10 Cloud Takeaways

10 Things to take into account

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Takeaway #1

- Redundancy costs more and has to be designed in
  - Late February 2017 - a lot of AWS S3 buckets went offline
    - Affected companies such as Nest, Imgur, Docker Registry Hub all failing, Yahoo webmail, Trello and others severly degraded
    - Why?
      - Most systems were only running one region Virginia (US-East-1) region
      - Almost everything could have been multi-region
    - Why not?
      - Costs higher (usually double storage/plus networking costs)
      - Compelxity of designing for multi-tennant can add load
    - Compare to Netflix's Chaos Monkey
    - Cattle vs Pets

Takeaway #2

- What are going to be the hot items in the future?
  - AWS Lambda and othe comparative systems
    - AWS Lambda is a micro-service and very cool tech
  - Containers, such as Docker are going to be the hotness, deploying a whole VM can be wasteful compared to docker containers
  - XaaS - Whatever as a Service can be a tremendous help to your company
    - DRaaS - Disaster Recovery as a Service
    - BaaS - Backups as a Service
    - HPaaS - HoneyPots as a Service

Takeaway #3

- Needing to do a lot of processing and not really caring about how/when it is done
- Spot Instances (Amazon) / Preemptible Instances (Google) and so on can dramatically reduce costs of computing
- Spot Instances bid on unused capacity on Amazon's cloud and if you're the high bidder your VM runs, if somebody else bids higher you get bumped
- If you can keep a certain number of your spot instances running your service can be up 100% of the time. There are companies that offer a service that handles the bidding and can be worthwhile if you can make your code work that way

Takeaway #4

- On Demand is nice, but you can save large amounts of money if you can go to reserved instances
- E.g. Amazon RDS DB Instances DB.R3.2XLarge / 1tb Storage / Oracle SE1 License / Multi-Zone -
  - On Demand - Cost per month $1,774.83 / month
  - Reserved Instance 3 year / all upfront $330.00 / month
- Of course Amazon/Google/Microsoft are updating their machines all the time and prices can be dropping, so this can be an issue

Takeaway #5

- Operational Expense versus Capital Expense
- Very simple example
  - CapEx - You spend $10,000 on a disk array
    - Assuming a 3-year deprecation cycle you can deduct ⅓ of it per year
  - OpEx - You spend $4,000 on Cloud Storage
    - You can deduct 100% of that in the year it is used
- Which is better? CapEx can increase the value of assets on the books, so it can be beneficial as well

Takeaway #6

- Making your own Cloud
  - You can roll your own private cloud - there are several options for this
  - OpenStack is pretty much the standard for this
    - Redhat has their own version / also has a Fedora like version
    - Ubuntu has their own version as well
    - Many other available versions such as Triple-O, etc
  - Can be used to develop experience and knowledge about cloud without much cost
  - If you deploy to OpenStack you may also be able to move workloads to companies doing Hybrid clouds as well

Takeaway #7

- USE ACCOUNT REPRESENTATIVES
  - Amazon/Google/Oracle/Microsoft all want your business. All of them have prioritized the cloud as a major growth area.
  - Get an account representative and use them as much as possible.
  - Don't feel bad about playing them against each other, they'd do the same to you
  - Having an account rep/sales rep can give you a major benefit when trying to figure out things such as licensing changes, etc.

Takeaway #8

- Pricing is going to change
- Licensing is going to change
- E.g. Oracle changed their licensing for Oracle Databases running in the cloud each vcpu now counts as 1 cpu as opposed to before where each accounted for 0.5 cpu
- If you're running commercial software the licenses for it are going to continue to evolve

Takeaway #9

- Security STILL MATTERS
- MongoDB/RiakCS and a bunch of other databases are under attack from ransomware attacks
- They do this by using default passwords, setups
- Keep this in mind when deploying software, vpns, segmented networks, ssh keys, and the like are good things :-)

Takeaway #10

- You're going to make mistakes. Amazon's S3 Outage was caused by a single person typing something incorrectly, according to their root cause analysis
- Greenfield projects and small wins will help you build up experience and the skillset to use the cloud better