



17310: DevOps on the Mainframe: Managing the Cultural Divide

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Agenda

I. Introductions

- a) Key terminology
- b) Why is the DevOps conversation important?

I. Hurdles

II. Agreement on common goals

III. DevOps in the SDLC? What might I observe?

IV. Lets come out of the cloud!

- a) A discussion around your SCM and JCL
- b) How might I start?
- c) Practical examples

V. Recap

Definitions

- DevOps
- Agile
- CI
- ITIL



Why is this conversation necessary?

- Your peers and your managers are talking about it!



- Systems of Record and Systems of Engagement
- Information is Power. Remember DevOps by definition is collaborative.



Hurdles to DevOps on the Mainframe



People



Process



Technology



People

- Very mature environment (decades?)
- Belief that limiting change minimizes risk
- Belief that 'Agile' approach applies more to Dev and Systems of Engagement and wouldn't apply for the 'well managed' Systems of Record



Process

- Existing processes for mainframe systems-of-record are well-entrenched over many years. Adapting these to a CI approach can be viewed as overly time-consuming and costly
- Collaboration is often hindered by current Test / Deploy processes for the mainframe which can be very silo'ed and inconsistent among Dev teams
- Financial justification can be challenging



Technology

- DEV team often lacking tools to find/fix defects early in the SDLC
- DevOps teams use different tools / inconsistent approaches for Test / Release / Deploy
- CMDB of APP components is unavailable / inaccurate
- SDLC lacks automation at key release / deployment points
- SDLC and/or DEV tools lack metrics and reporting for governance and continuous improvement
- DEV teams lack knowledge of overall batch flows and/or ability to model changes

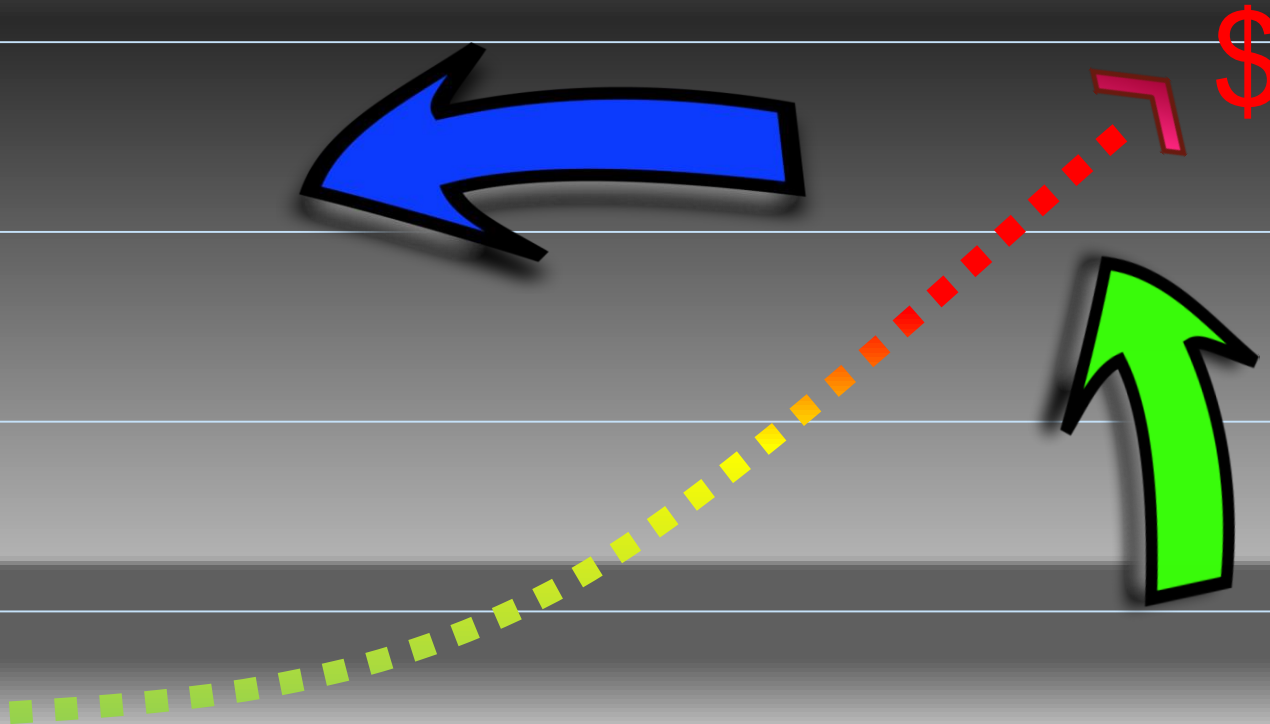
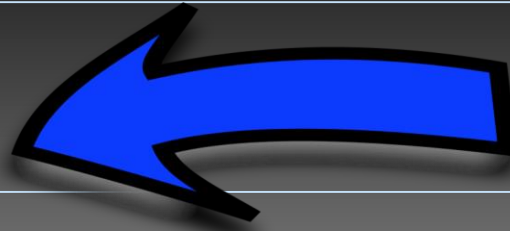
Common Objectives



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DEV

QA

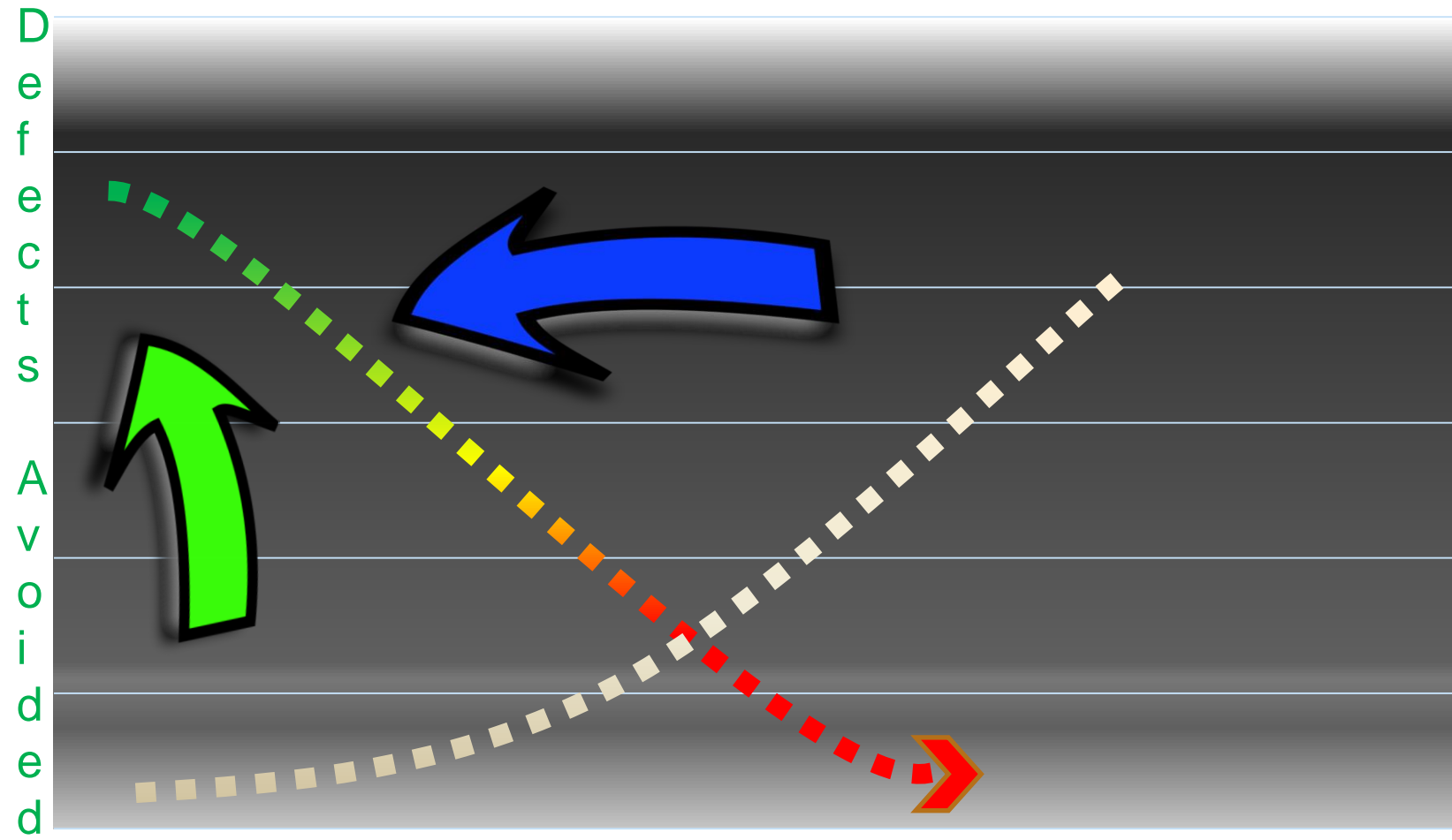
PROD

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Common Objectives



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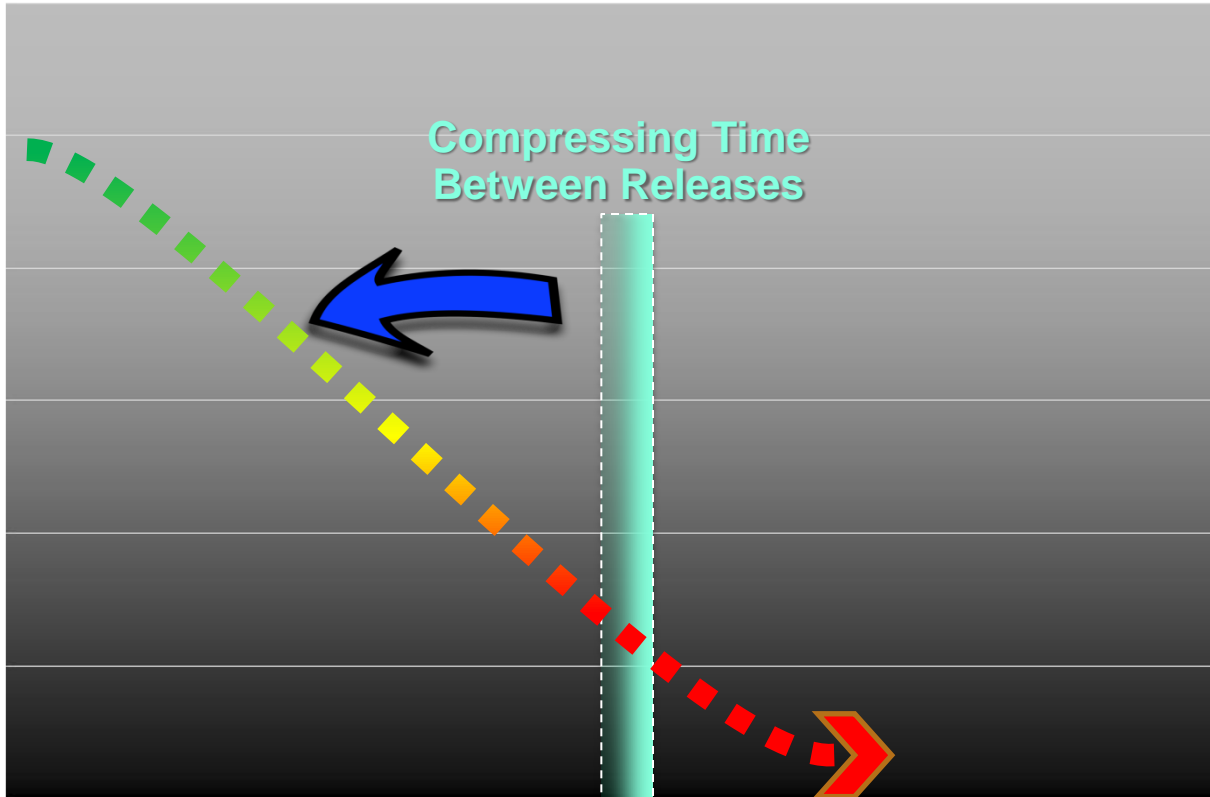
DEV

QA

PROD



DevOps in the SDLC? What might one observe?



Enabling Technology

Confidence in Testing Accuracy

Reliance on metrics

Automated Maintenance of documentation CIs

Continuous Process Improvement

DEV

QA

PROD

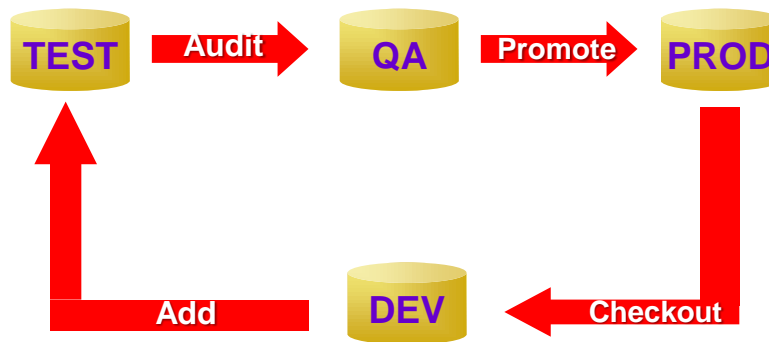
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Lets come out of the



....Your JCL and SCM Process

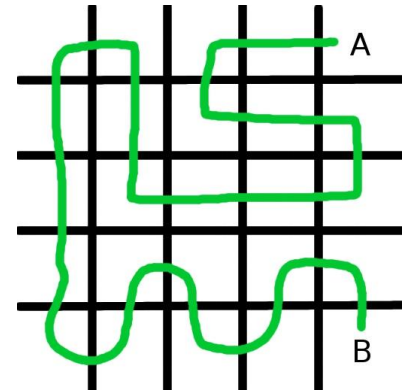
- The best place to start is the source and scripting code management process and toolset (SCM)
- The change management process is a good starting point, as it provides the Organization's promotion and deployment map.
- Scripting (JCL) is as important as application code
- Fundamentally, look for all opportunities in the SDLC to increase the speed for Test / Release / Deploy within the systems-of-record while adhering to quality guidelines



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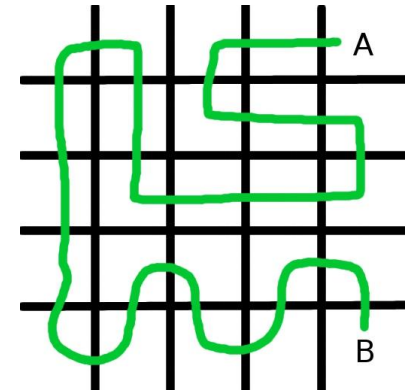
So How Do We Get There?

- Empower developers with the right tools to enable frequent iterations of high reliability testing early (and throughout) the SDLC
- Provide reliable documentation for modeling and maintenance (especially for legacy systems)
- Provide a consistently accurate CMDB to ensure high confidence in application component dependencies



So How Do We Get There?

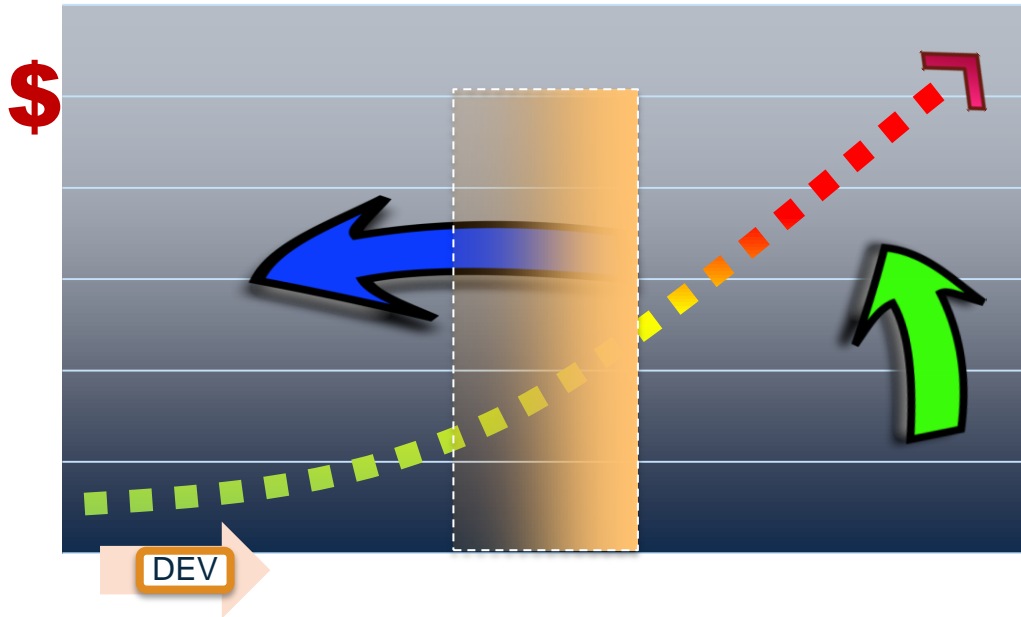
- Instill high confidence in the Build/Test/Deploy process. When looking at it one should observe:
 - ✓ Limited variance
 - (e.g. Why do we need different build/test processes for each application group?)
 - Can we use middleware to connect systems and reduce the number of unneeded instances (risk of variance)?
 - ✓ As much well designed automation as possible
 - ✓ Shared metrics and reporting for governance and continuous improvement
 - ✓ A high level of confidence that processes are not bypassed without well-defined and accepted exception approval procedures



Technology and Automation Tools

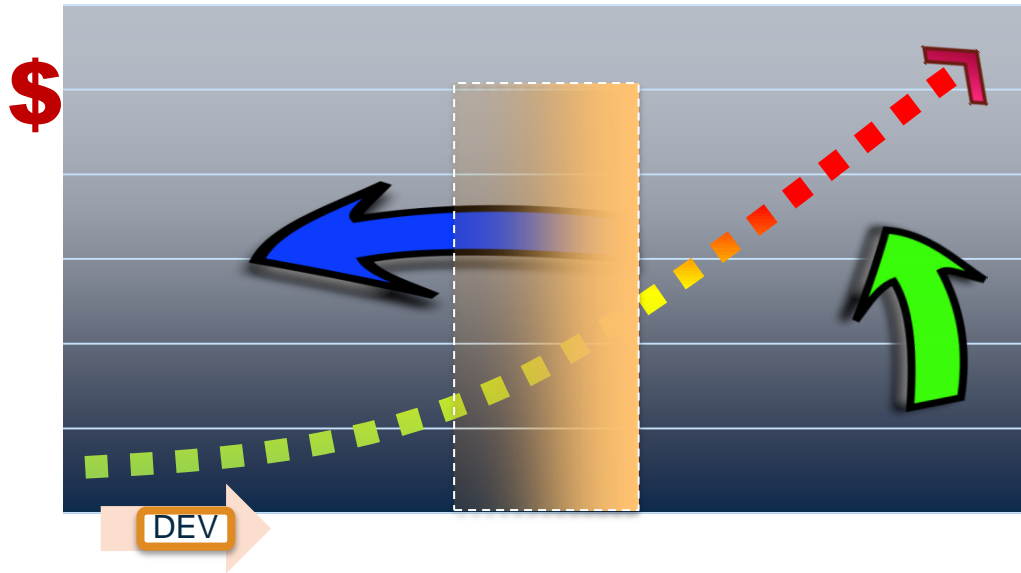


Middleware Centric and Simulation Automation Tools



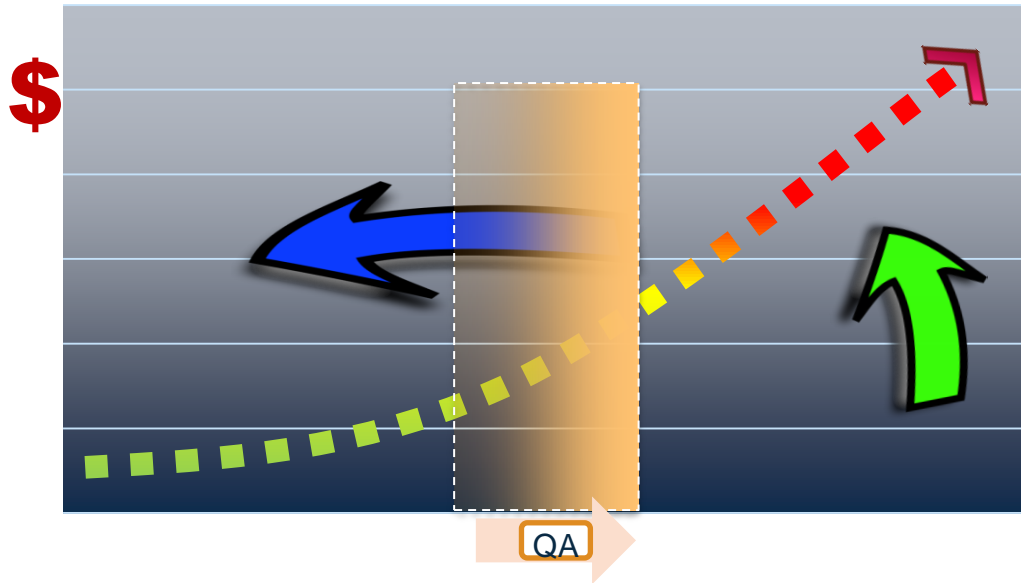
- Eclipse IDE and others
- Simulation and run-time validation
- Automate environments provisioning
- Reduce Mean-Time-To-Repair

JCL Testing and Documentation Tools



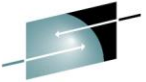
- Complete System Level Documentation
- Cleanup obsolete and decommissioned components
- Testing
- Modeling (Reuse)
- Application Rebuild

Measured Process Automation “The Handoff”

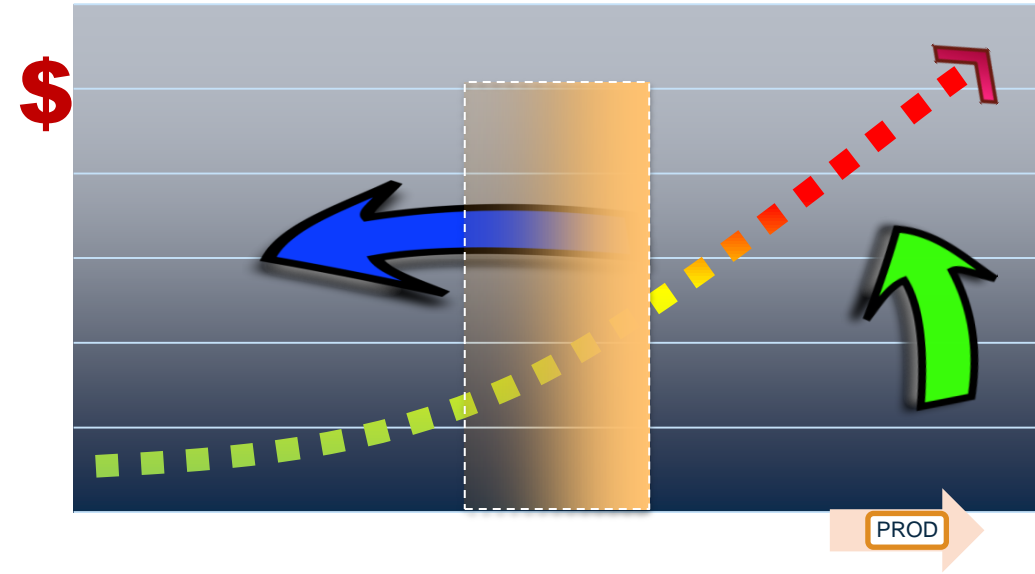


- Automate Testing
- Check Dependencies
- Execution forecast and simulation

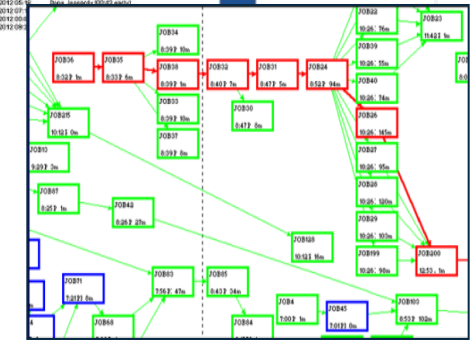
Real-time Predictive Analysis



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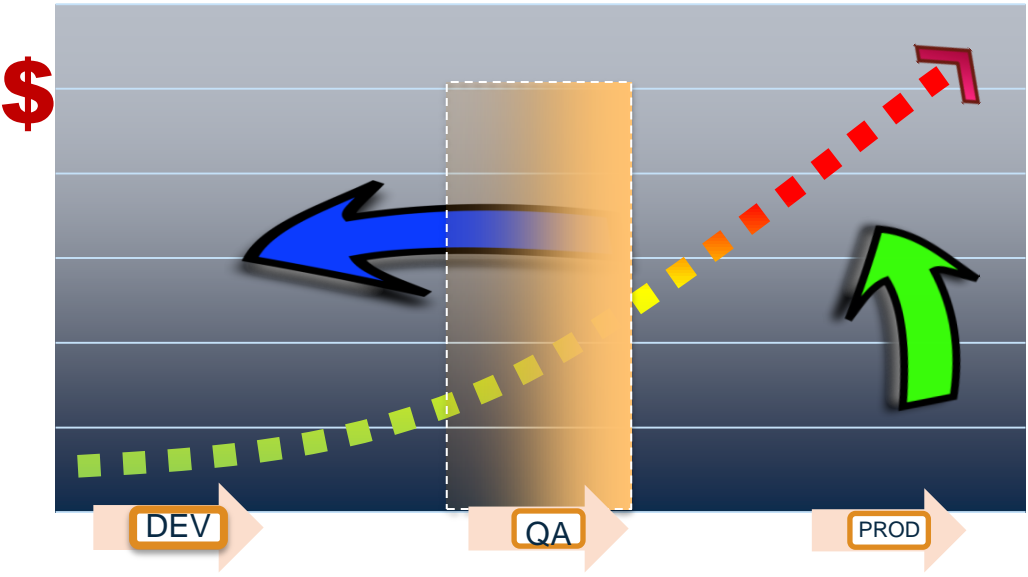
Name	Estimated End Time	Status	Comments
MOTOR POOL REVENUES	9/10/12 00:07	Done On Time (12:06 est)	
BRANCH OFFICE CORNIA AND CROSS-TALK	9/10/12 00:29	Done On Time (00:29) (9/10/12 00:29 est)	
DISTRICT REVENUE	9/10/12 01:25	Done On Time (01:25) (9/10/12 01:25 est)	
INTER OFFICES ACCOUNTING	9/10/12 01:10	Done On Time (01:10) (9/10/12 01:10 est)	
ACCOUNTS RESOLUTION	9/10/12 01:10	Done On Time (01:10) (9/10/12 01:10 est)	
TEMPLATE MODELING P13	9/10/12 01:21	Done On Time (01:21) (9/10/12 01:21 est)	
CORPORATE ACCOUNTS AND PAYABLES	9/10/12 03:08	Done On Time (03:08) (9/10/12 03:08 est)	
CUSTOMER LIABILITY P10	9/10/12 03:11	Done On Time (03:11) (9/10/12 03:11 est)	
DAILY SUMMARY AND AUDIT	9/10/12 03:20	Done On Time (03:20) (9/10/12 03:20 est)	
MANPOWER AUDIT	9/10/12 03:24	Done On Time (03:24) (9/10/12 03:24 est)	
MAJOR ACCOUNTS ADJUSTMENTS	9/10/12 04:44	Done On Time (04:44) (9/10/12 04:44 est)	
TOPDOWN WORK RESTRICTION	9/10/12 05:54	Done On Time (05:54) (9/10/12 05:54 est)	
INTRA ACCOUNT 4	9/10/12 08:13	Done On Time (08:13) (9/10/12 08:13 est)	
CREDIT ACCOUNTING	9/10/12 08:28	Done On Time (08:28) (9/10/12 08:28 est)	
LOWRIDE RELOCATION UPDATE	9/10/12 09:38	Done On Time (09:38) (9/10/12 09:38 est)	
DISTRIBUTED REVENUES	9/10/12 09:58	Done On Time (09:58) (9/10/12 09:58 est)	
FAK EAST OPERATIONS	9/10/12 09:33	Done On Time (09:33) (9/10/12 09:33 est)	
INTRA REVIEW	9/10/12 09:48	Done On Time (09:48) (9/10/12 09:48 est)	
ITTEL YARD RETURNS	9/10/12 09:20	Done On Time (09:20) (9/10/12 09:20 est)	
ELECTRIC PANEL REVIEW	9/10/12 09:30	Done On Time (09:30) (9/10/12 09:30 est)	
DEPARTMENT RETURNS AUDITING	9/10/12 09:30	Done On Time (09:30) (9/10/12 09:30 est)	
INVENTORY RARGE B14	9/10/12 09:48	Done On Time (09:48) (9/10/12 09:48 est)	
LOWER-YARD ACCOUNTING	9/10/12 09:08	Done On Time (09:08) (9/10/12 09:08 est)	
PAYROLL CT AUDIT	9/10/12 09:02	Done On Time (09:02) (9/10/12 09:02 est)	
ZOBIA TOTAL	9/10/12 10:13	Done On Time (10:13) (9/10/12 10:13 est)	
TOPMKT INDUSTRY REVIEW	9/10/12 09:51	Done On Time (09:51) (9/10/12 09:51 est)	
TOPS RECEIVABLES	9/10/12 10:18	Done On Time (10:18) (9/10/12 10:18 est)	
TEMPORARY EMPLOYEES	9/10/12 08:52	Done On Time (08:52) (9/10/12 08:52 est)	
TEMP LATE MODELING 14	9/10/12 08:50	Done On Time (08:50) (9/10/12 08:50 est)	
TEMP LATE MODELING 7	9/10/12 08:51	Done On Time (08:51) (9/10/12 08:51 est)	
INTRA VARD CROSS-SECTION A	9/10/12 08:56	Done On Time (08:56) (9/10/12 08:56 est)	
INTRA OFFICE SUMMARY 22	9/10/12 09:58	Done On Time (09:58) (9/10/12 09:58 est)	
INTRA OFFICE SUMMARY 13	9/10/12 09:54	Done On Time (09:54) (9/10/12 09:54 est)	
INTRA OFFICE SUMMARY 12	9/10/12 09:56	Done On Time (09:56) (9/10/12 09:56 est)	
INTRA OFFICE SUMMARY AND RECEIPTS	9/10/12 10:04	Done On Time (10:04) (9/10/12 10:04 est)	
INTRA OFFICE ADJUST 40	9/10/12 10:30	Done On Time (10:30) (9/10/12 10:30 est)	
INTRA OFFICE ADJUST TRANSFER	9/10/12 10:32	Done On Time (10:32) (9/10/12 10:32 est)	
INTRA OFFICE ADJUST 7	9/10/12 10:32	Done On Time (10:32) (9/10/12 10:32 est)	
INTRA OFFICE ADJUST 8	9/10/12 10:32	Done On Time (10:32) (9/10/12 10:32 est)	
INTRA BATTERY RESOLUTION	9/10/12 09:12	Done On Time (09:12) (9/10/12 09:12 est)	
INTER-ACCOUNT LONGS	9/10/12 09:06	Done On Time (09:06) (9/10/12 09:06 est)	
METAL SCHEDULING - EASTERN DISTRICT	9/10/12 07:07	Done On Time (07:07) (9/10/12 07:07 est)	
HIGH-VOLT. RESULTS	9/10/12 08:00	Done On Time (08:00) (9/10/12 08:00 est)	
CAPITAL ACCOUNTS OVERHAUL	9/10/12 08:00	Done On Time (08:00) (9/10/12 08:00 est)	



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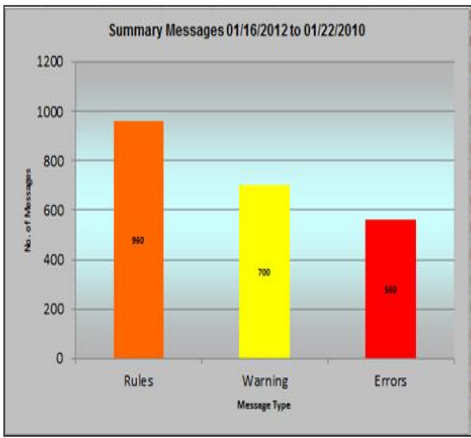
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Measuring process adoption



- Identify right group of quality and relevant metrics to the business
- Establish a baseline and continuous monitoring and feedback

Error Summary	
Number of Errors	560
Errors Per Job	8
Standards Violations	960
Standards Violations Per Job	4
Errors per Run	5



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Measuring process adoption

→ Index and Correlation Engines



splunk> light Search Reports Alerts Dashboards

New Search Save As Close

host="aperez-PC" All time Q

✓ 40 events (before 6/29/15 10:12:00.000 AM) Job || ■ ↶ ⬇ ⬆ 🔍 Smart Mode

Events (40) Patterns Statistics Visualization

Format Timeline Zoom Out

Errors X

8 Values, 97.5% of events Selected Yes No

Reports

- Average over time
- Maximum value over time
- Minimum value over time
- Top values
- Top values by time
- Rare values
- Events with this field

Avg: 145.435897 Min: 0 Max: 469 Std Dev: 182.414767

Values	Count	%	
0	17	43.59%	<div style="width: 43.59%;"></div>
373	11	28.205%	<div style="width: 28.205%;"></div>
199	3	7.692%	<div style="width: 7.692%;"></div>
7	3	7.692%	<div style="width: 7.692%;"></div>
469	2	5.128%	<div style="width: 5.128%;"></div>
2	1	2.564%	<div style="width: 2.564%;"></div>
3	1	2.564%	<div style="width: 2.564%;"></div>
8	1	2.564%	<div style="width: 2.564%;"></div>

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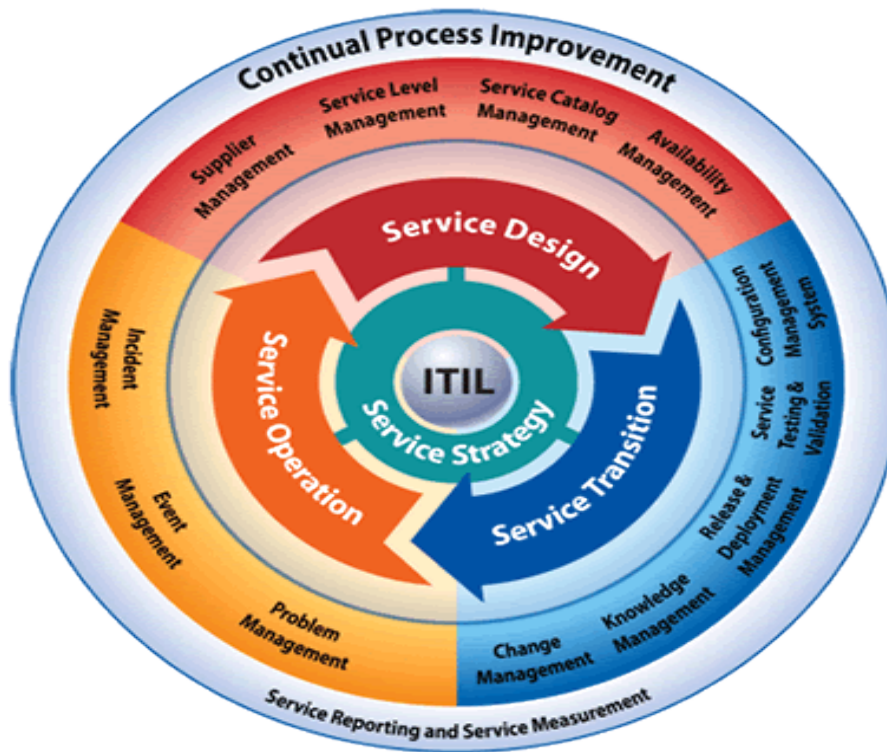
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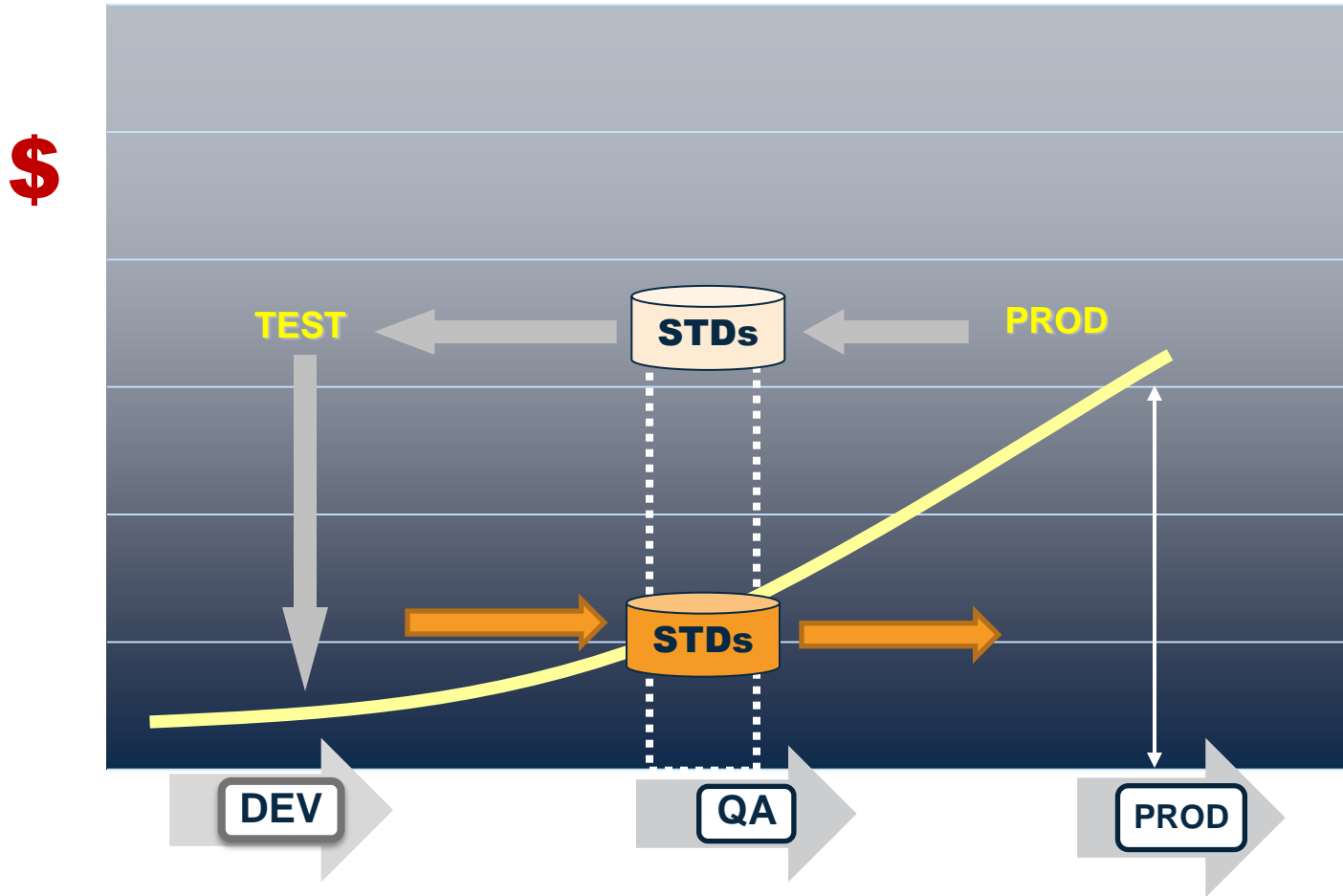
Other Considerations

Continuous Process Improvement



Continuous Process Improvement

Refactoring using Naming Conventions



Summary



These are not new concepts

We all want better quality sooner

It's not about

