

CHICAGO

INTERNATIONAL  
SOFTWARE DEVELOPMENT  
CONFERENCE 2015

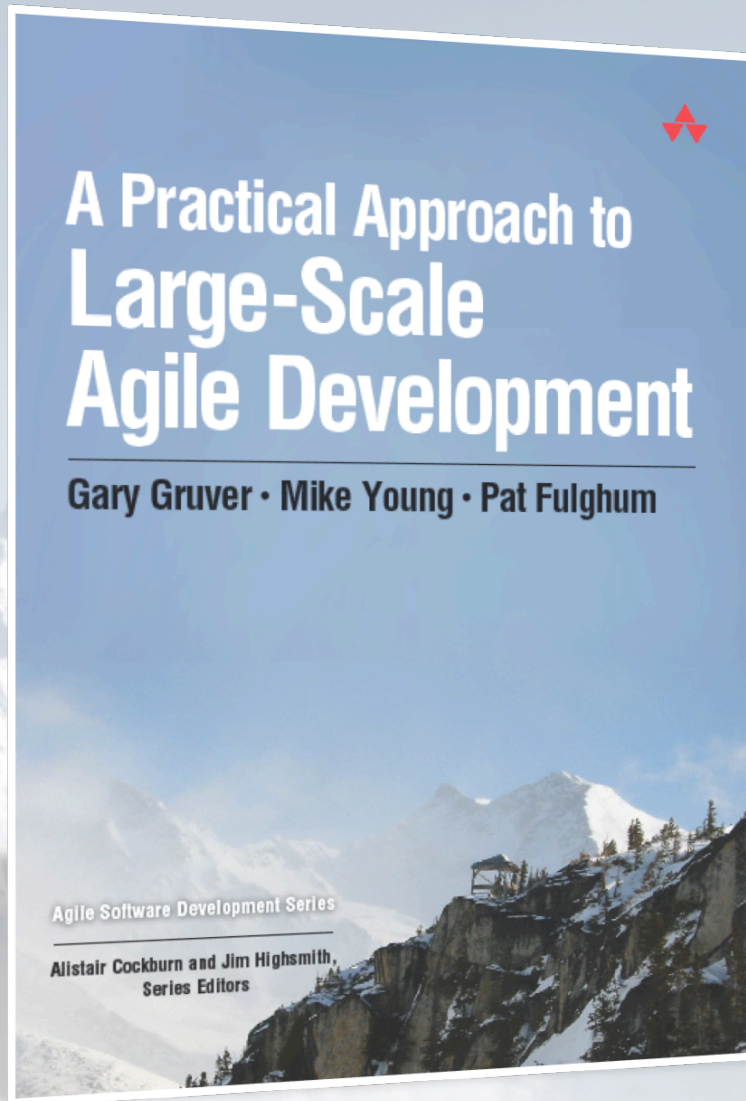
goto;  
conference

# Leading the Transformation "Applying Agile and DevOps Principles at Scale"

*Gary Gruver*

 follow us @gotochgo

Conference: May 11-12 / Workshops: 13-14



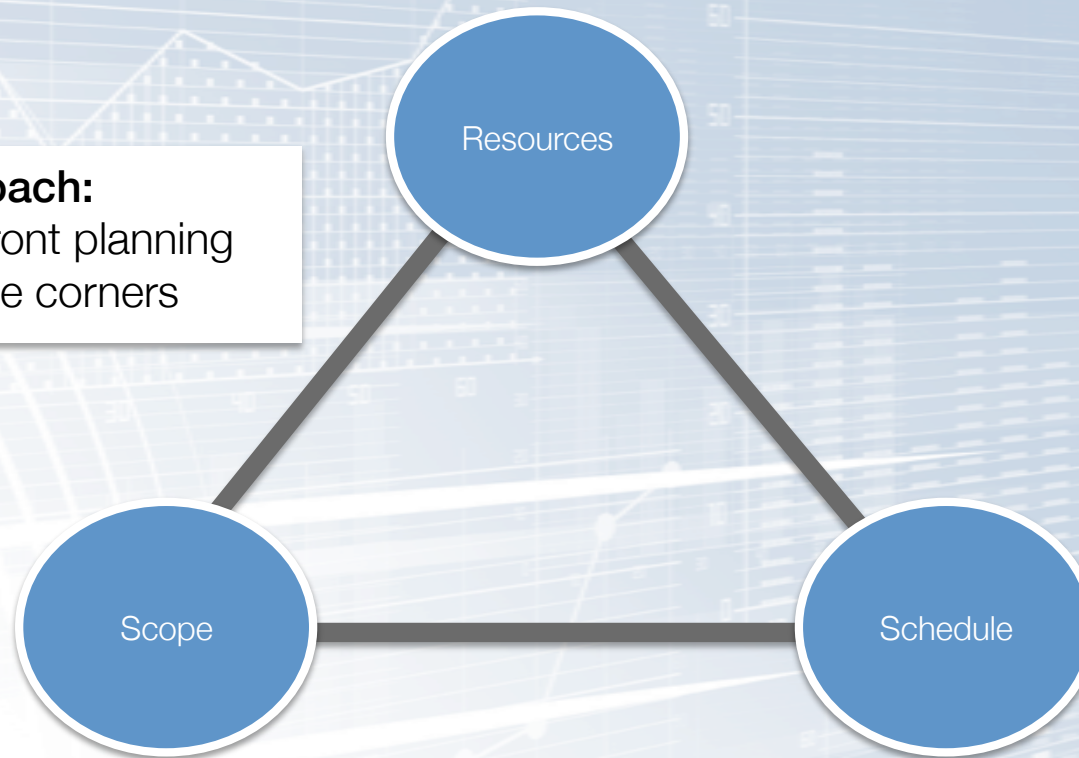
- FW no longer a bottleneck for the business
- Development costs reduced from \$100M/yr. to \$55M/yr.
- 140% increase in the number of products under development
- Capacity for innovation increased from ~5% to ~40%

# Waterfall Development Model



## **Waterfall Approach:**

Do enough up front planning  
to lock in all three corners



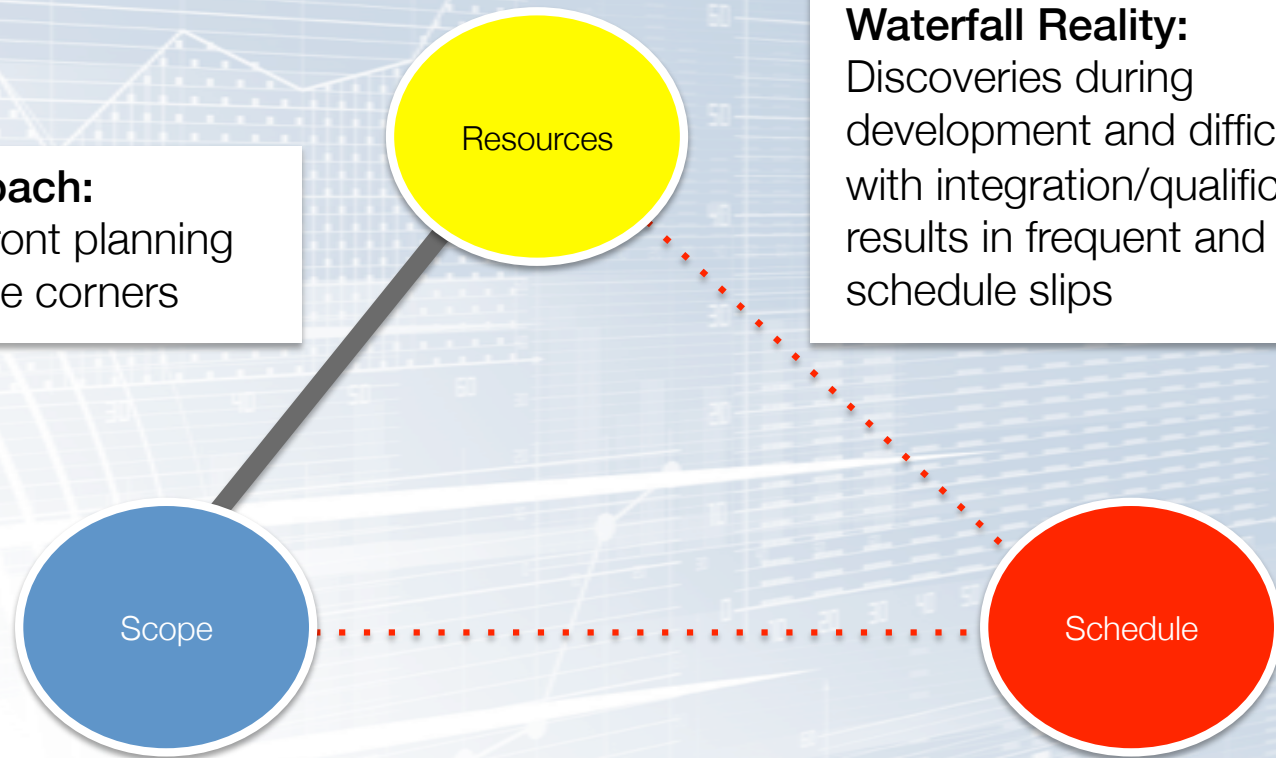


# Waterfall Development Model



## Waterfall Approach:

Do enough up front planning to lock in all three corners

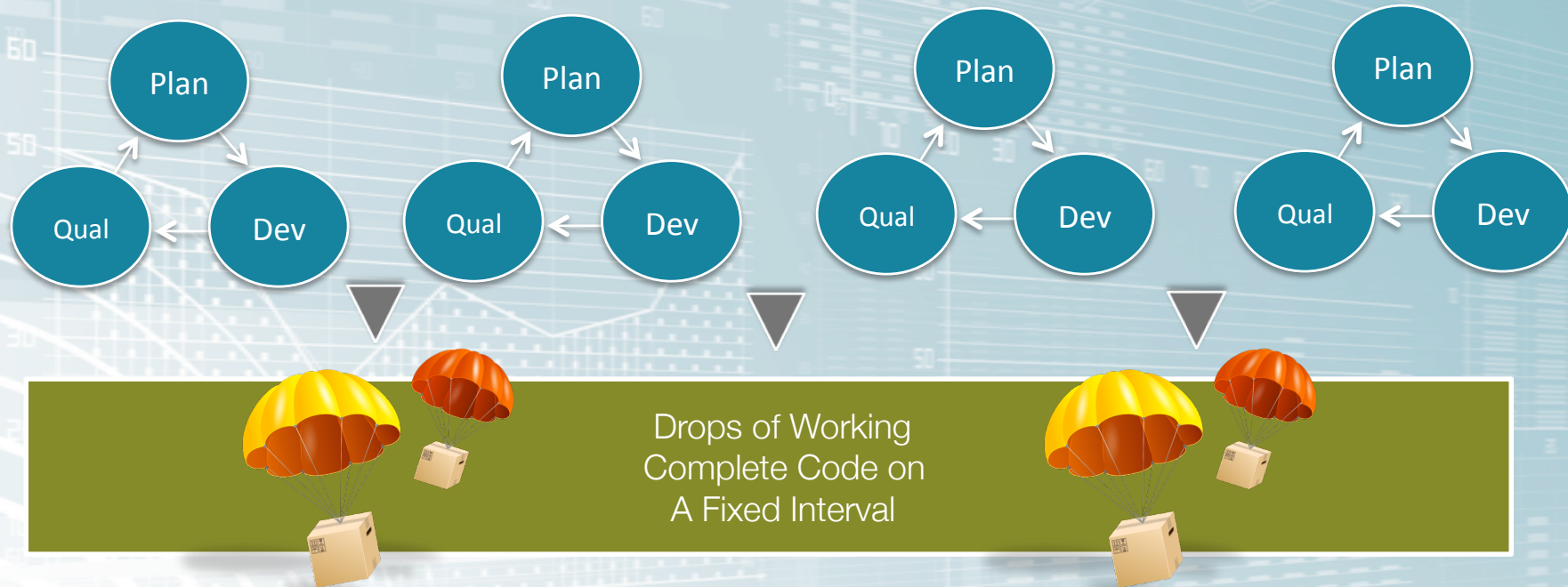


## Waterfall Reality:

Discoveries during development and difficulties with integration/qualification results in frequent and costly schedule slips



# Agile Development Model



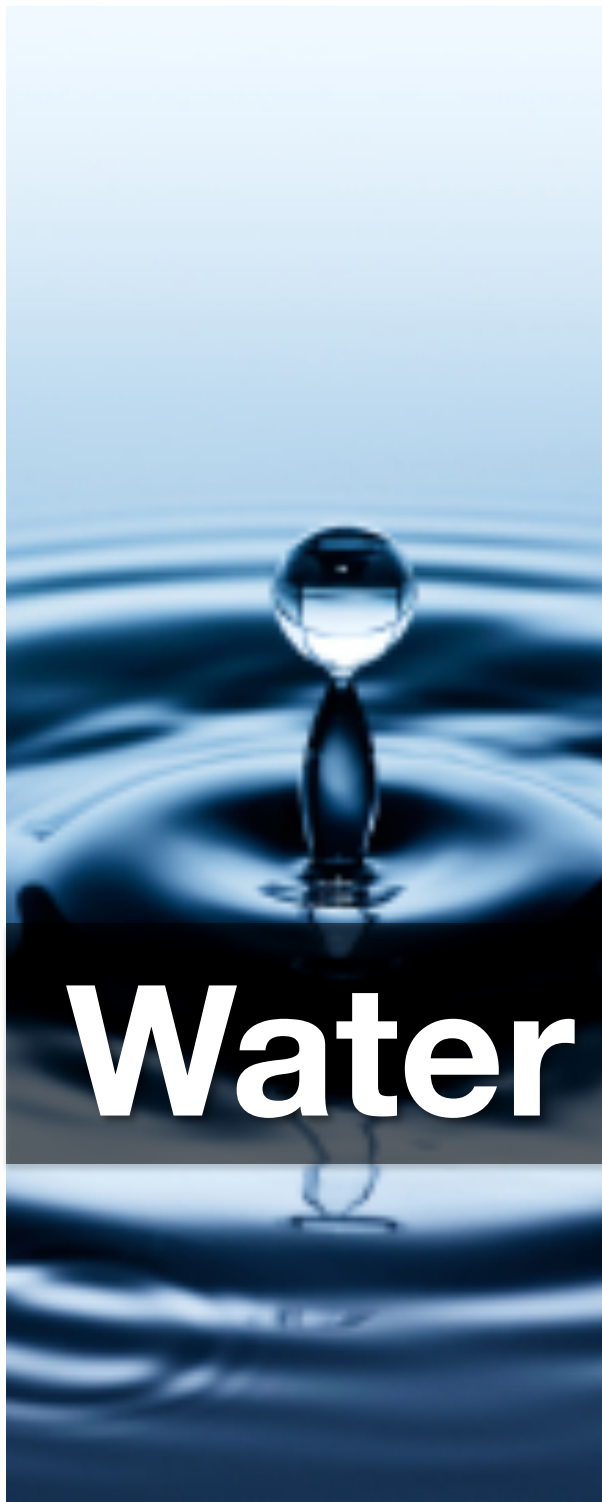
- Fully qualified code drops on a fixed schedule
- Frequent small integrations
- Short planning and development cycles
- Delivering to a well prioritized product backlog





**Scrum  $\neq$  Agile**

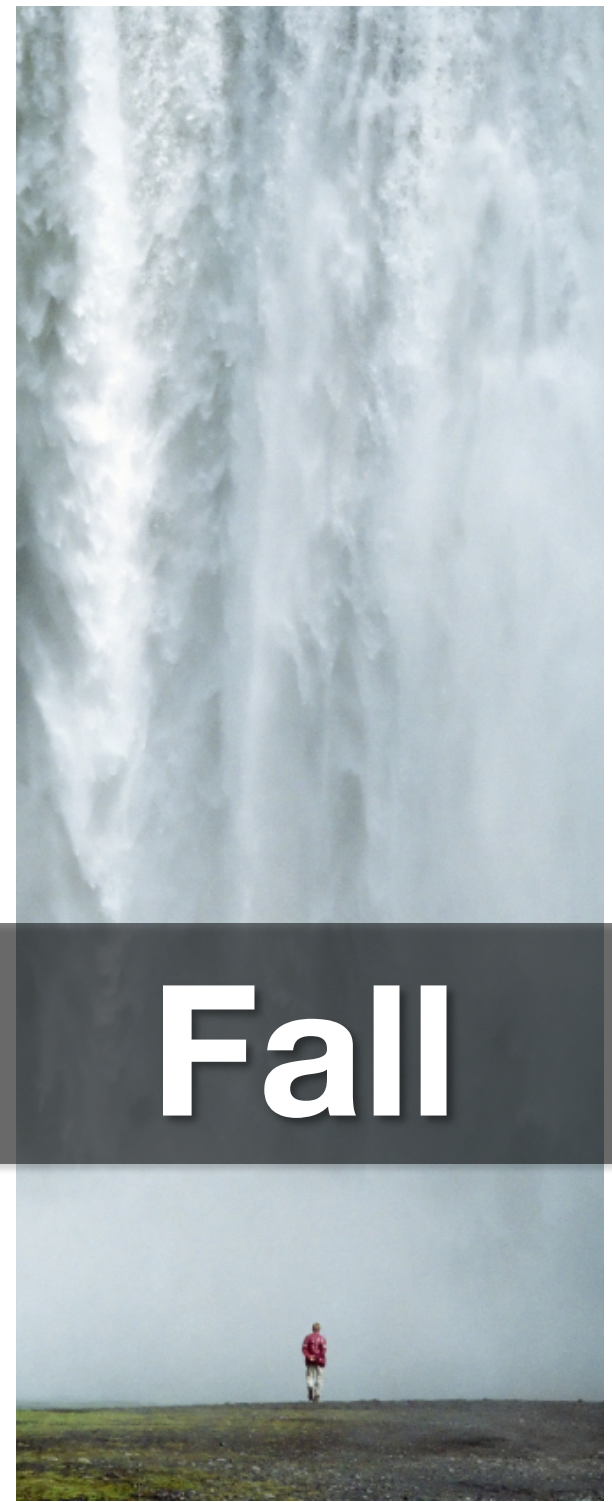




**Water**



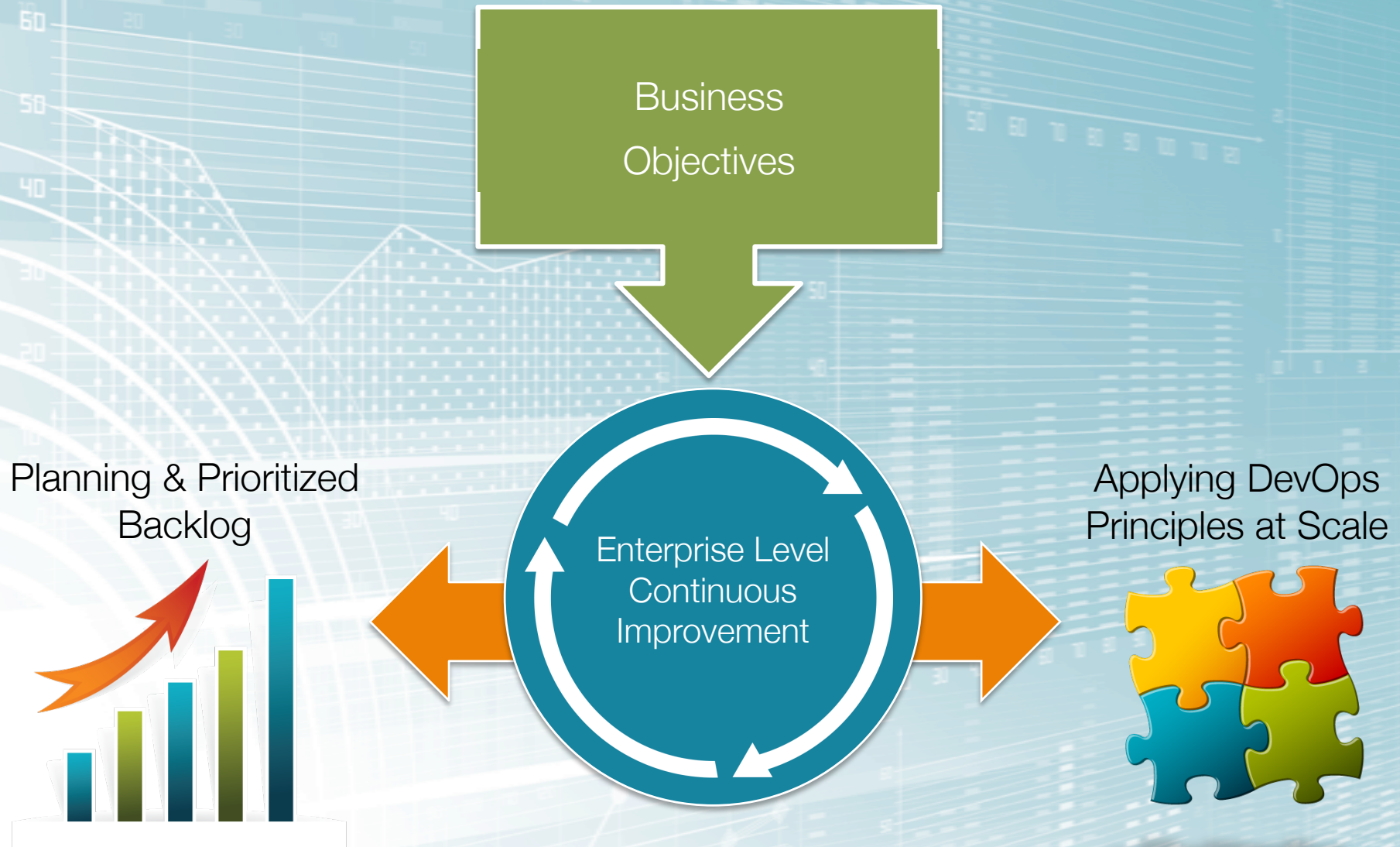
**Scrum**



**Fall**



# Leading the Transformation

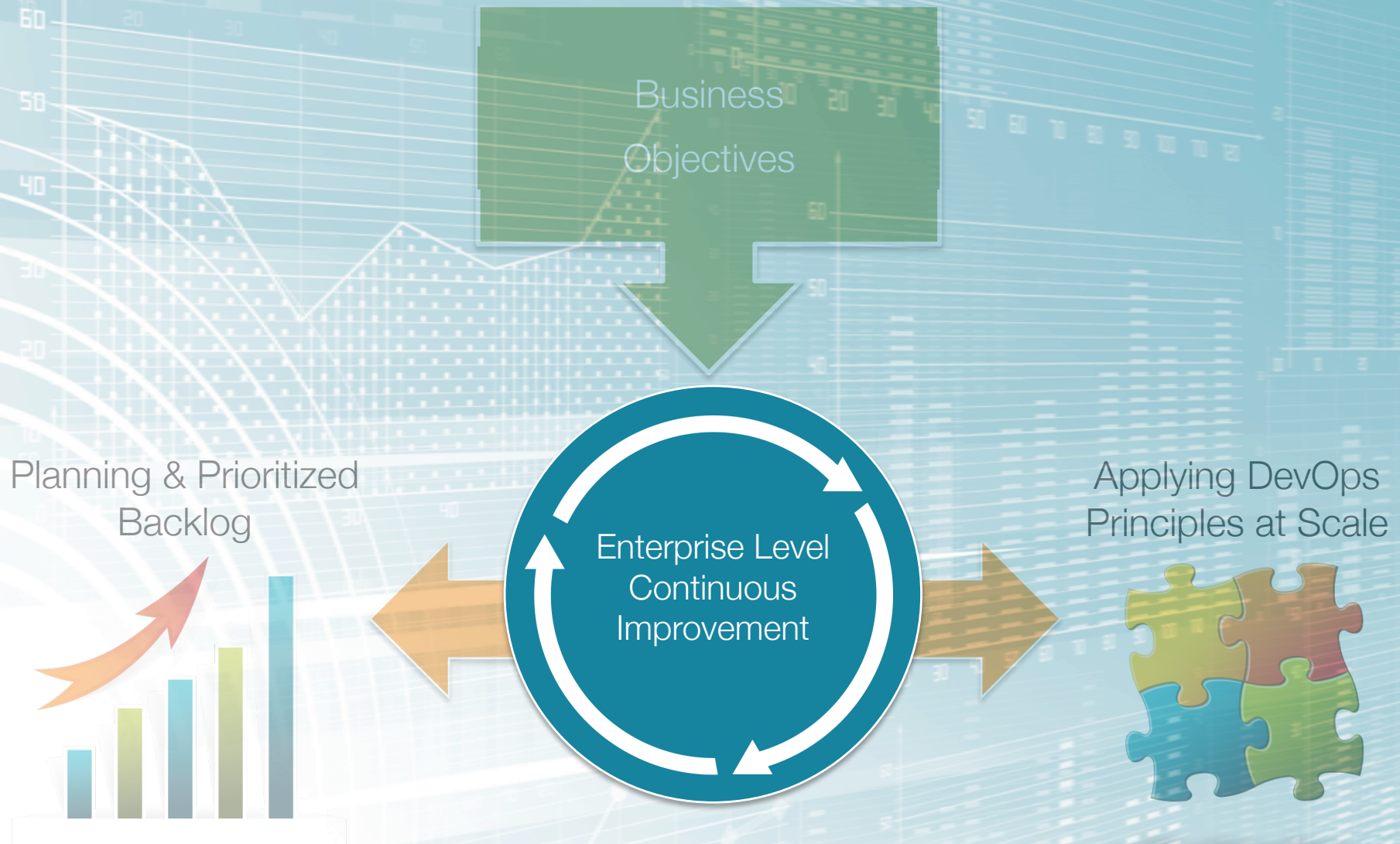


# Business Objectives (Don't “Do Agile”)

Either automate, eliminate, or engineer out the drivers that aren't key to the value prop



# Leading the Transformation





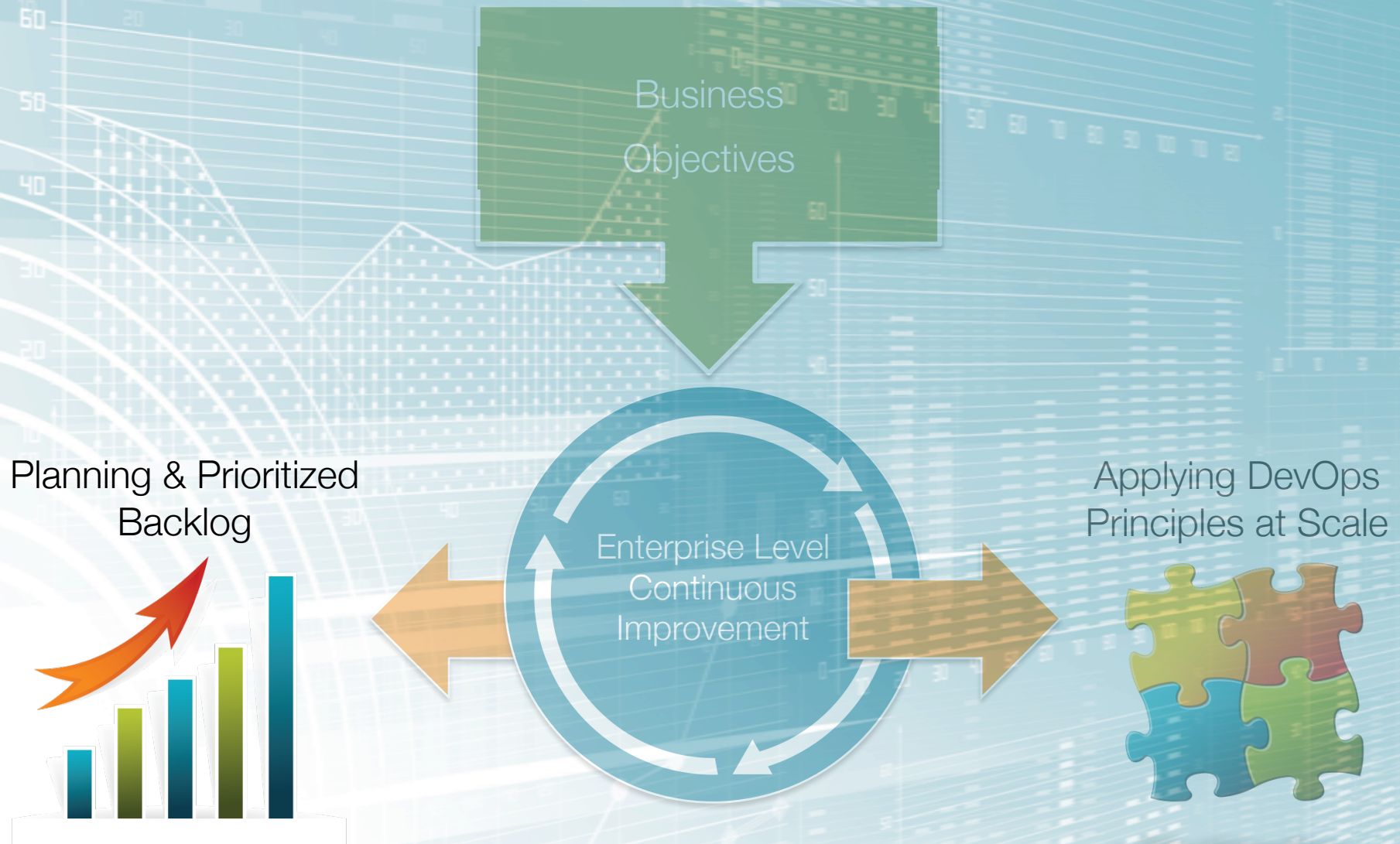
# Enterprise Level Continuous Improvement



# MM30 Objectives

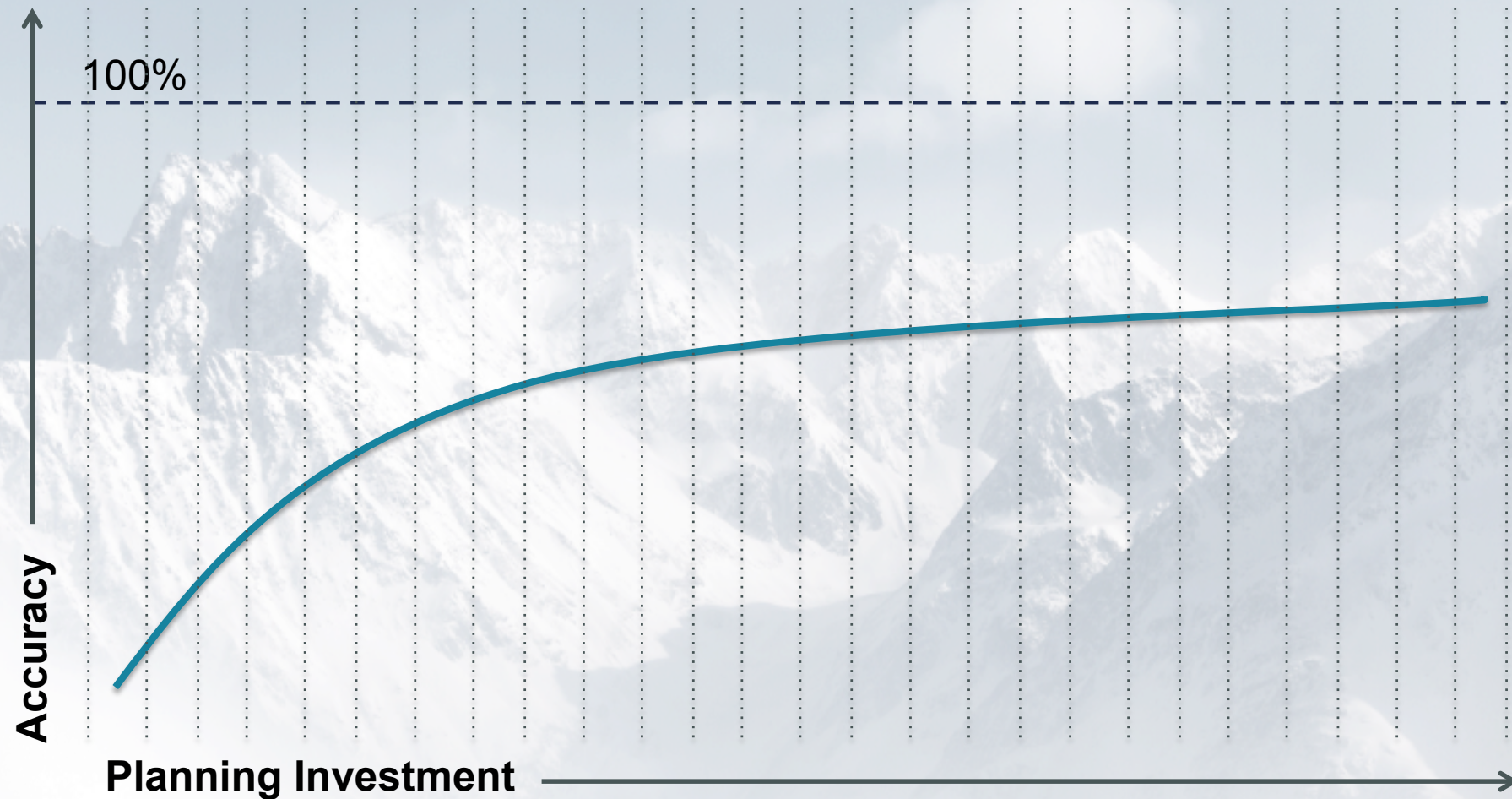
Rank	Theme	Exit Criteria
0	Quality	- P1 open < 1wk escapes    - CAT 100% pass    - L2 24hr response    - Tests for CAT
1	1 <sup>st</sup> Bit Release on new Arch for WinXP scanner	A) Final P1 defects fixed 2 remaining. B) Duration error rate per 10K: 0.3 (sim), 0.35 (emul), 0.4 (product)
2	Ensuring common code stability on WinCE & the CE products supported	A) Customer accpt level (CAT) tests 100% passing on CE B) test coverage appropriate for CE added to L1 (Terrese) C) All L2 pillars 98% pass – w/ coverage for high-value Product turn-on reqts for the CE products D) L4emu test pillars – LLFW (Arch), copy/PDL (Brian), PD (Hugh) E) Garnet L3 CAT in place with at least L4 CAT equivalence
3	Supporting the product reqs for the MIPS based products on CE	A) Calibration dependencies (Kimberly/Brian/Ted/Steve / Matt F) B) Print for an hour at speed to finisher with stapling (all) C) Copy for an hour at speed 35ppm (40ppm is at speed) D) Enter/exit powersave (Steve / Mike) Approved to push out to MM31 E) Mfg test suite exec on Coral emulator with FIM support (Terrese) F) Automated FIM – no bash prompt (Steve) Approved to push to MM31
4	Start porting CE code to ARM	A) Build single ARM system (Terrese) Feasibility proven. 2 DLL's to re-compile. B) High-level analysis of FW performance on ARM (Pat) Lowered priority.
5	Fleet Integr plan	Align on content for Coral/Garnet “slivers” of end-to-end agile test in ES. Overall plan in place. Need sliver details or will just deliver same as to PTO's.
BONUS	1 <sup>st</sup> ARM/CE product	- End-to-end boot, print, copy


# Leading the Transformation





# Long Term Predictability for SW Schedules

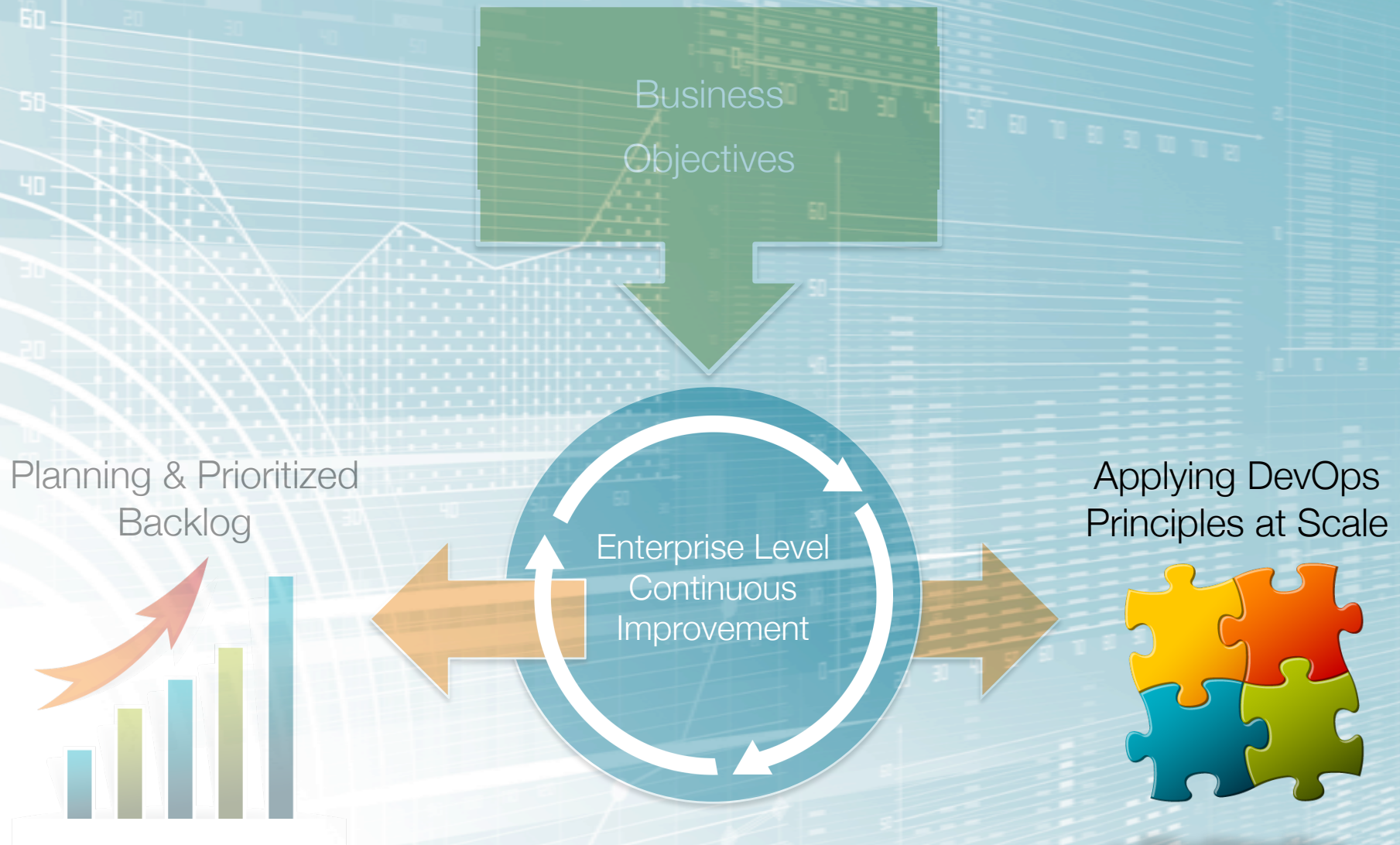


A black and white photograph of two martial artists in a dynamic pose. One person is in a low, wide stance, while the other is in a high, arched position, possibly performing a trick or a sparring move. They are wearing traditional martial arts uniforms (gi) with dark belts. The background is a simple, light-colored wall with a grid pattern.

One of the biggest challenges with Agile Planning at the enterprise level is getting the organization to **accept the uncertainty** in SW development and **appreciate the flexibility and opportunity**.



# Leading the Transformation





# Business Objectives for Applying DevOps at Scale

**Increase the quality and frequency of feedback**

**Testing in an Operational like environment as close to dev. as possible**

**Reduce the time and resources between release branch & production**

**Improve deployment repeatability/env. stability**

# Finding the offending code

What Code?  
When? Are you  
sure it wasn't Bob?





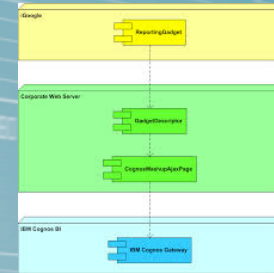
# Developing on Trunk





# Understanding the impact of Architecture

- Clean Architectures enable small fast moving Agile teams to develop, qualify, and deploy code independently
- Tightly coupled legacy architectures require carefully designed deployment pipelines to manage large complex Enterprise systems



# Ensuring the architecture/build system is ready

Comp A v2

Comp B v1

Comp C v2

Comp D v2

Comp E v2

Comp F v2



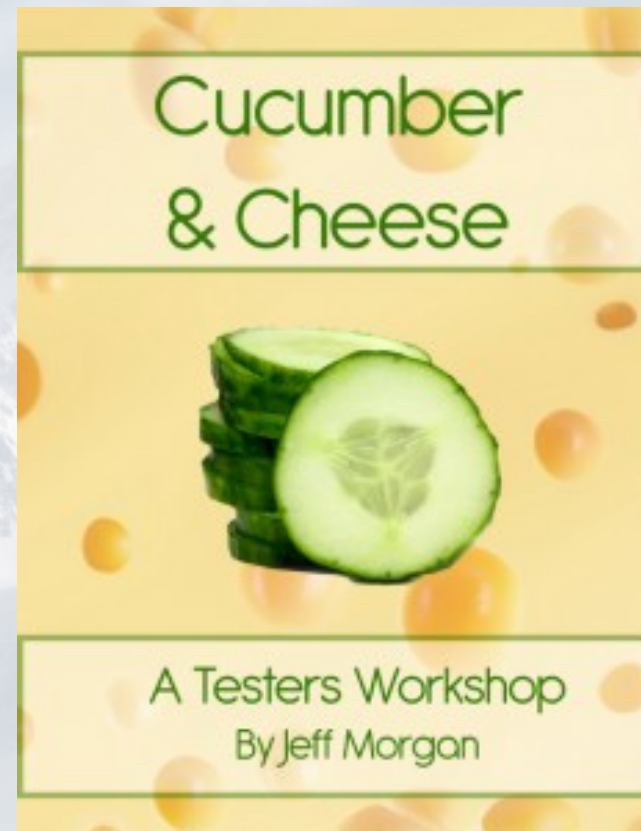
# Automated system test architecture

- Component based approach to the automated test architecture

Data Magic

Page Objects

Navigation



# CD - Picking the Right Tool for the Job

Orchestrator

Trigger

Scripted  
Env

Deploy  
ment

EDD

Auto  
Testing





# Scripting Environments - Variances

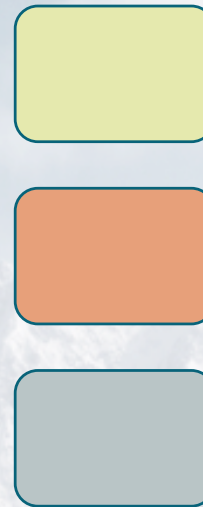
MY SERVICES



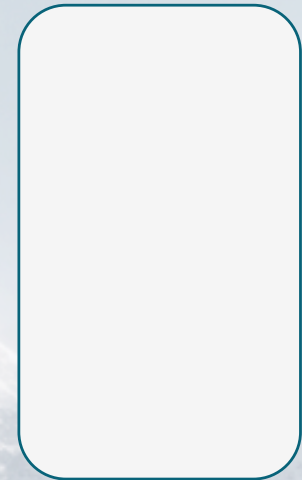
PRE-PROD



PERFORMANCE



PRODUCTION



*Environment descriptors*

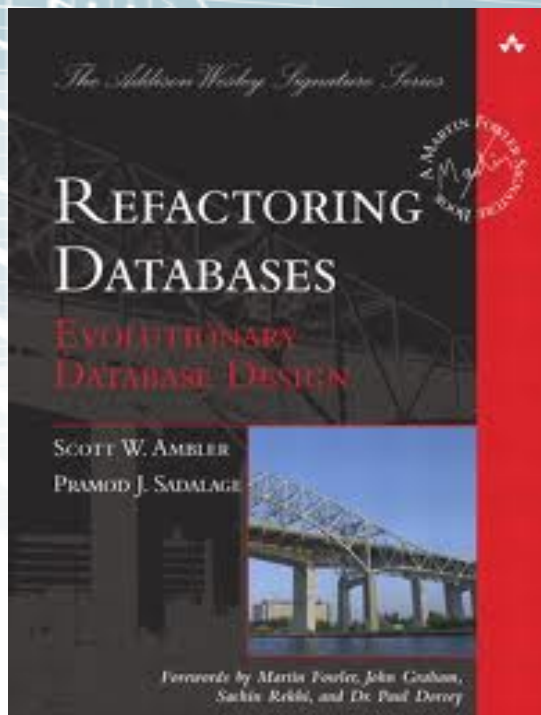


Common Script

# Evolutionary Database

- Add deprecate
- Lazy Instantiation

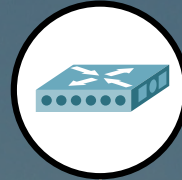
- Don't alter or Modify
- It is like crossing the beams



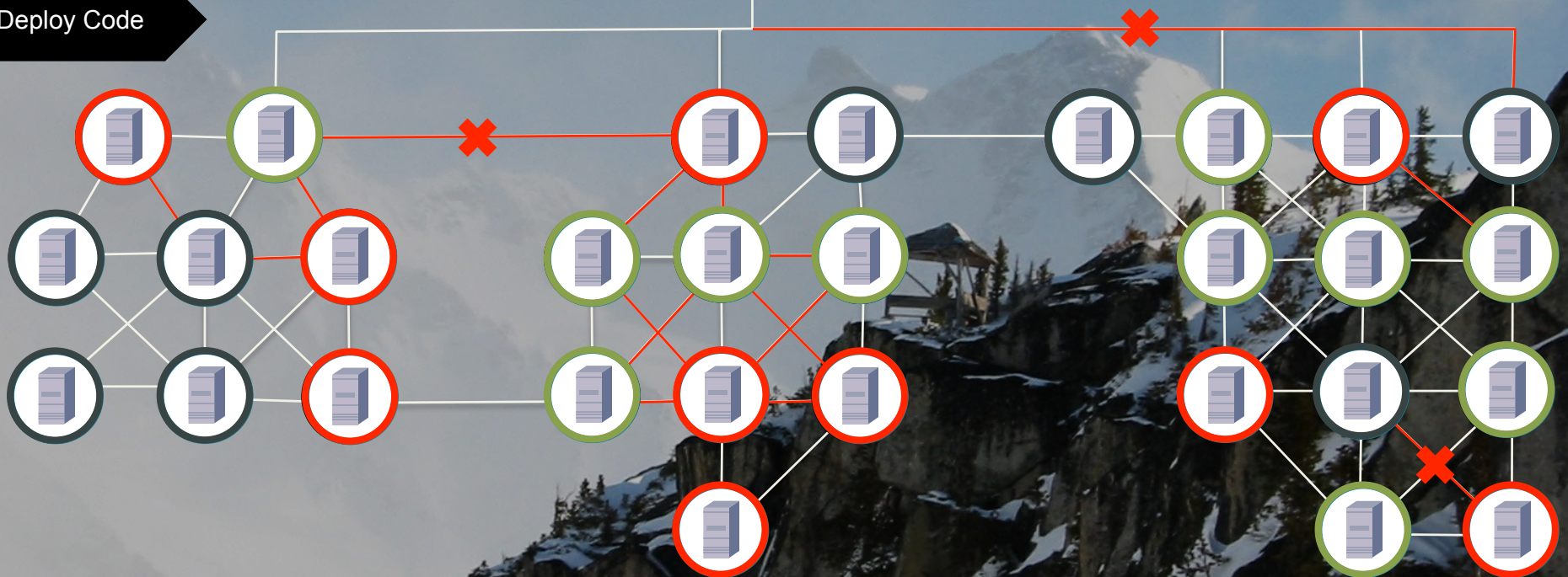


# Finding the offending component quickly improves productivity

1: Configure Servers/Router Device



2: Deploy Code



3: Run a System Test

? ? ? ? ? ? ? ? ? ? ? ?



# Finding the offending component quickly improves productivity

**1:** Configure Servers/Routing Device and Validate Data



**2:** Deploy Code & Validate Successful Deployment

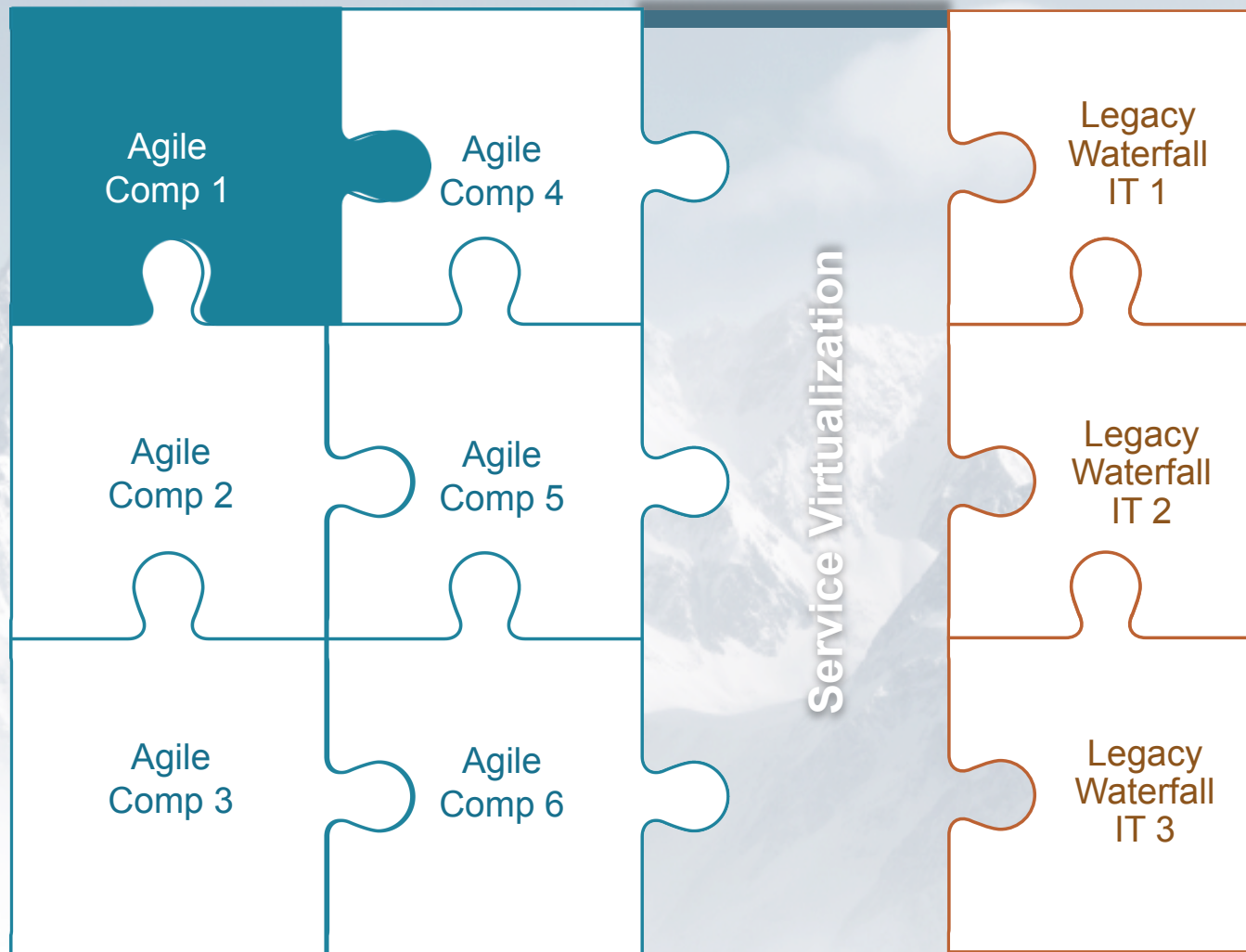


**3:** Run a System Test

## Code Validated



# Building up a Large SW System

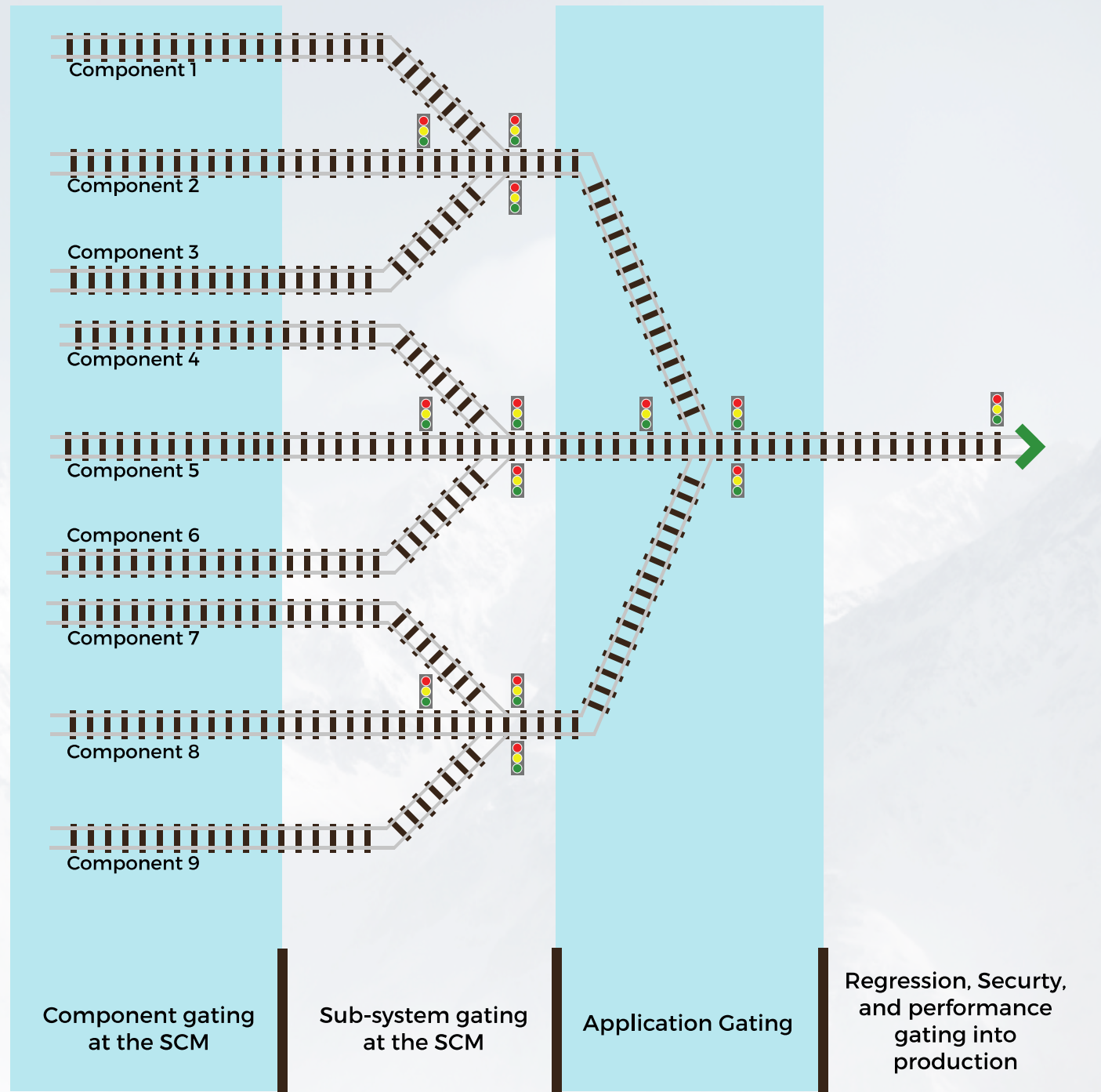


# Auto-revert/Gated Commits

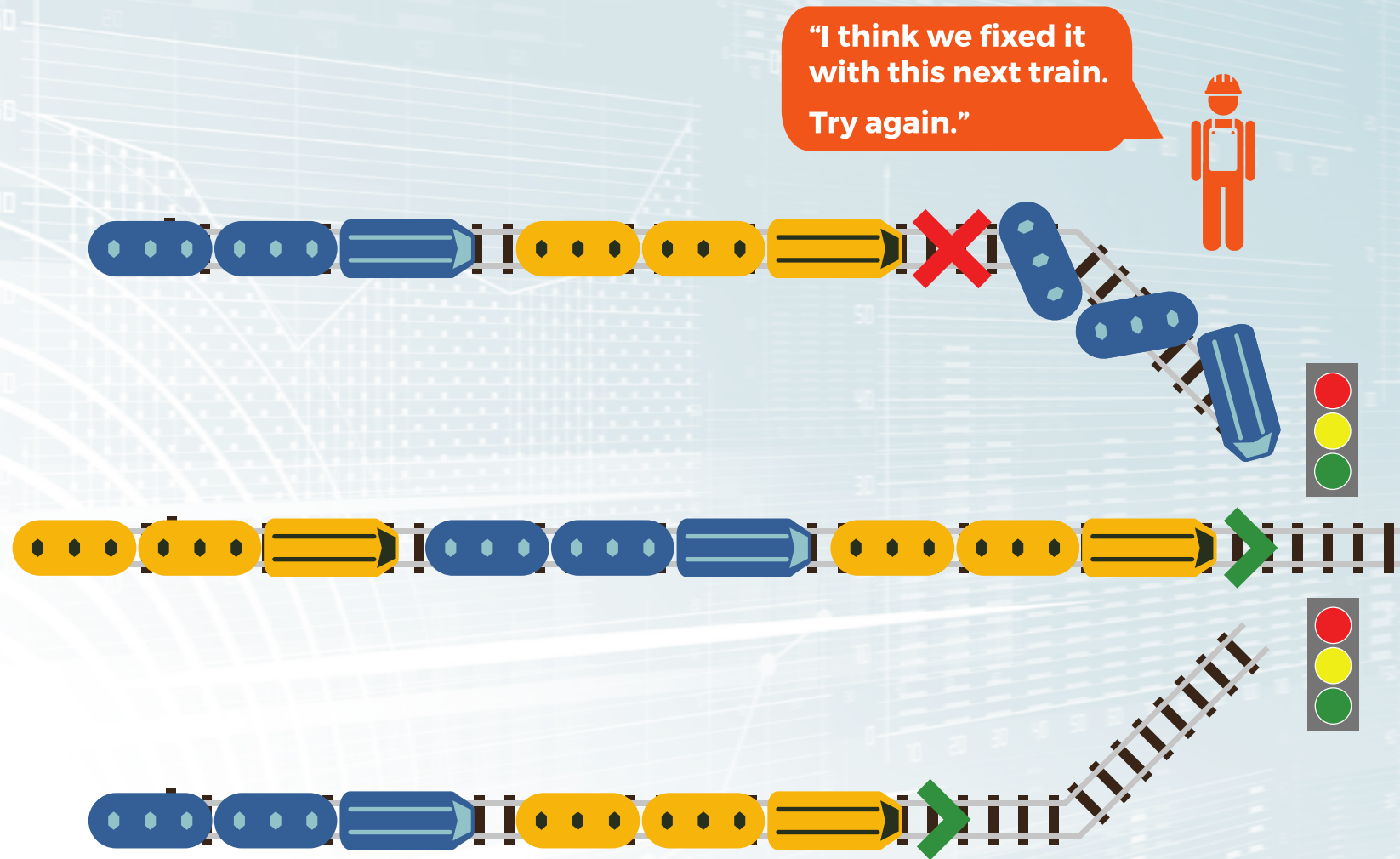




# Building Up the Enterprise System

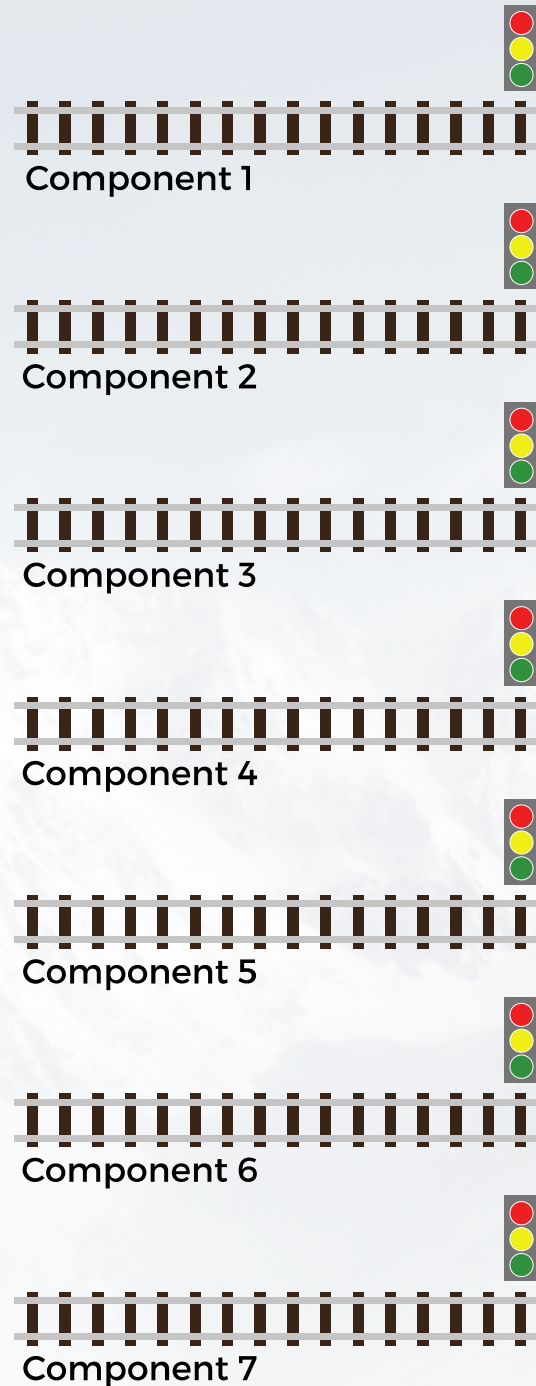


# Application Gating



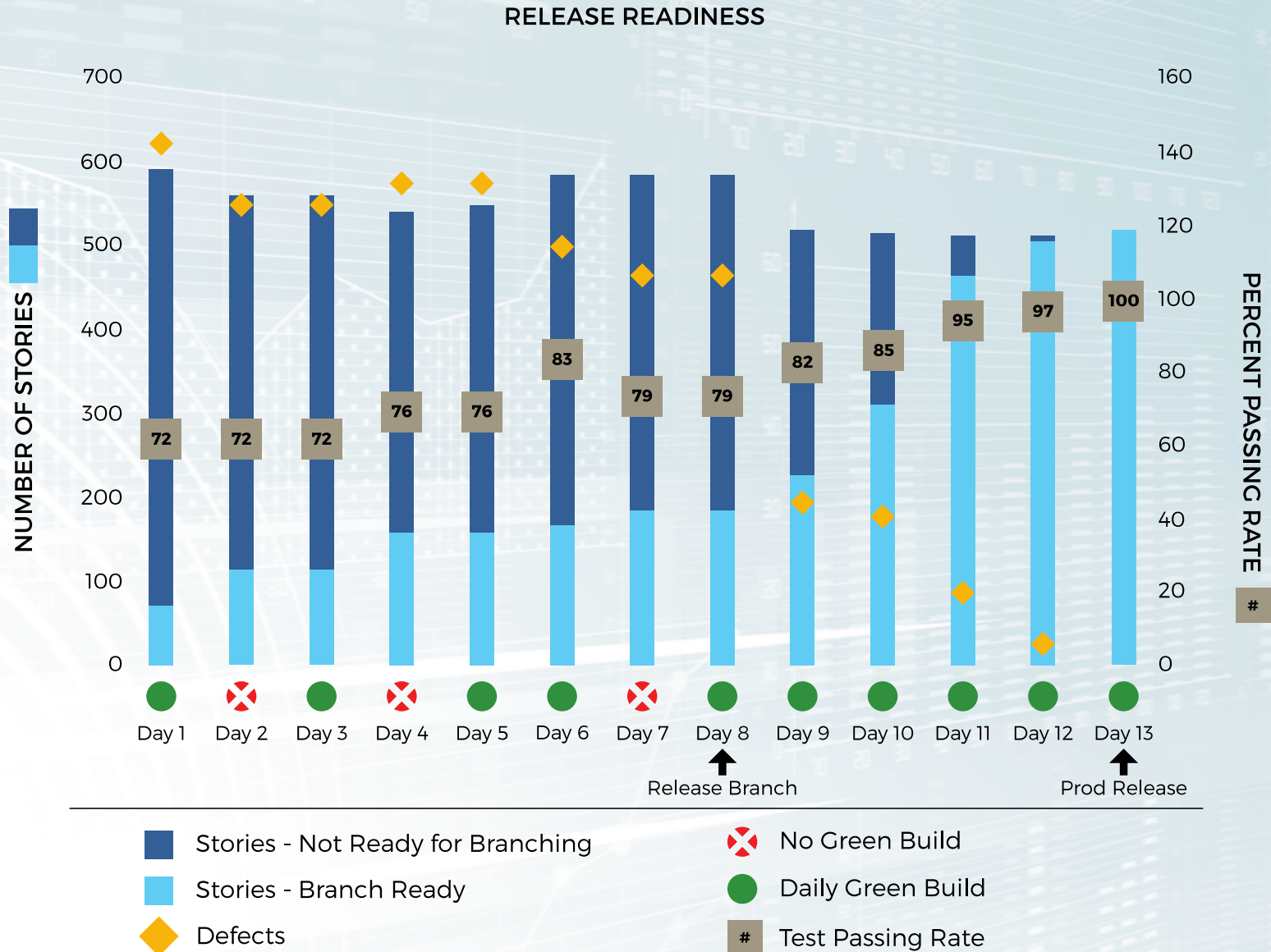


# Loosely Coupled Architecture Deployment Pipeline



**Production**

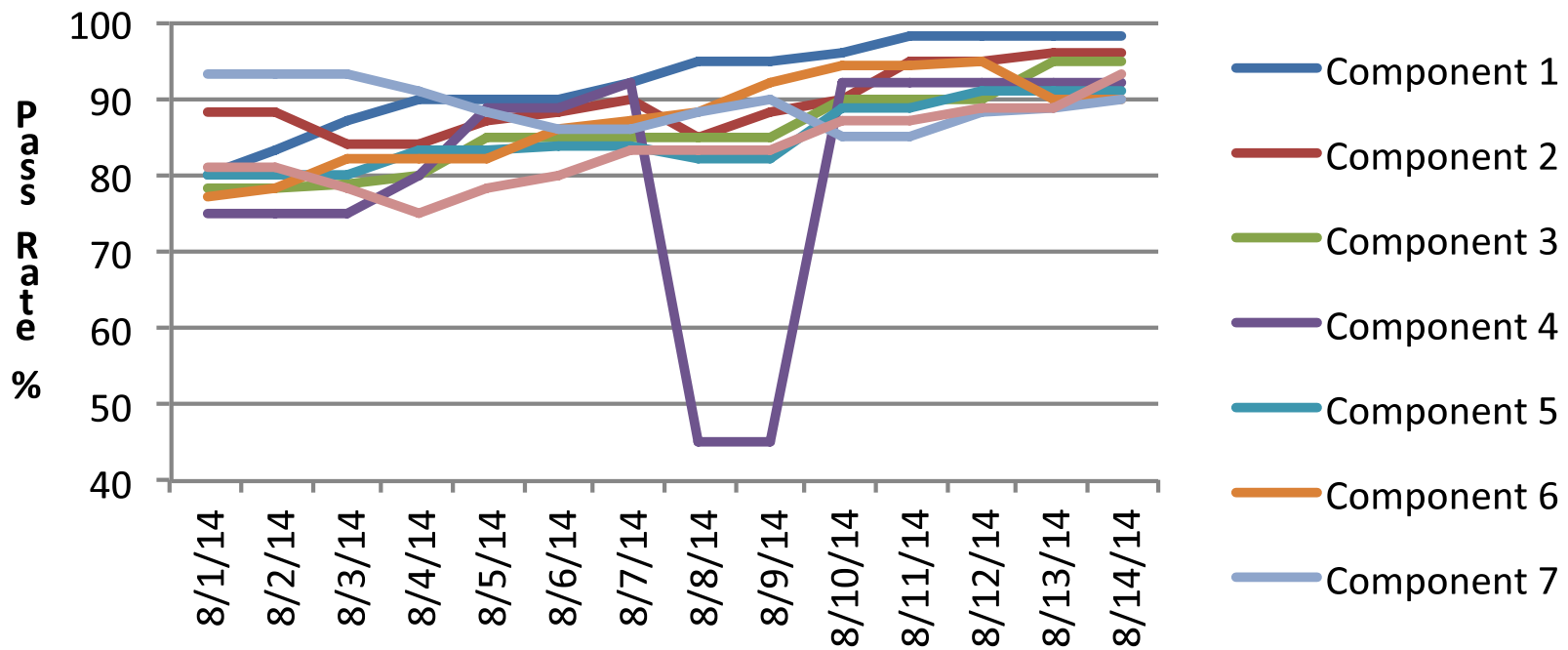
# Understanding the Work





# Farming the Build Acceptance tests

## Daily Component Regression Graph



# Shifting the Culture

- Getting developers to ensure every check-in to trunk is stable in a production like environment as job #1.
- Getting development and operation teams using common tools and environments so they share common objectives.
- Getting the entire organization to agree that the definition of done at the release branch.
- Embrace the unique characteristics of software and design a planning process that takes advantage of its flexibility.



"If you want to understand how to lead a Continuous Delivery or DevOps transformation in your company, there's no better book than this. Concise, practical, and based on hard-won executive experience, this book is essential reading for every IT executive." —Jez Humble, VP, Chef

Gary Gruver and Tommy Mouser

# LEADING THE TRANSFORMATION

Applying Agile and DevOps  
Principles at Scale

foreword by Gene Kim

IT Revolution

- FW no longer a bottleneck for the business
- Development costs reduced from \$100M/yr. to \$55M/yr.
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# Questions?

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Guide App*

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