


Data Mobility for Hybrid Cloud Transformation

Technology Development
Kei Kusunoki



Transform your business, transcend expectations with our technologically advanced solutions.

- Customers get Compute mobility by OpenStack and K8S.
- But the migration or hybrid cloud system still take some effort due to lacking Data mobility.
- How do customers and Service Provider suffer from Cloud DR/migration/Scale-out with less Data mobility
- Hope to OpenSDS

- ~2010
 - Full Managed VPS
 - Multi-Tenant Technology: FreeBSD/Jail, openvz
 - Manual Deploy
- Customer was locked in the environment.
 - Rebuild is faster than Migration.



History - Virtual Machine Era

- 2011~
 - VMware vSphere 5 was released on 2011
 - Citrix CloudStack was released on 2012
 - OpenStack (Grizzly) was released 2013
- Customers get some mobility
 - P2V, V2V, DR, etc.
 - But cost is still high.

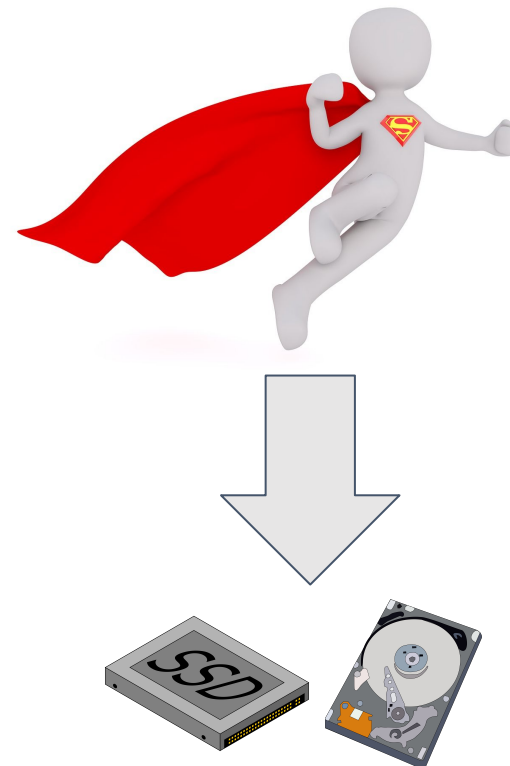


- 2013~
 - Docker was released on 2013
 - Kubernetes was released on 2014
 - AWS ECS was released on 2015
 - Azure AKS and Google GKE was released on 2016
- Migration/Scale-out become easier
 - Use/Switch multiple Cloud provider



Gravity Force from “logical mass”

- Yes, Compute achieve Mobility.
But how about Data?
- Data is major concern on Hybrid Cloud
 - Current Enterprise IT is TB scale
 - Increasing Storage Capacity due to IoT/BigData/AI



Two Cost for Data Mobility

1. Network Cost (Data Plane)

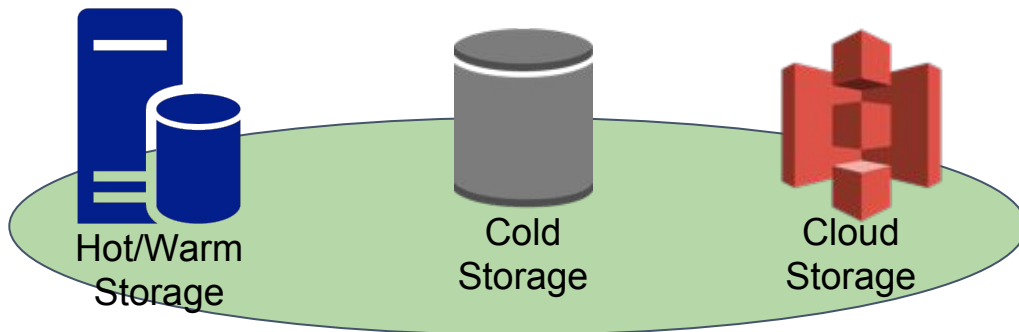


DC



Cloud

2. Management Cost (Control Plane)

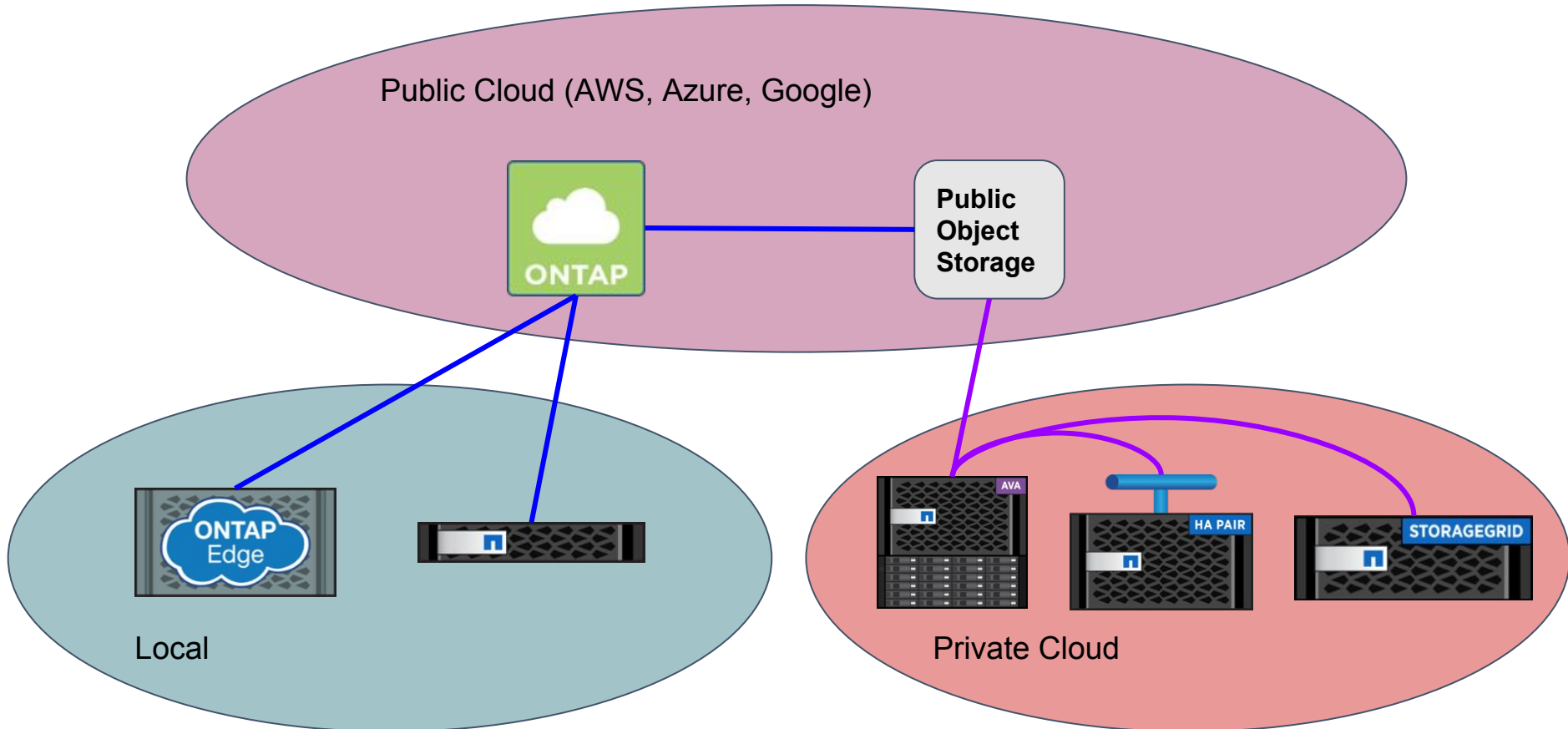


- Through what we move/sync Data from Local to Cloud?
 - Internet over SSL or VPN
 - Narrowband
 - AWS DirectConnect/MS ExpressRoute/Google Dedicated Interconnect
 - Broadband

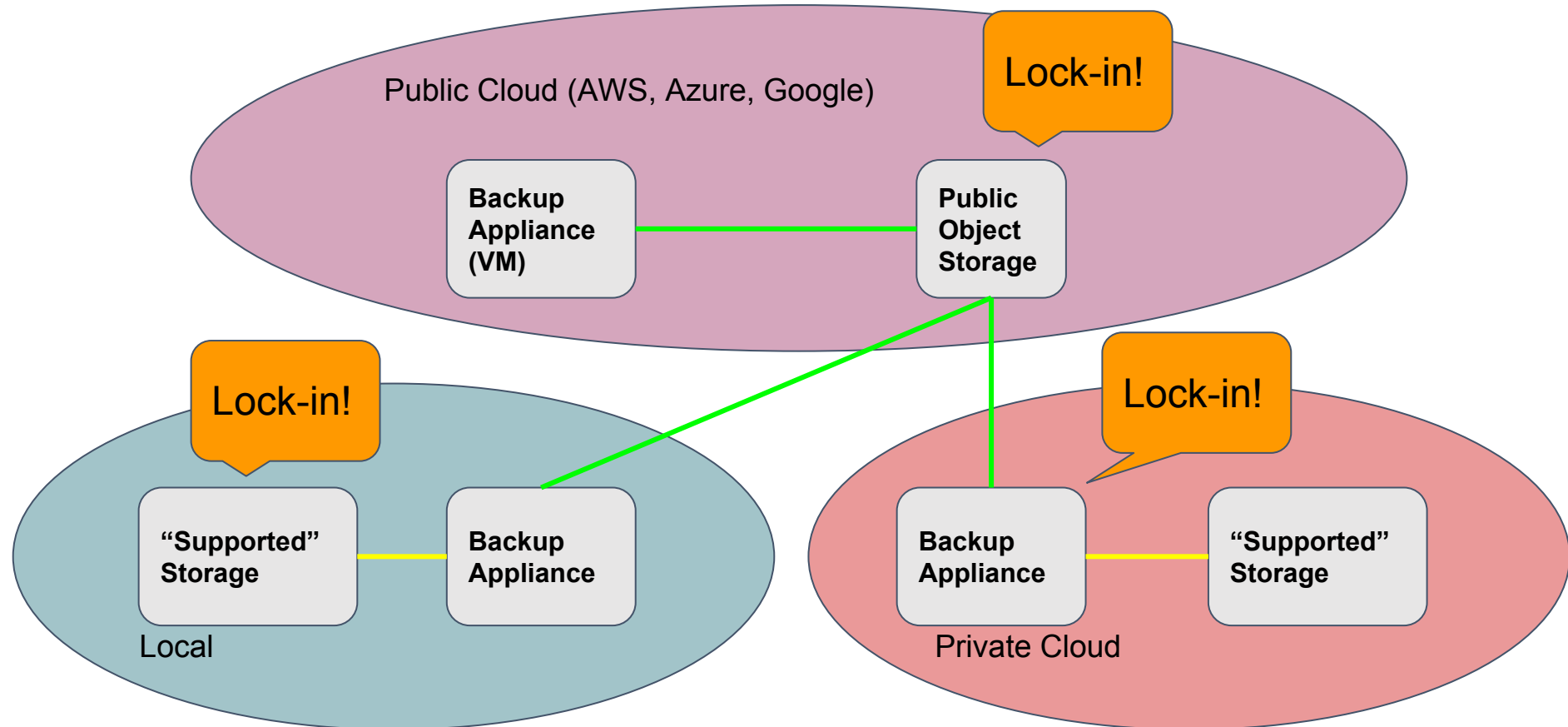
- Dedicated Connection to Cloud is expensive.
 - Dedicated Network from Local to DataCenter
 - DataCenter Cloud Connection Service
 - Equinix Cloud-Exchange, NTTCom SD-Exchange
 - Cloud “Port” and metered transfer charge
 - Inbound to Cloud is free, but Outbound from Cloud is charged
 - Ex) ExpressRoute 10Gbps €4,216.50
Outbound €0.0211/GB

- Customers have multiple IaaS platform that cooperate with Storage system.
 - Baremetal/VMware/OpenStack/Public Cloud
- How customer manage Data among the platforms?
 - Example1: Storage DR between Local and Public Cloud
 - > Special Storage Sync function like NetApp Snap-mirror
 - Example2: Sophisticated Backup/Migration from local Storage to Public Cloud
 - > Solution like Veeam, Rubrik, etc.
 - Example3: Private Object Storage Archive
 - > NFS interface on Cold Storage, Transfer to S3 Glacier etc.

Pax Romana Examples



Pax Romana Examples



How do “Pax Romana” increase cost?

- Background
 - Radically increasing storage capacity due to IoT/AI/BigData
- For Customer
 - Once customers save it on locked-in system, large capacity will make the migration strongly difficult
 - No price battle, less storage innovation
- For Service Provider
 - Each customer have various storage and backup solution
 - Service Provider need to implement them
 - Higher development cost due to complicated cloud combination

- The wall standing in the way of Hybrid Cloud Transformation
 - Network Cost
 - Management Cost
- Fragmented Data Management on locked-in environment increase cost for the world
- I hope OpenSDS conquer Pax Romana situation and OpenSDS make storage industry more innovative