Gary Gruver

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Making the Process Visible



Loosely Coupled Deployment Pipeline





Tightly Coupled System





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Tightly Coupled Deployment Pipeline





Embedded SW/FW Deployment Pipeline





Product Design Implications on Deployment Pipelines

Architecture/Application Type	Challenges
Loosely Coupled	Most Efficient
Tightly Coupled	Coordination, Quality, & Flow
Customized Off-the-Shelf	Deployment, Branching, Coordination, Quality, Flow
Embedded SW/FW	HW & Product Variability, Automated Testing, Coordination, Flow



Building in Quality



Step 1	Select an environment
Step 2	Validate tests for repeatability



Test Stability





Step 1	Select an environment
Step 2	Validate tests for repeatability
Step 3	Ensure tests can run in random order



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Step 4	Ensure environment is stable under load



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Step 5	Ensure the deployment process is stable



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Step 5	Ensure the deployment process is stable
Step 6	Ensure environment creation is repeatable



Pareto Chart of Issues





Automation Priorities

Steps to Expose Issues	Pareto Chart: Issues Exposed	Changes Req'd for Stable Quality Signal
Step 1: Select an environment	NA	NA
Step 2: Validate tests for repeatability	Test/Data issues	Improve test automation design and test data
Step 3: Validate tests can run in random order	Test/Data issues	Improve test automation design and test data
Step 4: Ensure the environment is stable under load	Environment issues	Analyze root cause of instability
Step 5: Ensure deployment process is stable	Deployment issues	Automate code deployment
Step 6: Ensure environment creation is repeatable	Environment issues	Automate env creation with infrastructure as code

Optimizing Flow



Cycle-time and Feedback Delay



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Pareto Chart of Issues









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



Thank-you



Garygruver.com for the ebook. First 10 people to enter "devopsworld" as The code will get a free book.

Engineeringthedigitialtransformation.com to Learn more about the training

To schedule a DevOps Chat: https://calendly.com/garygruver/devops-chat

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