Devops Principles

The Three Ways

- Basic Principles underpinning Devops principles

- The First Way
  - Flow

- The Second Way
  - Feedback

- The Third Way
  - Experimentation and Learning

The First Way - Flow

- Understand the flow of work
  - The entire system
- Understand and remove constraints
- Never knowingly pass a defect downstream
- Beware local optimisations causing global degradation

Common Constraints

- Development delays
- Environment creation
  - Test, staging, production, etc
- Code deployment
- Test setup and run
- Security or QA assessments
- Overly restrictive architecture
- Product management
- Complex/bureaucratic processes

The Second Way - Feedback

- Shorten and amplify feedback loops
- Create and embed knowledge where it is needed
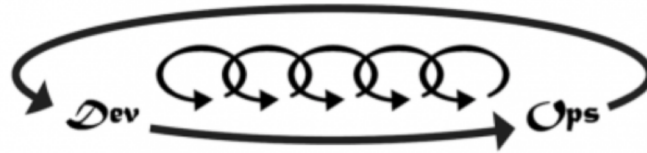
Feedback Loop Examples

- Automated testing
- Peer review of production changes
- Monitoring/Event management data
  - Dashboards
  - Production logs
- Process measurements
- Post mortems
- Shared on-call rotations
- Change, Incident, Problem and Knowledgement management data

The Third Way – Experimentation and Learning

- Allocate time for improvement
  - Allow safe experimentation and innovations

- Encourage risks through rewards
  - Introduce faults into the system to increase resilience

Encourage Experimentation & Learning Culture

- Regular learning or knowledge sharing
- Incorporate learning plans into processes
- Use technology to aid learning
- Design education into work
  - Experimentation
  - Problem solving
  - Demonstrations
- Treat mistakes as sources of learning
- Make learning results accessible

The Simian Army

- Originated with Netflix
  - Chaos Monkey
  - Randomly introduce failure conditions into system
    - Check that responses are expected
  - Leverages Cloud (AWS) infrastructure features
    - Originally intended to test these

- Develops competencies to handle failures in production
  - Encourages engineers to use automation to deal with large problems

The Simian Army

"Chaos Monkey is a tool that randomly disables our production instances to make sure we can survive this common type of failure without any customer impact.

The name comes from the idea of unleashing a wild monkey with a weapon in your data center (or cloud region) to randomly shoot down instances and chew through cables -- all the while we continue serving our customers without interruption.

By running Chaos Monkey in the middle of a business day, in a carefully monitored environment with engineers standing by to address any problems, we can still learn the lessons about the weaknesses of our system, and build automatic recovery mechanisms to deal with them.

So next time an instance fails at 3 am on a Sunday, we won't even notice."

Source: http://techblog.netflix.com/2011/07/netflix-simian-army.html