Supporting the Comcast Cloud

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Selling the Cloud

“What’s OpenStack?”

- Idea to build a cloud based on OpenStack started over a year ago
- Build it and they will come
- Had to introduce and campaign OpenStack to engineering and development teams
  - Many teams managing their own infrastructure stacks

What if?

- Reduced time to market
- Concentrate on applications, not hardware
- Fewer network connectivity issues
- Distributed compute and storage easily available

Show it off

- Demos are effective for this

Rethinking Application Design

BFF!

- Design applications which scale horizontally, and are fault tolerant
- Ephemeral storage and object storage only
- Heavy orchestration and automation
- Designed to work in cloud environment

Let's talk

- Databases and other applications which require persistent storage
- Resource heavy applications using MaaS
- Image based deployments

I know someone, here's a number to call

- Monolithic database
- Multiple single points of failure
- Old OS
- Deployment plan is a 100 page document

What Comcast is building

Our vision

- Unified environment to build & operate our most critical & innovative initiatives
- Provide technical agility, efficiency, and velocity to our business
- Reinforce and capitalize on scaled design principles

Deployments up or in-process today

- Starting in our national data centers
- Few thousand cores, 10s of TB RAM; 100s of TB of replicated storage (object & block)
- Development, lab & production

Distributed data centers

- Desire to scale to hundreds of “cells” as we move deeper in the network closer to the customer
- Distributed compute / storage / network fabric to support elastic scale
- Clean slate – free of legacy requirements
- OpenStack is the virtualization & scheduling layer to stitch this together

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Why OpenStack

Widely adopted across diverse workloads

- Our problems are not the hardest problems on the planet
- We can learn a great deal engaging in a broader technical community
- And we have a little bit to share too

Vibrant and diverse development community

- New features quickly
- Reliable implementation
- Receptive to broad and deep participation – even from heavyweights
- Explicitly want to avoid vendor lock-in

Abstraction, composability and orchestration are key

- Makes underlying hardware more fungible
- Intelligent resource scheduling – understood by the app but managed by OpenStack
- Effective separation of concerns (e.g. data replication in the data layer)
- Encourages improved software design practices

What Comcast is building

Separation of application development from underlying infrastructure services

- PaaS (Platform as a Service)
- IaaS (Infrastructure as a Service)
- MaaS (Metal as a Service)

Seeking harmony among apps, cloud infrastructure, and network

- Balance cost, reliability, scalability and security
- Simplify & better utilize the network, storage, and compute (app knows best)
- Move security & connectivity policy deeper into application control

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