How To Leave Rackspace

Ed Leafe
Rackspace
GlueCon 2014

Disclaimer:

I Work For Rackspace

(no, I’m not getting fired)

Lock-in

Relationship

image courtesy of http://sowest.net/

image courtesy of http://lgbtqutie.com/

image courtesy of https://lh6.ggpht.com

image courtesy of http://topnews.in/


Imagecourtesy©www.learnvest.co


Imagecourtesy©www.ebony.com

So just leave, right?


Emotions

Stuff

(Lots of Stuff)

image courtesy of Flickr/curryrose

Data

Average US speed:

20Mb / sec

The Right Internet Package for You

AT&T U-verse High Speed Internet provides the speed, reliability, and connectivity you deserve.

Expand All >

Pro - 3Mbps	$29.95/mo	for 12mos. 1-yr term req'd	Check availability >
Elite - 6Mbps	$34.95/mo	for 12mos. 1-yr term req'd	Check availability >
Max Plus - 18Mbps	$44.95/mo	for 12 mos. 1-yr term req'd	Check availability >
Power - 45Mbps	$64.95/mo	for 12mos. 1-yr term req'd	Check availability >

Average US speed:

20Mb / sec

150MB / min

~9GB / hour

Assume: 1TB of data

It would take
4.75 days
just to download

images courtesy of http://www.datacenterknowledge.com/

image courtesy of http://www.datacenterknowledge.com/

1 Container:

2,000 Servers

2 Petabytes

(Roughly)

How long to download that?

9,500 Days

26 Years!

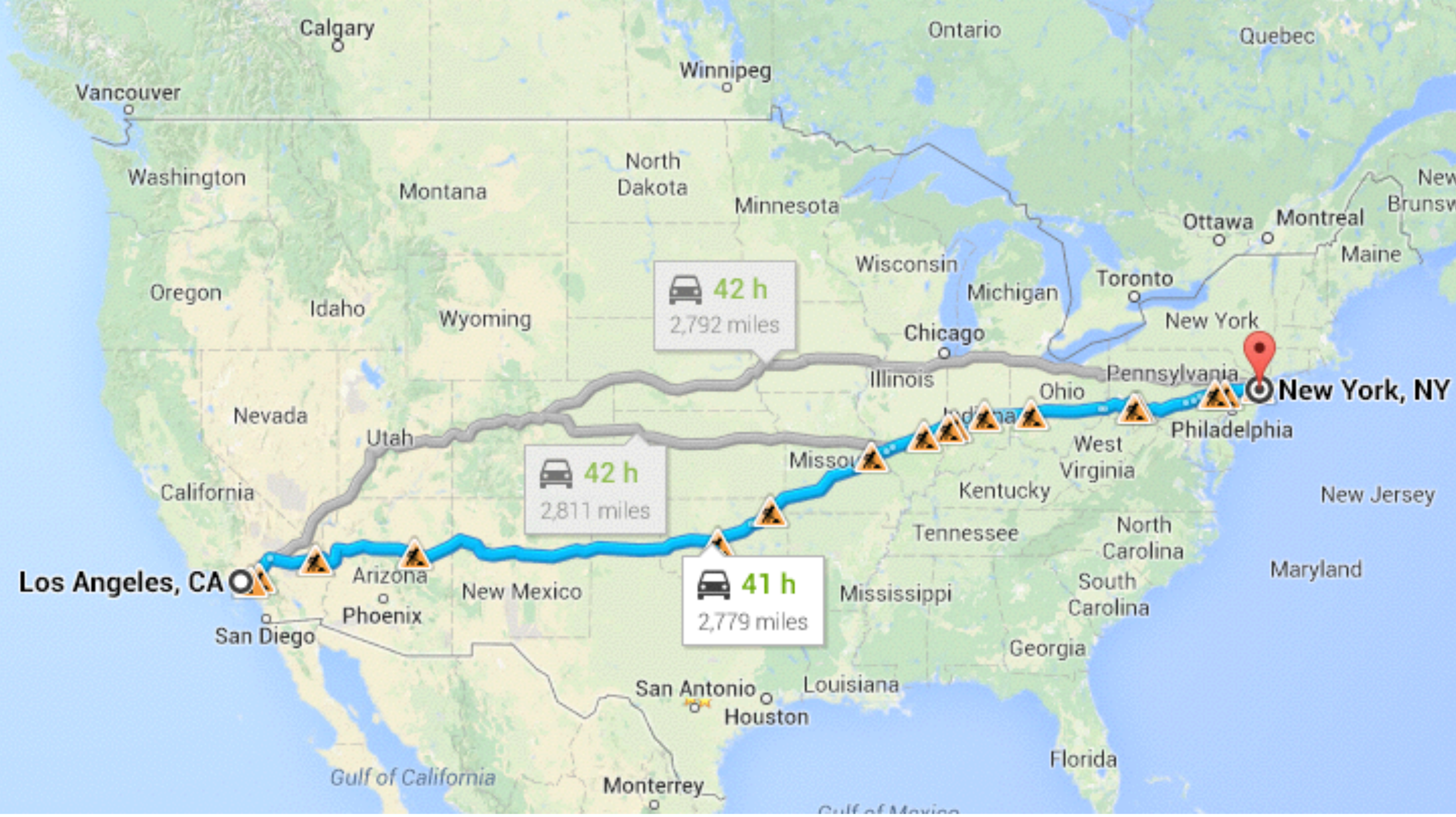
Bandwidth Charges

Rackspace: $0.12/GB

1 TB = $120

2 PB = $250,000

Transfer:
LA to NYC


Calgary
Ontario
Quebec
Winnipeg
Vancouver
Washington
Montana
North Dakota
Minnesota
Ottawa
Montreal
Maine
Wisconsin
Michigan
Toronto
Oregon
Idaho
Wyoming
42 h
2,792 miles
Chicago
New York
Illinois
Pennsylvania
New York, NY
Ohio
Nevada
Utah
Philadelphia
West Virginia
42 h
2,811 miles
California
Kentucky
New Jersey
Tennessee
North Carolina
Maryland
Los Angeles, CA
Arizona
New Mexico
41 h
2,779 miles
Mississippi
South Carolina
Phoenix
San Diego
Georgia
San Antonio
Louisiana
Houston
Florida
Gulf of California
Monterrey

41 Hours

2800 miles

Truck Averages

6 MPG

$4 / Gallon

Total:

$1,900

Summary

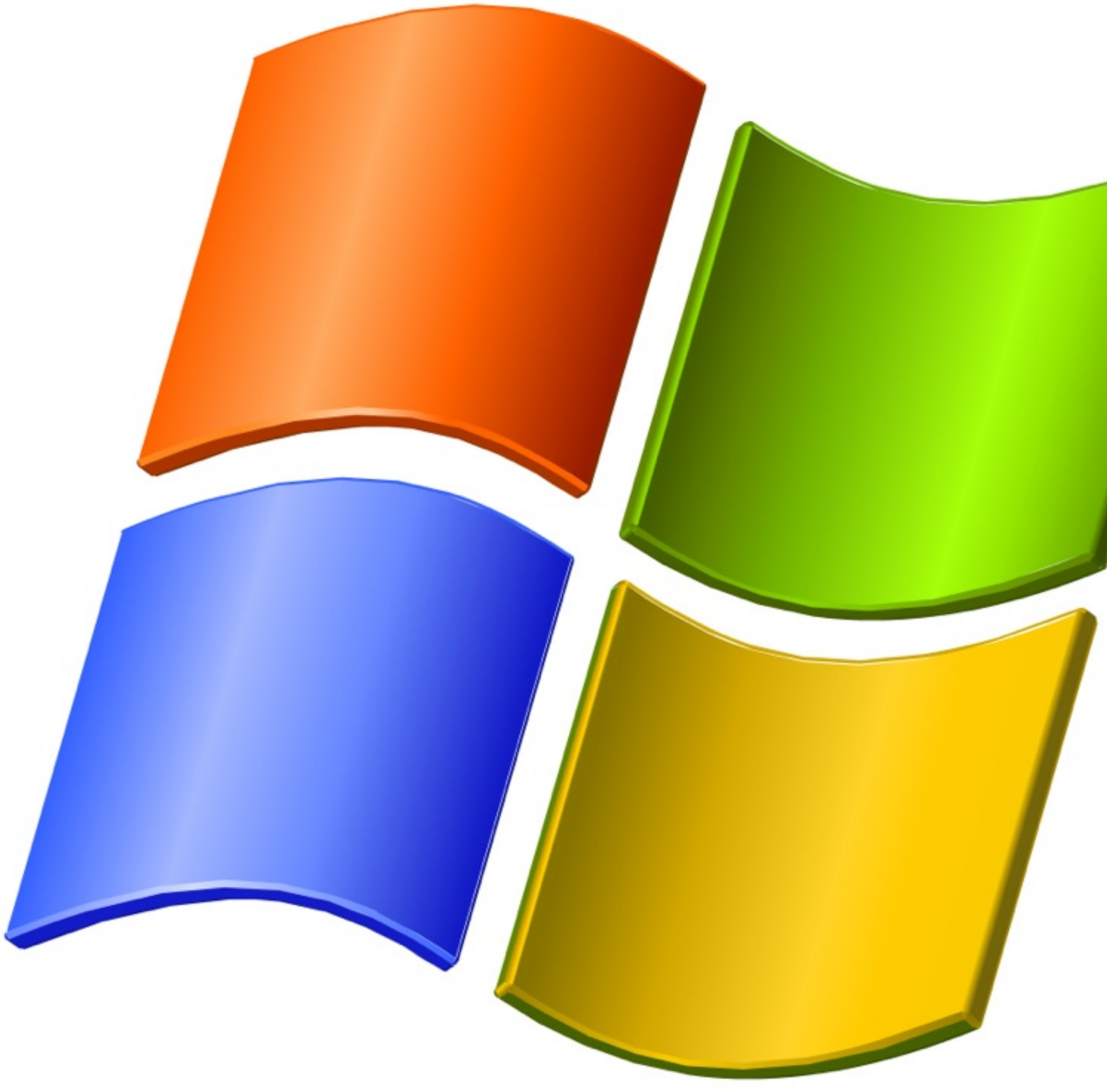
	Download	Truck
Time	26 Years	A week
Money	$250,000	$2,000

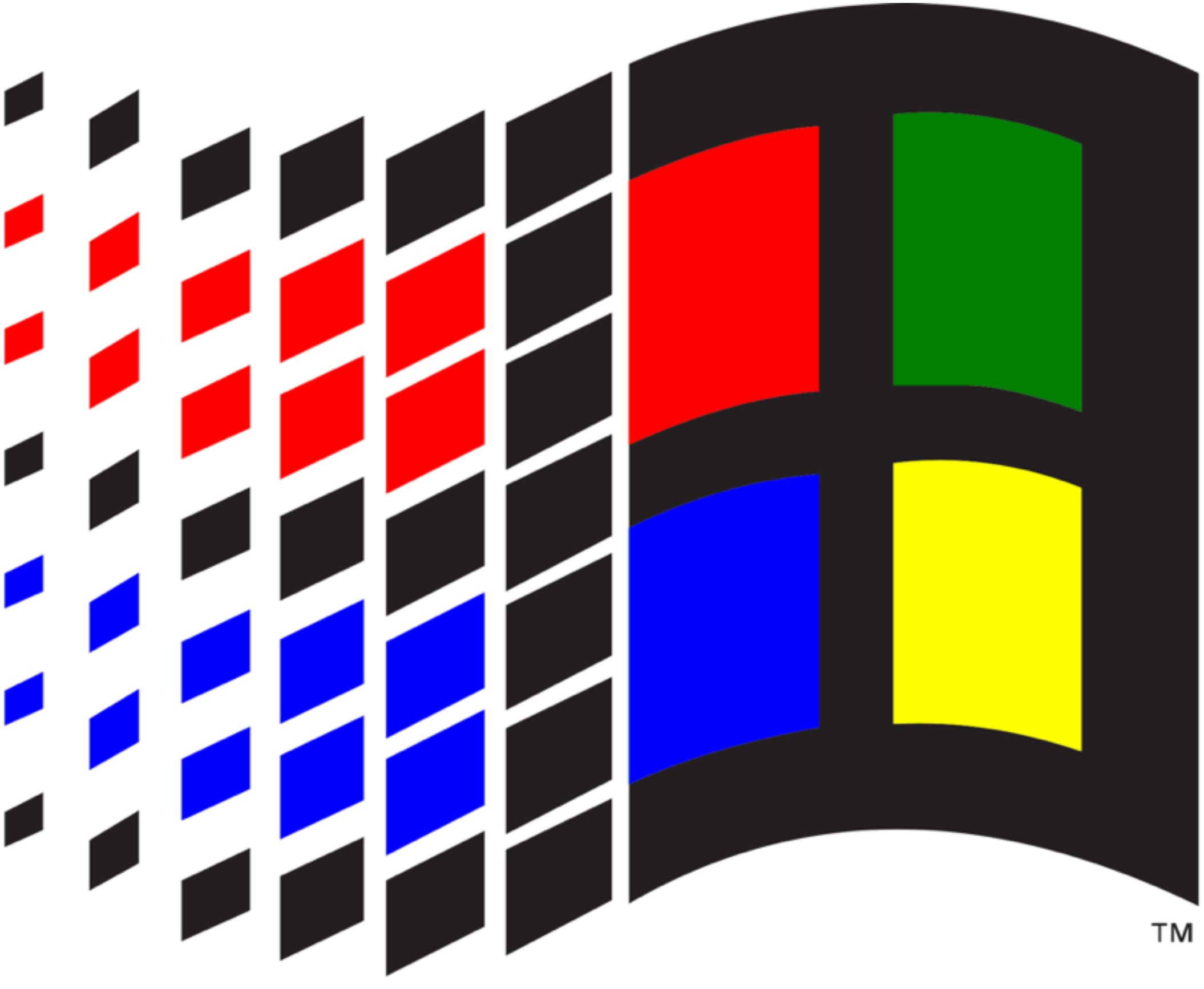
Data Gravity

APIs

Application Interoperability

A story...




TM

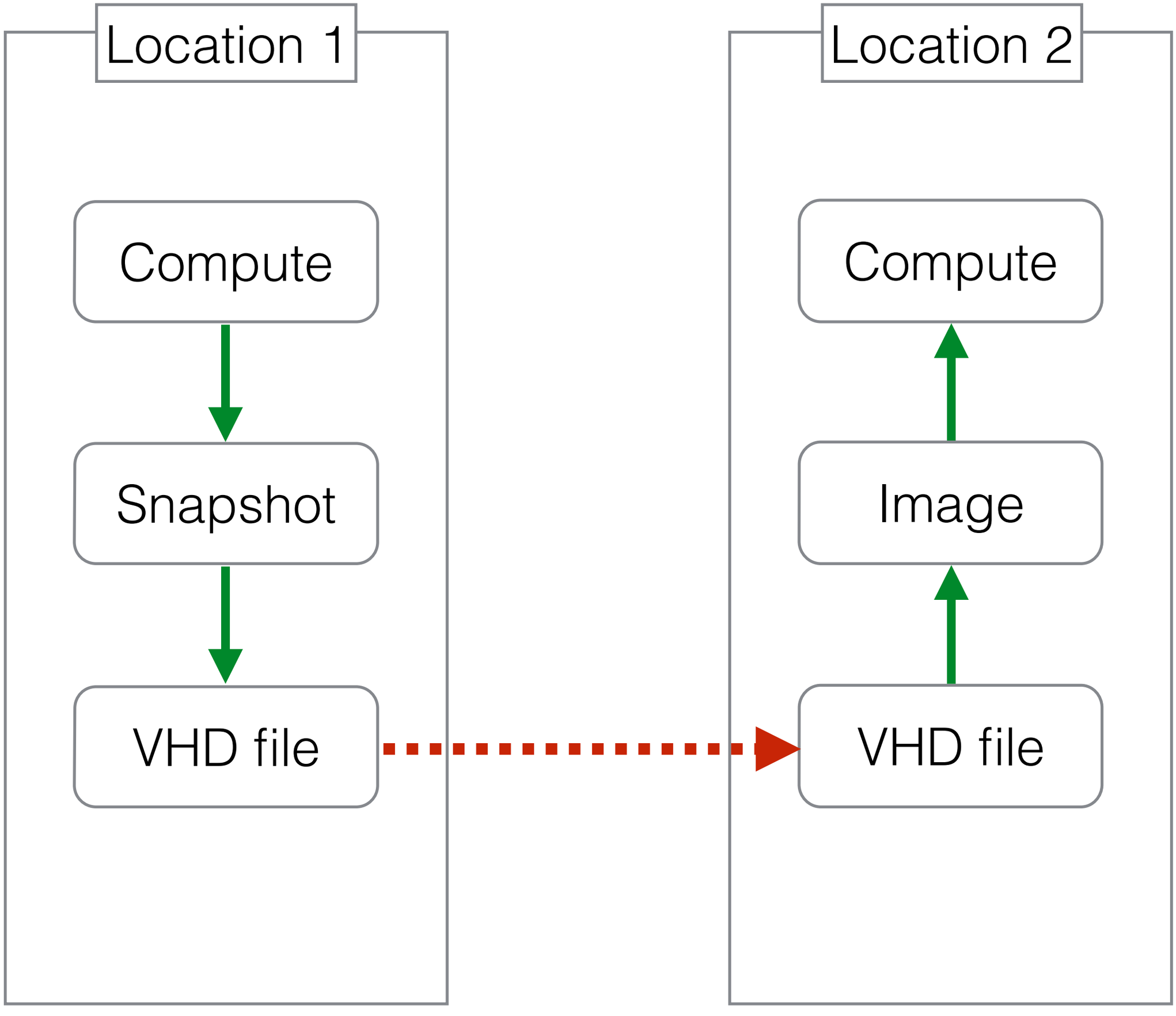
What You Can do to Avoid Lock-in

Deployment Automation

ANSIBLE

Great When You're Getting Started

Moving Compute Resources


Location 1
Compute
Snapshot
VHD file
Location 2
Compute
Image
VHD file

Code

Pyrax

Python SDK for OpenStack Clouds

Setting Up

```
#!/usr/bin/env python
# -*- coding: utf-8 -*-
from __future__ import print_function

import datetime
import Queue
import threading
import time

import pyrax
import pyrax.exceptions as exc
import pyrax.utils as utils
```

Create Contexts

```
rs = pyrax.create_context(env="rackspace")
rs.keyring_auth()

hp = pyrax.create_context(env="hp")
hp.keyring_auth()
```

Create Clients

```
rs_region = "ORD"
hp_region = "region-a.geo-1"
```

```
rs_compute = rs.get_client("compute", rs_region)
rs_obj = rs.get_client("object_store", rs_region,
         public=False)
rs_image = rs.get_client("image", rs_region)

hp_compute = hp.get_client("compute", hp_region)
hp_obj = hp.get_client("object_store", hp_region)
hp_image = hp.get_client("image", hp_region)
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hp_compute = hp.get_client("compute", hp_region)
hp_obj = hp.get_client("object_store", hp_region)
hp_image = hp.get_client("image", hp_region)
```

Take a Snapshot

```
rs_cont_name = "export_images"
hp_cont_name = “upload_images"
```

```
instance = rs_compute.servers.find(name="glue_server")
snap = instance.create_image(instance, "glue_snap")
utils.wait_for_build(snap, verbose=True)
```

Take a Snapshot

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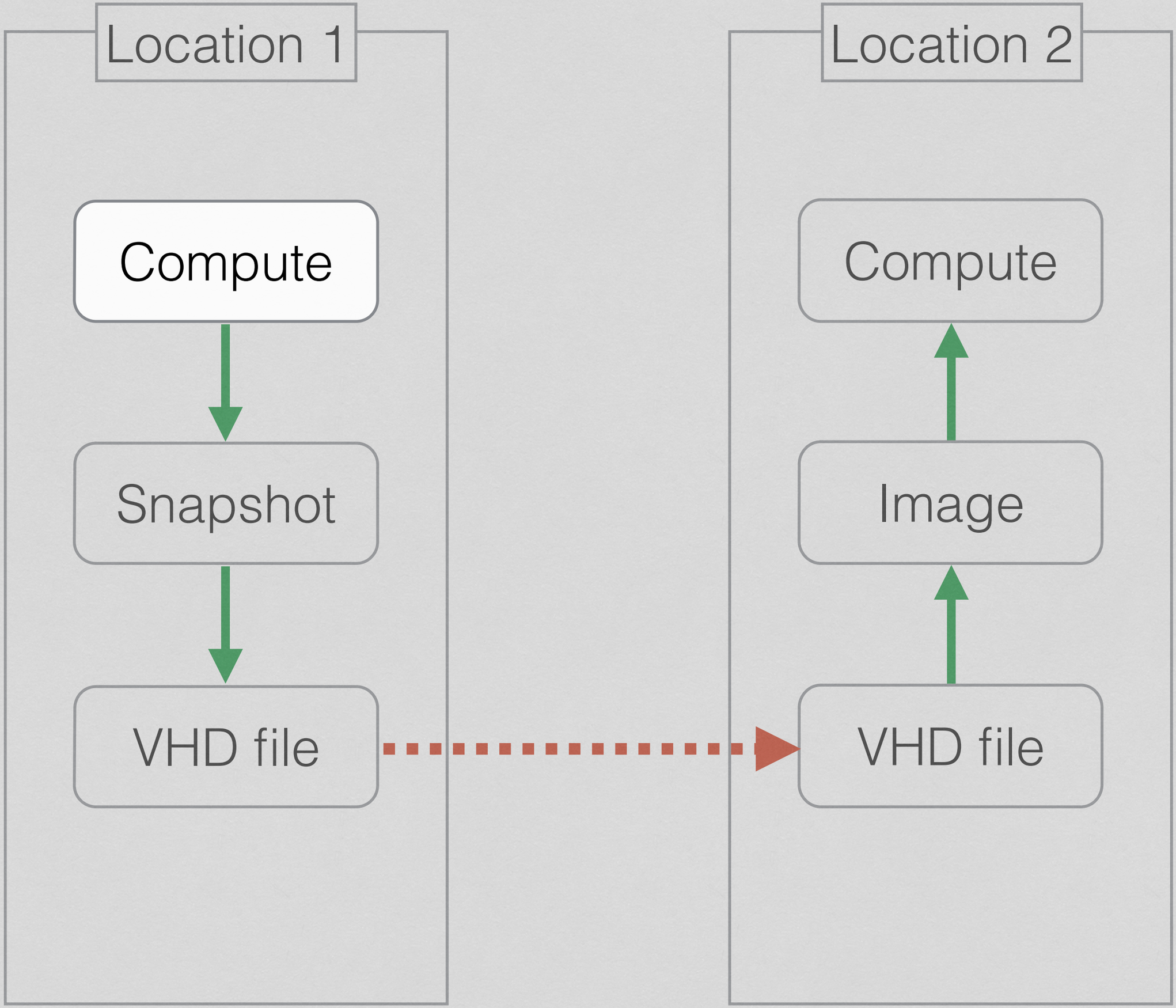
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VHD file
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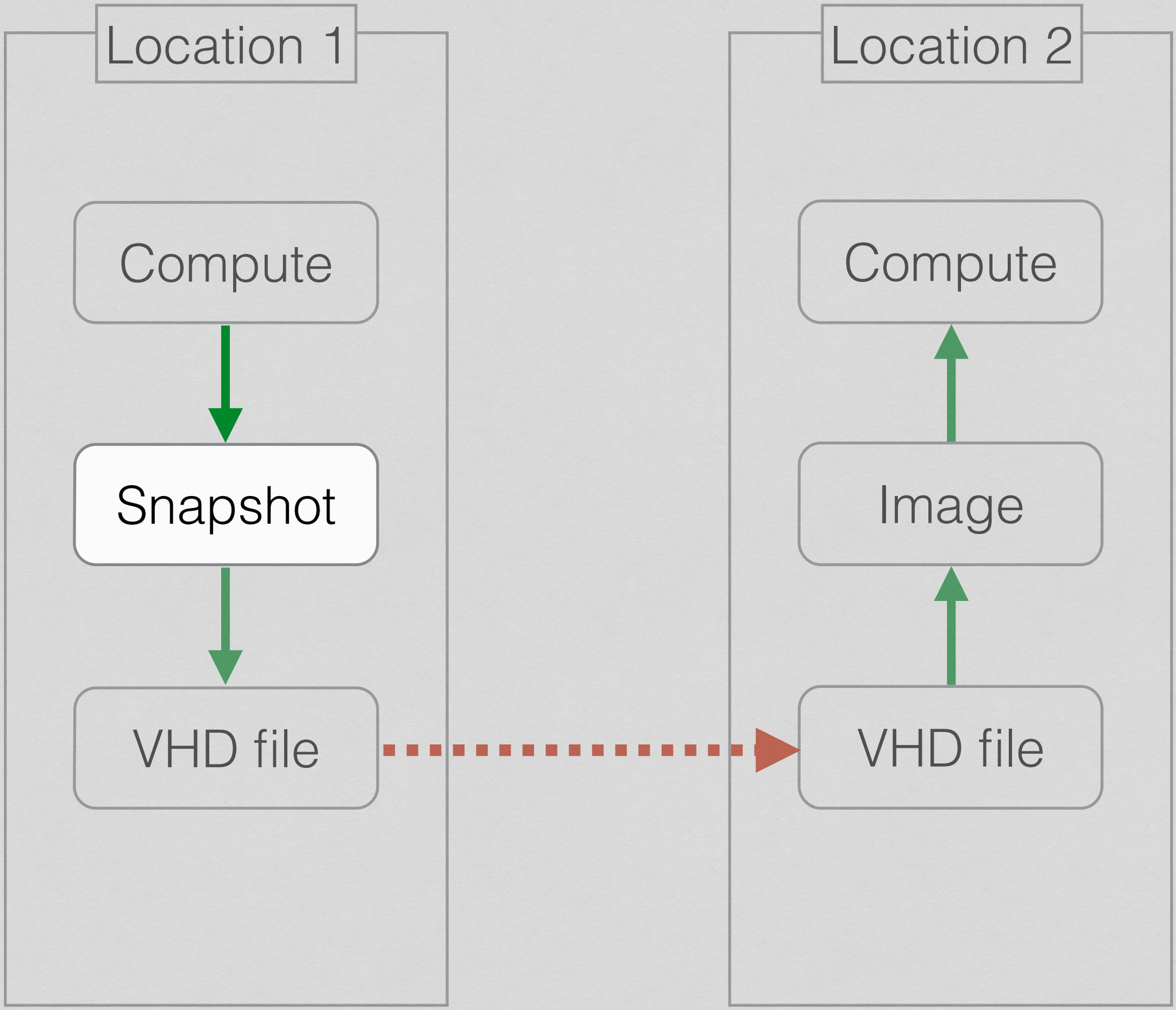
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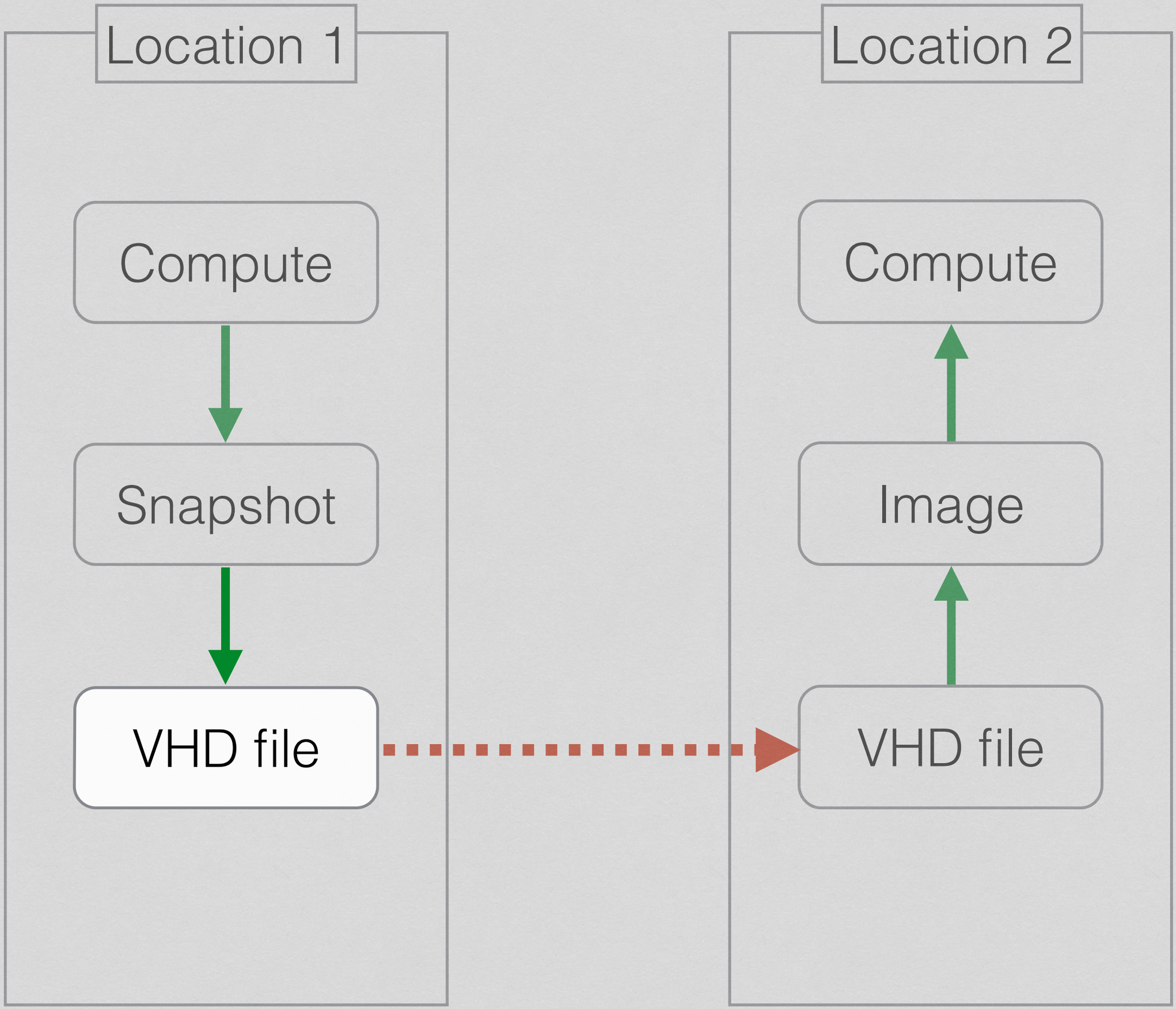
Export the Image

```
task = rs_image.export_task(snap, rs_cont_name)
utils.wait_for_build(task, verbose=True,
        desired=["success", "failure"])
```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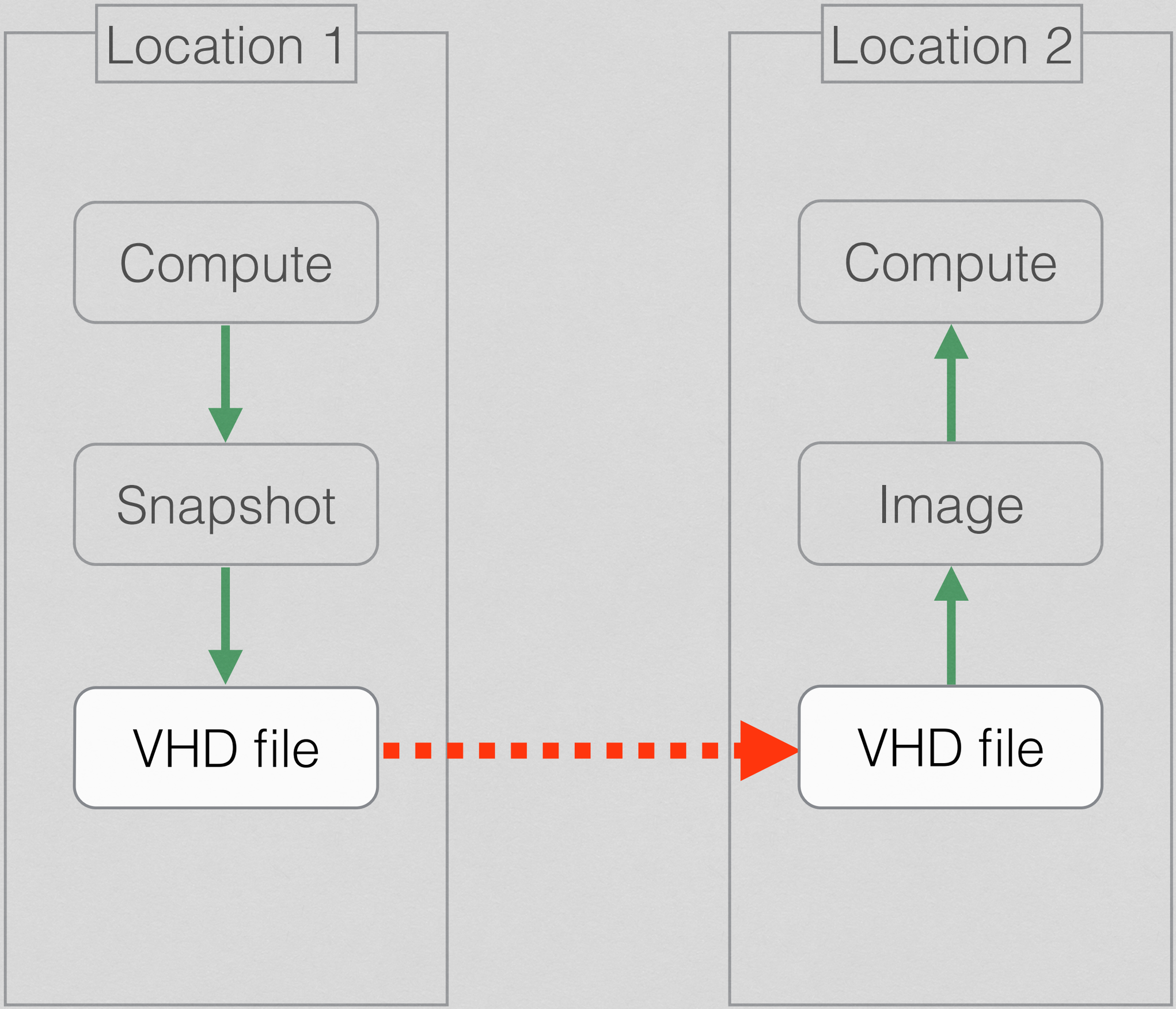
Transfer to HP

```
obj_name = "%s.vhd" % snap.id
start = time.time()
dlo_parts = rs_obj.dlo_fetch(rs_cont_name, obj_name)
dlo_upload(hp, hp_region, hp_cont_name, dlo_parts,
        obj_name)
end = time.time()
elapsed = end - start
logit("It took %8.2f seconds to transfer "
        "the image." % elapsed)
```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```

```
def dlo_upload(ctx, region, cont, parts, base_name,
        chunk_size=None, max_threads=None):
    """
    Uploads a DLO (Dynamic Large Object) that has been fetched
    into a list of generator objects (typically by dlo_fetch)
    to the specified container.

    It uses a default chunk_size of 64K; you may pass in a
    different value if it improves performance.

    By default this creates a thread for each 'part'. If
    you wish to reduce that for any reason, pass a limiting
    value to 'max_threads'.
    """
    DEFAULT_CHUNKSIZE = 65536
    if chunk_size is None:
        chunk_size = DEFAULT_CHUNKSIZE

    class Uploader(threading.Thread):
        def __init__(self, client, cont, queue, num):
            super(Uploader, self).__init__()
            self.client = client
            logit("Uploader", num, "created.")
            self.cont = cont
            self.queue = queue
            self.num = num

        def run(self):
            while True:
                try:
                    job = self.queue.get(False)
                    nm, gen = job
                    logit("Uploader #%s storing '%s'." % (self.num, nm))
                    self.client.store_object(self.cont, nm, gen,
                            chunk_size=chunk_size, return_none=True)
                    logit("Uploader #%s finished storing." % self.num)
                except Queue.Empty:
                    break
            logit("**DONE** Uploader #%s terminating." % self.num)

    queue = Queue.Queue()
    for part in parts:
        queue.put(part)
    num_threads = len(parts)
    if max_threads is not None:
        num_threads = min(num_threads, max_threads)

    workers = []
    for num in range(num_threads):
        clt = ctx.get_client("object_store", region, cached=False)
        worker = Uploader(clt, cont, queue, num)
        workers.append(worker)
    for worker in workers:
        worker.start()
    for worker in workers:
        worker.join()

    # Upload the manifest
    headers = {"X-Object-Manifest": "%s/%s" % (cont, base_name)}
    clt = ctx.get_client("object_store", region, cached=False)
    clt.store_object(cont, base_name, "", headers=headers, return_none=True)
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    # Upload the manifest
    headers = {"X-Object-Manifest": "%s/%s" % (cont, base_name)}
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```

Import the Image

```
data = hp_obj.fetch(hp_cont_name, obj_name)
```

```
new_image = hp_image.create("glue_image", data=data)
```

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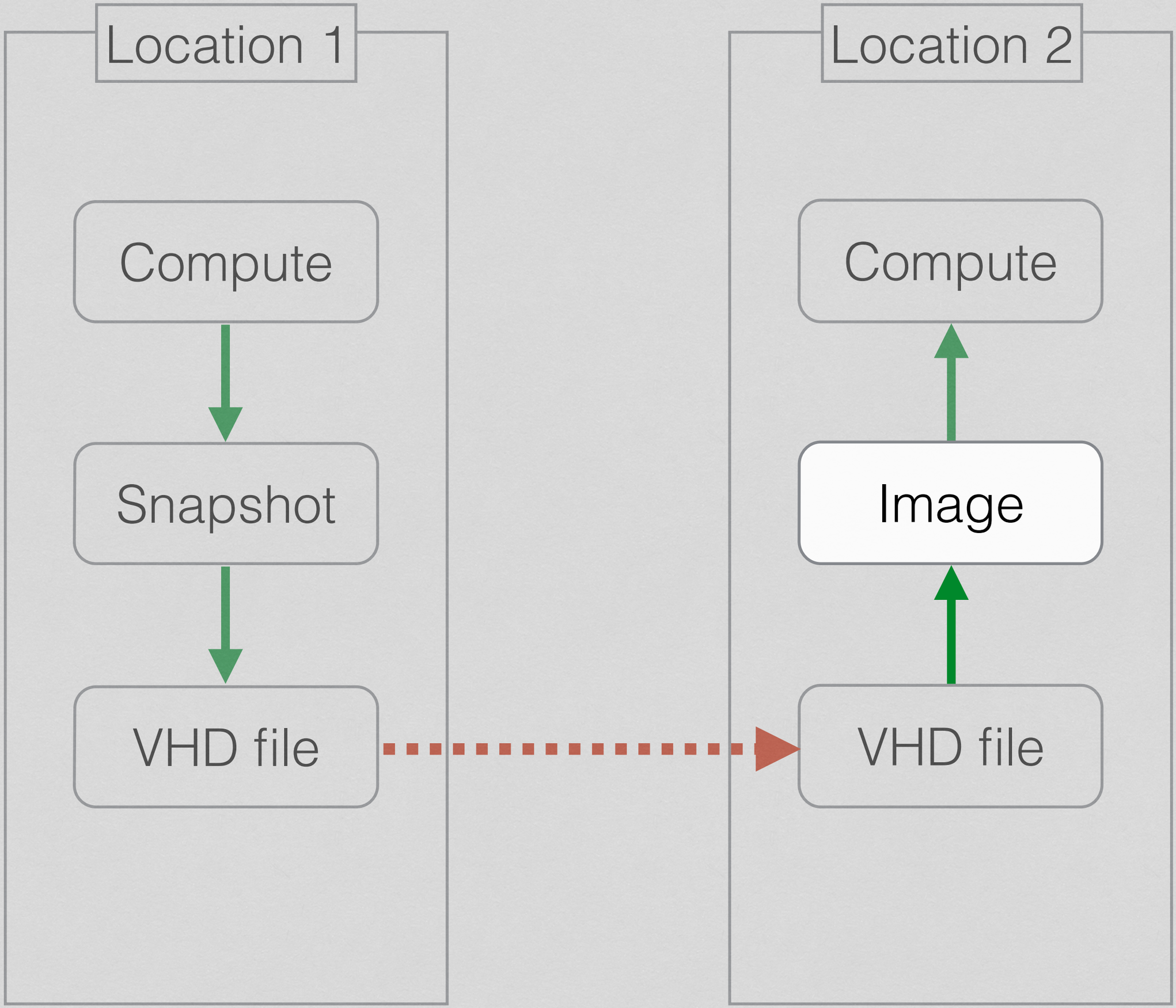
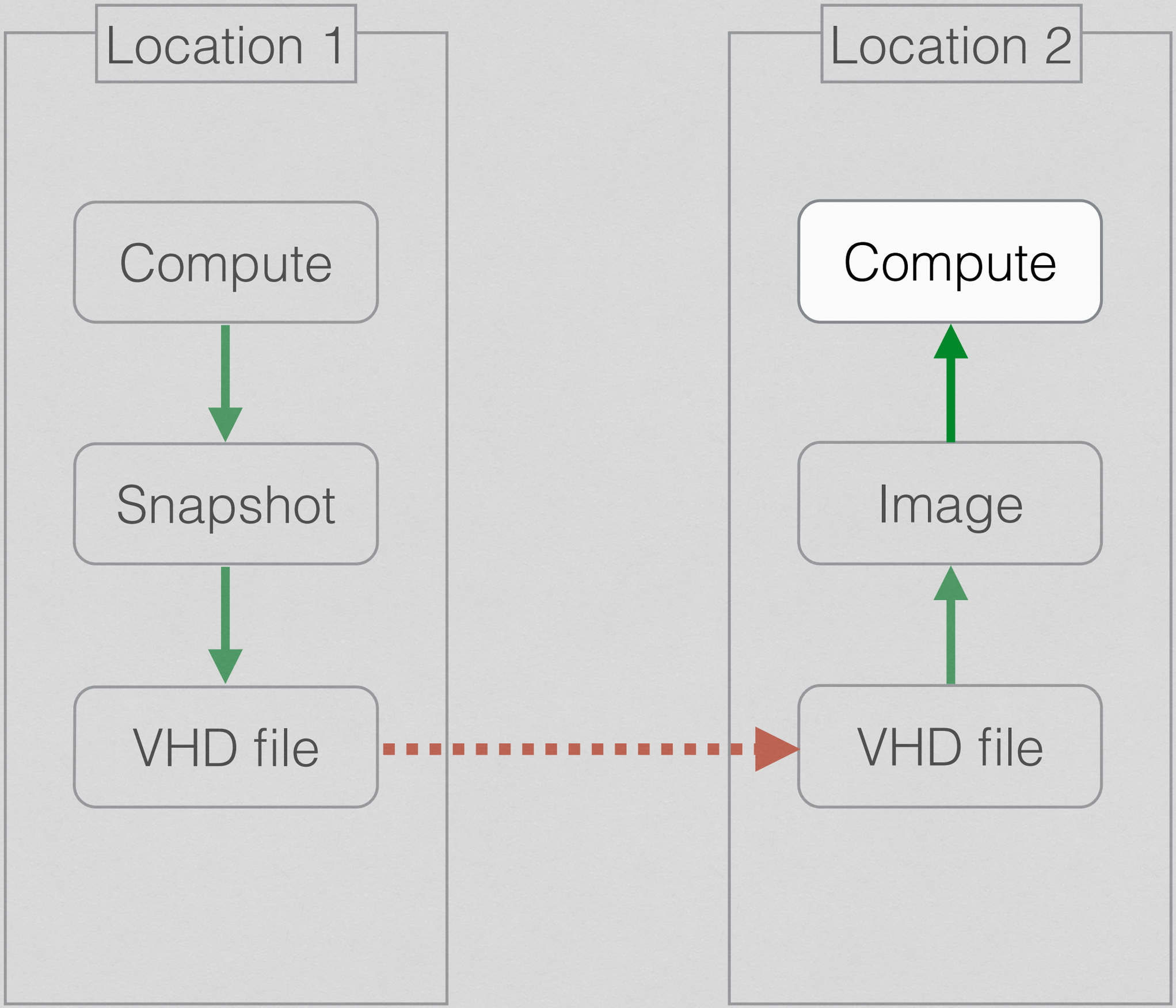

Location 1
Compute
Snapshot
VHD file
Location 2
Compute
Image
VHD file

Re-create the Instance

```
hp_instance = hp_compute.servers.create("hp_glue_server",
          image=new_image, flavor=some_flavor)
utils.wait_for_build(hp_instance, verbose=True)
```

```
logit("New Instance Networks:", hp_instance.networks)
```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That's It!

Thank You!

Ed Leafe

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ed.leafe@rackspace.com

Twitter: EdLeafe
G+: EdLeafe

Script and Slides: https://github.com/EdLeafe/gluecon2014