



Nominee Showcase Presentation

ISE[®] West Executive Forum and Awards 2012

Company Name: Netflix, Inc.
Project Name: **DevOps – Scaling Cloud Security by Converging
the Data Center with a Global Public Cloud**
Presenter: Bill Burns
Presenter Title: Director, Information Security & Networking





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Netflix Overview

- World's leading Internet subscription services for TV shows and movies
- 26+ million streaming subscribers
- Streaming in 47 countries
- Supported on 800+ device types
- 33% of evening US Internet traffic is Netflix streaming





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Agenda

- Building context: Netflix culture
- Why cloud? Why DevOps?
- InfoSec challenges, opportunities
- InfoSec perspective: running in the cloud



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Netflix: High-Performance Culture

- Fail fast, learn fast ... get results
- Highly-aligned, loosely-coupled teams
- “Freedom and Responsibility”

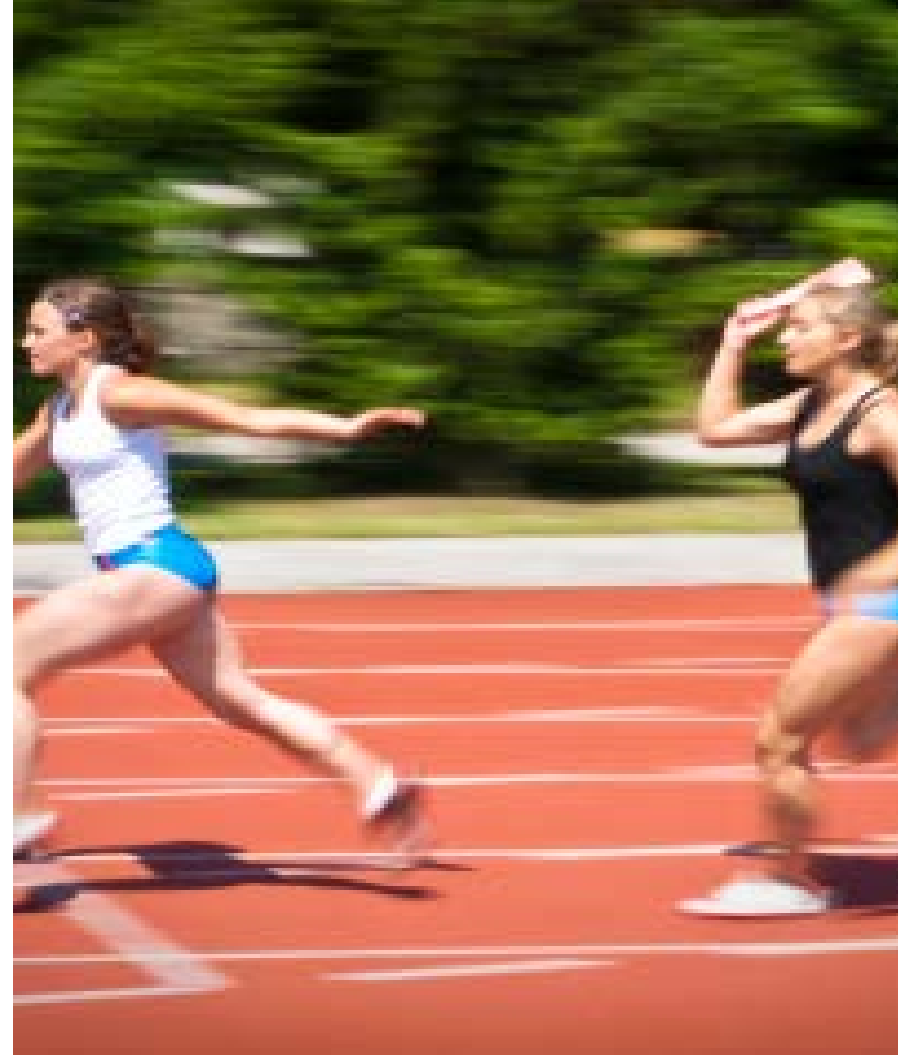




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Cloud, DevOps

- Cloud is:
 - Not a technology
 - More than virtualization
 - A fundamentally different way to write applications, provide services, run your business
- DevOps means engineering teams own:
 - New deployments, upgrades
 - Capacity planning, procurement





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InfoSec: Staying Relevant

- “Communication is what the listener does” – Mark Horstman, *Manager Tools* / Peter Drucker
- My goal: InfoSec program adds value, deeper part of the business’ success, not a “bolt-on”
 - Pain: Learning a new vocabulary, systems thinking
 - End result: We like this model a lot!



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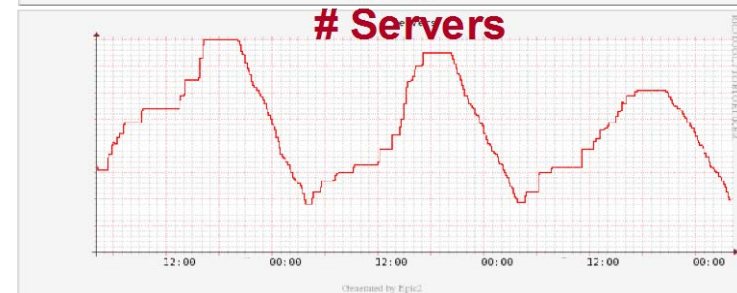
On-Demand Capacity

- 1. Demand:** Typical pattern of customer requests rise & fall over time
- 2. Reaction:** System automatically adds, removes servers to the application pool
- 3. Result:** Overall utilization stays constant

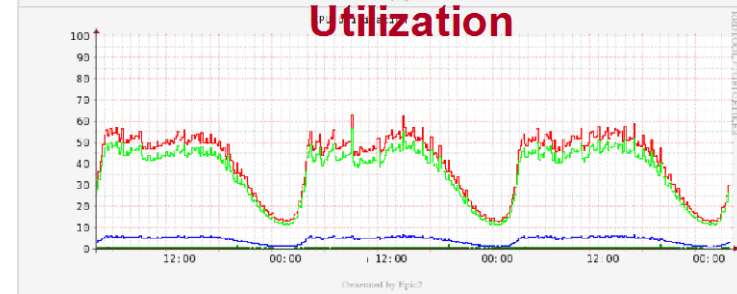
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Old way

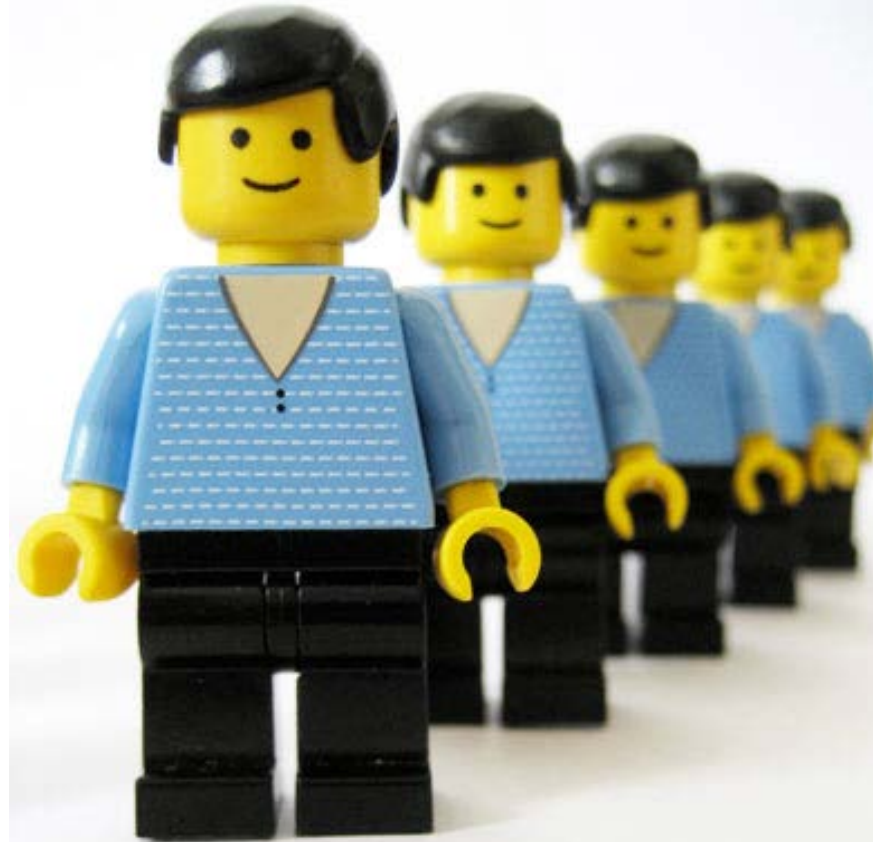




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New way

- Focus on automation, consistency, scalability
- Services-oriented applications
- Stateless instances
- Instances are ephemeral
- Instance uptime is irrelevant
- Do not modify running instances





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IaaS Failure Modes

- Availability – Losing an instance
- Disaster Recovery – Losing a data center
- Latency – Communications unreliable
- Conformity – Instances become unique
- Inventory Drift – Instances become orphaned

Solution: Actively test these failure modes to uncover weaknesses, be more resilient



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Testing baked into our PaaS: Simian Army

- Availability – Chaos Monkey (kill running production instances)
- Disaster Recovery – Chaos Gorilla (evacuate entire Availability Zones)
- Latency – Latency Monkey (induce latency, loss)
- Conformity – Conformity Monkey (only the latest revision)
- Inventory Drift – Janitor Monkey (kill un-owned instances)

NETFLIX

Tuesday, July 19, 2011

The Netflix Simian Army

NETFLIX

Monday, July 30, 2012

Chaos Monkey released into the wild



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Program Results

- InfoSec controls:
 - Part of standard DevOps build process
 - Wired into standard DevOps services
 - Consistently applied globally, automatically at launch
 - **Subject to Chaos Monkey, Chaos Gorilla controls**
- Proof:
 - **InfoSec instance deaths are “non-events”, they self-heal**
 - InfoSec services scale on-demand with customer load
 - Consistent coverage across Global Cloud, datacenters
 - Met the business ahead of next country launch
 - Teams proactively invite us to their strategy, product meetings



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Lessons Learned

- Cloud, DevOps is disruptive to:
 - Operations, Engineering, Auditors, Vendors
- My team needed:
 - Be open to new Operational approaches
 - Learn to consume/write APIs and services
 - New AWS alphabet soup
 - Educate our vendors/partners
- Up next: more failure modes, more monkeys!

