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Siebel CRM Workspaces

Best Practices for Developers

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Safe harbor statement

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Outline

- Overview of Workspaces
- Design and Runtime Repositories
- How Does It All Work?
- Best Practices
- Advanced Scenario (Example)

Workspaces Overview

GOALS

- Gain a basic understanding of workspaces
- Learn a lot of terminology

Workspaces Overview

What does a Workspace Do?

- Provides a sandbox in which to develop and test a feature without affecting other users
- Allows for parallel development—many developers can work on an object at once
- Provides a versioning mechanism to track changes
- Handles merging of changes when multiple developers modify an object
- Supplies a flexible, hierarchical framework for building features and releases
- Through related features, such as the Migration Application, provides a mechanism to incrementally update downstream environments

Workspaces Overview

Types of Workspaces

- Developer Workspaces
  - Owned by a single developer
  - Allows developer to build and unit test repository changes
  - Workspace can be “Inspected” by any user to validate
    - Peers
    - Team Lead
    - QA
- Integration Workspaces
  - Parent for one or many Developer Workspaces
  - Multiple layers of integration workspaces are possible (e.g., multiple Features under one Release)
  - Allow for integration testing of multiple developer changes in a sandboxed environment
    - New Feature
    - Release
- MAIN
  - Special case of Integration Branch at root of hierarchy
  - Typically mirrors the current Production configuration

Workspaces Overview

Workspace Inheritance

- Workspaces inherit the object definitions from their ancestor workspaces
  - MAIN—the root—has all object definitions
  - Integration branches have only the changed records (as delivered from developer workspaces)*
  - Developer workspaces have only the records changed in that specific workspace
- When a workspace is delivered to its parent…
  - Original record is maintained as well
  - New record will be created with an increment to the version number

** There are exceptions for workspace-enabled seed data; these will be discussed separately*

Workspaces Overview

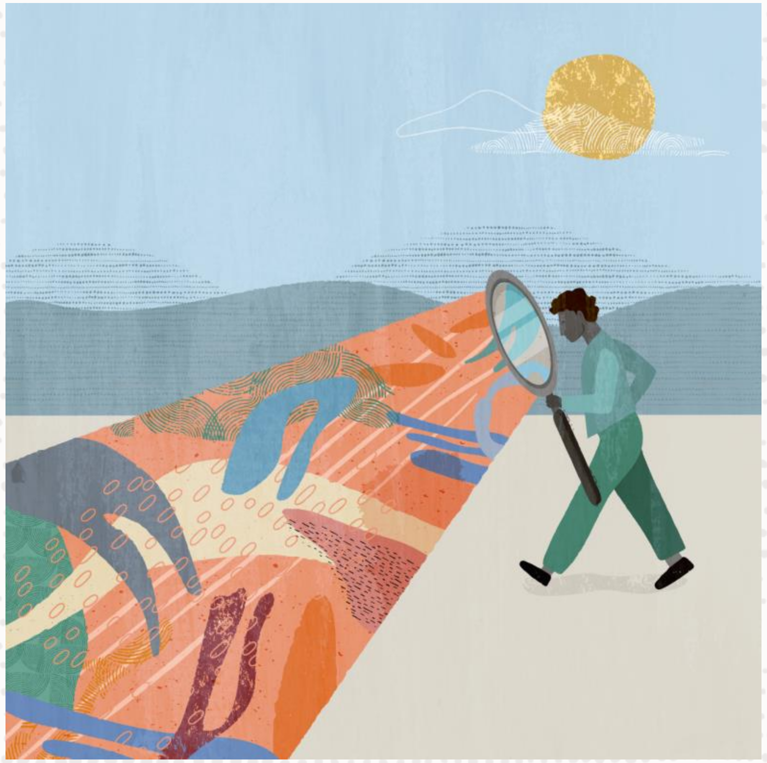
Inspection of Workspaces

- Allows review of configuration changes before delivery
  - Launch client object manager (e.g., Call Center)
  - Open Workspace Dashboard in the client
  - Select the workspace containing the changed objects
  - Navigate to wherever the changes are and test them
- In the background…
  - Application is reading the definition from inspected workspace “on the fly”
  - Merges together content from MAIN with changes in all child, grandchild, etc. workspaces through the one being inspected
  - This hierarchical merging is what allows us to keep only the delta changes in workspaces

Workspaces Overview

Summary

- Workspaces are a way to sandbox configuration changes and allow for parallel development
- There are different types of workspaces, including MAIN, Integration, and Developer
- Workspaces are hierarchical (MAIN→Integration[→Integration]→Developer
- Each workspace contains only the incremental changes from its parent workspace
- Every object has a logical identifier (*WS_SRC_ID*) that links it to all other instances of itself across all versions and workspaces
  - Applies to all objects in the hierarchy—e.g., *S_BUSCOMP*, *S_FIELD*, *S_MVLINK*, etc.
  - For example, change to a Field-level validation rule does not actually effect the BusComp itself
- Every instance of an object can be uniquely identified by *WS_SRC_ID*, *WS_ID*, and *WS_OBJ_VER*
- At runtime, a given workspace can be inspected for test purposes.
- During inspection, The runtime environment will show the net of any changes made to objects from the inspected environment up through MAIN



The Design & Runtime Repositories

GOALS

- Understand the Design Repository
- Understand is the Runtime Repository
- Comprehend the difference

Repository Types
Basic Definitions

- Design Repository (DR)
  - Traditional metadata for configuration Siebel CRM applications
  - Edited through Siebel Tools / Web Tools
  - Contains various object types—Applets, BusComps, Tables, etc.—including child object types
  - Human readable format
- Runtime Repository (RR)
  - Compiled version of each top-level object type
    - E.g., RR definition of an applet contains header (applet) information plus child (web template, control, list column, etc.) in one record
  - One record per language per top-level object that has a UI component
    - E.g., in an ENU/FRA/JPN environment, there will be three compiled definitions for the *Account List Applet*
  - Stored in the actual database in tables *S_RR_xxxxxx* (e.g., *S_RR_APPLET*, *S_RR_BUSCOMP*)
  - Replaces the legacy “SRF” file

Runtime Repository (RR)

Why a Runtime Repository?

- Runtime Repository allows us to test in parallel (SRF did not)
  - Many definitions of an object may exist in various workspaces
  - Inspect / Open allows selection of which definition to use
- Why compile an RR object?
  - Performance dictates we have a compiled object
  - Example: Applet object relies on ~30 tables; RR definition has one record / object / language
- Allows for Versioning (SRF did not)
  - Each RR object is tagged with a version (*VERSION_NUM*)
  - At runtime, the version context for the OM selects the correct version from the versions available in that workspace
- Object managers always use RR definitions
  - Exception: During *Inspect*, DR definitions compiled on the fly from selected workspace

Runtime Repository (RR)

Miscellaneous Information

- Delivery into an Integration Branch or MAIN generates a Runtime Repository record
  - As noted, “Inspect” on a workspace allows reading from the DR tables without delivery
- Only Runtime Repository records are migrated downstream (QA/Test/Prod)
  - Minimizes migration time
  - Ensures that what is in QA/Test/Prod is what is in Development (unlike SRF)
- Non-development (QA/Test/Prod) are <u>RR-only</u>
  - Contrast: DR environments actually contain DR + RR
- RR environments do not have a workspace hierarchy
  - Only workspace is MAIN
  - Multiple versions of MAIN may exist

Runtime Repository
Versioning

- Each *S_RR_** record has a *VERSION_NUM*
- Object Manager selects correct record at runtime
  - Object Manager defaults to latest version of MAIN
  - Can be overridden using Repository Rollback
- Example
  - Full Migration creates *Account* BusComp in *S_RR_BUSCOMP*
    - *VERSION_NUM*: 0
  - Later migration (say five migrations later) updates the *Account* BusComp
    - *VERSION_NUM*: 5
    - Both records have the same *WS_SRC_ID*
  - Object Manager will normally select the latest version (5)
  - Repository Rollback to Version 4 would pick up the version 0 record
    - Most recent version that is four or less

How Does All This Work?

GOALS

- Learn Underlying Data Model
- Experience behind-the-scenes of Object Life Cycle

Workspaces Overview

Critical Workspace-related Columns

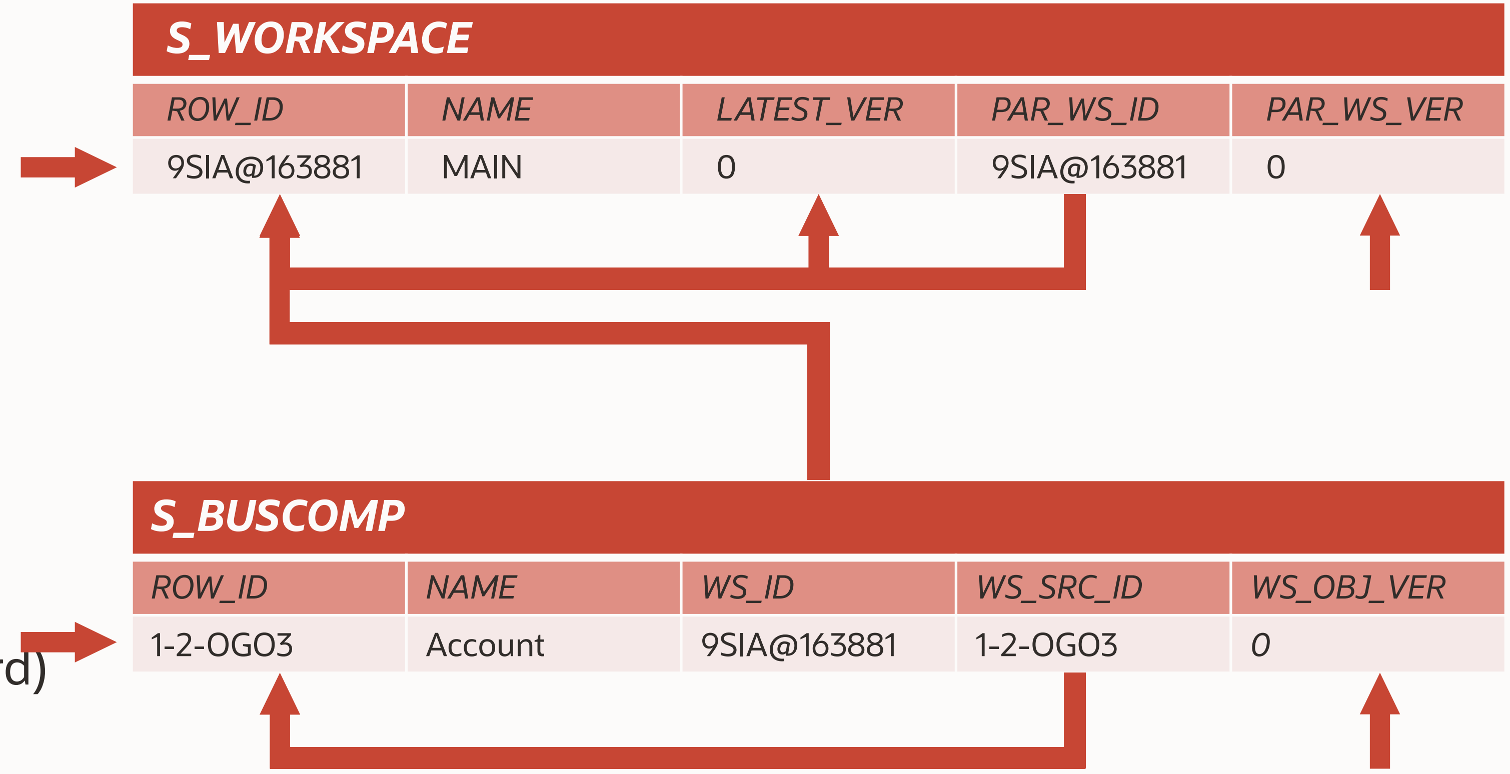
Column	Purpose
WS_ID	The *ROW_ID* of a particular workspace as defined in the table *S_WORKSPACE.* *S_WORKSPACE* is hierarchical, and therefore has: • *PAR_WS_ID*—a FK to itself identifying the parent workspace • *PAR_WS_VER*—the version number of the parent when the workspace was created
WS_SRC_ID	A **logical identifier** for a particular object across all workspaces and versions. Example: The *Account* BusComp will have the <u>same</u> *WS_SRC_ID* in every workspace across every instance
WS_OBJ_VER	Represents the version of an object within a given workspace. Incremented every time that object is modified <u>within that workspace</u>

Workspaces Overview

Workspace Life Cycle—Example

Initial State

- *S_WORKSPACE*
  - Single record (MAIN)
  - *PAR_WS_ID* = *ROW_ID* (root node)
  - *LATEST_VER*
  - *PAR_WS_VER*
- *S_BUSCOMP*
  - Single record (*Account* BusComp)
  - *WS_ID* (object is in MAIN)
  - *WS_SRC_ID* = *ROW_ID* (original record)
  - *WS_OBJ_VER* (zeroth in workspace)



S_WORKSPACE

ROW_ID	NAME	LATEST_VER	PAR_WS_ID	PAR_WS_VER
9SIA@163881	MAIN	0	9SIA@163881	0

S_BUSCOMP

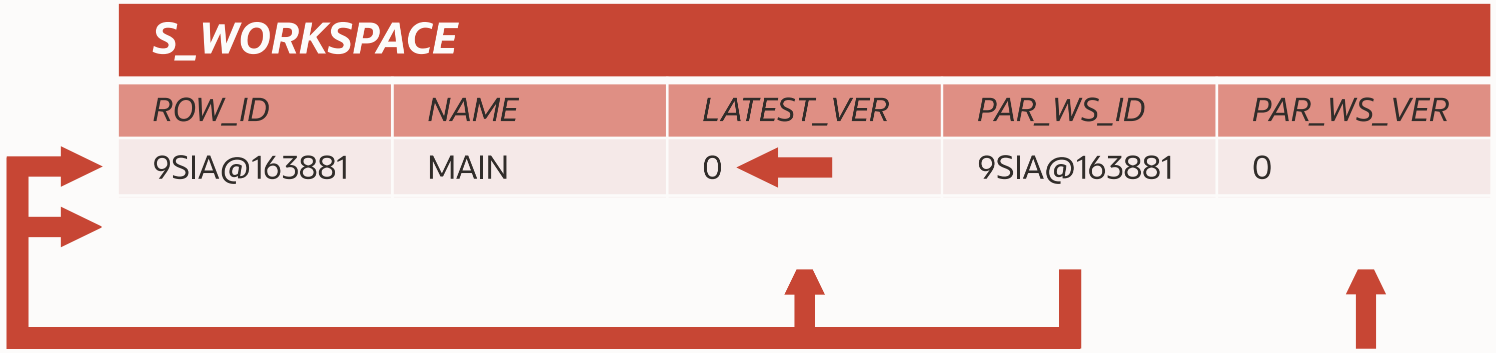
ROW_ID	NAME	WS_ID	WS_SRC_ID	WS_OBJ_VER
1-2-OGO3	Account	9SIA@163881	1-2-OGO3	0

Workspaces Overview

Workspace Life Cycle—Example

Create Developer Workspace

- *S_WORKSPACE*
  - New record for new Workspace
  - *PAR_WS_ID* = *ROW_ID* of MAIN
  - *LATEST_VER*
  - *PAR_WS_VER*
- *S_BUSCOMP*
  - No changes



S_WORKSPACE

ROW_ID	*NAME*	*LATEST_VER*	*PAR_WS_ID*	*PAR_WS_VER*
9SIA@163881	MAIN	0	9SIA@163881	0

S_BUSCOMP

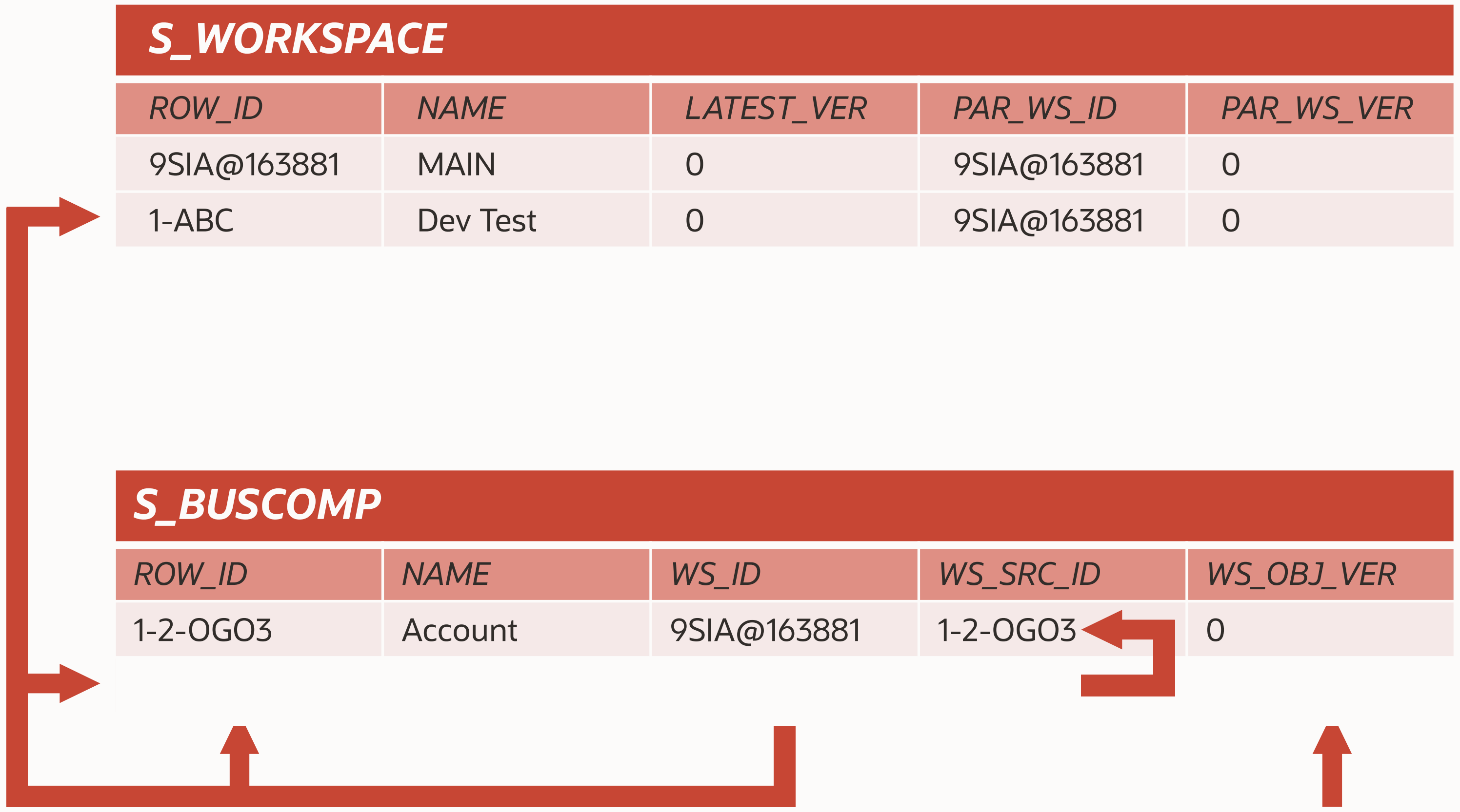
ROW_ID	*NAME*	*WS_ID*	*WS_SRC_ID*	*WS_OBJ_VER*
1-2-OGO3	Account	9SIA@163881	1-2-OGO3	*0*

Workspaces Overview

Workspace Cycle—Example

Change *Account* BusComp

- *S_WORKSPACE*
  - No Changes
- *S_BUSCOMP*
  - New record with new *ROW_ID*
  - *Workspace Id* refers to the Developer's Workspace
  - *Workspace Source Id* points to base *Account* BusComp record—indicates same logical object
  - *Workspace Object Version*—each change in a Workspace, starting with 100,001 (for first level workspaces—200,000 for second level, etc.)



S_WORKSPACE

ROW_ID	*NAME*	*LATEST_VER*	*PAR_WS_ID*	*PAR_WS_VER*
9SIA@163881	MAIN	0	9SIA@163881	0
1-ABC	Dev Test	0	9SIA@163881	0

S_BUSCOMP

ROW_ID	*NAME*	*WS_ID*	*WS_SRC_ID*	*WS_OBJ_VER*
1-2-OGO3	Account	9SIA@163881	1-2-OGO3	0

Workspaces Overview

Workspace Life Cycle—Example

Checkpoint Workspace

- *S_WORKSPACE*
  - Updates Workspace's Latest Version
- *S_BUSCOMP*
  - No changes

S_WORKSPACE

ROW_ID	NAME	LATEST_VER	PAR_WS_ID	PAR_WS_VER
9SIA@163881	MAIN	0	9SIA@163881	0
1-ABC	Dev Test	1	9SIA@163881	0

S_BUSCOMP

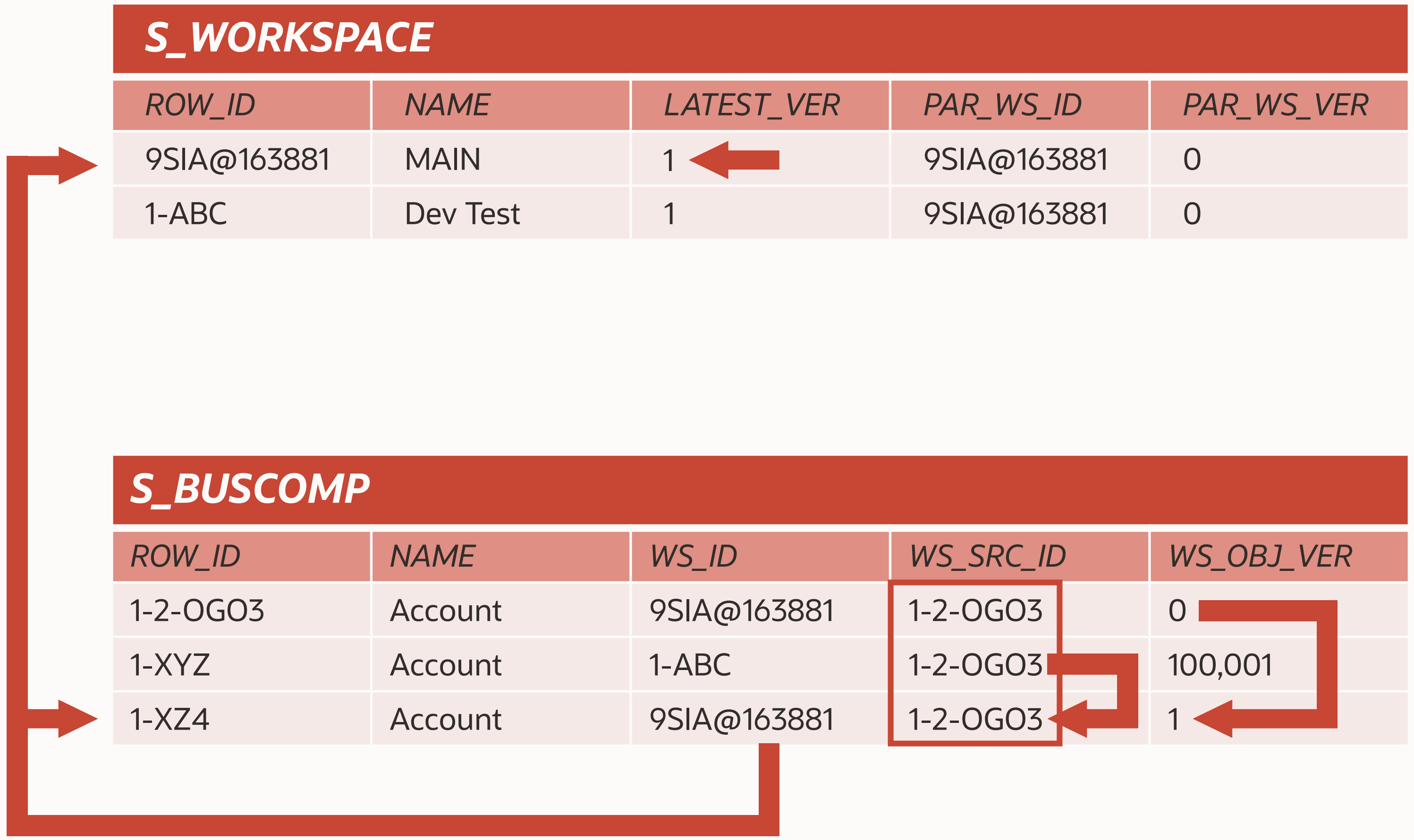
ROW_ID	NAME	WS_ID	WS_SRC_ID	WS_OBJ_VER
1-2-OGO3	Account	9SIA@163881	1-2-OGO3	0
1-XYZ	Account	1-ABC	1-2-OGO3	100,001

Workspaces Overview

Workspace Life Cycle—Example

Deliver Workspace

- *S_WORKSPACE*
  - MAIN updated with new Version
- *S_BUSCOMP*
  - New record with new *ROW_ID*
  - *Workspace Id* set to MAIN
  - *Workspace Source Id* copied from Workspace
    - Note that all match!
  - *Workspace Object Version* is one higher than previous version in same Workspace



S_WORKSPACE

ROW_ID	*NAME*	*LATEST_VER*	*PAR_WS_ID*	*PAR_WS_VER*
9SIA@163881	MAIN	1	9SIA@163881	0
1-ABC	Dev Test	1	9SIA@163881	0

S_BUSCOMP

ROW_ID	*NAME*	*WS_ID*	*WS_SRC_ID*	*WS_OBJ_VER*
1-2-OGO3	Account	9SIA@163881	1-2-OGO3	0
1-XYZ	Account	1-ABC	1-2-OGO3	100,001
1-XZ4	Account	9SIA@163881	1-2-OGO3	1

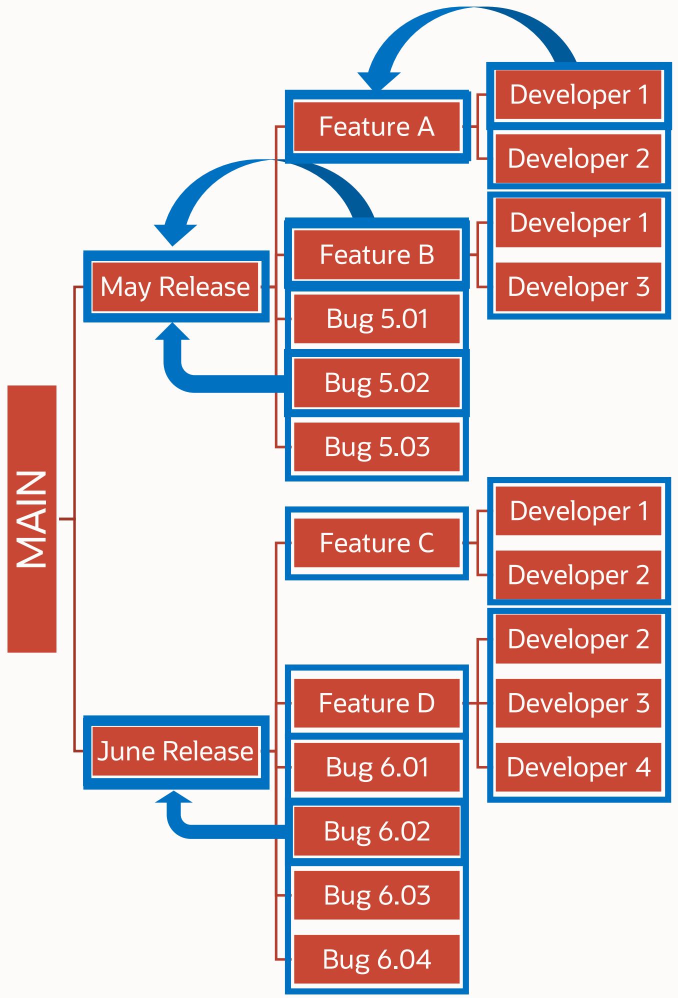
Best Practices

GOALS

- Understand (basic) recommended workspace structure

Workspaces Overview

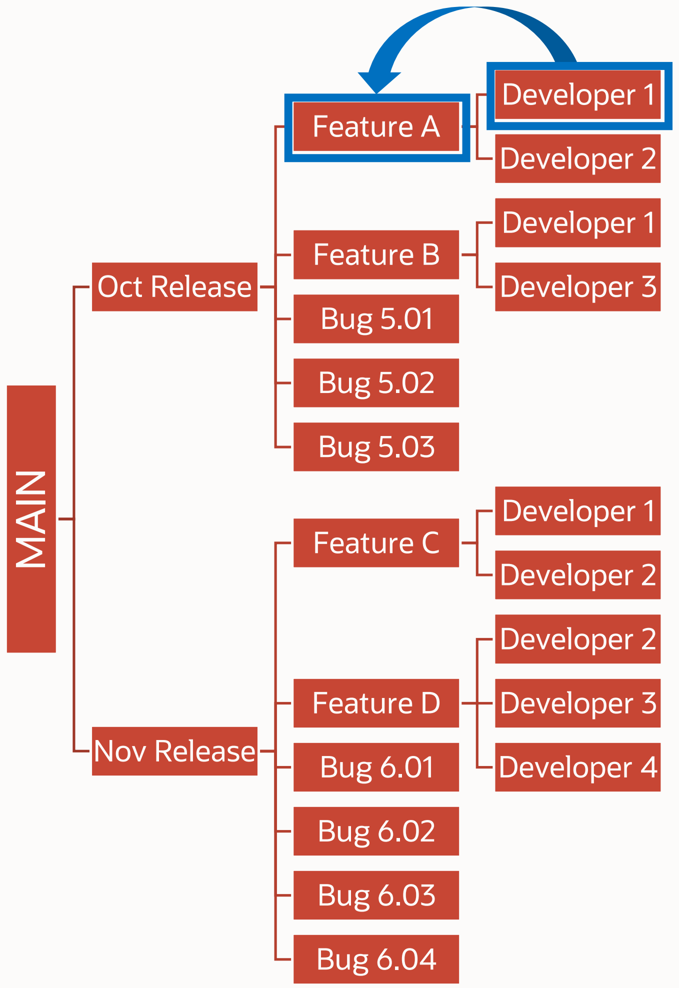
Basic Structure (Example Only)



- Two releases in parallel (May and June)
- Each release has its own features
- Each release also has bug fixes planned (and each has its own workspace)
- Each feature has developers working on it with each developer having his or her part in a unique Developer Workspace
- As developers finish their work on a bug or partial feature, they deliver to the parent branch for integration testing
- When entire feature is ready, deliver to release level

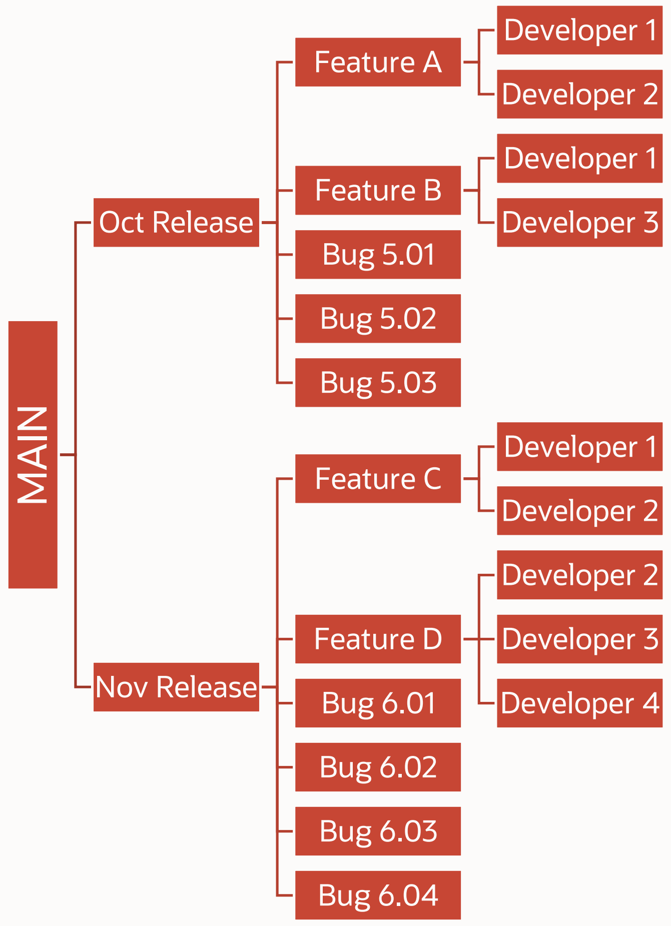
Workspace Best Practices

Change in Approach



- Development environment not just for developers
- QA Team embedded with Development Team
  - Pre-validates changes in Dev Workspace
  - Delivery allowed only after pre-validation
- Product Owner validates features in Development
- Allows for…
  - …early detection of defects
  - …better quality features (identify design gaps, allow for agile changes)
- Downstream environments more stable
- Downstream Test Environments?
  - User Acceptance Testing
  - Integration Testing
  - Pre-Production

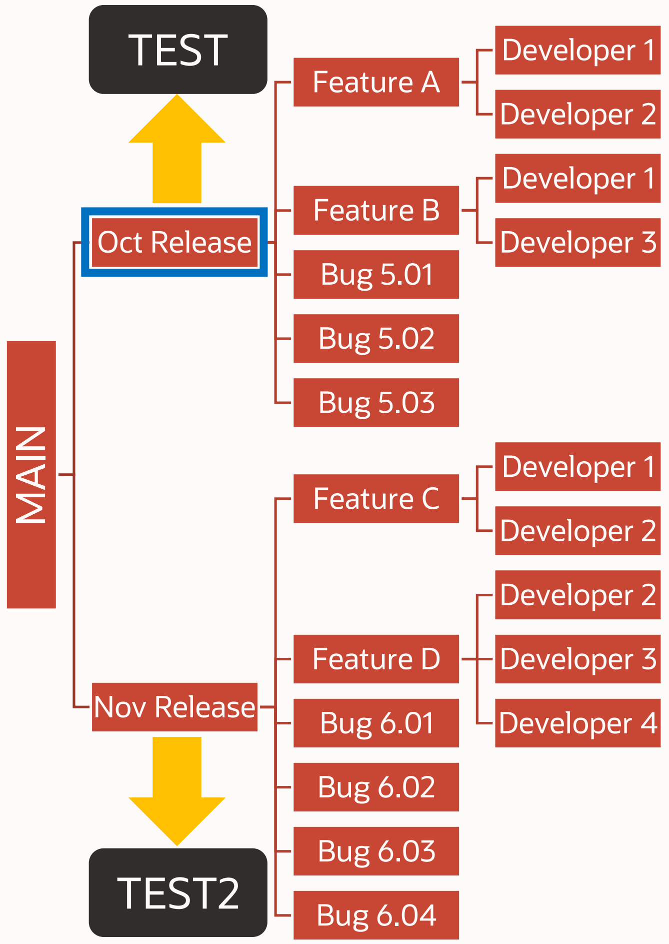
Workspace Best Practices
Mapping Downstream Environments



- Various Test and Production (RR) environments
  - Populated by Integration Branches in DR
  - RR → RR not possible (e.g., no “Test → Prod”)
- Generally…
  - Integration Branches → Test
  - MAIN → Production
  - (Optionally) MAIN child for Pre-Production

Workspace Best Practices

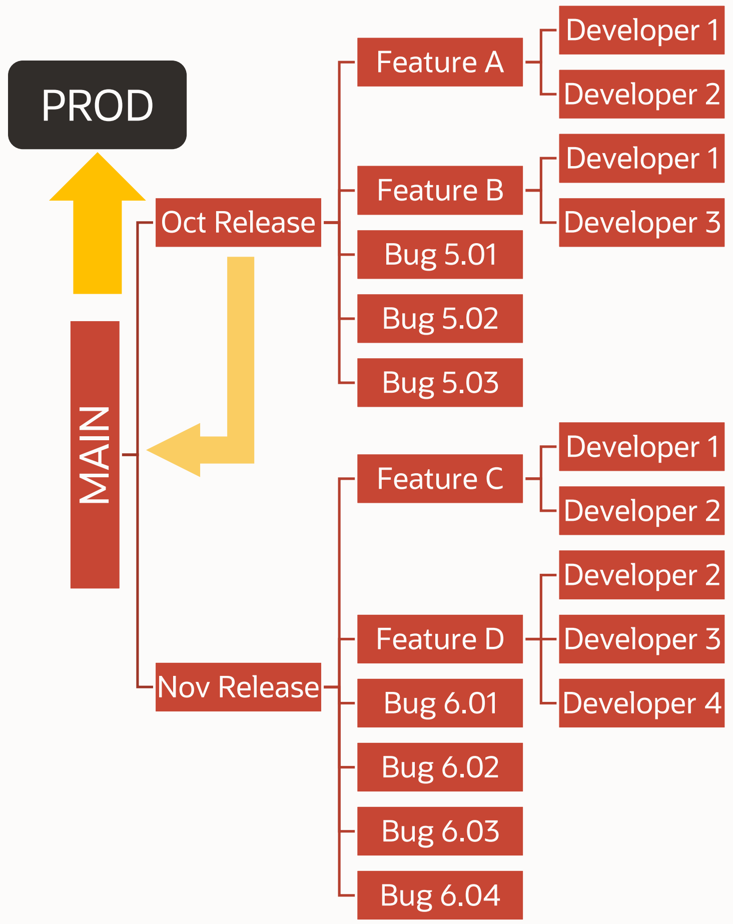
Mapping Downstream Environments



- Test environment reflects next release
  - Populate as soon as previous release GA
  - Repeatedly populate as changes delivered
- Multiple environments
  - November mapped to second Test
  - Like October, can be constantly updated
  - Options
    - Multiple Repositories in destination
    - Virtual Machines to make environments "throwaway"

Workspace Best Practices

Ready for Production!!!

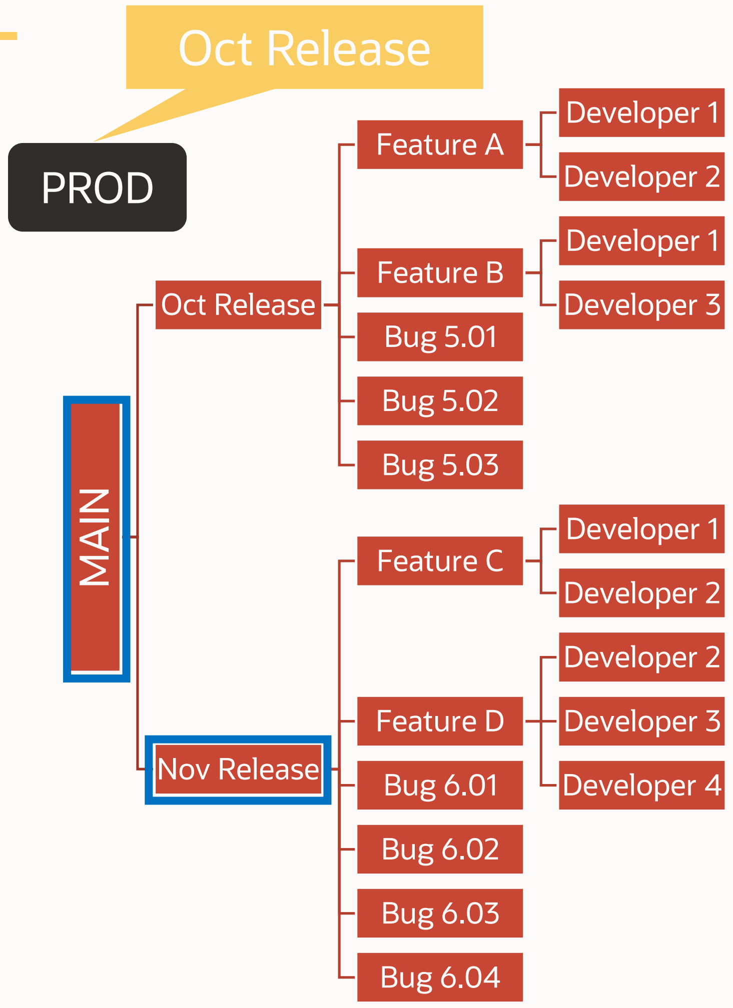


Two step process

- Deliver Release to MAIN
  - “Oct Release” known to be good
  - MAIN now equals “Oct Release”
- *Immediately* migrate MAIN to Production
  - Production now matches “Oct Release”

Workspace Best Practices

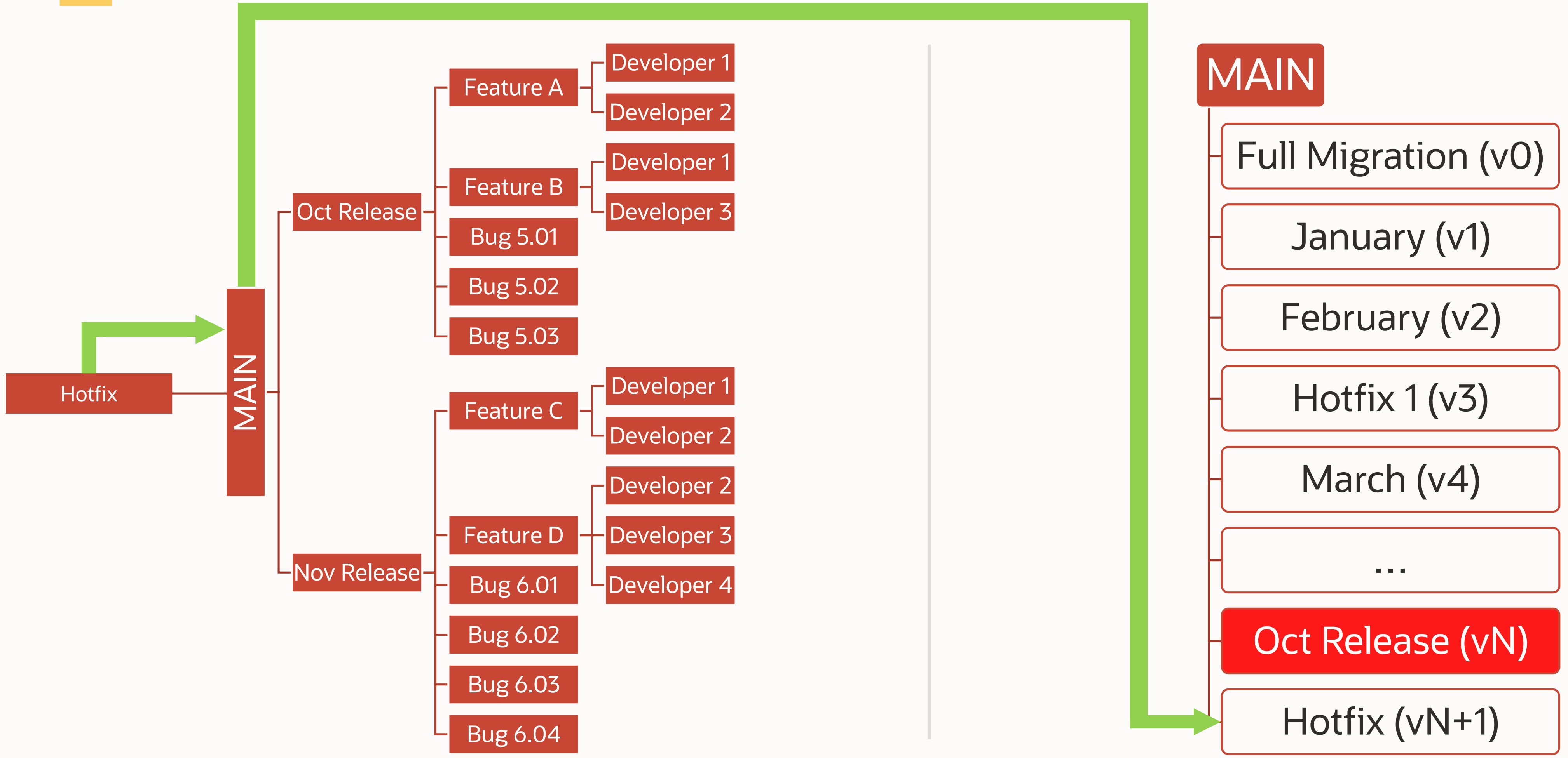
Why Promote to Production Immediately



- Consider Production after “Oct Release”
  - Matches October release
- What if hotfix needed before “Nov Release”?
  - “Nov Release” not ready—cannot promote
  - Must build release directly off MAIN
  - Ergo, MAIN must always match Production

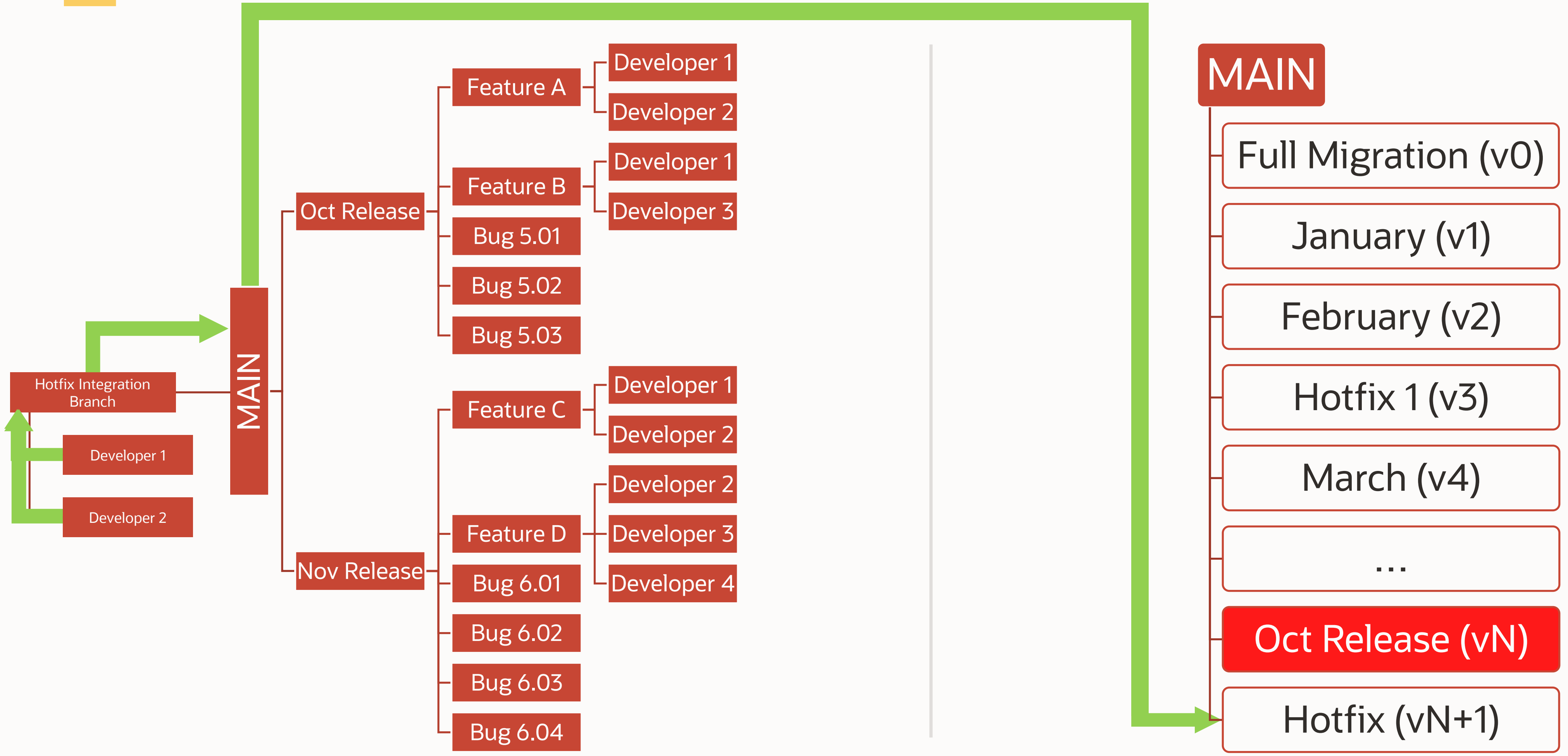
Production Hotfix Needed

Simple Case—Resolve off MAIN



Production Hotfix Needed

Advanced Case—Resolve off MAIN



Advanced Options Example
Pre-Production Scenario

GOALS

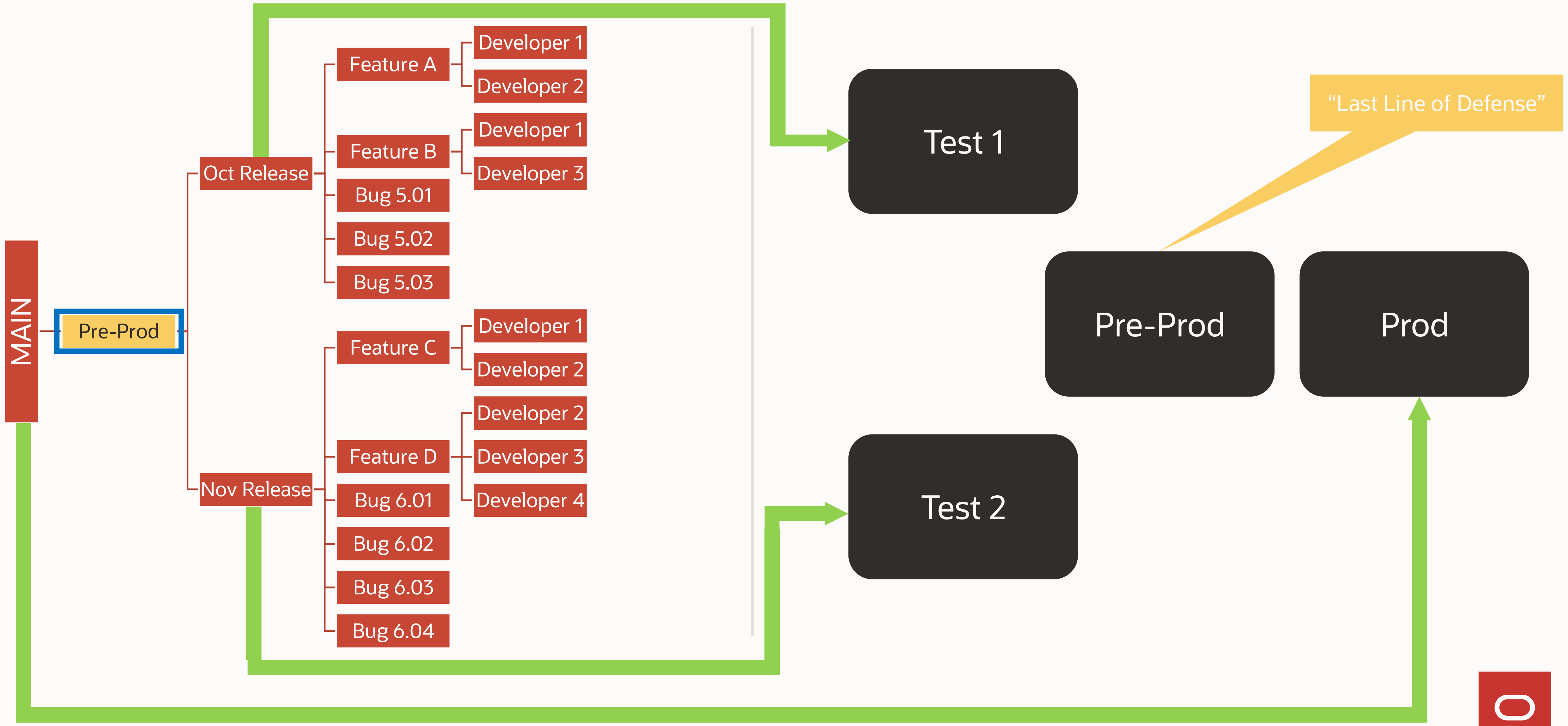
- Consider (one) option for variation

Workspaces Management—Advanced
Pre-production Option

- Repository, seed, and manifest updates…
  - …thoroughly tested in Test
  - …assumed to be correct
- Pre-Production final failsafe
  - Typically a clone of Production
  - Final opportunity to catch a configuration or other issue

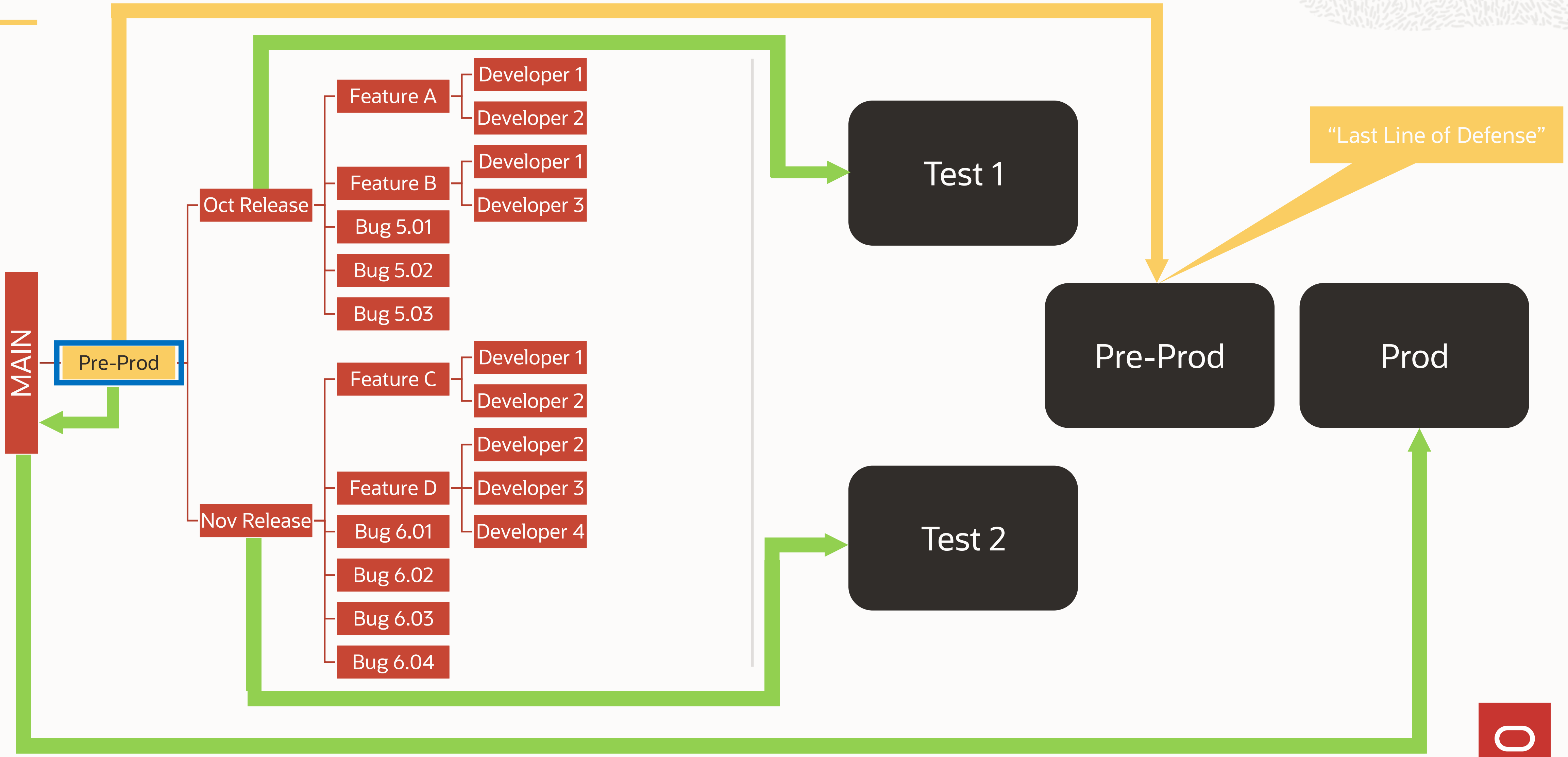
Workspace Best Practices

Introduction of Pre-Production Branch



Workspace Best Practices

Last Line of Defense



Key Takeaways

1 Workspaces is a sophisticated parallel development and sandboxing solution for Developers and agile teams

2 Flexible, hierarchical framework for building features and multiple releases in parallel, with versioning mechanism and governance

3 Improve Developer productivity with enhanced application development UX

Thanks!

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