

# Continuous Delivery and Dependency Management walk into a bar...



@pslusarz

# How did we get here

- Duplicated code in multiple apps
- Who integrates changes to shared code
  - change owner
  - downstream owner
- Version and freeze dependencies



# Versioned modules

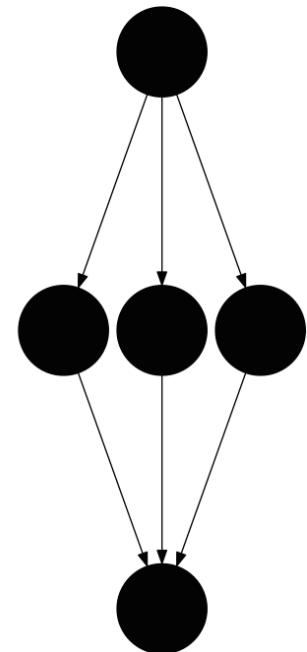
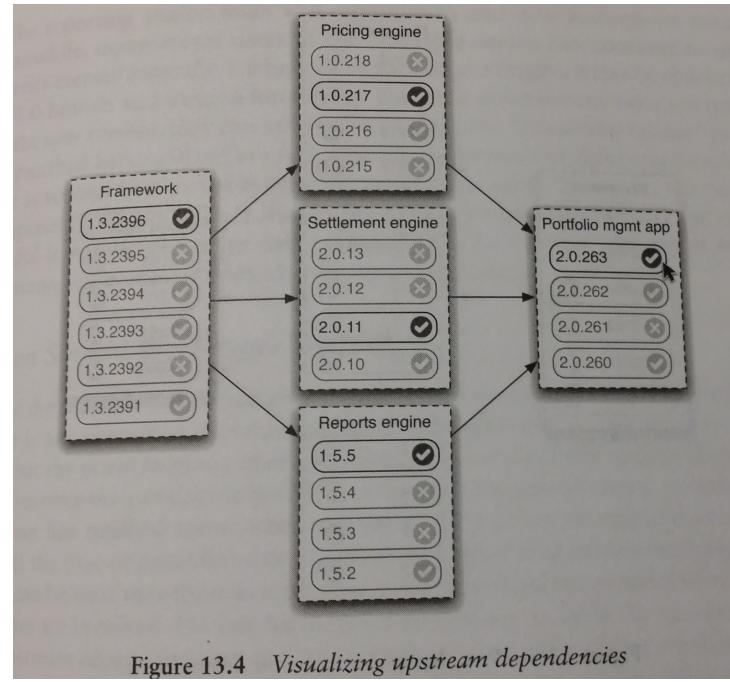
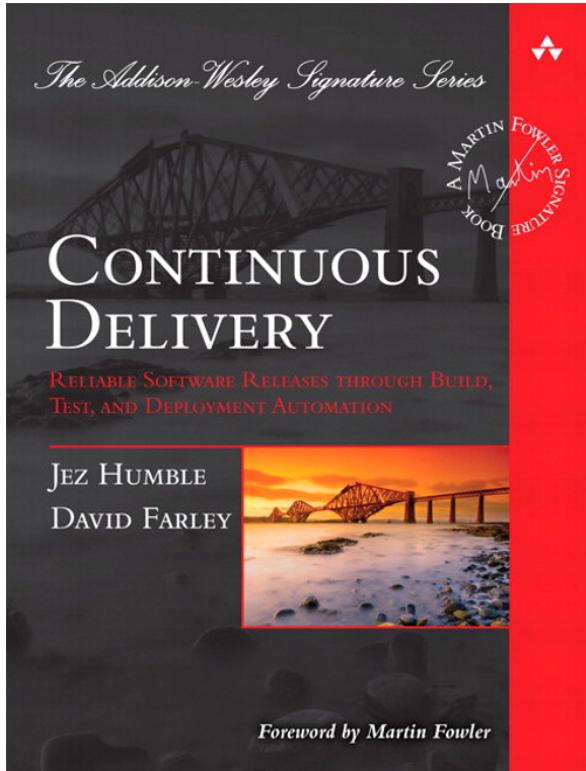
## Benefits:

- stable, predictable releases
- update in small steps
- less to compile
- Maven Central

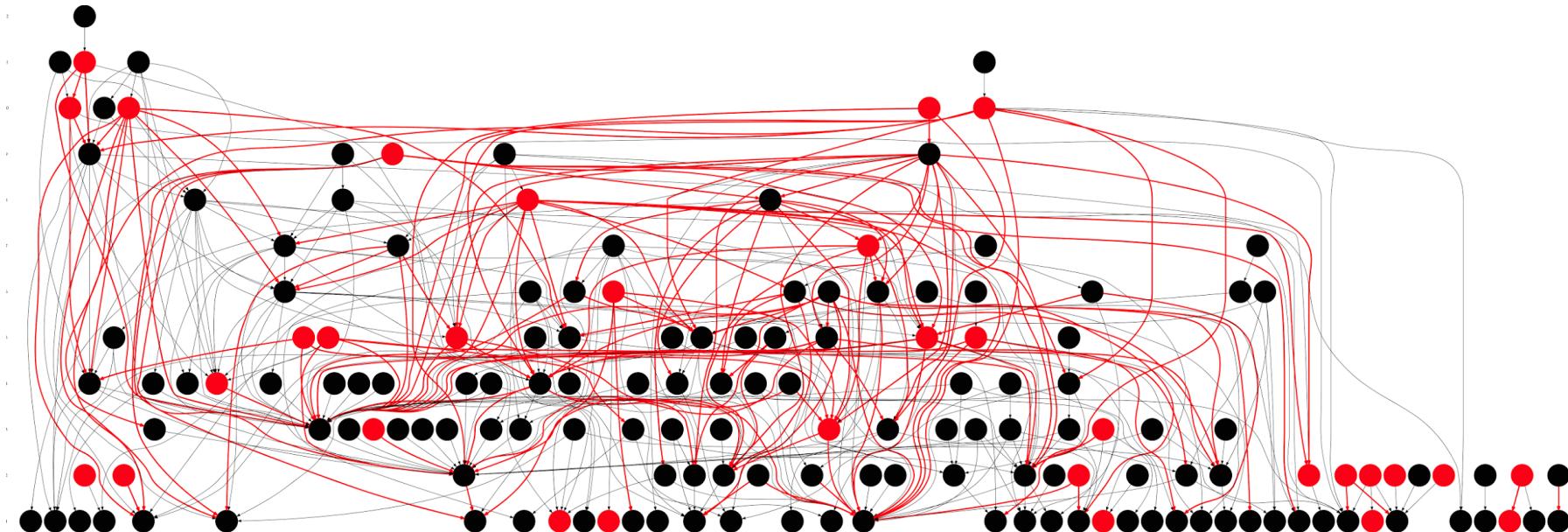
## Drawbacks:

- only one instance of class
- moving classes is a problem
  - eviction
  - class conflict
- renaming modules is a problem  
(Gradle can help)
- keeping tree updated is tedious

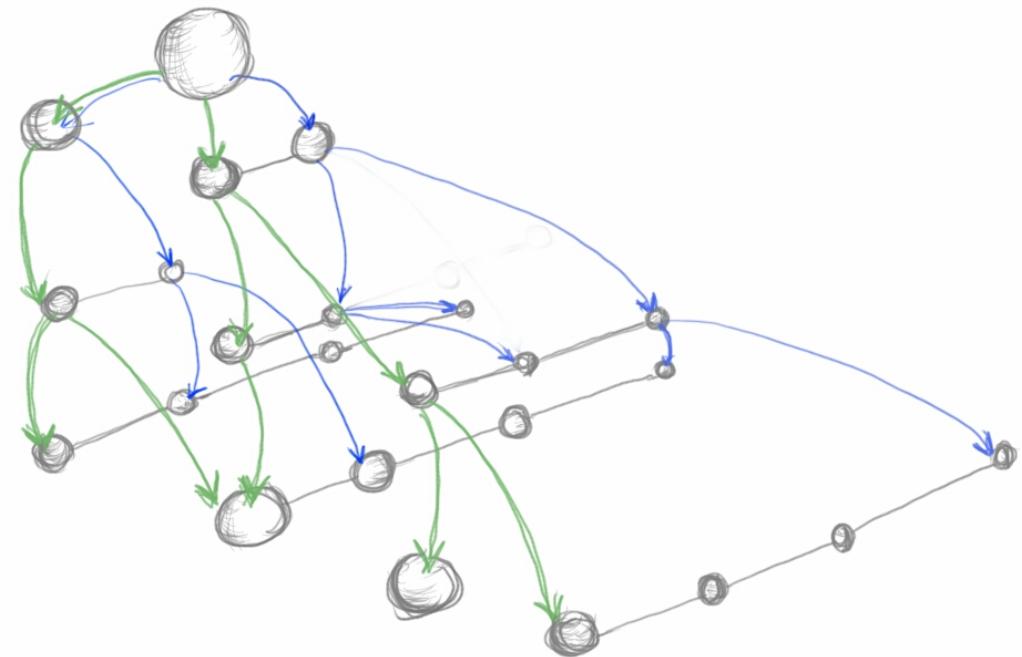
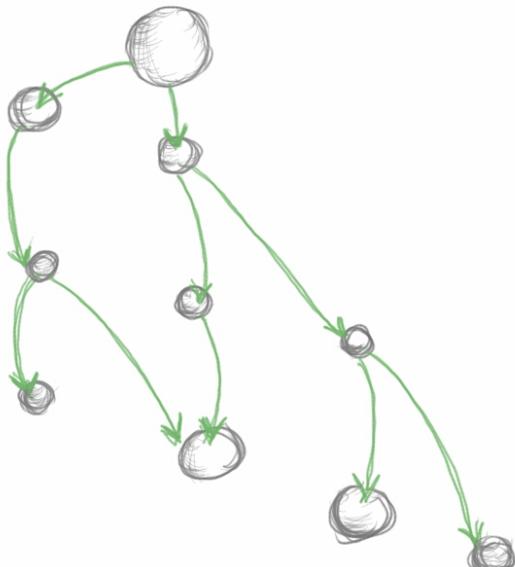
# Theory...



# Practice

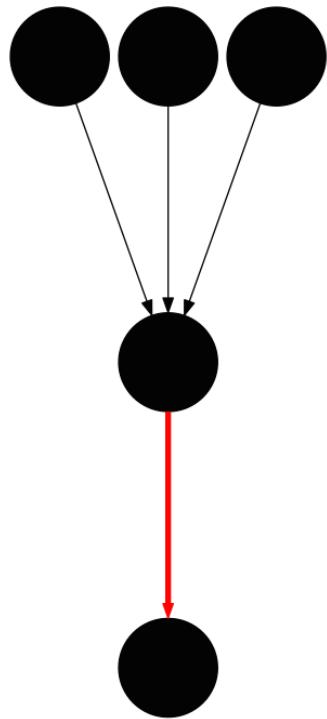


# Practice is actually more messy

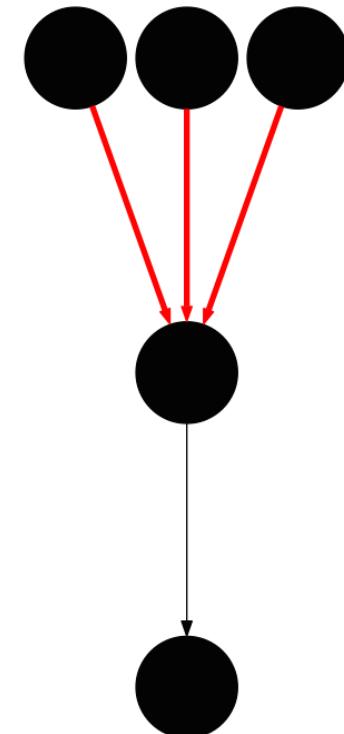


# Metric

Before



After



Naive:

- before: 1, after: 3

DGSM:

- before: 4, after: 3

# Integration example

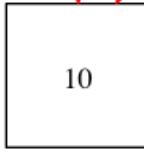
3



2

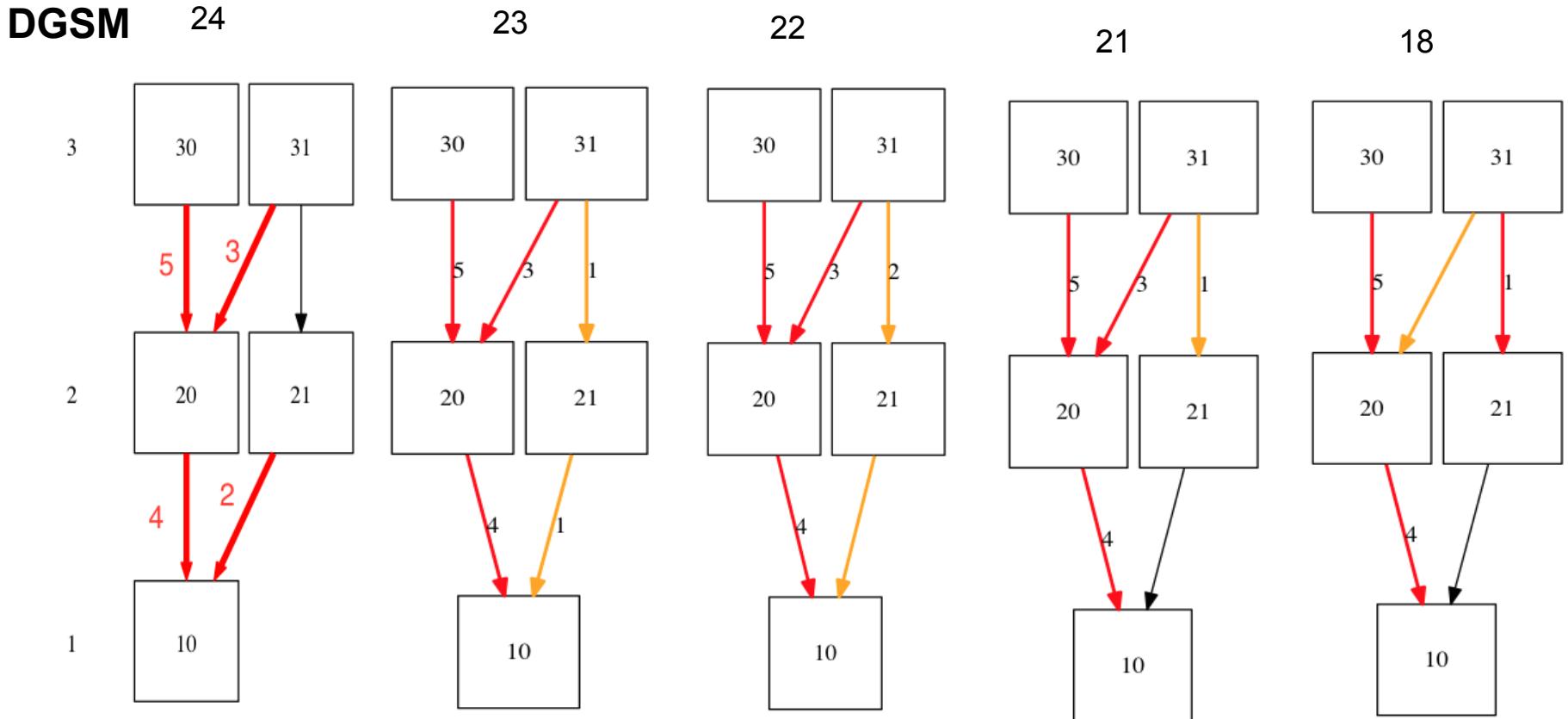


1



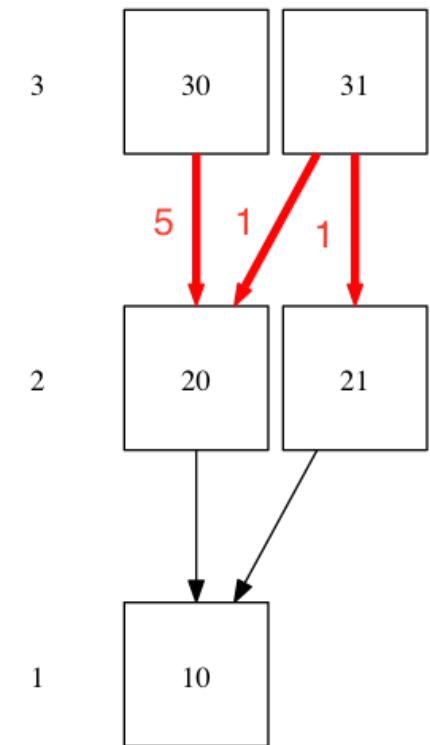
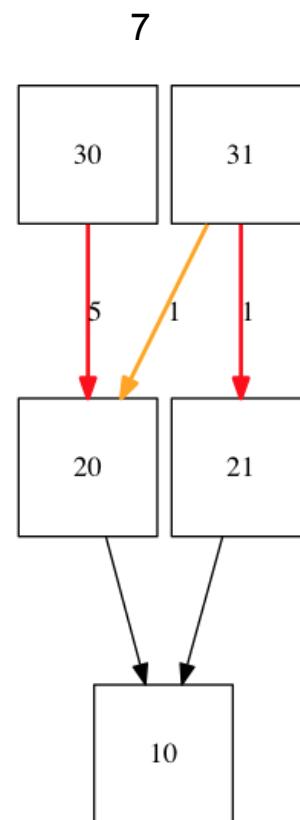
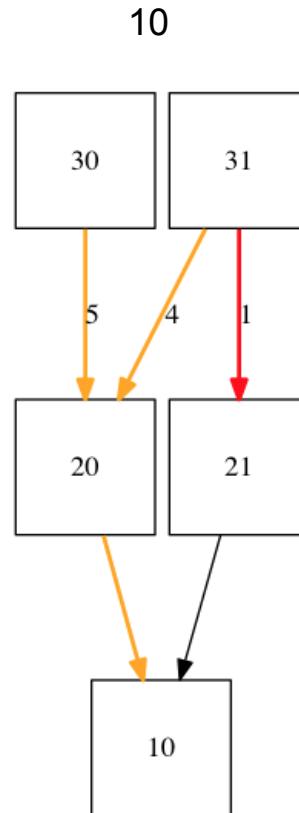
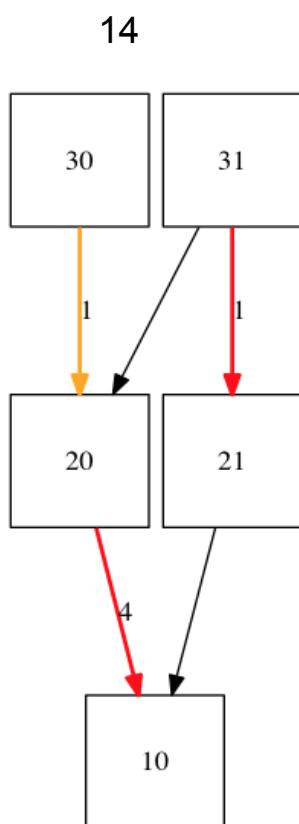
- latest version of 20 breaks 30
- latest version of 10 breaks 31

# Integration example



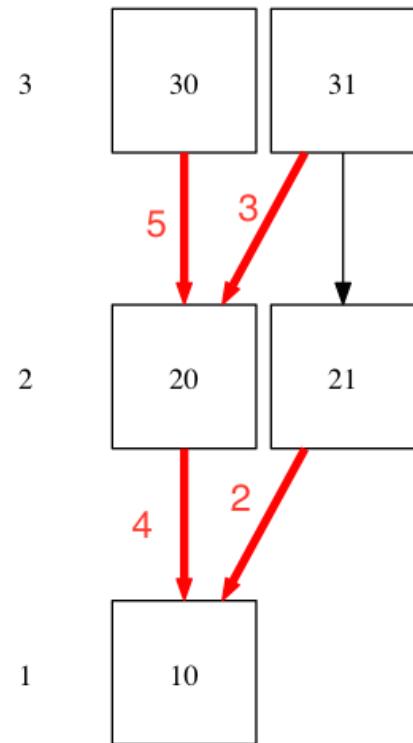
# Integration example

DGSM

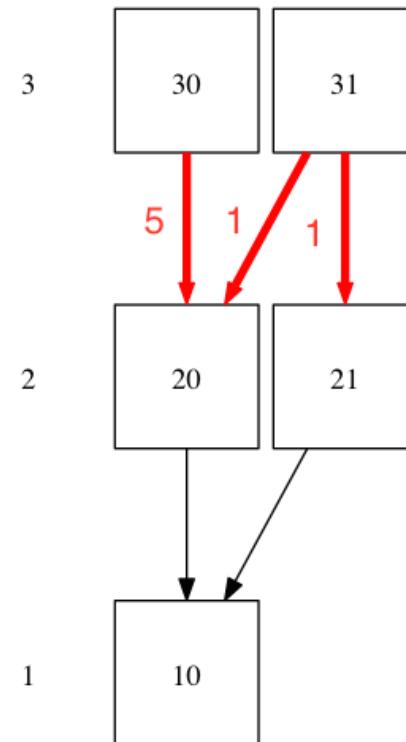


24

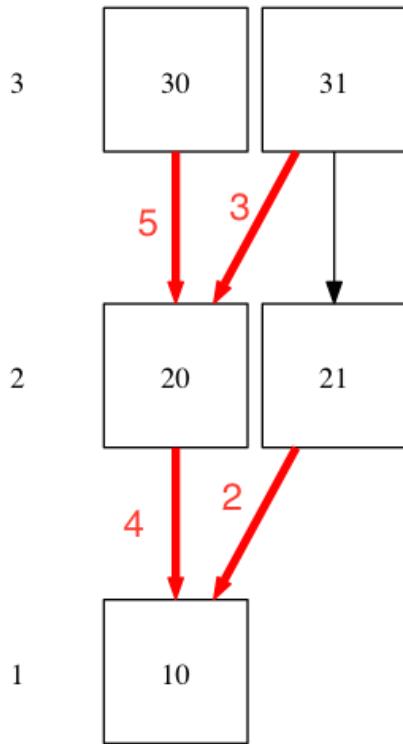
## Integration example



7



# DGSM example

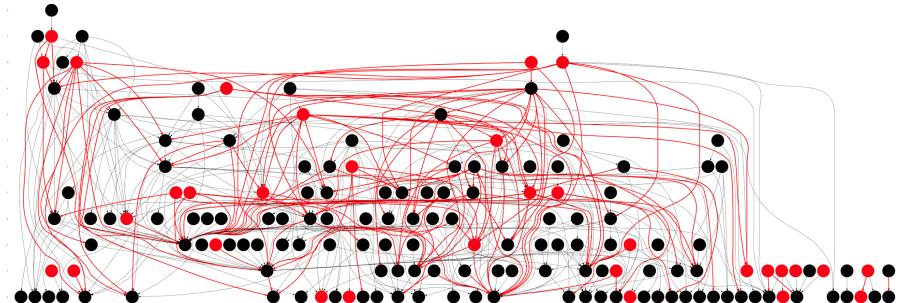


(20, 30) staleness of 5  
(20, 31) staleness of 3  
(10, 20, 30, 31) staleness of 4  
(10, 21, 31) staleness of 2

multiply number of edges x  
staleness

$$5 \times 1 + 3 \times 1 + 4 \times 3 + 2 \times 2 = 24$$

# DGSM applied



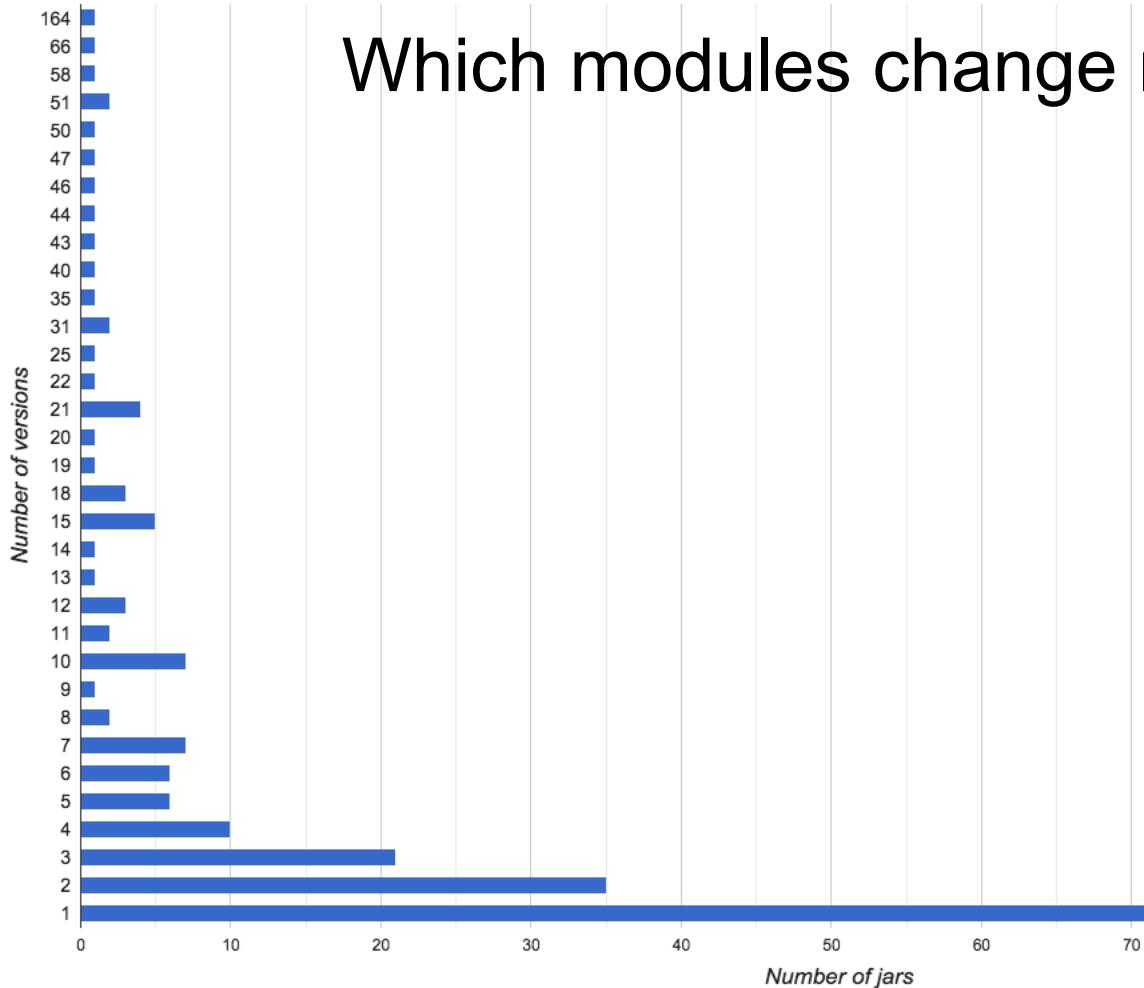
Current DGSM: 19,733

Everyone one version behind: 5,015

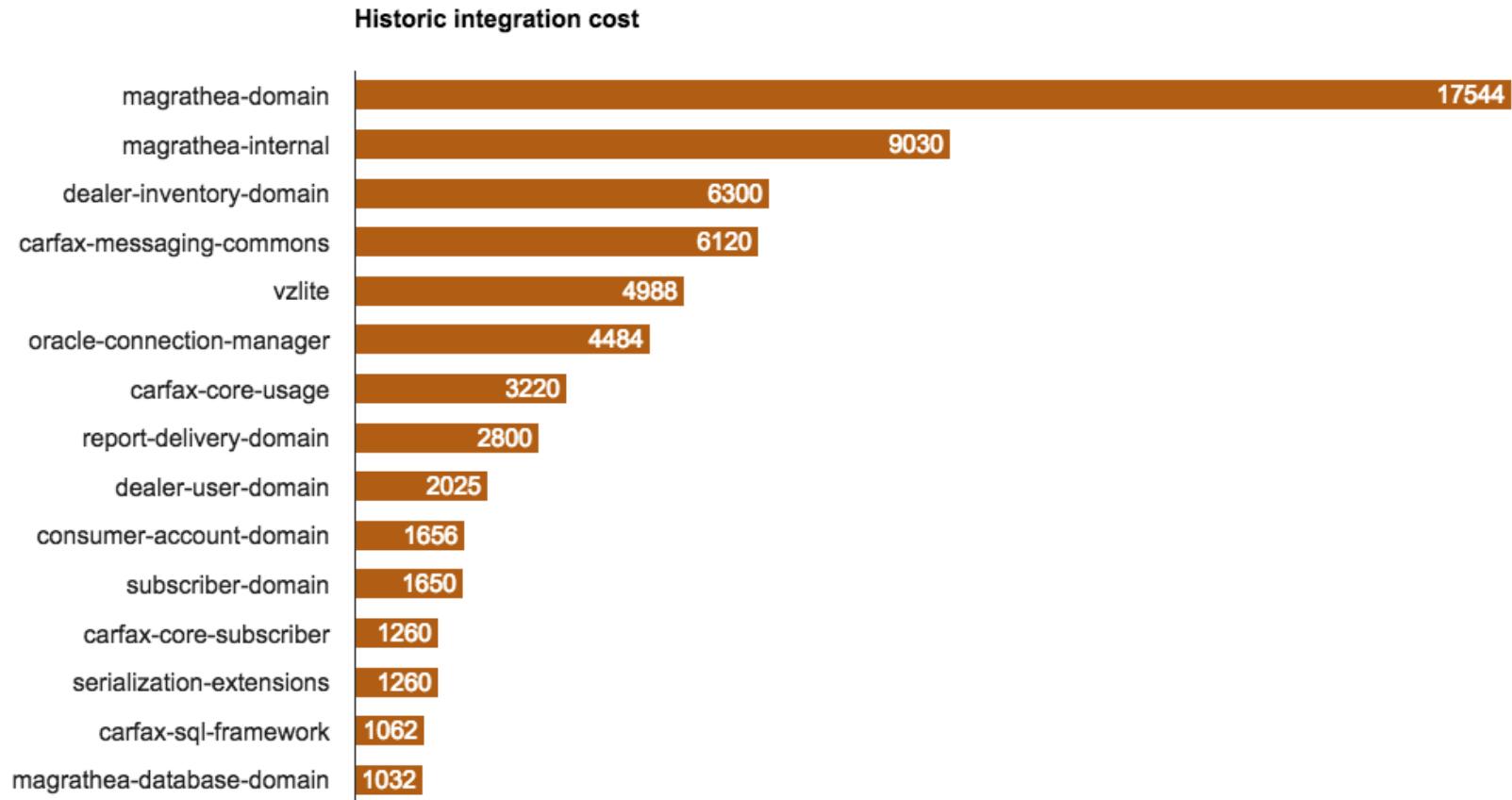
Monthly staleness attrition: 3,000

Historic total (2 yrs.): 73,246

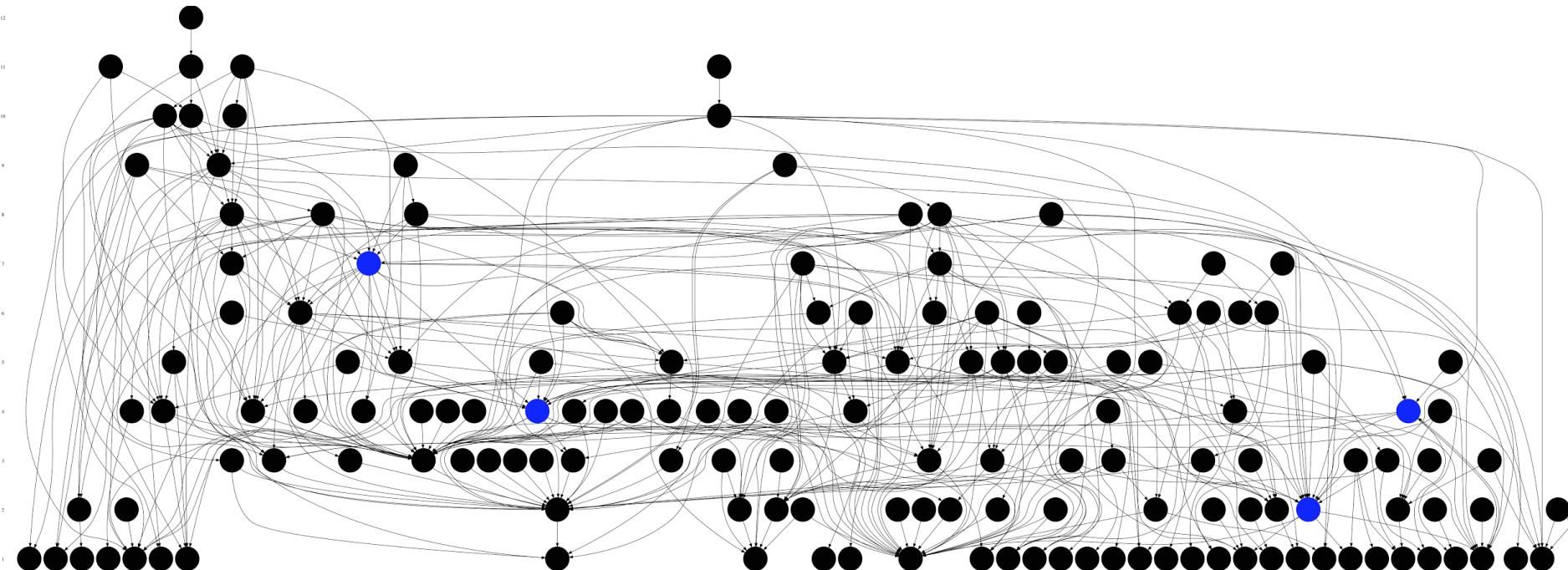
# Which modules change most often?



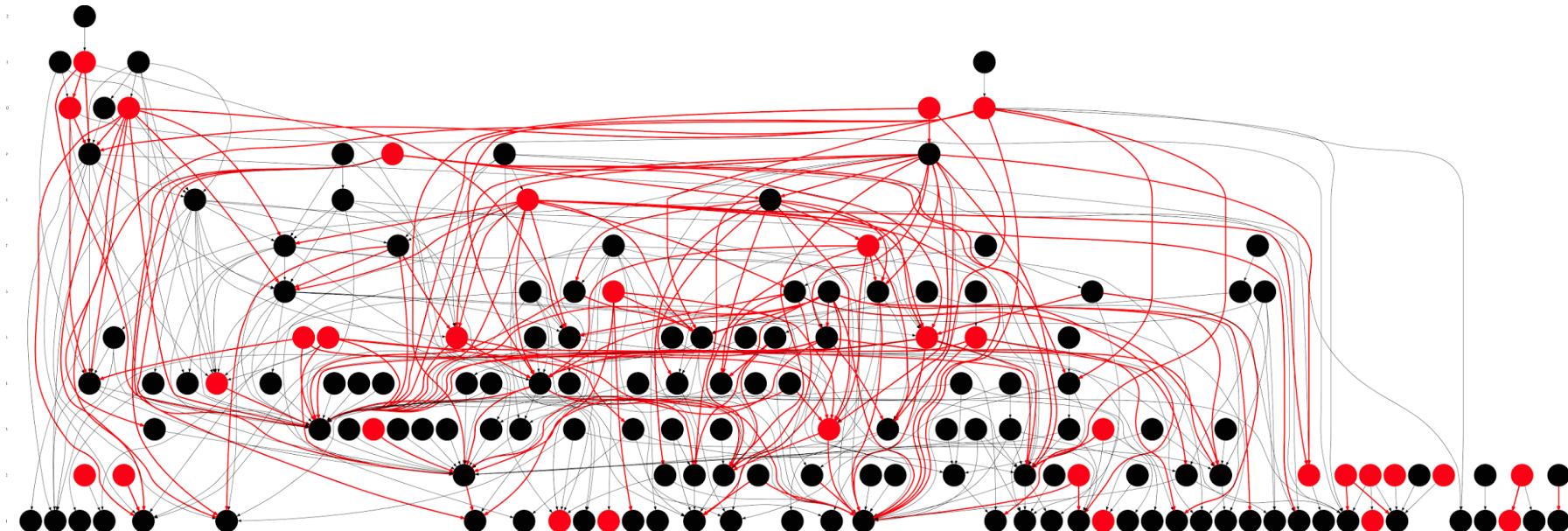
# Implications for architecture



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# DI - in practice



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Jars: 200 (38 do not build)

DGSM before: **19,733**

DGSM after: **11,134**

Breaking updates: 15

Runtime: 1 hr

Strategy: brute force latest

Module	DGSM
carfax-core-usage	3,870
carfax-messaging-commons	1,650
carfax-spring-datasources	1,530
magrathea-domain	949
carfax-email-commons	884
dealerpartnerfitness	884
carfax-sql-framework	730
carfax-shared	692
CoreVip	650
carfax-fitness-commons	644
corevip-acceptance	414

## More info

@pslusarz

<http://10kftcode.blogspot.com/>

<http://github.com/pslusarz/dependency-integrator>

Past Unsession on Code Archeology ([slides](#))

Carfax build system at Gradle Summit ([video](#))



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# Dependency Integrator

- two modes: whole tree, and single jar
- parallelizable by rank
- handle broken builds
- triangulate to find the right combination of updates
- not tied to a particular dependency tool (Ivy, Maven, Gradle)
- not (too) opinionated about the build