

MONITORING EVOLVED

Using Salt to Make Infrastructure Consumable (Tasty, Even)

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signal fx

Introduction

- *What SignalFx Does*
- *How We Organize Our Infrastructure*
- *Tooling*
- *Why We Chose Saltstack*
- *Integrating Salt with Our Infra*
- *Practical Choices*
- *Monitoring*
- *Q&A*

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What SignalFx Does

Monitoring Modern Infrastructure (as a Service)

- Consume metrics at any resolution (down to 1s)
- At most any scale (many many 10s of billions of datapoints a day)
- That are multi-dimensional (service, region, device type, canary, ...)
- For: visualization, ad hoc exploration, statistical analysis, alerting

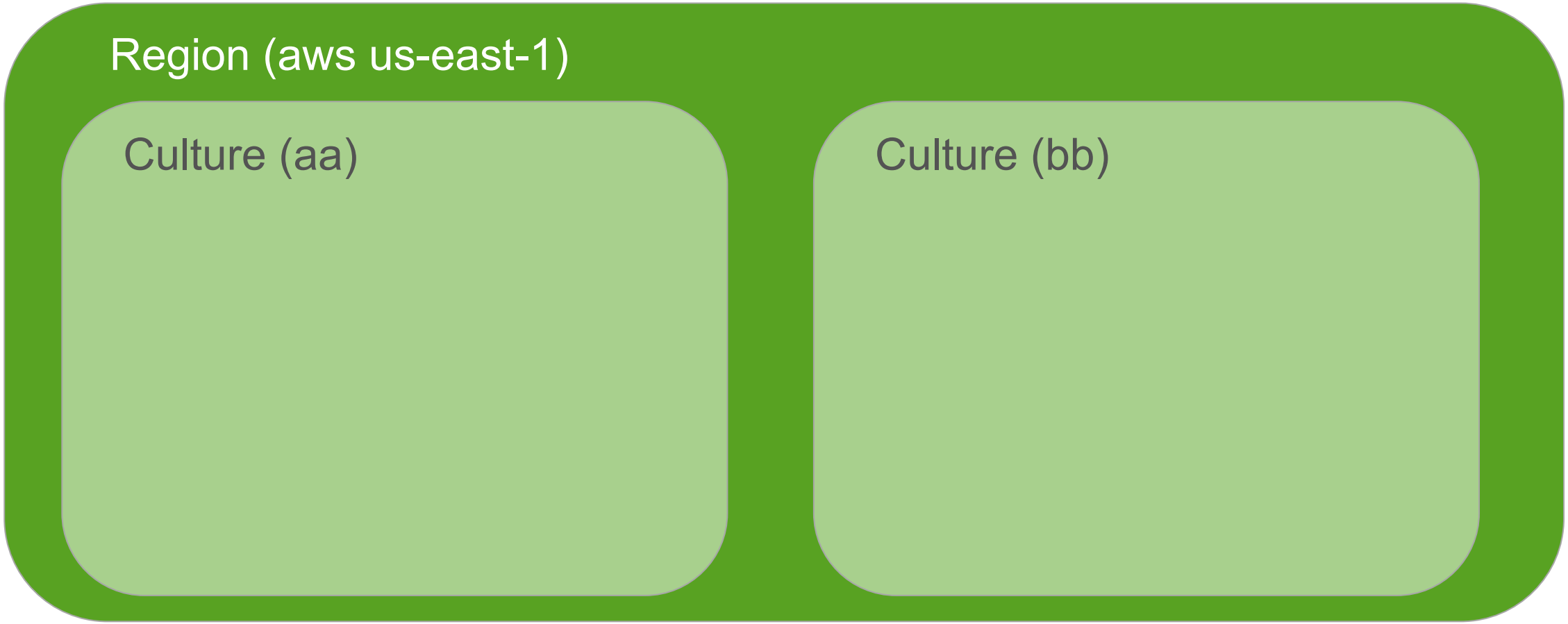
- Special sauce: in-stream, “real-time” analytics
  - To build composite signals out of raw metrics → meaningful alerts
  - On *current* data as it’s arriving and *historical* data
  - example: alert on (defined) week-over-week deviation in service-level metric like 90th percentile successful response latency over moving 1-hour window

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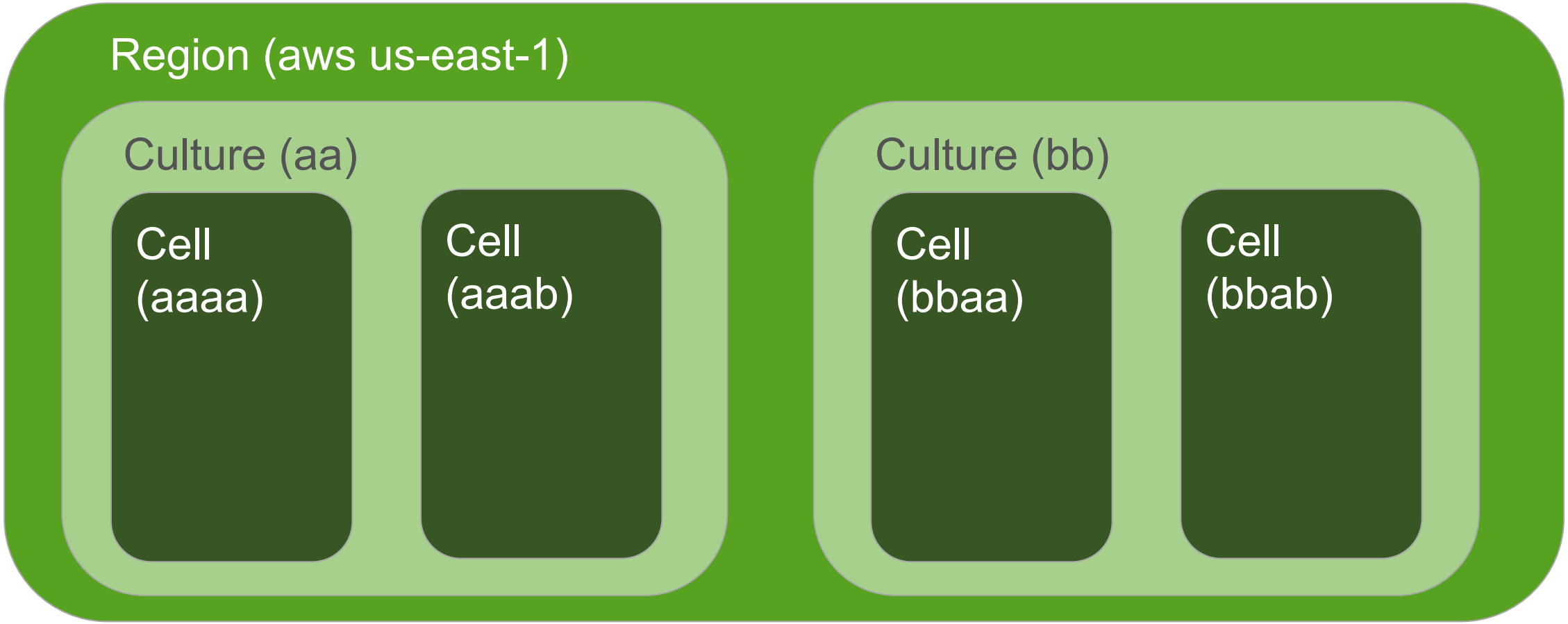
How Our Infrastructure is Organized



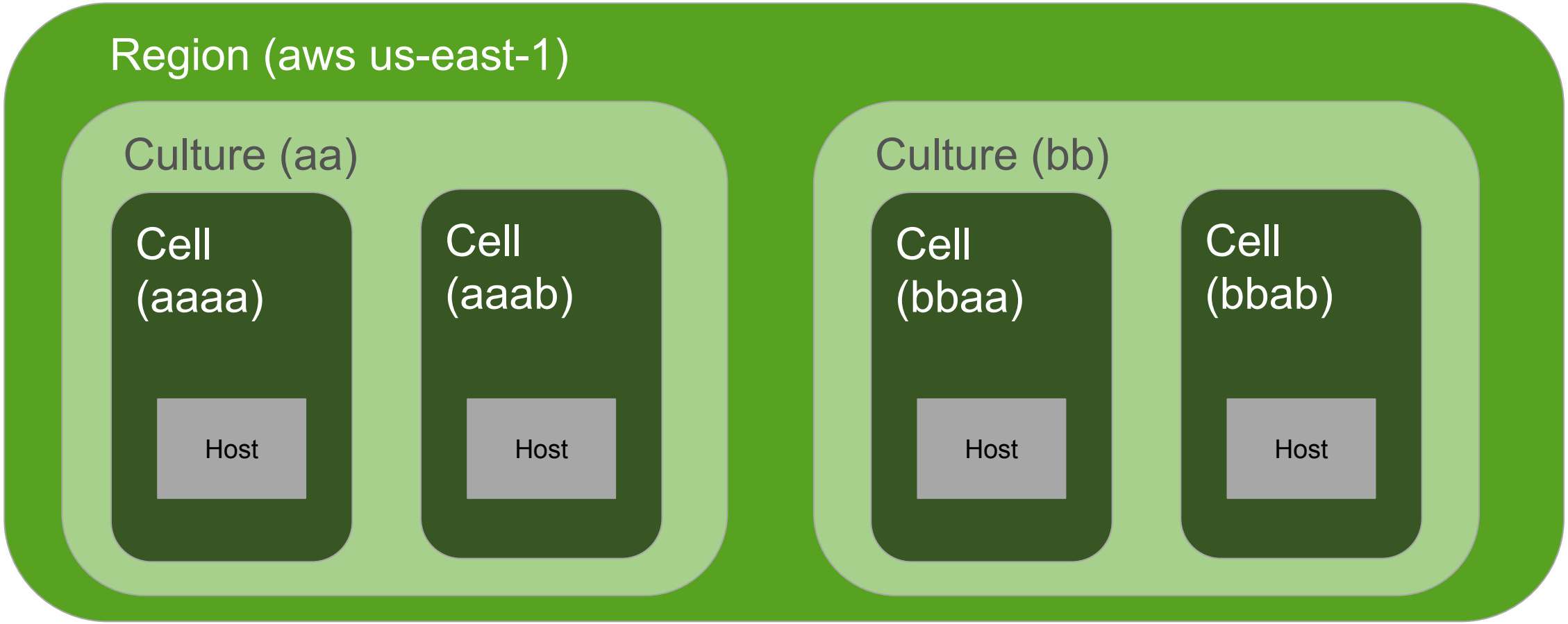
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How Our Infrastructure is Organized

Design goals:

- *Cells fail independently*
- *TCP/IP connectivity between every host*
- *Ability to choose placement of hosts that take advantage of cost/latency/reliability concerns*

How Our Infrastructure is Organized

I gave a talk at SRECon15 with many more details: link



Tooling - sfinfra

A library and a set of tools:

- *sf-culture-tool*
- *sf-cell-tool*
- *sflb*
- *sfhost*



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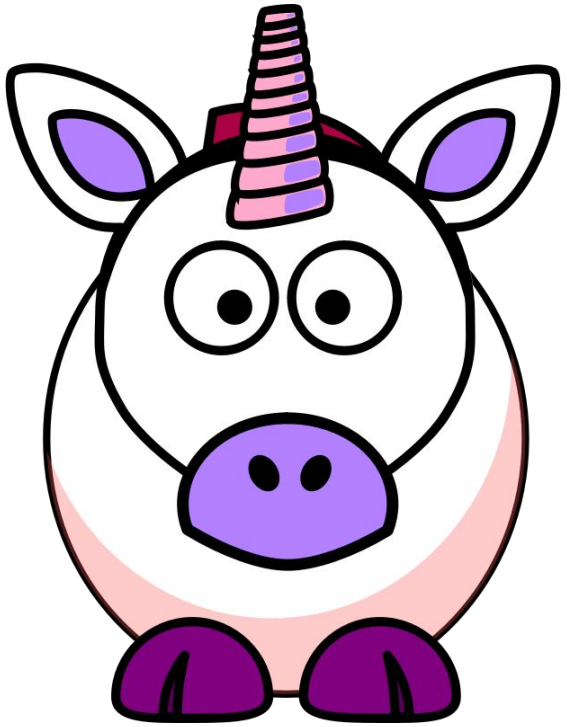
Starting from Zero Production - Why We Chose Salt

- *Python*
- *Extensible*

Starting from Zero - Why We Chose Salt

- *Extensible*
- *Python*
- *Ponies*







Integration With Our Infra

Custom grains and pillars





Integration With Our Infra

Custom states

- *HAProxy*
- *SSH*







Practical Concerns

- *one active salt-master in each culture*
- *ability to bootstrap a master from a different culture*
- *disaster recovery*
- *minimal use of public formulas*



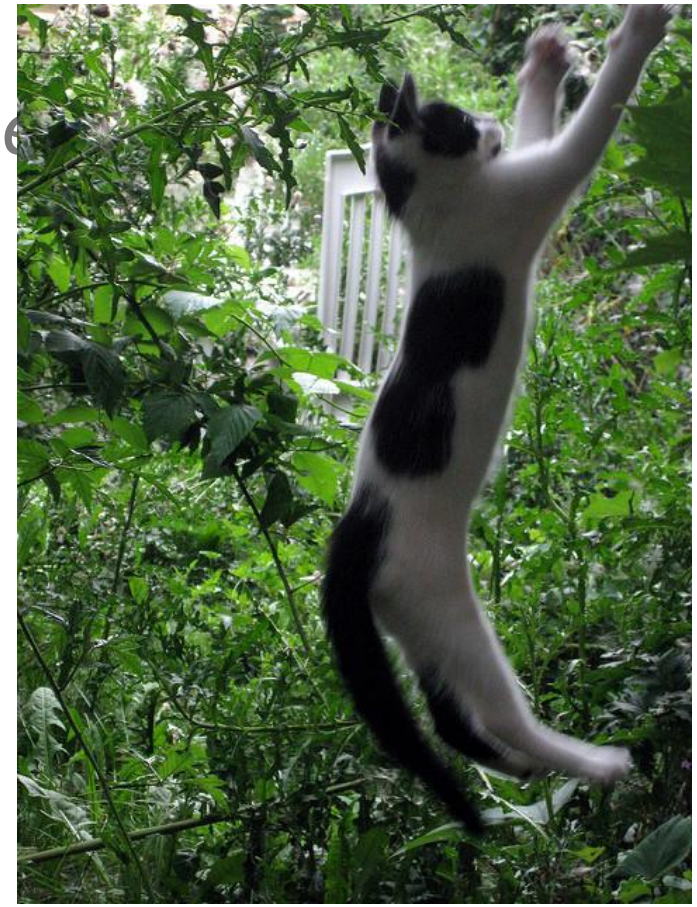
Monitoring

- *Collectd plugin*
- *Important Metrics*
  - *Current highstates longer than 5m*
  - *Num nodes down (somewhat inaccurate and occasionally wildly fluctuates)*



Future Work for Me

- *master-tops*
- *move to saltstack packages*
- *investigate the ec2 external pillar module*
- *investigate multi-master again*



Features I Would Like to See

- *stackable pillars*
- *something like master tops for pillar data files*
- *use a stack of git branches to make up an environment's fileserver contents*
- *port AWS related functionality to boto3 (especially s3fs)*



Conclusion

- *Our tooling ensures hosts are brought up in a normalized way*
- *Salt has some extension possiblities*
- *Salt has taken us from 0 to 600ish hosts in a each culture with lots of automation*
- *Salt is working pretty well for us.*



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THANK YOU!
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signalfx.com