


Support for rolling pushes #242

New issue

 **aglover** opened this issue on Nov 27, 2014 · 19 comments

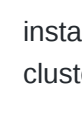
 **aglover** commented on Nov 27, 2014

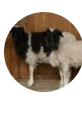
Contributor

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@zarfide needs this concept for deployments otherwise, using R/B we'd have to 2x the EIPs, double the whitelist and this has the somewhat undesirable property that if a rogue person is using one of the EIPs and talking to the HSM it would be harder to notice

 **aglover** added the **enhancement** label on Nov 27, 2014


 **danveloper** commented on Nov 28, 2014

Contributor

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Rolling push is problematic from a management standpoint, along the same lines of quick patch, but expounded because of new instances, not just the same instances... I'd like to see if we can figure out another solution. Maybe introducing management for cluster ENIs will be sufficient?


 **anotherchrisberry** commented on Nov 28, 2014

Contributor

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+1 - the UI doesn't support heterogeneous ASGs right now - we assume every instance looks and performs the same. If there's an alternative approach to rolling pushes, I'd support that.

 **zarfide** commented on Dec 3, 2014

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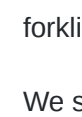
Unfortunately from my perspective since HSM updates happen as the OS level and not app level it would not be straight forward to do an application-level patch.


 **ruppalapati** commented on Dec 3, 2014

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We have a few apps that cannot use spinnaker until this features exists. Its a regression moving from asgard. So our migration to Spinnaker is blocked until this functionality is added.

 **ruppalapati** added the **high priority** label on Dec 3, 2014

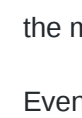
 **danveloper** commented on Dec 3, 2014


Contributor

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Then we need to support it. We will probably need a combination of tags between the server group and instances to properly surface a rolling push. We can probably flatten out [#232](#) to support this as well.

 **aglover** added this to the **Belenus** milestone on Jan 6, 2015

 **claymccoy** commented on Jan 13, 2015

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tl;dr: this issue makes me uncomfortable because it is about reimplementing rolling push exactly without fully understanding what users find valuable with it. I think that we can do a lot better than the rolling push that is in Asgard. Spending resources simply forklifting that is a wasted opportunity.

We still need to know more specifics about what apps require a rolling push and exactly why they need it. After all, it is not going to be exactly what Asgard has and we want to ensure that Spinnaker's version of rolling push handles all the needed use cases.

These are some of the reasons that I have heard that cause users to prefer rolling push. I'm sure there are more.

- Rolling push is easy because there is a button for it in Asgard and Asgard manages the whole process. This wasn't the case with red/black until recently.
- Sometimes the specific ASG name is hardcoded in a user's script.
- Auto scaling while doing a red/black can be tricky with a lot of edge cases.
- Sometimes instances have external resources like EBS volumes and ENIs that need to be transferred from an instance that just terminated to one that is launching.
- Sometimes it is not feasible to have 2 times the number of instances.

1 and 2 are the most common that I have heard and are not reasons to reimplement rolling push. 3, 4, and 5 are valid problems and reasons to rethink red/black but not necessarily reasons to reimplement rolling push exactly. There may be more good reasons and the more that we hear the specifics on, the better the new deployment strategy will be.

Even with rolling push in place we don't want to encourage it. There is not a quick roll back strategy. It can also result in ASGs that are not homogeneous. Also the existing Asgard rolling push has quite a few issues like not noticing if it is filling an ASG with unhealthy instances.

So in concrete terms, what do we want to put into Spinnaker to make everyone happy? At the moment I am partial to [@bpitman's](#) "rolling red/black". This is how that would work:


- A new ASG is created at 10% of the previous ASG capacity. The old ASG can only scale up, the new ASG is fixed.
- Once all the new instances in the new ASG are healthy then instances are incrementally terminated in the old ASG and launched in the new ASG. Maybe in chunks of 20%, and waiting until they are healthy before doing the next chunk. During this phase the old ASG can only scale down and the new ASG can only scale up.
- At some point the old ASG is completely drained of instances, then after some time it is deleted. There is no need to disable it.
- The combined instance counts of the old and new ASGs are maintained to be 20% higher than the older ASG should have been based on it's various auto scaling rules (AWS, Scryer, reactive).

- All percentages above are defaults that could be parameterized.

I need to better understand the rollback case, but I would imagine that on rollback the old ASG is scaled up fully and then the new ASG is disabled and investigated (maybe scaled back down to 10%). The further one is through the transition, the harder it will be to roll back. That may be okay because your new instances are becoming more and more trusted.

The creation of the new ASG is optional (but recommended). And here is the important part, if there is no new ASG created and this transition happens within a single ASG then this pattern collapses into a rolling push like Asgard currently has (but more robust and with more controls and checks).

This allows us to implement the forward looking ideas (rolling red/black) while still allowing the proven trusted legacy ideas (rolling push) all using the same overall code/strategy.

 **cfieber** commented on Jan 13, 2015

Contributor

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I like [@claymccoy](#) line of thought - lets focus on what rolling push buys people when they go that route and see if there is a better way to enable those use cases

So far there is the resource allocation use case (I don't want to be double provisioned in instances, in EIPs etc) which I think rolling red-black has a great answer for

I've heard of teams that do rolling push because they have problems dealing with multiple ServerGroups for scripting etc - this might be something we could address by good support in spinnaker-client, or even by pointing them at existing tools (/eu/reka/v2/vips/{vipname} endpoint for example) - I'd have to be pretty strongly convinced that we need rolling push to enable this case

I'd like to know what else is solved by rolling push - [@ruppalapati](#) can you describe what use cases you have around rolling push currently?


 **bpitman** commented on Jan 13, 2015

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Commenting on rolling red/black.

- This should be configurable - this is an example from our config file:
.withAsgSizeRatios(0.1, 0.2)
- The asgard model is to terminate and let the asg replace - this is NOT how rolling red/black works because we never want to intentionally run with less than desired. The second parameter (20%) specifies the amount of extra capacity we have to work with. We maintain 20% extra - anytime we see less the 120%, we launch more instances - anytime we see more than 100% healthy, we terminate from an old asg. We do NOT launch "waves" of instances, though it may appear this way in graphs - I would expect these to flatten out during a deployment with a small incremental buffer.
- We have a concept of a cluster desired size - during deployment, the sum of asg sizes is up to 20% greater (well, 20% per additional asg - so can be bigger if owner starts another rolling red/black before the last one completed).


 **bpitman** commented on Jan 13, 2015

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A rolling deployment is generally safer than a 100% replacement. If there was some major issue missed in all testing, there's a very good chance you'll notice it before you've entirely replaced the cluster.


Also, a doubling of your cluster might cause unnecessary capacity issues for your dependencies. We can ask everyone to autoscale, which perhaps they should do anyway, but we should limit the ripple effect of a single deployment.

 **claymccoy** commented on Jan 13, 2015

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Thanks for the clarification [@bpitman](#).

 **aglover** commented on Jan 13, 2015


Contributor

Author

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ping [@zarfide](#) -- any feedback regarding the above thread started by [@claymccoy](#) ?

 **aglover** commented on Jan 19, 2015

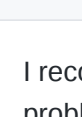
Contributor

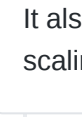
Author


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[@danveloper](#) please share your thoughts?

 **aglover** assigned **claymccoy** on Jan 19, 2015

 **aglover** modified the milestones: **Belenus**, **Cocidius** on Jan 19, 2015

 **claymccoy** commented on Jan 19, 2015

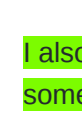
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I recommend we quickly implement rolling red/black described above and recommend it's use. We then iterate on it to address any problems that are realized later.

This could effectively replace the concepts of rolling push and simple red/black, but it needs a better name.

It also has some implications on how we want to support auto scaling. Meaning favoring reactive scaling rather than AWS auto scaling which is not something that we have stated formally as a team.

 **aglover** modified the milestones: **Cocidius**, **Belenus**, **Damara** on Feb 2, 2015

 **zarfide** commented on Feb 5, 2015


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Sorry I get so many github notifications I missed this.

From my perspective it would require a rework of the HSM proxy deployments if we don't have rolling pushes which would involve whitelisting twice as many EIPs in the HSM firewall and allocating twice as many EIPs for the proxies. This by itself isn't a "big" deal, but it's something I was hoping to avoid.


I also like the security property that I don't have to keep an eye on the unused EIPs -- it will be pretty obvious pretty quickly today if someone steals one of my EIPs.

 **zarfide** commented on Feb 5, 2015

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I just talked to [@cfieber](#) about this -- to the extent that a "rolling red black" would meet my needs that I won't need to change my EIP provisions would be great -- no reason why it needs to happen in the same ASG.

 **bpitman** commented on Feb 5, 2015

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It wouldn't. The goal of a typical rolling red/black to commit to a minimum capacity, not a maximum.

On Thu, Feb 5, 2015 at 12:26 PM, Jay Zarfoss notifications@github.com wrote:

I just talked to [@cfieber](#) <https://github.com/cfieber> about this -- to the extent that a "rolling red black" would meet my needs that I won't need to change my EIP provisions would be great -- no reason why it needs to happen in the same ASG.

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Reply to this email directly or view it on GitHub [#242 \(comment\)](#).


 **cfieber** commented on Feb 5, 2015

Contributor

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seems like a use case we could support given a non autoscaling cluster and some configuration options

 **bpitman** commented on Feb 5, 2015

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I think it overcomplicates things. What do you do if the desired state is changed during red/black? And changed again, and again? Seems silly to invest so much effort into something to avoid using a few extra ieps.

On Thu, Feb 5, 2015 at 12:35 PM, Cameron Fieber notifications@github.com wrote:

seems like a use case we could support given a non autoscaling cluster and some configuration options

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Reply to this email directly or view it on GitHub [#242 \(comment\)](#).

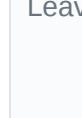
 **zarfide** commented on Feb 5, 2015


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As I said it wouldn't be the end of the world. If I have to update the deployment config and firewall rules, so be it. If I don't have to, all the better.

I suspect there are others with similar use cases but I can only speak for myself obviously.

 **aglover** modified the milestones: **Damara**, **Eracura** on Feb 17, 2015

 **aglover** modified the milestones: **Eracura**, **Grannus** on Mar 16, 2015

 **cfieber** closed this on Oct 13, 2015


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