Lessons Learned from Our First Worldwide Outage

Yoav Cohen, VP Engineering, Incapsula
@yoavcohen

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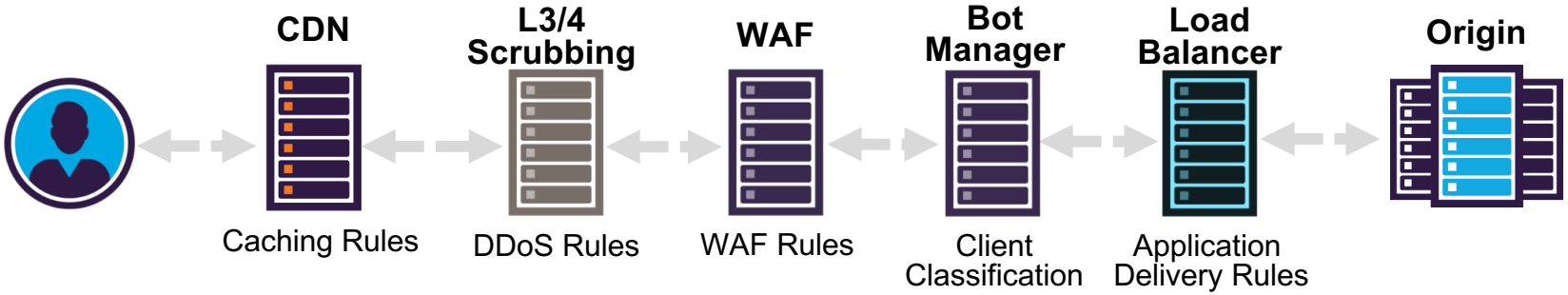
What is Incapsula?



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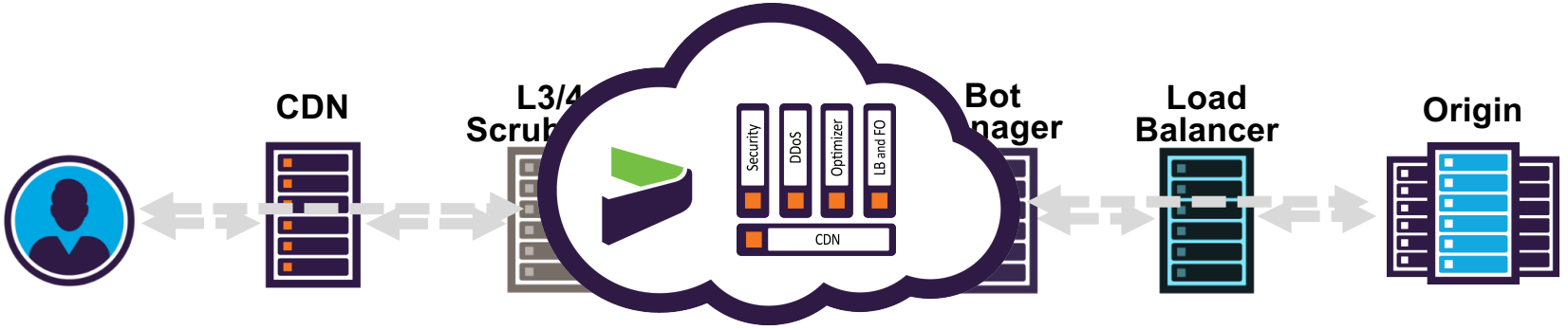
What is Incapsula?



Caching

DDoS Rules

WAF Rules

Client Classification

App Delivery Rules

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Incapsula in High Level

- ~35 PoPs
  - Proxies (HTTP/S)
  - Behemoths (L3-4)
- Management Console

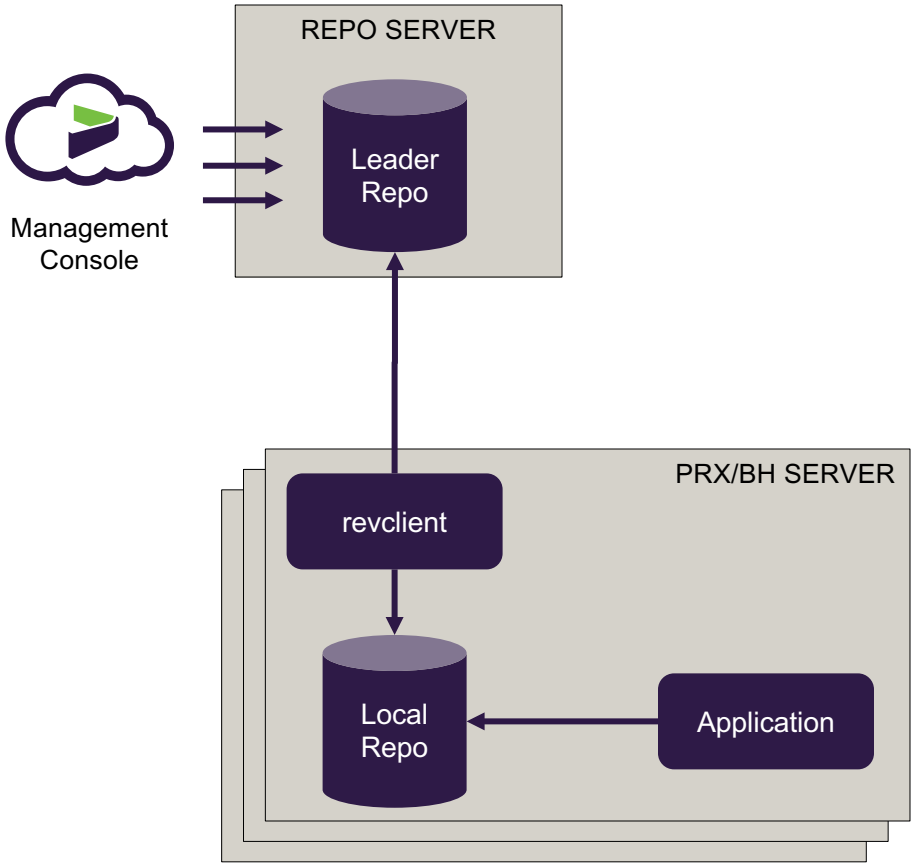
Management Console

Customer Configuration

- Domain name, IP of origin server
- All servers need to know that
- With many updates happening at any given time
- 60 seconds SLA

Revlite

- Leader repository
- A client service that synchronizes changes to the file-system
- Applications read from the file-system

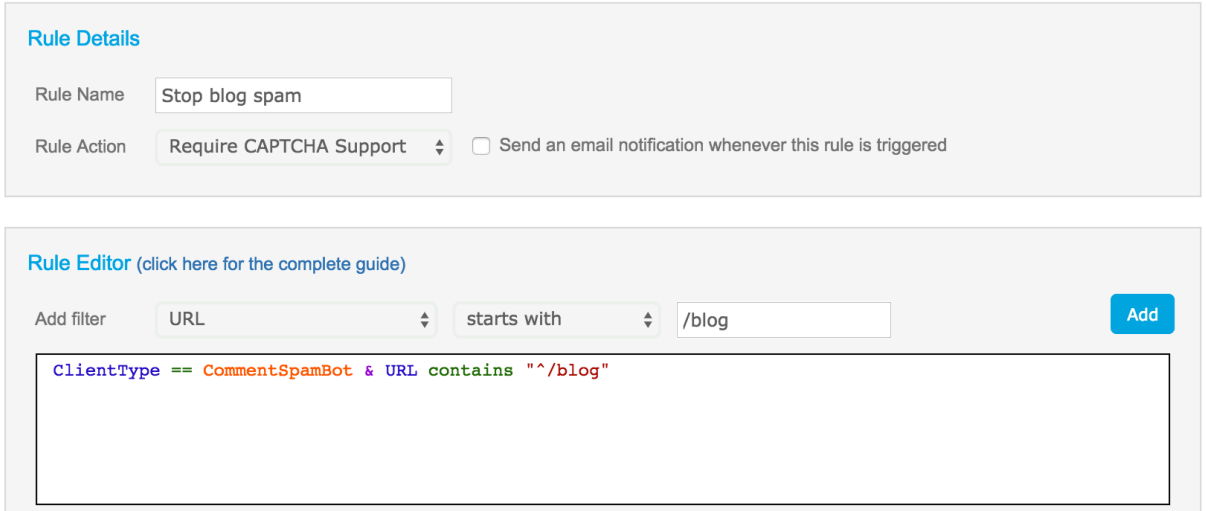


Our First Global Outage

Management
Console

IncapRules

- Custom WAF logic
- Tons of flexibility
- High risk
  - Reading rules
  - Evaluating rules



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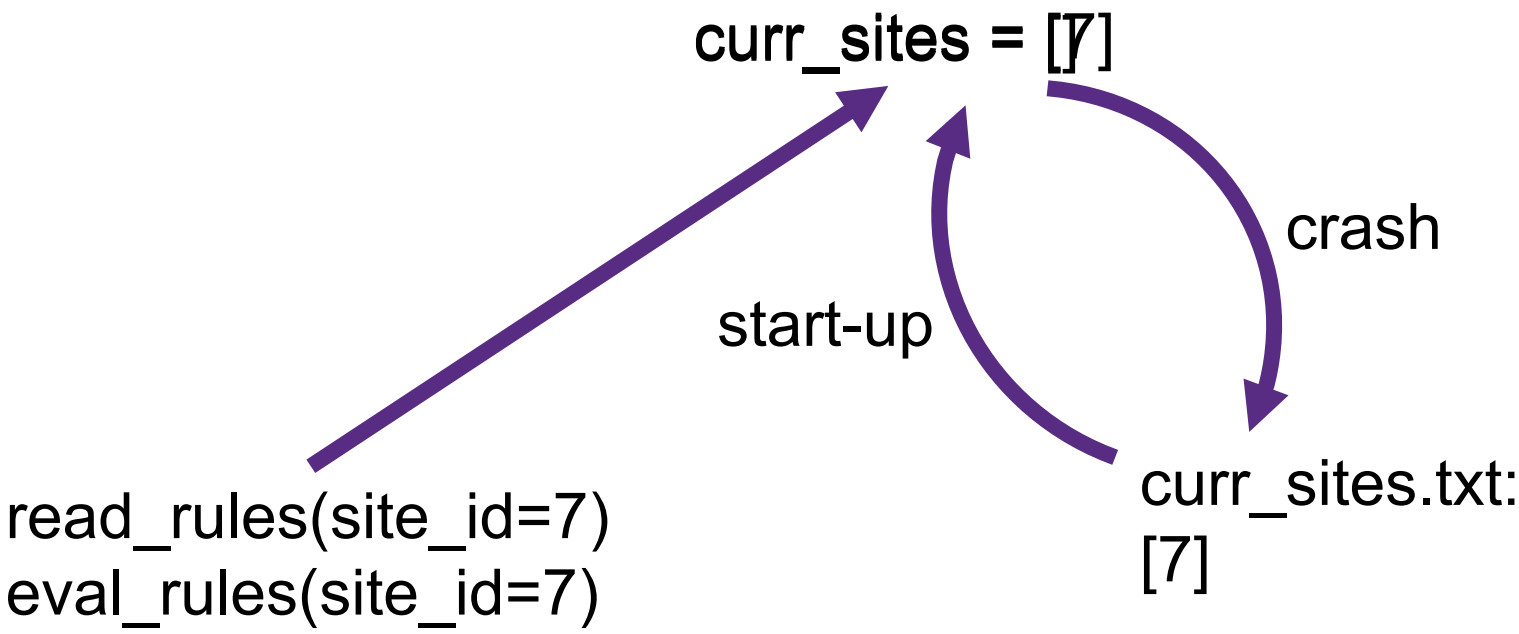
IncapRules Safety Mechanism



Initial Response

Management
Console

Post Mortem Conclusions

1. The safety mechanism did not work

2. The safety mechanism only works after a crash…

1. The safety mechanism did not work

- `// Someone commented it out`
- Why wasn’t it picked-up by testing?
- Because we didn’t have a test for it

Incapsula Reliability Framework

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2. The safety mechanism only works after a crash

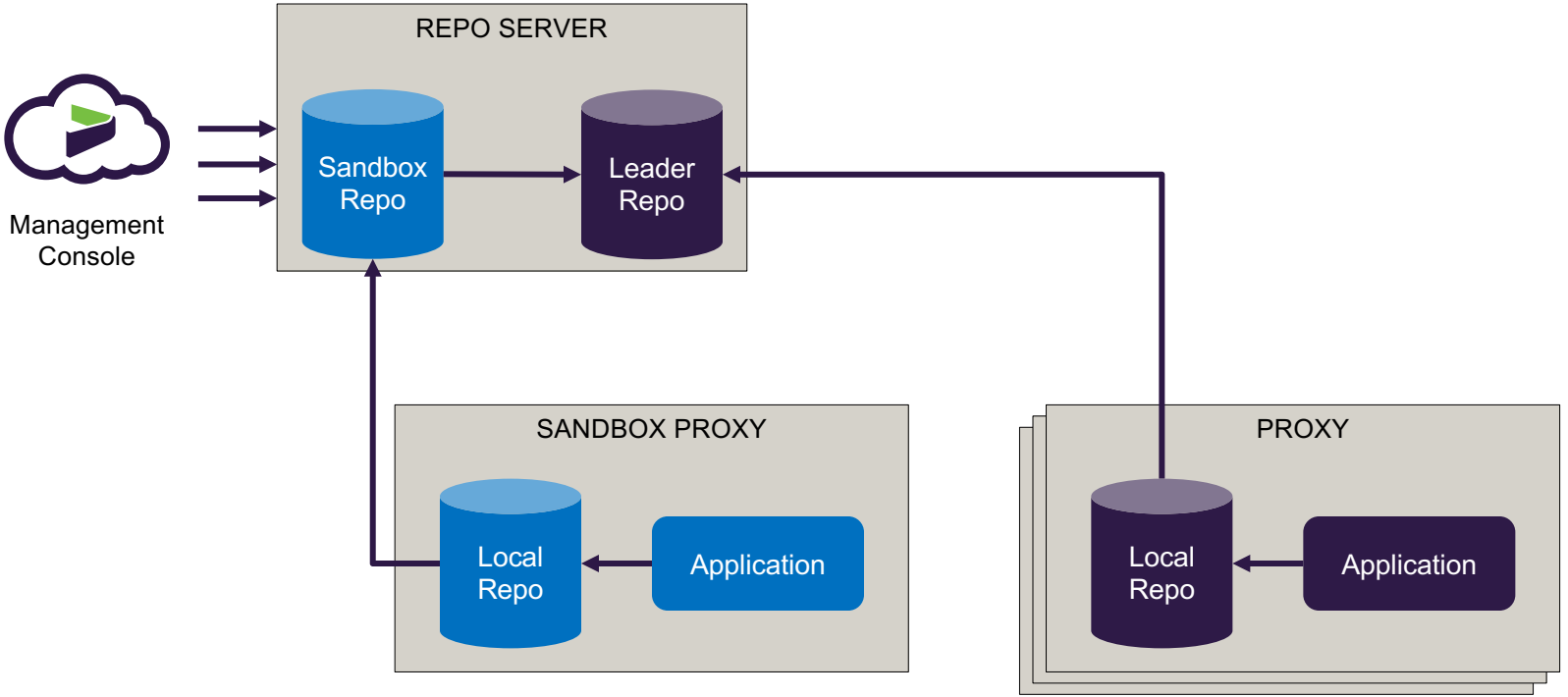
- Simple (bad) solution – propagate slowly
  - How slow?
  - Will still impact production systems
  - Will degrade customer agility
- Break down the problem:
  - Crash when loading rules
  - Crash when evaluating rules → Safety Mechanism

Crash when loading rules

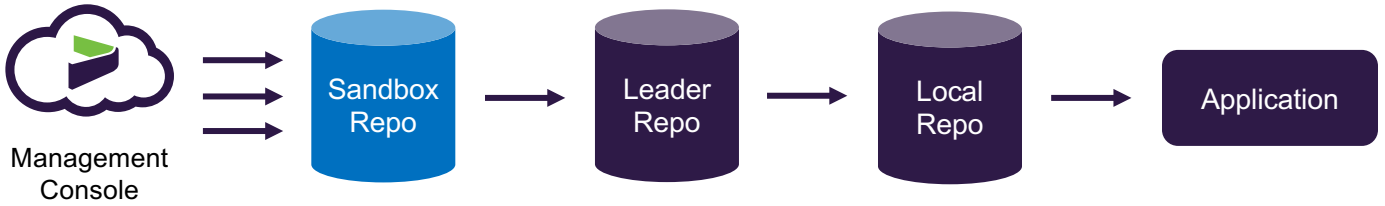
- Don’t publish configurations that will cause a crash
- But, crash happens when publishing

- Publish to a system that is not processing traffic

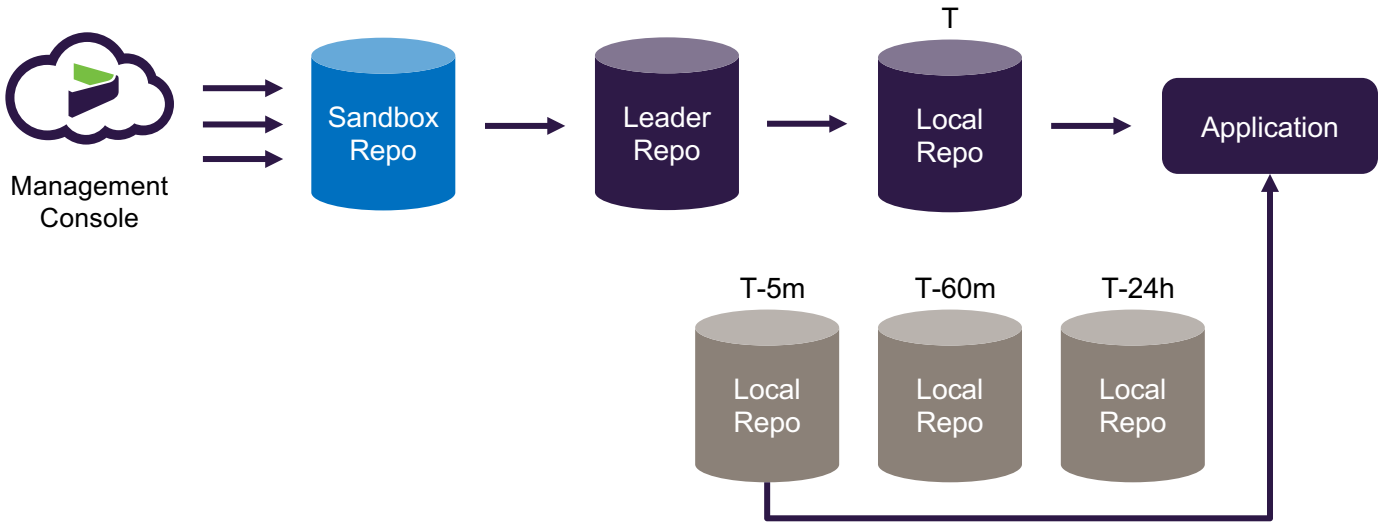
Revlite Sandbox



Flying two mistakes high



Revert to a last known good



Wrapping it up

- Configuration changes can cause issues
  - While loading the change
  - After the fact, out of the blue
- Issues during a configuration change
  - Sandbox the change
  - Quarantine it if necessary
- Out of the blue
  - Detect ”bad” objects and quarantine them
  - Roll-back to a last known good configuration

Questions?

@yoavcohen