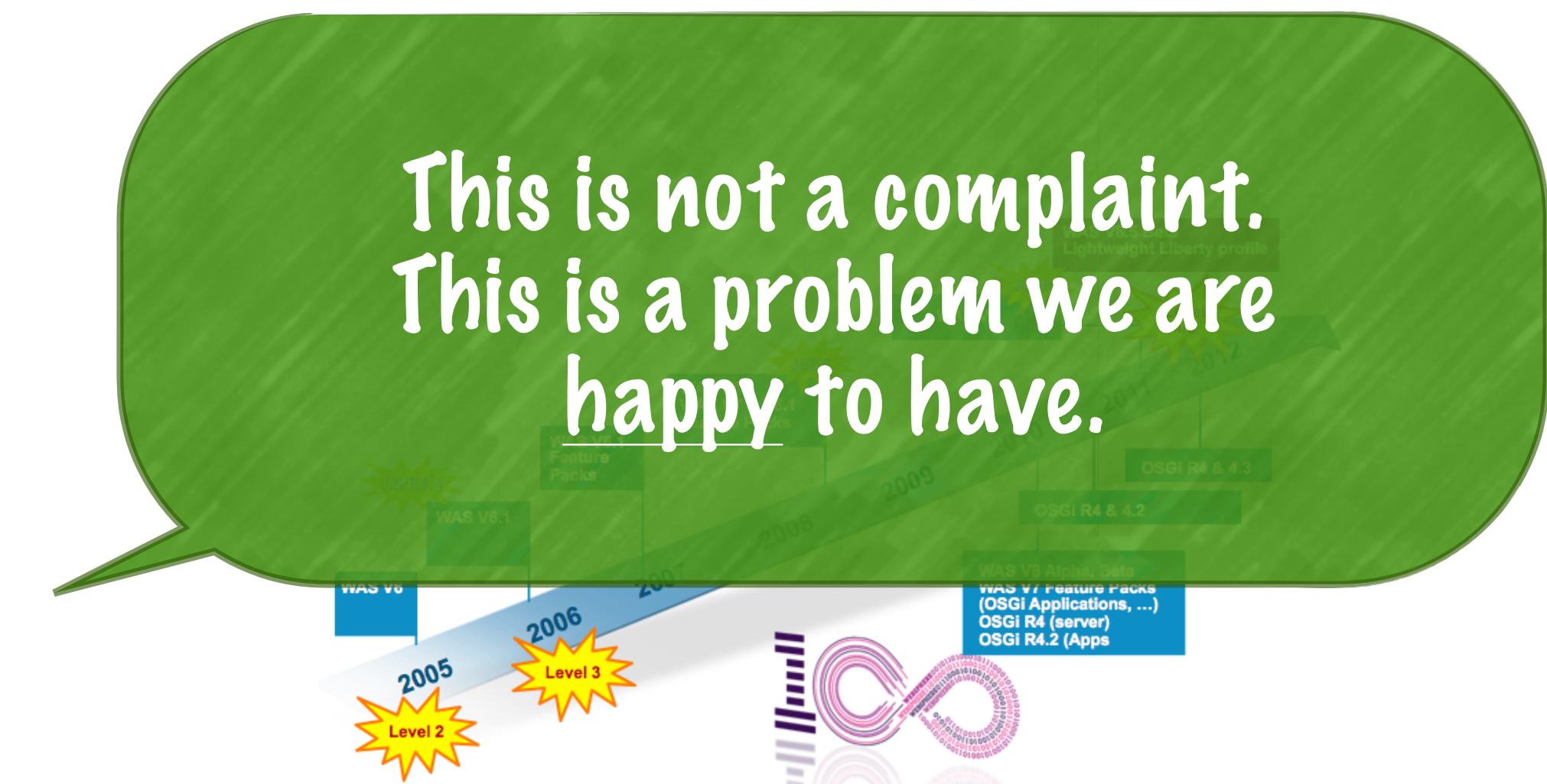
History

- * WebSphere Application Server (the full profile) has been around forever.
 - * Big codebase
 - * Big customer base
 - * Big workloads
 - * ... Big inhibitors to massive change



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This is not a complaint.
This is a problem we are
happy to have.

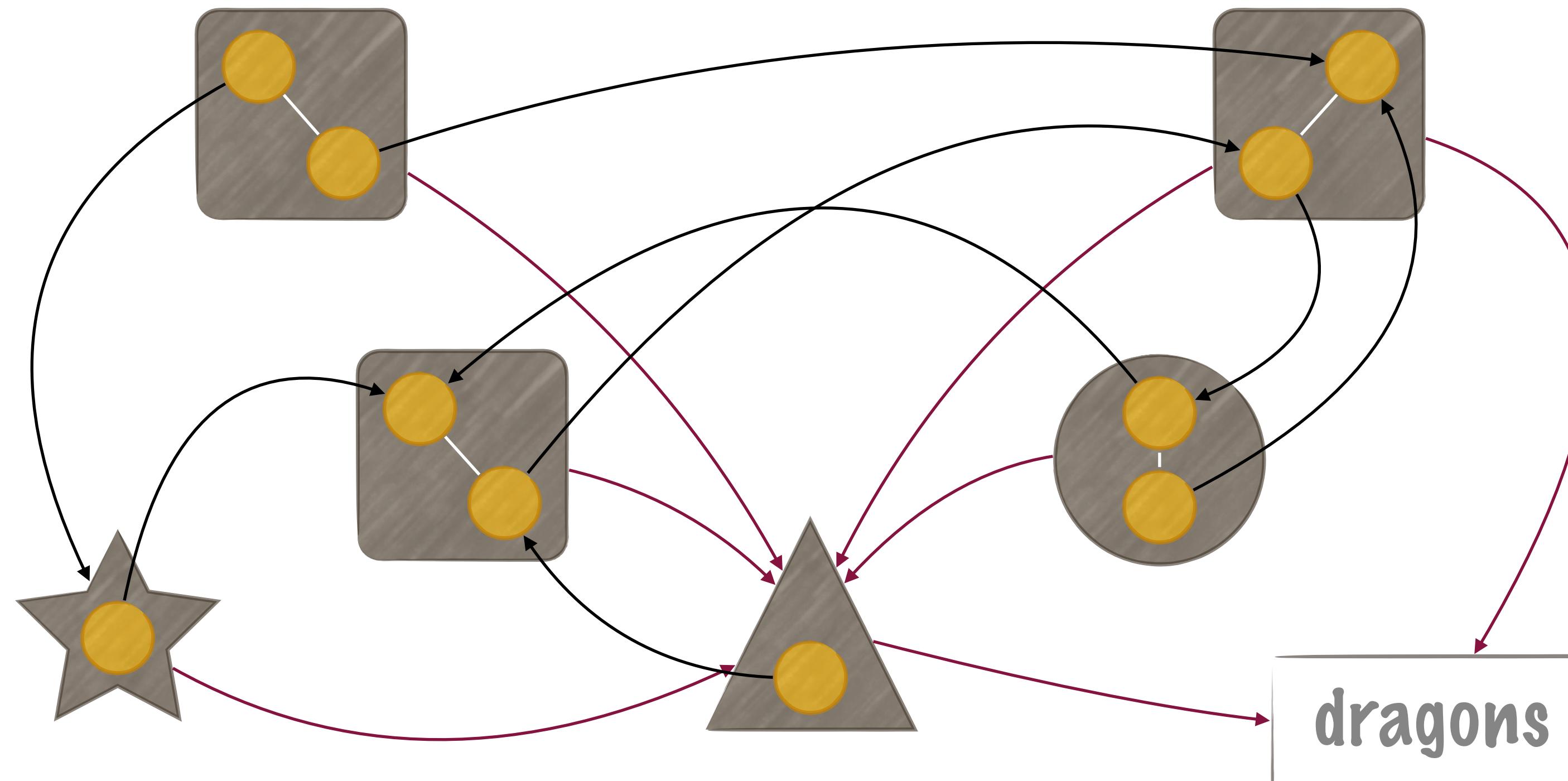
But it is still a problem.



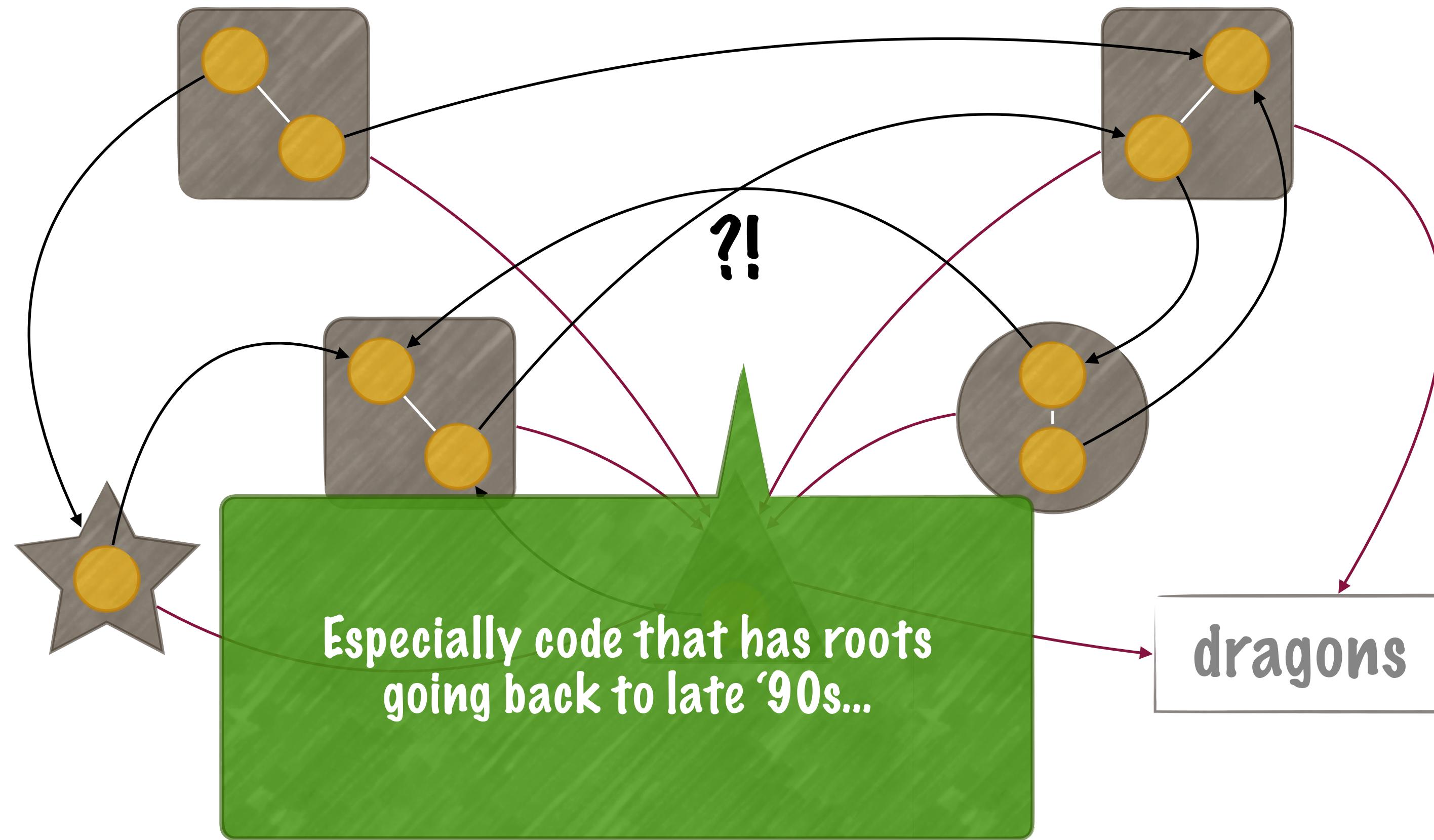
Code that has been around forever...

- * If your code lives long enough,
and is used enough,
it ends up looking like...

Code that has been around forever...



Code that has been around forever...



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What if...

If we could start over, what would we want?

- * Developer-friendly
- * Simple
- * Dynamic
- * Light-weight
- * Composable / Flexible
- * Extensible

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If we could start over, what would we want?

- * Developer-friendly

- * Simple



human usable configuration

- * Dynamic



selectable content

- * Light-weight

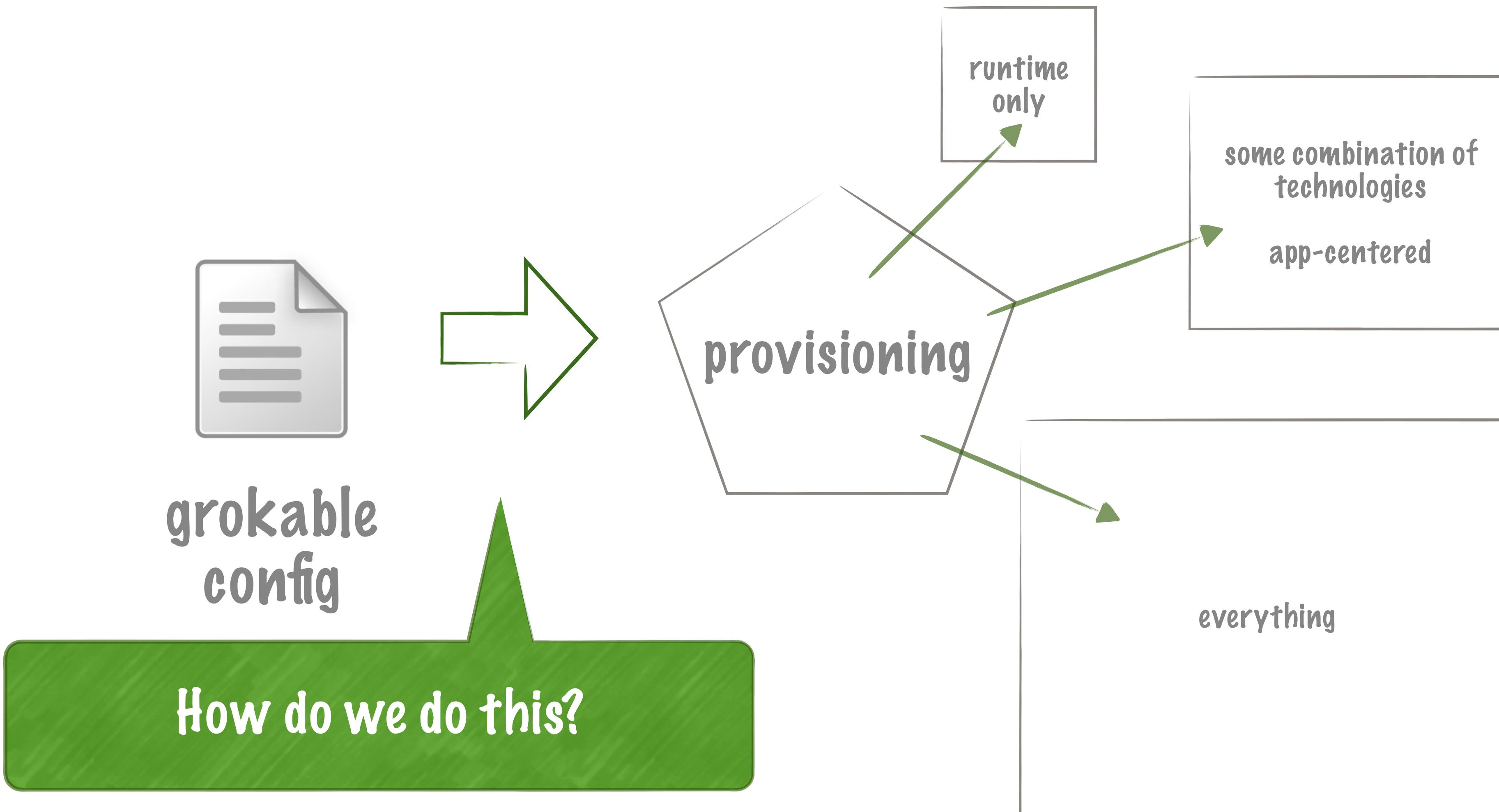
- * Composable / Flexible



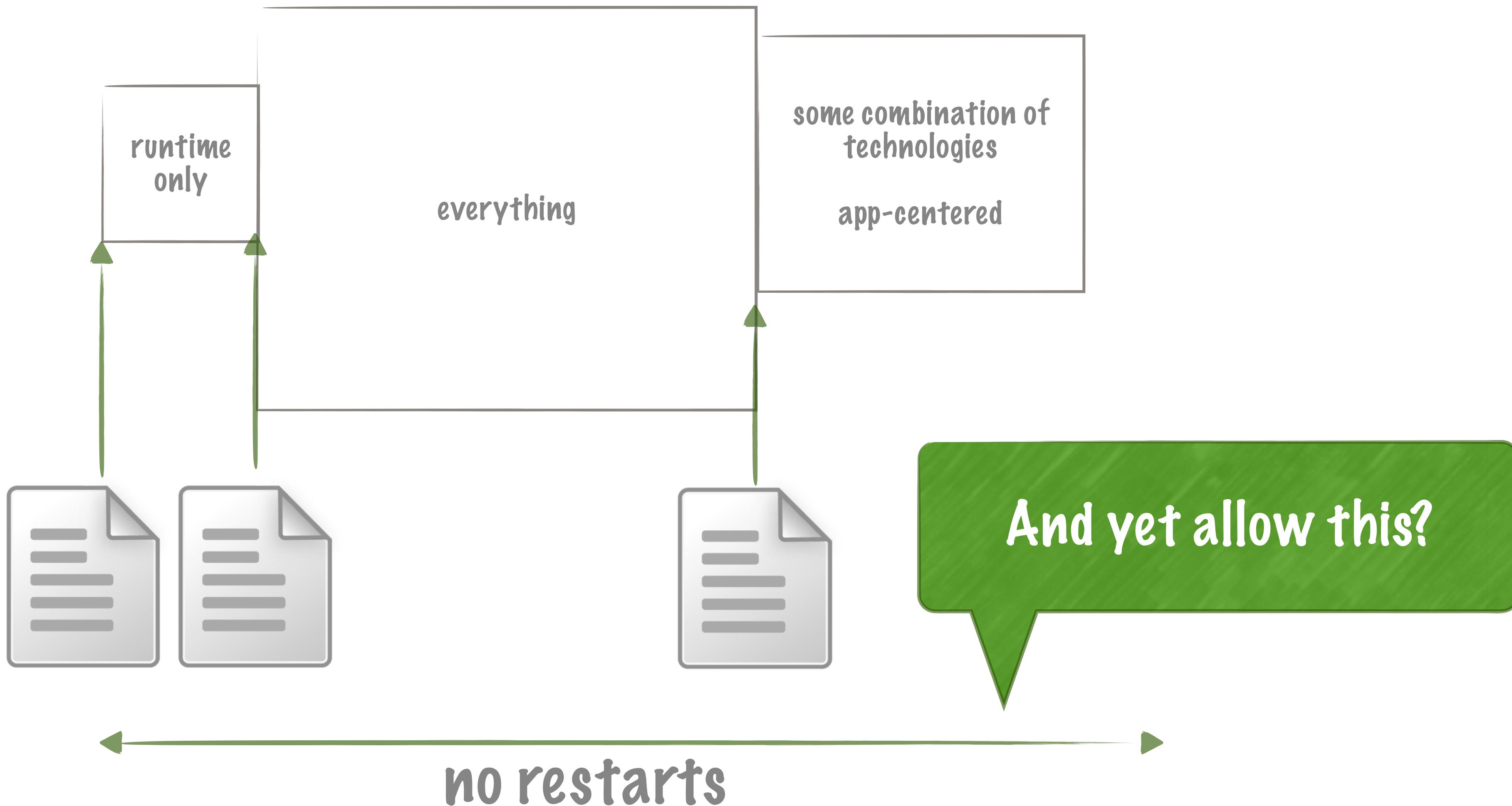
clear API/SPI
runtime/app isolation

- * Extensible

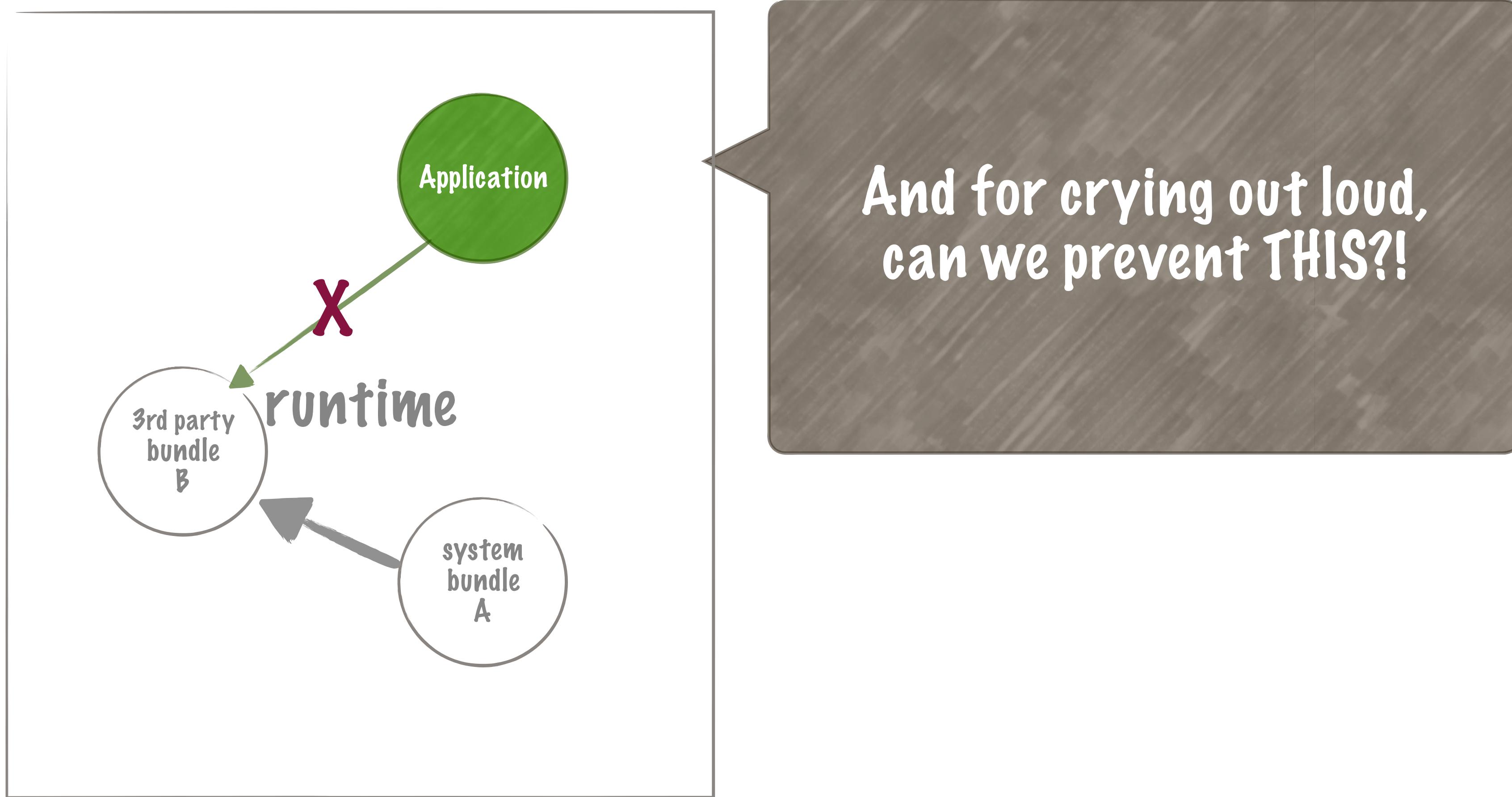
What if...



What if...



What if...



Configuration

- * XML for configuration format

- * Ubiquitous

- * Expressive

- * BUT, for simplicity:

- * single file

- * usable defaults

```
<server description="simple">
  <featureManager>
    <feature>jsp-2.2</feature>
  </featureManager>

  <httpEndpoint id="defaultHttpEndpoint"
    httpPort="9080" httpsPort="9443" />
</server>
```

Configuration

- * Composable system requires composable config:
- * Individual components own their config
- * No centralized repository
- * No externally defined global config model

Building a kernel from scratch

- * OSGi-based for all the reasons
- * First-class use of OSGi services
 - * Configuration Admin & Metatype
 - * Dynamic configuration changes
- * Declarative Services
- * Runtime composition on-the-fly

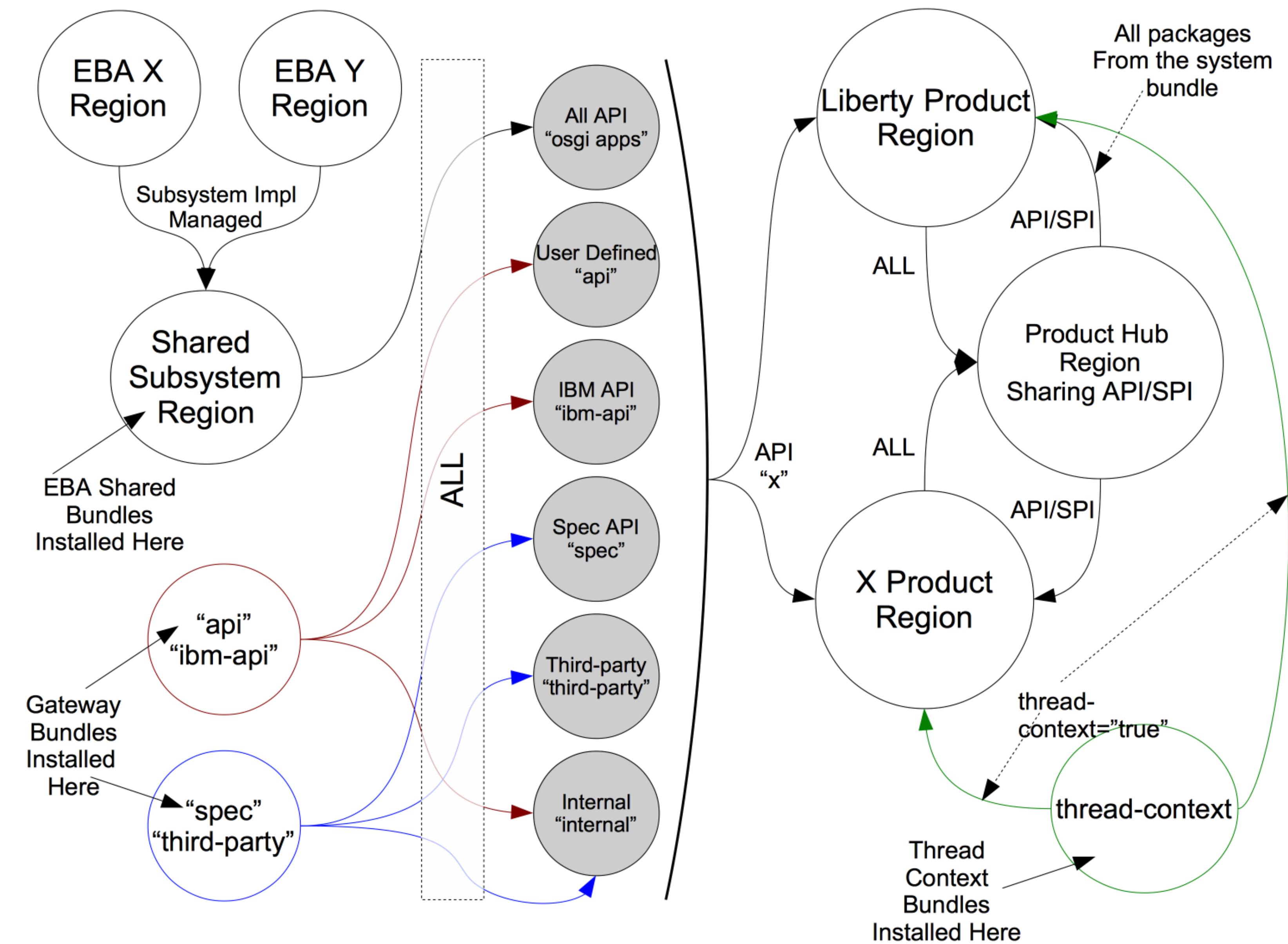
Provisioning

- * Two phases of provisioning:
 - * Bootstrap the kernel to get configuration
 - * Runtime provisioning based on configured features
 - * Add/remove features via config update
 - * install/uninstall bundles,
 - * add/remove configuration elements
 - * creation/removal of services!

Isolation

- * We mean this in a good way.
- * Liberty runtime serves two masters:
 - * Typical Application Server paradigm
(apps strictly separated from runtime) — API
 - * Platform extender paradigm
(the “app” is the runtime) — SPI

An ode to classloaders...



</cleanSlate>

Of course, we didn't really get a clean slate.
Application compatibility had to be
preserved.

But that still gave us a LOT of room...

DEMO!

Liberty + MicroProfile = ❤

- * MicroProfile fits how Liberty works
 - * Focused elements, use what you need
- * Cloud Native technologies forthcoming
 - * Config, Metrics, Health Check
 - * E2E trace — opentracing.io AND... ?
 - * Caching — JSR 107?
JSR 107 + CDI + Redis (experiment):
<https://github.com/BarDweller/JSR107-RI-CDI-Redisson-Bluemix>

QUESTIONS!