The Sling Feature Model - Revealed!

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Agenda

- Feature Model 1.x
- Tools
- Practical Applications
- Demo
- @OSGi

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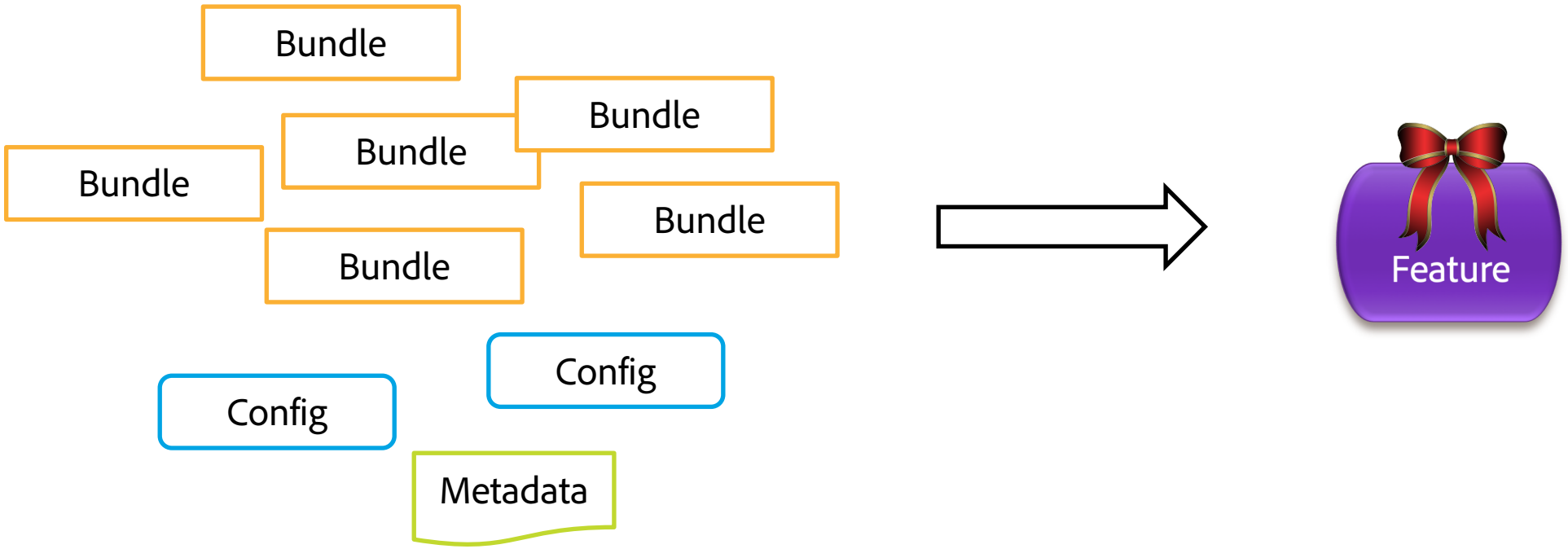
The Sling OSGi Feature Model



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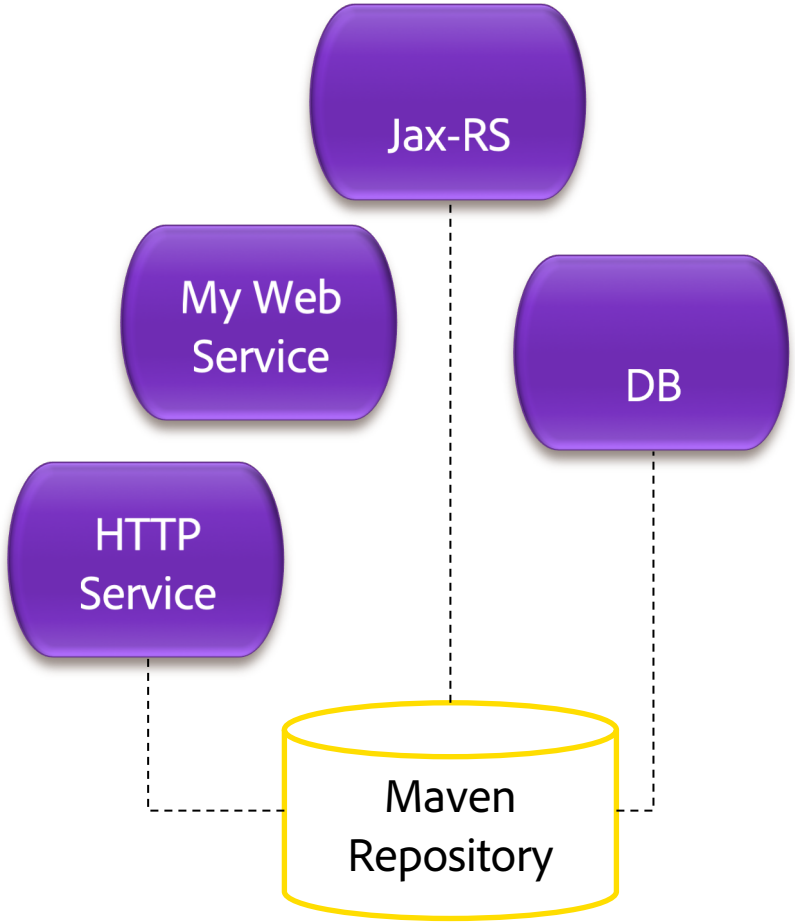
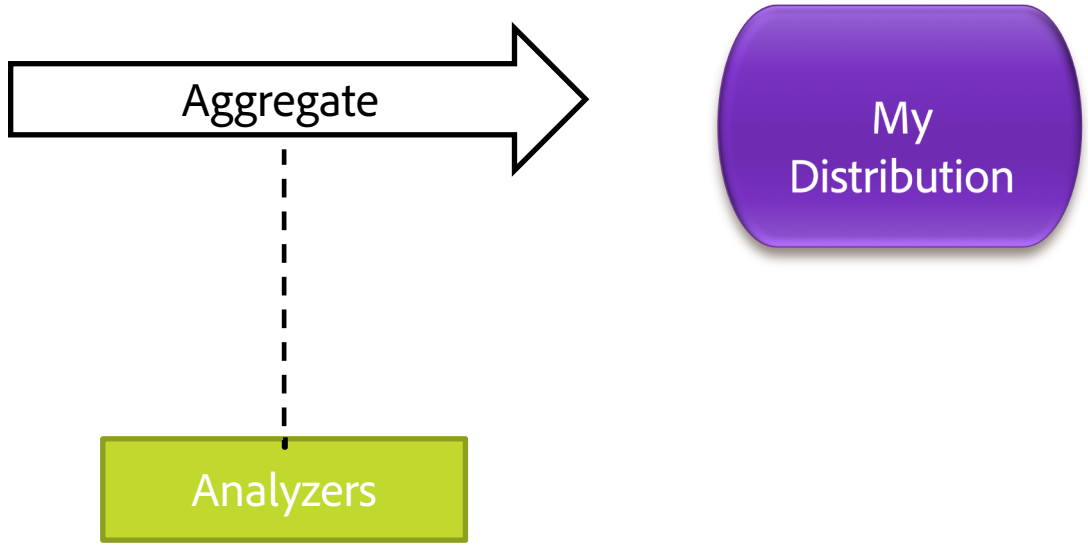
Reusing Features





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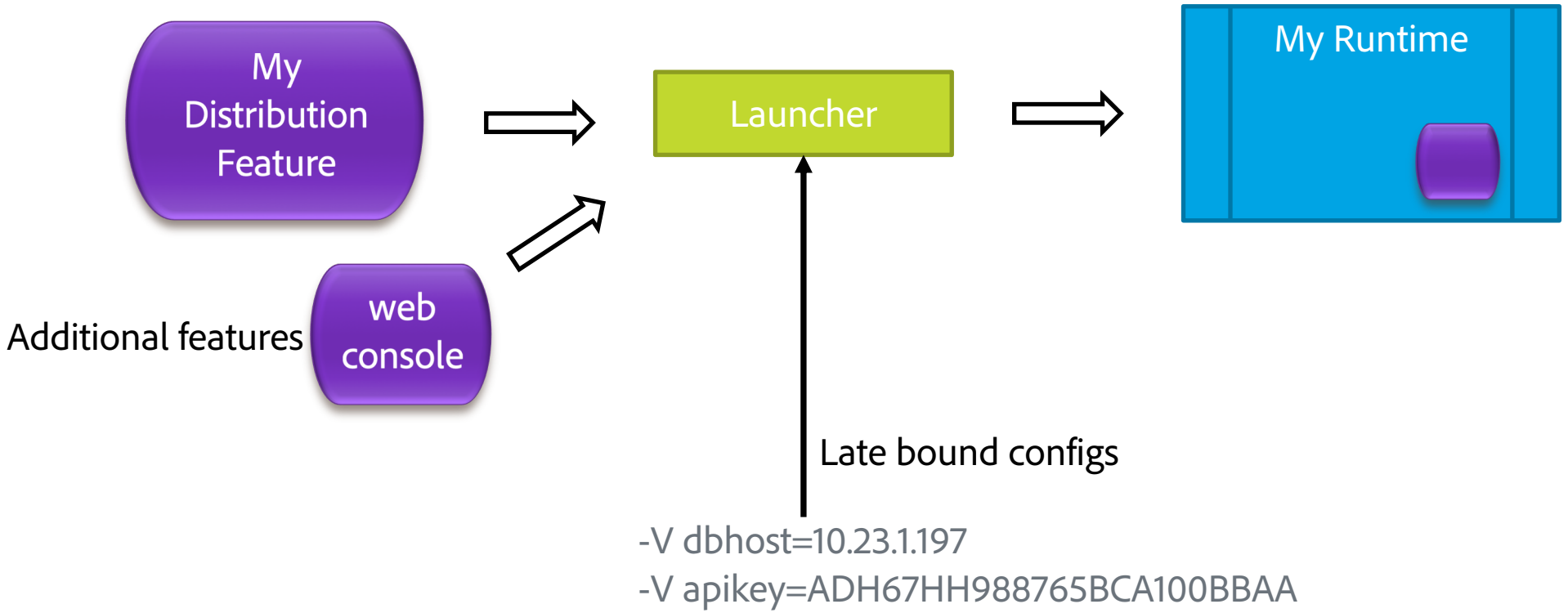
Running Features



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Feature Model 1.x world

Main Components

Feature Model	Feature I/O	Feature Analyzers	Feature Launcher	slingfeature-maven-plugin
Main Model API	*JSON Serialization*	*Analyzers*	*Launch feature Runtimes*	*Maven Tooling*

Additional Components

Feature Model Converter	Feature Model InventoryPrinter	Content Extension	API Regions Model	
Conversion to Provisioning Model	*Web Console Integration*	*Handles Content Packages and RepoInit*	*API Regions Resource Generation*	
Runtime to Feature	**Feature Diff**	**Karaf Conversion**	**API Regions Extension**	**API Regions Runtime**
Generate Feature representing the Runtime	*Diff Features*	*Convert into Karaf Feature*	*API Regions Resource Generation*	*API Regions Runtime Enforcement*

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Example Model

```
{
    "id": "org.foo.bar:osgi-http:1.0.2",
    "variables": {
        "http.port":"8080"
    },
    "bundles": [
        "org.apache.felix:org.apache.felix.http.servlet-api:1.1.2",
        "org.apache.felix:org.apache.felix.http.jetty:4.0.0"
    ],
    "configurations": {
        "org.apache.felix.http": {
            "org.osgi.service.http.port": "${http.port}”,
            "org.apache.felix.https.enable”, true
        }
    }
}
```

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Maven Tooling: slingfeature-maven-plugin

- Aggregation
  - Assemble a larger feature from others
  - Create runnable, self-contained features
  - Merge custom extensions
- Analyzers
  - Bundle Imports and Exports
  - Requirements and Capabilities
  - Sling content package dependencies
  - OSGi Connect checker
  - API Region based
- Create a repo of all artifacts
  - Docker images without dependencies

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Launcher

Simple Java CLI for

- Framework selection
- Variables and Framework properties
- Merging of features
- Artifact handling
- Extensions
  - **Launcher Extension**
  - **Extensions**
    - **Merge Extensions**
    - **Launch Extensions**

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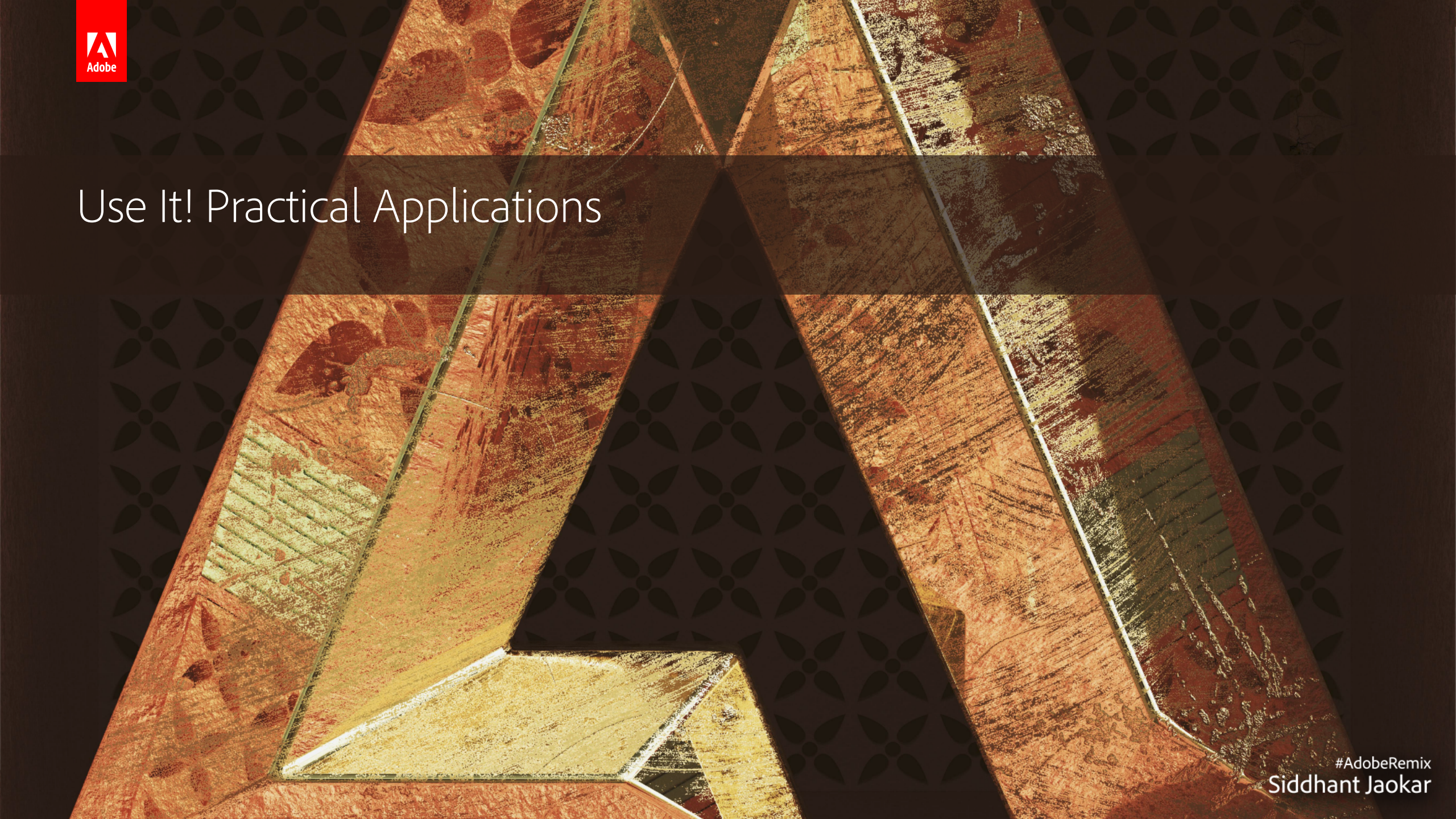
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Use It! Practical Applications
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In practice

- Use the maven plugin to create repository
  - Include framework, extensions
- Create docker image
  - Based on java11
    - Optional: based on alpine
    - Optional: jlink/jdeps base modules
- Use launcher
  - Optional:
    - Merging of scripts
    - Configadmin in memory
    - Extension
- Layering of images
  - add repositories,
  - add features

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Demo

https://github.com/apache/sling-whiteboard/tree/master/it-is-cloudy-here

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Feature Model @ OSGi
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The Feature Model is proposed as OSGi specification

- Feature model RFP 188 accepted
- Going through the specification process
  - **Currently under discussion**
- Feature model RFC 241 is in github here:

  https://github.com/osgi/design/tree/master/rfcs/rfc0241

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Get Involved!

- Feature Model component in Sling
  - https://github.com/apache/sling-org-apache-sling-feature
- OSGi RFP in https://github.com/osgi/design
  - **OSGi feedback channels**
- Directly at OSGi

Q & A

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Picture acknowledgements

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