

Breaking Things on Purpose



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Introduction



NETFLIX

“Context, not Control”

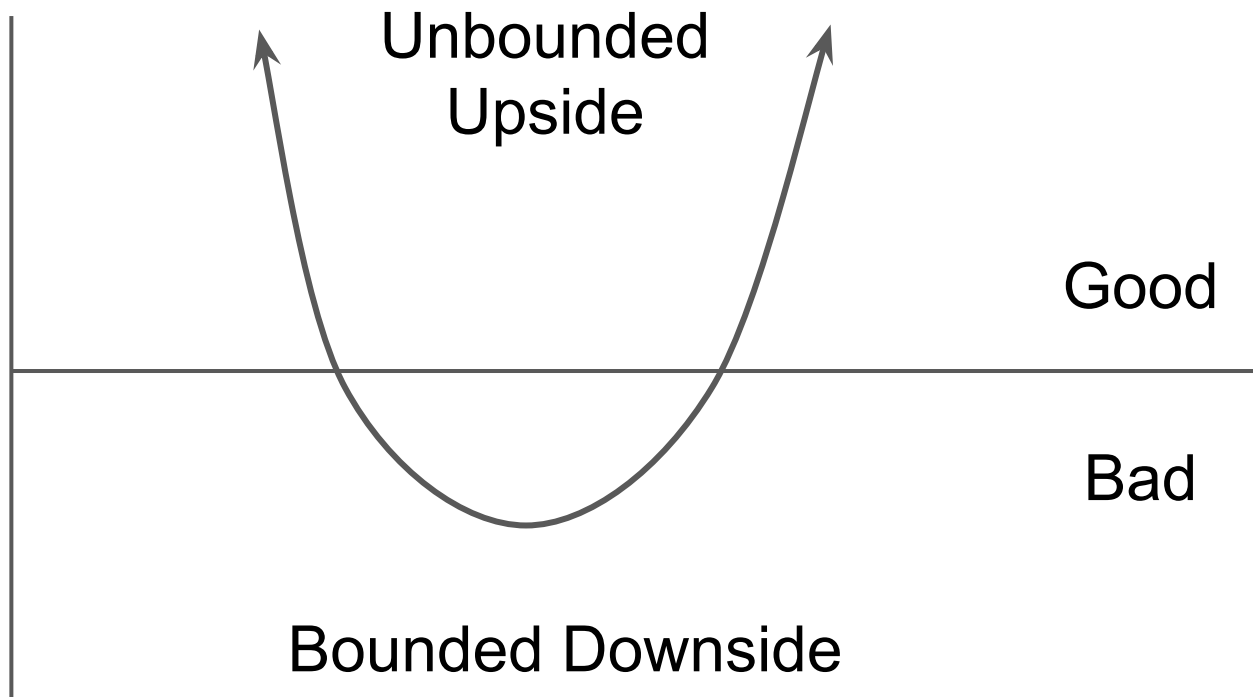
NETFLIX

Core Value





Inject something harmful (in a system),
in order to build an immunity



the morning paper

an interesting/influential/important paper from the world of CS every weekday morning, as selected by Adrian Colyer

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Simple testing can prevent most critical failures

OCTOBER 6, 2016

Simple testing can prevent most critical failures: an analysis of production failures in distributed data-intensive systems Yuan et al. *OSDI 2014*

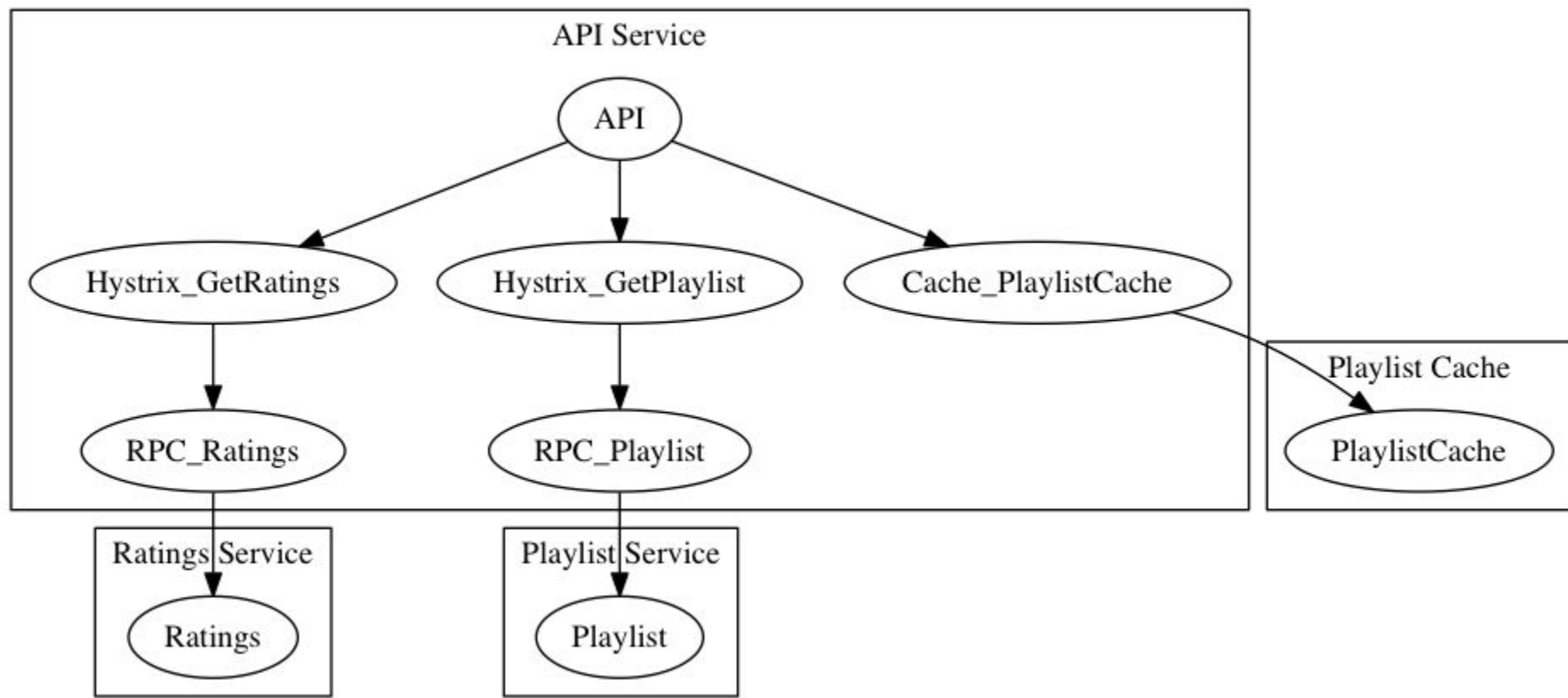
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Effective Failure Testing

“What could go wrong?”



“How likely is this to occur?”

“What is the cost of being wrong?”



Validating our
assumptions

Experiment

Form a hypothesis

If we lose the Ratings service,
members will get default ratings

Measurable Outcome

This will manifest as increased Hystrix
Fallbacks

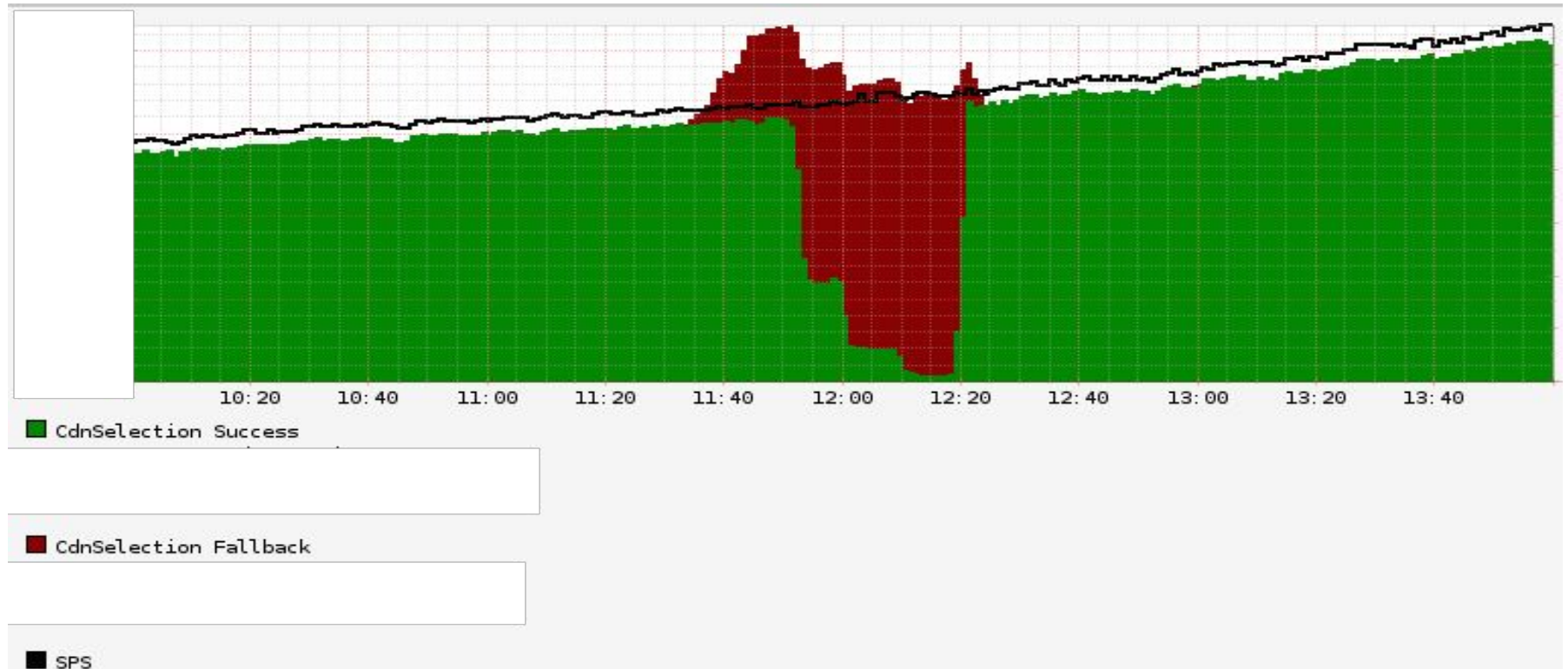
Success Criteria

But the overall success rate will remain
constant

Abort Conditions

Halt immediately if members are
unable to stream

Validate





THINK



small

Dial it up!





“Productionalization”



Picard Tips @PicardTips · 20 Dec 2015

Picard management tip: Run crisis drills when all is well. A real calamity is not a good time for training.

Case Studies



Spinnaker

Chaos Kong



“What is Tier 1?”

Finding the Critical Services

Automating Failure Testing Research at Internet Scale

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Outcome

Reduce Toil

Increase Reliability

Better prepared for the outages that occur

Break things on purpose!



GREMLIN INC.

Breaking Things on Purpose

Thank You!



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“Required Reading” and References

- [FIT: Failure Injection Testing](#) - Netflix Tech Blog
- [Automated Failure Testing](#) - Netflix Tech Blog
- [Automated Failure Testing at Internet Scale](#) - ACM SOCC Paper

- [Antifragile: Things That Gain from Disorder](#) by Nassim Nicholas Taleb
- [On Designing and Deploying Internet-Scale Services](#) by James Hamilton
- [Drift into Failure](#) by Sidney Dekker

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