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Track
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"Testing in the DevOps World of Continuous Delivery"

Presented by:

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Manoj Narayanan is the director of testing services at Cognizant Technology Solutions, a leading provider of information technology and consulting services. Manoj is the QA practice leader for Cognizant's retail and consumer goods, travel and hospitality, and manufacturing verticals in North America. He provides thought leadership and implementation assistance for his clients as they transition the QA organization toward the next maturity level. During his fifteen years in the IT services industry, Manoj has successfully played multiple roles including performance services evangelist, program manager, and transition advisor. Prior to Cognizant, Manoj was a management consultant with A T Kearney where he focused on business process re-engineering and risk optimization.

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Testing in the DevOps world of Continuous Delivery

by
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Cognizant

What we will discuss today

- Is there a need to change traditional testing approaches?
- What is DevOps - Is it different from Agile?
- How does it help the organization?
- Impact to testing in a DevOps scenario
  - People
  - Process
  - Governance
  - Technology

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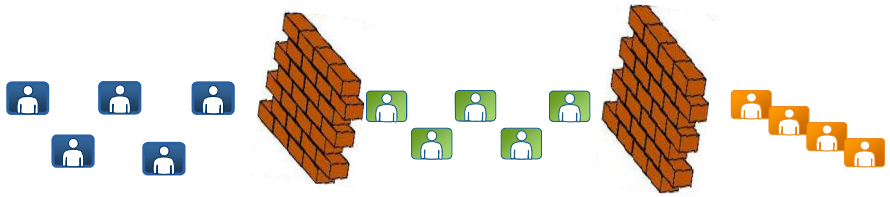
Traditional testing approach is geared towards sequential delivery

Development → Testing → Deployment

leads to leads to

Resulting in a siloed organization structure …



… with communication challenges

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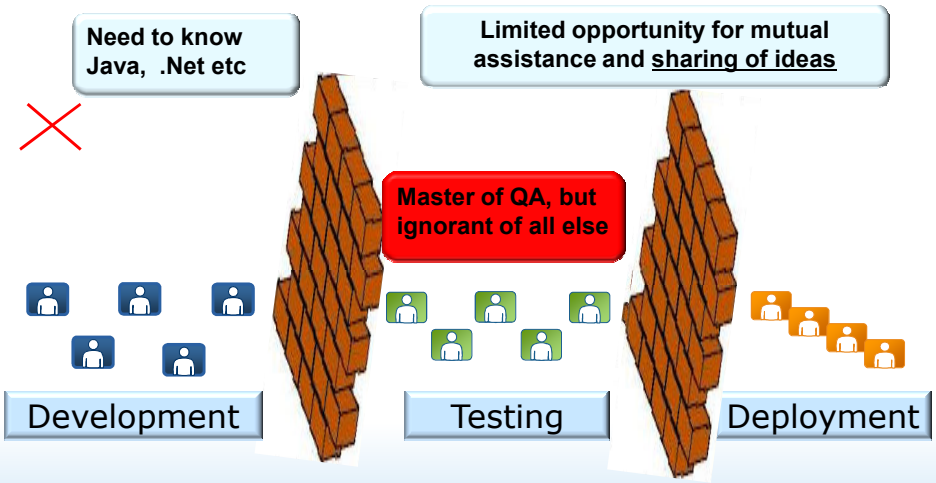
Also leads to focus on discrete skill sets - minimizing cross functional behavior



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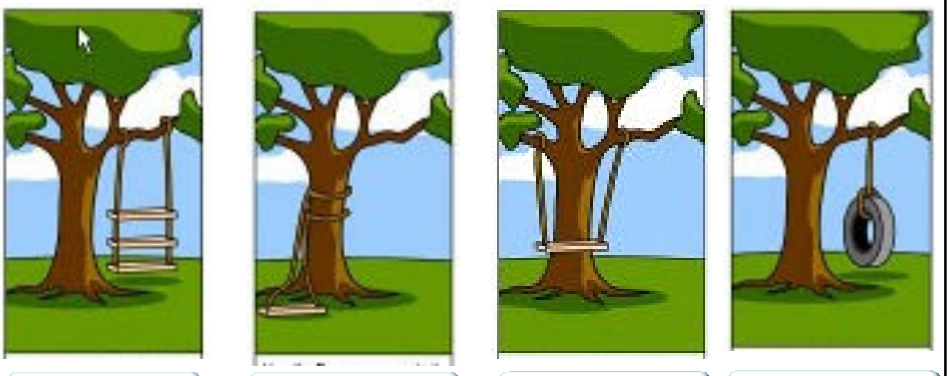
Result: Unintended Consequences!



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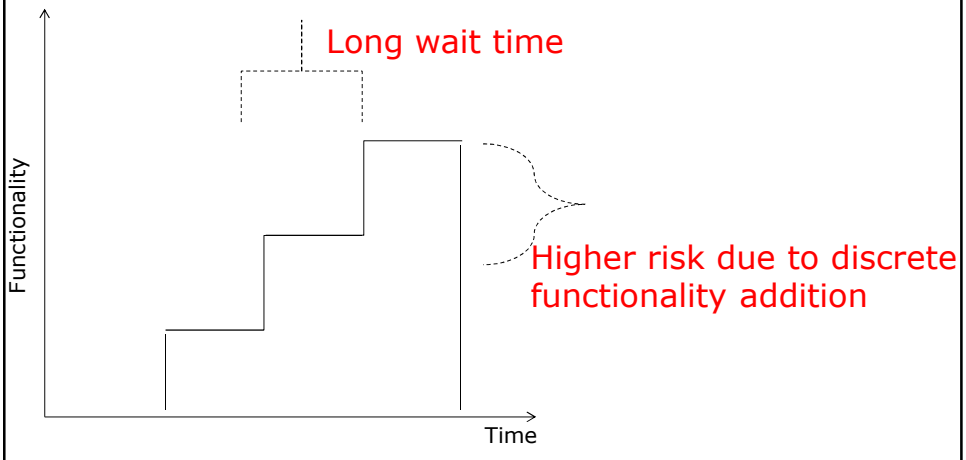
Sequential delivery approach also results in longer delivery times & higher risk



Is this a viable option???

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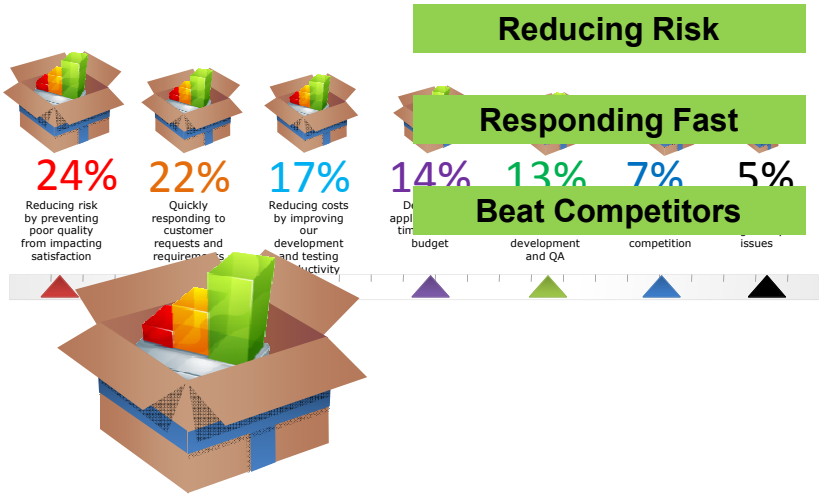
What does business want today?



More than 60%

Source- QAI –Edista Testing

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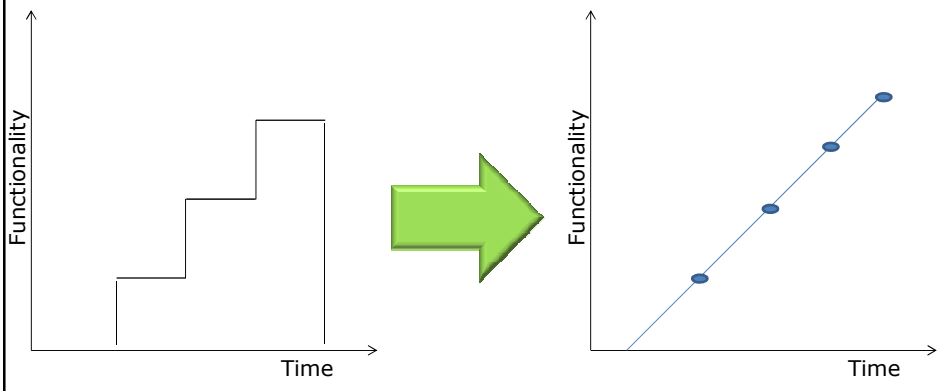
How does one achieve this?



Moving from a discrete delivery approach to….

…. a Continuous Delivery approach

From "Build it Right" to "Build the Right It"

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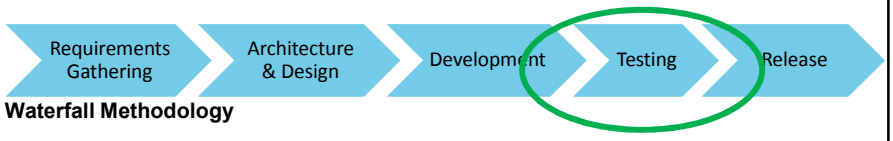
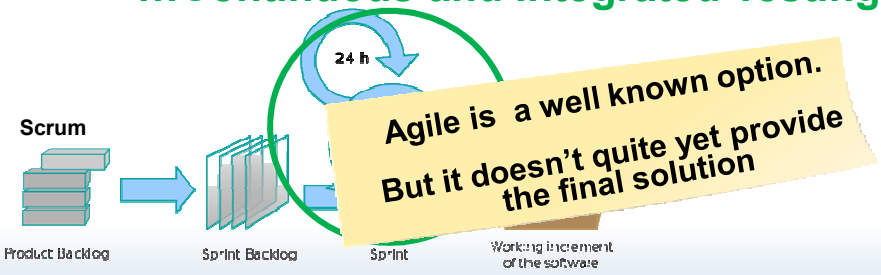
Agile – Path to Continuous Delivery

From Discrete and Independent Testing to…



Waterfall Methodology

…Continuous and Integrated Testing



Agile is a well known option.

But it doesn't quite yet provide the final solution

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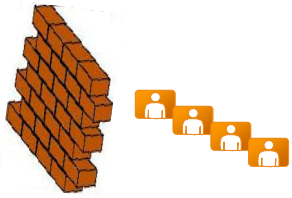
"Last Mile Problem" still exists

Development

Testing

→ Deployment

leads to



- **Long time between testing and deployment**
- **Testers still do not have SysAdmin skill sets**
- **Additional delivery pace adds to the confusion**

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DevOps aims to be the solution to this integration challenge

One Team: Development + Testing + Operations

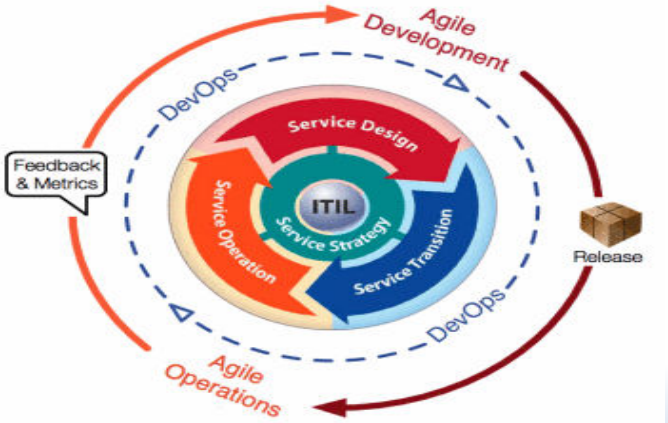
One Team: Capable of playing all the roles

"Ensure the fastest path to deployment ready code"

Is DevOps different from Agile?

"Our highest priority is to satisfy the customer through Early and continuous delivery of valuable software"

- Agile Manifesto[1]



1. Courtsey: Jezz Humble

Who is doing it now?

- Web 2.0 firms with heavy reliance on eCommerce have been the front runners
- Fast changes are mandatory - the better the integration, the better the response time. Hence DevOps.

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Impact on testing

- Change to a DevOps environment has to be gradual as it has multiple impact points

People

Process

Governance

Technology

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Impact on testing

People

- Focus on Knowledge Management
  - Information access to increase re-usability
  - Testers need to learn development languages – rise of user friendly tools like Python and Cucumber
  - Testers need to learn deployment process and tools
- Train Developers & SysAdmin on test processes, design techniques, tools
  - Increasing reliance on developers for shift – left testing

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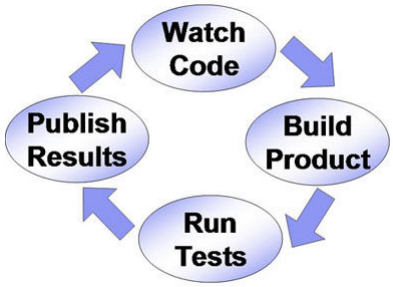
Impact on testing

Process

- Continuous Integration becomes mandatory
  - Test Driven Development
  - Single source code repository
  - Automate the build process
  - Fast Build - What is my "zero release time"?
  - Everyone should know what is going on - transparency



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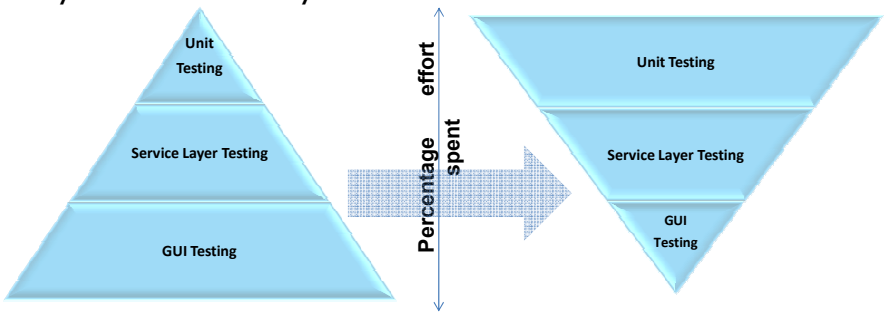
Impact on testing

Process

Heavy reliance on innovative automation embedded early into the life cycle



Need to move away from traditional approach focusing on GUI based testing..

…to focusing on increased defect capture through Unit and Service Layer Testing

Automation becomes critical

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Impact on testing

Process

"Smart Testing" dissolving boundaries of traditional system & integration testing

QE Approach	QA Approach
Unit Testing	Regression Testing (automation)
Service Layer Testing	Beta Testing
Functional Testing (automation)	User Acceptance Testing

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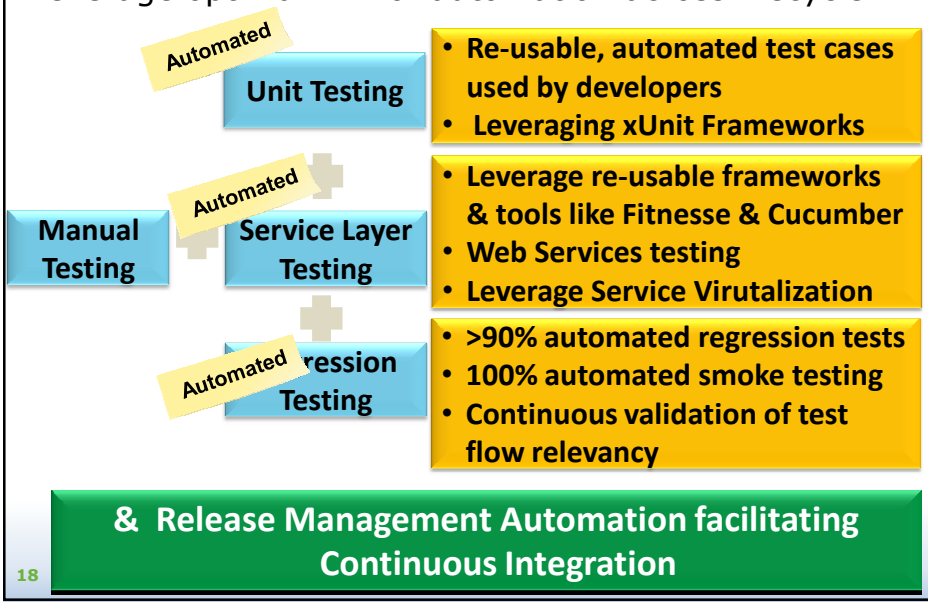
Impact on testing

Process

Leverage optimal mix of automation across lifecycle



& Release Management Automation facilitating Continuous Integration

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Impact on testing

Process

Need for "industrialization" – focus on getting application functionally and operationally ready

Additional types of testing needed

- Operational Readiness Testing
- Network & Geographical Testing
- Failover & Disaster Recovery Testing

Testing in the SysAdmin world!

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Impact on testing

Governance

- Teams work best in pods of “jack of all arts”
  - Critical to have pods talking to each other
  - Central co-ordination needed – a rotating position?
  - Incremental changes driven by business – continuous interface and demos
- Focus on core competence increases!
  - Greater need for specialists - they will focus on challenging sub-tasks that pods cannot handle
  - Identification of repeatable tasks – automated and executed by pods
- Might not work in large organizations

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Impact on testing

Technology

- Need for user-friendly tools that can be used by developers, testers and SysAdmin
- Greater focus on automation and re-usability
- Cost consciousness or the desire to be technically esoteric!

Vagrant

puppet labs

node

Chef

COLLABNET Connect

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And most importantly, do not forget to communicate

- **Ensure Executive & Stakeholder buy-in on the change**
- **Establish a communication channel for regular updates and feedback**

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Summary

- Traditional testing approaches are limited by their long delivery timeline and inefficient cross pollination of work
- Agile works better, but faces challenges in the “last mile”
- DevOps provides an integrated approach to delivery
- Focus on Continuous Integration and Continuous Delivery
- Need for extensive automation & re-usability
- Teams work in pods performing all roles – however, specialists are now more in demand
- Transition to DevOps is facilitated by the rise of a new breed of user and business friendly tools
- Effective Communication & Change Management – very critical for an organization embarking on this journey

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