Elasticity & OpenStack

Muharem Hrnjadovic
@al_maisan

Rackspace International
Zurich, Switzerland

https://github.com/al-maisan/p/blob/master/opencloud-day-2013.pdf

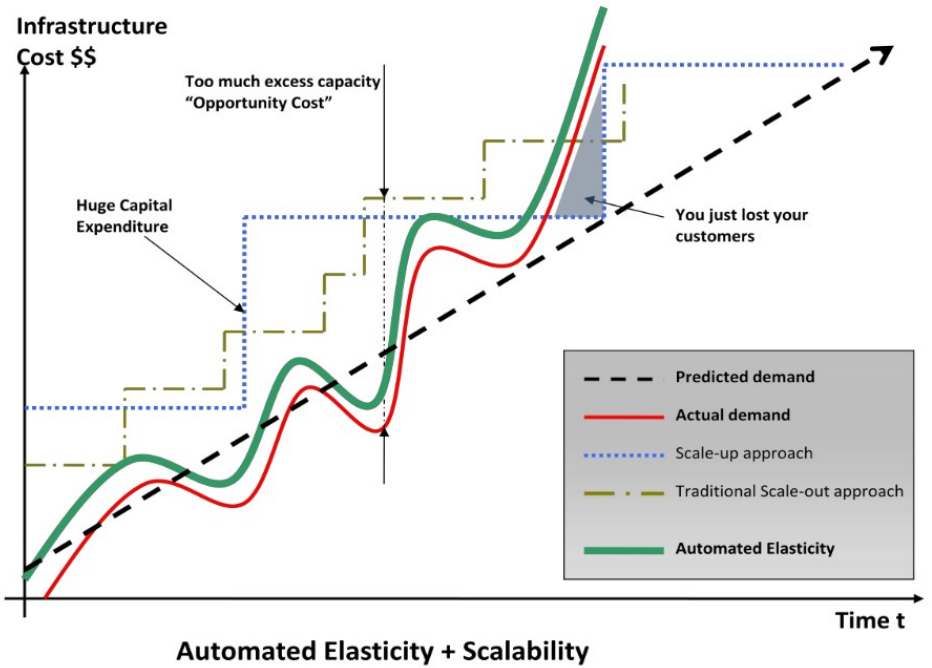
Elasticity

- Definition
- Status quo
- Outlook

https://encrypted-tbn1.gstatic.com/images?q=tbn:ANd9GcQo3A-wgBxNfMBdtpJZVuE8zhD0LDqPmksXP9GAHl0gNMhKxL3pAg

rackspace® the open cloud company

auto scaling



Automated Elasticity + Scalability

http://media.amazonwebservices.com/AWS_Cloud_Best_Practices.pdf

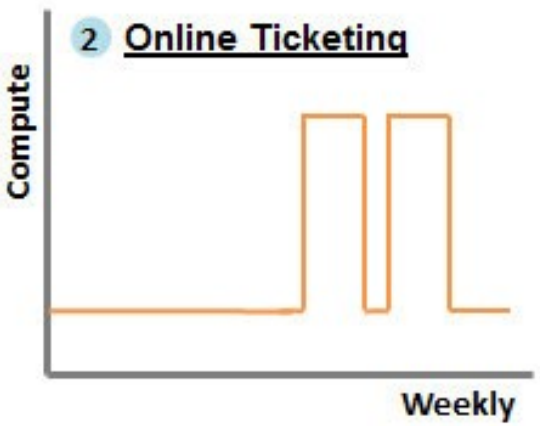
rackspace® the open cloud company

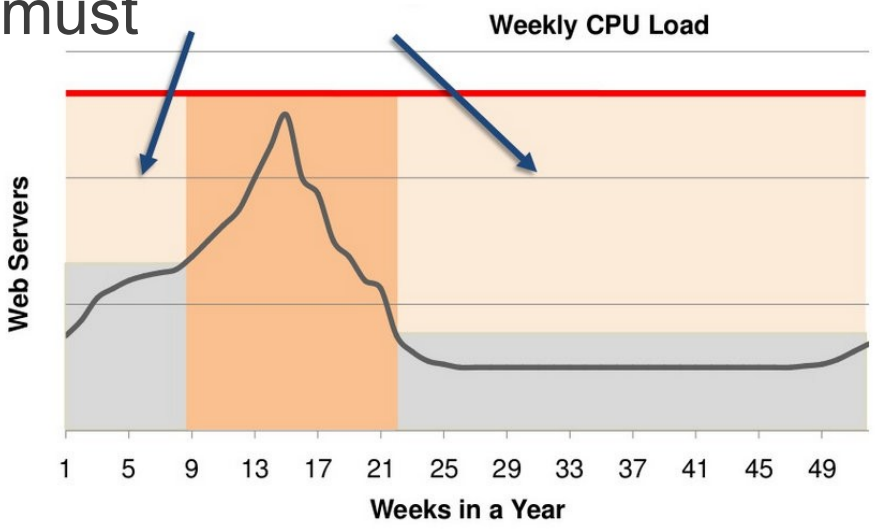
BUT

- CloudCheckrs User Survey
- Customers with auto-scaling exceptions: 66%
- Invalid
  - Images
  - Security groups
  - Key pairs

yagni

- Know thy workload!
- Complexity is a killer
- Don't bother unless you must

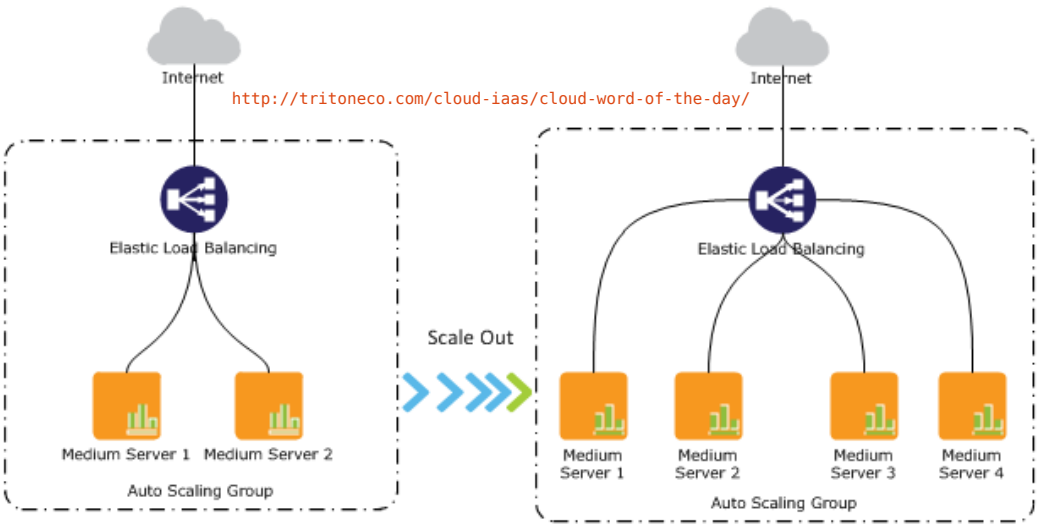




http://harish11g.blogspot.ch/2013/04/Amazon-Web-Services-AWS-Cost-Saving-Tips-how-Amazon-AutoScaling-can-reduce-leakage-save-costs.html

The AS menagerie

- Metric → threshold → alarm → policy
- Policy → launch configuration
  - Adjustment type
  - Change in capacity



rackspace® the open cloud company

Status quo

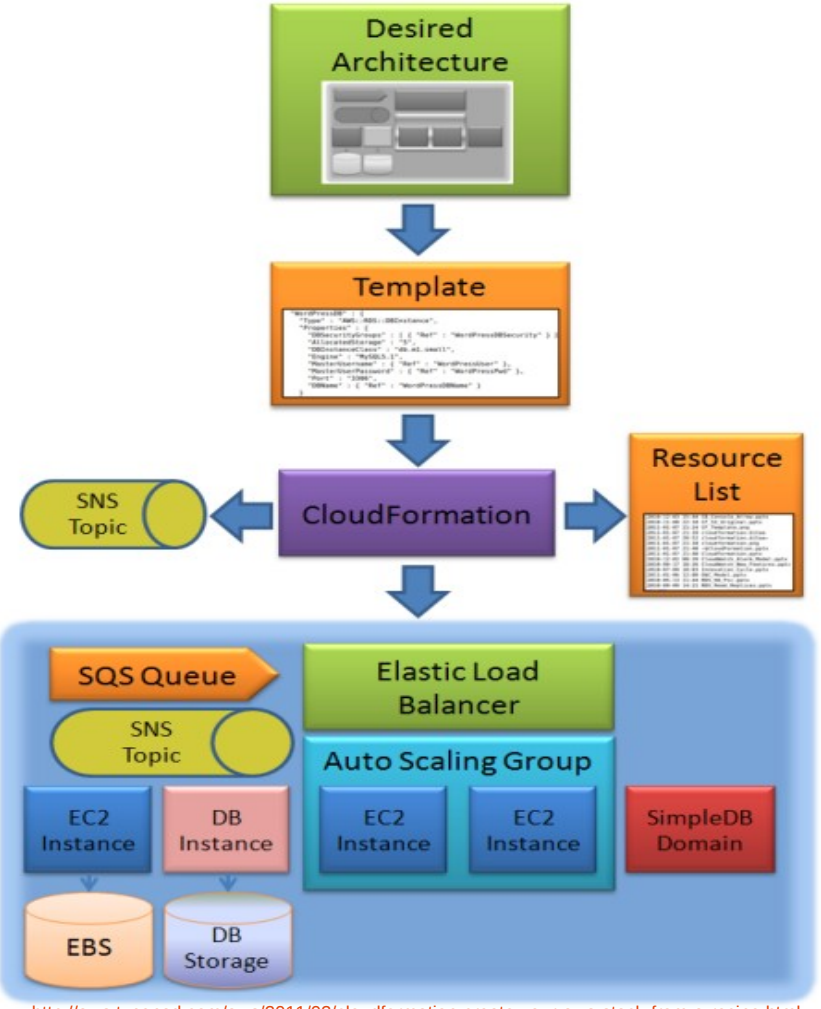
- DIY (all or in part)
  - Sophisticated monitoring (sensu, riemann)
  - portability
- HEAT: in your own cloud (at present)
- Higher-level provider e.g. rightscale: multi-cloud

Let's talk about HEAT

- Integrated project
- CloudFormation on OpenStack
- Facilitates deployment of **systems** by specifying
  - Cloud resources
  - Relations between these

Overview

- Templates rule!
- Advantages of devops practices
  - Revision control
  - Shared knowledge
- Combine with Puppet/chef



http://aws.typepad.com/aws/2011/02/cloudformation-create-your-aws-stack-from-a-recipe.html

Templates

```
{

    "AWSTemplateFormatVersion" : "version date",

    "Description" : "Valid JSON strings up to 4K",

    "Parameters" : {
        set of parameters
    },

    "Mappings" : {
            set of mappings
            },

    "Resources" : {
        set of resources
     },

    "Outputs" : {
        set of outputs
    }
}
```

http://docs.aws.amazon.com/AWSCloudFormation/latest/UserGuide/template-structure.html

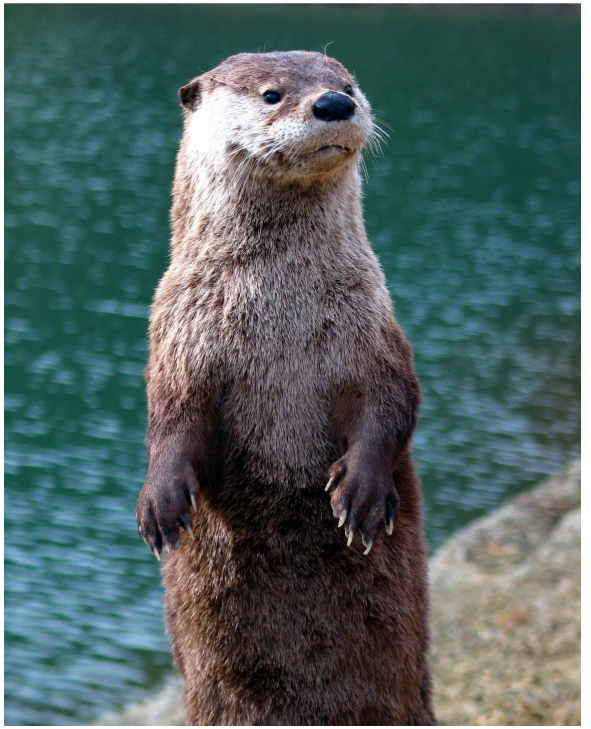
rackspace® the open cloud company

HEAT present

- HEAT implemented everything
  - Auto-scaling
  - Cloud watch (monitoring)
  - Load balancing
  - Orchestration
- All-in-one vs. multiple services

HEAT future

- Break out
  - Auto-scaling → otter (Rackspace)
  - Monitoring (ceilometer)
  - LbaaS (quantum)



http://animaldiscoveryonline.com/animal-pictures/otter-3.jpg

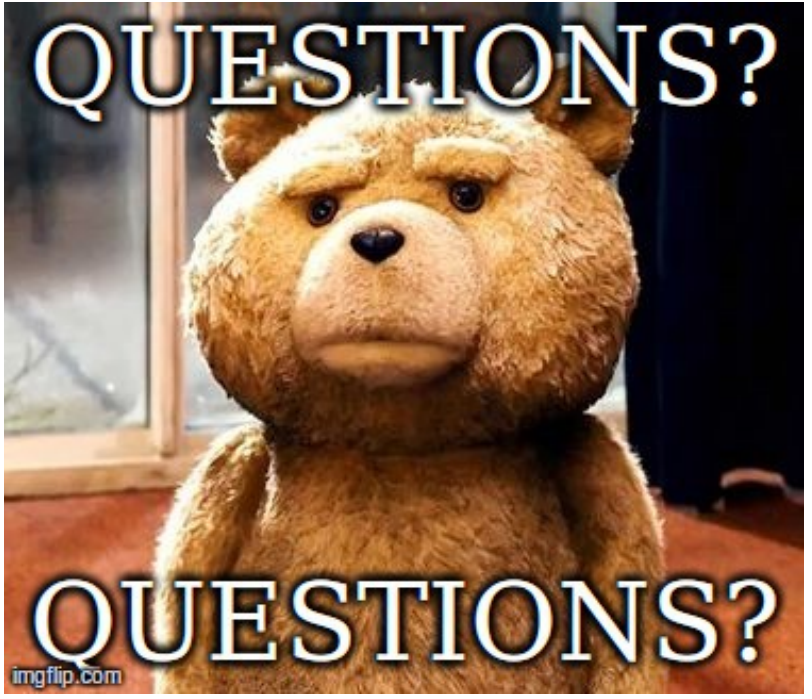
rackspace® the open cloud company

more future plans

- Resources and providers
- API + backend
- Native templates
- Multi-cloud support (?)

Summary

- Early days for auto scaling
- Elasticity via
  - HEAT
  - own tooling
  - cloud ops



rackspace® the open cloud company