MICRO® FOCUS

Accelerating Flow with DevSecOps and the Software Factory

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SAFe Advanced Article

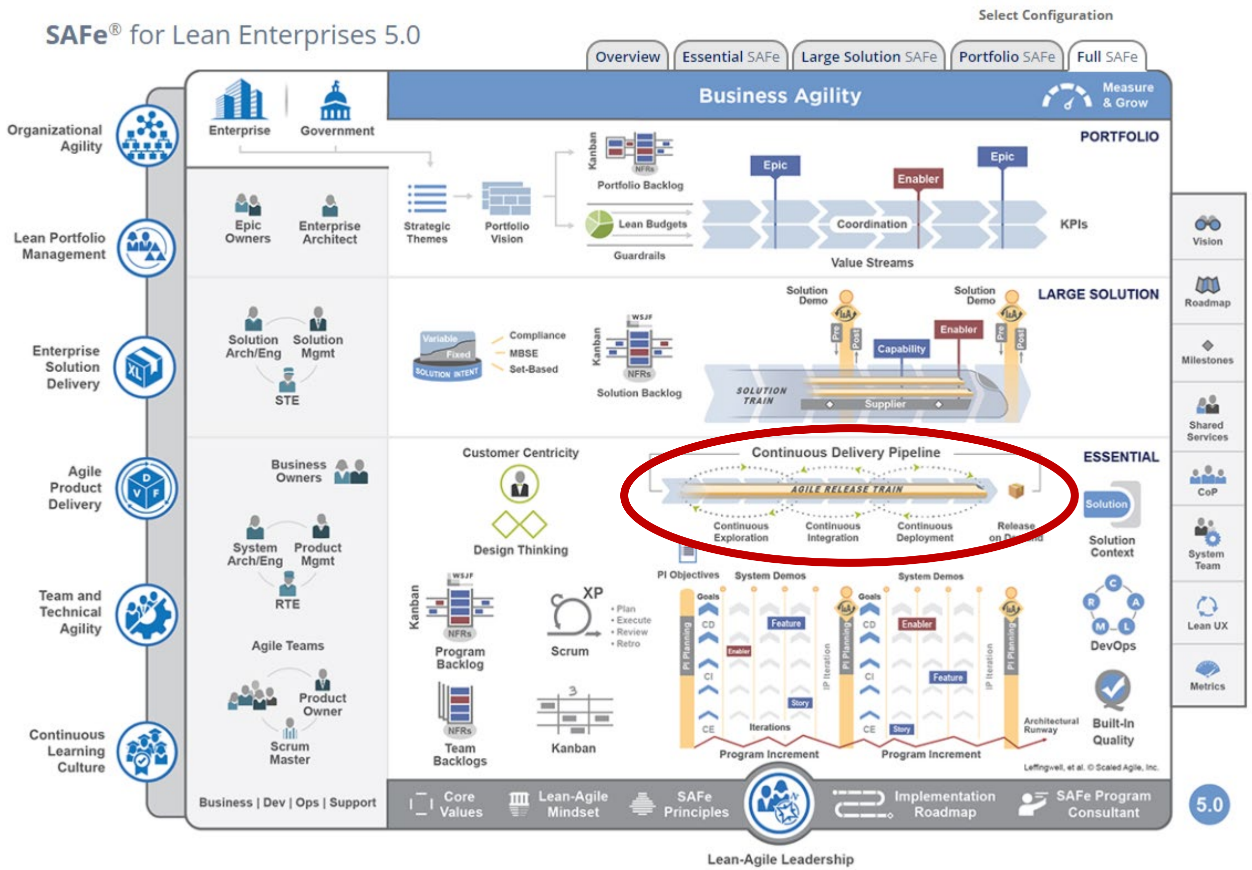
Accelerating Flow with DevSecOps and the Software Factory

By Peter Vollmer, Distinguished Technologist, Micro Focus

https://www.scaledagileframework.com/accelerating-flow-with-devsecops-and-the-software-factory/

The enterprise challenge

Enterprise software development is a complex undertaking, and only companies that can respond to market changes by quickly delivering high-quality software will dominate in the digital age.



There is no silver bullet, but…

SAFe® provides required guidance

- organize around value
- built-in quality
- reduce lead time
- increase employee satisfaction
- apply Lean-Agile principles and values
- SAFe Continuous Delivery Pipeline & DevOps
- …

there is further practical guidance…

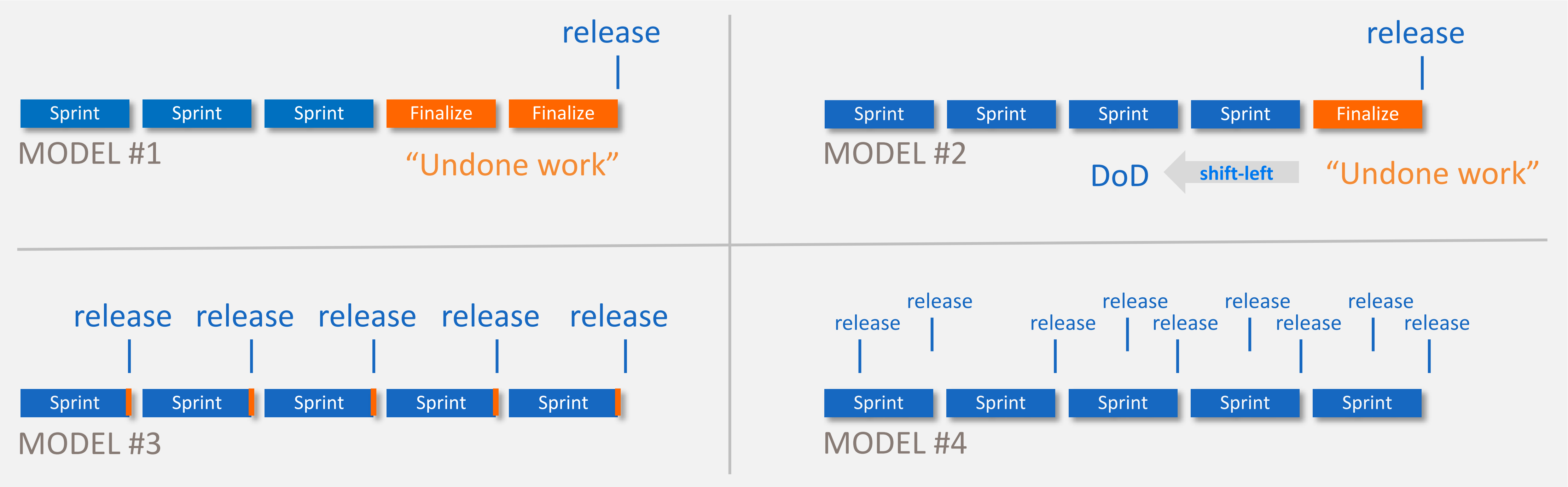
*“**Mental models** are deeply ingrained assumptions, generalizations, or even pictures or images that influence how we understand the world and how we take action.”*

— Peter Senge, The Fifth Discipline

DevOps Evolution Model

A systematic model to shift-left

→ Shift left reduces lead time and increases product quality



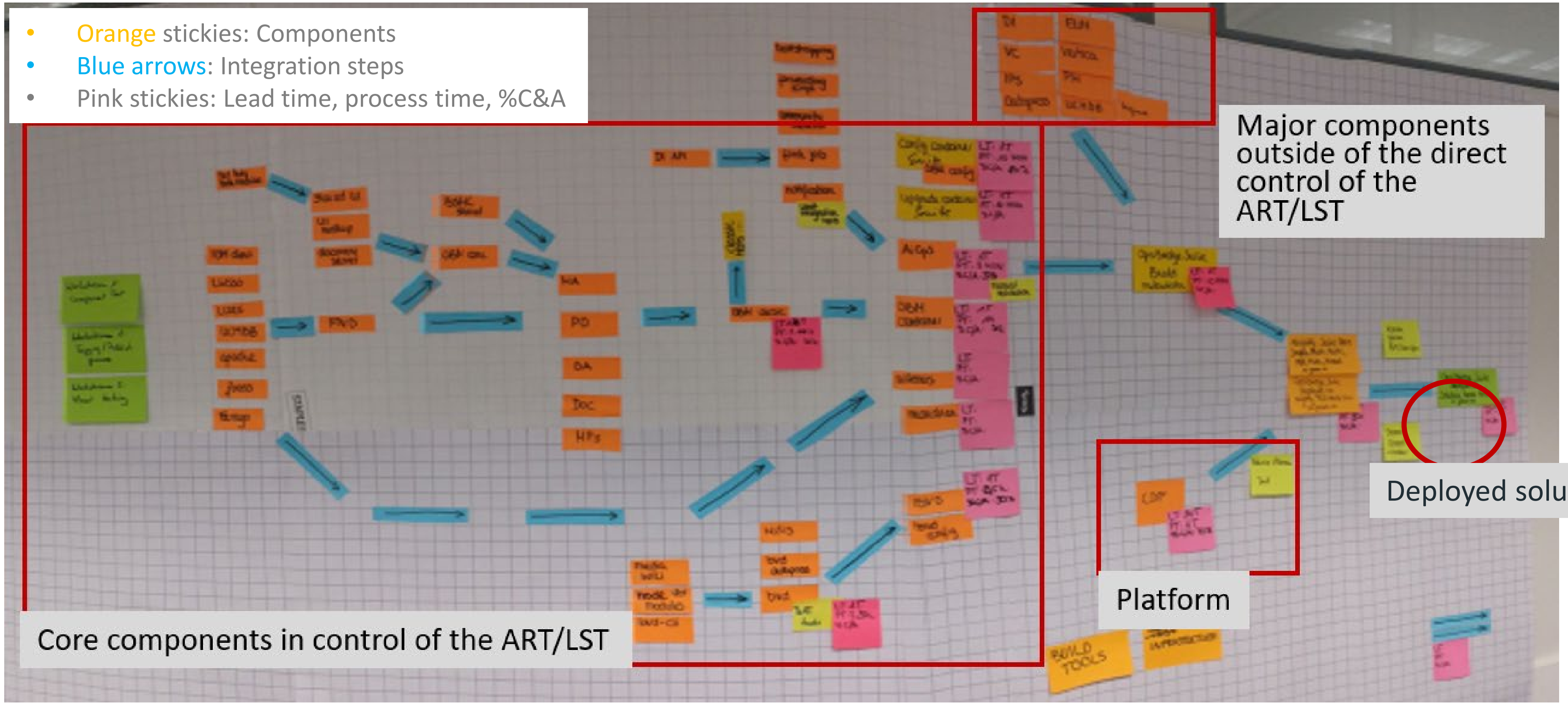
Undone work is additional work required to release a solution after the team is "done" with features and stories. Moving undone work into the DoD is called a 'shift-left' activity.

Typical examples: any kind of testing, security checks and audits, documentation, open-source legal assessments, and compliance checks, …

CI/CD Pipeline Model

A systematic model to identify bottlenecks

→ The elimination of bottlenecks leads to shorter lead times, efficiency gains, and improved product quality



- Orange stickies: Components
- Blue arrows: Integration steps
- Pink stickies: Lead time, process time, %C&A

Major components outside of the direct control of the ART/LST

Deployed solution

Platform

Core components in control of the ART/LST

Real-world model from a two-hour workshop (size of solution: >100M Lines of Code)

Uncovering pipeline issues with CI/CD modeling

Why does this component have such a low %C&A, leading to double or triple effort in a later step?

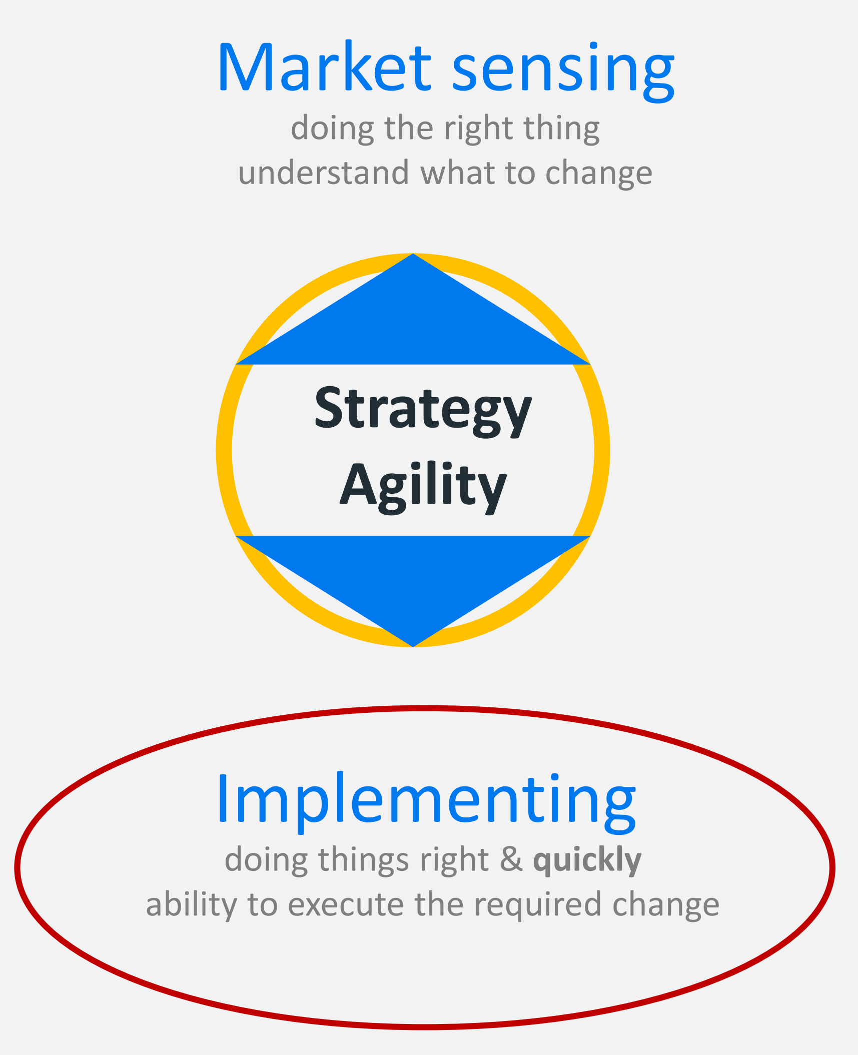
Why is this component so large?

Why do they have a dependency here but aren't doing more testing there?

Why does this step take so long?

Why are new versions of this component consumed very rarely, finally causing trouble during integration?

Strategy agility & a software factory


Market sensing
doing the right thing
understand what to change
Strategy
Agility
Implementing
doing things right & **quickly**
ability to execute the required change

SAFe

- Same language, mindset, way of working
- Easy way to adjust value streams

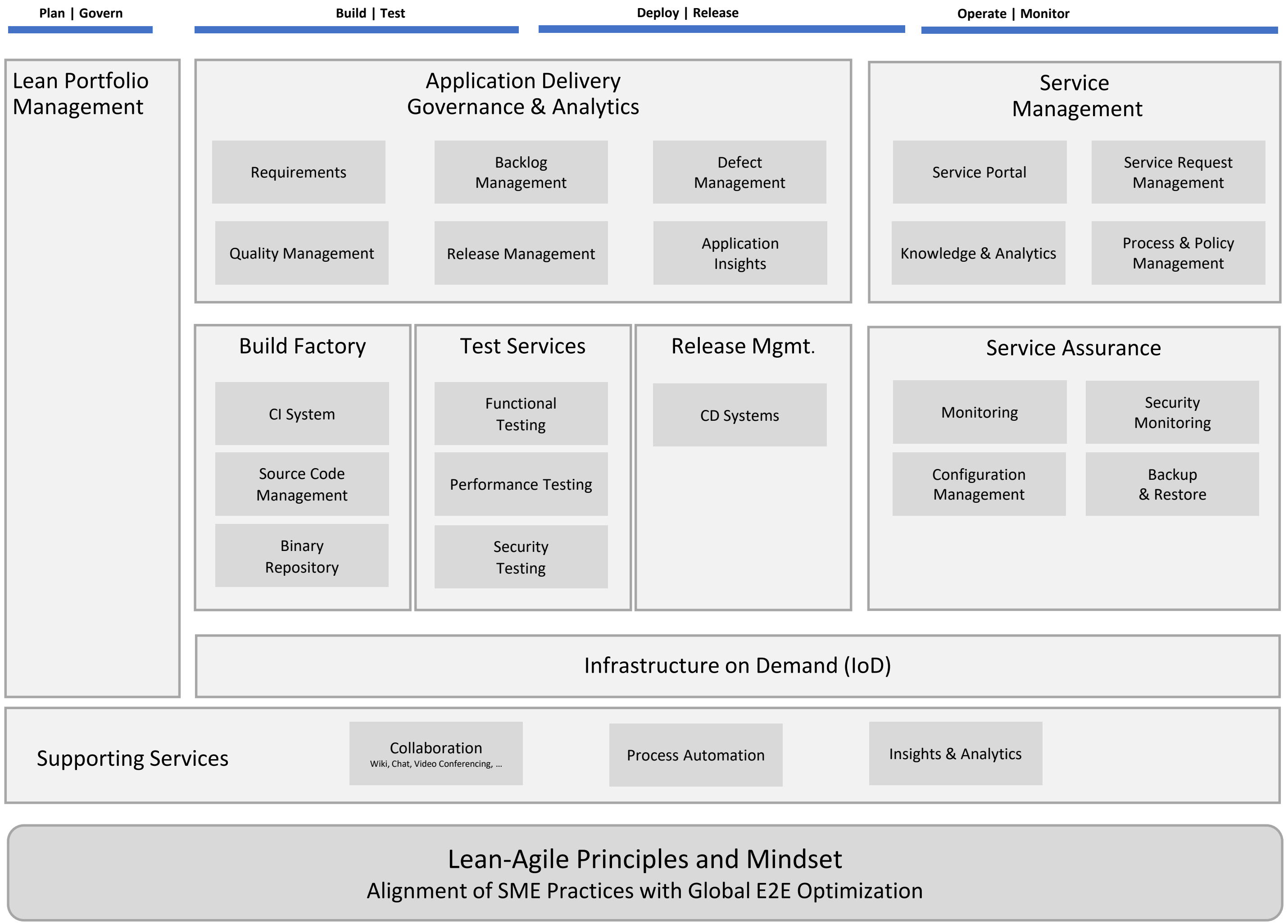
Software factory

- Same tooling and core processes
  → faster ramp-up time for teams in case of value stream adjustments
- Well working integrations
  → fewer but better integrations
- Mature services
  → maintenance, optimization, usability, reliability, monitoring, backup, compliance

→ **Faster response to change**

Software factory as key enterprise DevOps enabler

Blueprint



Plan | Govern

Build | Test

Deploy | Release

Operate | Monitor

Lean Portfolio Management

Application Delivery Governance & Analytics

Requirements

Backlog Management

Defect Management

Quality Management

Release Management

Application Insights

Service Management

Service Portal

Service Request Management

Knowledge & Analytics

Process & Policy Management

Build Factory

CI System

Source Code Management

Binary Repository

Test Services

Functional Testing

Performance Testing

Security Testing

Release Mgmt.

CD Systems

Service Assurance

Monitoring

Security Monitoring

Configuration Management

Backup & Restore

Infrastructure on Demand (IoD)

Supporting Services

Collaboration
Wiki, Chat, Video Conferencing, …

Process Automation

Insights & Analytics

Lean-Agile Principles and Mindset
Alignment of SME Practices with Global E2E Optimization

Software factory definition: An integrated set of tooling, services, data, and processes that helps teams to plan, develop, operate, and manage software and solutions.

Building a software factory:

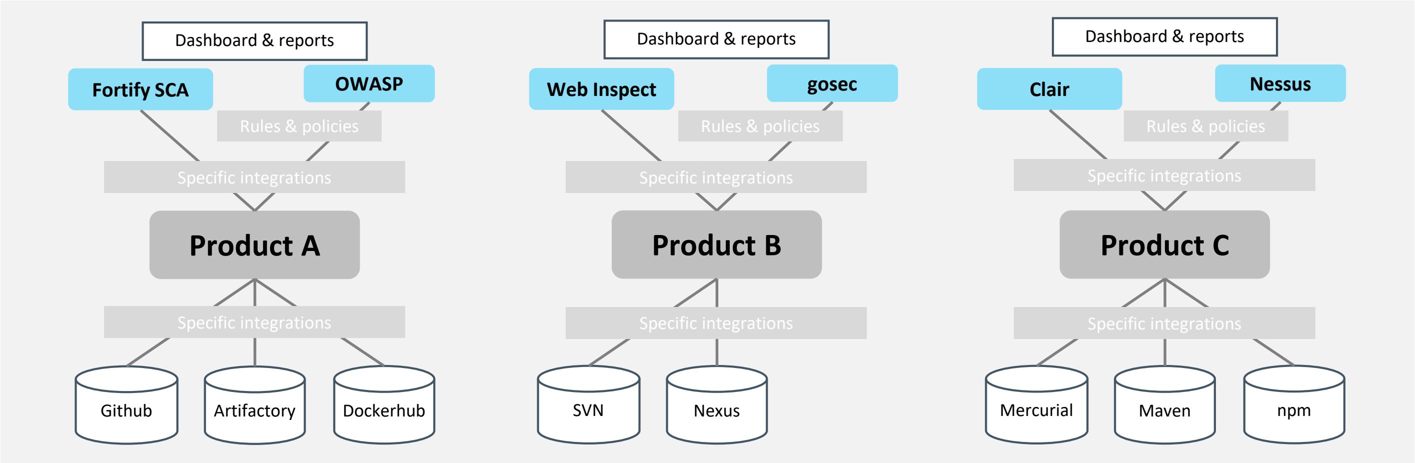
- Follows the same Lean-Agile principles used in product development
- Incremental approaches based on validated experiments and user feedback
- Usage is driven by the attractiveness of the solution and voluntary adoption

“As much freedom as possible and as much standardization as necessary.”

Benefits: reduces cognitive load, improves product quality, lowers costs, creates efficiency gains, and enables shift left

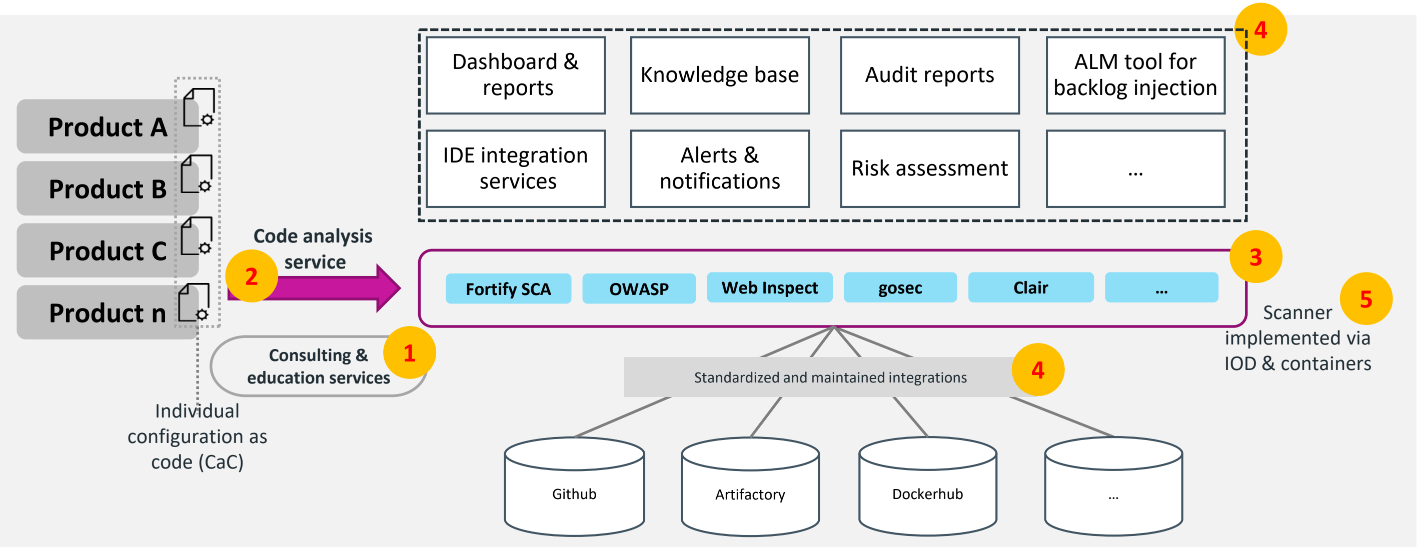
Benefits of a software factory service

Example: Static Application Security Testing (SAST) as a service



Typical setup

- Each product has its individual setup
- Cognitive overload and other factors reduce coverage and quality of implementation
- Lack of standardization makes it hard to shift teams between products according to business priorities



Software factory setup

(1) Consulting & education services
→ shared learning

(2) Cognitive load reduction
→ quality & productivity

(3) Higher scan coverage
→ quality

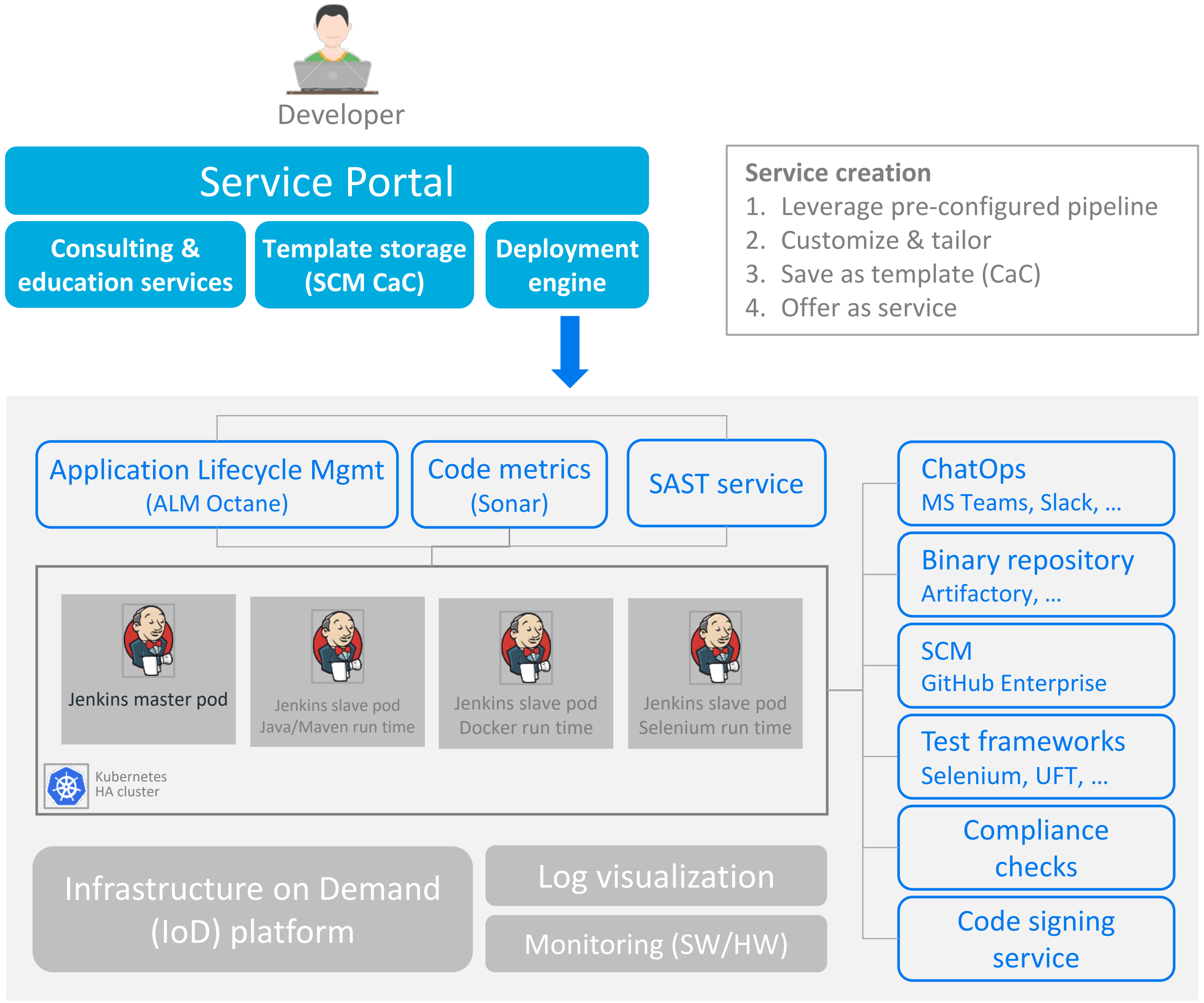
(4) Well maintained tools & integrations
→ quality & efficiency

(5) Scalable with optimized utilization due to IoD
→ efficiency

(6) Low ramp-up times for teams
→ strategy agility

Benefits of a software factory service

Example: Pipeline as a Service (CI Part)



Developer
Service Portal
Consulting & education services
Template storage (SCM CaC)
Deployment engine
Application Lifecycle Mgmt (ALM Octane)
Code metrics (Sonar)
SAST service
Jenkins master pod
Jenkins slave pod Java/Maven run time
Jenkins slave pod Docker run time
Jenkins slave pod Selenium run time
Kubernetes HA cluster
Infrastructure on Demand (IoD) platform
Log visualization
Monitoring (SW/HW)
ChatOps MS Teams, Slack, …
Binary repository Artifactory, …
SCM GitHub Enterprise
Test frameworks Selenium, UFT, …
Compliance checks
Code signing service

Service creation

1. Leverage pre-configured pipeline
2. Customize & tailor
3. Save as template (CaC)
4. Offer as service

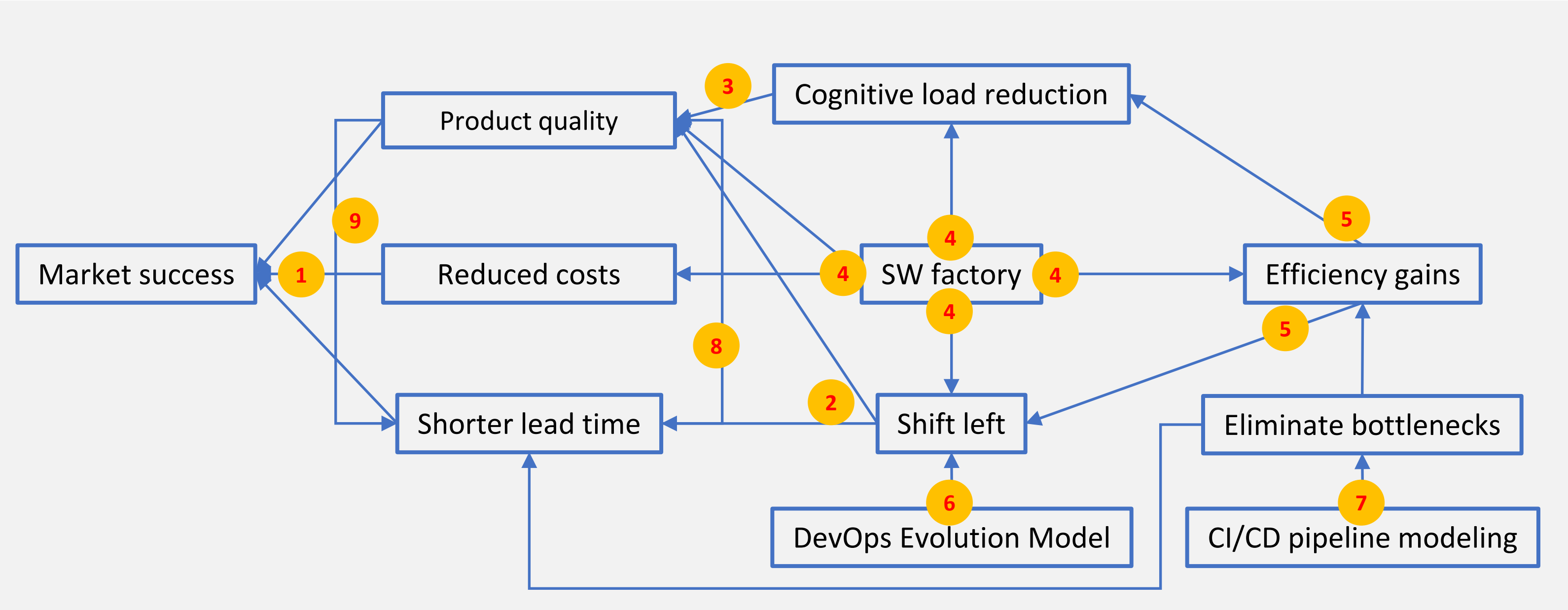
Software factory setup

- Consulting & education services
  → shared learning
- Cognitive load reduction
  → quality & productivity
- Pipeline creation & customization
  → reduced lead time
- Well maintained tools & integrations
  → quality & efficiency
- Scalable with optimized utilization due to IoD
  → efficiency
- Low ramp-up times for teams
  → strategy agility

Accelerating flow - bringing it all together

Accelerating flow by

- reducing lead time
- improving quality
- reducing costs



(1) Shorter lead time, product quality, and reduced costs lead to higher market success

(2) Shift left reduces lead time and increases product quality

(3) Cognitive load reductions lead to better product quality (teams can acquire deeper knowledge and skills)

(4) Software factory reduces cognitive load, improves product quality, reduces costs, creates efficiency gains, and enables shift left

(5) Efficiency gains reduce cognitive load and enable shift left (reduced transaction costs)

(6) DevOps Evolution Model is a systematic model to drive shift left

(7) CI/CD pipeline modeling identifies bottlenecks. The elimination of bottlenecks leads to shorter lead times, efficiency gains, and improved product quality

(8) Reduced lead time leads to improved product quality (shorter feedback cycles)

(9) Improved product quality leads to shorter lead time (less rework)

More details in the advanced article

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By Peter Vollmer, Distinguished Technologist, Micro Focus

Thank you!

Contact: peter@microfocus.com

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Please refer to the agenda for scheduled times

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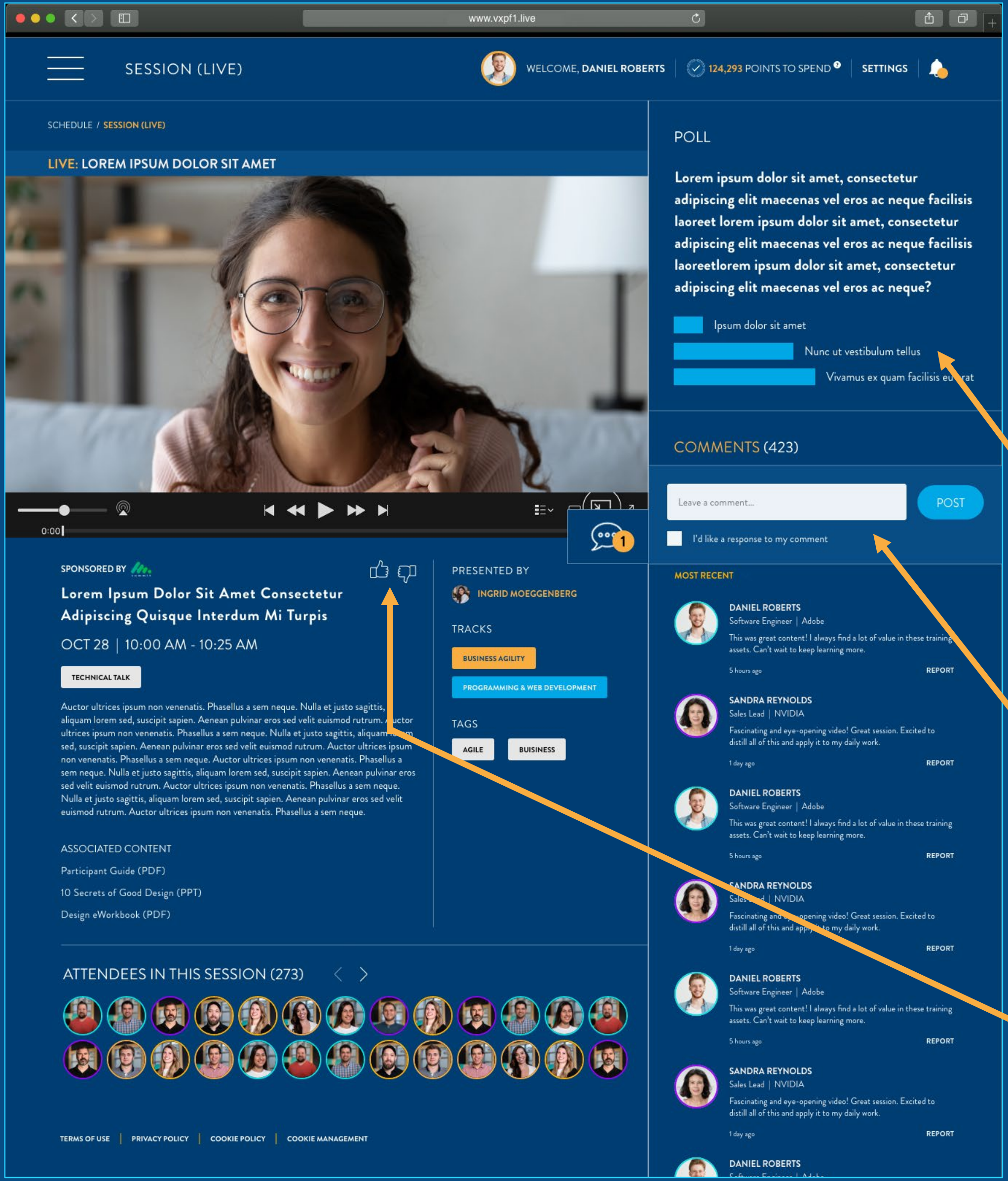

SESSION (LIVE)

WELCOME, **DANIEL ROBERTS** | 124,293 POINTS TO SPEND | SETTINGS

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OCT 28 | 10:00 AM - 10:25 AM

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10 Secrets of Good Design (PPT)

Design eWorkbook (PDF)

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- Nunc ut vestibulum tellus
- Vivamus ex quam facilisis eu erat

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