



ODTUG Kscope18



ORLANDO, FLORIDA • JUNE 10-14

PLEASE
FILL OUT YOUR
EVALUATIONS



DevOps and OBIEE: Do it Before it's Too Late!

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- Verona, Italy
- Rittman Mead Blog
- 10 Years Experience in BI/Analytics
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- @FTisiot
- Oracle ACE
- No Cappuccino After 11 Knight

Mode 1 Analytics

Long Cycle Times

IT Driven

Centralised



Mode 2 Analytics

Business Driven

Data Discovery

Fast



Centralised

- Unique Source of Truth
- KPIs Definition
- Development
- Test
- Release



A photograph of a bird, possibly a hawk or eagle, captured in mid-flight against a clear blue sky. The bird's wings are spread wide, and it is carrying a light-colored briefcase or envelope under its left wing. A prominent black checkmark icon is printed on the front of the briefcase. The bird's talons are visible, gripping a dark, thin branch or twig. The background is a soft-focus blue.

TTD

Manual
Testing

Development
Isolation

Manual
Deployment

Agile

DevOps



Focus

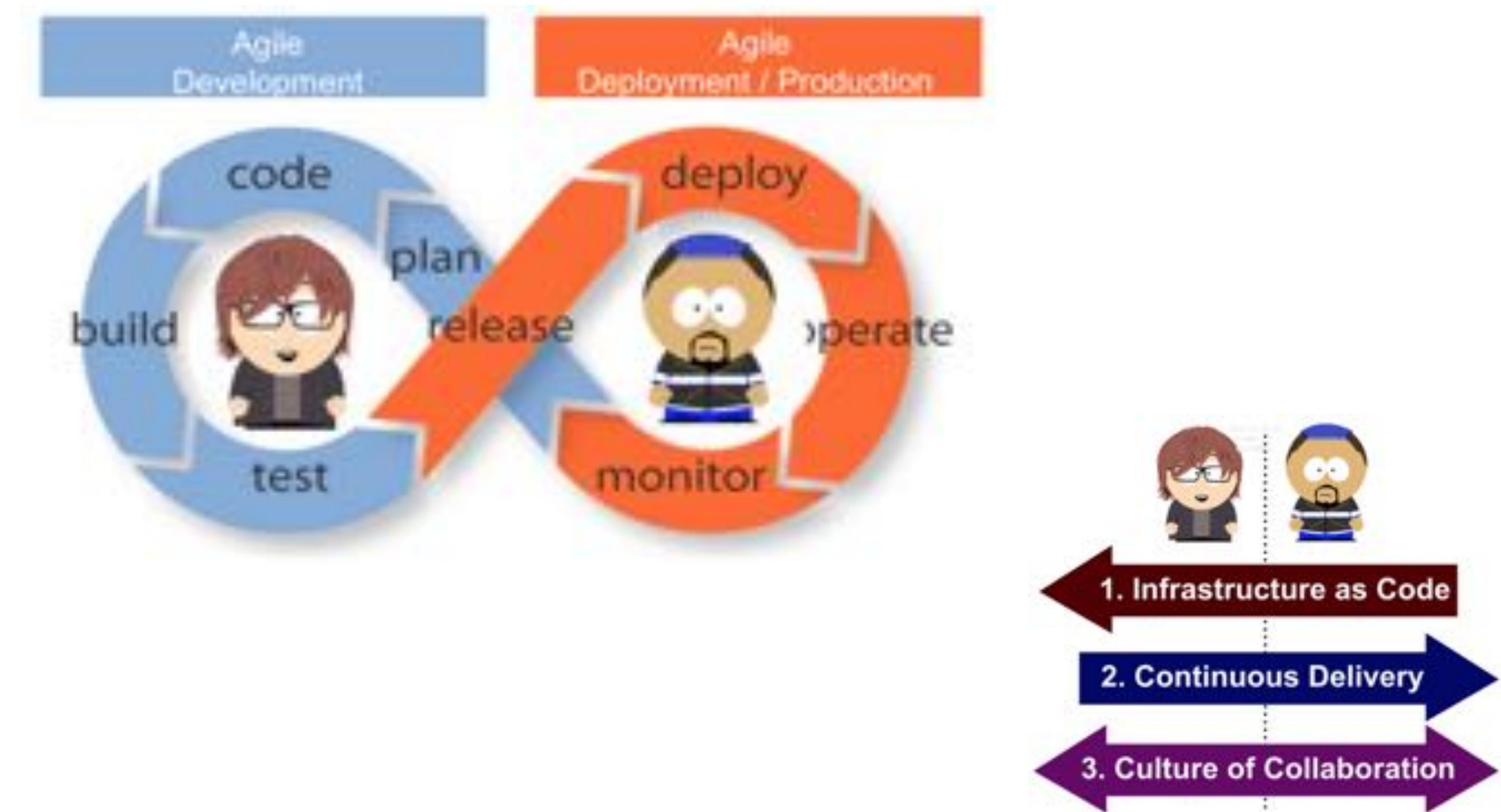
Iteration



Collaboration

Frequent Delivery

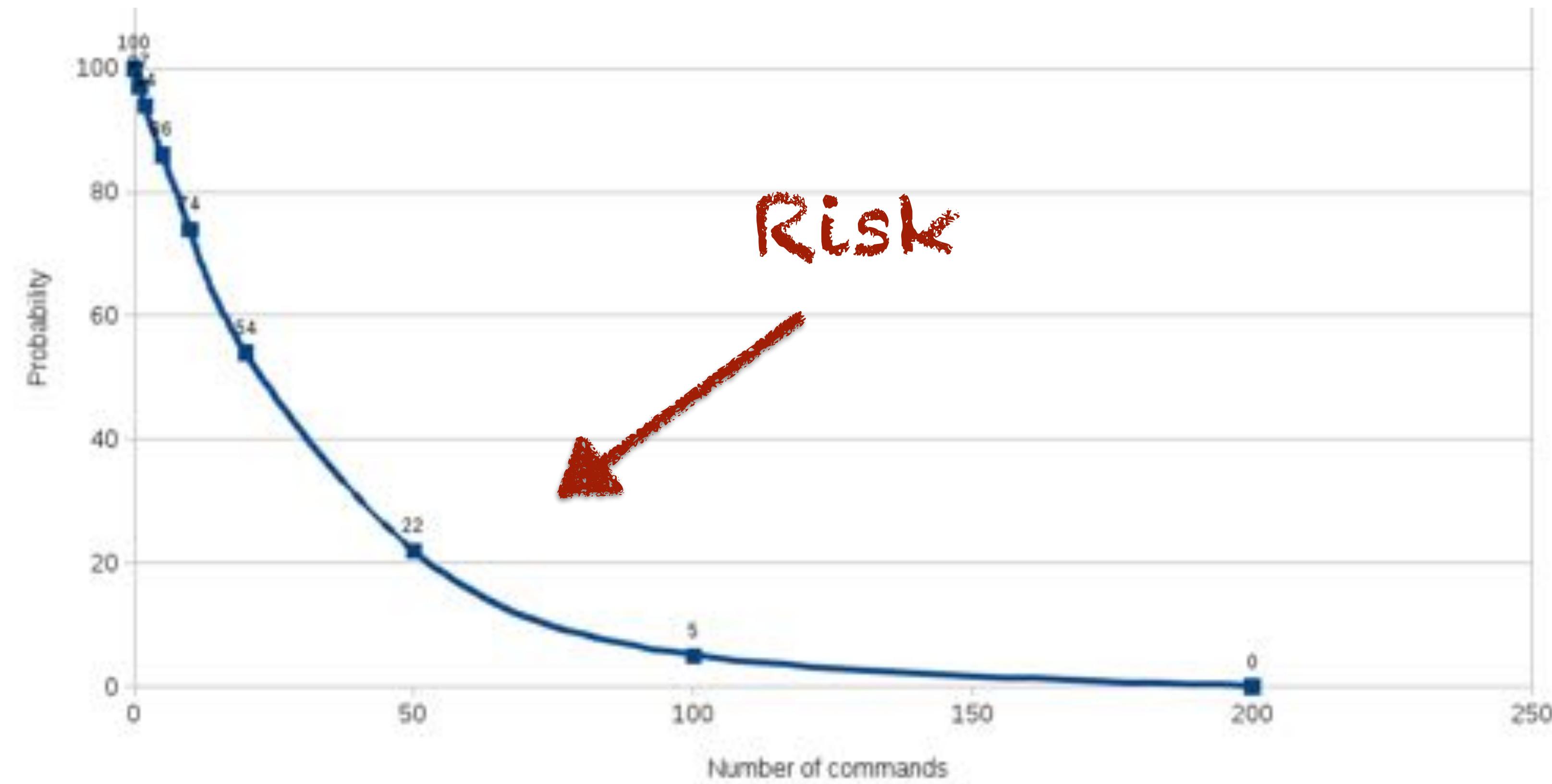
DevOps



Before it's Too Late?



Before it's Too Late?



Before it's Too Late!

The Results
are Wrong!

We Locked the
DB User!

Production
is Pointing to UAT!
Which RPD
can we Promote?



Before it's Too Late!



OBIEE

*1996 - +2018

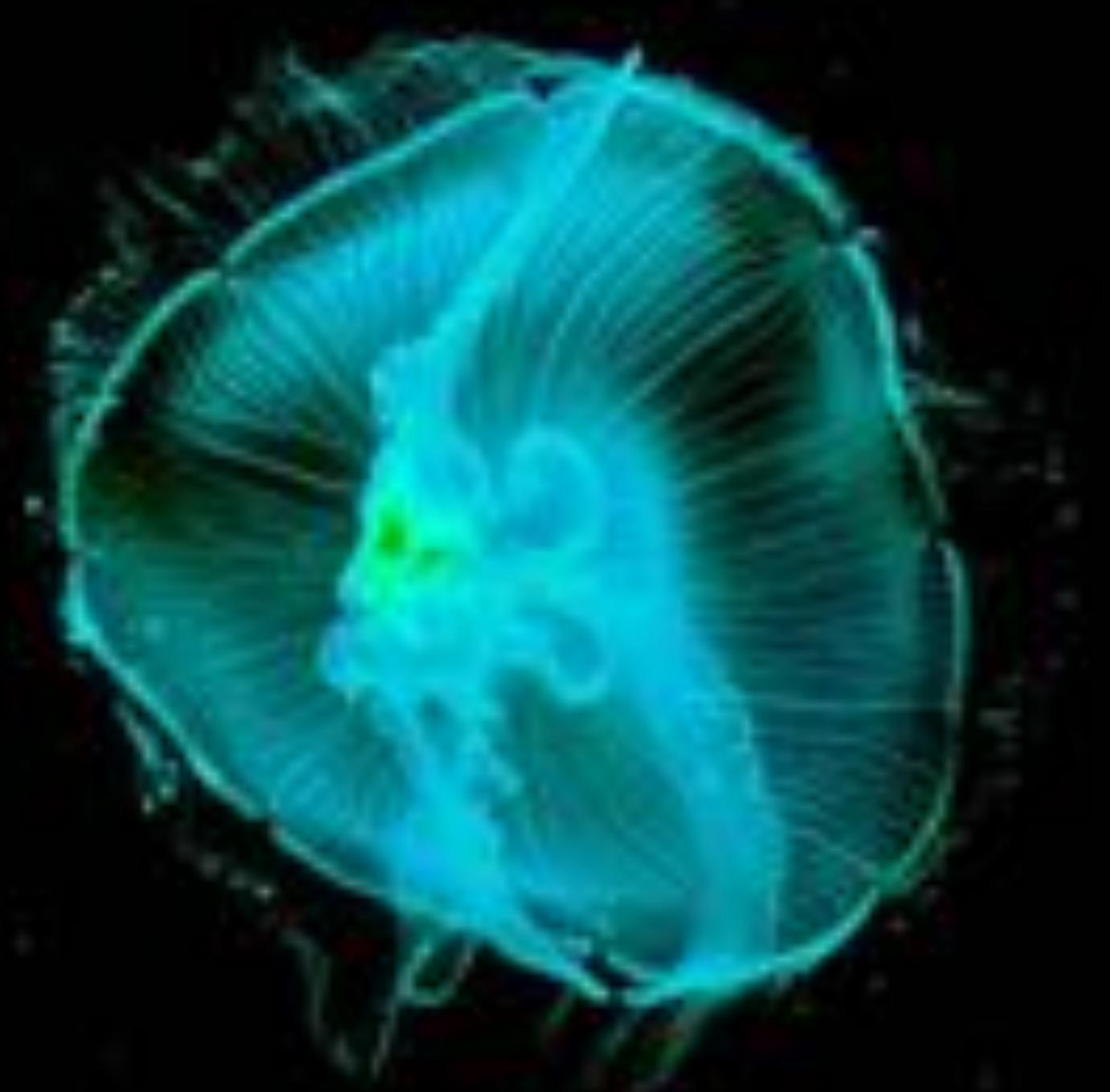
The Original OBIEE Sins

- No Code Versioning
- Limited Scripting
- Concurrent Online RPD Editing
- Manual Regression Testing
- Manual Deployment

A close-up photograph of a chameleon camouflaged among dense green foliage. The chameleon's body is elongated and curved, with a mottled pattern of dark green, blue, and orange. It is positioned horizontally across the center of the frame, blending with the surrounding leaves and twigs.

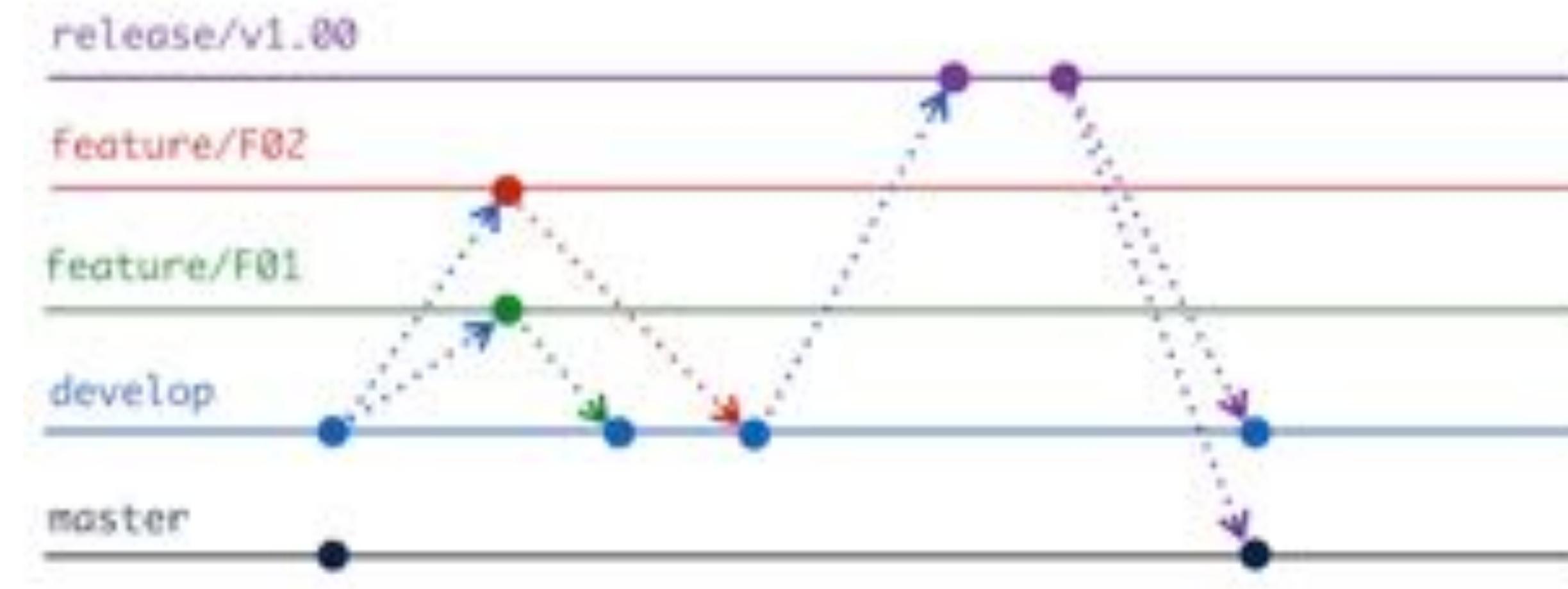
DevOps is a
Methodology

Start Simple - Code Versioning



- RPD
- Catalog
- Security
- Config Files
- Artifacts

Gitflow Method



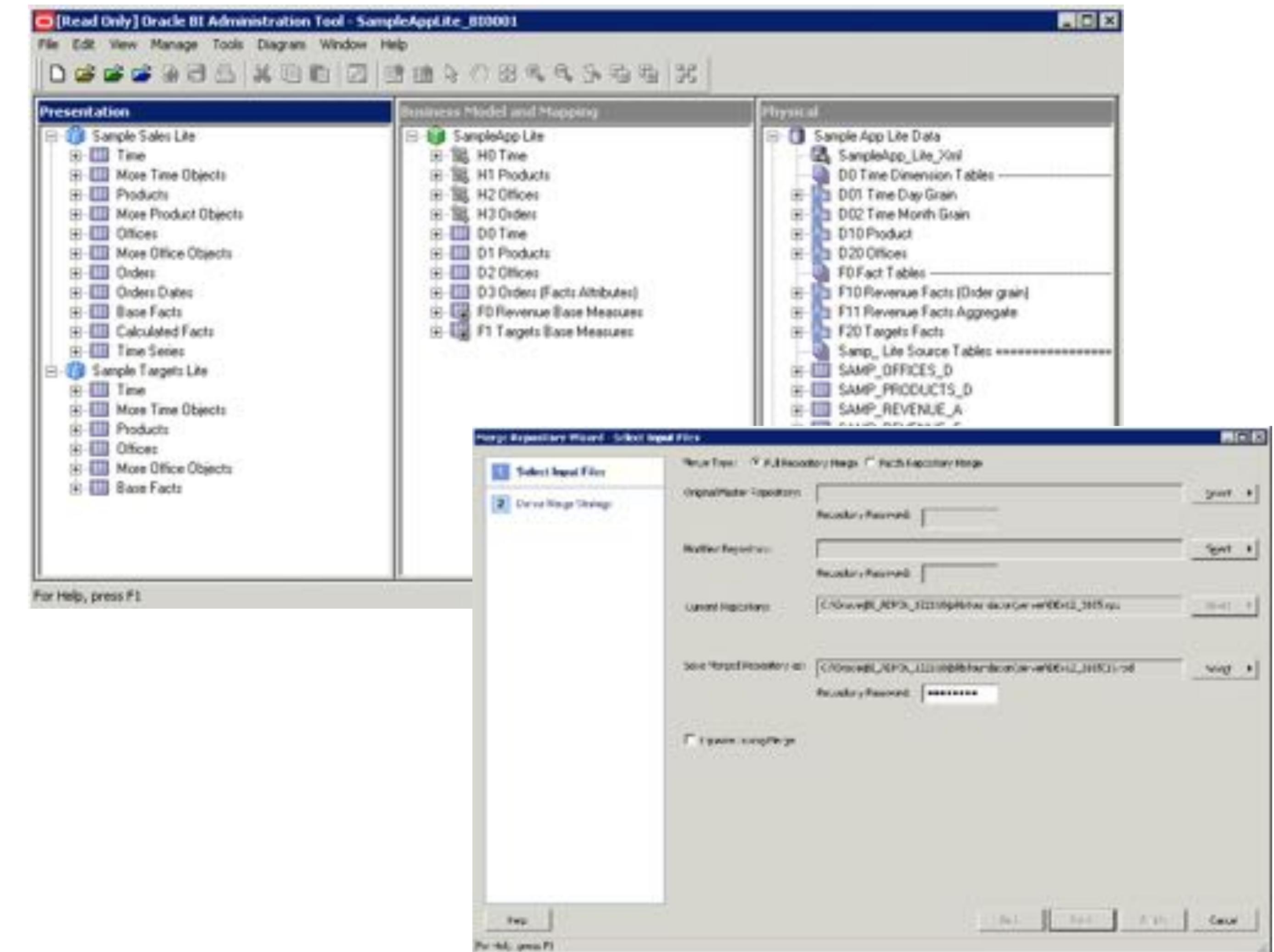
Master Branch → Production

Develop Branch → Development

Features → New Developments

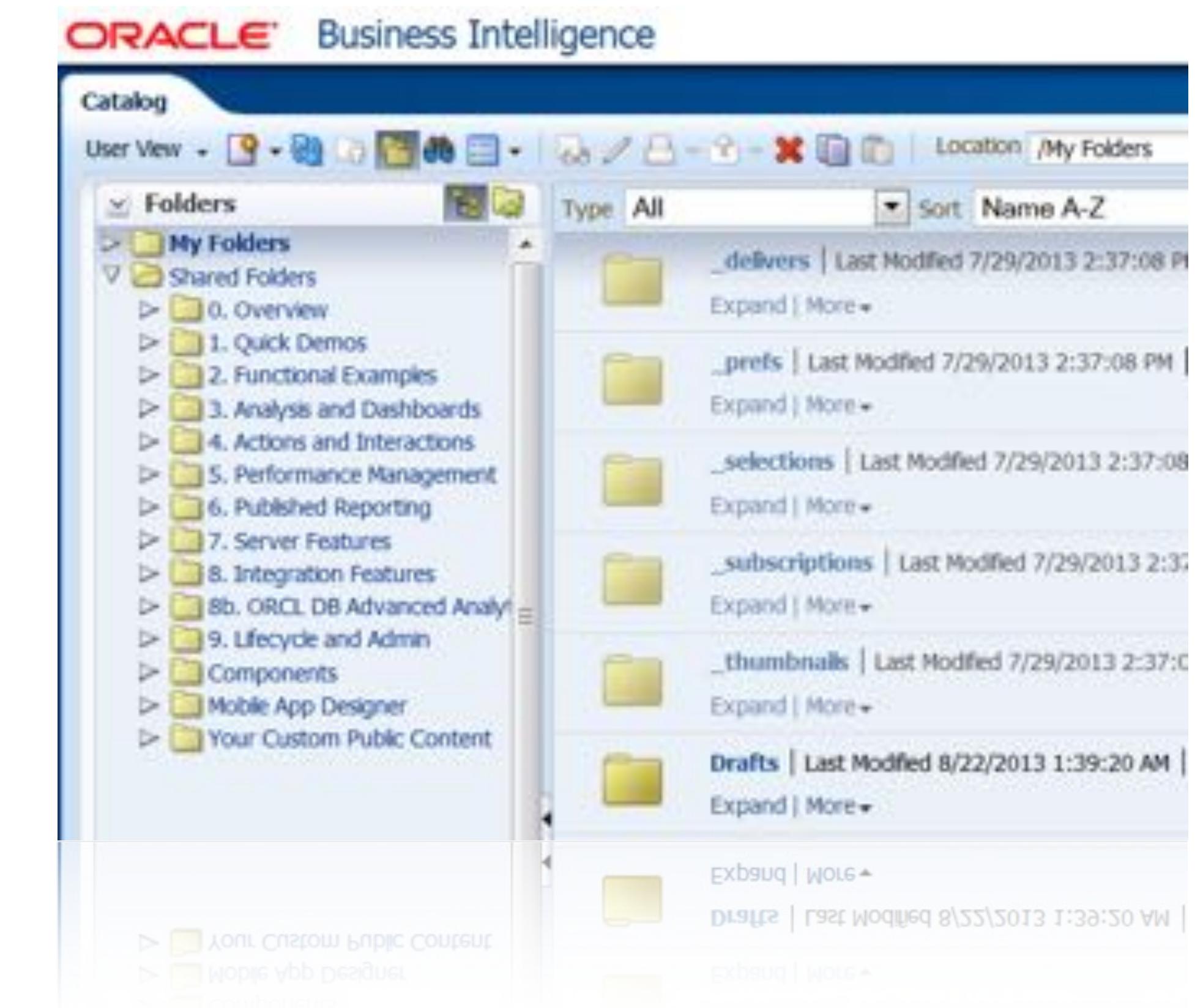
RPD

- RPD Binary
- MDS XML
- How to Merge?



Catalog

- Set of XML Files
- Stored as .catalog?
- What about .atr?
- How to deploy?



Security

- system-jazn-data in 11g
- bar file in 12c (contains system-jazn-data)
- WLST Scripting
(infrastructure as code)



The screenshot shows a Java configuration editor with an XML code snippet. The code defines three application roles:

```
<app-role>
    <name>[REDACTED]</name>
    <display-name>[REDACTED]</display-name>

    <class>oracle.security.jps.service.policystore.ApplicationRole</class>
    <members>
        <member>
            <class>oracle.security.principal.WLGroupImpl</class>
            <name>[REDACTED]</name>
        </member>
    </members>
</app-role>
<app-role>
    <name>CorpIMetricsConsumer</name>
    <display-name>CorpIMetricsConsumer</display-name>

    <class>oracle.security.jps.service.policystore.ApplicationRole</class>
    <members>
        <member>
            <class>oracle.security.principal.WLGroupImpl</class>
            <name>CorpIMetricsConsumer</name>
        </member>
    </members>
</app-role>
<app-role>
    <name>CorpIMetricAnalyst</name>
    <display-name>CorpIMetricAnalyst</display-name>

    <class>oracle.security.jps.service.policystore.ApplicationRole</class>
    <members>
```

Config Files

- Automatically promoted?
 - Distinct files per environment



Development Isolation

VMs

Local
Instances

Docker

Original Situation



Online RPD/Catalog
Editing

No History
No Change Control
No Automated
Regression Testing



Start Simple

- Offline RPD
- Dev Server for Catalog

No test of the RPD
Before Merging!

And Evolve...

- Fully Separated Dev Envs
- Content pushed/pulled from Git

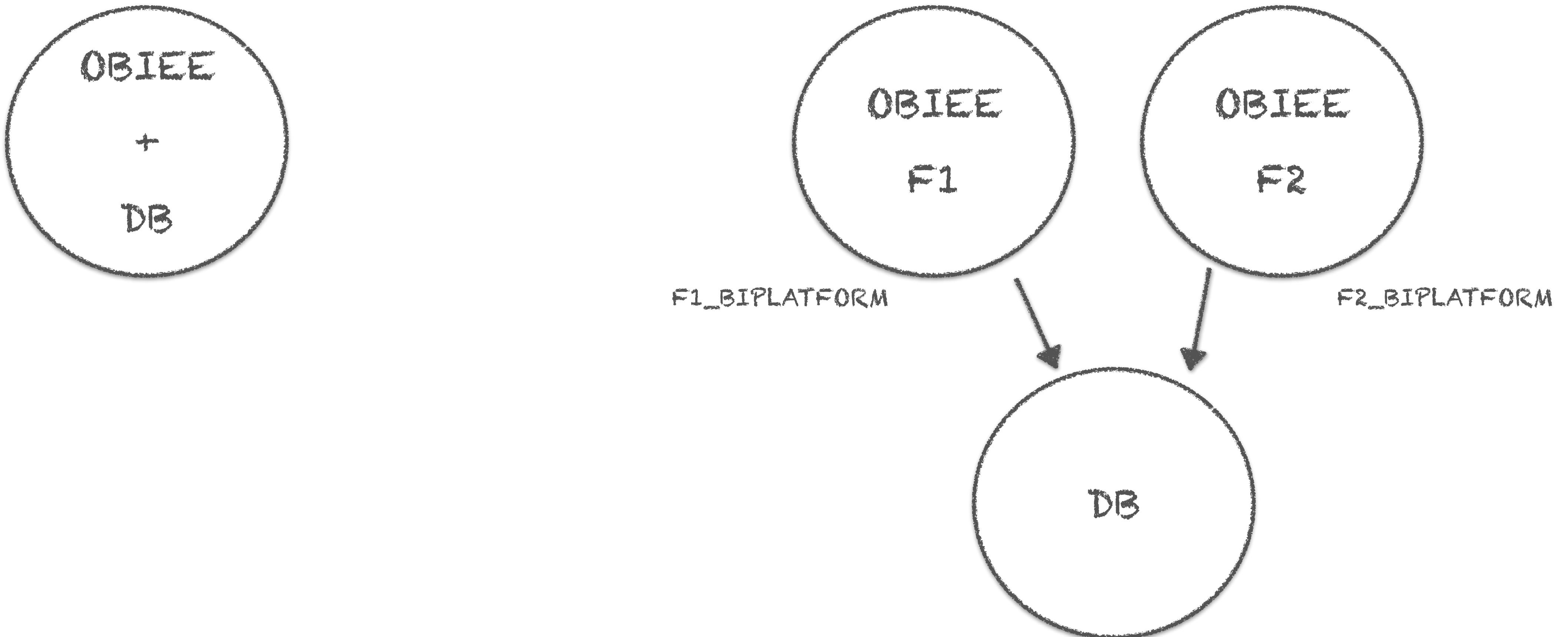


And Evolve...

- Automated Environment Creation
- Docker
 - <https://github.com/gianniceresa/docker-images>



Docker Options

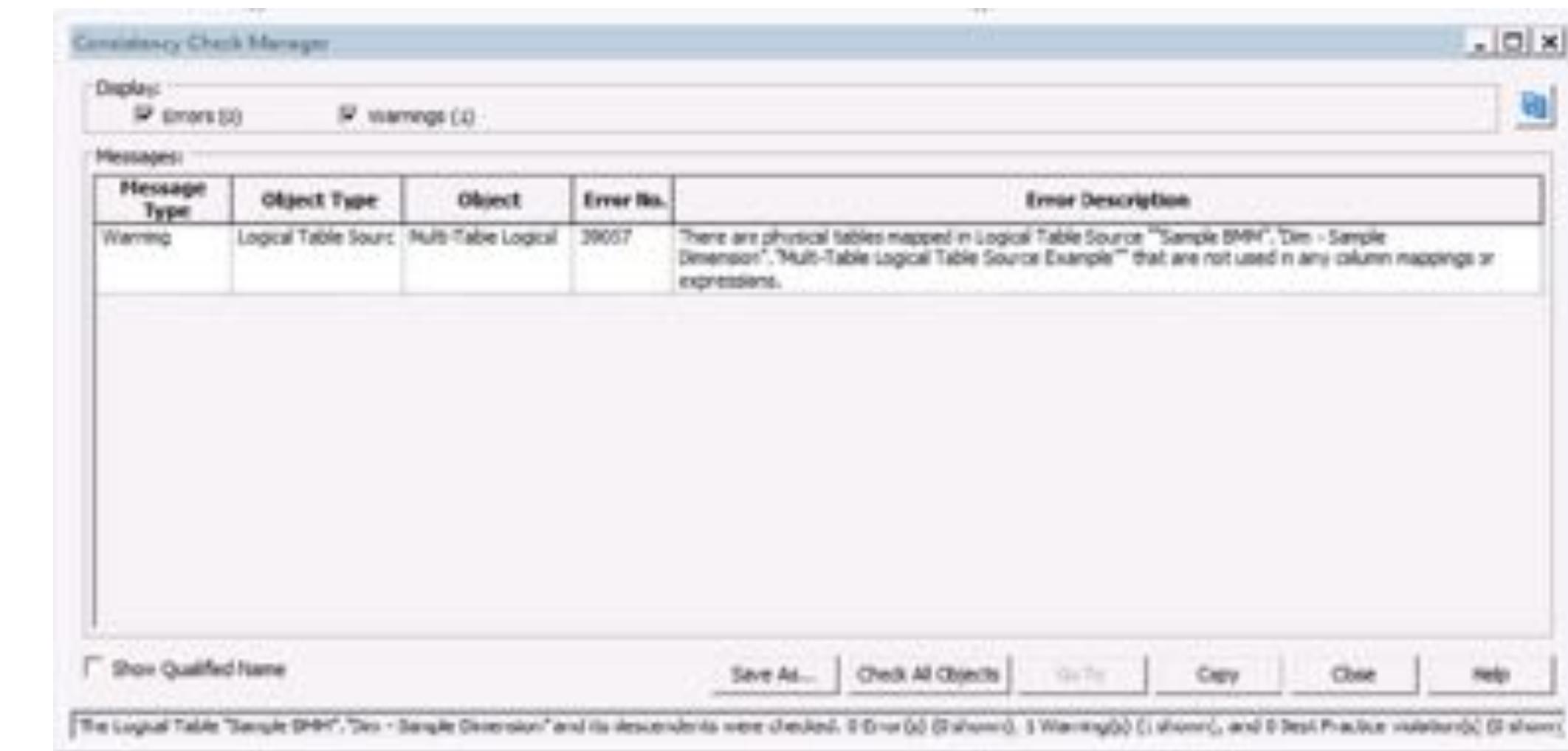


Testing



RPD

Consistency Check



Validates RPD Logic

Errors

Warnings

RPD

Command Line Consistency Check

validatorpd -R <repositoryName> -O/C/X <outputfile>

Text

```
[39051] Fact table "PE"      ."Fact Asset Reconciliations" is not joined to logical dimension table "PE"
[39054] Fact table "PE"      ."Fact Asset OLE only" is not joined to logical dimension table "P"
[39054] Fact table "PE"      ."Fact Asset OLE only" is not joined to logical dimension table "P"
[39051] Fact table "PE"      ."Fact Asset Validation" is not joined to logical dimension table "PE"
Assets"."Dim Date Modified". This will cause pr
",."Dim Asset Validation". This will cause probl
",."Dim Date Modified". This will cause problems
",."Dim Assets OLE only". This will cause prob
```

CSV

Warning	Logical Join	Relationship_2004:12828591409890148	The logical tables "PE" and "Sales" are connected by logical join "Relationship_2004:12818991409590149" have no corresponding physical connections.
Warning	Logical Join	Relationship_2004:14123251420634340	The logical tables "P" and "C" are connected by logical join "Relationship_2004:14123251420634340" have no corresponding physical connections.
Warning	Logical Join	Relationship_2004:2229751321968527	The logical tables "P" and "C" are connected by logical join "Relationship_2004:2229751321968527" have no corresponding physical connections.
Warning	Logical Join	Relationship_2004:4518251374581599	The logical join "Relationship_2004:4518251374581599" have no corresponding physical connections.
Warning	Logical Join	Relationship_2004:3135851340962547	The logical tables "C" and "Sales" are connected by logical join "Relationship_2004:3135851340962547" have no corresponding physical connections.

XML

```
<Message Type="Warning" Number="38100">
<OBJECT_TYPE>Logical Join</OBJECT_TYPE>
<Name>Relationship_2004:12020991409030140</Name>
<Text>The logical tables "PE" and "Sales" are connected by logical join "Relationship_2004:12020991409030140" have no corresponding physical connections.</Text>
</Message>
<Message Type="Warning" Number="30100">
<OBJECT_TYPE>Logical Join</OBJECT_TYPE>
<Name>Relationship_2004:14123251420634340</Name>
<Text>The logical tables "P" and "C" are connected by logical join "Relationship_2004:14123251420634340" have no corresponding physical connections.</Text>
</Message>
<Message Type="Warning" Number="38100">
<OBJECT_TYPE>Logical Join</OBJECT_TYPE>
<Name>Relationship_2004:2229751321968527</Name>
<Text>The logical tables "P" and "C" are connected by logical join "Relationship_2004:2229751321968527" have no corresponding physical connections.</Text>
</Message>
<Message Type="Warning" Number="38100">
<OBJECT_TYPE>Logical Join</OBJECT_TYPE>
<Name>Relationship_2004:4518251374581599</Name>
<Text>The logical join "Relationship_2004:4518251374581599" have no corresponding physical connections.
...</Text>
</Message>
<Message Type="Warning" Number="38100">
<OBJECT_TYPE>Logical Join</OBJECT_TYPE>
<Name>Relationship_2004:3135851340962547</Name>
<Text>The logical tables "C" and "Sales" are connected by logical join "Relationship_2004:3135851340962547" have no corresponding physical connections.
...</Text>
</Message>
```

RPD

Understanding Differences

`comparerpd -C <modifiedRPD> -G <originalRPD> -O/F <outputfile>`

A	B	C	D	E	F	G
..,"Dim Access Channel","Hostname"	Modified	Presentation Column	Presentation	Name	Aliases	Translation Key
..,"Dim Time","Hour"	Modified	Presentation Column	Presentation	Name	Aliases	Translation Key
..,"Time","Hour"	Modified	Presentation Column	Presentation	Name	Aliases	Translation Key
..,"Channel","Hostname"	Modified	Logical Column	Business Model and Mapping	Name		
..,"Dim Time","Dim Time - Sample"	Modified	Logical Table Source	Business Model and Mapping	Column mapping		
..,"Dim Time","Hour"	Modified	Logical Column	Business Model and Mapping	Name		

Validating Differences

Catalog

Consistency Check

```
runcat.cmd -cmd validate -items Report -links Report -offline <path_to_catalog>
```

Valid XMLs

No Broken Links

Regression Testing

Before

After

Testing Suite



- Static
- Comprehensive
- Security Sensitive

Separate Catalog Folder

BVT

Baseline Validation Tool

- Automated Testing
- Set of Prebuilt Test

- Logic SQL (Discontinued)
- Catalog
- Reports
- Dashboards
- UI
- BI Publisher
- Visual Analyser

BVT

Baseline Validation Tool

Deployment

- ▶ Deployment Name
- ▶ Connections (analytics/bip/va)
- ▶ User

Test

- ▶ Set of Tests to run
- ▶ Catalog Folder

Results

- ▶ Results Folder

textconfig.xml

BVT

Baseline Validation Tool

- Thresholds

- ▶ UI Comparison



BVT

Baseline Validation Tool

- Baseline

```
bin\obibvt.bat -config testconfig.xml -deployment PRE
```

- Changes

```
bin\obibvt.bat -config testconfig.xml -deployment AFTER
```

- Compare Results

```
bin\obibvt.bat -compareresults Results\PRE Results\AFTER -config testconfig.xml
```



Code Promotion

Promoting

- Push
 - ▶ RPD
 - ▶ Catalog
 - ▶ Security
 - ▶ Configuration
 - ▶ Custom Files/Images



Do you
Remember the
Password?

RPD

- Upload RPD

```
datamodel.cmd uploadrpd -I <file> -D -U <user> -SI ssi -S <server> -N <port>
```

- Patch RPD - Change Connection Pools

```
admintool /command <filename>
```

```
datamodel.sh updateConnectionpool -SI sis -U <user> -P <password> -C <filejson>
```

```
patchrpd ... -C <curr_rpd> -G <origin_rpd> -I <patch_file> -O <dest_rpd>
```

Catalog

- File System Copy

/shared

/system

- Webservices

WebCatalogService.pasteItem2(<.catalog_file>, ...)

Security

- WLST scripts

wlst.sh <wlst_script.py>

- system-jazn

Config

- File System Copy

Custom Files

AnalyticsRes - File System Copy



Sticking Everything Together

Automation Tools



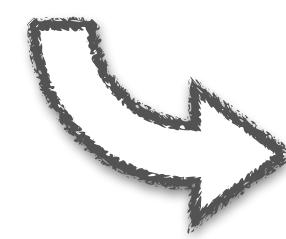
Jenkins



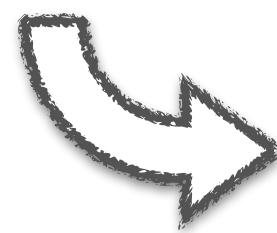
GitLab

Automation Tools

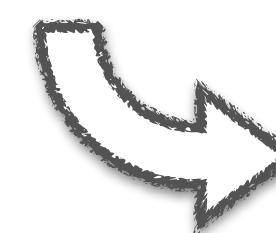
New Feature/New Ticket in Jira



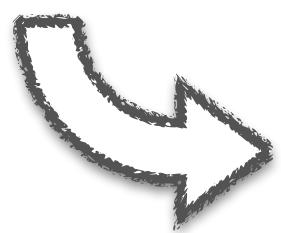
New Git Branch



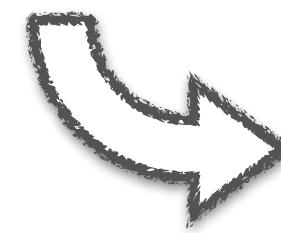
Jenkins Flow



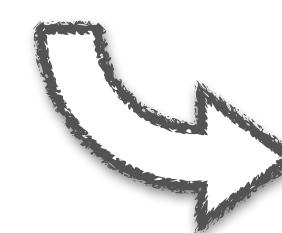
Docker OBIEE Image



RPD+Catalog Deployment



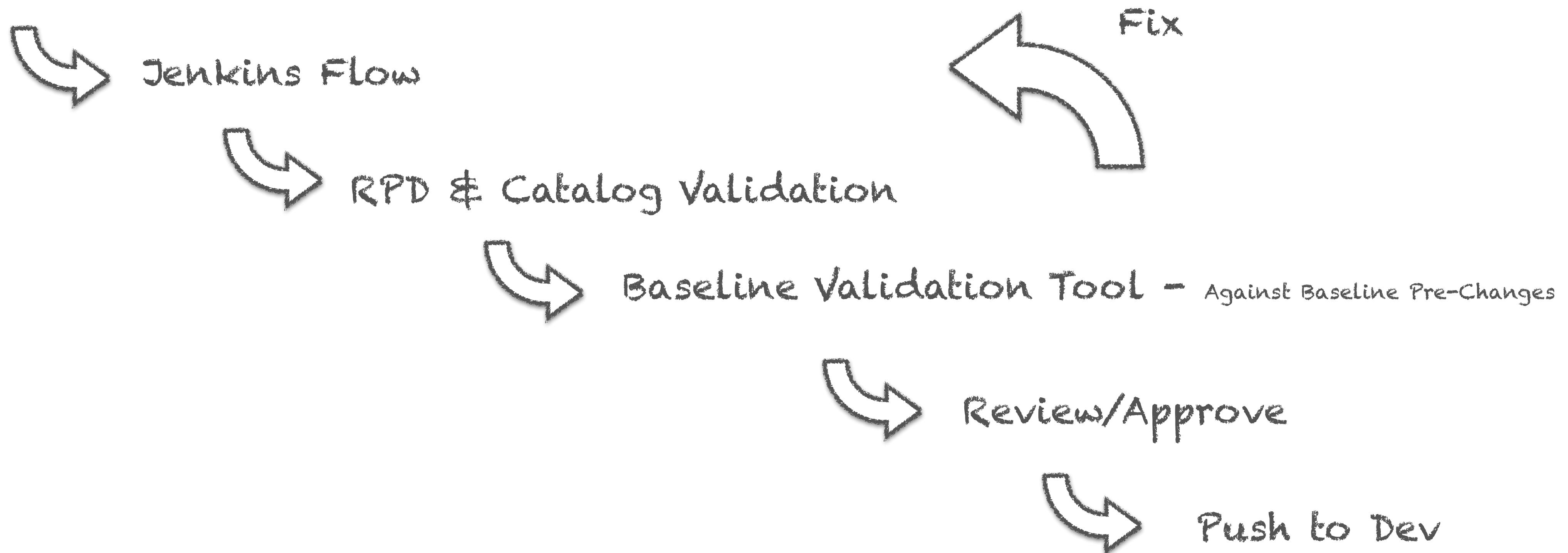
Baseline Creation



Development

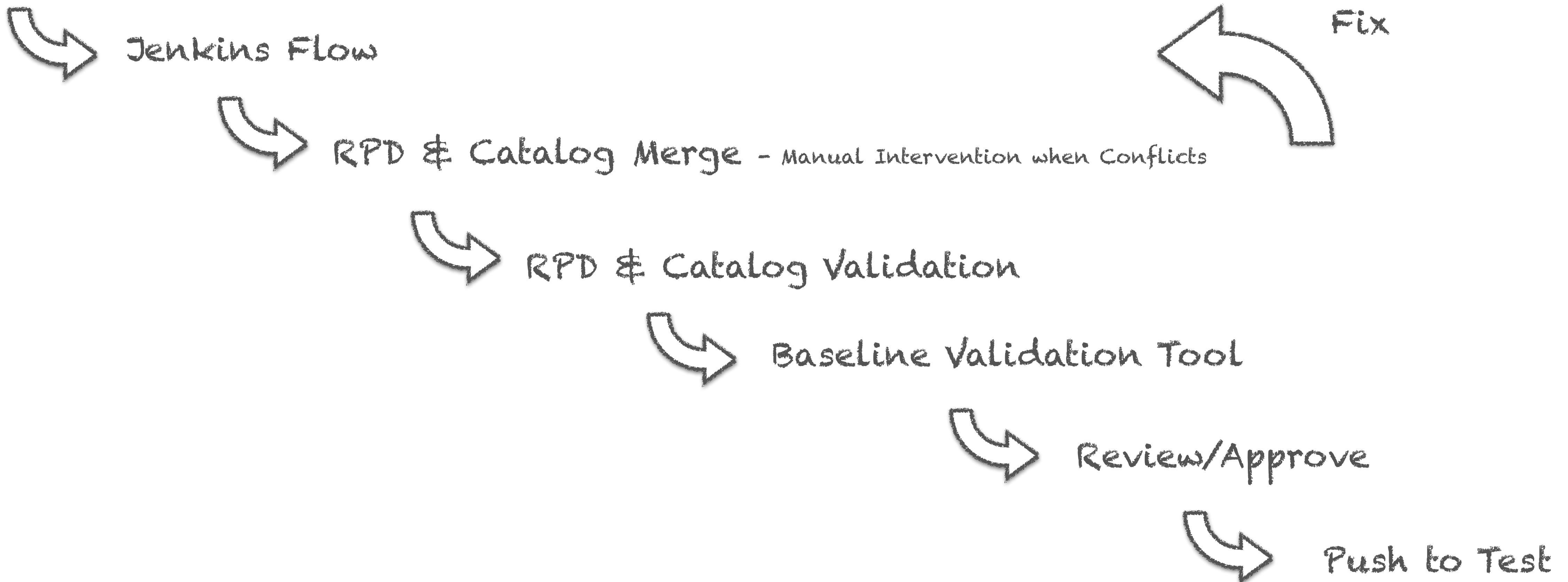
Automation Tools

Finish Feature (Commit to work Branch)



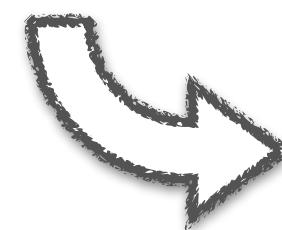
Automation Tools

Commit to Dev

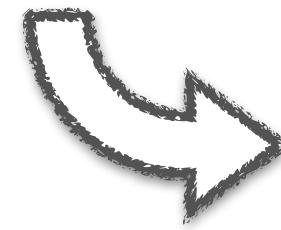


Automation Tools

Commit to Master



Jenkins Flow



Automatic Push to UAT/Production

Rittman Mead BI Developer Toolkit

- Acceleration Framework
- Set of pre-packaged functions
 - ▶ Git versioning
 - ▶ Testing Suite
- Written in Python - Easy to Integrate
 - ▶ OBIEE Webservices, command line, file system
- Git/SVN Versioning
 - ▶ Binary RPD
 - ▶ .catalog files

Rittman Mead BI Developer Toolkit

• Creation of Testing Suite – Parameter Modification

```
python modify_reports.py /shared/Test /shared/Test_Suite/2014_2015 "Date Period" Year 2014 2015
```



• Regression Testing

- ▶ Comparison of LSQL and Results
- ▶ Parameter Modification
- ▶ Push Results to Database
- ▶ Prebuilt RPD/catalog



Developer Toolkits available for

- ▶ BI
- ▶ ODI
- ▶ Informatica
- ▶ Essbase

← **Apply
DevOps
to the
Whole BI
Cycle!**



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