Chop Down the Beanstalk, Open Up the Fargate

Last fall, Amazon Web Services announced their latest and greatest in container orchestration and clustering technology: ECS Fargate. This caused many organizations, including those of us here at the University of Illinois at Urbana-Champaign, to take a step back and re-think our cloud deployment plans. Prior to the release of Fargate, an organization could containerize in AWS a couple different ways. One way is the Elastic Container Service (ECS), previously "EC2 Container Service," which gave you great flexibility, but at the expense of managing the underlying clustered hosts. There was also the lighter weight Elastic Beanstalk offering: the clustering platform was managed automatically, but there wasn't as much configuration wiggle room, and was mainly geared toward websites. Illinois was moving forward with Elastic Beanstalk for the majority of our cloud applications. Then, the new guy walked in the door.

With ECS Fargate, the underlying clustered hosts and orchestration is handled for you. You can focus completely on your containers and clustering parameters. But, unlike Elastic Beanstalk, you could be more flexible in your configuration. For instance, in Elastic Beanstalk, every container in a cluster scales as a unit. There wasn't room for, say, running a bunch of application containers that autoscaled but with only a single management node. Elastic Beanstalk made a lot of decisions for you. With ECS Fargate, those decisions are now parameters exposed to the service architect.

So, what's the catch? There isn't really a major one. For Illinois, we had created Terraform modules that made it easy to stand up a new service in Elastic Beanstalk. Those underlying modules had to be rewritten to build and deploy to a Fargate cluster. But, because things have been designed in modules with our Terraform code, this didn't require a rewrite of everything. We just had to replace the Elastic Beanstalk specific pieces with Fargate ones. One nota ble downside discovered initially is that ECS Fargate has a larger price tag than straight ECS clusters. But, unlike Elastic Beanstalk, multiple applications on Fargate can share a single load balancer. So at the end of the day, the final bill might end up being cheaper.
As of now, we're currently in the final stage of replacing that Terraform code, and we'll soon be deploying TIER containers of Shibboleth and Grouper to ECS Fargate. Stay tuned for a future blog post to hear how that goes.