

A dark, monochromatic illustration of a large dragon breathing fire in a desolate landscape. The dragon is the central focus, with its head lowered and fire breathing from its mouth. The background shows a hazy, mountainous landscape under a dark sky. The overall tone is dramatic and intense.

Maven

Taming the Beast

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A dark, atmospheric illustration of a multi-headed dragon breathing fire in a desolate landscape. The dragon has three heads, each breathing fire. The background shows a dark, hazy landscape with mountains and a path leading towards the dragon. The overall tone is ominous and dramatic.

Questions?

As soon as you have them!

Agenda

A dark, atmospheric illustration of a dragon in a desolate landscape. The dragon is the central focus, with its head lowered and its body coiled. The background shows a hazy, mountainous terrain under a dark sky. The overall tone is somber and mysterious.

- **State of the Art**
- **History**
- **Common Problems and Pitfalls**
- **Bonus**

A dark, monochromatic illustration of a multi-headed dragon breathing fire in a desolate landscape. The dragon has three heads, each breathing a stream of fire. The background shows a barren, rocky terrain under a dark sky. The text "Do you hate Maven?" is overlaid in the center in a white, bold, serif font.

Do you hate Maven?



It's slow!

Steep Learning Curve!

It's hard to extend!

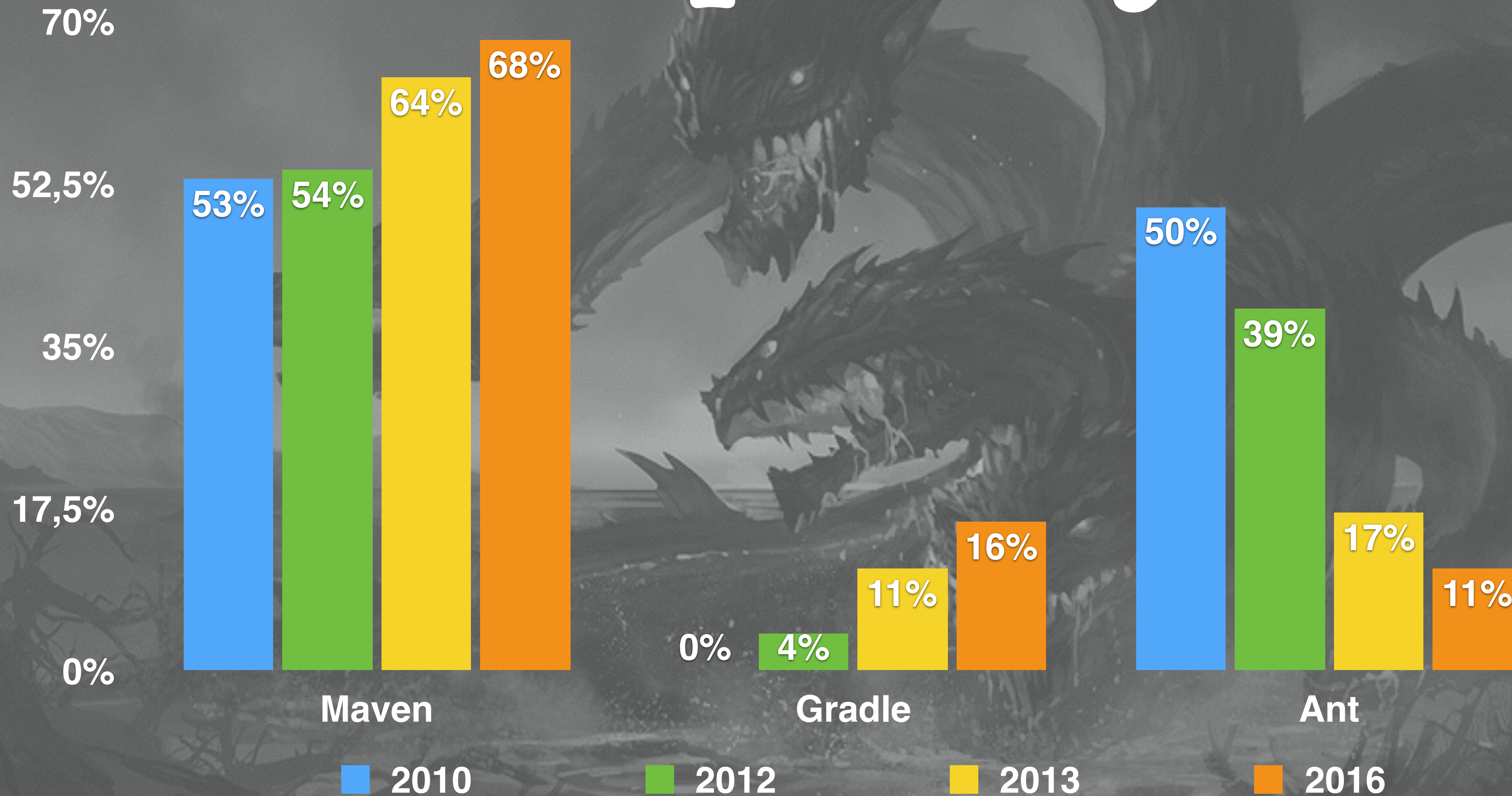
It's XML!

It's unreliable!

It's complex!

It's verbose!

Popularity



Facts

A dark, atmospheric illustration of a large, multi-headed dragon breathing fire in a desolate landscape. The dragon's body is coiled, and its heads are positioned at various points along the coil, each breathing a stream of fire. The background shows a hazy, mountainous landscape with some skeletal trees in the foreground.

- **It's around for more than 10 years**
- **Is not going away anytime soon**
- **Embrace it**

Bad Reputation?



- **All developers run into problems**
- **New developers go through the same hard learning process**
- **Let's fix that!**

A Bit of History

- **Maven was born from the desire to make several projects work in the same way**
- **Standardize on a set of practices**
- **Stop “reinventing the wheel”**

A Bit of History



- **Reuse developers knowledge**
- **Easier for developers to move across projects**
- **Focus on what needs to be done**

Learn how to play with it!

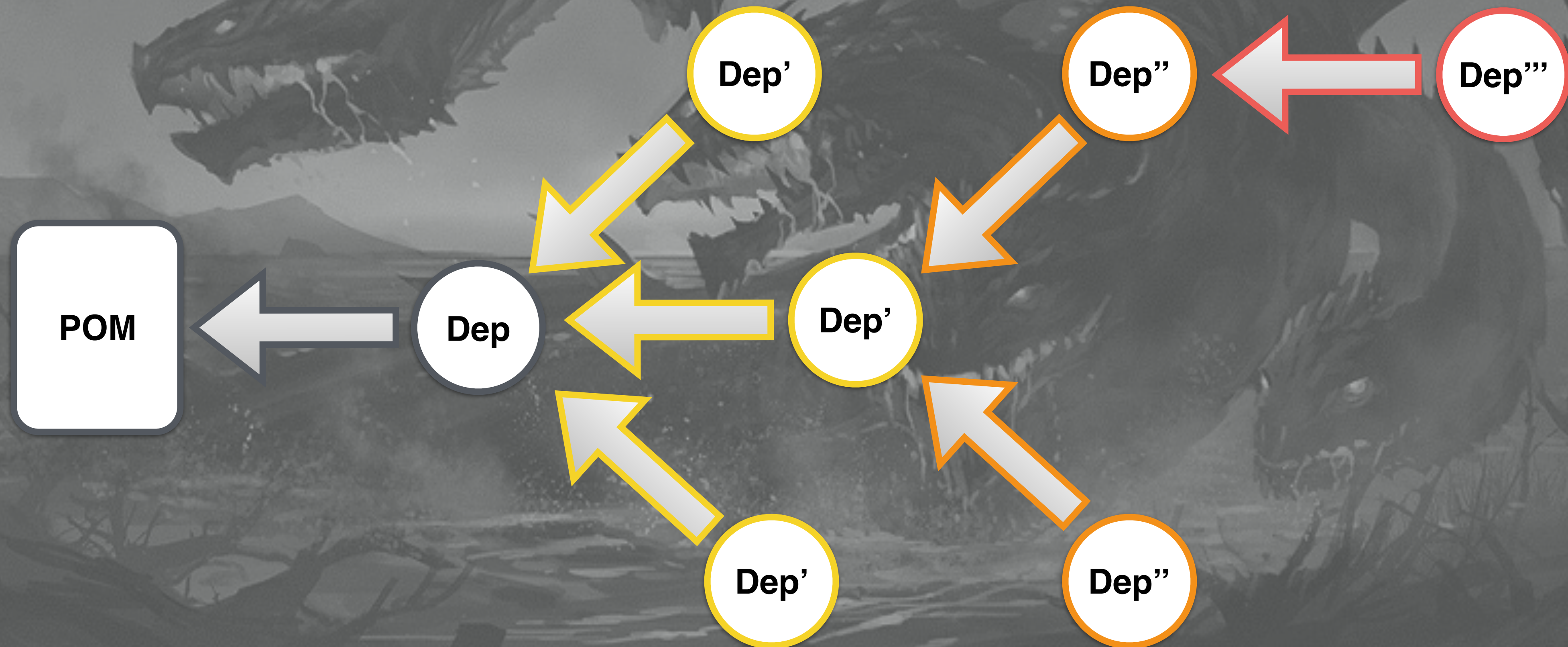
- **What are the most common pitfalls?**
- **How to fix them or debug them?**
- **Save countless hours of pain and frustration**

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Common Problems and Pitfalls

Why is this JAR in my Build?

Transitive Dependencies



Transitive Dependencies



- **Useful to include what you need automatically**
- **No limit in the numbers of dependency levels**
- **Graphs of libraries can quickly grow out of control**

DOWNLOADS THE INTERNET!



Why is this JAR in my Build?

- Include **ONLY** what you need!
- Use **mvn dependency:analyze**
- Exclude unneeded dependencies
- Some trial and error involved

I can't see my changes!

- **Dependencies are not build in the local repo**
- **Dependency version is not correct**
- **Remote repo has overwritten changes**

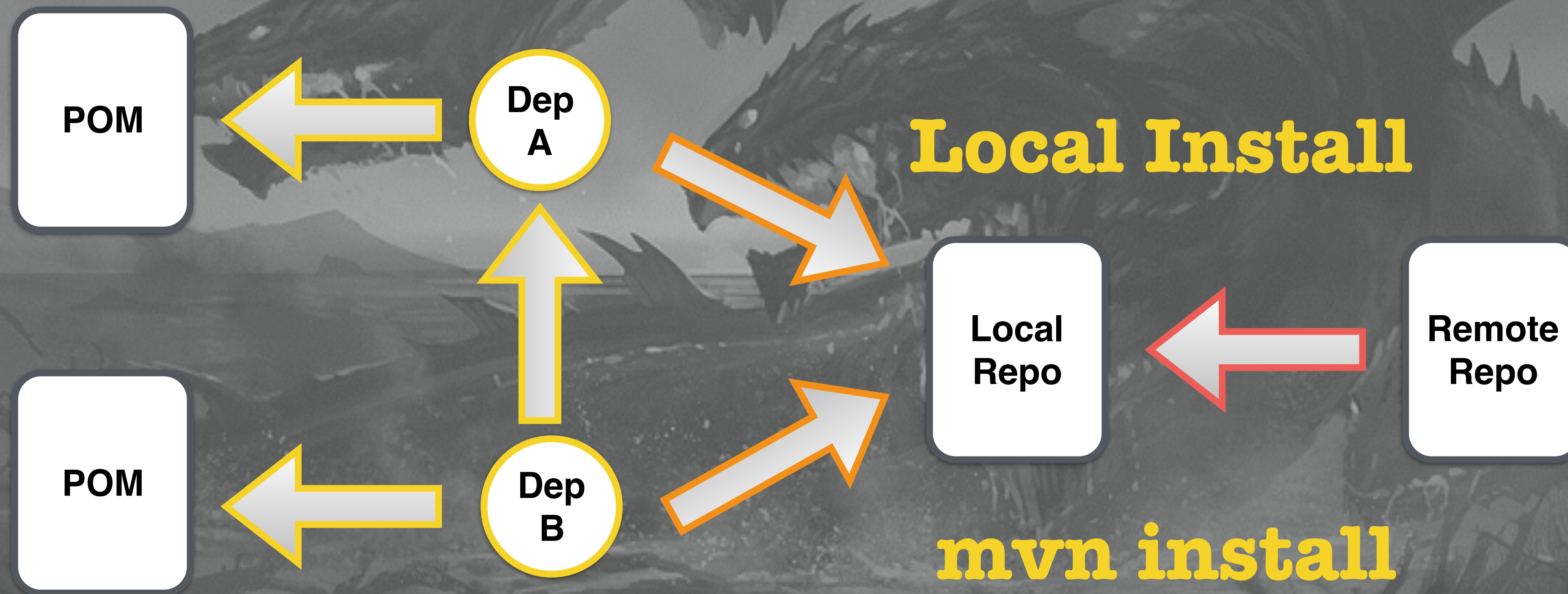
Repositories



- **Local and Remote**
- **Checks for Remote repo for dependency**
- **Downloads to Local and use it from there from that point forward**

I can't see my changes!

Code Change



I can't see my changes!

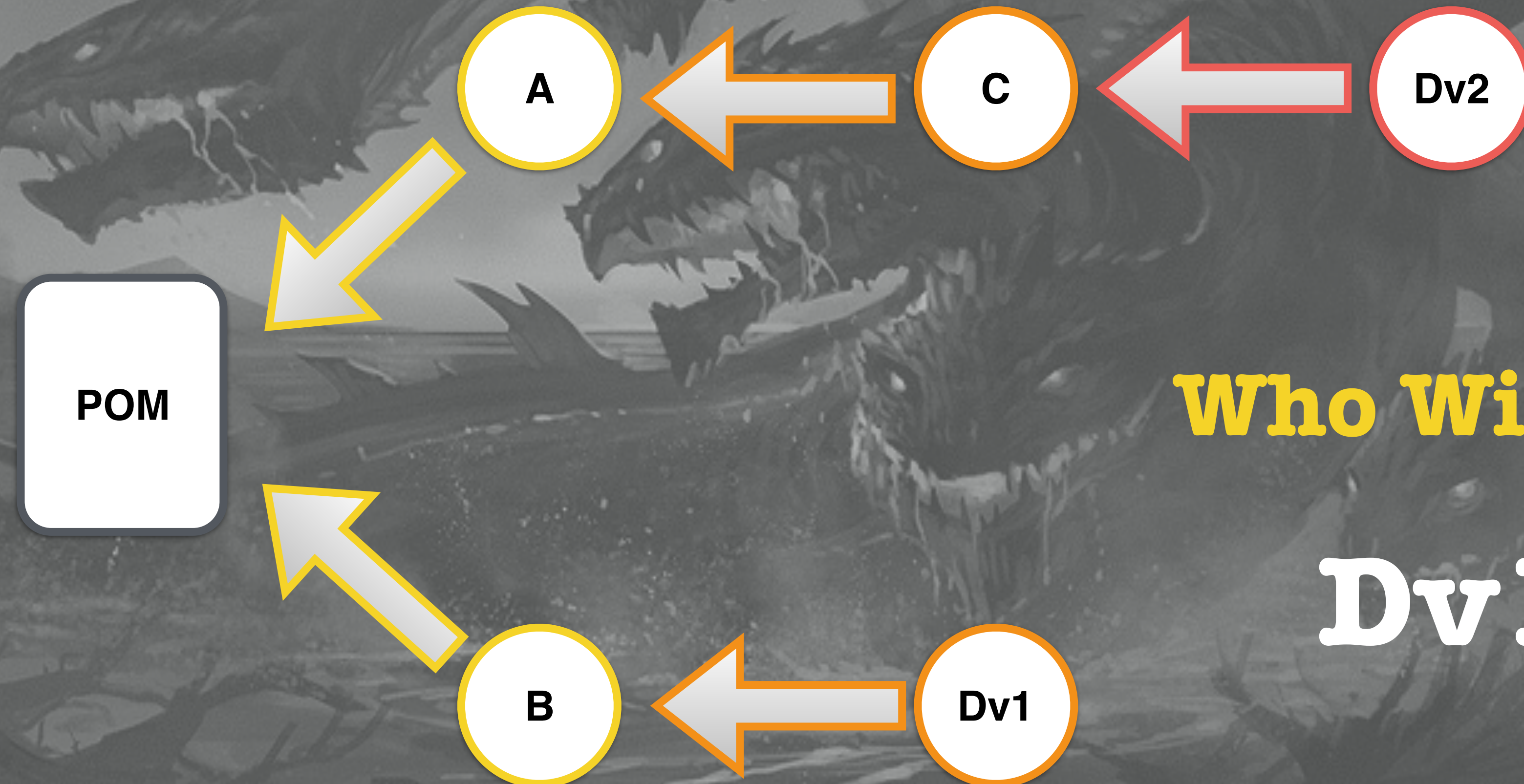
- That's why the first thing you learn is **mvn install!**
- Places the artifact in your local repository
- All the other projects can use it now

SNAPSHOT versions

- **Not stable versions, still changing**
- **Maven will attempt to update them**
- **SNAPSHOT versions from remote may override your local changes**

I can't see my changes!

Dependency Mediation



Who Wins?

Dv1

I can't see my changes!

- Use **mvn dependency:tree -Dverbose**
- Exclude the unwanted dependency or include the required one in the main project

Version Ranges

- **x.y.z** indicate the preferred dependency version to use
- You can use **RELEASE** for the latest stable version
- Or **LATEST** for the latest one, including **SNAPSHOTS**

I can't see my changes!

1.0.20

1.0.2

1.0.2a

1.0.02

Which one is the latest version?

1.0.2a

Versions

- Maven expects **MajorVersion, MinorVersion, Incremental Version, BuildNumber, Qualifier**
- If you don't follow the expected scheme, it is just treated as a String
- Check **ComparableVersion**

A JAR is not being included!

- **Usually related with Dependency Scopes**
- **Might also be excluded somewhere**
- **May cause `ClassNotFoundException`**

Dependency Scopes

- **Used to calculate different classpaths**
- **Compile (default), Runtime, Provided, Test, System**
- **Affect how Transitive Dependencies are resolved**

A JAR is not being included!

- Use **mvn dependency:list**
- Change dependencies to use the appropriate scope

I can't find the Artifact!

A dark, atmospheric background image of a dragon in a desolate landscape. The dragon is the central focus, with its head lowered and wings partially spread. The scene is dimly lit, with a hazy, greyish-blue sky and a ground covered in sparse, dark vegetation and rocks. The overall mood is somber and mysterious.

- **“Could not resolve dependencies... Could not find artifact”**
- **Even worst than the Java NPE**

I can't find the Artifact!

- **Dependency defined correctly?**
- **Remote repo contains the artifact?**
- **Most recent pom version?**
- **Jar is corrupted?**
- **Cached artifact?**
- **Dependency overridden?**

I can't find the Artifact!

- **Artifacts get renamed all the time**
- **The artifact might be in another remote repo**
- **POM parent might not be the latest**

Weapons of Choice



- **mvn help:effective-pom**
- **mvn help:effective-settings**
- **mvn -Dmaven.repo.local=/temp/210916/.m2**
- **mvn versions:display-dependency-updates**

A dark, atmospheric illustration of a multi-headed dragon breathing fire in a desolate landscape. The dragon has three heads, each breathing fire. The scene is set in a dark, rocky, and desolate landscape with a cloudy sky. The word "Bonus" is written in a white, serif font in the center of the image.

Bonus

Improve your build



- **Use a Plugin and Dependency Management section**
- **Specify versions**
- **Avoid SNAPSHOTS**
- **Use Global Properties**
- **Use Modules**

Bonus: Speedup your Build

- **By default, modules are built sequentially**
- **Depending on your project, you can run the build in parallel**
- **It can speed your build substantially**

Bonus: Speedup your Build

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- **mvn -T 2 install (2 Threads)**
- **mvn -T 1C install (1 Thread per core)**

Bonus: Speedup your Build



- **Build only what you need**
- **Skip tests**
- **Offline**
- **Tune JVM options**

Bonus: Speedup your Build

- **mvn install -pl moduleName -am / -amd**

- **mvn -Dmaven.test.skip=true**

-XX:+TieredCompilation -XX:TieredStopAtLevel=1

- **-XX:+TieredCompilation -XX:TieredStopAtLevel=1**

- **mvn -o**

Bonus: Improve your Environment

- Add colours to Maven command line:
github.com/jcgay/maven-color
- Add Autocomplete:
github.com/juven/maven-bash-completion

Final Considerations



- **Everyone should be responsible**
- **Keep it clean**
- **If you feel that you are fighting with the tool, you are probably doing it wrong**

Tamed?





Never trust the IDE!

**If it works on the command-line
then the IDE is the problem!**

Thank you for Attending!



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