

**SCALE  
10x**

# Digital Information Manufacturing

SPC, Value Stream Mapping, Lean and DevOps

Lee Thompson - CTO MorphLabs



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# About Lee

- 10 years of distributed control systems design, implementation, and integration
- 13 years of online financial services at E\*TRADE (dev, arch, and ops)
- Advisor to DTO Solutions, Exist, MaestroDev
- Blogger at <http://dev2ops.org>
- CTO at MorphLabs



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# DevOps contributor...

- Fully automated provisioning paper: 10/09

- OpsCamp Austin: 01/10



- O'Reilly Velocity Online: 03/10



- Google group "devops-toolchain"



- OpsCamp SF: 05/10

- O'Reilly Velocity presenter  
2010 and 2011

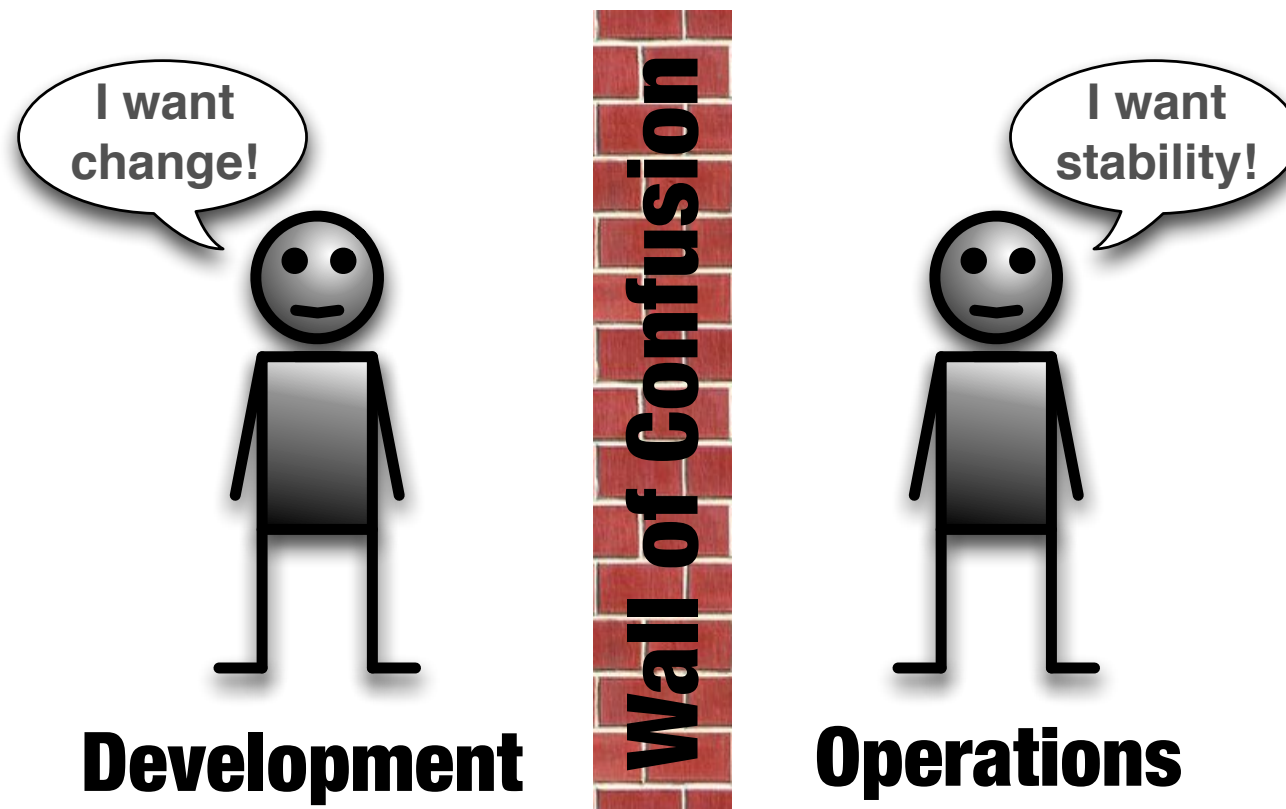


# About my sponsor!



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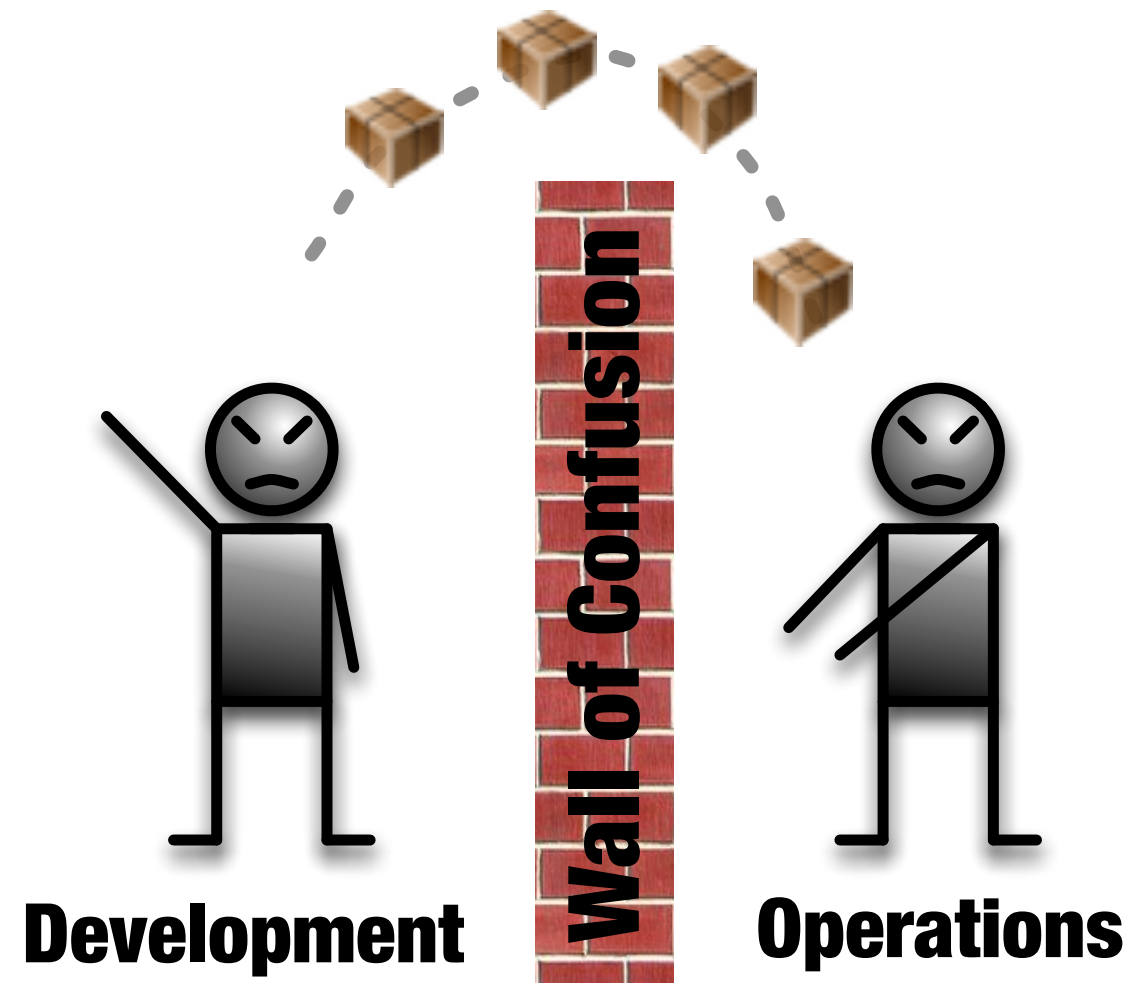
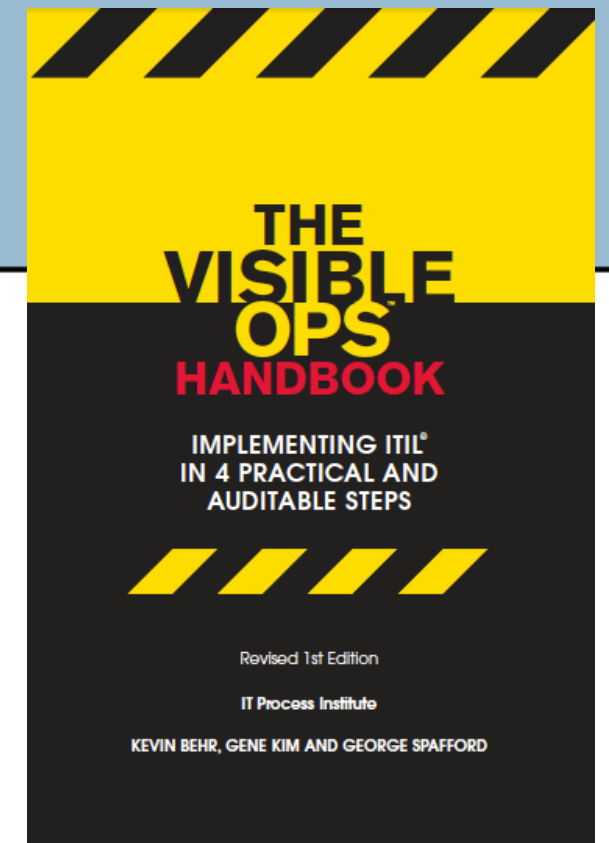
# DevOps intro



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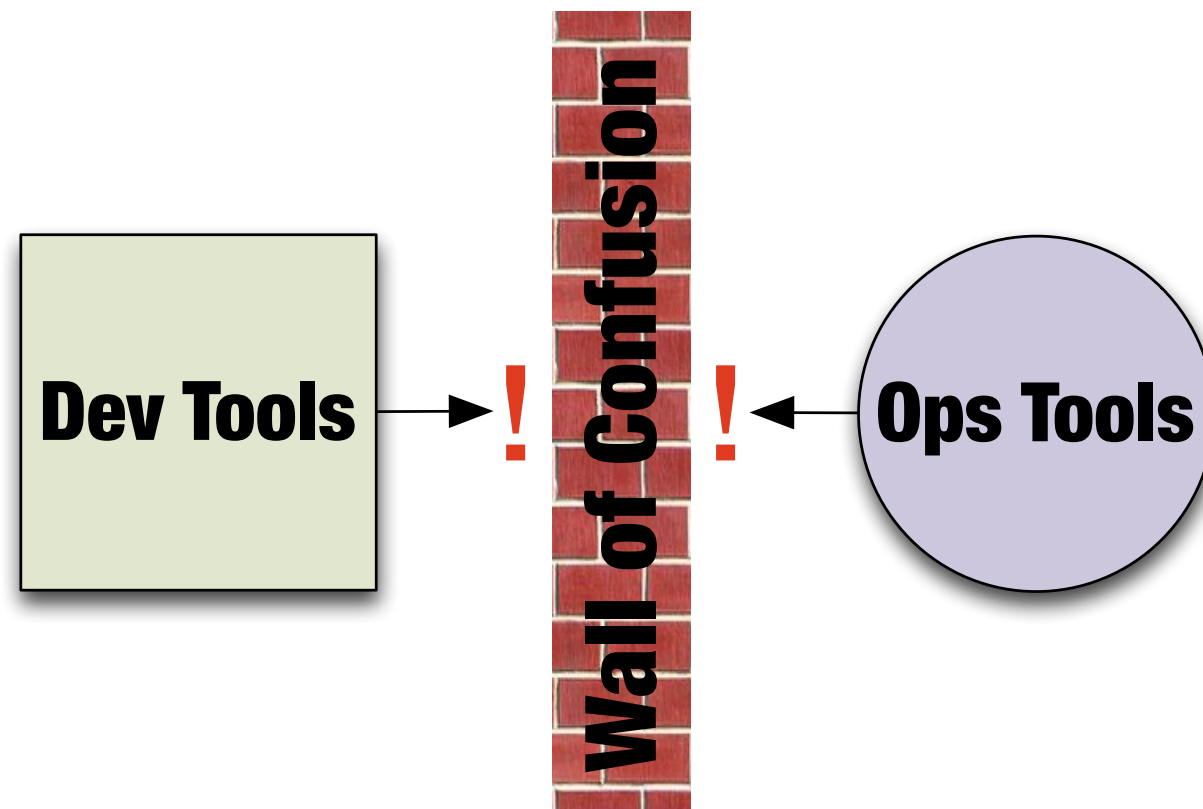
# DevOps intro



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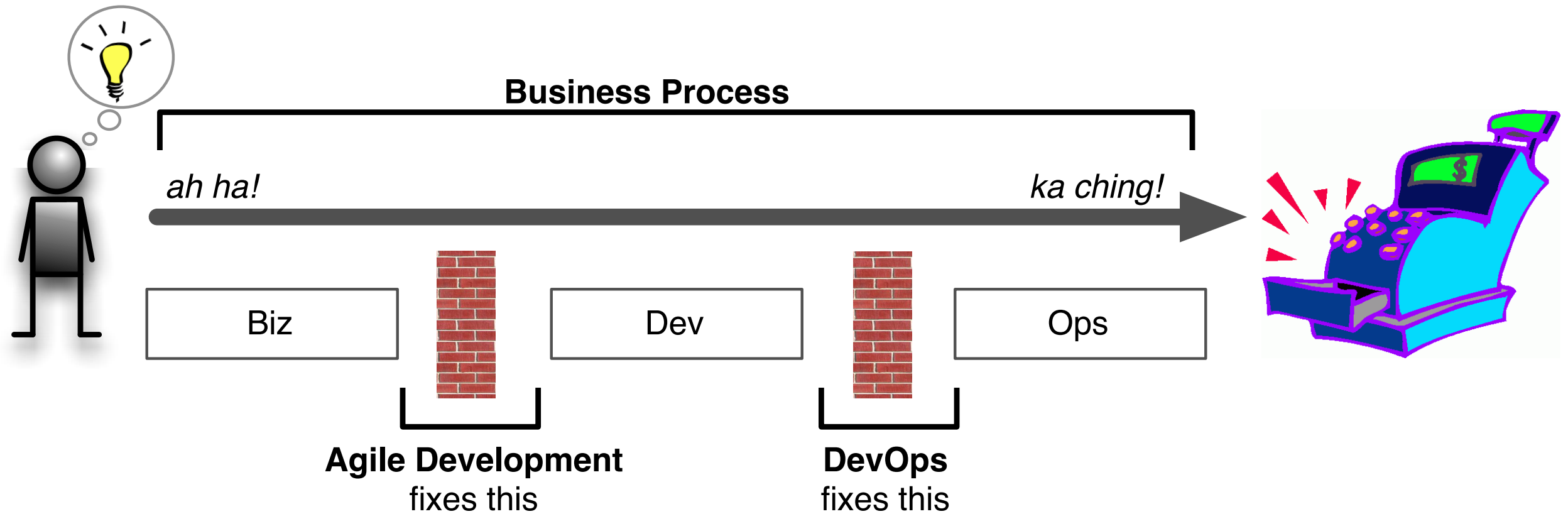
# DevOps intro



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# DevOps intro



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# Development Drivers

- Lack of visibility into production tools and configuration to reliably effect change
- Schedule slippage due to deployment problems which can't be produced in dev environment
- Lack of understanding in operations of application nuances and ideal utilization
- Release process awkward and meeting intensive



wikipedia

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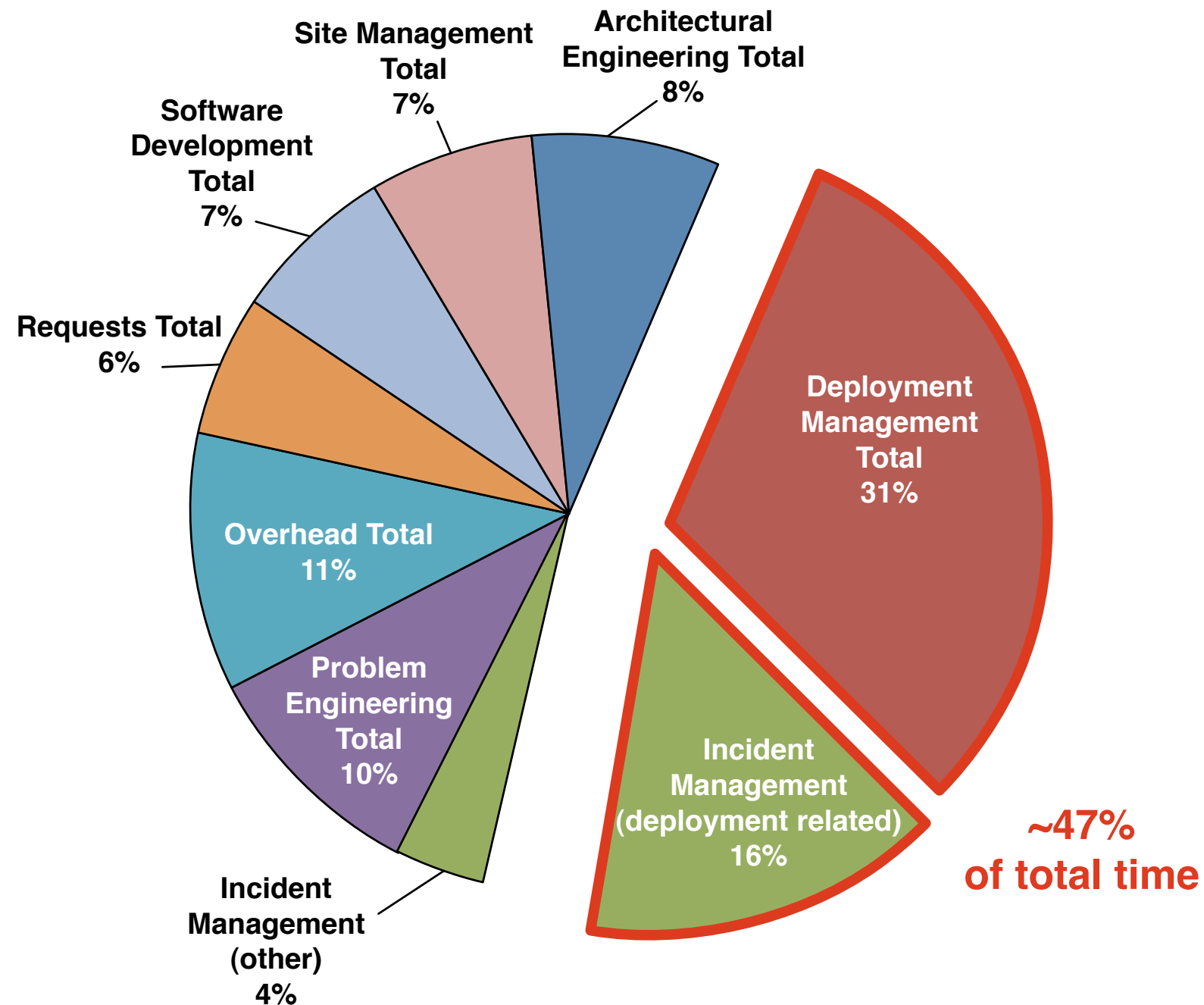
# Operations Drivers

- 80% of all production outages are related to change (“Visible Ops”)
- Developers can’t support scale, uptime, security initiatives
- Developers apply configuration changes manually without deployment automation in mind
- Over allocating Ops staff to app release projects



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# Lots of time on Deploy!



Data Source: Deepak Patil, Microsoft Global Foundation Services  
via James Hamilton (Amazon Web Services)

[http://mvdirona.com/jrh/TalksAndPapers/JamesHamilton\\_POA20090226.pdf](http://mvdirona.com/jrh/TalksAndPapers/JamesHamilton_POA20090226.pdf)

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# Control Systems



The Simpsons is Copyright [Fox](#)  
[used for education purposes](#)

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# App Control “points”

- Webhits/sec, latency
- Firewall MBits/Sec
- Auth Success/Fail per Second, latency
- Transactions Second, latency
- Service Queue Depths
- App errors/sec by type
- Users
- 



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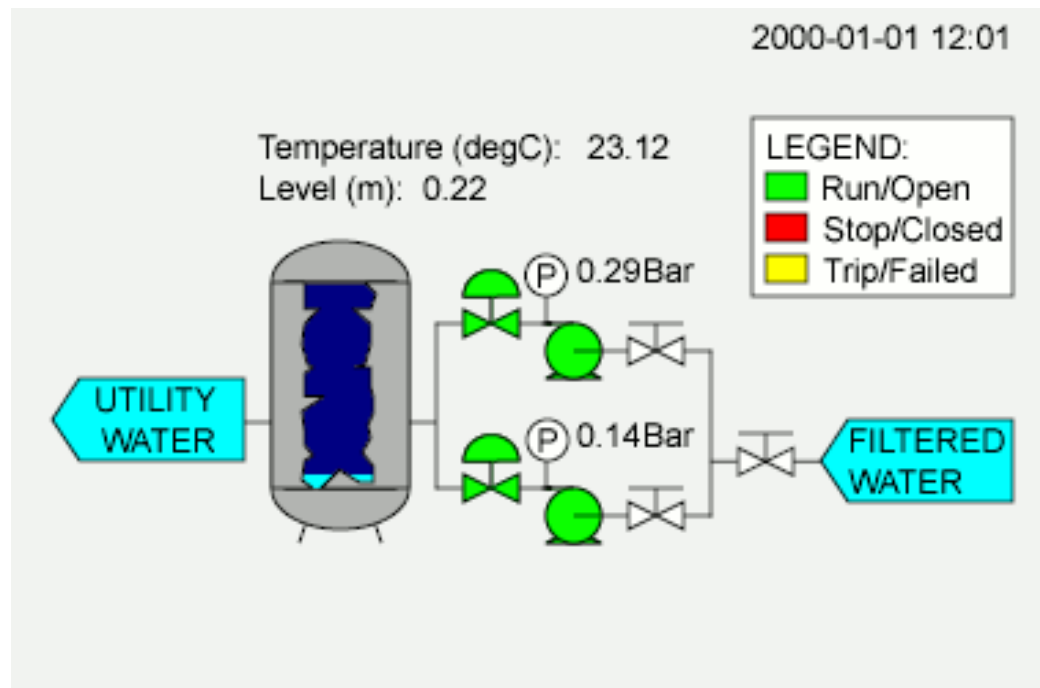
# Digital Info Manufacturing

- Almost everyone has monitoring in their technical operations
- Almost no one has control
- If your business is data, isn't your application manufacturing that data?



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# Control Toolchain



Runbook Automation

Control

Eventing, Alarm Mgmt

Charting, History, SPC

Measurement Instrumentation

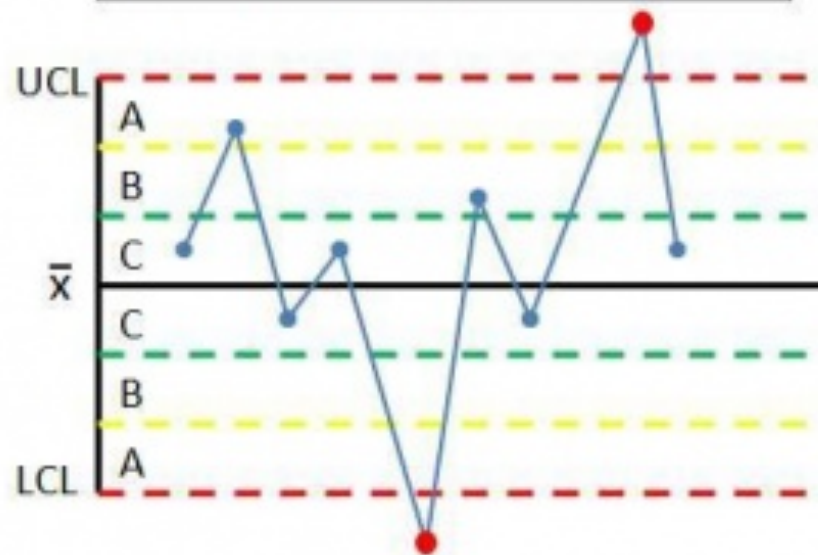
System



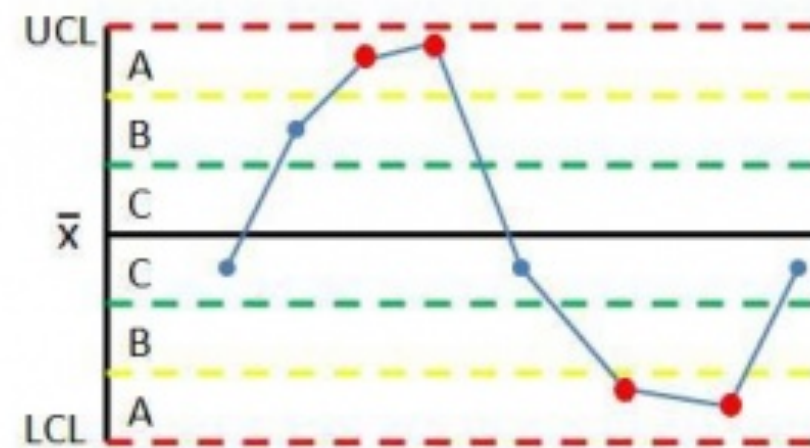
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# SPC Control Charting

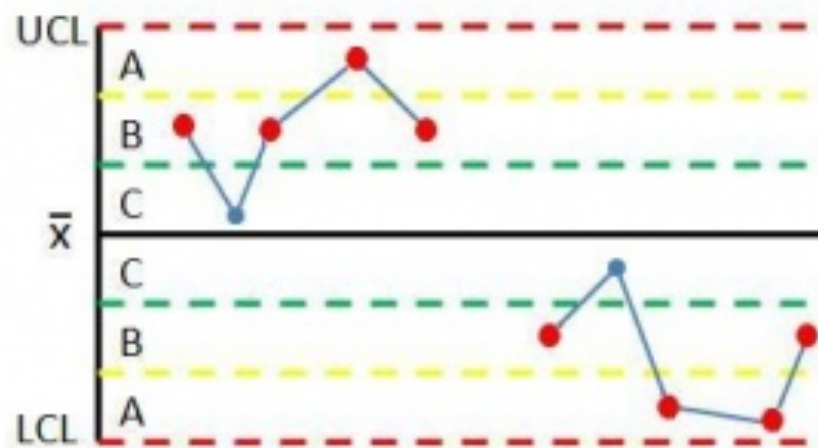
Rule 1: Any point falls beyond  $3\sigma$  from the centerline (this is represented by the upper and lower control limits).



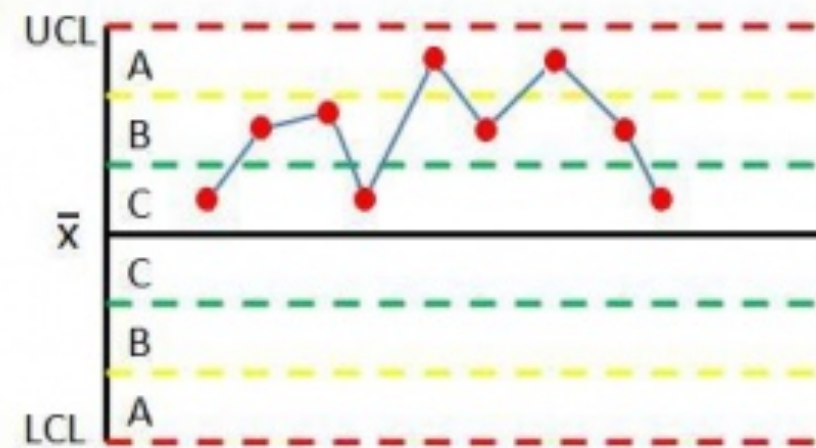
Rule 2: Two out of three consecutive points fall beyond  $2\sigma$  on the same side of the centerline.



Rule 3: Four out of five consecutive points fall beyond  $1\sigma$  on the same side of the centerline.

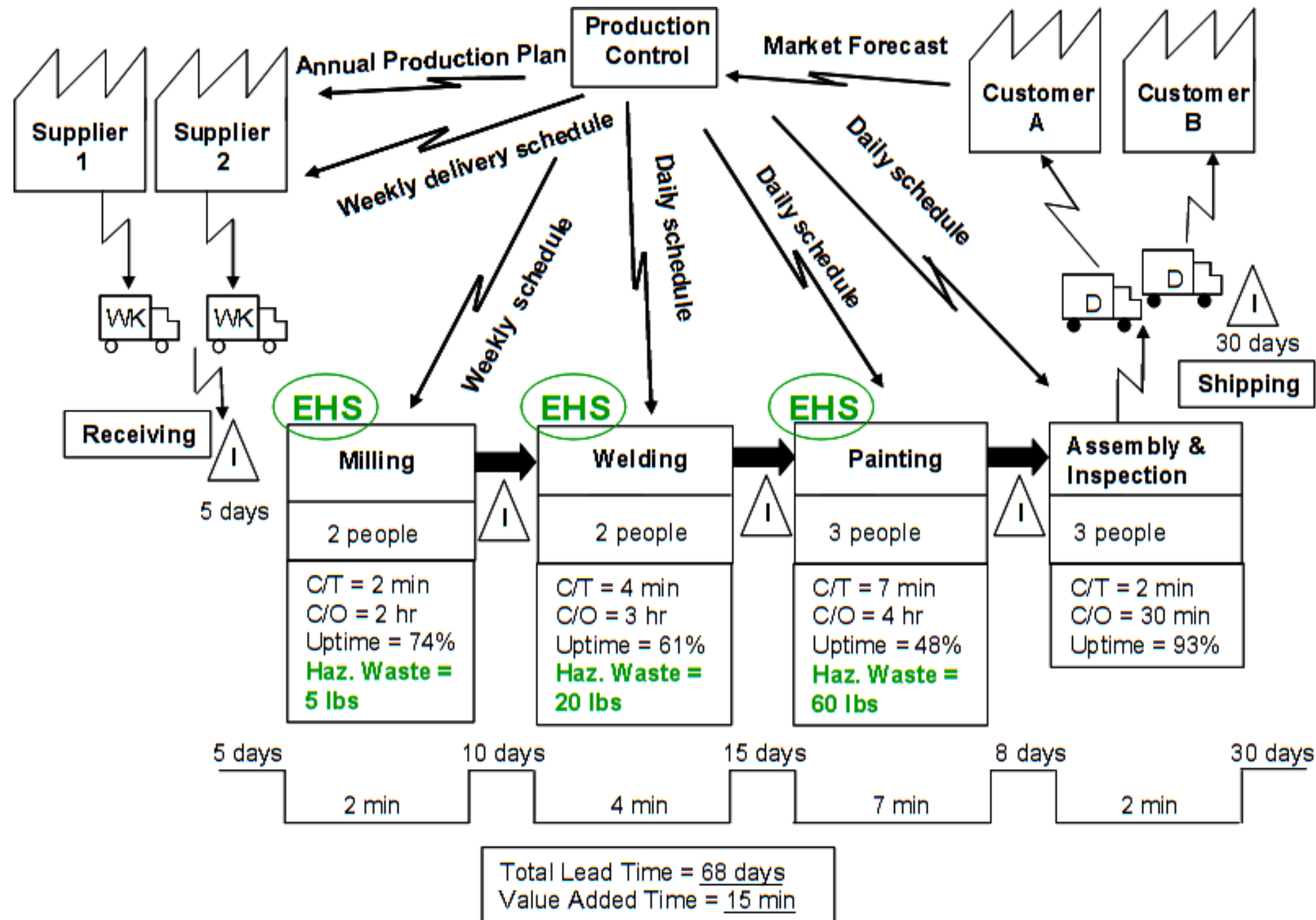


Rule 4: Nine or more consecutive points fall on the same side of the centerline.





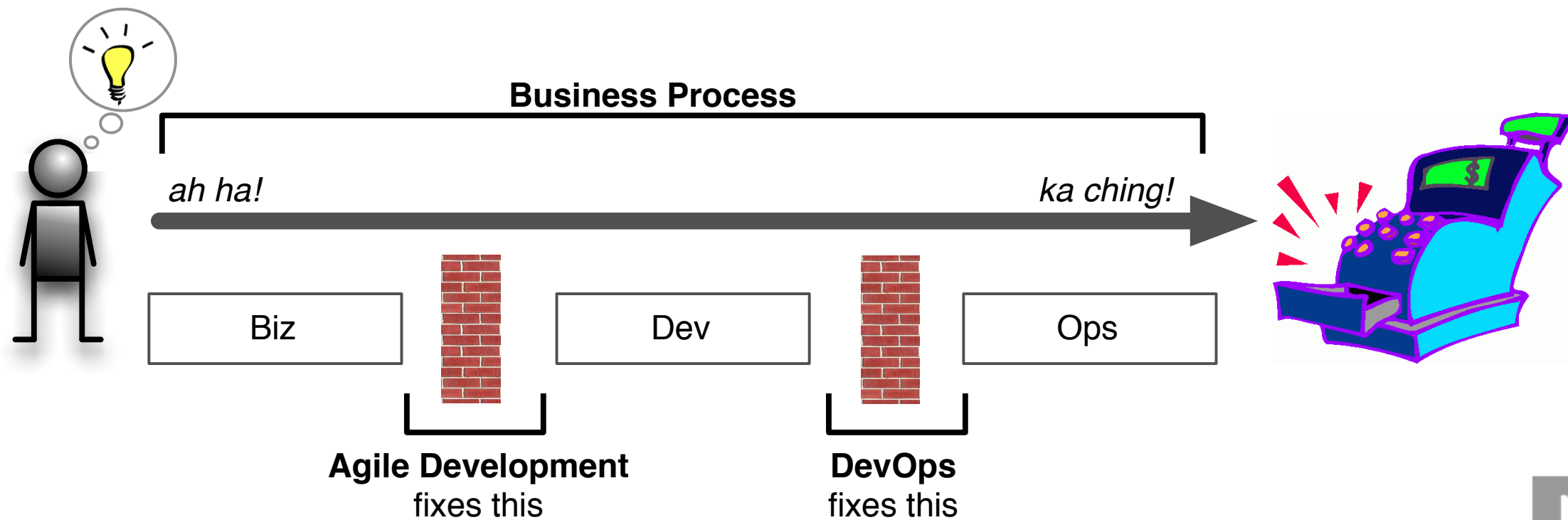
# Value Stream Mapping



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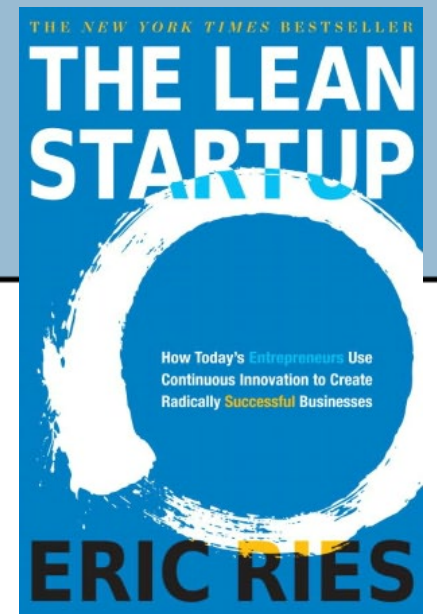
# DevOps intro next gen!

*Value Stream Map this!*



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# Getting Buy-in



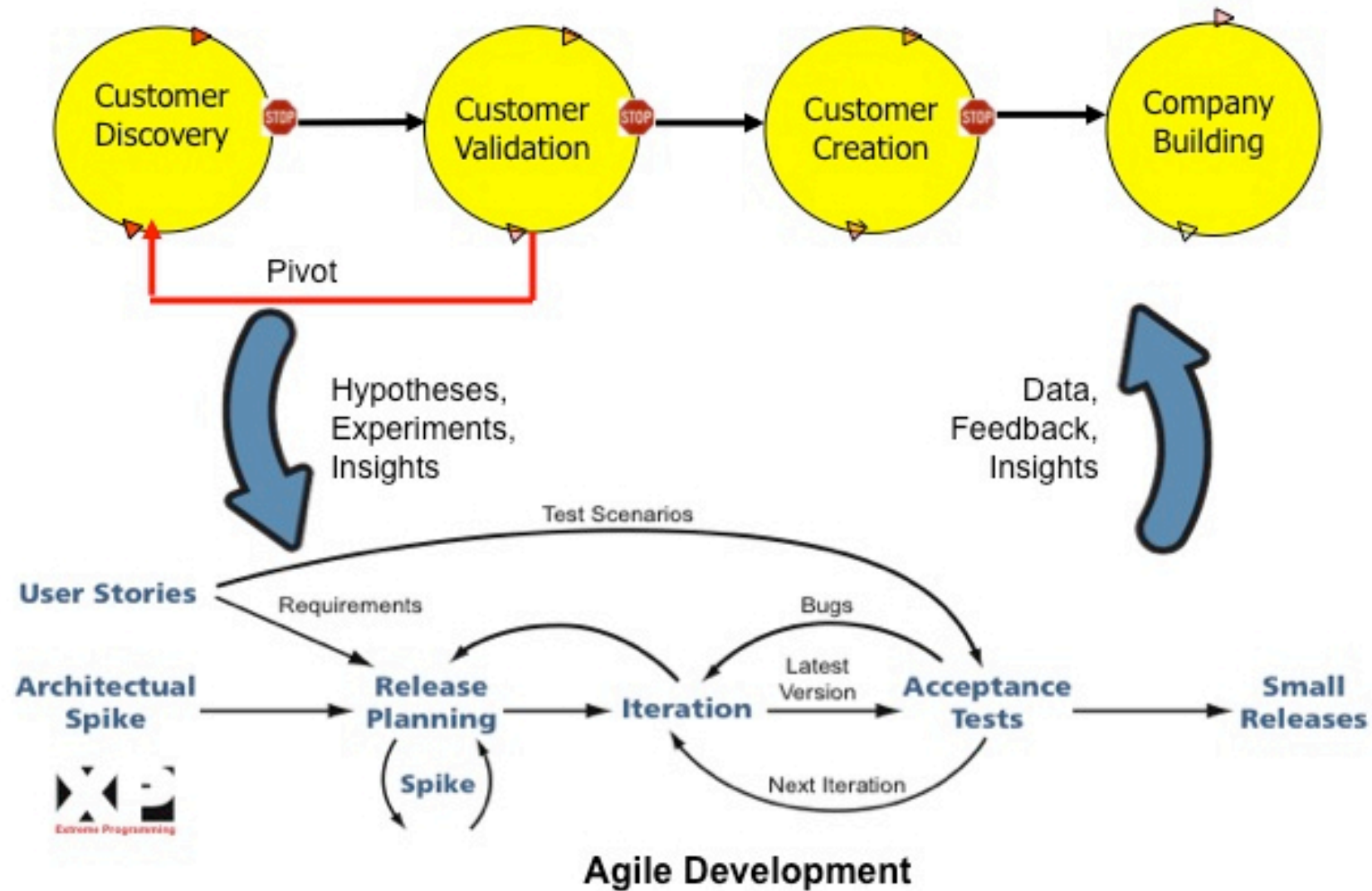
- Put the problem in Business terms
- “Lean Startup” best reference I’ve found
  - Minimum Viable System
  - Reduce the Batch Size
  - Continuous Integration
  - Continuous Deployment
  - Innovation Accounting
- Fail quick and Pivot!



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# DevOps part of Lean

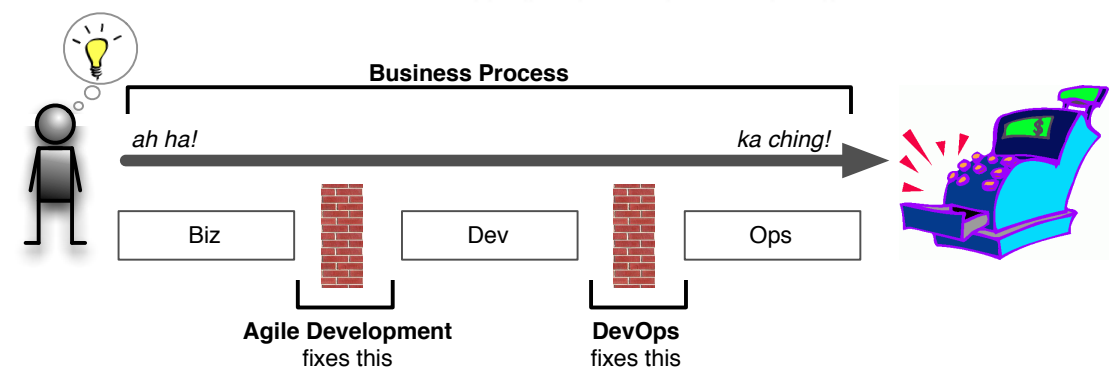
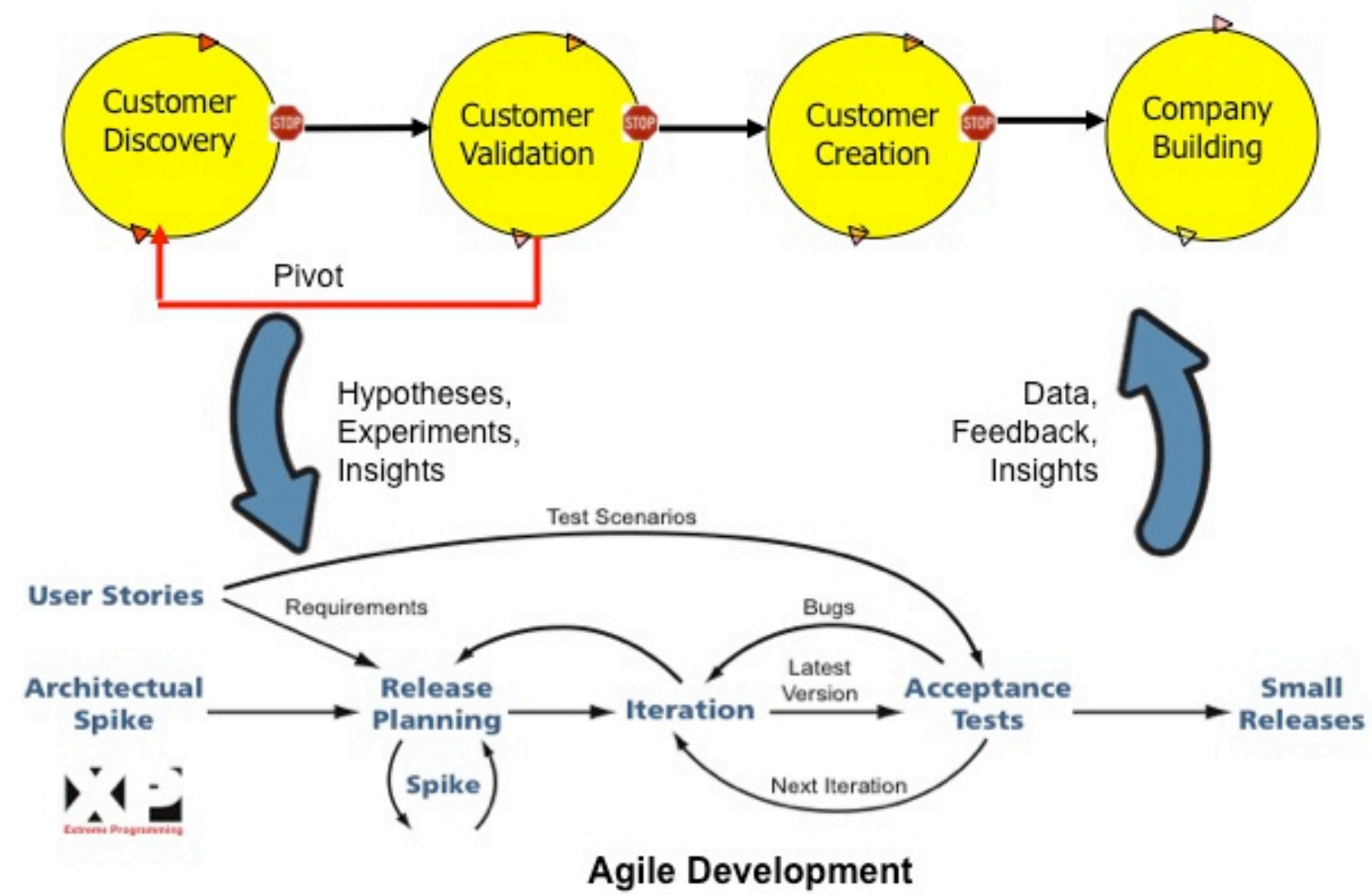
## Lean Startup Class 2010



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# DevOps part of Lean

## Lean Startup Class 2010



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# Build the future



Current State



Future State



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# Get it under Control



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