We The Few

Augmenting the Continuous Delivery Team With Automation

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Who Are We?

Dan Frey…

Advisory Solutions Architect on the App Transformation team at Pivotal. I help companies move their legacy workloads to the cloud. I work hands on with your employees helping them replatform and modernize your apps and instruct them on XP and lean principles.

Keith Strini …

Field Facing Solutions Architect that serves as a technology analyst for the US Department of Defense and Intelligence communities. I architect, develop and field information systems across the Joint Services both CONUS and OCONUS (Korea, Japan, Europe, and the Middle East) and NATO

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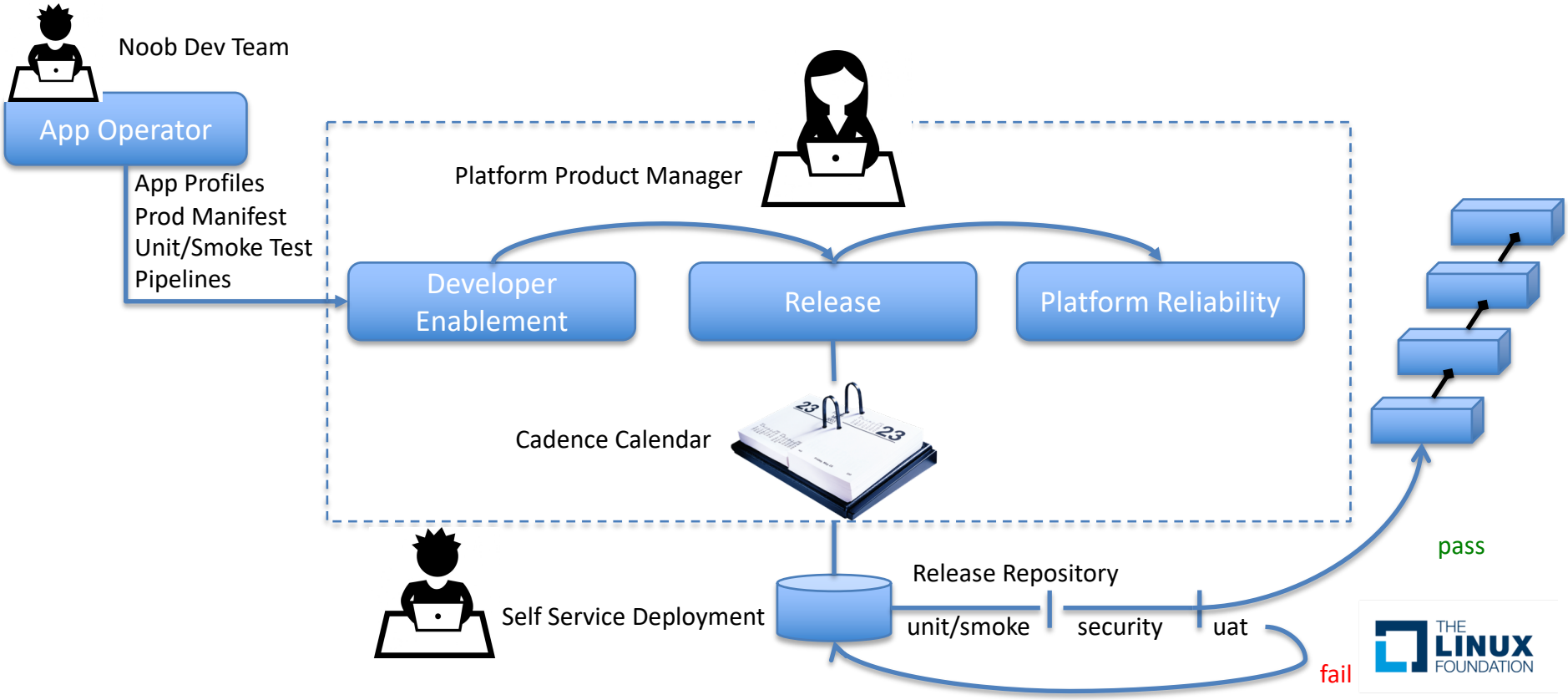
End Vision vs Starting Vision

Release Engineering Stratification



Developer Enablement

Coordination Point For All New Development Efforts.

PRACTICES

- Creates/Coordinates Platform on boarding meeting
- Provides Latest Information about Platform Environments

Release Engineering

Coordination Point and Execution Lead For All New Releases.

PRACTICES

- Attends Final Pre-Release Demo of Apps
- Verifies Release Artifacts
- Coordinates Initial Release Date
- Collaborates on Downstream Environment Triage

Platform Reliability

Coordination Point For All Platform Environment Changes.

PRACTICES

- Creates/Coordinates Cadence Meeting
- Continuously Develops Resiliency Probes based on Post Mortems
- Maintains Environment Parity
- Enforces Strict Runtime Version Control
- Communicates Environment Adversity
- Creates/Coordinate Resiliency Exercise
- Instruments Distributed Tracing in Ops

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Failure is Inevitable, Hope is Not a Strategy

* Complex System Failure

- Changing mixtures of failures latent within them
- Post-accident attribution accident to a ‘root cause’ is fundamentally wrong.
- Change introduces new failure
- Views of ‘cause’ limit the effectiveness of defenses against future events
- People continuously create safety
- Failure free operations require experience with failure

** Simple System Failure

- Simple systems fail
- Simple systems fail less often than complex systems
- Simple systems fail predictably
- Simple systems fail transparently
- Simple systems fail affordably
- Simple systems fail educationally
- Simple systems fail by being inadequate
- Simple systems fail by becoming complex

Simple Complexity

- Create complex behavior from simple building blocks
- Maintain simple independently testable components
- Offload Management of complex orchestration
- Inject fail safes ‘between’ simple components
- Unknown failures are then a result of ‘rare’ emergent behavior

When you think of testing…

Unit Testing… That's so Justin and Britney…

Smoke … pfft … we couldn't come up with a software based term?

Bringing Sexy Back – Other tests don't know how to act

Developers	Dev Enablement	Release	Operations	Operations
				
Unit/Smoke	**Contract**	**Feature Flagging**	**Canary**	**Distributed Tracing**
Been There, Done That, Got the swag!	**Focuses Developers on Contract Based Testing For Integration**	**Decides on Feature Maturity From a Stability Perspective**	**Care And Feeding Of New Releases To Ensure Early Intervention**	**Deep Understanding of How New Efforts Deploy Into Operations**
Traditional Unit Testing Frameworks	Spring Cloud Contract Framework	Smart Platform Environment Variable Injection Coupled with Dynamic Routing	Dynamic Instrumentation Out Of The Box Coupled with OSS Production Non-Functional Libraries	OSS Production Libraries Coupled with Production Platform Monitoring/Metrics and Threshold Alerting integrated into Logging, Monitoring and Notification Services

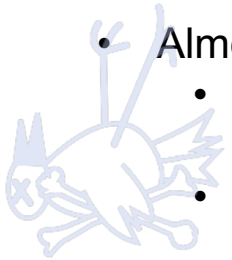
Decoupled Integration

- If Speed Is What you Want, End-To-End Testing is not how you get there.
  - Getting feedback…this week?
- Are you mocking me?
  - Single Source of Truth…
  - Verifying the Goods
- Isolation testing of Single Services (Provider or Consumer)
- I do not think that means what you think it means (Semantic Testing)
- Complexity From Simplicity, Not Complexity From Complexity
- Test Data…let's not ignore the elephant in the room
- Stability, Stability, Stability… we're talking Operations not Science Experiments
- Ah Sunsets…
  - Paying off Technical debt by subtraction *and* addition
- You get me… you really get me
  - Consumer defined APIs

Maintaining Operational Velocity

- I dunno. You tell me what you want.
  - Non Techs getting in on the Action
- Ok so most of it works but I gotta send it back?
  - Beauty of context encapsulation
  - Waiting for a feature like you
- I see how we do 1 app but how do I manage 1000s?
- So what if we don't know exactly what our users want?
- Ah Sunsets…
  - Paying off Technical debt by subtraction *and* addition

Predictive Fire Fighting in Operations



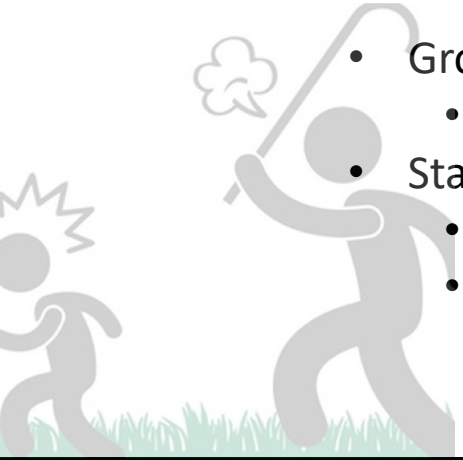
- Almost trust you
  - Canaries – Profiling the CPU, memory, disk usage, cache synch
    - Rollback/Roll Forward Strategies
  - Blue/Green Deployments
    - The case of stateless
    - The case of stateful (transactions, migrating data)
    - Infrastructure Isolation
  - A/B testing
- It not you, its me
  - Distributed Tracing
    - Yes we are talking scale here
    - But that's a lot of instrumentation
    - Correlation is tough
      - Good definitions of SLO/SLIs
      - Threshold tuning

Operations as The Caretaker of Code?

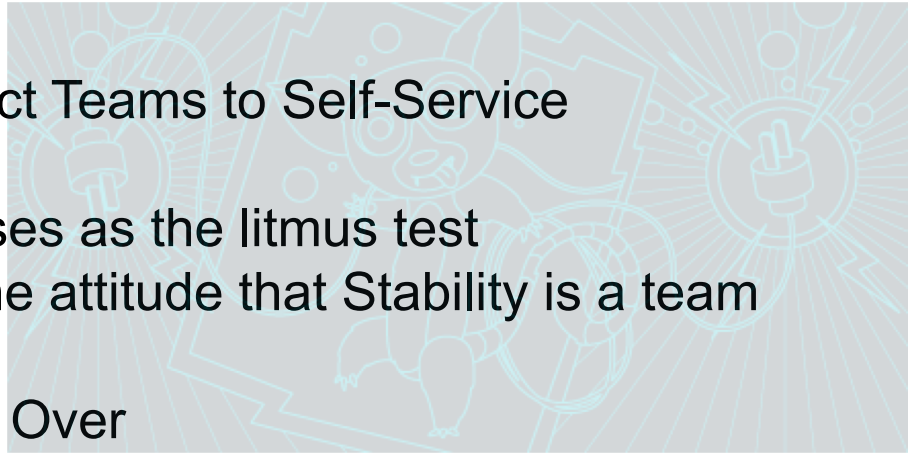
- Your baby is ugly, Our baby is cute
  - Platform as Product helps align our interests
  - Automation helps us be responsive as a team to our end users
  - Lot's of up front pain is better than chronic pain indefinitely
  - Success as defined by rhythm

Get Off My Lawn!

- Change Inherently Creates Failure
  - Alignment of Values
- One Team One Fight
  - Joint SLOs
    - Platform SLIs
    - Application SLIs
    - Instrumentation
- Growing up is hard to do
  - Graduating Product Teams to Self-Service Deployments
- Starting the Cycle Over
  - Capturing Lessons Learned from every class
  - Knowledge Transparency aides the greater team



Growing Up Is Hard To Do



- Graduating Product Teams to Self-Service Deployments
- Resiliency Exercises as the litmus test
- Communicating the attitude that Stability is a team sport
- Starting the Cycle Over
  - Capturing Lessons Learned from every class
  - Knowledge Transparency aides the greater team

In Conclusion

“Sometimes you have to practice going slow, if you want to eventually go fast forever”

- End Vision – You can manage operations at scale with very small light weight teams
  - Release Engineering Maturity is a fundamental piece of that vision
  - Understanding your particular environment’s adversity takes time
  - Team chemistry takes time
  - Automation takes time
  - Take your Time. Your team as a whole will operate better because of it.

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