The Business of Continuous Delivery

Kurt Bittner
Principal Analyst

FORRESTER

@forrester

@ksbittner

The Business of Continuous Delivery

Kurt Bittner
Principal Analyst

@ksbittner

What Is Driving The Need for Continuous Delivery?

Source: Forrsights Budgets And Priorities Tracker Survey, Q2 2012

Disruption Is Everywhere

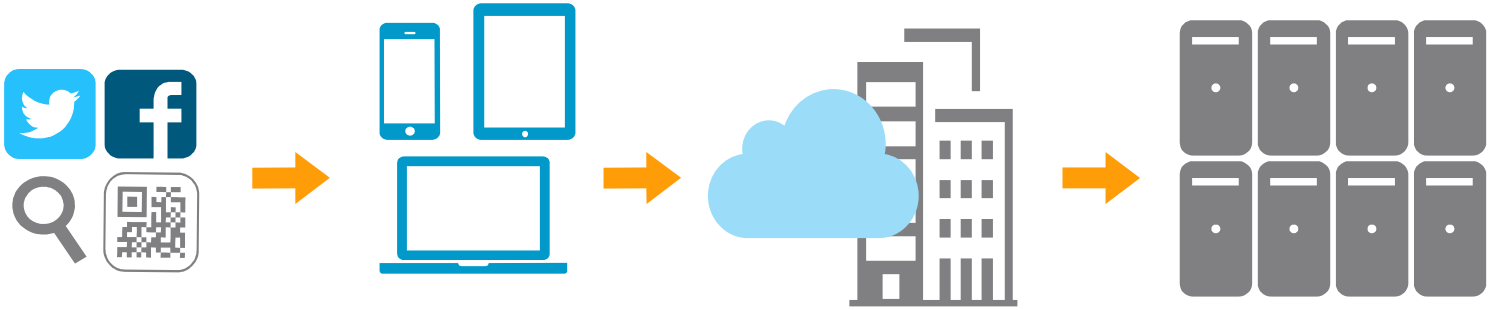
https://www.peoples.com/mobilebanking/checkdeposit.html

- 2009
  - USAA Bank introduces mobile check deposit
  - Competitors view it as a novelty
- 2011
  - 1 in 4 consumers want mobile check deposit
  - 1 in 2 mobile banking users want mobile check deposit
- 2012
  - 65% of consumer at least somewhat likely to switch banks to get mobile check deposit
- Today
  - Mobile check deposit is “table stakes”; those banks that don’t have it have lost customers
  - Mobile banking is causing shifts in bank investments away from traditional branches and has changed the way banks interact with customers

- Your only security is in being the disruptor
- Disruption demands delivering fast & frequently, with high quality

Source: http://www.mybanktracker.com/news/2012/03/13/bank-mobile-check-deposit-next-gen-standard/

Demand for Mobile and Cloud Applications are Behind the Trend



Social media and search

Systems of engagement (mobile, web, rich client)

Cloud-based systems of record

Traditional systems of record

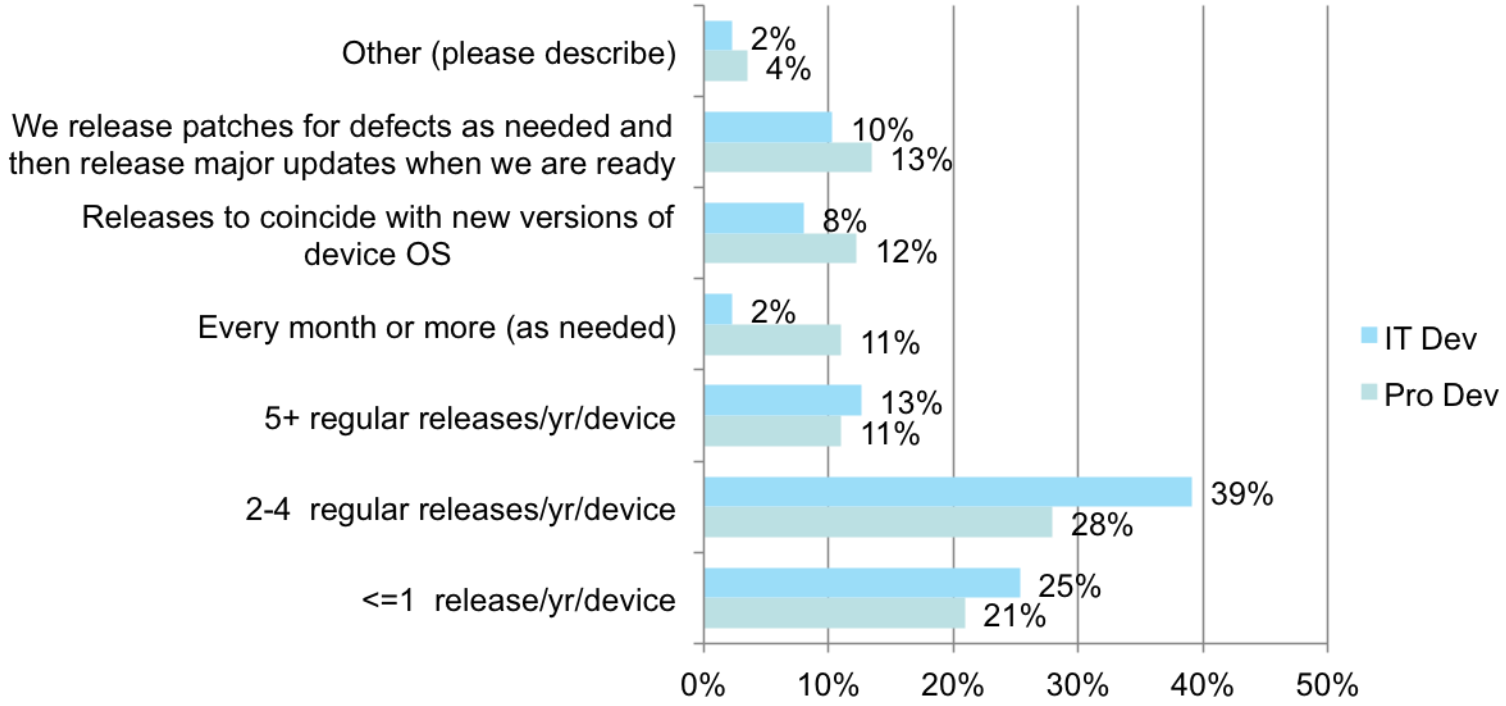
- Increased customer expectations
  - Mobile, cloud becoming the dominant means of customer interaction
  - Customers expect the same capabilities across all channels
  - Delivering exceptional experiences means integrating all channels

In-store point-of-sale systems

Cloud-based services provided by third parties

Organizations are struggling to keep up

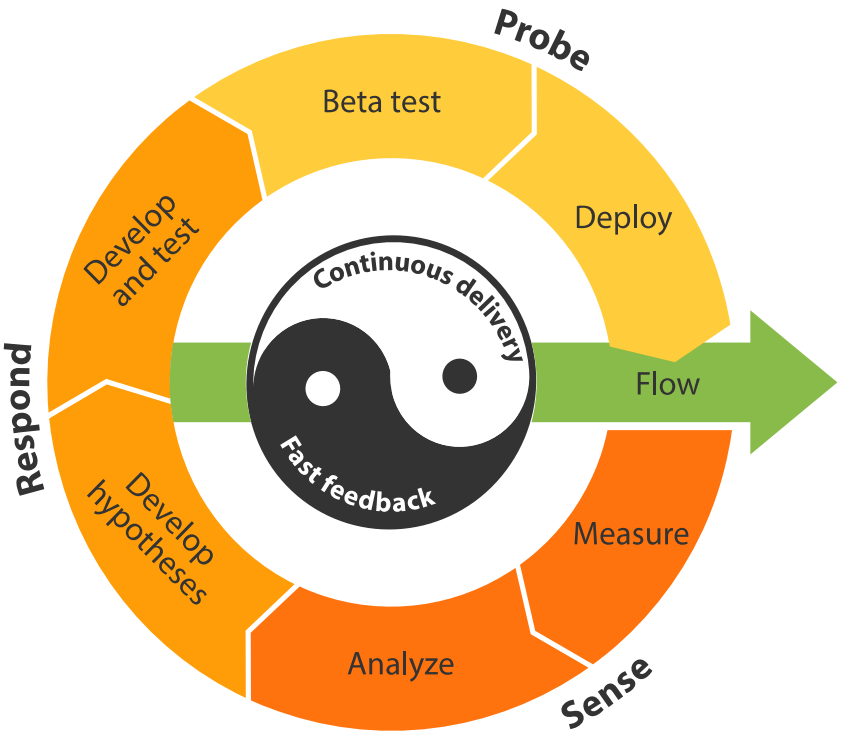
How often does your development team release mobile apps?



Base: 172 Professional software developers and 87 IT developers building mobile applications

Source: Forrsights Developer Survey, Q1 2013

Shorter Time-To-Feedback = Faster Time-To-Value



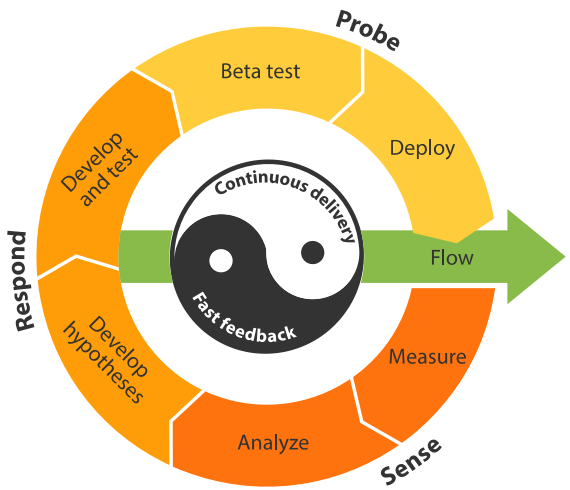
Feedback Drives Improved Customer Experience and Business Results

- The faster the feedback, the less waste
- The less waste, the lower the cost
- Faster feedback means better results to customers, faster
- Happier customers = more customers, increased revenue
- Increased revenue and lower cost = better business results

"Measuring Mobile Apps", December 13, 2013

Leading Organizations Use A Different Approach

- Rapid feedback loops drive innovative solutions
  - Customers are part of the feedback loop
- "Small batches" = less disruption, lower risk
  - Faster to market with smaller feature sets
- Silos dissolve; extended product teams are cross-functional
  - Hand-offs are eliminated; “one team” product development
- Less planning, more doing
  - “Commit by delivering”, not by planning
- The ability to pivot is a strategic advantage



Continuous Delivery is reshaping our approach to delivering software

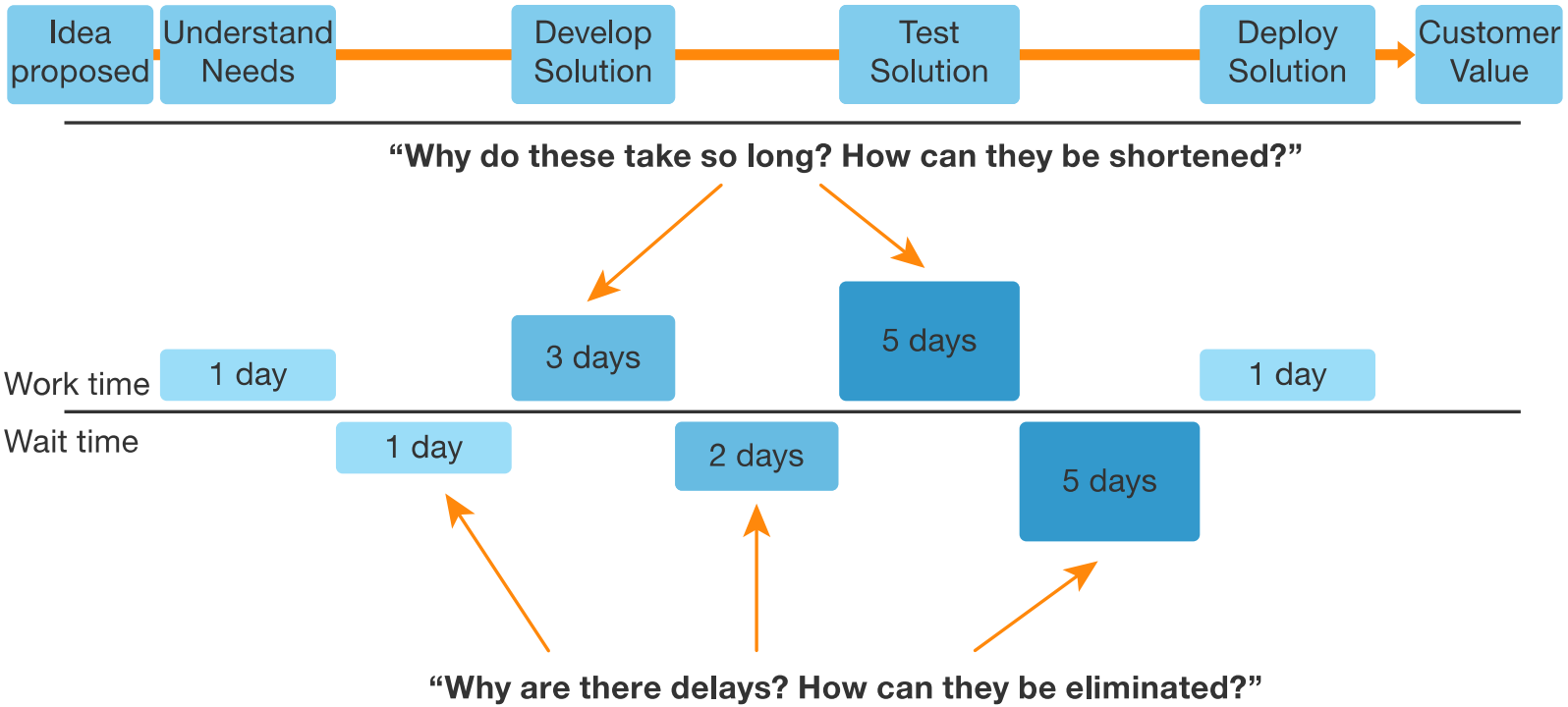
The Change Is Already Happening

"The future is already here — it's just not evenly distributed"

— William Gibson

- **Amazon** releases every 11.6 seconds, is the leader in public cloud infrastructure.
- **Netflix** is testing in production ~30% of NA Internet traffic.
- **Instagram** went from 0 to 14 million customers in 1 year, massive wealth creation.
- **Etsy** deploys API changes in 18 seconds, new website in <150 seconds.

Optimizing The Value Delivery Stream



- Delays are often due to resource over-utilization; fix these first
- Reducing task time is secondary, once wait time is eliminated

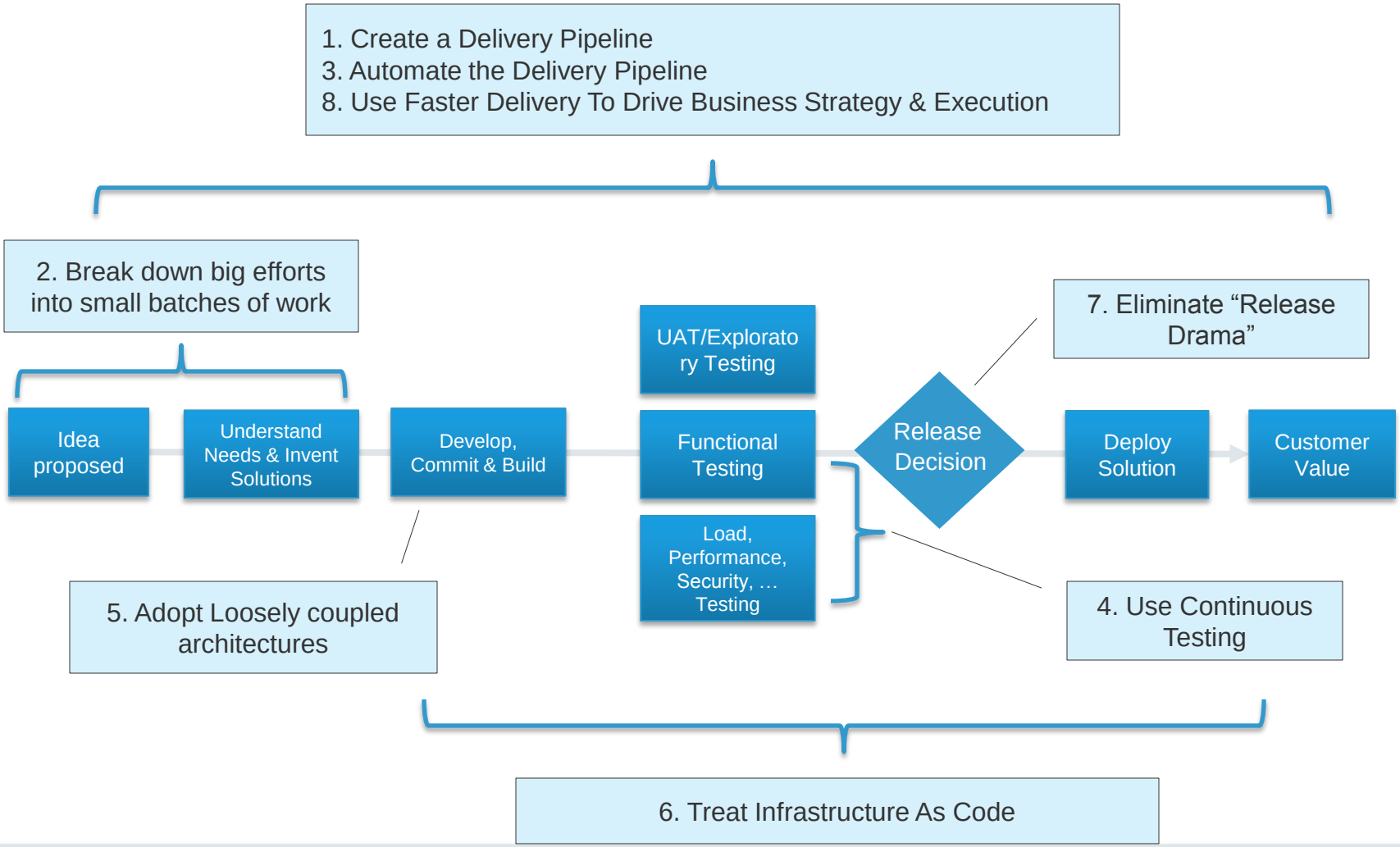
FOR APPLICATION DEVELOPMENT & DELIVERY PROFESSIONALS

The Eight Tenets Of Faster Application Delivery

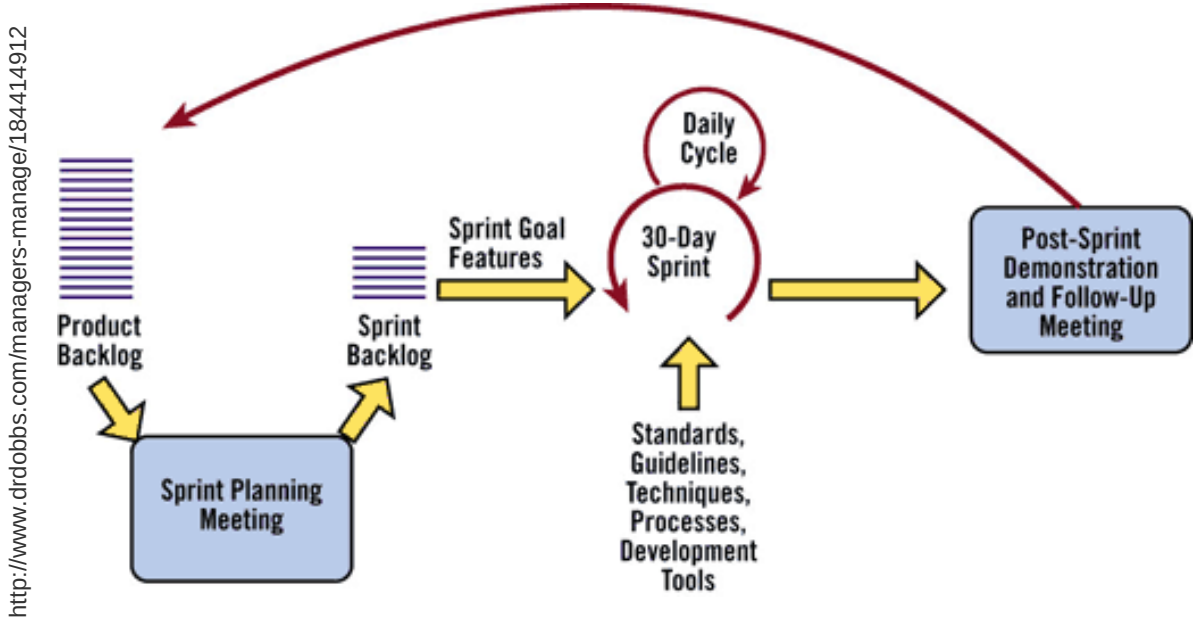
Road Map: The Modern Application Delivery Playbook

April 15, 2014

By **Kurt Bittner, Glenn O'Donnell** with Christopher Mines, Dominique Whittaker



Agile: A Small-Batch WIP Management Approach

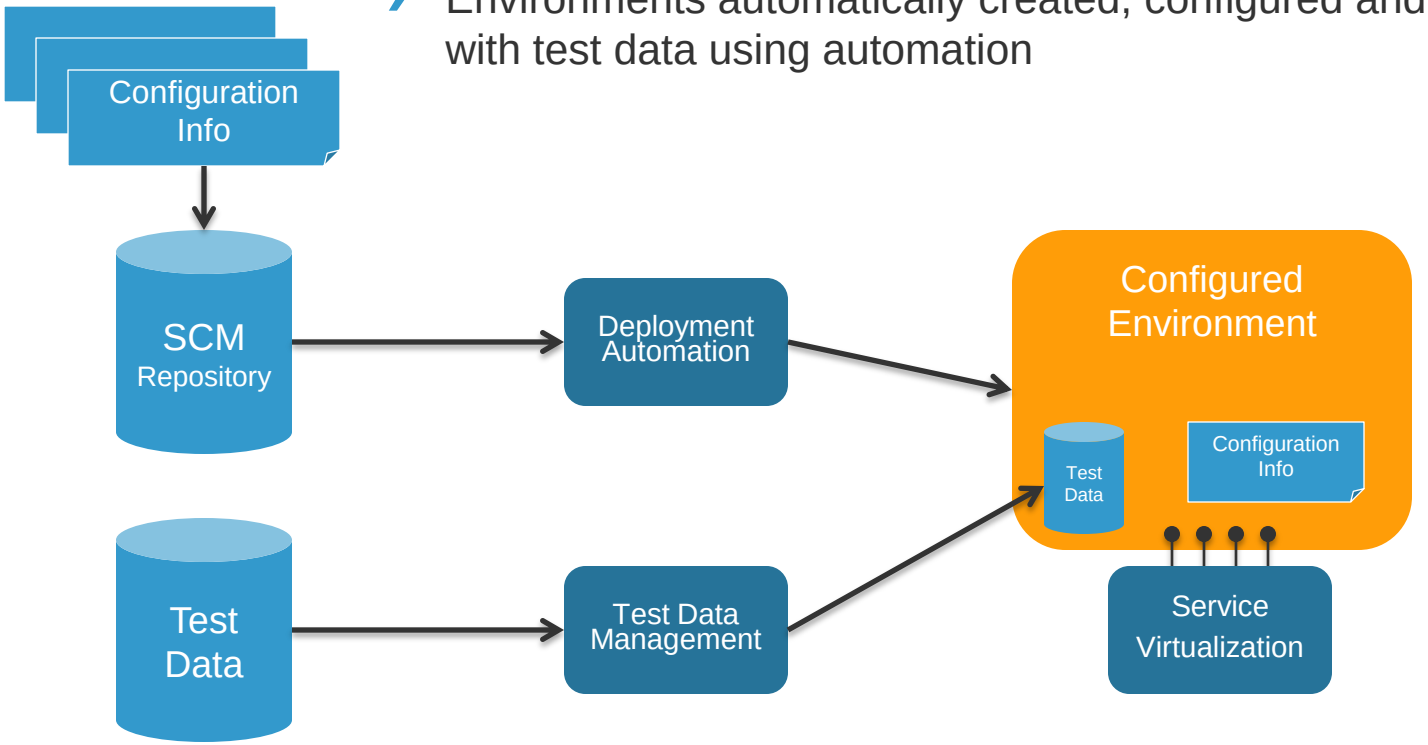


http://www.drdobbs.com/managers-manage/184414912

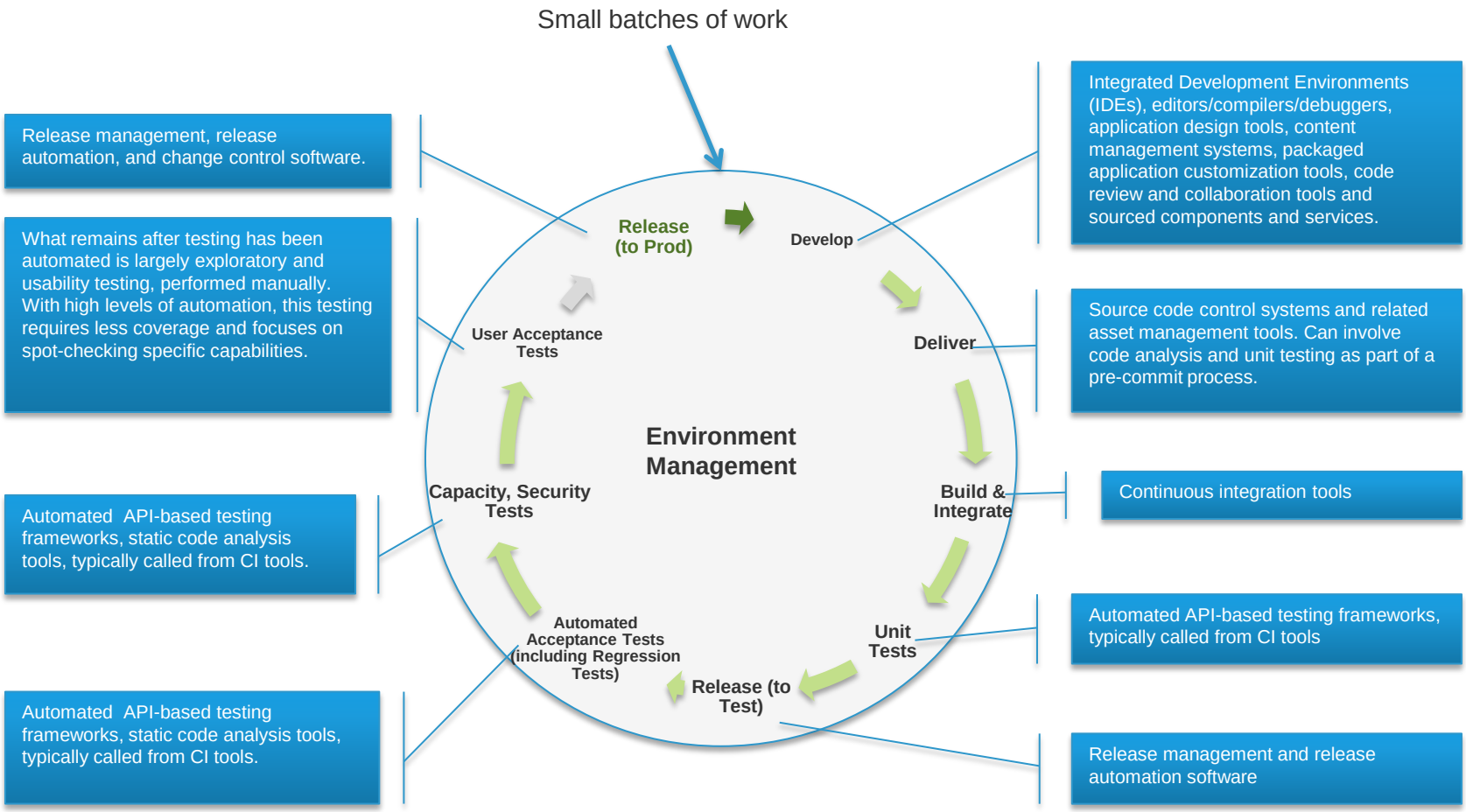
- Sprints provide a convenient way to manage small batches of work
- Demonstrations provide feedback that reshapes the Backlog and reduces waste
- In the absence of an Agile approach, “maintenance” releases are often inherently small-batch

Infrastructure-as-Code In Practice

- Configuration information (settings, users, permissions, accounts, installed software, properties, …) saved in SCM tool
- Scripts necessary to build new environments from configurations saved in SCM tool
- Environments automatically created, configured and populated with test data using automation

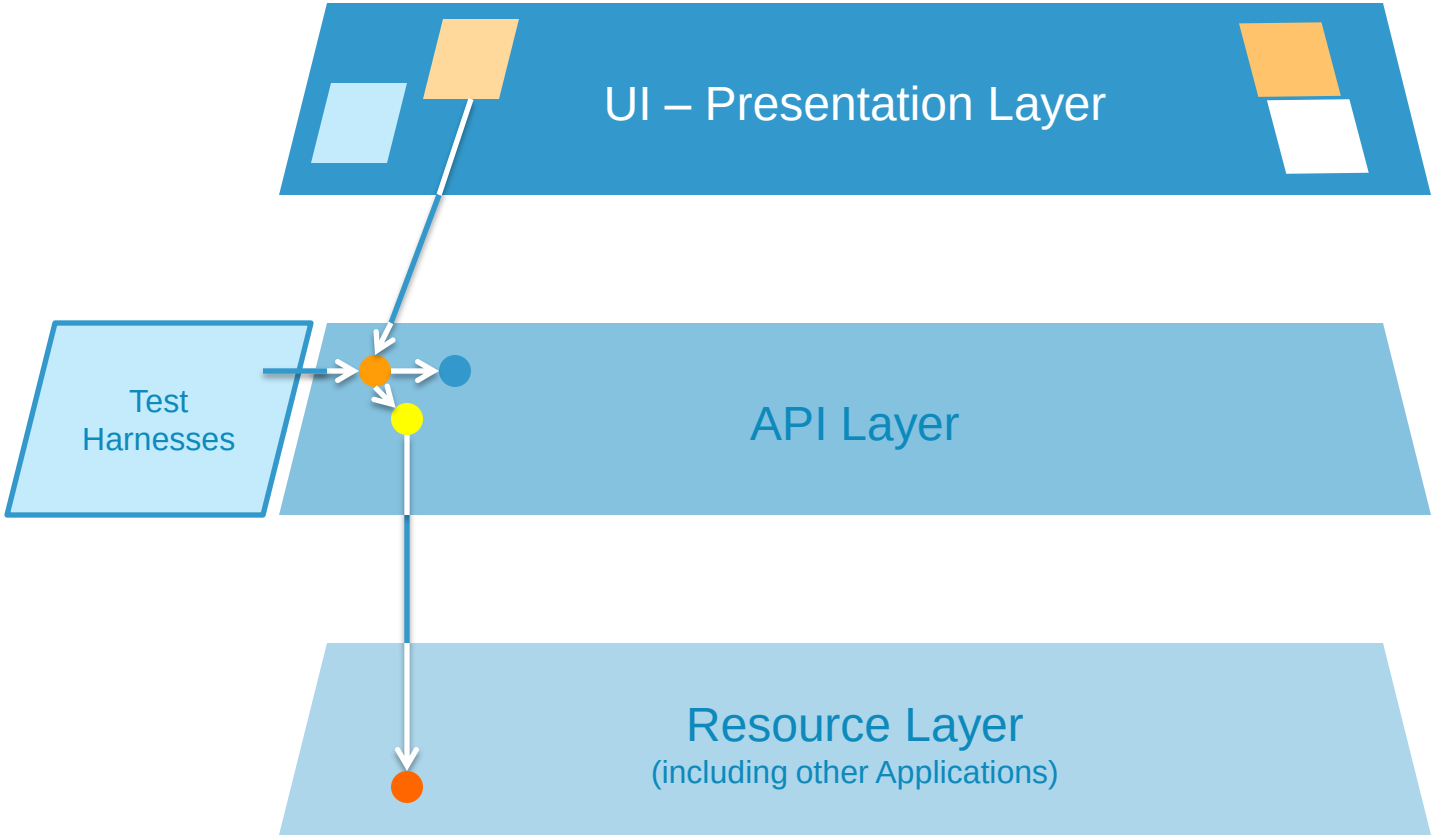


The Continuous Delivery Cycle

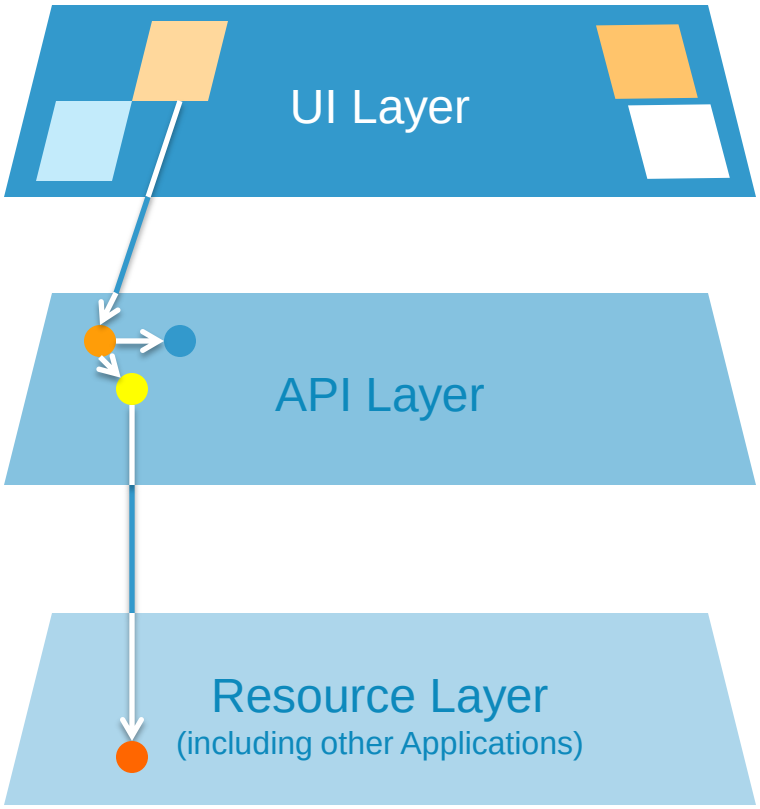


Representative Tools and Technologies

API Testing In Action



Loose Coupling Enables Independent Change



Each Layer and Service can change independently from all the others

- Services are versioned to allow interfaces to evolve
- Resources can be replaced without affecting applications
- Risk is reduced by isolating and eliminating dependencies
- The unit of release becomes an API change, not an application
- Applications and services can choose when they “upgrade” to a new interface

Maximize Utilization ➔ Maximize Throughput

Maximizing Utilization maximizes WIP and Waste

- With everyone as busy as possible, most work is partially completed most of the time
  - Waiting for someone else? Start something new.
  - Unfortunately there is someone downstream of you, too.
- When things change, a lot of that partially completed work gets scrapped
- The more delays and hand-offs, the more documents and ceremony, creating more delay

Maximizing Throughput minimizes Wait Time

- Work moves through the delivery pipeline faster
- Even though people are less busy, more useful work gets done because there is less scrap
- Organizational silos tend to emphasize utilization over throughput; focus everyone on the same measure

Typical Benefits Realized

- *Infrastructure as Art ➔ Infrastructure as Code*
  - Reduction in Production Incidents due to environment configuration errors
  - Elimination of “it works fine in my environment” excuses
  - Reduction in Mean Time to Repair (MTTR) by eliminating wait time for environment provisioning
- *Big Batches ➔ Small Batches,*
  Maximize Utilization ➔ Maximize Throughput
  - Decreased scrap and rework due to reduced WIP
  - Faster Cycle Time and reduced MTTR
  - Faster Time-to-Feedback, resulting in better solutions
- *Manual Builds ➔ Continuous Integration,*
  Manual Testing ➔ Automated API-driven Testing
  - Reduced labor cost
  - Improved consistency
  - Faster Cycle Time
  - Improved quality
  - Reduced governance and compliance costs
  - Improved effectiveness of governance
- *Integrated Architectures ➔ Loosely Coupled Services*
  - Faster Cycle Time and reduced MTTR
  - Lower Total Cost of Ownership through reduced maintenance costs and obsolescence avoidance

Typical Performance Measures

- *Cycle Time*
  - The time it takes to go from idea to business value realization
- *Mean Time To Repair (MTTR)*
  - The average time to takes to fix a defect or resolve an incident in production
- *Revenue Per (Application Delivery) Employee*
  - A measure of the economic productivity of the application delivery organization
- *Technical Debt*
  - A measure of the amount of corrective work that has been postponed
  - Lower technical debt means less risk and higher reliability
- *Revenue Acceleration or Lost Revenue Avoidance*
  - The value of being able to realize a revenue stream earlier, typically expressed as NPV
  - The value of correcting an error before it causes revenue to be lost
- *Customer Satisfaction Scores, Net Recommender Scores, App Ratings*
  - Measures of the happiness and loyalty of customers
- *Innovation Rate*
  - The percentage of the application development spending focused on new capabilities versus maintaining existing capabilities

Summary

- *CD is driving the application delivery agenda for nearly every organization*
  - Increased customer expectations
  - Increased competition
- *Continuous delivery reduces cost*
  - API test automation reduces manual testing costs
  - Static analysis reduces manual code review costs
  - Reducing WIP reduces the cost of scrap and rework
  - Small changes, released continuously results in fewer and less costly production incidents
- *Continuous delivery improves quality*
  - API test automation improves the accuracy of testing
  - Static analysis improves the accuracy and quality of code reviews
  - Automating release readiness evaluation ensures higher quality results
- *Continuous delivery results in higher customer satisfaction*
  - Faster innovation
  - Increased perceptions of responsiveness
  - Faster feedback leads to higher satisfaction

Thank you

Kurt Bittner

+1 617.613.8903

kbittner@forrester.com

@ksbittner

forrester.com