DevOps: Are You Pushing Bugs to Your Clients Faster?

Wayne Ariola
Chief Strategy Officer - Parasoft

Continuous Testing eBook

Accelerate the SDLC and Reduce Risk

Continuous Testing provides a real-time, objective assessment of the business risks associated with an application under development. Applied uniformly, Continuous Testing allows both business and technical managers to make **better trade-off decisions between release scope, time, and quality**.

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- ✓ How confident are we that we won't end up in the news for software failures?

http://alm.parasoft.com/continuoustestingbook

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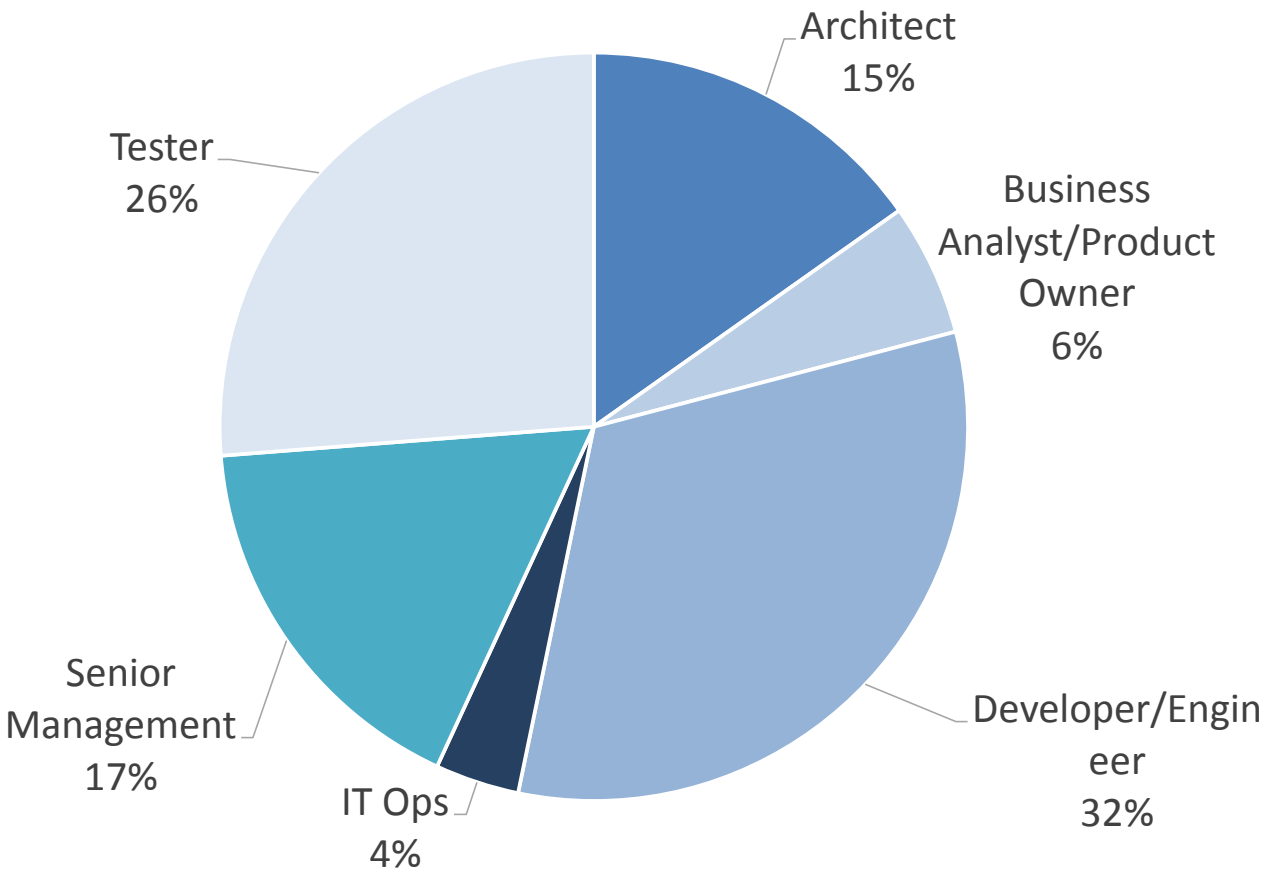
OF 780 Respondents
What best describes your role in your organization?



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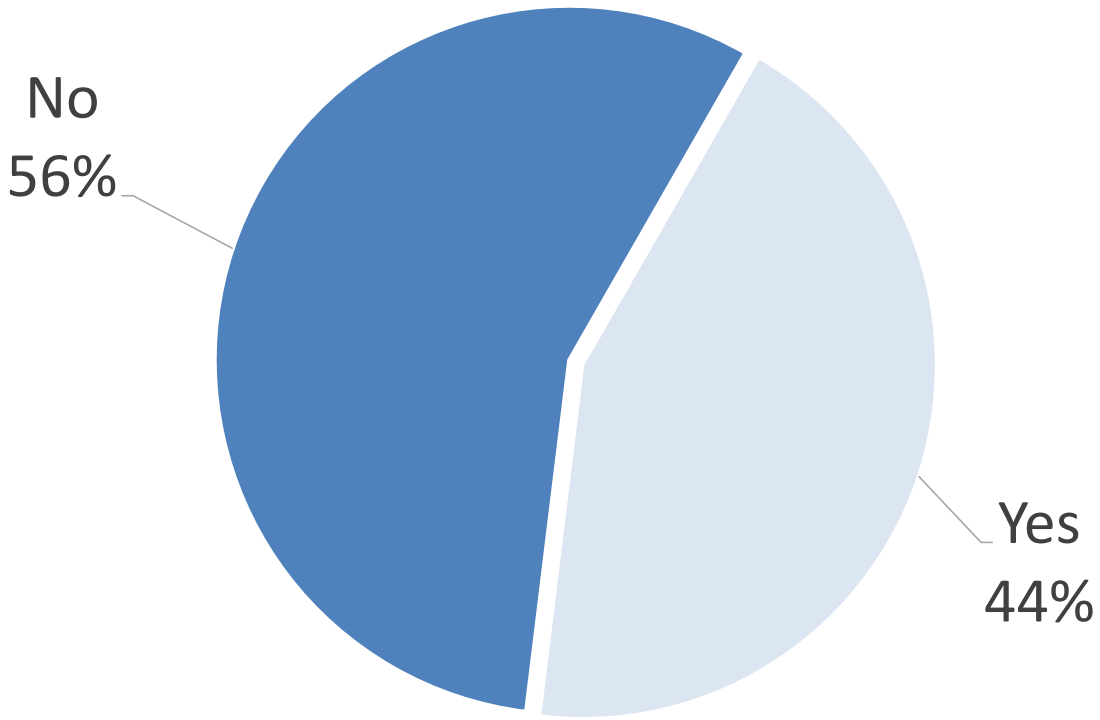
Does your organization measure or monitor compliance to NON-functional requirements?



2015 Non-Functional Requirements Survey

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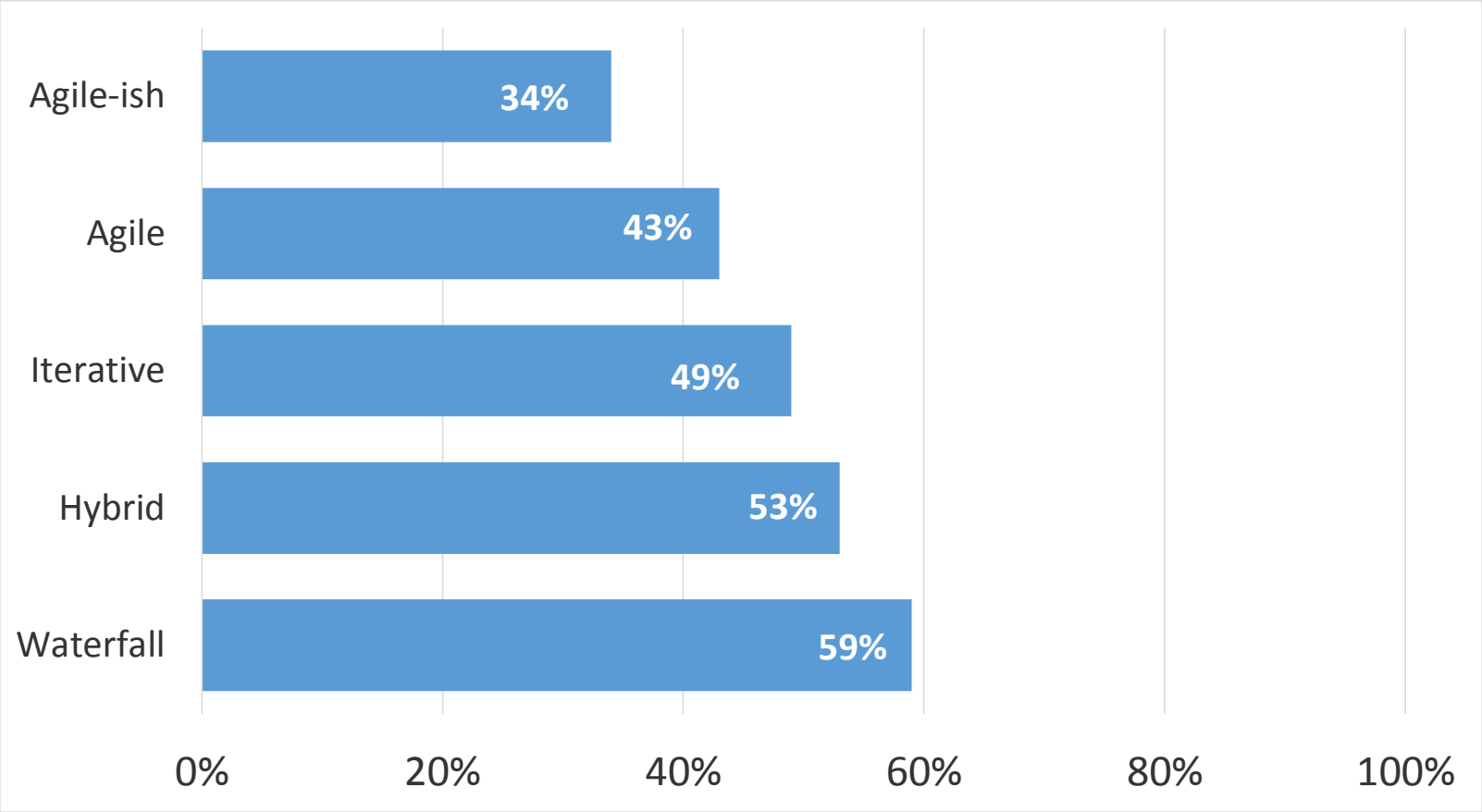
'Yes,' My Organization Monitors Compliance to NON-Functional Requirements (NFRs)



From Automated to Continuous Testing

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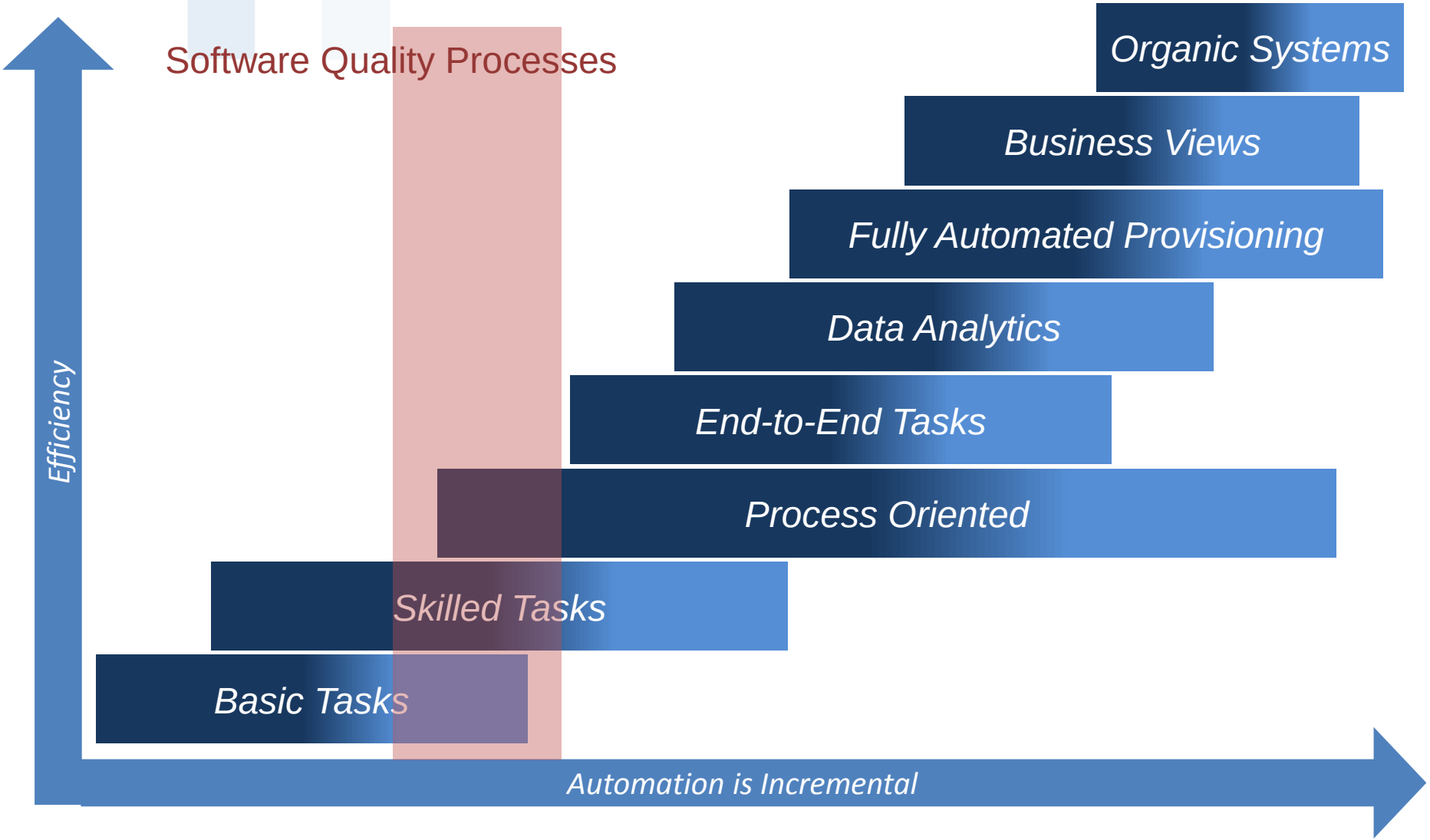
Testing is a Bottleneck



Impact of Test in the Evolving SDLC

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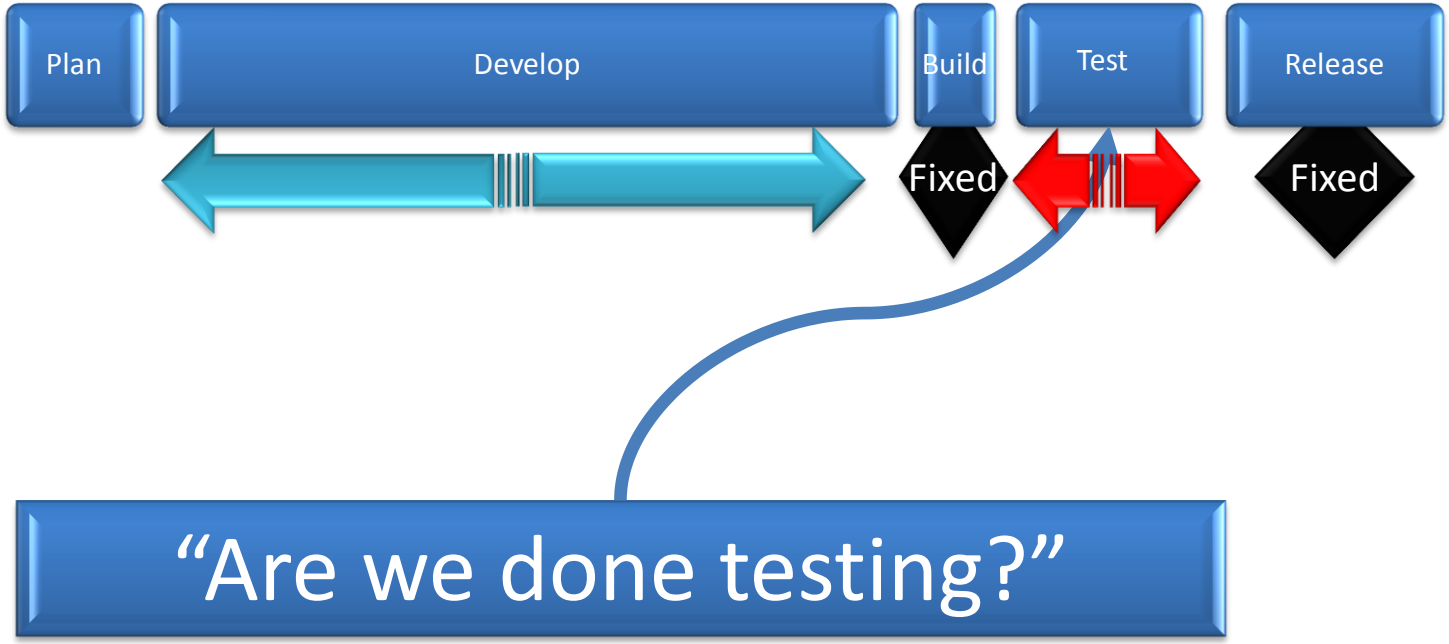
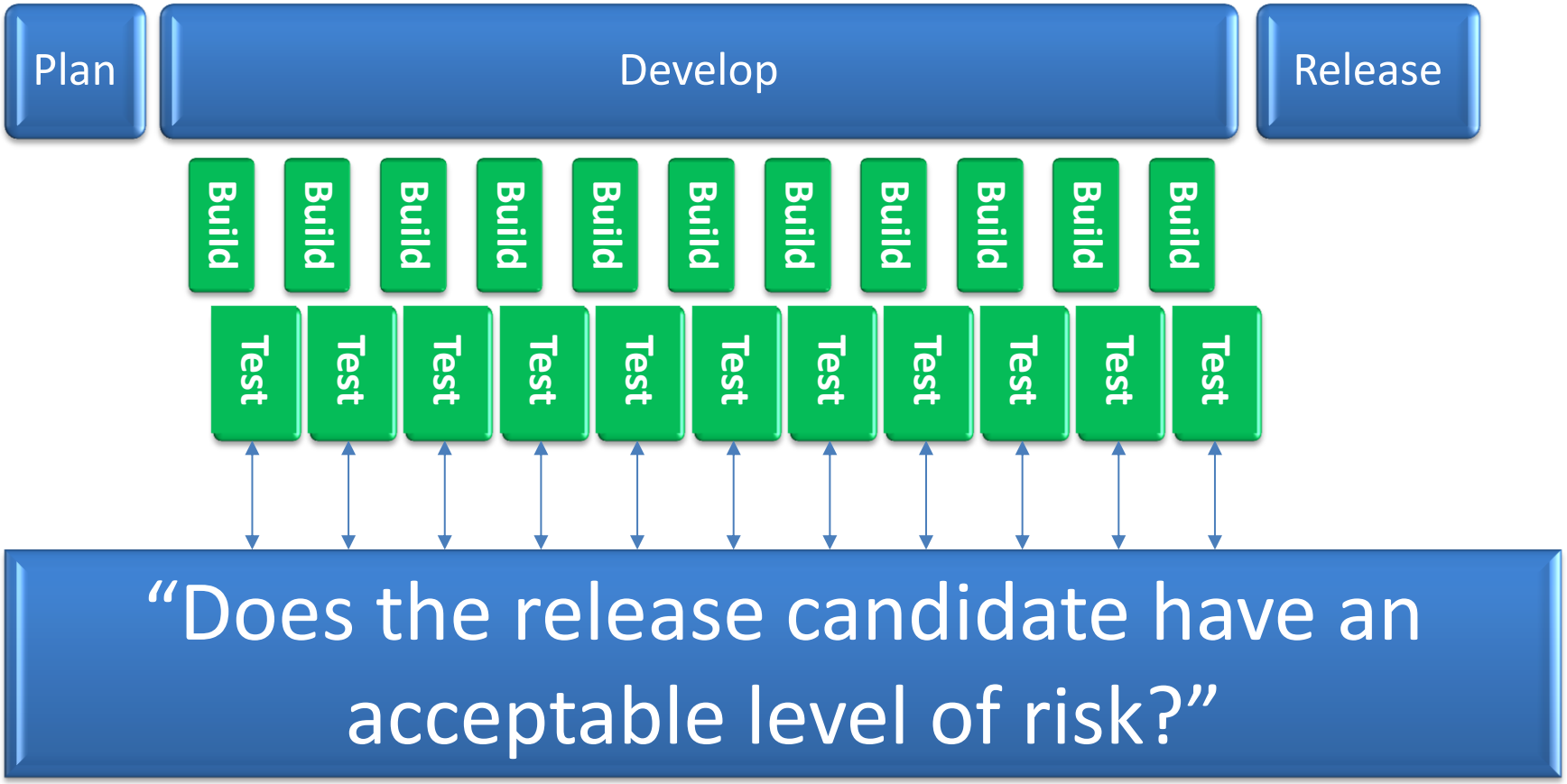
Test as a time-boxed event is the prevailing method



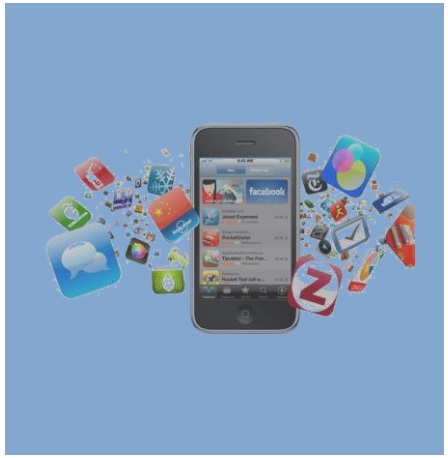
Impact of Test in the Evolving SDLC



Software Drives Innovation

Software has shifted from process enabler to **business differentiator**

SDLC Speed will be the difference between a first mover and a follower



Switching costs associated with software are dramatically lower

The **Cost of Quality** associated with software has shifted dramatically

Software Failures = Headlines

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Financial	Airlines/Aero	Government	Media	Internet/Tel
CHASE	UNITED	Central Intelligence Agency	NETFLIX	Google
RBS The Royal Bank of Scotland	American Airlines	Homeland Security	SEGA	amazon web services
London Stock Exchange	Aer Lingus	U.S. Citizenship and Immigration Services	SONY	facebook
Knight	BOEING		abc	ebay
DBS	LOCKHEED MARTIN We never forget who we're working for™			verizon wireless
BARCLAYS				at&t
citibank				

Automotive	Technology	Retail
Cadillac	intel	Target
TOYOTA	McAfee	T.J.maxx
NISSAN	EMC²	BEST BUY

Software Failures = Headlines 2014

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Software failures make headline news—
eroding customer confidence, shareholder value and brand equity

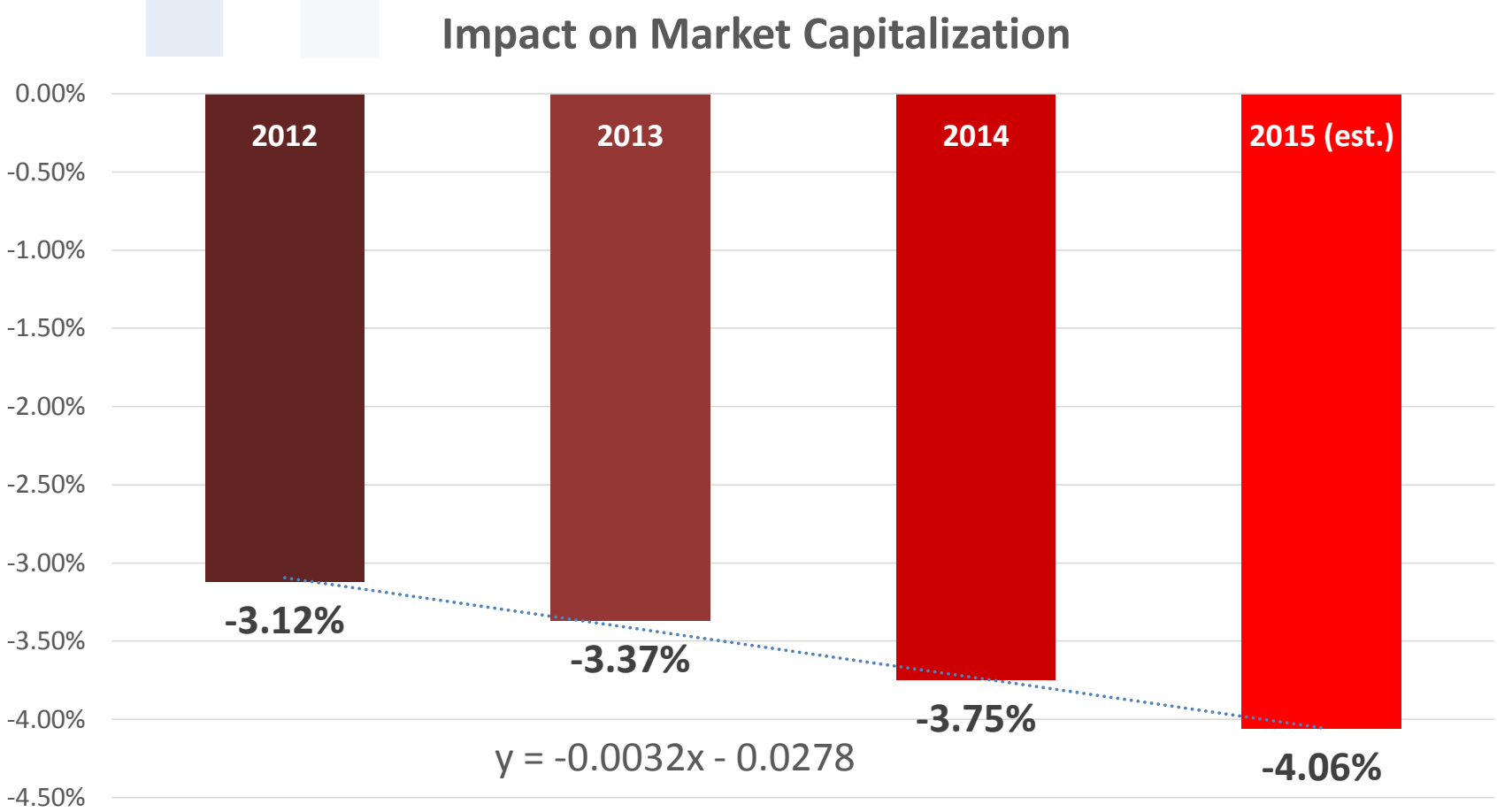
The day of the announcement companies lost an average

–$2.3 Bn

–3.75%

of shareholder value

Escalating Cost of Failure



Software Failures = Headlines

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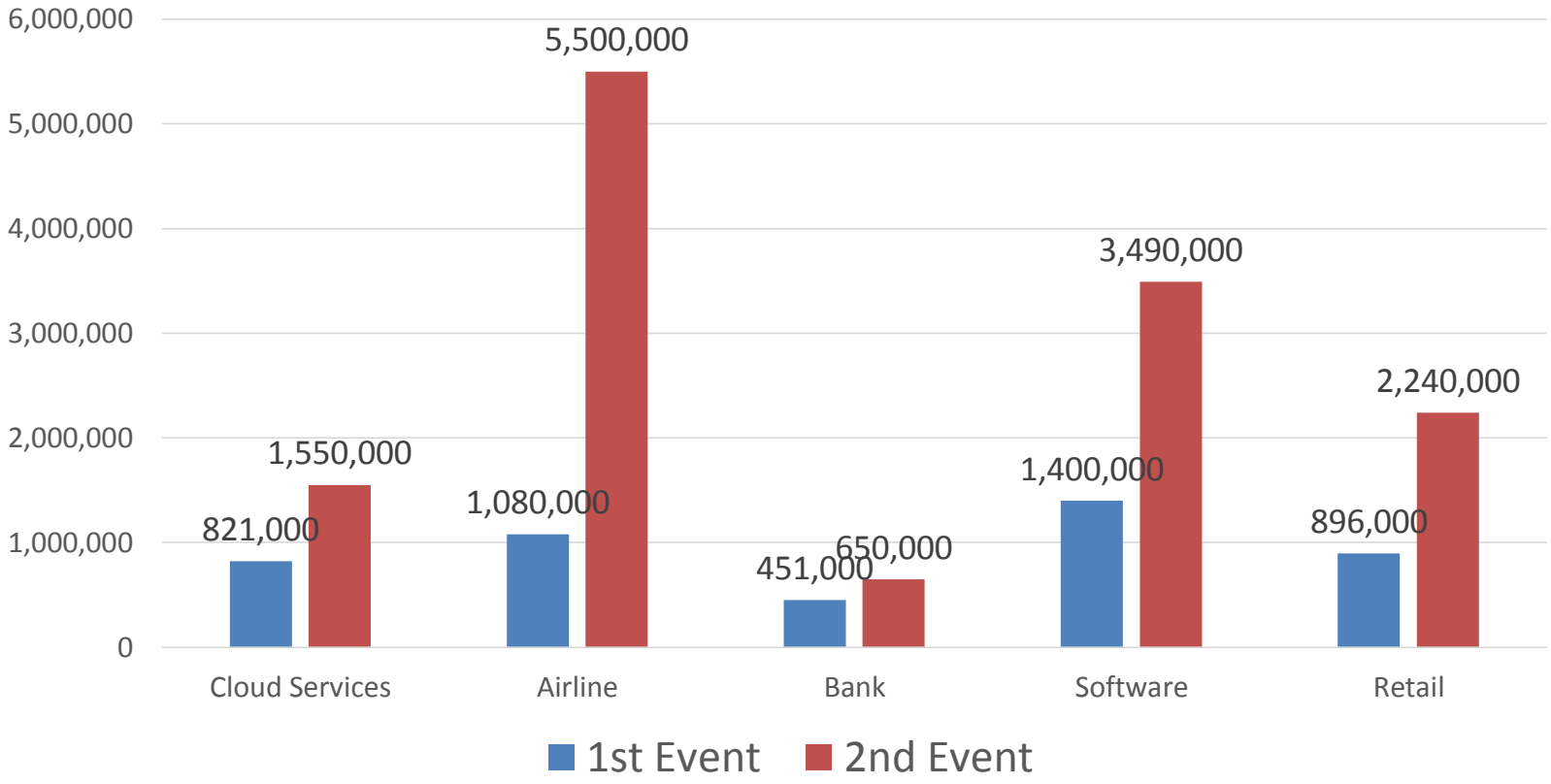
Market does not forget— news about failure increase and average of 167%



Building a stronger American - Sometimes

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About 146,000 results (0.51 seconds)

In the news

48.87 -2.32 (-4.53%) NASDAQ - As of 03:56pm EDT

iPad glitch grounds American Airlines flights - Apr. 29, 2015
money.cnn.com/2015/04/29/.../**american-airlines**.../index.ht... CNNMoney
9 hours ago - **American Airlines** pilots use iPads in the cockpit -- and an apparent **software glitch** is grounding several planes in the United States.

United Airlines 'Glitch'

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Airlines face risk of worse disruptions from computer glitches

By Jeffrey Dastin

"Airlines are flying computers," said

and that also creates an exposure."

Wednesday's disruption at United, which locked the airline out of its reservations records and therefore blocked check-in and boarding, led to

Related Stories

1. Computer glitch halts United Airlines flights for two hours

Let's Reverse the Game…Spot the Failure

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The Bank of New York Mellon Corporation (BK) Watchlist

40.41 +0.45(+1.13%) NYSE - As of 09:48am EDT

The Cost of Software Failure - Sony

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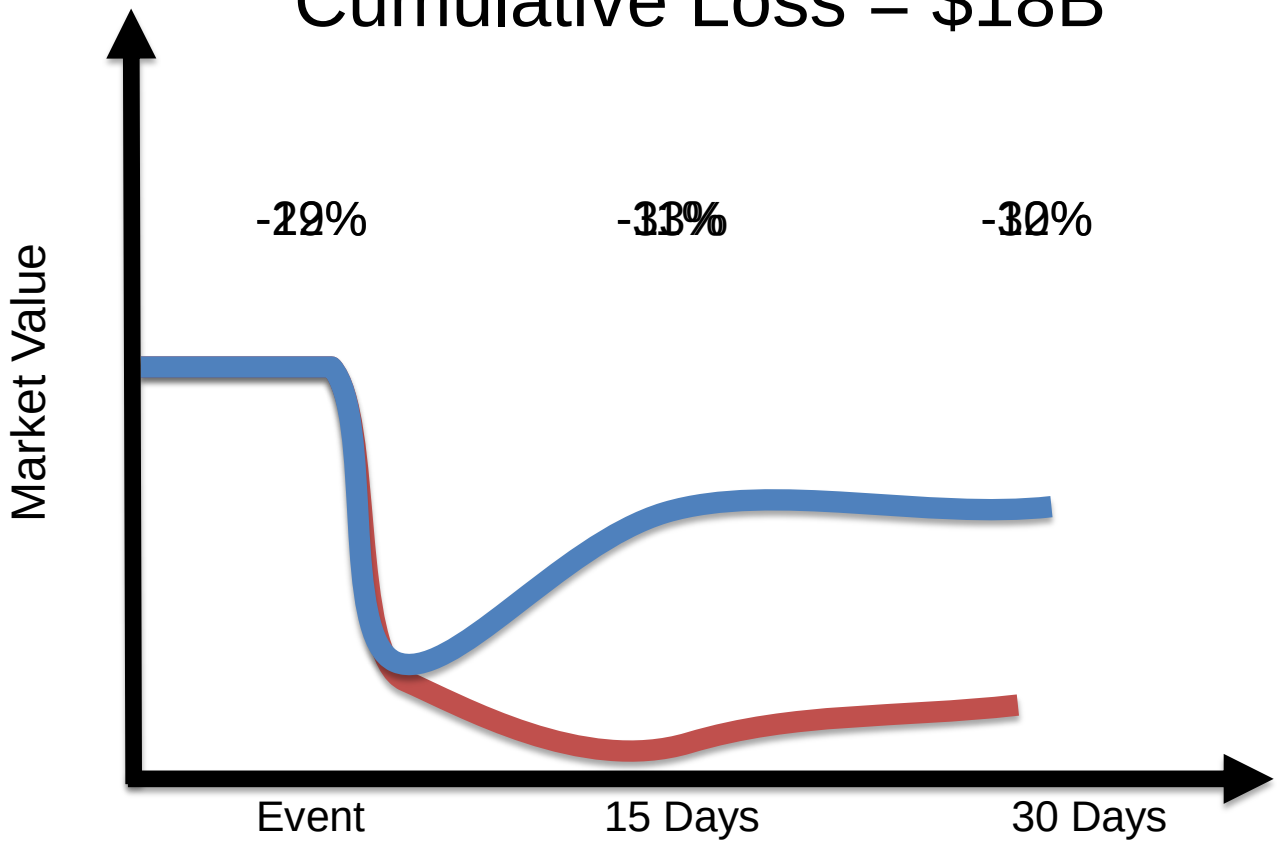
Cumulative Loss = $18B



http://www.reuters.com/article/2011/04/26/us-sony-stoldendata-idUSTRE73P6WB20110426

http://www.digitaltrends.com/gaming/sony-fined-almost-400000-for-2011-playstation-security-breach/

We must Re-invent Test

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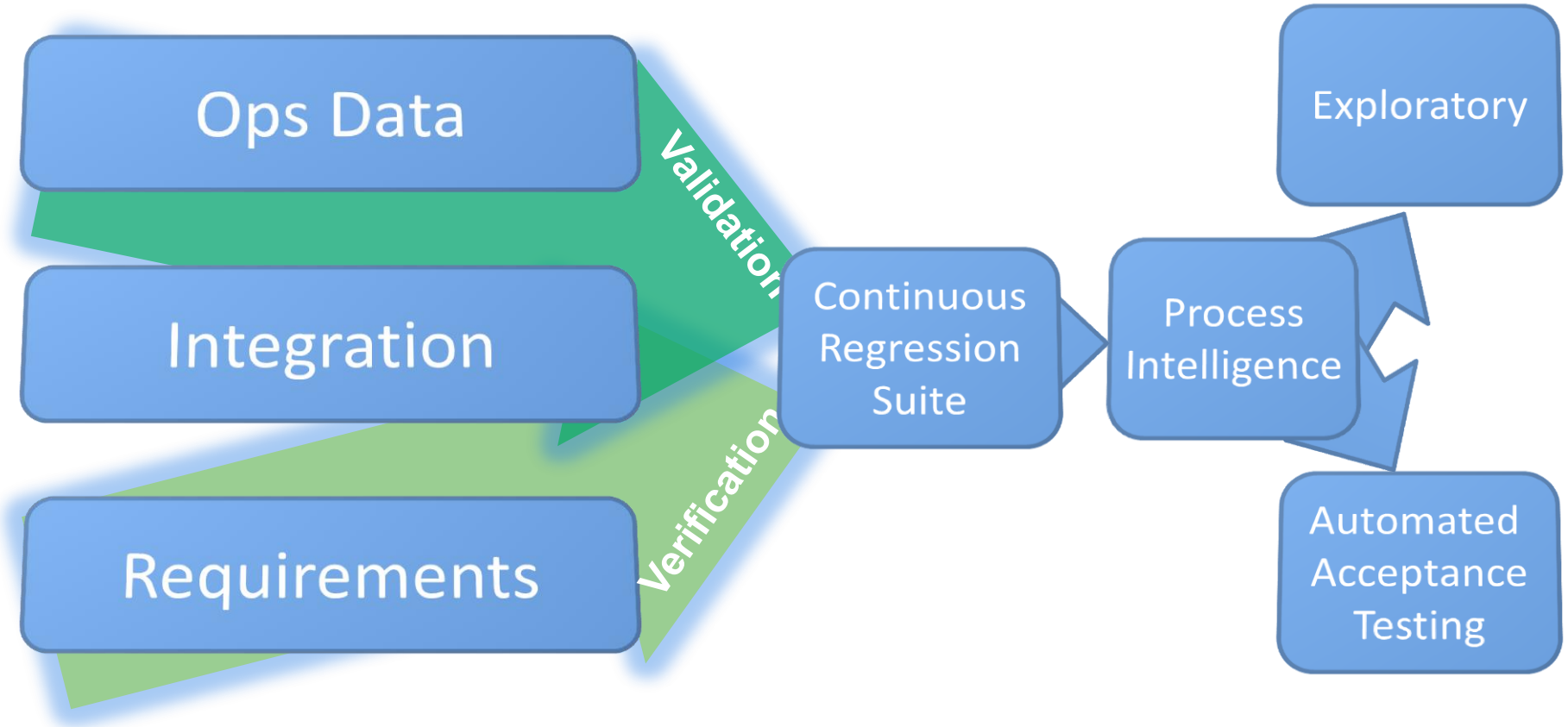
- The penalty for faulty software is increasing
  - Brand erosion
  - All industries at risk for total transformation
- Technology is faster and more distributed
  - DevOps
  - Containers
  - Microservices

Next Generation Testing



Getting from “Automated” to “Continuous”

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There is a big leap moving from “Automated” to “Continuous”

- Business expectations clearly defined
  - Business risks identified
  - Per application, team, release
- Defects automatically prioritized versus **business drivers**
  - No defect left behind
  - Mitigate business risks
- **Testing in ‘complete’ test environments continuously**
  - **Leveraging simulation – Service Virtualization**
  - **Protecting the user experience “top-down”**
- Feedback loop for defect prevention
  - Pattern definition
  - Defect prevention practices enhanced

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Service Virtualization delivers a simulated test environment to help development and testers with earlier, faster and more complete testing

So, What are you Virtualizing?

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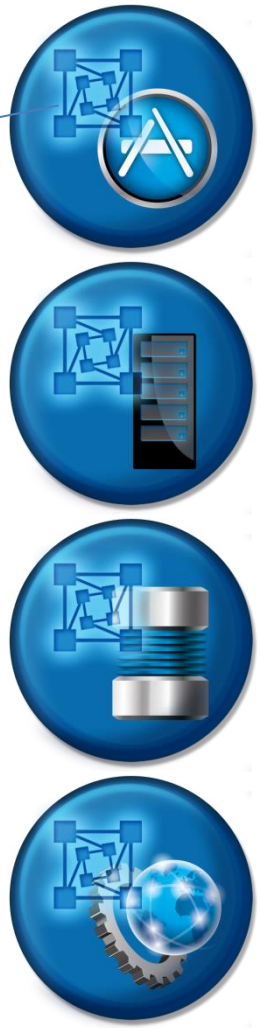
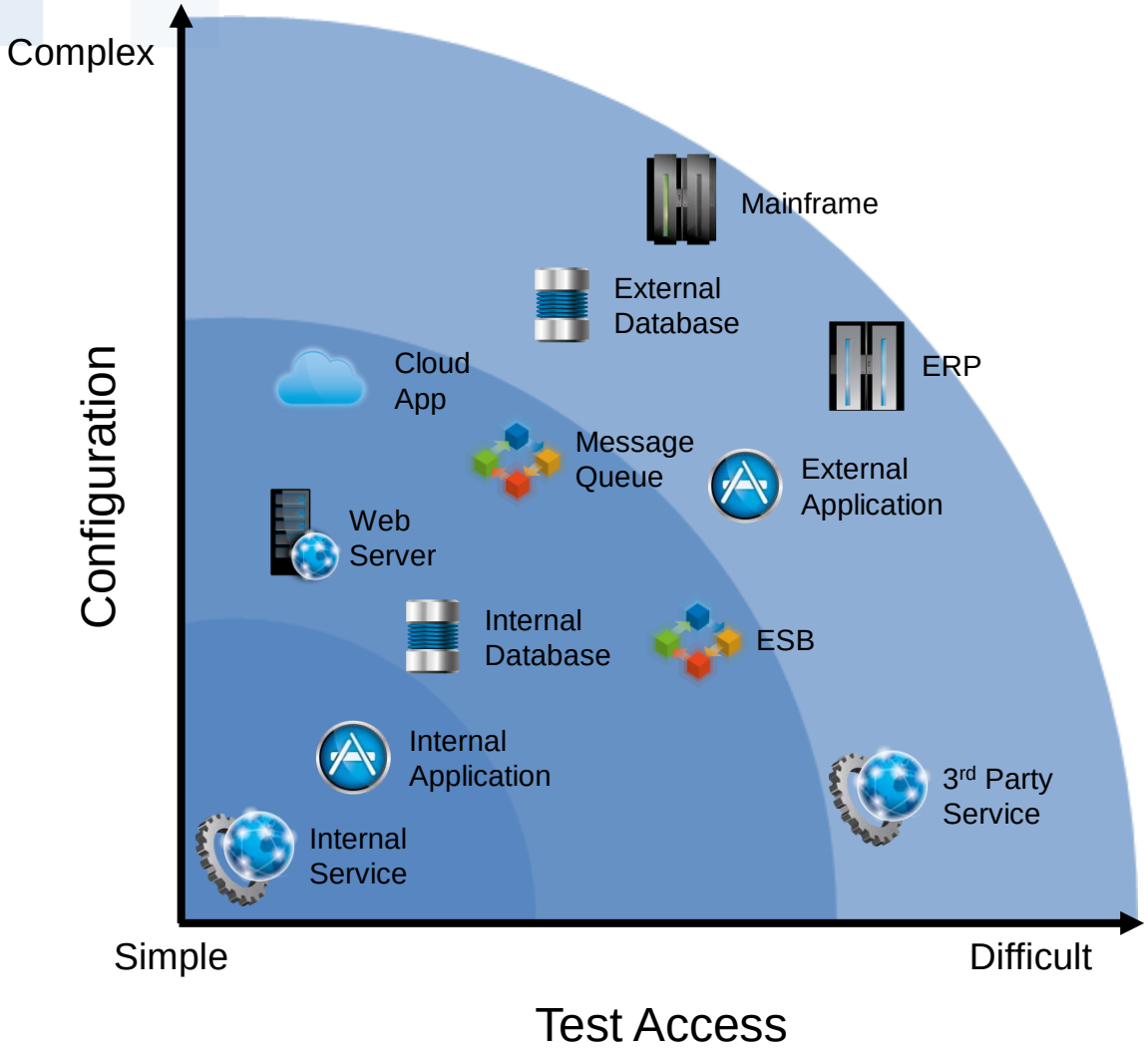


- Mainframe
- SOA / Web services
- Java
- .NET languages
- XML
- WSDL
- WADL
- UDDI
- WSIL
- SOAP
- PoX (Plain XML)
- REST
- JSON
- BPEL
- Web Applications

- Mobile Interfaces
- AJAX
- JSP
- JavaScript
- HTML
- CSS
- WS-*
- Standards
- MTOM(XOP) / MIME / DIME
- OAuth
- TCP/IP
- webMethods Broker
- webMethods IS
- HL7
- FTP

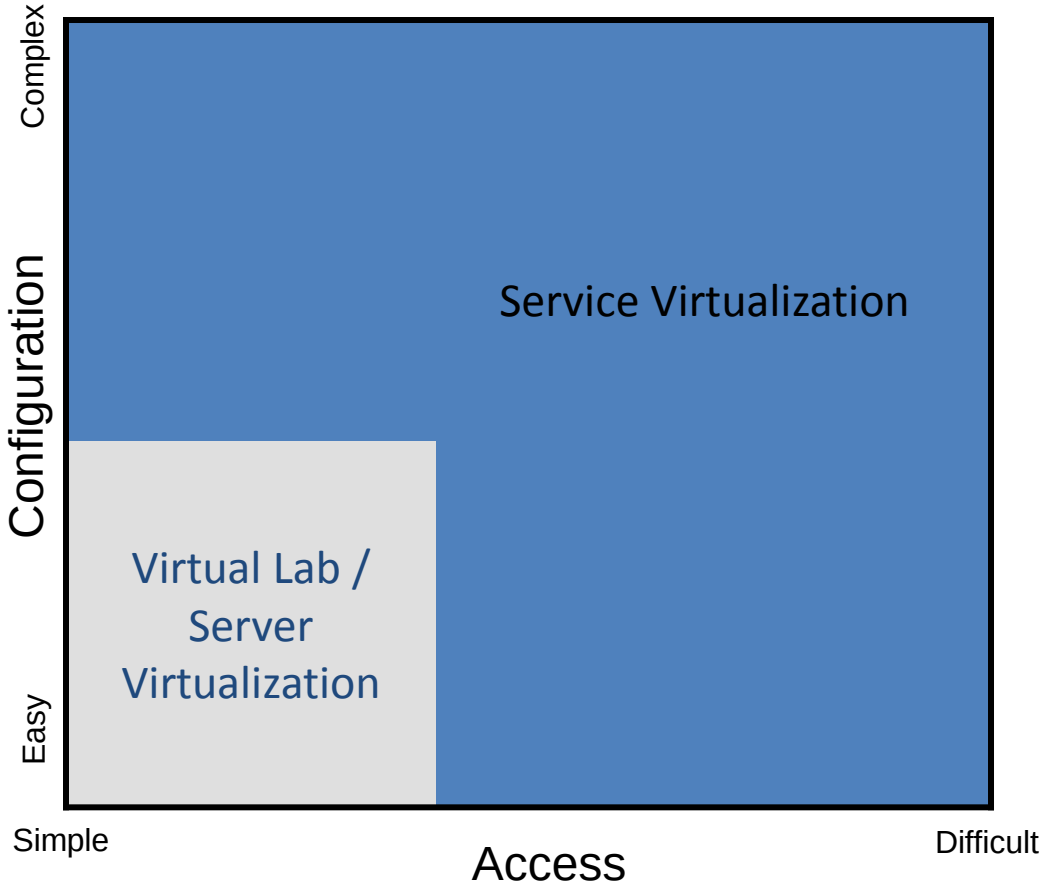
- HTTP 1.0
- HTTP 1.1
- HTTPS
- JMS
- IBM WebSphere MQ
- Sonic MQ
- RMI
- EJB
- SMTP
- Tibco Rendezvous
- .NET WCF
- ISO 8583
- EDI
- SAP
- custom

Access to Dev / Test Systems



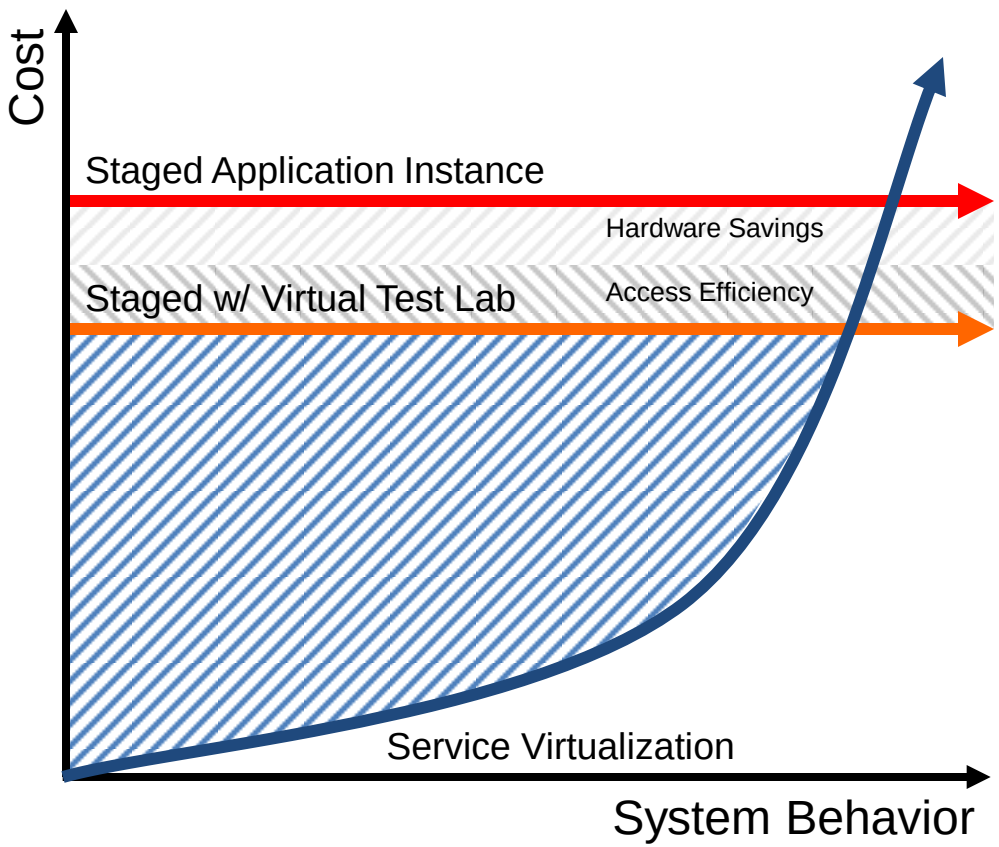
Service Virtualization & Dependencies

- Access
  - Dependent applications difficult
  - Scheduling conflicts
  - High access fees
  - Geo-political boundaries
  - 3rd party or partner applications
- Configuration
  - Complex to configure
  - No control
  - Limited variability
  - Consumes test time



The Total Cost of System Access

Service Virtualization *dramatically reduces the cost* of delivering a dev / test environment



- Only manage the functionality you need
- Only manage data you need
- Low-Risk "disposable instance" that can be accessed at anytime
- Dramatically reduce test environment setup and management

The Next Generation Software Quality 'System'

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Development

Operations

Release Candidate

Development (E1)

Test (E2)

Integration (E3)

Pre-Production (E4 – E_n)

Production

Continuous Verification of Requirements

Continuous Assessment of Risk

Environment Simulation (SV)

Development Tests

Auto Test Construction – Synthetic

APM – Real Time Data

Test Optimization

Test Environment Management - Provisioning and Elastic Cloud Scale

Transforming the Identification of Risk

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Business Objectives

From	To
Causal Observations	Probabilistic
Defect Documentation	Most Likely Causes
Only Structured Data	Structured and Unstructured
Filters	Business Policies
Ad Hoc	Automated
Tool Dependent	Tool Independent

Questions?

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Service Virtualization Examples

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Parasoft Virtualize is used throughout the SDLC to speed access to and reduce the costs of managing development and test environments

- Mobile Application development and extension
- Agile/Parallel development limited by system dependencies
- Capacity Constrained staged environments
- Limited access to mainframes, ERPs, or 3rd party systems
- Test data management for complex transactions

The Test Environment Challenge

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Test environment access is outside the control of development and test leaving gaps in the process

IT Operations

Staged Assets

Dependent Applications

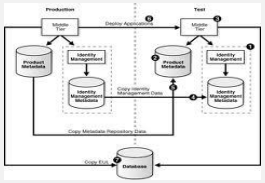
3rd Party Assets

Virtual Environments

App | App | App

Hyper Visor

Scheduling



Configuration

Access Limits

Parallel development delays… Need simple, realistic access to dependent components…

Too much time waiting for access…Need reliable test data

Need a realistic test environment easy to maintain

The Test Environment Challenge

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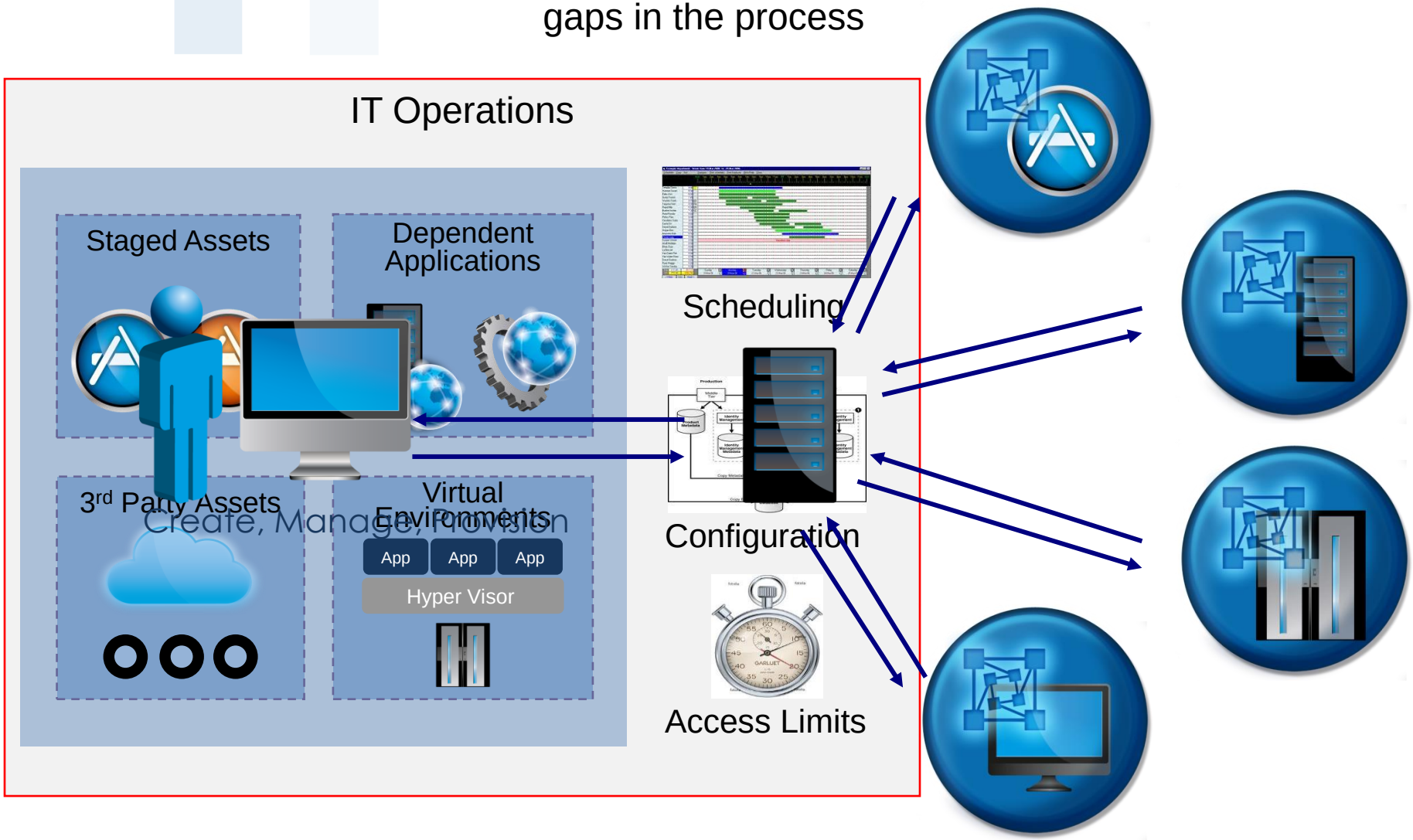

Value of Service Virtualization

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Service Virtualization drives better software quality
while reducing CapEx and OpEx

- Increase Access to "Trustworthy" Test Environments
  - Provide a complete test environment
  - Provide access 24/7
  - Flexibility provides a platform for extending test scenarios, coverage
- Reduce Operational Expenditures
  - Significantly reduce test environment configuration time
  - Simplify test environment access
  - Remove the bottleneck of test environment setup
- Reduce Capital Expenditures
  - Software assets can be run anywhere
  - Significantly reduce bandwidth demand
  - Reduce dependency on staged environments

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Download the eBook

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Last Name *

Company *

Job Title *

Work Email *

Phone *

Country *

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Mailing State/Province *

Virtual Lab Management

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Strengths	Weaknesses

▪ "Low" Risk
▪ Reduce CAPEX
▪ Reduce Server Sprawl
▪ Manage Environment Complexity
▪ Uniformity for Global Teams
▪ Operational Efficiency
	▪ Must Have Access
	▪ Permissions to Control
	▪ Configuration Permutations
	  ▪ Test Data
	  ▪ Performance
	▪ Hardware Capacity Constraints

The Value/ROI Drivers – Human

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	Virtual Lab	Service Virtualization
▪ Reduce OPEX	▪ Eliminate scheduling delays associated with staged test labs ▪ Eliminate 'some' configuration delays	▪ Eliminates configuration time by delivering more granular 'service' versus system ▪ Eliminates scheduling delays
▪ Understand Environment Complexity	▪ Gives a good view of inter-relationship of applications within geo/political control	▪ Gives a complete view of **all** system dependencies

▪ Operational Efficiency	▪ Reduces demand on test lab resources
	▪ Reduces delays of scheduling, setup and re-configuration
		▪ Eliminates delays associated with
		  ▪ System configuration
		  ▪ Data management
		  ▪ Performance configuration
		  ▪ Setup and tear down

The Value/ROI Drivers – Physical

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	Virtual Lab	Service Virtualization
▪ Reduce CAPEX and server sprawl	▪ Versus physical test lab will significantly reduce CAPEX	▪ Can reduce incremental CAPEX due to physical test capacity constraints ▪ Can reduce demand on "virtualized" infrastructure resources
▪ Eliminate physical test labs (Careful!)	▪ Can eliminate physical test lab BUT be careful what you want to virtualize due to compliance and data privacy concerns	▪ Eliminates the need for incremental increases in physical test labs or virtual lab capacity

The Value/ROI Drivers – Project/Process

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	Virtual Lab	Service Virtualization
▪ Time to Market (Careful!)	▪ Increases time to market by providing access to "production-like" environments within geo/political control	▪ Increases time to market by providing more complete access ▪ Provides a net new environment earlier in the process
▪ Access anytime or anywhere	▪ Good access to completed and built applications within control	▪ Access to both complete and incomplete components
▪ Manage and understand Environment	▪ Good view of applications managed within resource pool	▪ Much broader view of total system interdependencies ▪ Understanding of 3rd party impacts
▪ Defect Reproduction	▪ Captures great information for applications under control	▪ Extends information by including components outside of control
▪ Better Testing	▪ Increased code coverage ▪ Increase test efficiency ▪ Increased test coverage ▪ Increased # and quality of tests	▪ Increase test efficiency ▪ Increased test coverage ▪ Increased # and quality of tests