

#ibminterconnect

# Wow! Configuration management across teams and tools with IBM Rational Jazz

DCM-1877

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## This presentation discusses vision and product capabilities in beta at jazz.net

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*Performance is based on measurements and projections using standard IBM benchmarks in a controlled environment. The actual throughput or performance that any user will experience will vary depending upon many factors, including considerations such as the amount of multiprogramming in the user's job stream, the I/O configuration, the storage configuration, and the workload processed. Therefore, no assurance can be given that an individual user will achieve results similar to those stated here.*

# Agenda

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- What challenges are we addressing?
- How have they been (half-way) solved in the past?
- Use cases – relatively simple & relatively complex
- A new approach to solving these challenges
- Looking over the horizon and speculating
- Where to see and learn more

# What problem are we solving?



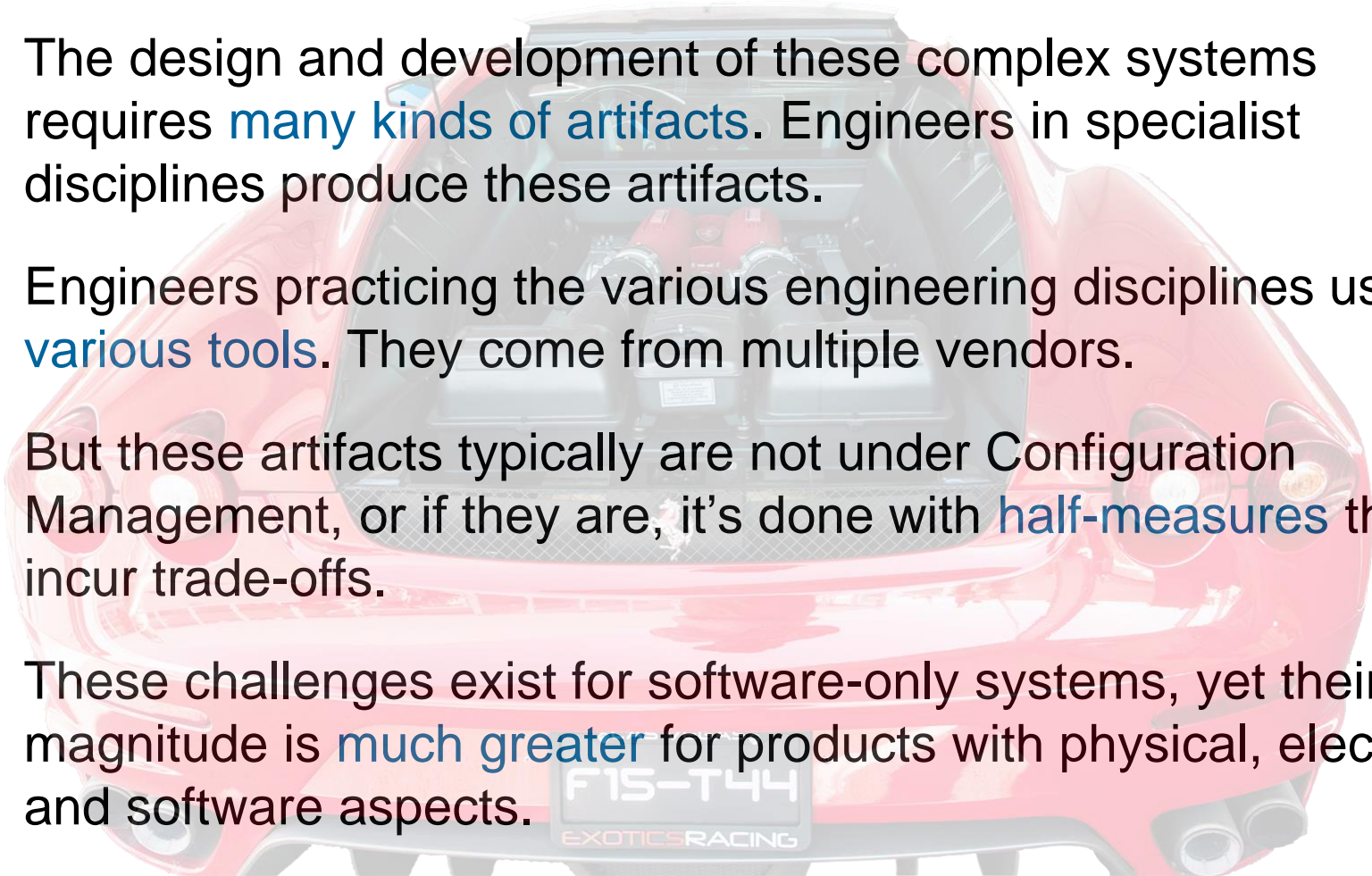
- Today's complex products and systems are mix of **software**, **electronics**, and **hardware** – with software taking an increasing role



# What problem are we solving?



1. Today's complex products and systems are **mix of software, electronics, and hardware** – with software's role increasing.
2. The design and development of these complex systems requires **many kinds of artifacts**. Engineers in specialist disciplines produce these artifacts.
3. Engineers practicing the various engineering disciplines use **various tools**. They come from multiple vendors.
4. But these artifacts typically are not under Configuration Management, or if they are, it's done with **half-measures** that incur trade-offs.
5. These challenges exist for software-only systems, yet their magnitude is **much greater** for products with physical, electrical and software aspects.



# Half-way solutions (1) Simple file-based approach



**Your choice of tools**  
Use files or export to files



**User managed,  
File-based,  
Software Configuration  
Management**

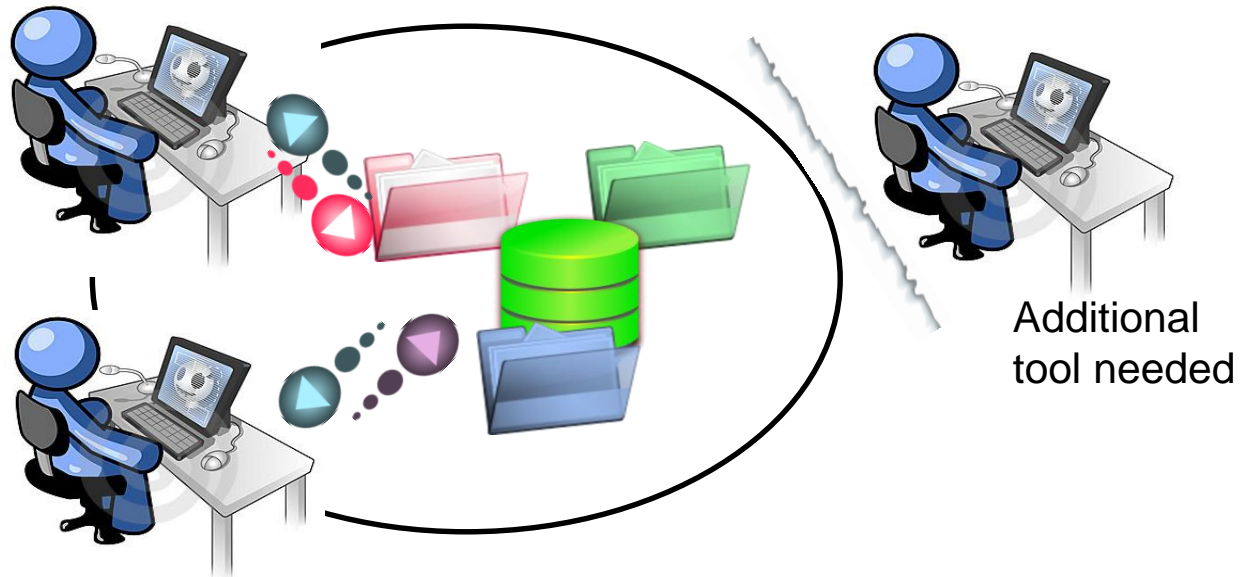
## Problems:

- **Granularity** of export and import
- **Poor Audit Trail**
  - Your files in SCM are not in sync with the artifacts in the tools
  - Loss of artifact versioning, history, and audit trail
  - Difficult to enforce, or even monitor, adherence to policies
  - Queries and reports on past baselines require reconstructing tool data

# Half-way solutions (2) Single repository approach



## Vendor lifecycle tools



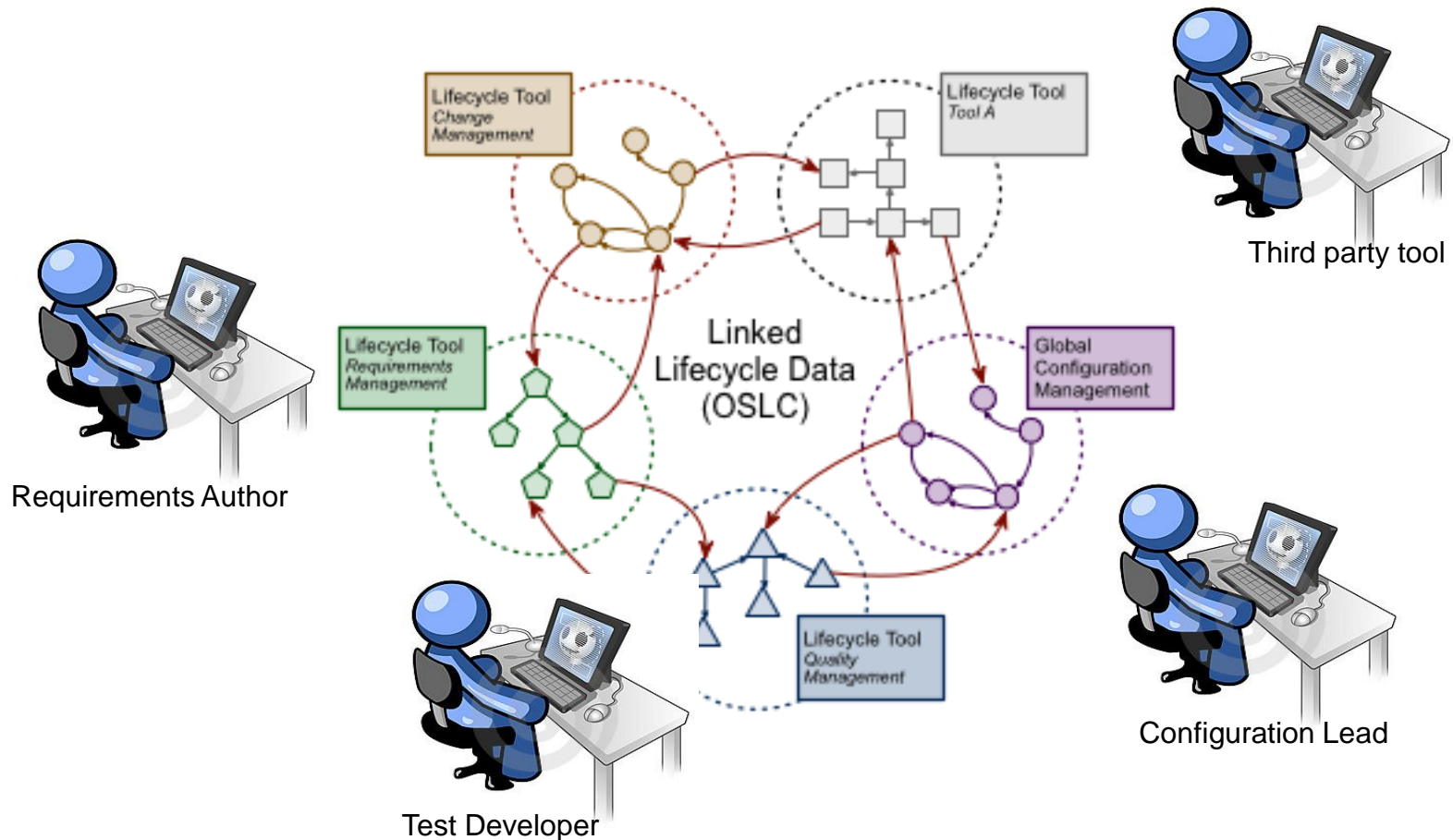
### Problem:

- Not practical: tools come from many vendors
- Can't use best-of-breed tools across HW & SW configuration management
- Life happens: mergers, acquisitions, re-organizations

# So what is better?



**Tools build on open, flexible services and Internet architecture with cross-tool configuration management**





# Use cases in pictures

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## **From simple to complex**

- Streams and baselines across tools
- Some parallel development scenarios
- Some reuse scenarios

# Baselines and streams



*Tests and code ...*

*Requirements and tests ...*

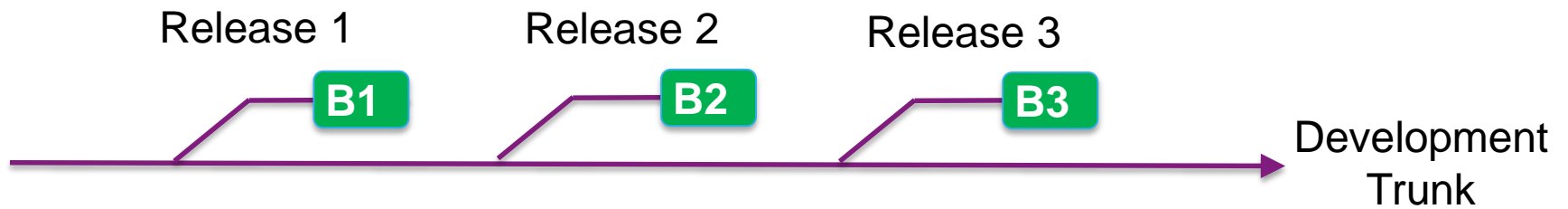


# Stabilization streams



*Tests and code ...*

*Requirements and tests ...*



# Branching and delivering – using side streams

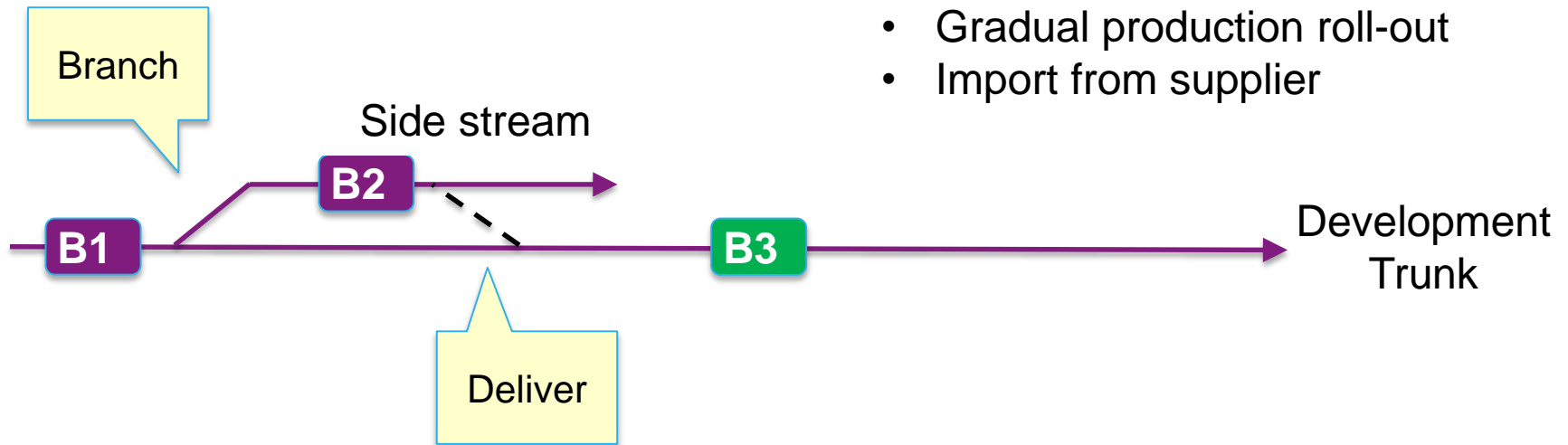


*Tests and code ...*

*Requirements and tests ...*

Some reasons for side stream

- Spike experiment
- A/B Test
- Gradual production roll-out
- Import from supplier



# Parallel development and merging

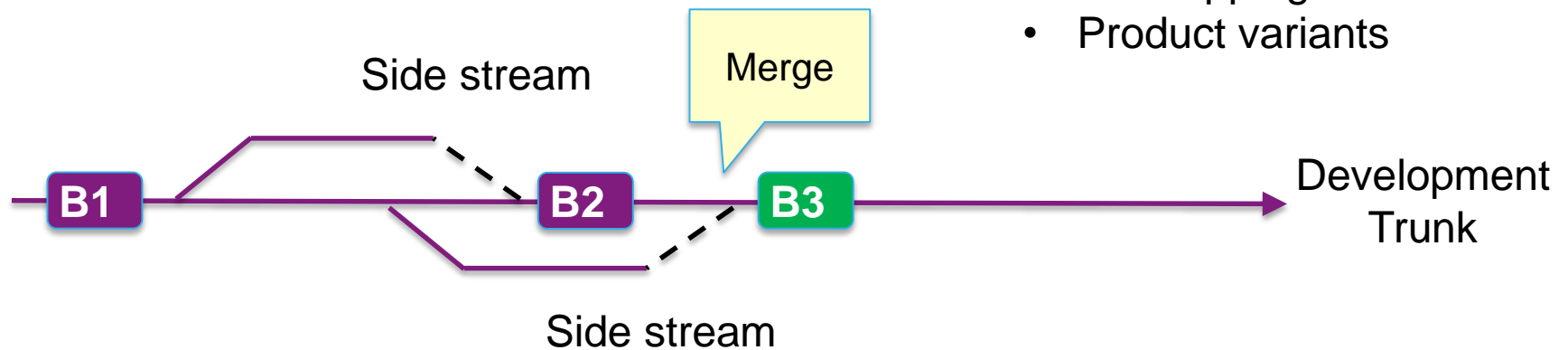


*Tests and code ...*

*Requirements and tests ...*

Some reasons for parallel development

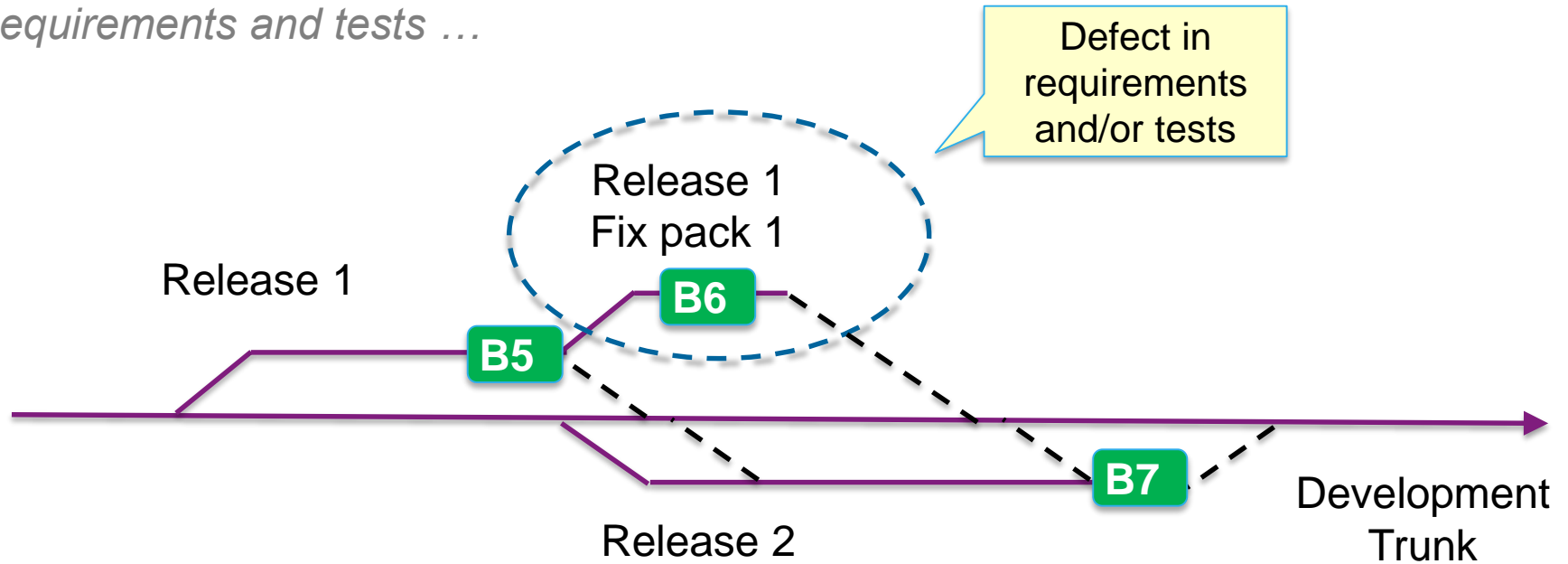
- Shared artifacts
- Overlapping releases
- Product variants



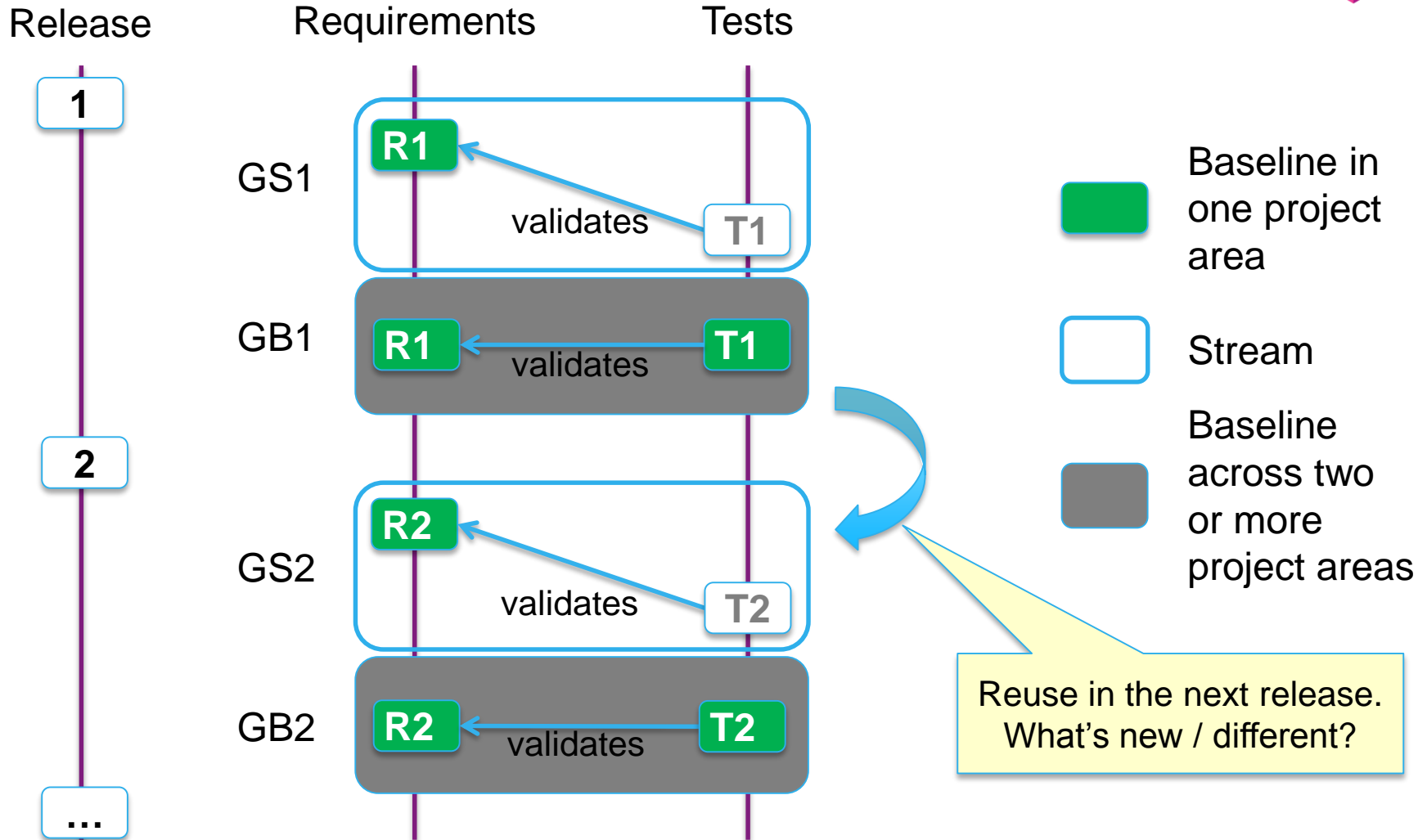
# Fix pack



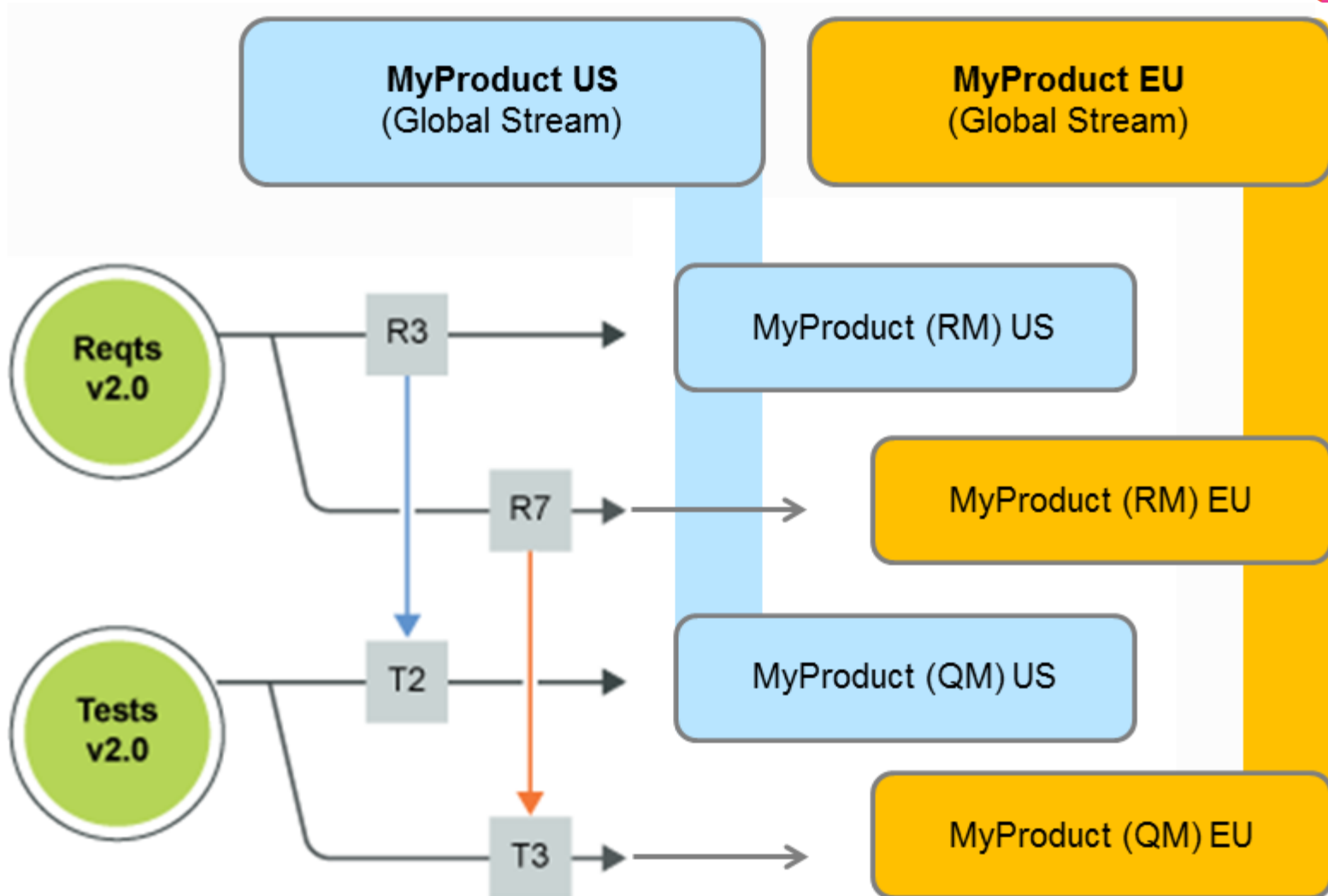
*Tests and code ...*  
*Requirements and tests ...*



# Configuration management across the lifecycle



# Global streams, isolated changes and linking





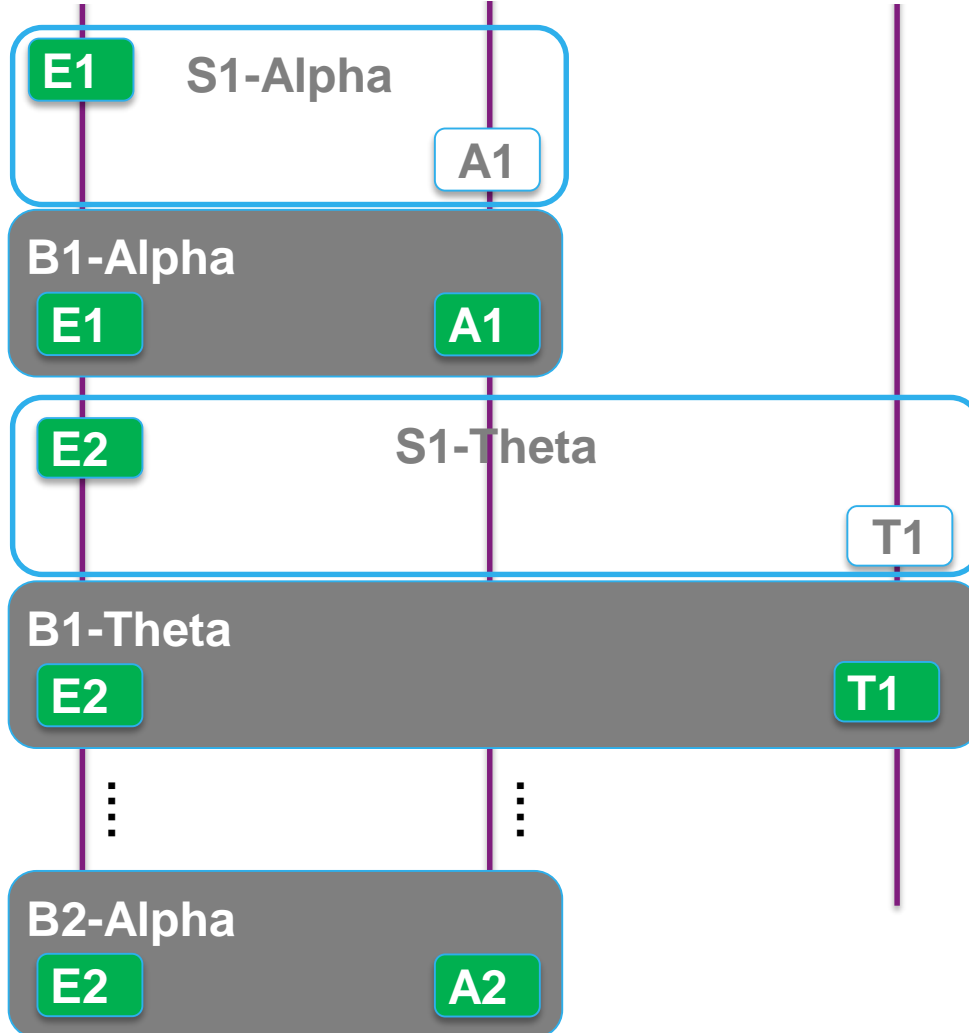
# Enterprise program with common requirements

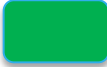




Enterprise Requirements

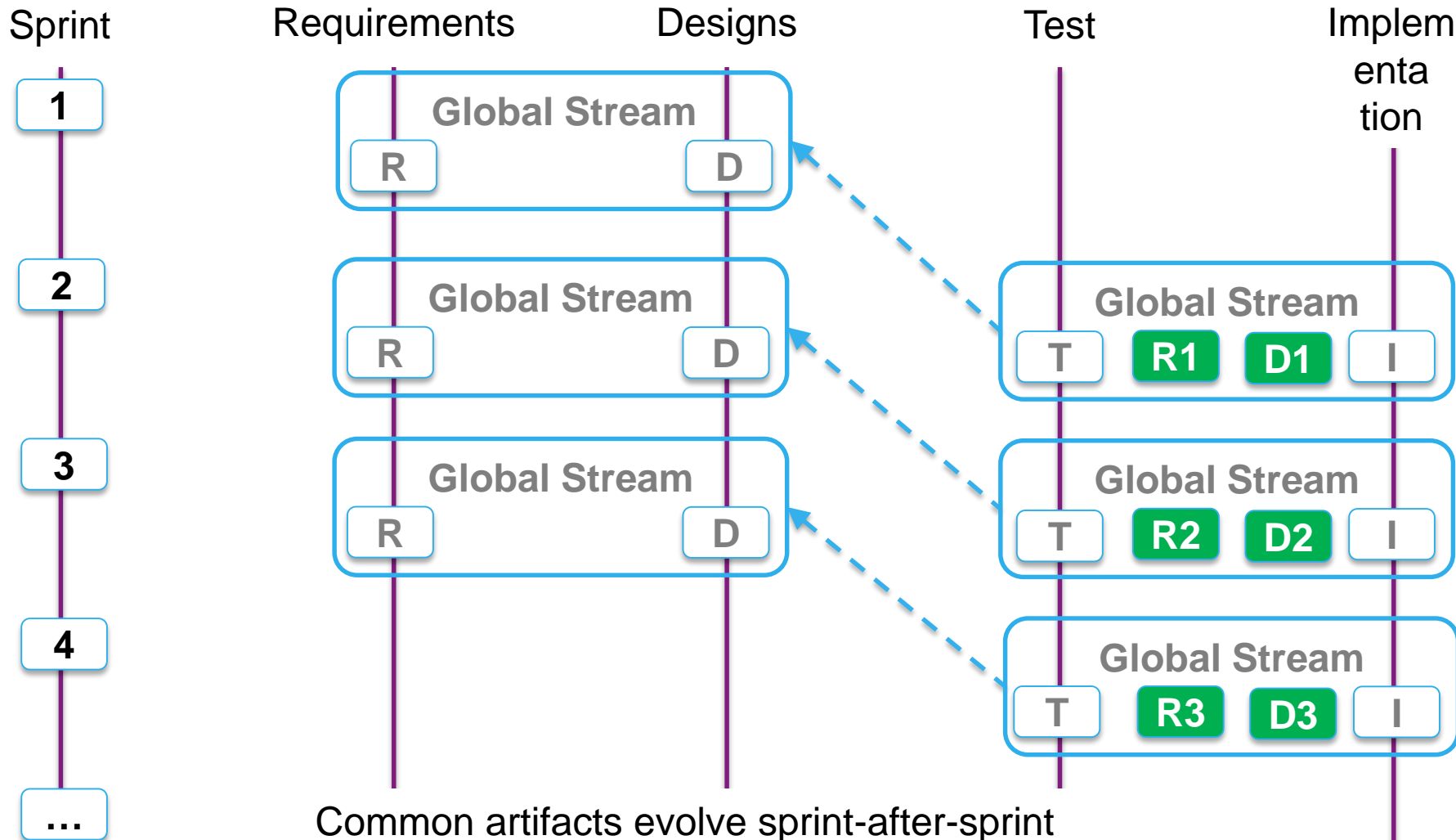
Product Alpha Requirements

Product Theta Requirements



-  Baseline in one project area
-  Stream
-  Baseline across two or more project areas

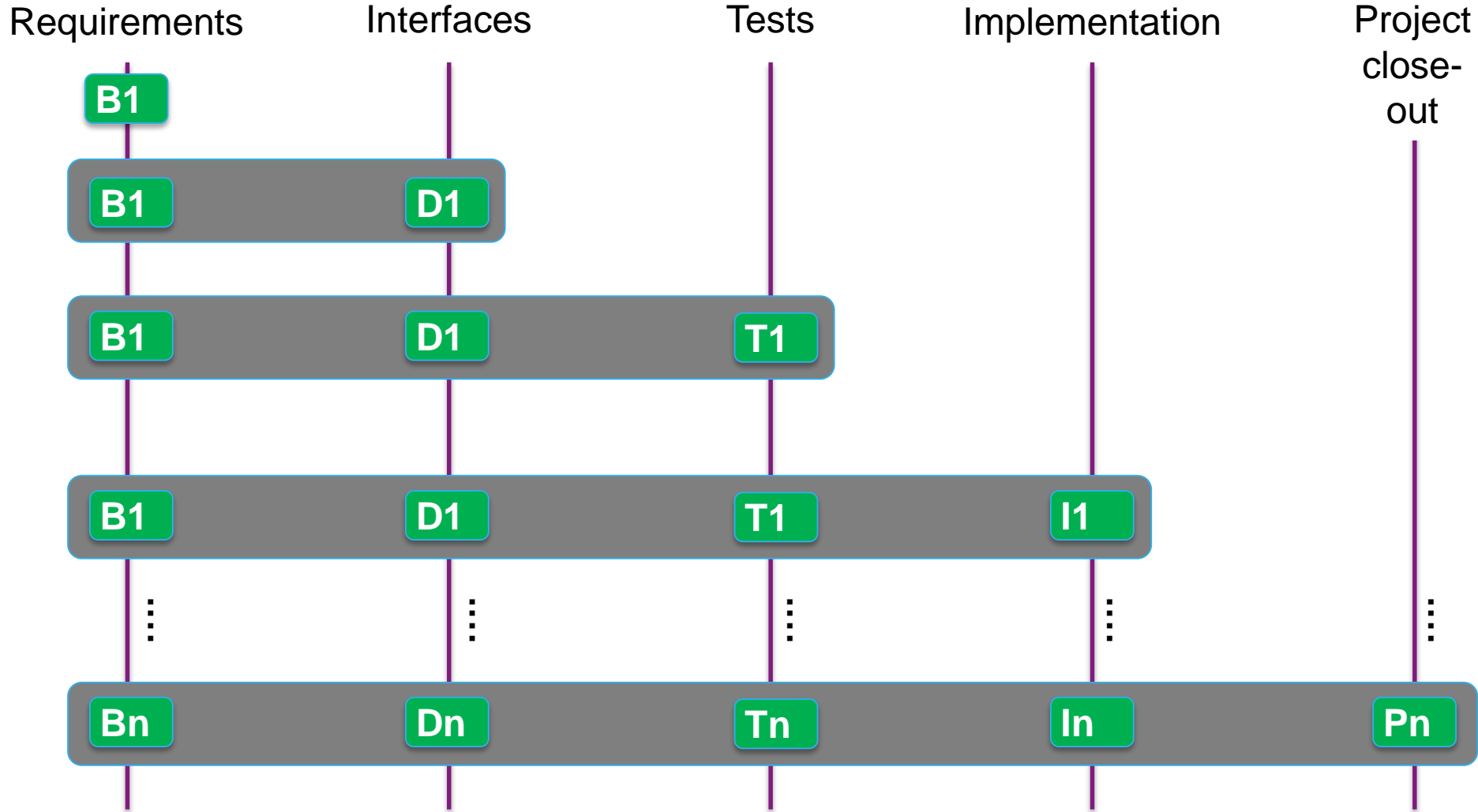
# Analyst & Designer work one sprint ahead



Common artifacts evolve sprint-after-sprint

- Scenario flows / use cases / UI designs ...

# Progressively expansive baselines

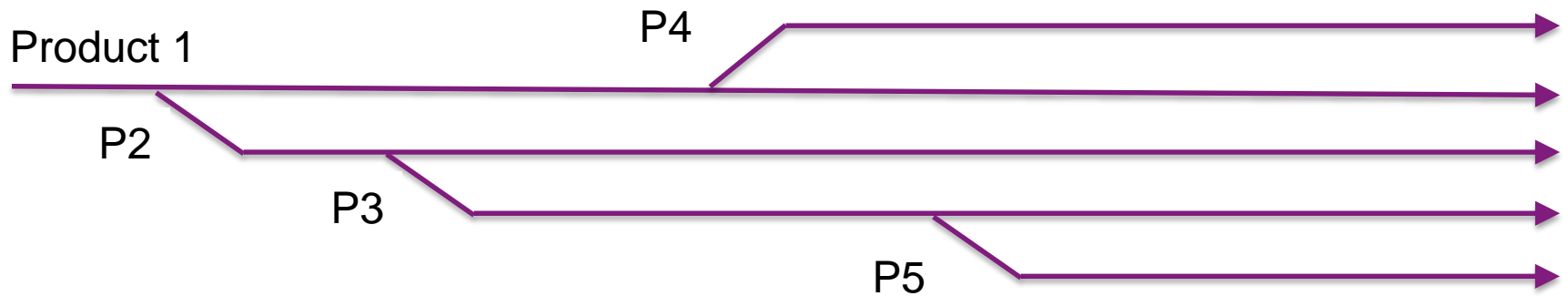


# Reuse: Branch from closest



*Requirements and tests and ...*

Each branch is a new product

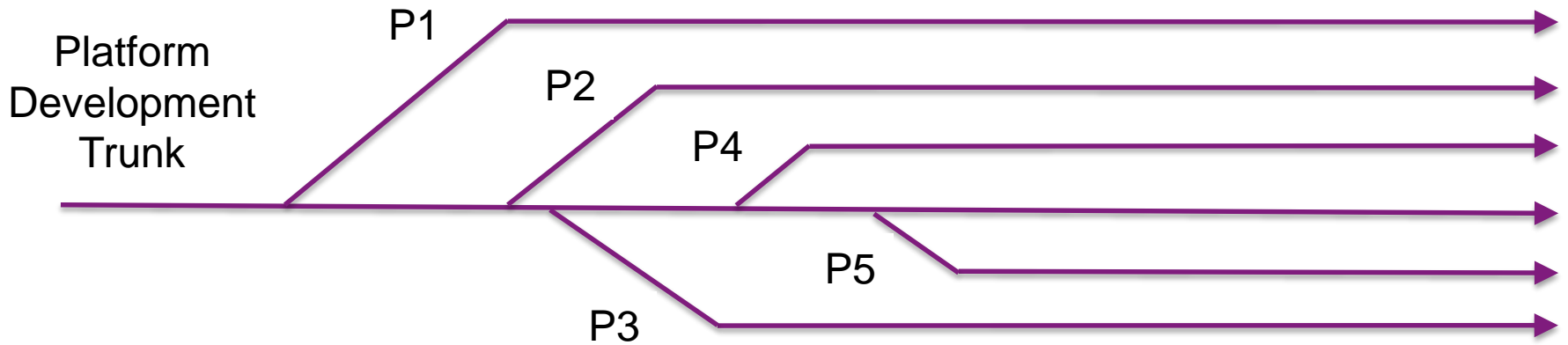


# Reuse: Branch from base

*Requirements and tests and ...*



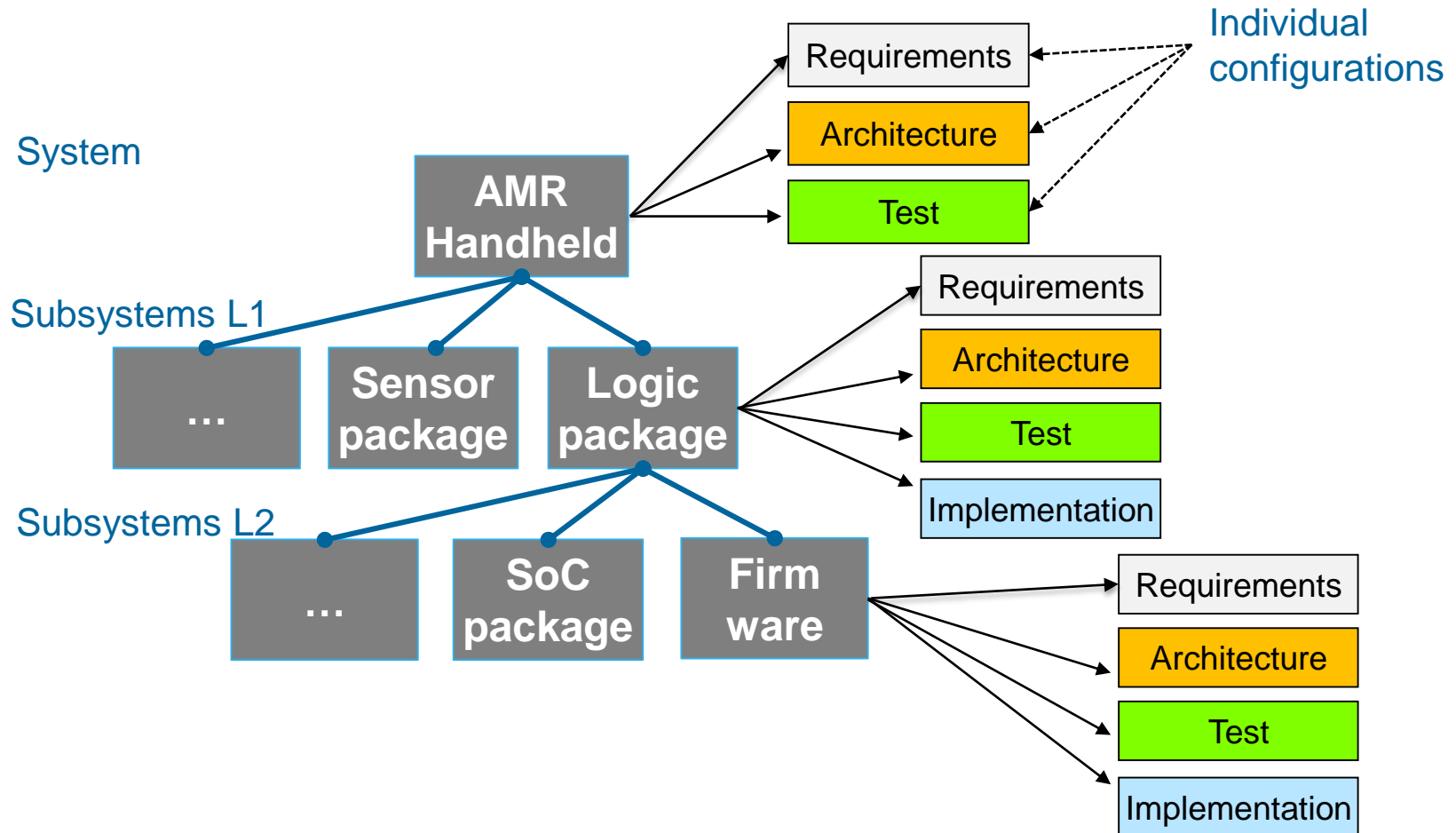
Derive new product from base stream



# Complex products in a configuration hierarchy



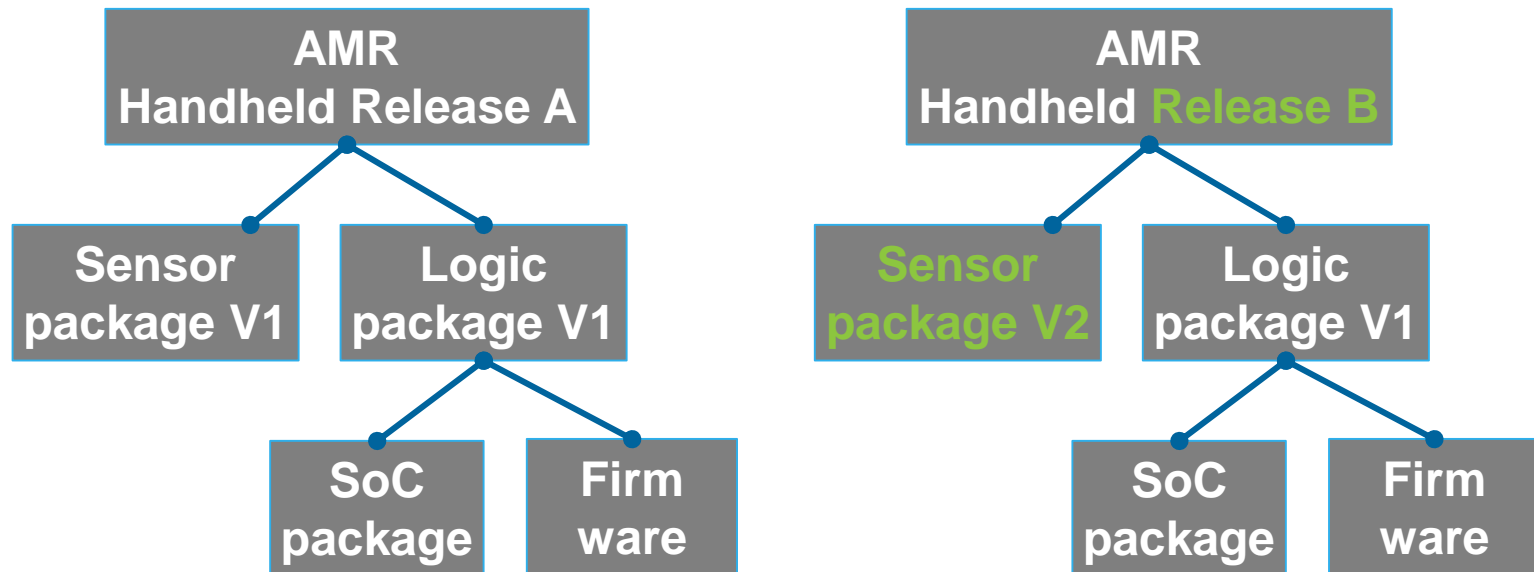
*Nested global configurations*



# Complex products

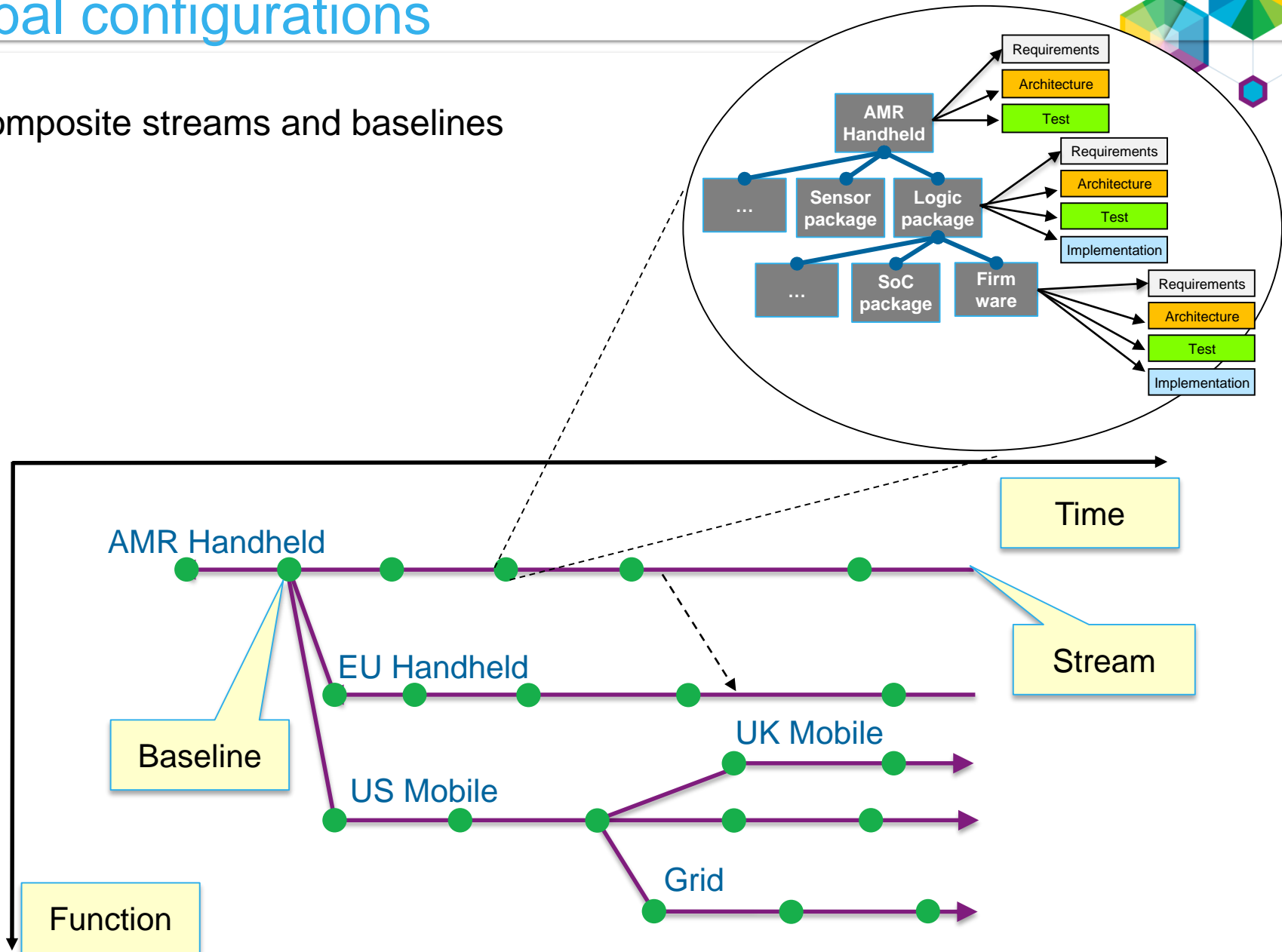


- Reusable components and sub-systems
  - New Sensor Package in Release B (V1 → V2)
  - Reused Logic Package (V1 → V1)



# Global configurations

- Composite streams and baselines

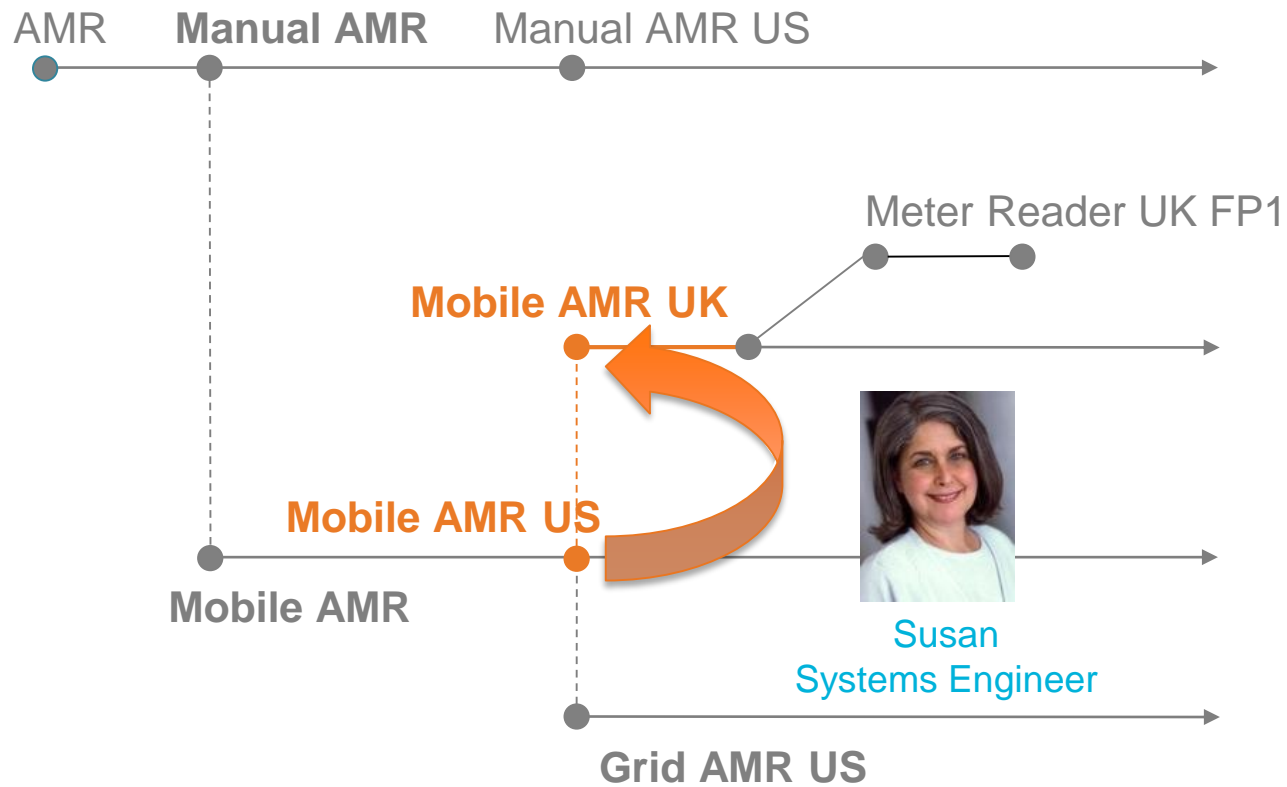




# Switch and work in context



## Product Configuration Streams for AMR Product Line



# How do work items fit in?



### Defect 2

Summary: \* First Defect for Demo

Overview Links Approvals History

Details

Type: Defect

Filed Against: \* Demo

Severity: Normal

Found In: **Release 1.0**

Project Area: InterConnect Demo 1

Team Area: InterConnect Demo 1

Creation Date: Feb 19, 2015, 3:01:19 PM

Created By: Rupa

Name	Release Date	Configuration
Release 1.0	Release 1.0	https://demo.interconnect.com:17443/gc/confi

## Configuration Management - OSLC Link/Attribute Mapping

This page is used to specify the mapping of OSLC link types to corresponding deliverable attributes.

Link Type	Attribute
Affects Test Result	Found In
Blocks Test Execution	Found In
Tested By Test Case	Found In
Implements Requirement	Planned For Release
<b>Related Test Case</b>	<b>Found In</b>
Related Test Script	Found In
	Found In
	Found In
	Planned For Release
	Planned For Release

Work Items >

### Defect 2

Summary: \* First Defect for Demo

Overview Links Approvals History

Attachments

Drop files to add them or click here to browse.

Links

Add Related

**Related Test Case**

1: Test Case 1 for InterConnect Demo

## The recipe ...

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- Use the OSLC linked data approach
- Create a federated configuration context (a global configuration)
- Artifact versions and links are resolved in this context
- Organize GCs in a hierarchy to reflect complex product/application structure
- Enable tools to contribute their own configurations
- Define a specification for the above through OASIS OSLC

# With the result that ...

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- Links just work
- Changes are isolated in streams
- Baselines reflect the state of the system at a point in time
- Parallel development is much easier
- Reuse is much easier
- Changes are managed more effectively
- Teams are more efficient

# Looking over the horizon and speculating

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- More automation
- More tools participating in configurations
- ALM / PLM working group

# Suggested actions

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- Learn more here at InterConnect.
  - Sessions
  - Expo Hall
  - Open Labs
- Watch these four short videos on YouTube:  
[Work Smarter with Configuration Management](#)
- Try the CLM beta at jazz.net.  
M9 blog post: <https://ibm.biz/jazzclm-m9>  
Introductory blog post: <http://ibm.co/1yW4gme>

# Design Collaborations - Tuesday



11:00 AM	5071A Designing Impact Analysis Capabilities for Product Line Engineering
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# Design Collaborations - Wednesday

8:00 AM	5078A Designing a Configuration Aware Reporting Solution for Product Line Engineering
2:00 PM	5063A Designing User Experience Concepts in Multi-Stream Configuration Management

## Related Sessions - Monday



11:00 AM	DCM-1877 Wow! Configuration management across teams and tools with IBM Rational Jazz
2:00 PM	2116A Unlocking Engineering Knowledge at Qualcomm with Rational Linked Data Technologies
3:30 PM	2150A Strategic Reuse at Motorola Solutions with IBM Rational Continuous Engineering
5:00 PM	2732A How Bosch Uses Rational Team Concert SCM in the Reuse-Driven Automotive Industry

## Related Sessions - Tuesday

8:00 AM	2212A Leveraging Global Configurations to Baseline across IBM's Collaborative Lifecycle Management Suite
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## Related Sessions - Wednesday



9:00 AM	Managing Reuse and Product Line Engineering with Rational Team Concert - 3650A ( <a href="#">Meet the experts forum</a> )
11:00 AM	2294A Understanding Rational DOORS Next Generation Change Sets: Work Item Traceability and Delivery
12:30 PM	4431A Product Line Engineering Comes to the Boardroom: A Unified Product and Portfolio Management Strategy
5:30 PM	4808A pure-systems: Variant Management: Solutions That (Don't) Work

## Related Sessions - Thursday

1:00 PM	4918A The End of Cloning: Strategic Reuse and Product Line Engineering with the Rational Platform
2:30 PM	2133A Configuration Management of Requirements in IBM Rational DOORS Next Generation
2:30 PM	1120A Best Practices for Reusing Requirements in Continuous Engineering

# Related Sessions - Thursday



1:00 PM	4918A The End of Cloning: Strategic Reuse and Product Line Engineering with the Rational Platform
2:30 PM	2133A Configuration Management of Requirements in IBM Rational DOORS Next Generation

# Summary

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- The advanced configuration management capabilities you depend on (CC, RTC SCM, others ...) are now available for other development artifacts and job roles on your team
- Your control over and visualization of reuse is greatly expanded
- Your team can do their work in a product context and a project/plan context

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# Thank You

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your smartphone, laptop or conference  
kiosk.



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# The What and Why of Configuration Management

# What is Configuration Management, and why do I need it?

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- Keeping track of versions of individual artifacts (configuration items)
- Keeping track of versions of the system as a whole (baselines)
- Tracking who changed what, when, and why (change management)
- Managing, monitoring, and enforcing policies for all the above

Configuration Management is often mandated by regulations, but even where that is not the case, it is required for your sanity! With the pace and complexity of engineering, keeping track of which changes went into a given system, and which changes are still pending or required, is a fundamental discipline.

Moreover, while Software Configuration Management has been standard practice for many decades, with the increasing importance of embedded software, model-based development, quality management, and similar tools, the need to manage versions of artifacts other than source code is increasingly evident.

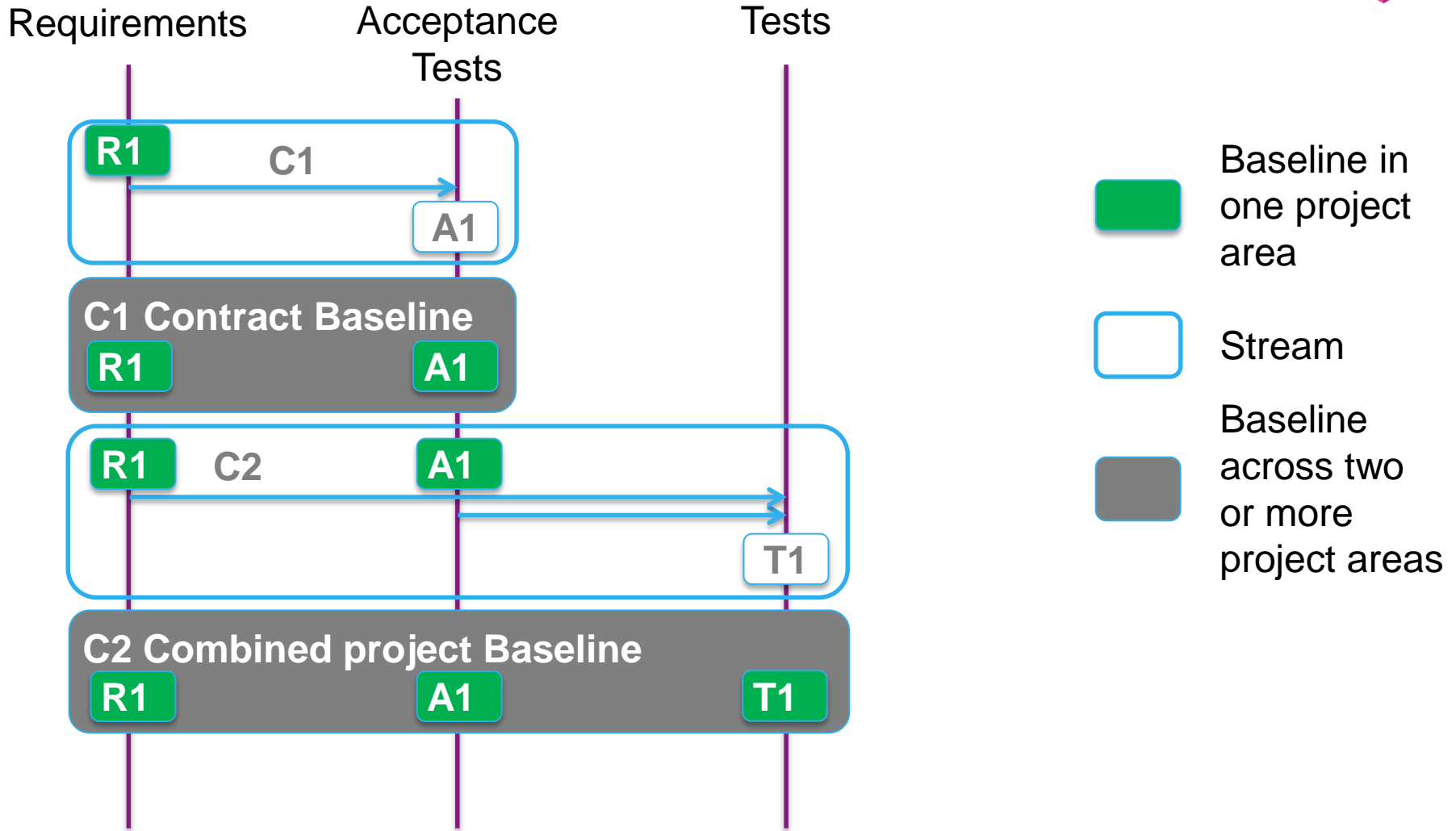
# What is in a configuration?

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- Obviously, versions of the artifacts – not just source code
  - Requirements, designs, documents, test plans, test cases
  - Source code as well, of course!
- Build environment – often neglected
  - Type systems, database schemas
  - Tools, scripts, compilers, library and operating system version and patch information
  - User environment (options, settings, ini files, config files, etc.)
- Revision history, including change comments
  - who changed what, when, and why.
- Links between artifacts
  - Links need to be versioned just as other properties of artifacts
  - And then navigated in the context of the relevant configurations (including baselines)

# In a contractual environment





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