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DevOps

Bridging the Gap Between Development and Delivery

Peter Karaganis

About Me

@llaslo
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- Sr. Enterprise Architect - Six Flags
- Coding professionally since 1995
- Industry Experience:
  - Entertainment
    - Amusement Park
    - Media
  - Printing
  - Aerospace
  - Consulting
  - Office Products
- I am…
  - A Pragmatist
  - Passionate…
    - About Innovation
    - About Technology
    - About Improving Processes
    - About Solving Problems
    - About Seeing My Code Make a Difference
  - Geek

Peter Karaganis

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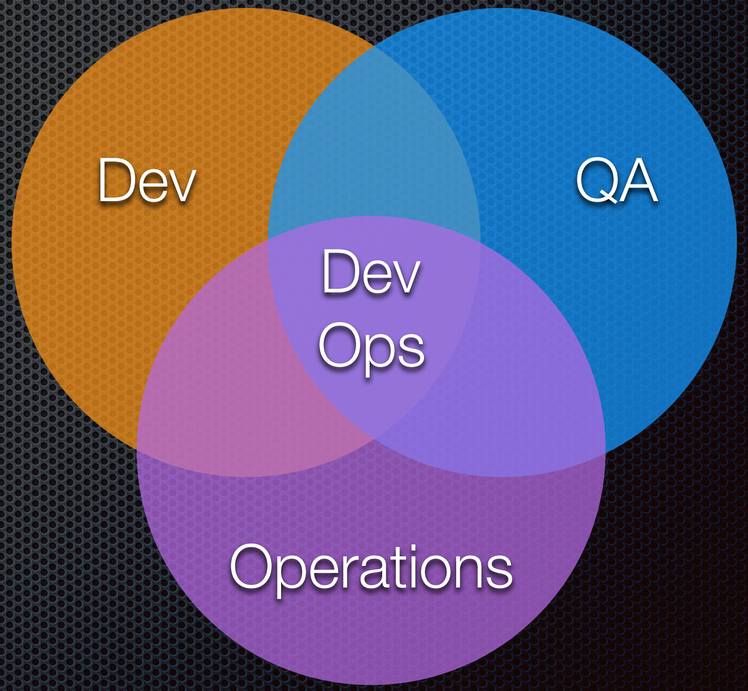
What is DevOps?

“DevOps is all about working together in more open and efficient ways so teams can collaborate better and ship better performing code.” - New Relic

“DevOps is an approach based on lean and agile principles in which business owners and the development, operations, and quality assurance departments collaborate to deliver software in a continuous manner that enables the business to more quickly seize market opportunities and reduce the time to include customer feedback.” - Sanjeev Sharma & Bernie Coyne



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The Good ol’ Days (or were they)

- “I don’t always test my code, but when I do, I test in production.”
- Deployments were infrequent
- Few 3rd Party Integrations
- Local Development (developers all at one location)
- Weak Security (simple username and password)

The Case For DevOps

Technical:

- Faster delivery
- More automation
- Less human error
- Better testing
- Not only for the cloud

Business:

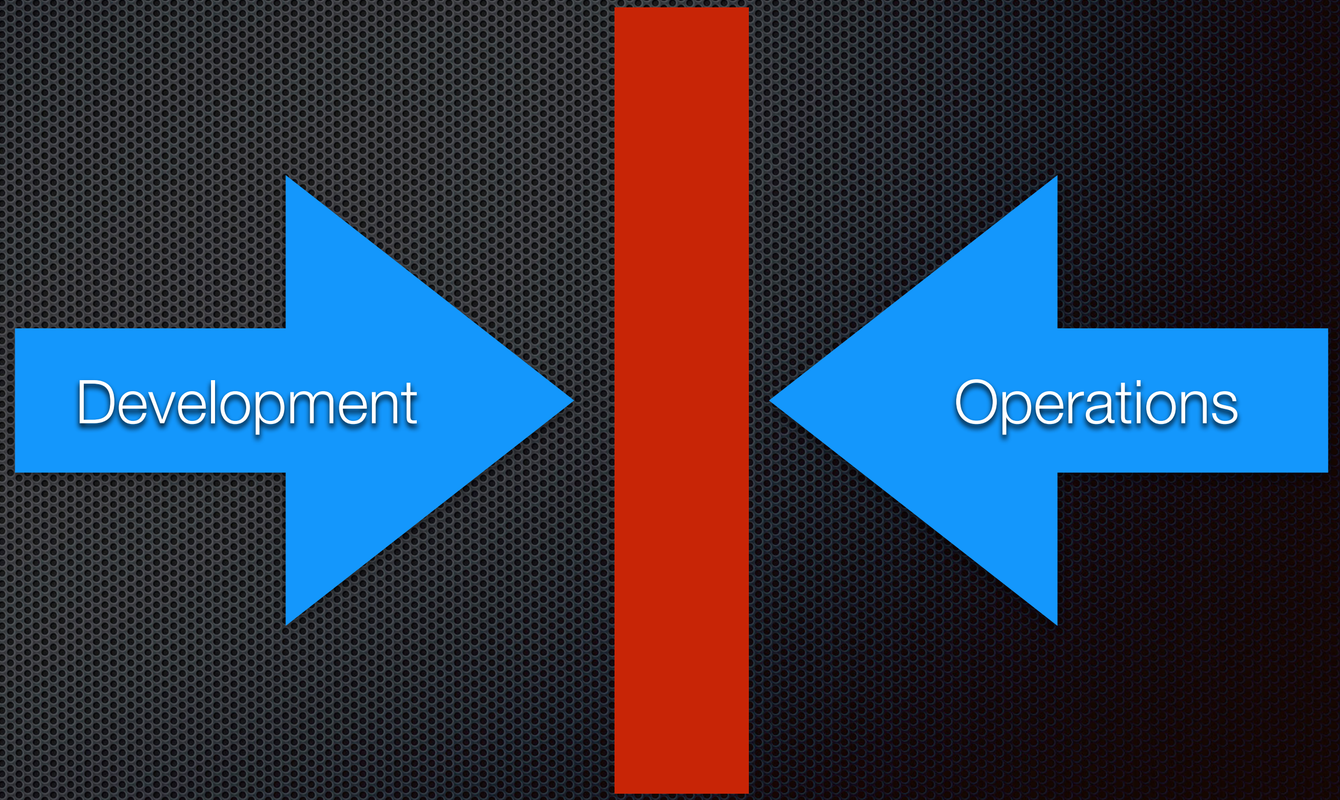
- More time for adding value
- More stable releases
- Reduced deployment costs
- Better user satisfaction

“In most organizations, Dev and Ops have misaligned goals. Dev is measured by the number of new features. Ops is measured by 100% uptime. Question: What’s the best way to get 100% uptime? Answer: Don’t introduce any new features or make any changes.”

–The Best Lines From DevOps Days

The Dev-Ops Barrier

- Dev is tasked with adding value through new features
- Operations is tasked with maintaining 100% Uptime
- These are two principles are at odds with each other



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Key Tenets of DevOps

- Pragmatic problem solving
- Automate, automate, automate
- Avoid silos
- Develop trust between groups

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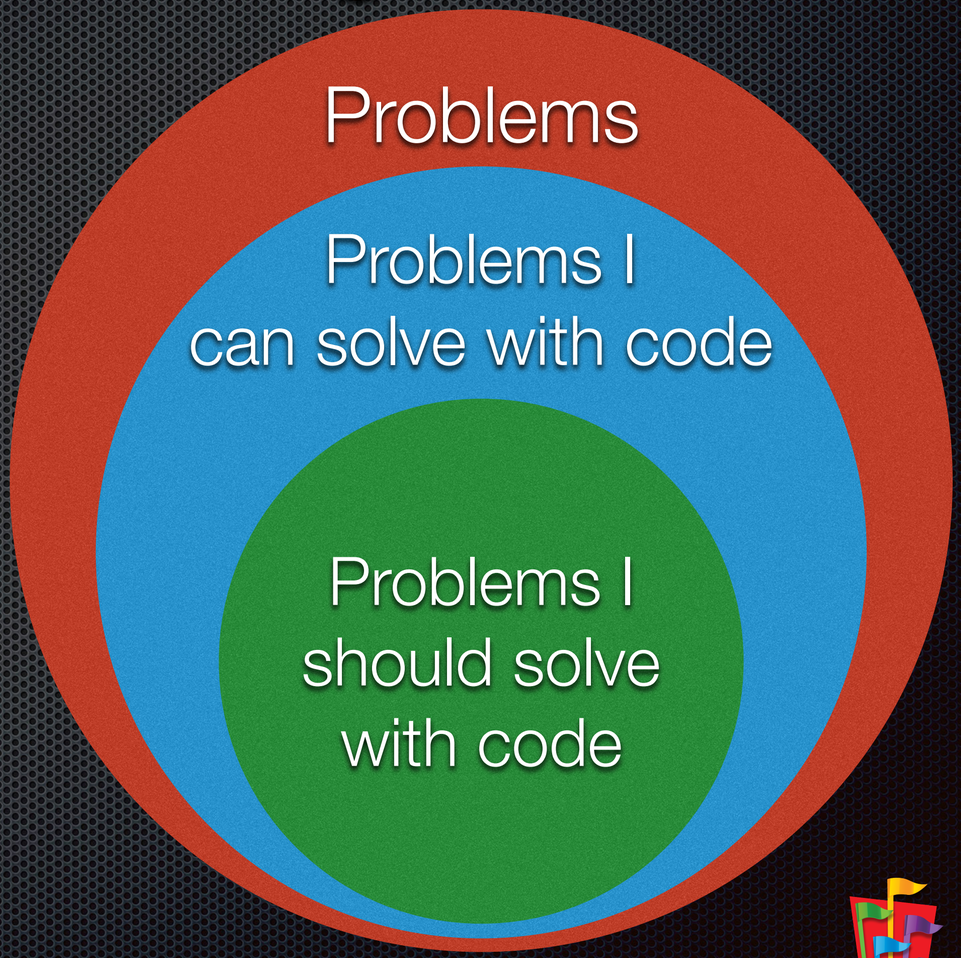
Pragmatic Problem Solving

- Identify Issues
- Should I solve the issue at all?
- Alternative Solutions:
  - Communication
  - Documentation



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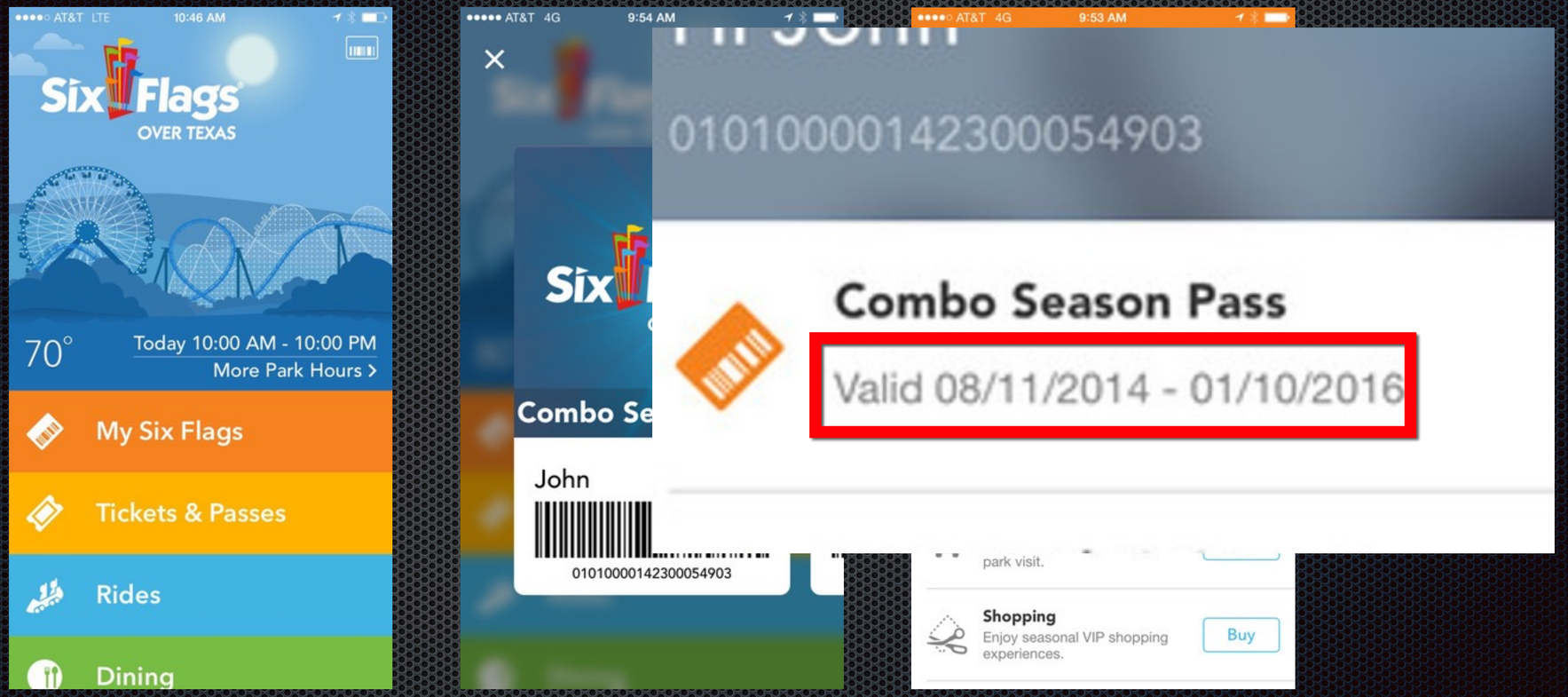
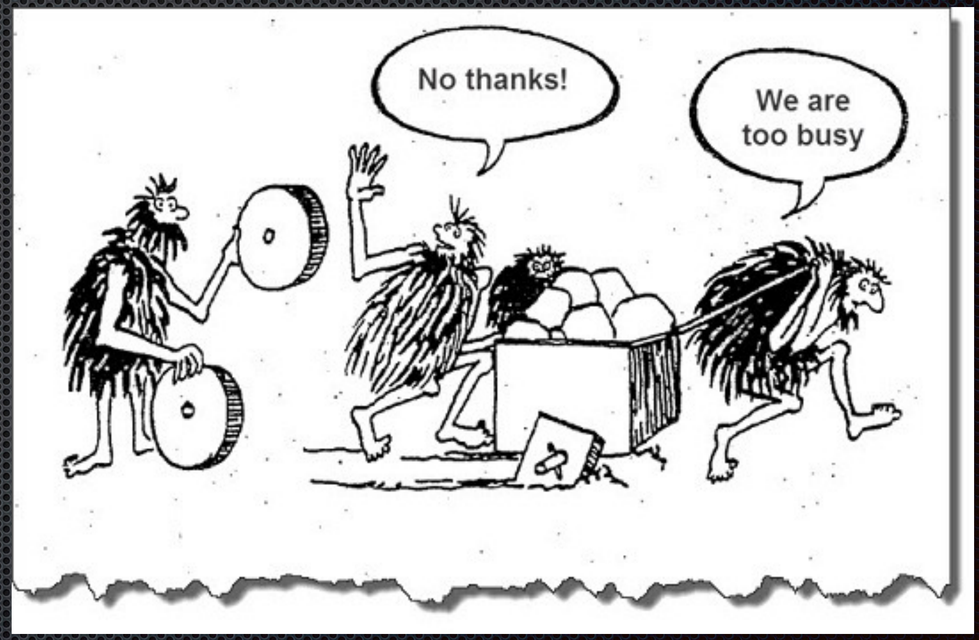
Pragmatic Problem Solving - Example



Automate, Automate, Automate

- Reduces human error
- Creates time
- Repeatability leads to stability
- Understand it ***before*** you automate it
- If you can't validate it, you can't automate it
- Test beyond the happy path



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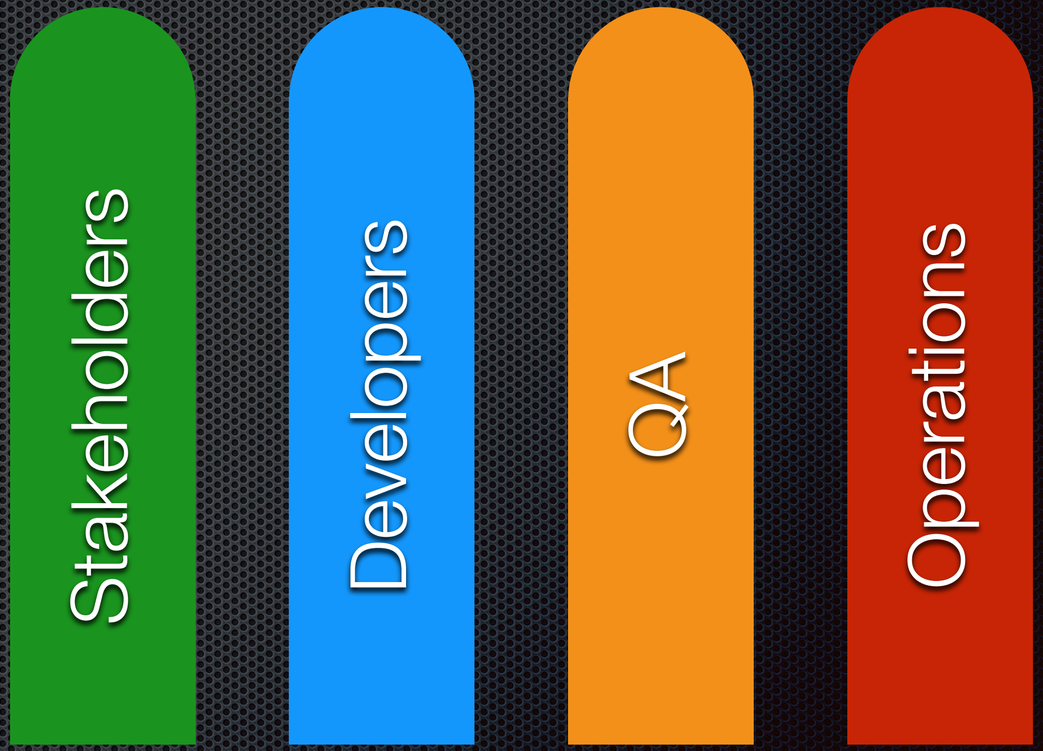
Avoid Silos

- Don’t communicate ***only*** through tickets
- “Developers can learn a lot from operations, and operations can learn a lot from developers.” - Paul Duvall, CTO, Stelligent
- Create cross-functional teams



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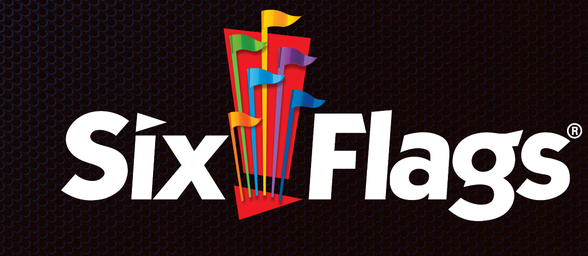
Develop Trust Between Groups

- Don’t gossip
- Don’t throw stones
- Open (non-emotional) communication is essential
- Accept responsibility
- Management buy-in is critical

“Lack of trust in an organization is really expensive. You can’t villianize others if you know their kids.”

- The Best Lines From DevOps Days

DevOps @ Six Flags®



About Six Flags

- Worlds largest regional them park company
- 18 Parks across the United States, Canada, and Mexico
- $1.2 Billion in Revenue as of 2015
- 2015 InformationWeek Elite 100
- 2016 CIO Top 100 Award

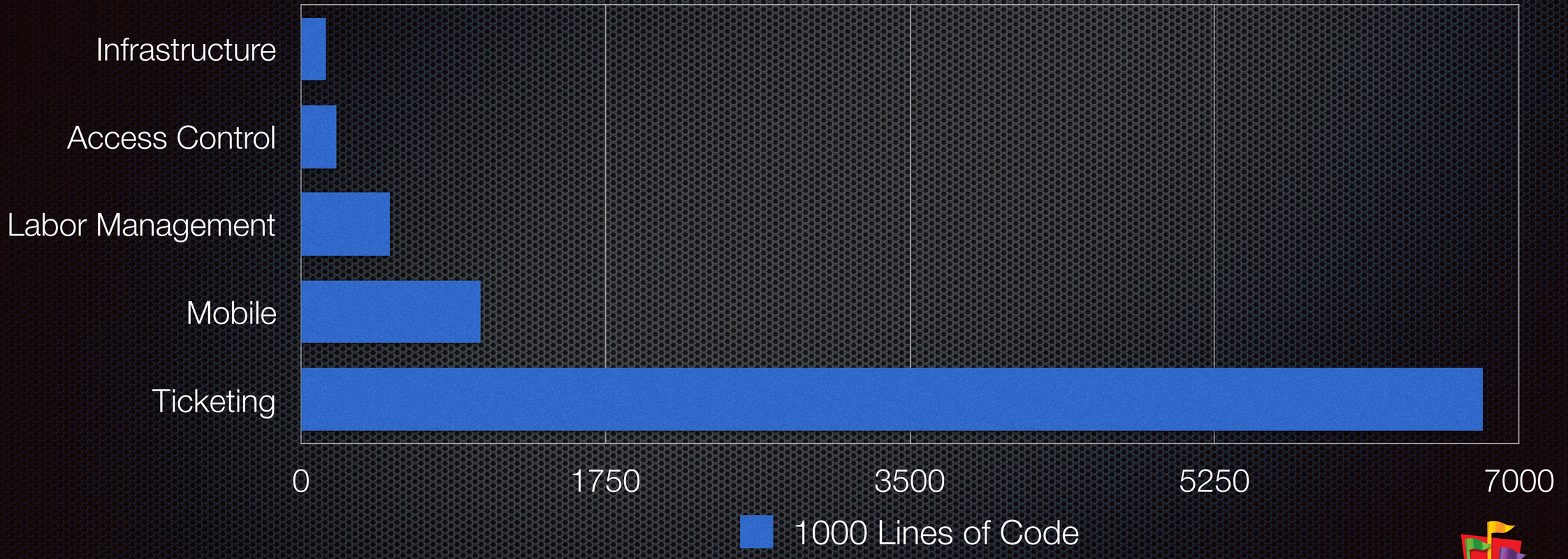
"We pride ourselves on innovation at every level, from our record-breaking rides and attractions to business solutions that create efficient, seamless park operations. Our leadership role in information technology serves as a strategic and brand differentiator for our company"

– Jim Reid-Anderson, Chairman, Six Flags Entertainment Company

Technology Stack (not exhaustive)

- .NET Framework
- .NET Compact Framework
- MSMQ
- WCF
- WPF
- Web API
- SOAP
- Entity Framework
- Windows CE
- Telerik
- Octopus Deploy
- Slack
- Coverity
- Bitbucket
- Jira
- New Relic
- Team City
- CodeRush
- Runscope
- Swagger
- VM Ware
- Net App
- Android
- iOS

Six Flags Code Metrics



Six Flags Code Metrics

- 87 Build Projects
- 227 Build Configuration
- 33 Octopus Deploys * 4 Environments
- Deployments to 102 Servers

Deployment Barriers

- PCI Compliance - Tier 1
- SOX
- Year-Round Park Operations
- Complex Environment
  - No Inter-Park Communication (All inter-park messaging proxies through Data Center)
  - Global Ticketing
- Service Oriented Architecture
- 3rd Party Vendor Integrations
  - Front Gate
  - E-Commerce
  - Point of sale
- Mobile Devices
- Disaster Recovery

Our Methodology

- Scrum
- 2-Week Sprint
- Weekly Backlog Grooming
- Daily Standup
- Combined Team Demo / Retrospective
- Early Stakeholder Feedback

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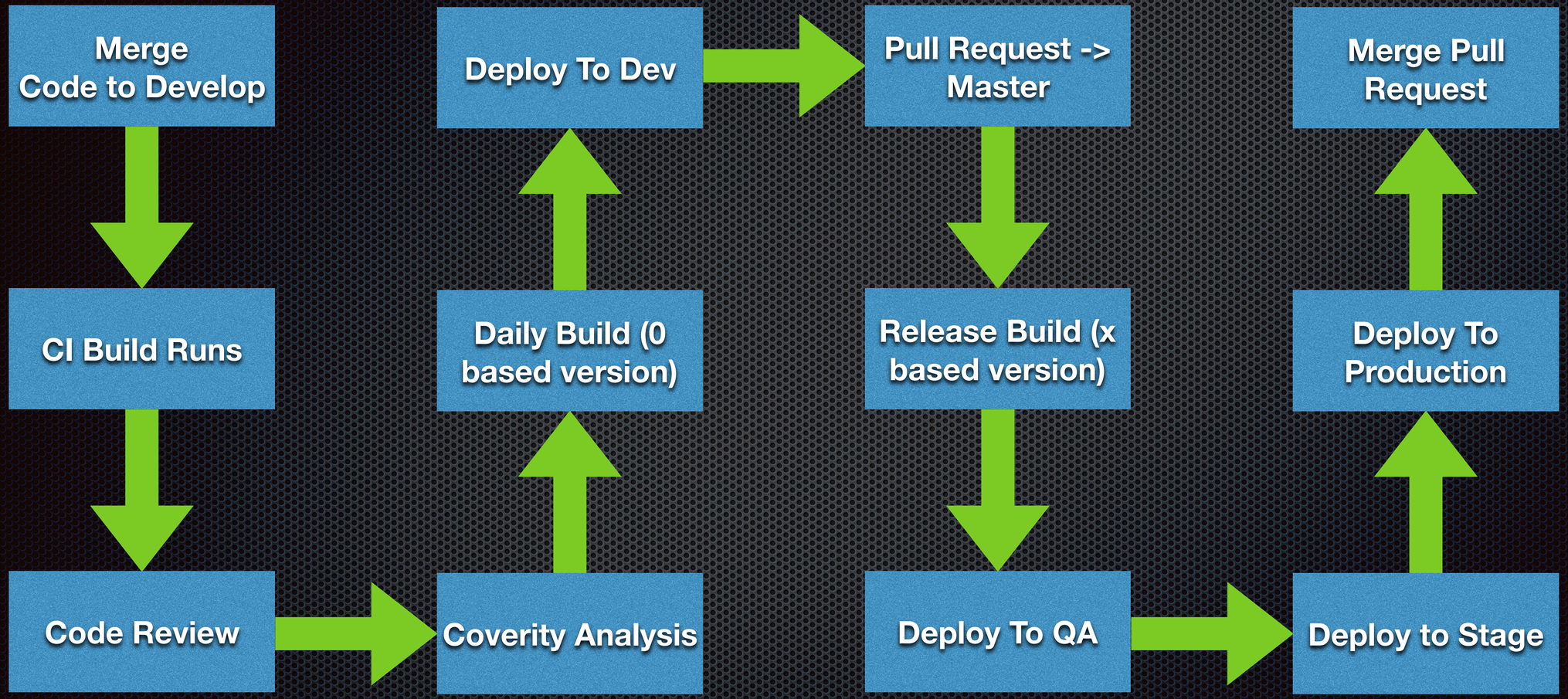
Development Flow



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Development Flow

Development Flow

Data API	0.0.0.120 January 27th 2016	0.0.0.90 December 9th 2015		
DB POS Freedom	1.0.3.6 December 15th 2015	1.0.3.6 January 25th 2016	1.0.2.3 October 29th 2015	1.0.2.3 November 10th 2015
DB POS SFProc	2.0.2.0 November 3rd 2015	2.0.2.0 January 25th 2016	2.0.2.0 November 3rd 2015	2.0.0.1 November 10th 2015
Dining				
GFM				
Member Rate Change	0.0.0.40 September 28th 2015	2.25.0.2 November 16th 2015	2.25.0.2 October 19th 2015	2.25.0.1 October 12th 2015
Point Of Sale UI	0.0.1.103 January 27th 2016	0.0.1.89 January 25th 2016		
PrintService Server	2.18.0.16426 March 26th 2015	2.18.0.16426 March 26th 2015	2.18.0.16426 April 8th 2015	2.18.0.16426 April 13th 2015

Member Rate Change

0.0.0.40 September 28th 2015

2.25.0.2 November 16th 2015

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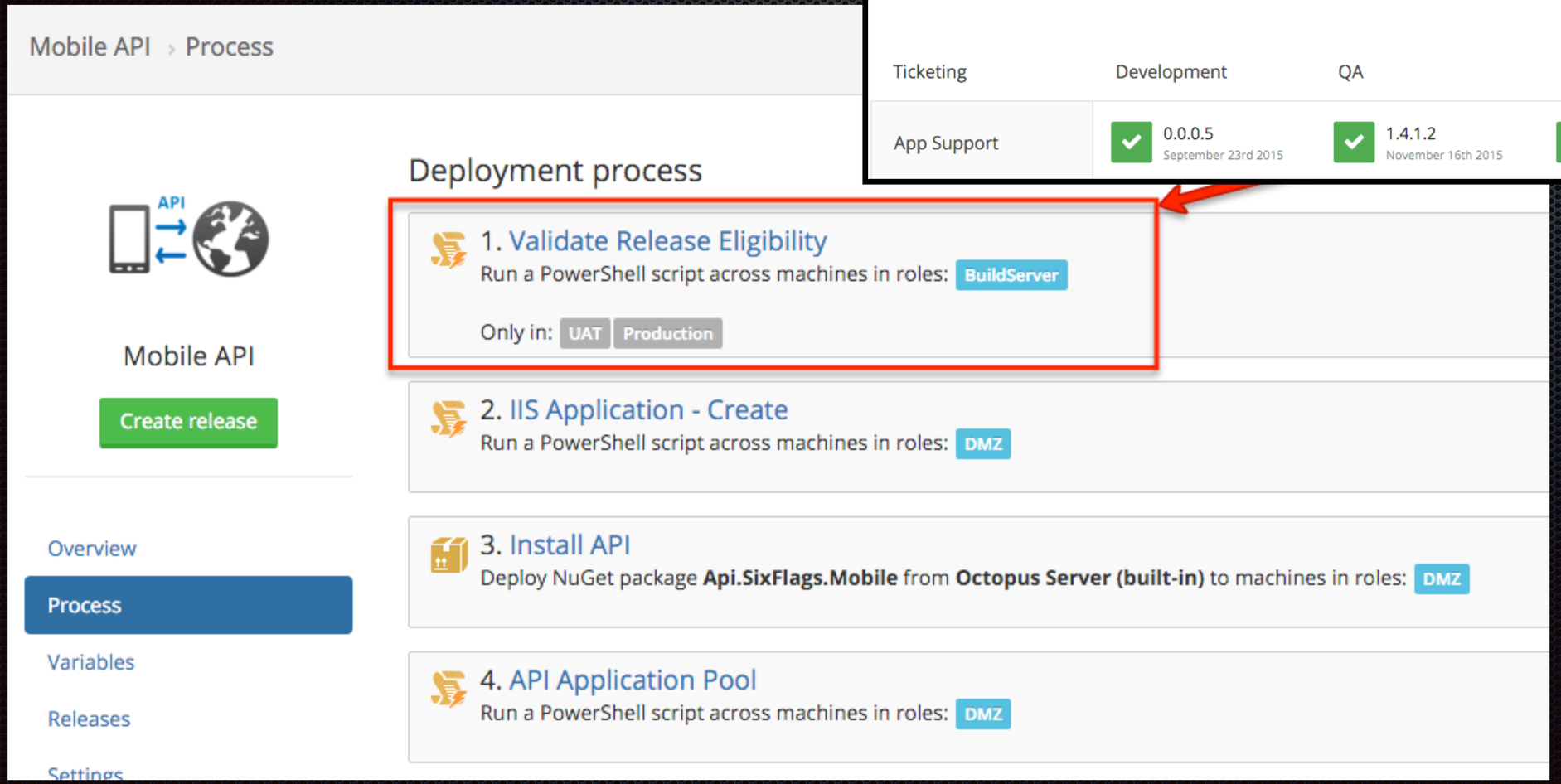
Automation Protection

Mobile	Development	QA	UAT	Production
Mobile API	0.0.0.49 January 25th 2016	0.0.0.38 January 25th 2016	3.3.4.44 January 8th 2016	3.3.4.44 January 8th 2016

Ticketing	Development	QA	UAT	Production
App Support	0.0.0.5 September 23rd 2015	1.4.1.2 November 16th 2015	1.4.1.2 September 24th 2015	1.4.0.16550 July 9th 2015



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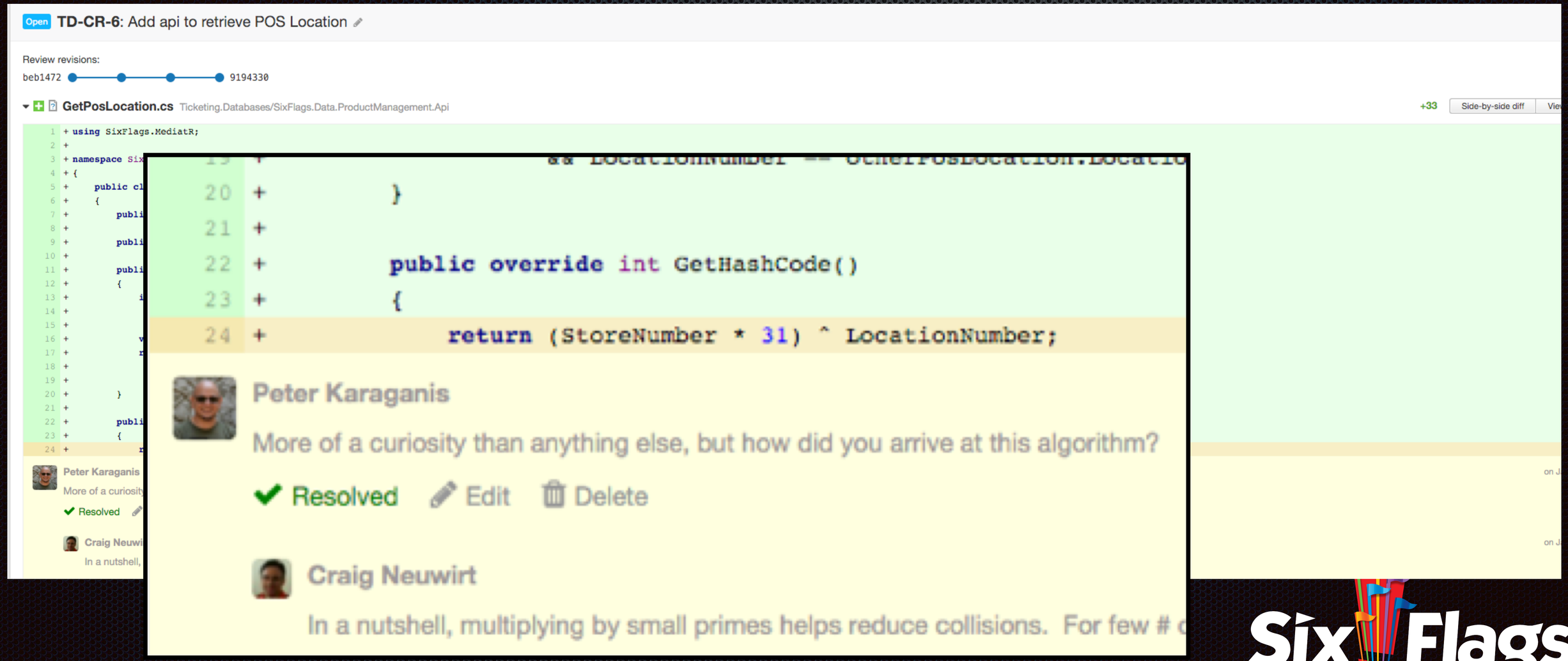
Code Review



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Tooling

TeamCity BOT 19:03

Succeeded - Databases :: Ticketing.DBs.Migrations :: Coverity Analysis #fa07b7ae5261771105d781f90717d50f2d2e0ab9-2

Coverity Analysis
Agent: Special Agent .NET 002
Elapsed: 2m:39s

Commits
353f5e7d52 :: pkaraganis :: TeamCity change in 'Databases :: Ticketing.DBs.Migrations' project: triggers of 'Coverity Analysis' build configuration were updated
fa07b7ae52 :: kesimmons :: 17956 - Added the translated messages

9d0106a3c7 :: pkaraganis :: TeamCity change in '<Root project>' project: triggers of 'Coverity C# Build Template' build template were updated
dd847269aa :: pkaraganis :: TeamCity change in '<Root project>' project: parameters of 'Coverity C# Build Template' build template were updated

Changes By
kesimmons, pkaraganis

TeamCity BOT 19:19

Succeeded - Ticketing :: Point of Sale UI :: Coverity Analysis #9e0fe7409d71ddfaf906590e41454e0200b656e9-2

Coverity Analysis
Agent: Special Agent .NET 001
Elapsed: 18m:36s

Commits
9e0fe7409d :: michael.dudley :: Adding a logger to the javasript

9c3492a442 :: michael.dudley :: Adding a Logger endpoint

Changes By
michael.dudley

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What we do well

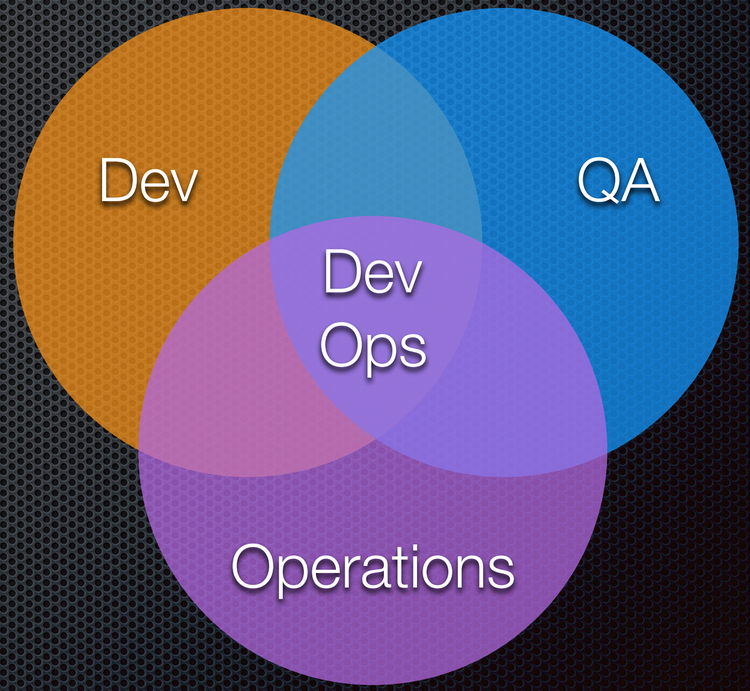
- High-quality code
- Involve stakeholders early
- Emphasize training
- Embrace innovation (pragmatically)
- Truly understand business requirements

Areas for Improvement

- Better communication
- More frequent releases
- More frequent environment refresh
- Better test automation
- Improved cohesion with NetOps

Conclusion

- Plan -> Do -> Check -> Act
- Be pragmatic
- Build inter-departmental trust
- Automate as much as you can
- Avoid failure, but embrace it
- Constantly evaluate
- Surround yourself with excellence



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Thank You!

Peter Karaganis