

Global configuration management: Vision, progress, possible directions

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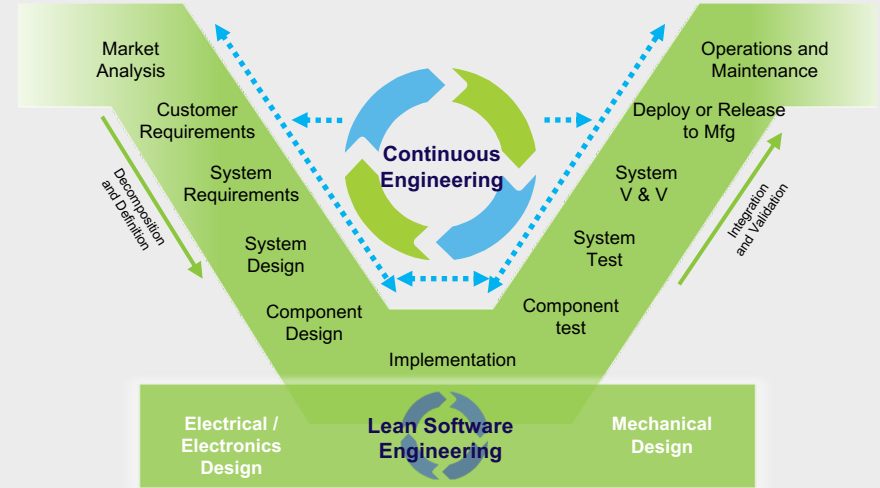
Global configuration management promises a new level of simplicity and automation for teams developing complex systems who need to achieve higher levels of change control, reuse, with traceability across the development lifecycle, and at scale. Requirements, designs, tests, files and potentially other tools and their artifacts can participate in federated development streams and baselines. This session will

- (1) review the motivations for this OASIS OSLC initiative,
- (2) implementation progress in IBM tools, partner tools and client adoptions
- (3) offer some thoughts about future directions.

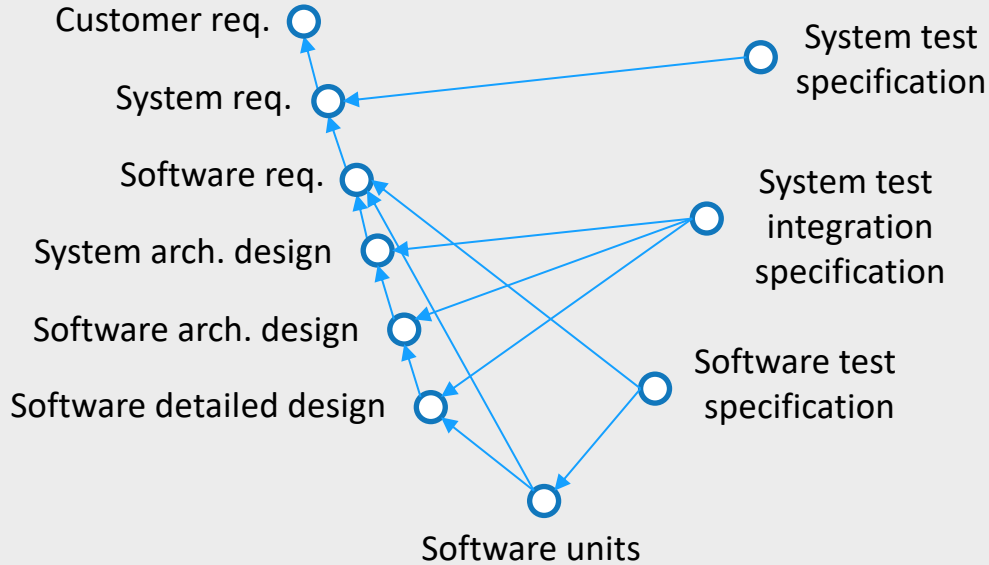
THE VISION: We help teams to design and develop complex, software-intensive products and systems ...



1. With change management and **configuration management**
2. With traceability
3. At scale
4. With **high levels of reuse**
5. Addressing standards and compliance
6. Using open standards and integrations to bring together multiple teams using tools from multiple vendors



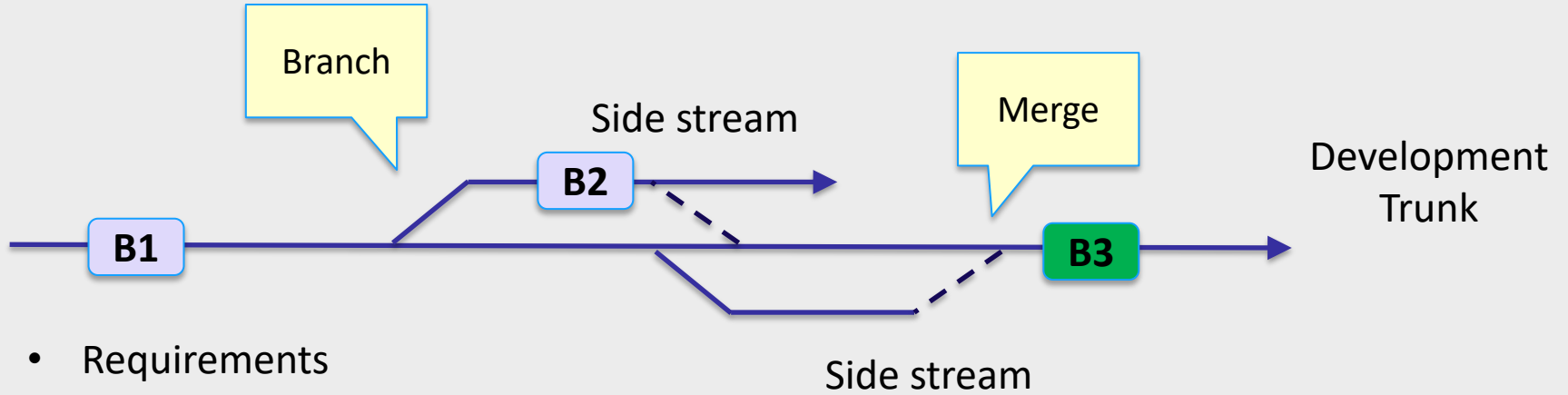
Solving the challenge of lifecycle traceability with global configuration



ASPICE: ensure consistency and bilateral traceability of ...

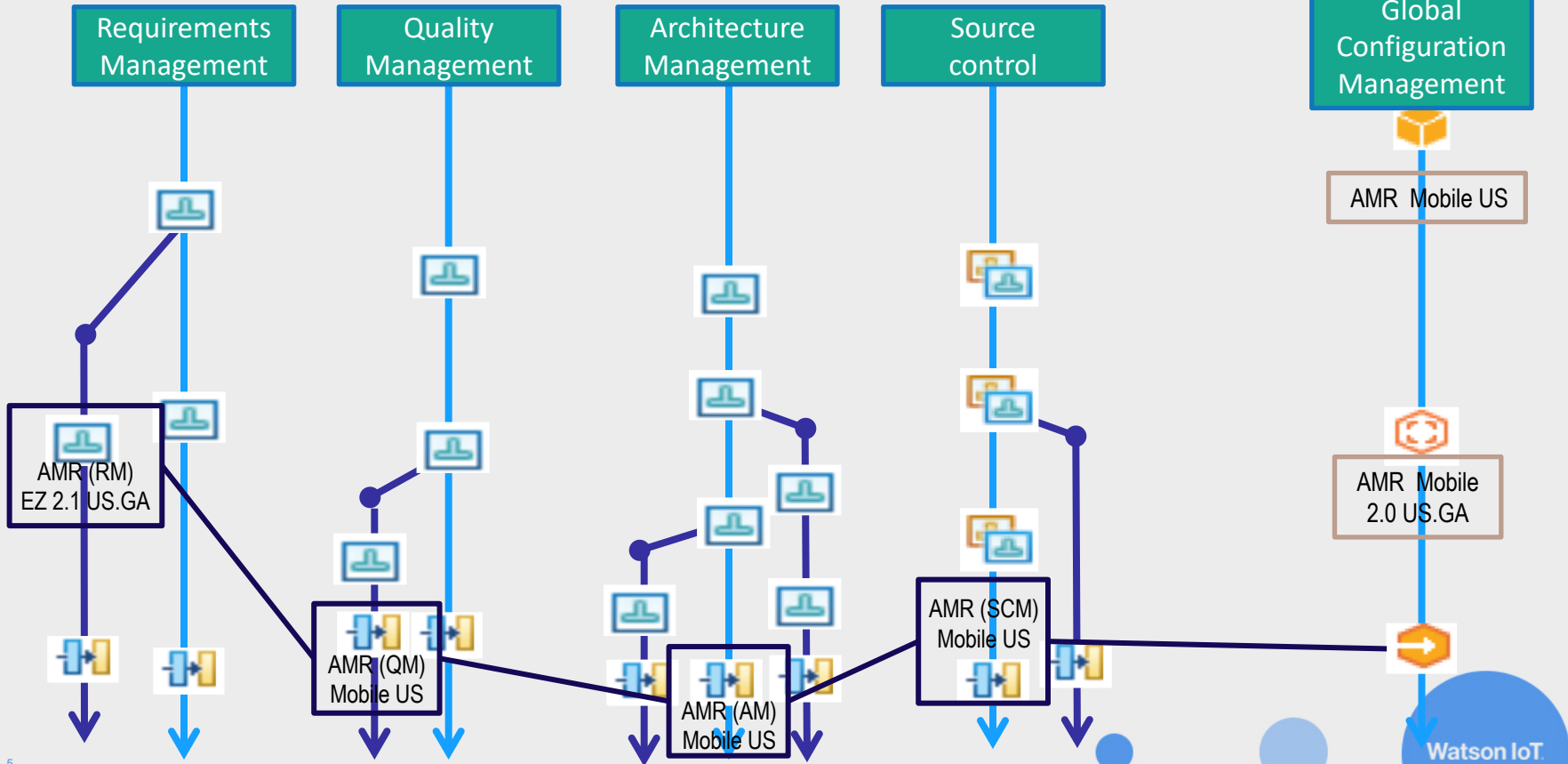
- Customer requirements to system requirements
- System requirements to system architecture design
- System requirements to software requirements
- System architecture design to software requirements
- Software requirements to software architecture design
- Software architecture design to software detailed design
- Software detailed design to software units
- Software requirements to software units
- Software units to test specification for software units
- Software architecture design and software detailed design to software integration test specification
- Software requirements to software test specification
- System architecture design to system test integration specification
- System requirements to system test specification

Change management
Parallel development
Compare and merge



- Requirements
- Designs
- Tests
- Implementations

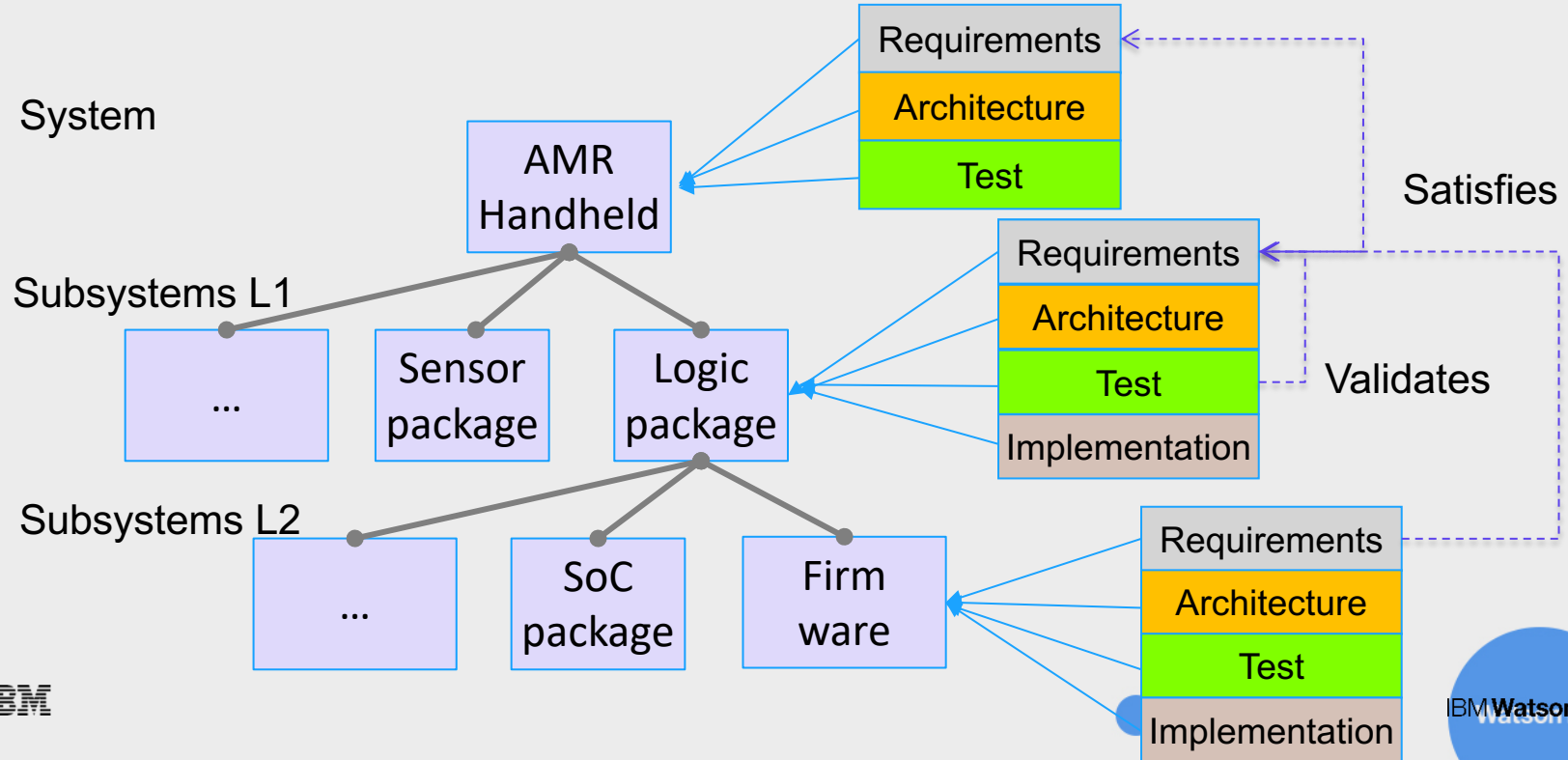
The global configuration creates a configuration context



Complex products in a configuration hierarchy

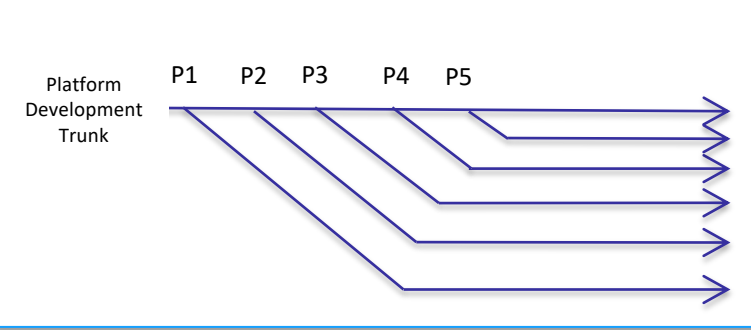
Global configurations

- Defines a reusable chunk that may evolve relatively independently
- Provide context for links



Generating product variants

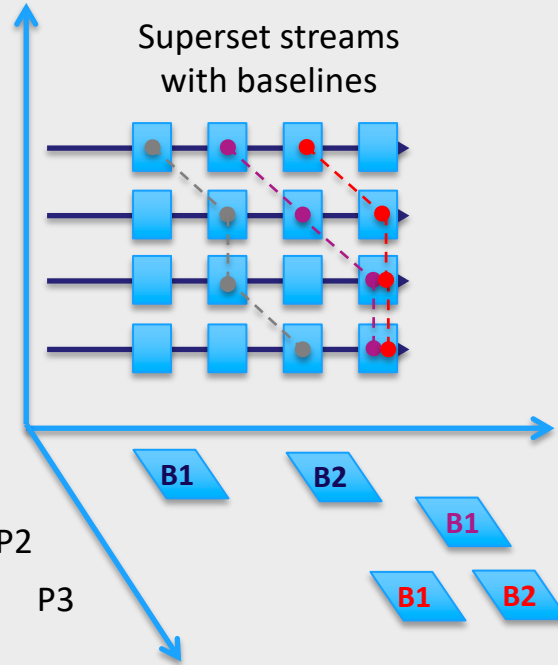
Where our feature-modeling partners fit



Engineering disciplines

Requirements
Designs
Tests
Implementation

Superset streams with baselines



Product variants generated from superset baselines

Changes over time

1. Define features and their dependencies in feature modeling tool
2. Map requirements, designs, tests, etc. to features in CE tools
3. Define parameter values and apply them to requirements, models, tests, etc.
4. Branch a Global Configuration to create a new product variant
5. Use requirement change sets to manage and merge changes



Clients in production, and interest continues to grow

- Some adopters have presented at ICE/InterConnect and become client reference
- Others are piloting or planning their adoption

Patterns emerging but with customizations – no “one-size-fits-all”

- Depends on client goals and existing processes
- To date, successful clients have engaged with SMEs for guidance
- Guidance being captured and published

Early adopter focus was primarily on RM, now expanding

- Most success in simple “change management with RM only” scenarios
- Explorations starting with QM, GCM, cross-lifecycle – and complexity at scale

Clients must be cognizant of changes to practices and infrastructure

- Understand impacts and plan for adoption

Benefits realized



Better support for parallel development

- Multiple releases or projects can progress simultaneously with as much or little sharing as needed
- Differentiate between in-progress vs approved content, what's in production vs development or test

Improved change control:

- Separation of responsibilities
- Team members and stakeholder teams insulated from ongoing changes

Quicker and more efficient impact analysis

- Traceability, link validity, ability to identify reuse
- Cross-configuration compare to understand differences

Improved quality through reuse

- Cross-stream deliveries including dependencies, conflict resolution

Adoption Guidance

Understand goals, desired outcomes, and current practices for configuration management

Consider infrastructure requirements and plan accordingly

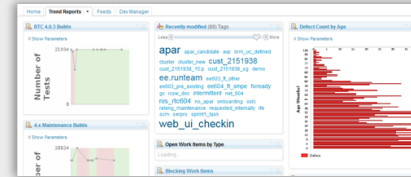
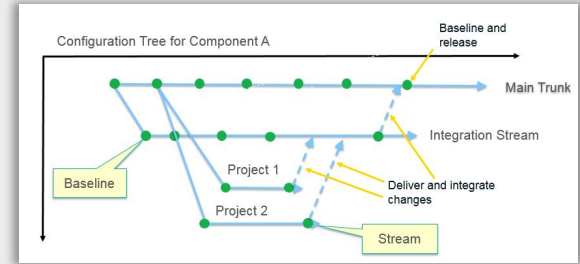
Closely evaluate the capabilities in the context of your process
– behaviors change, e.g. reporting, link validity

Define your Configuration Management plan and processes

Pilot to validate and refine usage scenarios and processes

Roll out selectively and incrementally

★ Involve SMEs as you define strategy and implementation plans



To further pursue
configuration management....



Review available resources (coming slides)

Evaluate Configuration Management capabilities

- “preview” environment using sample project: <https://jazz.net/previews/>
- “sandbox” environment: <https://jazz.net/products/sandbox/?tag=sse>
- On prem PoC

Prove out elements of your configuration management usage model and process

Work with SMEs for guidance and advice

Possible directions

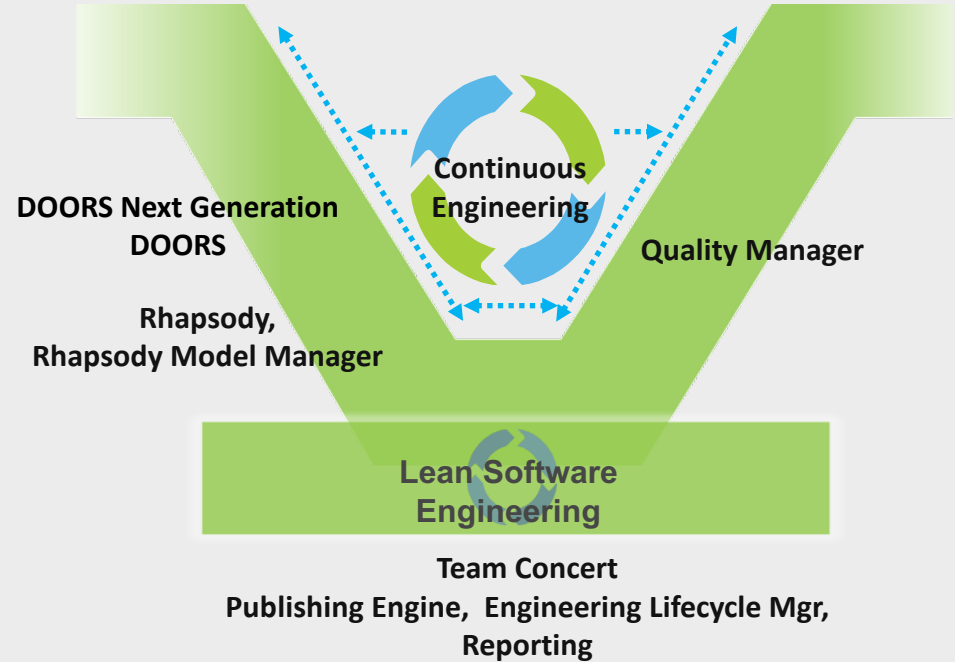
Optimize UX for scale and simplicity

Optimize automation

Fill nooks and crannies

Wider configuration context

Evolution of OASIS OSLC spec



SUMMARY

The IBM solution is the only solution in the market with configuration management spanning requirements, designs/models, tests, and files/implementation under source control.

Open OSLC specification enables other tools/vendors to join this configuration context (already implemented, for example, by pure-systems pure::variants). This enables **traceability** with **configuration management** at **scale** with **high levels of reuse** ... something that has never been possible before.



For more information

- [Best practices for CLM/CE global configuration management](#)
- Youtube playlists related to configuration management:
 - [Global configuration management – the basics](#)
 - [Introduction to configuration management with CLM](#)
- [Jazz.net article](#) pointing to many other resources
- Jazz.net [Deployment wiki](#)
- [IBM Knowledge Centre](#)
- [Blog post](#) on adopting configuration management
- Watson IoT Academy: [Global Configuration Management for CE and CLM V6.0.4](#)
- Read and share the free ebook: [Tame complexity with product line engineering](#)





Other CE Summit Sessions

RM-05: Managing Complexity using Components in DNG

RM-09: Advanced reuse strategies for Doors Next Generation

DEP-05: Reporting on configurations and components at scale

DEP-17: Variant Management for Complex Systems and Software: Best Practices and Solutions for Product Line Engineering (PLE)

LAB03: Refactoring projects into components with Collaborative Lifecycle Management

Documenting key usage model decisions in a Configuration Management Plan

Key decisions/topics:

- End to End Process Flow
- Component Strategy
- Stream Strategy
- Baseline Strategy
- Change Management (including RM change sets)
- Cross-stream Updates
- Reviews and Approvals
- Traceability, Link Validity, impact analysis
- Naming, Tagging, Custom Attribute Conventions
- Roles and Permissions
- Reporting
- Integrations (including non-CLM)
- Communication Plan

To aid your planning, we created a series of guidance articles

[Best practices for CLM/CE global configuration management](#)

- General guidance on adoption
- Guidance on defining your component strategy
- Stream strategy patterns
- More to come!



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