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Data-Driven DevOps: Taking Action

Kenneth McKnight, Solutions Architect

Data-Driven DevOps: Taking Action

In DevOps, data is ubiquitous

The challenge with the exponential growth of DevOps metrics is how to make this data actionable.

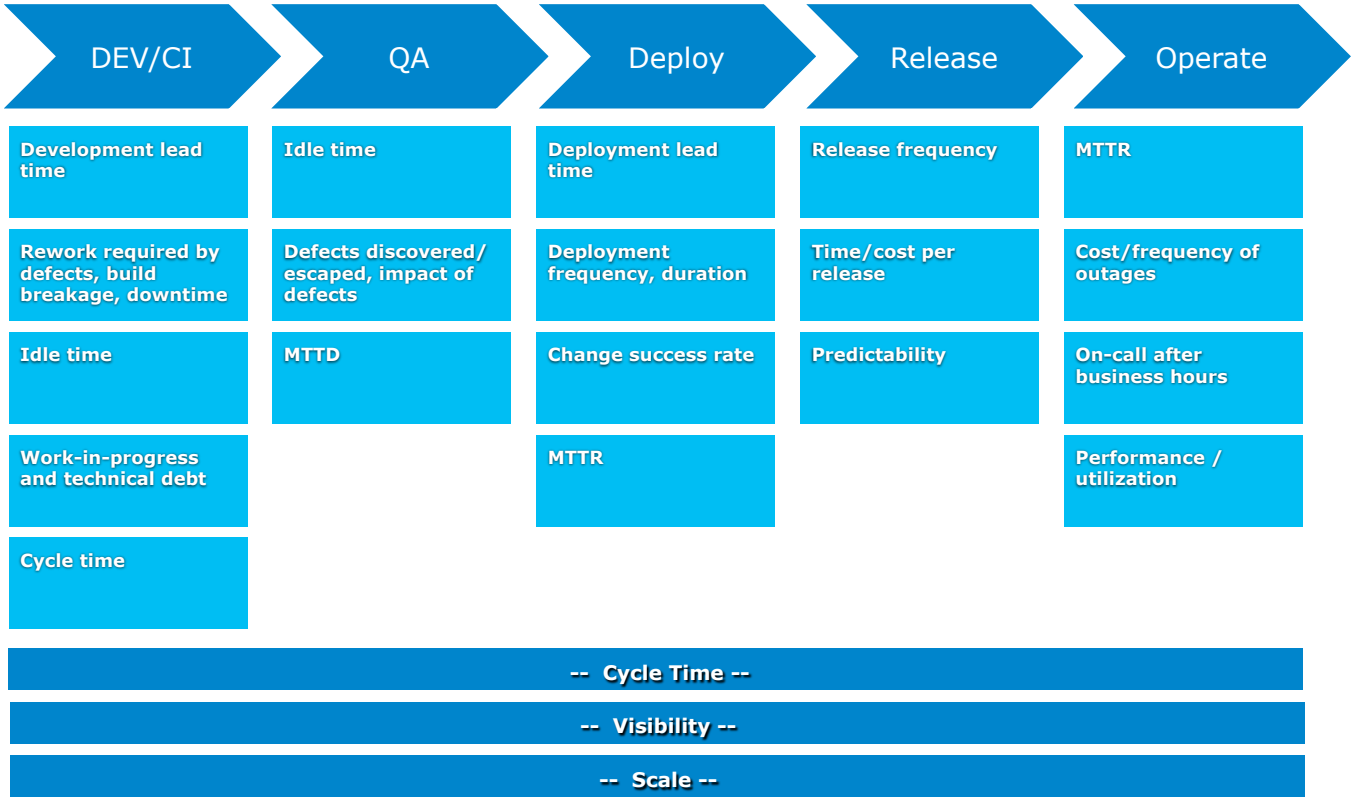
Taking Action: How to get started

A great place to start:

- Getting instant visibility – know what's going on
- Creating smart pipelines – automatically respond to failures
- Optimizing DevOps orchestration – make sure delivery pipeline is running smoothly

Getting Instant Visibility

What to measure in the pipeline



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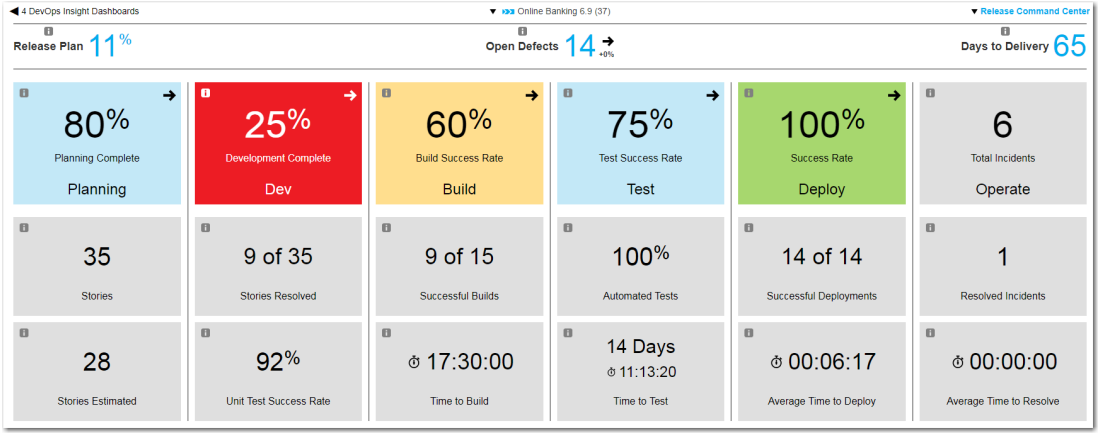
Intelligent Data Mapping

- You could do it yourself (scripting / correlation / analysis / reporting), or...
- Consider an off the shelf solution to consolidate all your DevOps data
- Automatically map data to pipeline stages
  - DEV/CI – cycle time
  - QA – MTTD
  - Deploy – Change success rate
  - Operate – frequency of outages

Context-sensitive analytics is the cornerstone of DevOps optimization

At a glance visibility

- Instantly know what's going on
- Identify bottlenecks in the process early and optimize for the largest ROI
- Drill down for detailed troubleshooting



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At a glance visibility

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Visualizing data allows for trend recognition and subsequent DevOps optimization of the pipeline and its underlying infrastructure

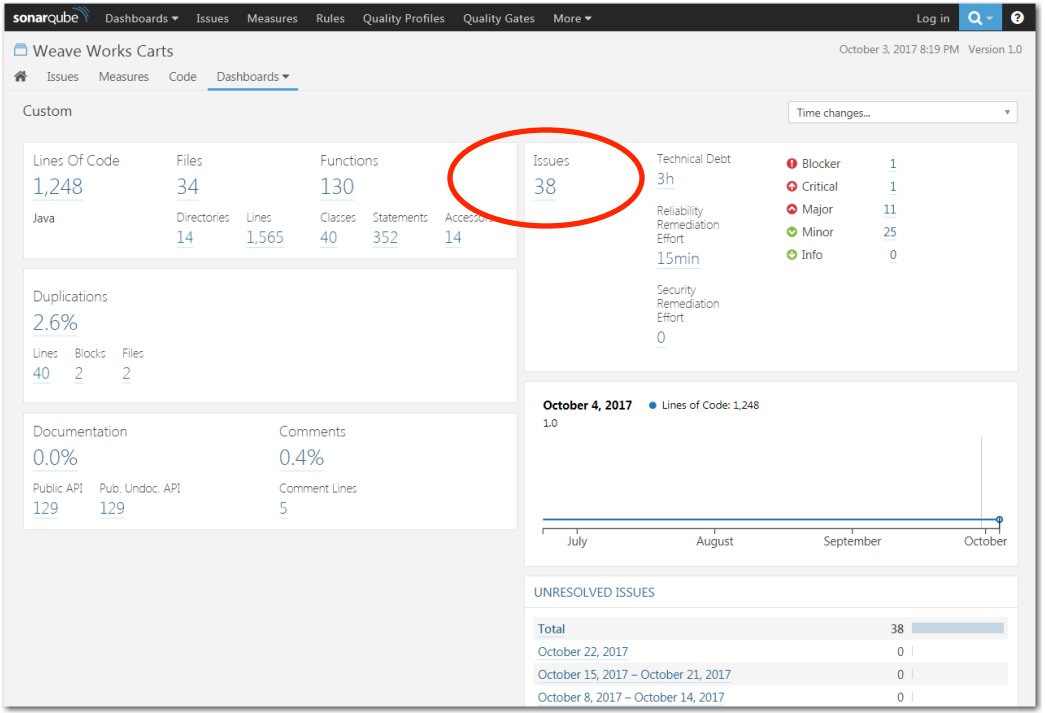
Creating Smart Pipelines

What are Smart Pipelines?

- Smart pipelines allow for:
  - Automatically triggering a pipeline response based on data events
  - Orchestration of all stages of a release process, including conditional execution of tasks
  - Automated approval gates based on data input

Test Data-Driven Approvals

- Provide optimized pipeline stage transitions by leveraging testing results:
  - Run tests
  - Gather results
  - Compare results against success criteria
  - Automatically approve if it meets criteria



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Test Data-Driven Approvals

- Provide optimized pipeline stage transitions by leveraging testing results:
  - Run tests
  - Gather results
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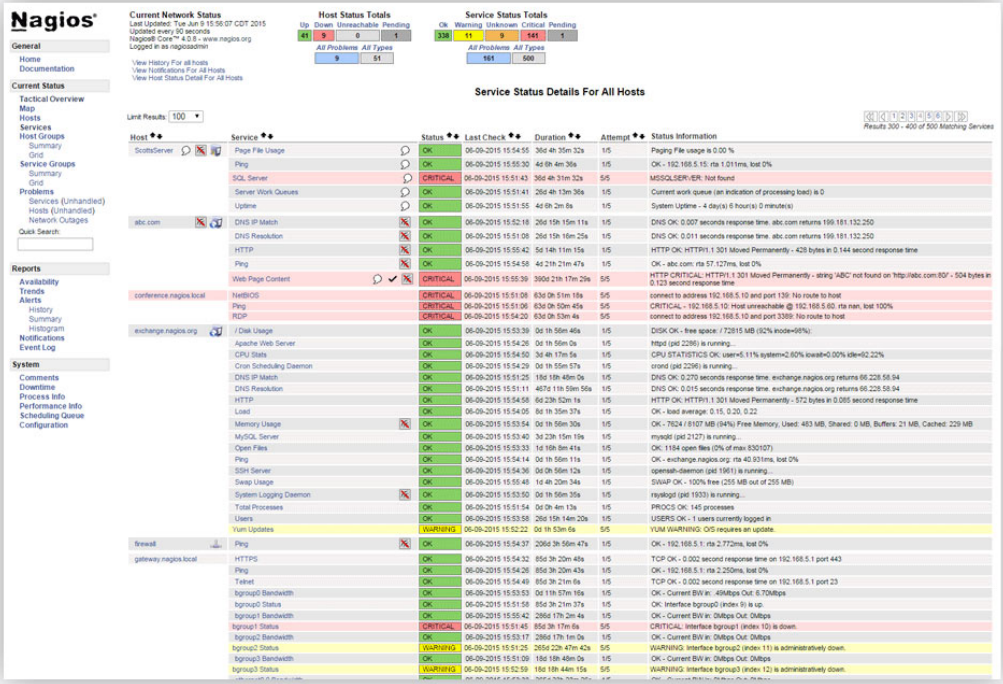
Automatically progress the pipeline if testing is successful

Automatic Rollbacks / Self-Healing

- Automated rollbacks based on policies: using the related action to automate baseline thresholds and trigger rollbacks and enable ‘self-healing’
- “Nagios” system performance monitoring



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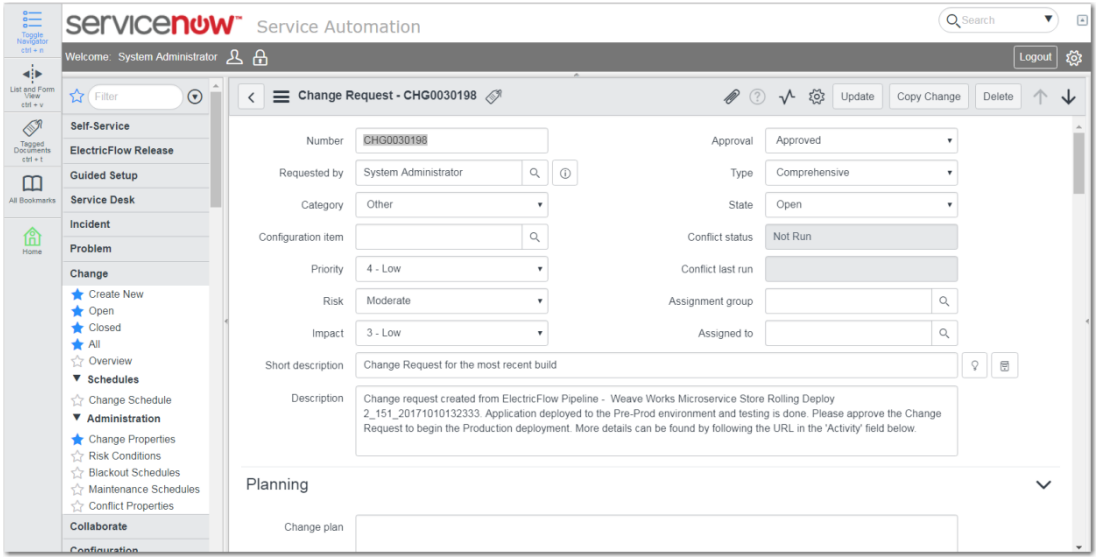
- “Nagios” system performance monitoring

System monitoring data drives self-healing by automatically rolling back deployments that cause excessive load on the host

Automated Change Request and Compliance

- Elevate/automate change request tickets as part of the deployment approval process
- Process driven via the deployment pipeline
- Bi-directional – supports tying pipeline stage approvals to ITSM best practices



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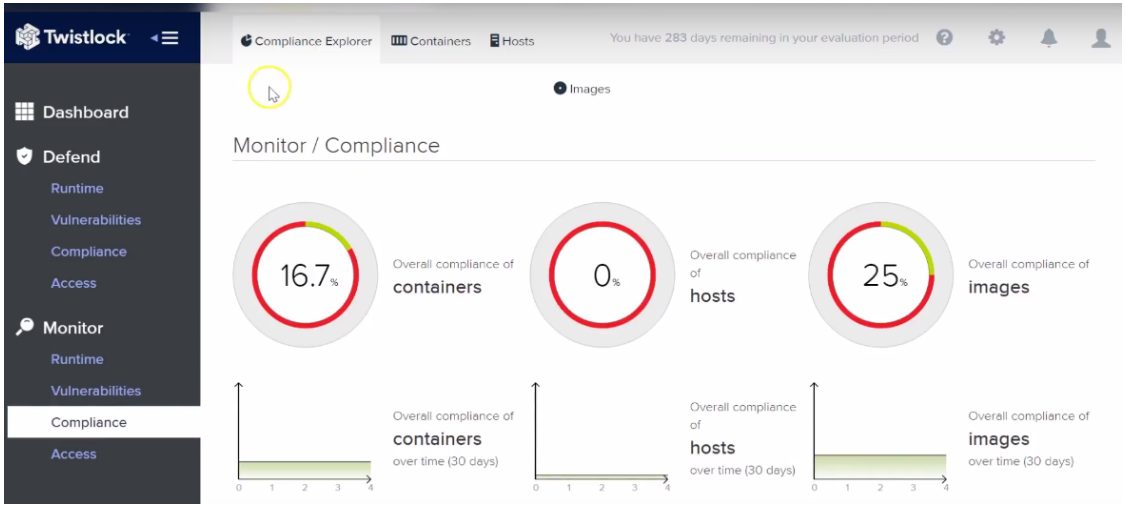
Support DevOps best practices by using incident management tools at the right time

Scan for security vulnerabilities

- Inject security scanning early in the pipeline
- Pipeline mandates security scans
- Send notifications upon security violations



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Scan for security vulnerabilities

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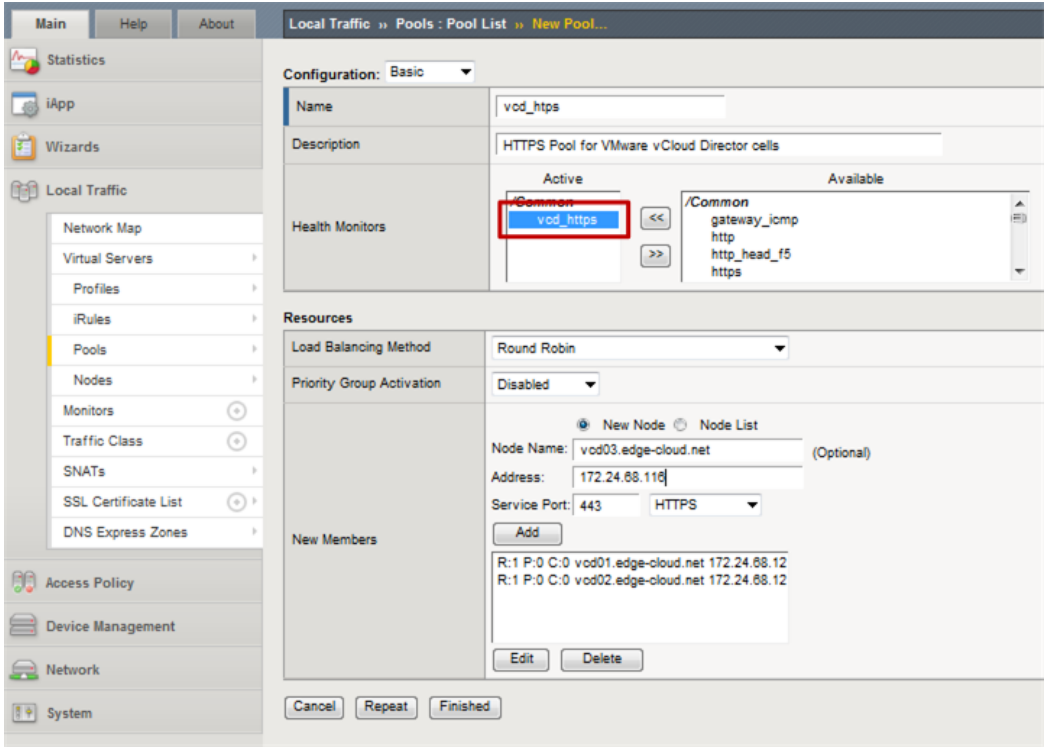
Scan early; Scan often

Blue/Green Deployments

- Mitigate risk in production deployments (switch to blue if green is having problems)
- Process driven



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Blue/Green Deployments

- Mitigate risk in production deployments (switch to blue if green is having problems)
- Process driven

Always have a Plan B to mitigate risk in production deployments

Optimizing DevOps Orchestration

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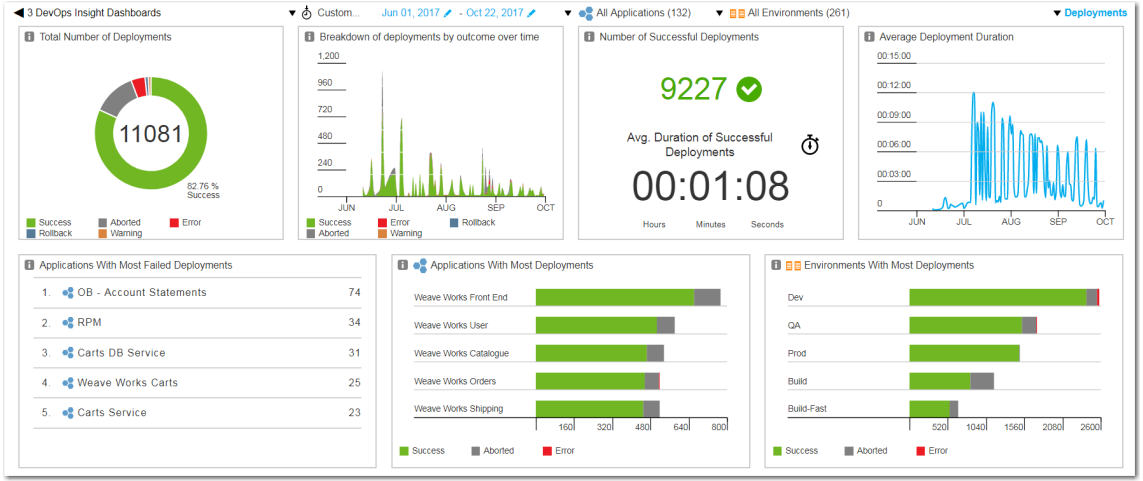
DevOps Infrastructure Optimization

- Test Duration - Automatically provision more nodes if testing is taking too long
- Deployment Frequency and Duration – pipeline monitors itself for SLA compliance and adjusts resources dynamically to meet demand
- Concurrent Deployments - priority applications get more resources



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DevOps Infrastructure Optimization

- Test Duration - Automatically provision more nodes if testing is taking too long
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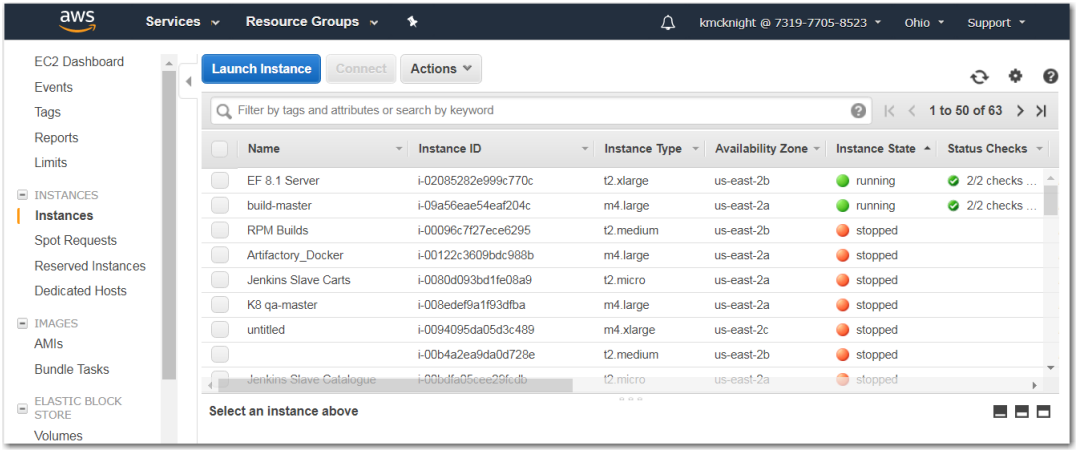
Use dashboards to track historic data and tune your infrastructure

Dynamic Environments: Smart Teardown

- Dynamic environments using cloud resources (AWS/Azure)
- Smart teardown - set it and forget it
  - If tests passed, then save test results and teardown (save me $$$!)
  - If tests failed, then optionally keep env running and notify dev so they can debug and make fix faster



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Smart Teardown saves you time and money

Conclusion

Key Take Aways

This talk focused on three key use cases that you can take advantage of today using data-driven DevOps

Getting Instant Visibility

Creating Smart Pipelines

Optimizing DevOps Orchestration

Thank you!

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