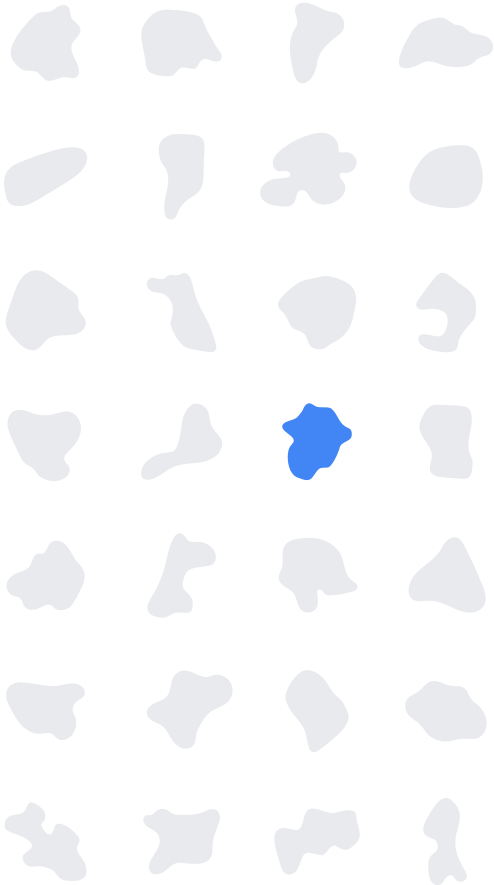
Good morning, Taipei

November 7, 2018



Google Cloud
SUMMIT

5分鐘內將雲端搬遷至 Google Cloud - 透過 Velostrata 協助，快速將工作負載量遷移

Wayne An
Customer Engineer **客戶工程師**
Google Cloud

Migrate to Google Cloud in 5 mins - using Velostrata for fast workload migration

Wayne An, Customer *Engineer, Google Cloud*

WEDNESDAY, NOV 7

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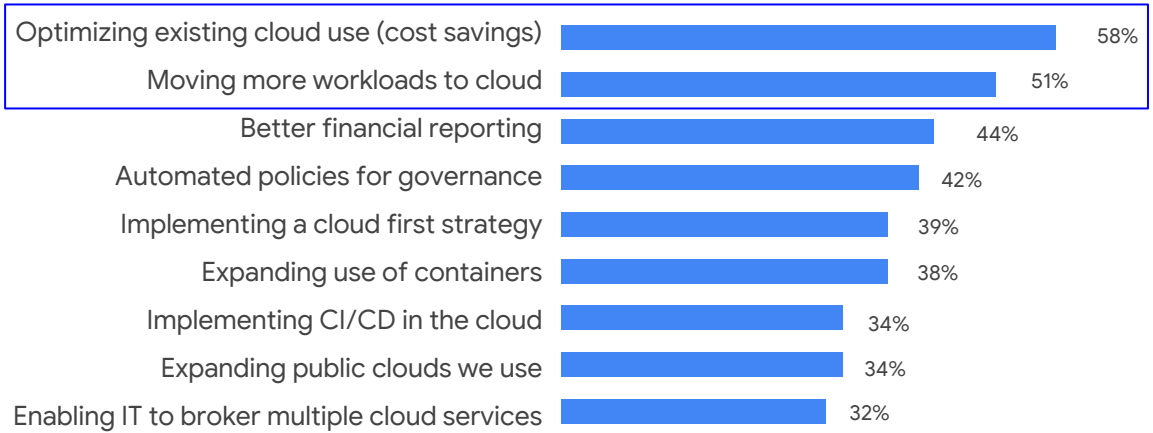
The big migration: enterprises shifting to cloud

Cloud initiatives in 2018



Source: Rightscale 2018 State of the Cloud Report

"The fastest-growing segment of the market is cloud system infrastructure services (infrastructure as a service or IaaS), which is forecast to grow 35.9 percent in 2018 to reach $40.8 billion"

Source: Gartner, https://www.gartner.com/newsroom/id/3871416

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Key challenges of enterprise migration

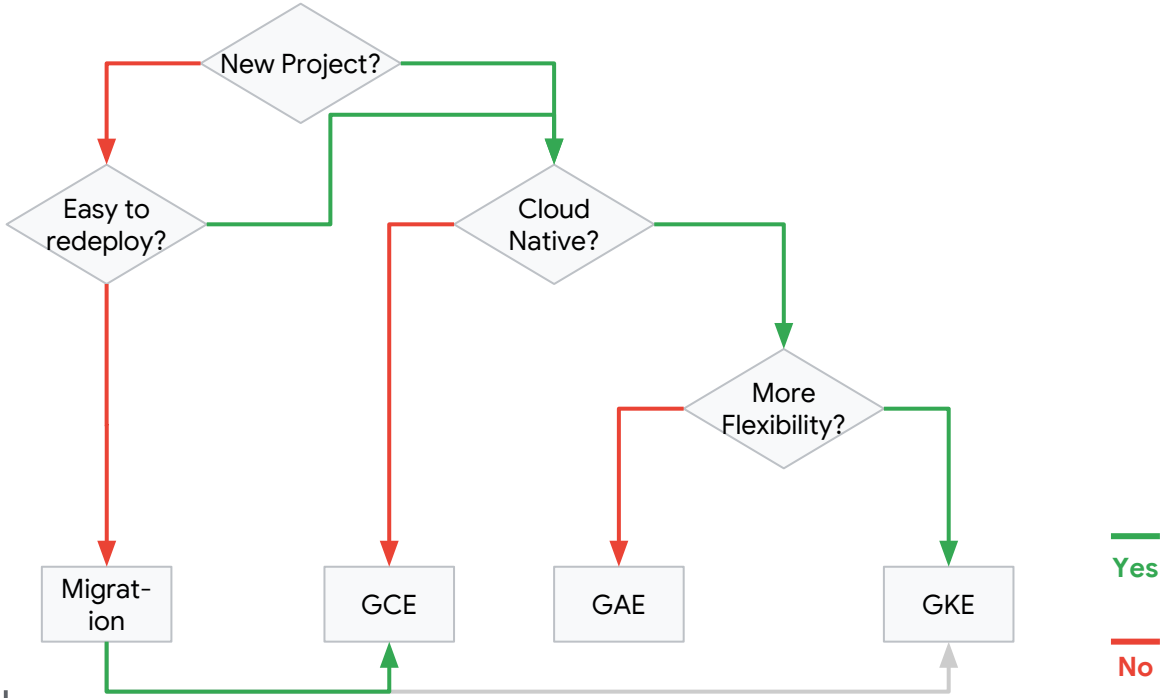
94%

of enterprise migration projects face delays, over budget

2017 Cloud Migration Survey, Dimensional Research

Scale	Data Center Migration: Thousands of workloads
Multi-Source	Migrate on-prem VMs, physical, other clouds
Complexity	Multi-tier apps incl. SAP, w minimized downtime
Risk	Revert to on-prem if needed (cost, performance)

Cloud migration considerations



Google Cloud

Solution: Velostrata enterprise cloud migration

Purpose-built, Enterprise-grade, field proven:

- Agentless Fast Switchover
- Cross-Cloud Migration
- Testing to Migration Automation

Free for migrations to GCP

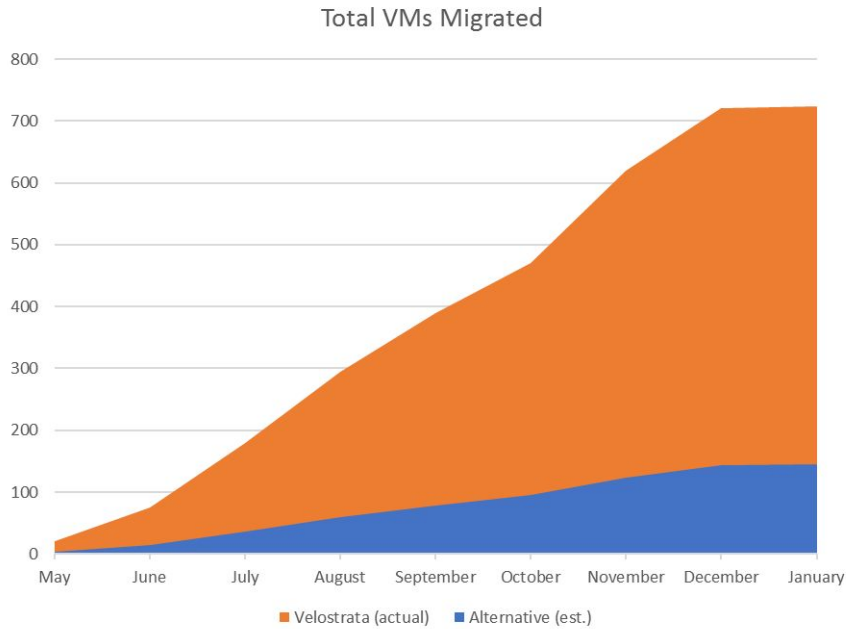
Google Cloud

The faster we migrate, the faster everyone benefits

Example: Large energy company

- 700 VMs -- Enterprise apps
  - 140 TB of data
  - 100-200 Mbps WAN link
- Completed migration in 6 mo.
- 5X faster than projections w/ other alternatives
- Cost Savings, over $1M est.

Faster migration =
Faster agility, lower cost of migration.



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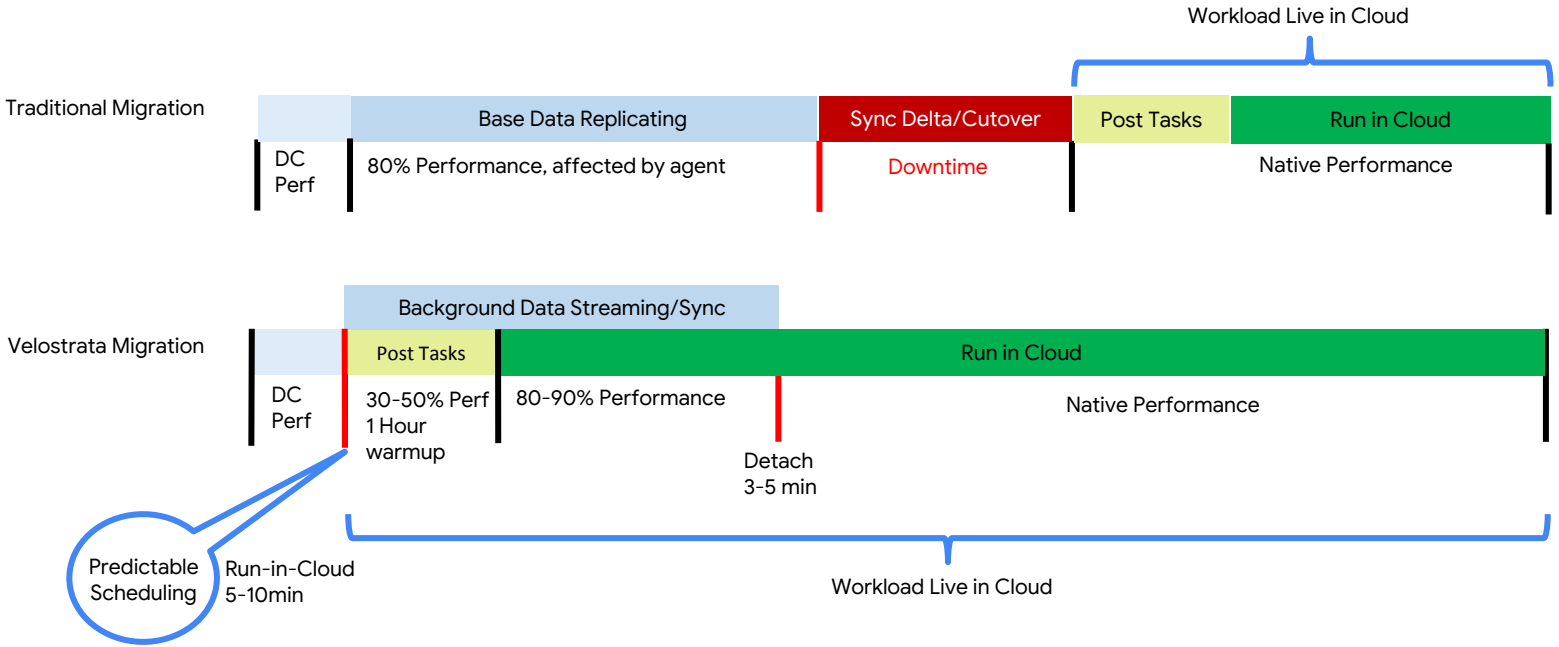
Architecture

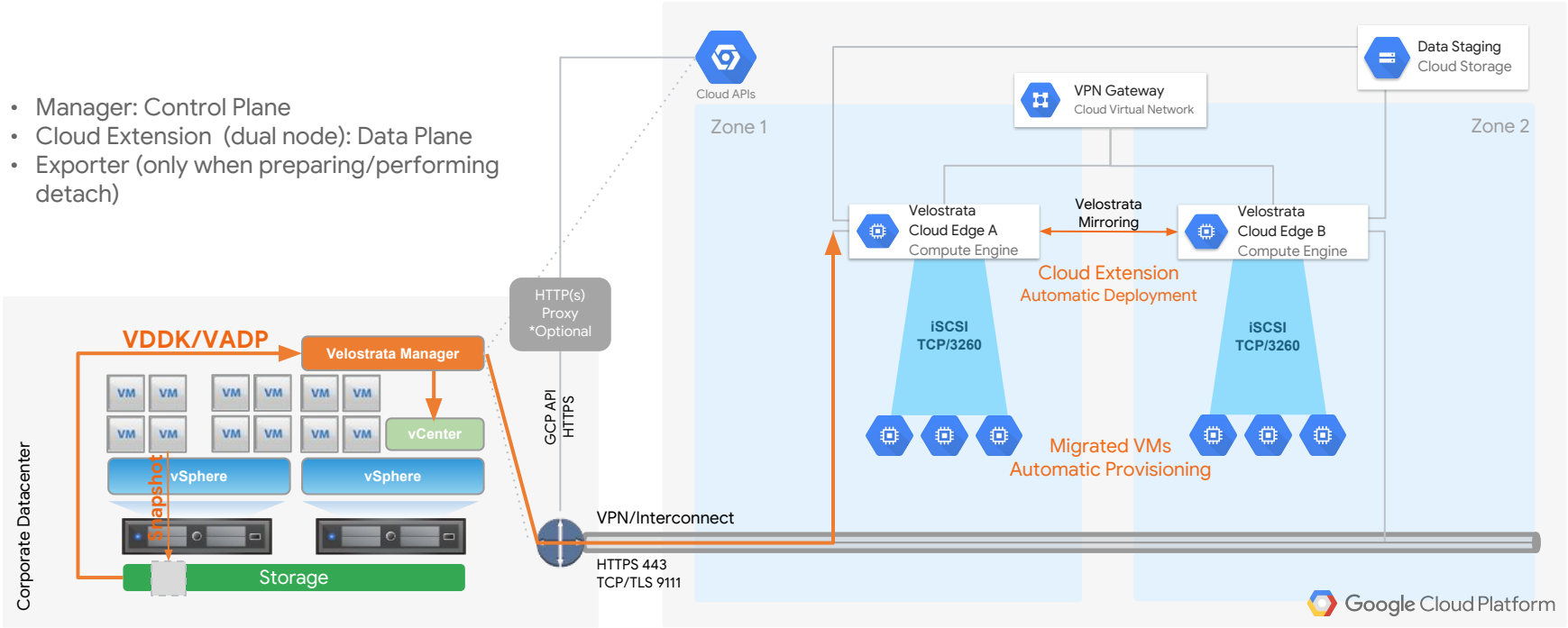
Velostrata: Migrate VM to Cloud within Mins (Patented Technology)



Google Cloud

Reference Deployment on GCP

- Manager: Control Plane
- Cloud Extension (dual node): Data Plane
- Exporter (only when preparing/performing detach)



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On-prem Prerequisites

- vSphere v5.5 U1+; v6.0 U1+ or v6.5 with vSphere Web Client installed
- On-prem Velostrata virtual appliance requires: 2 vCPU, 4 GB RAM, ~60 GB disk
  - Virtual appliance image (OVF) provided by Velostrata
  - Internet access, DNS for cloud provider control API
  - Velostrata Service User & Role
- Optional use of proxy for control data
- **Cloud Extension is 50 concurrent VMs for a large CE and 10-15 VMs for a small CE**

Operating Systems support

Windows Server

Windows Server 2003* 32/64bit, 2008* 32/64bit, 2008R2, 2012, 2012R2, 2016

ubuntu

12.04*, 14.04, 16.04

CentOS

6.x,7.x

redhat

5*, 6.x, 7,x

SUSE

11 SP2+,12 SP2+

ORACLE LINUX

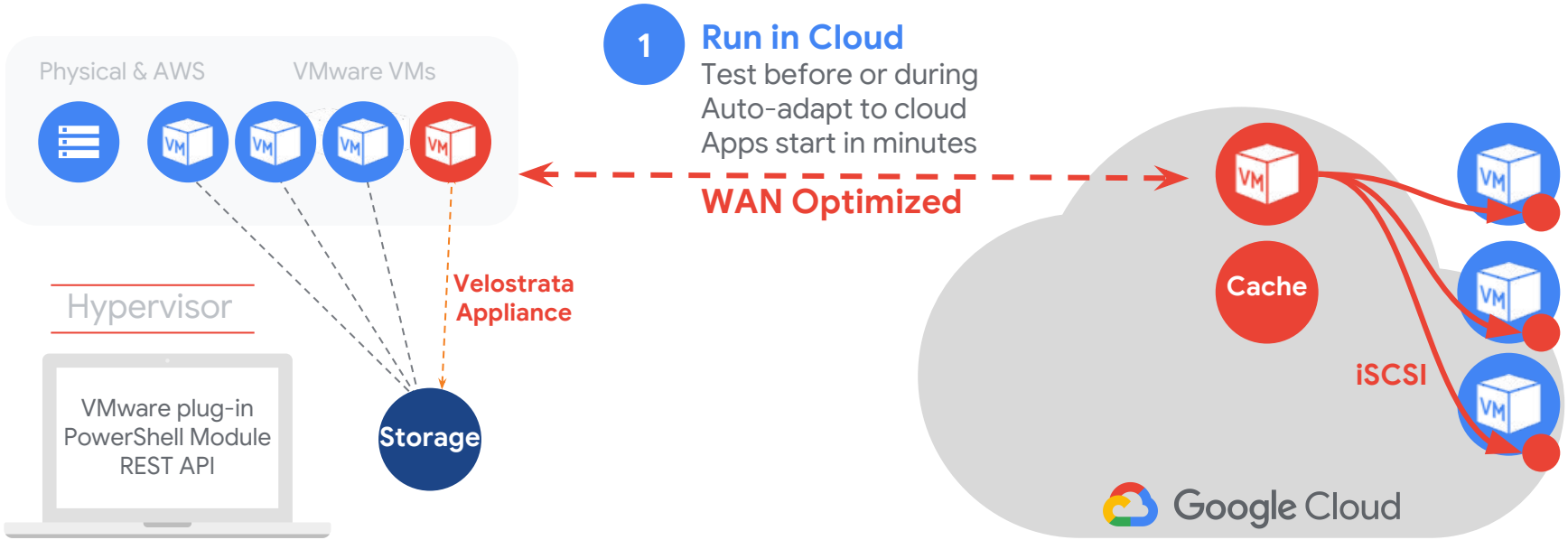
7.x (beta support)

Linux workloads require the installation of the Velostrata-prep rpm

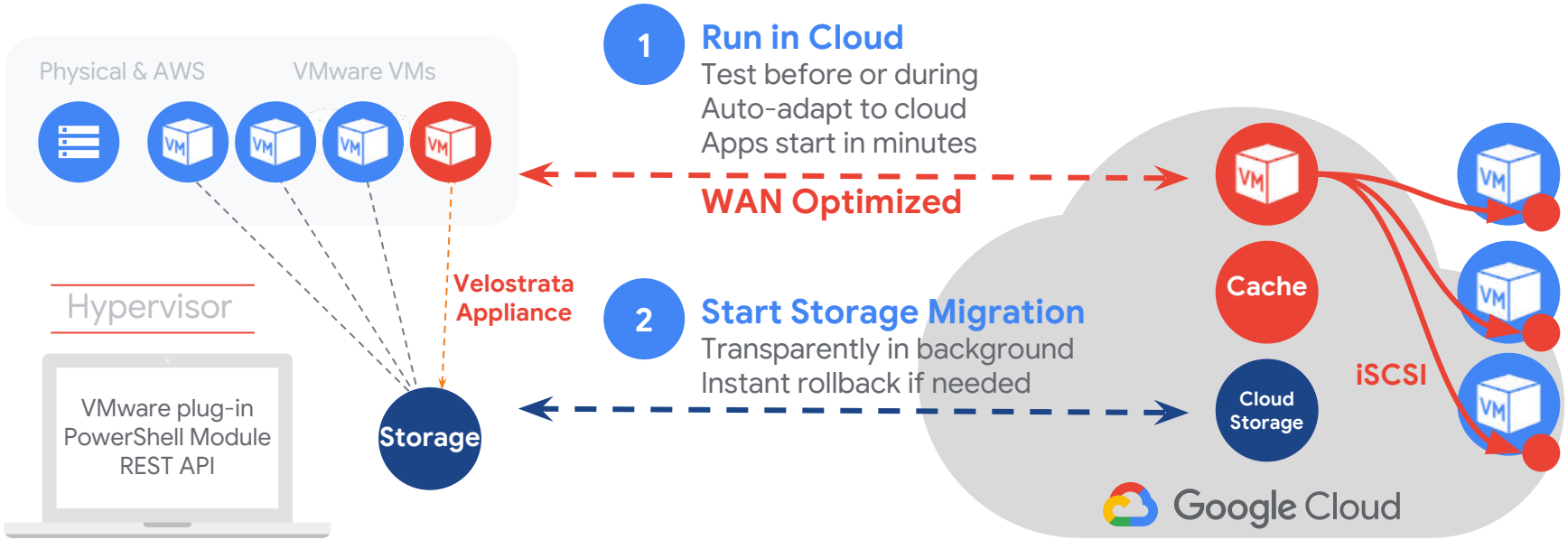
* Legacy OS – Supported in ‘Offline Migration’ mode

Google Cloud

Real-time agentless streaming technology

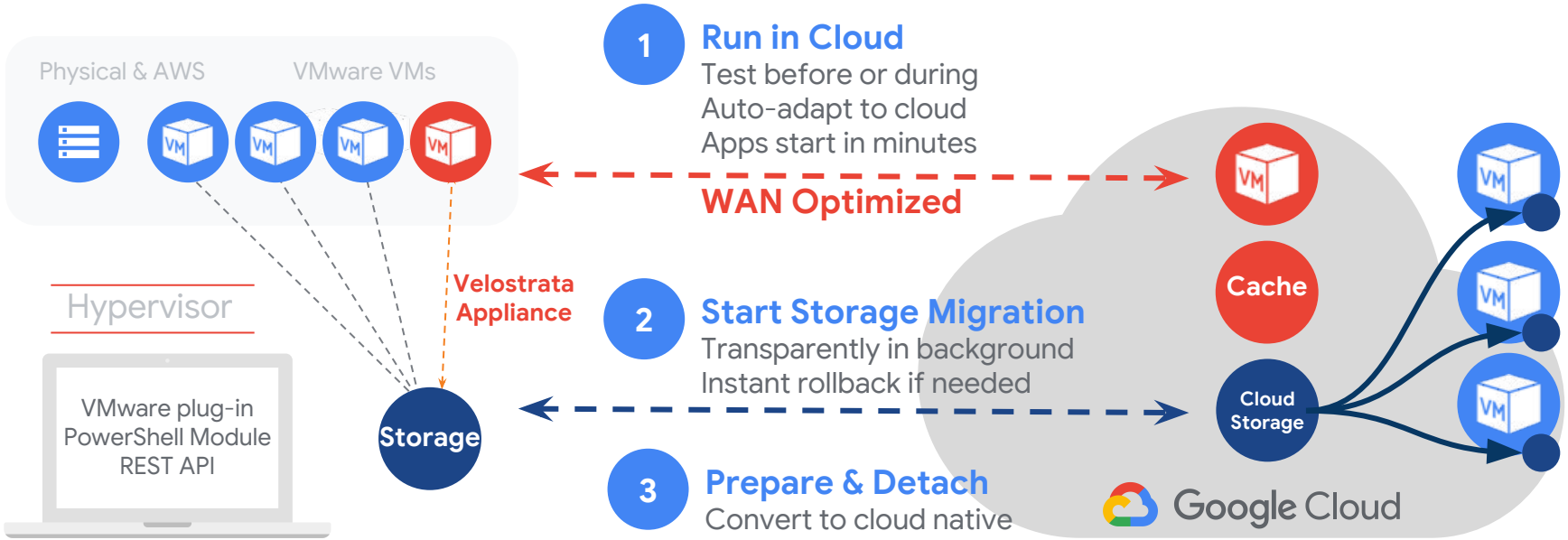


Real-time agentless streaming technology



Google Cloud

Real-time agentless streaming technology



Google Cloud

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Features

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Velostrata integration with VMware vCenter

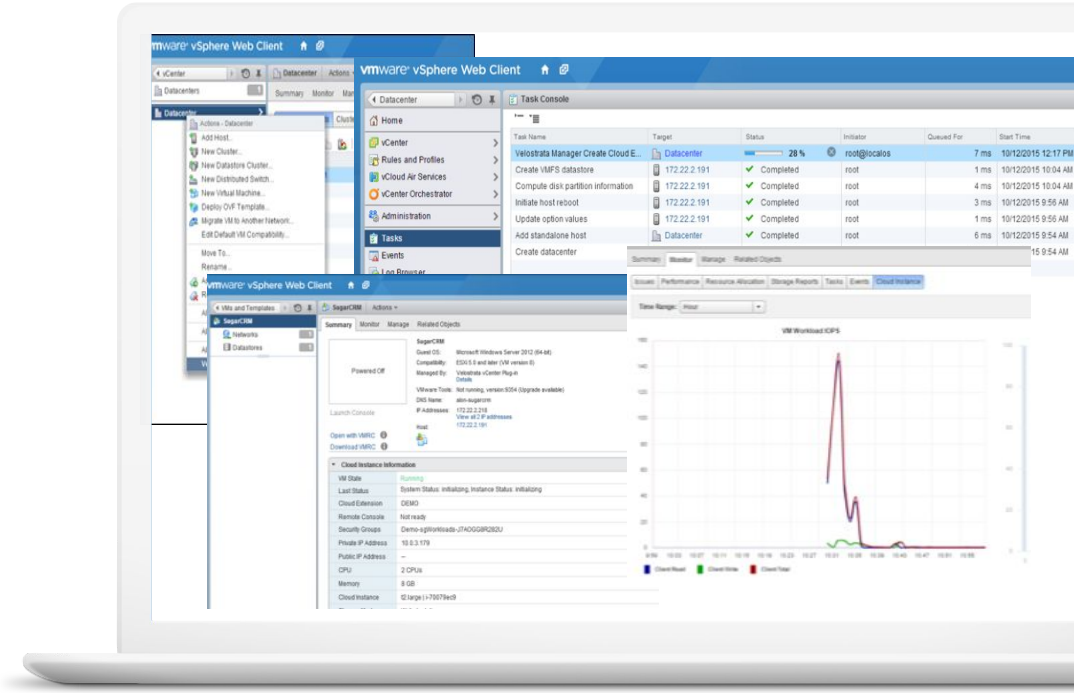
Interactive management using vCenter

- vCenter Web Client Plug-in for v5.5+
- Extends VM & vDatacenter objects
- Manage VM instances, in-place.
- Maintain administrative context

Centralized Operations Management

Integration with automation facilities using REST APIs, PowerShell Module

Use with orchestrator of choice



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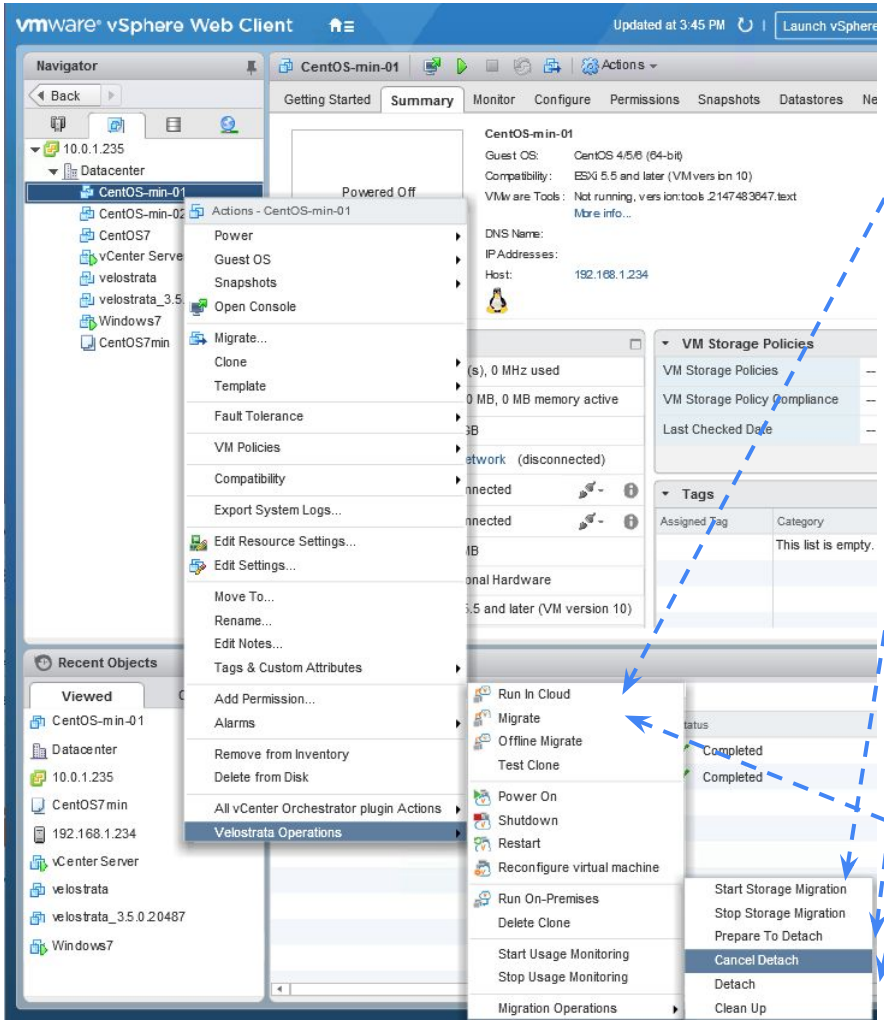

- Run in Cloud
  - Power off on-prem VM
  - Create VM on Cloud
  - Power on VM on Cloud and use iSCSI to access streaming data from on-prem
- Start Storage Migration
  - Copy data from on-prem to GCS
- Preparing to Detach
  - exporter VM/instance is created
  - Native cloud drives are created as the source VM
  - The exporter reads all the VM data from the Cloud Storage and writes to PD, continues to read and write the changes committed until the detach operation
- Detach
  - VM will shut down
  - exporter perform last synchronization
  - adjusting VM size
  - attach the native disks to the instance
  - re-start the instance
- The Migrate operation performs three subtasks:
  - Run in the cloud
  - Storage Migration
  - Prepare to detach

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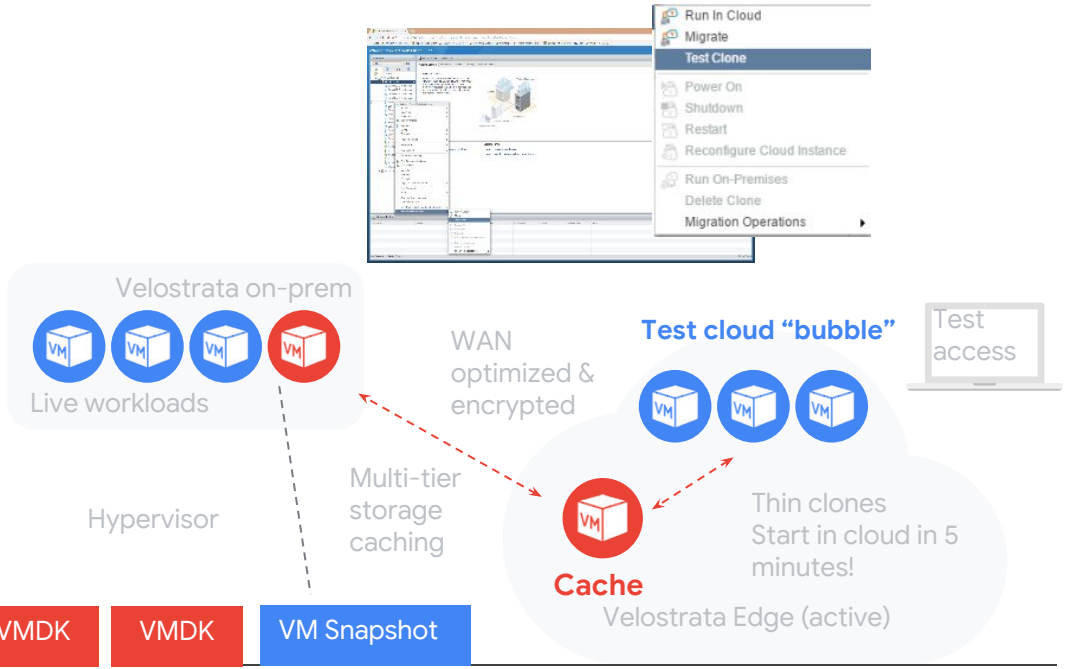
Live cloud testing with “Test Clone”

Test any workload in Cloud in minutes!

- Just a few clicks to generate
- Production Application remains **Live** on prem
- **Agentless** operation, integrated with vSphere
- No performance impact, no storage copy
- No data replication to cloud
- **Automatic cleanup** at the click of a button

Test in isolated cloud network (“**Bubble**”)



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Integrated rightsizing recommendations

“40% of instances are sized larger than is required… resulting in 11-16 percent of all cloud spend being wasted.”

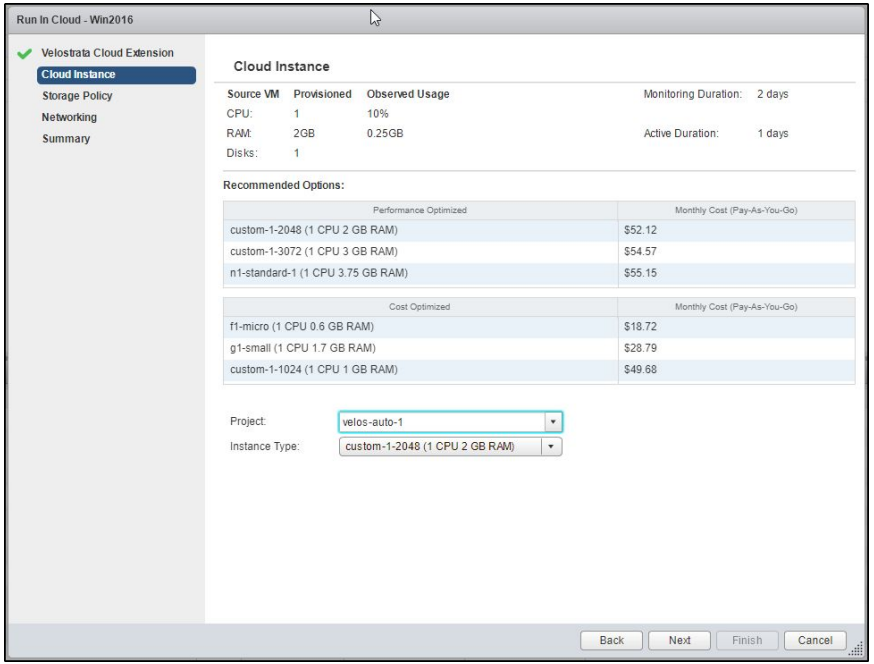
Source: Rightscale, Nov 2017

Velostrata Rightsizing:

- Monitor Workloads on VMW
- Classify into usage buckets:
  - CPU and memory
- Recommend instance types:
  - Cost or Performance Optimized

Expands cost-saving already present from:

- GCP sustained-use discount
- Custom instance types



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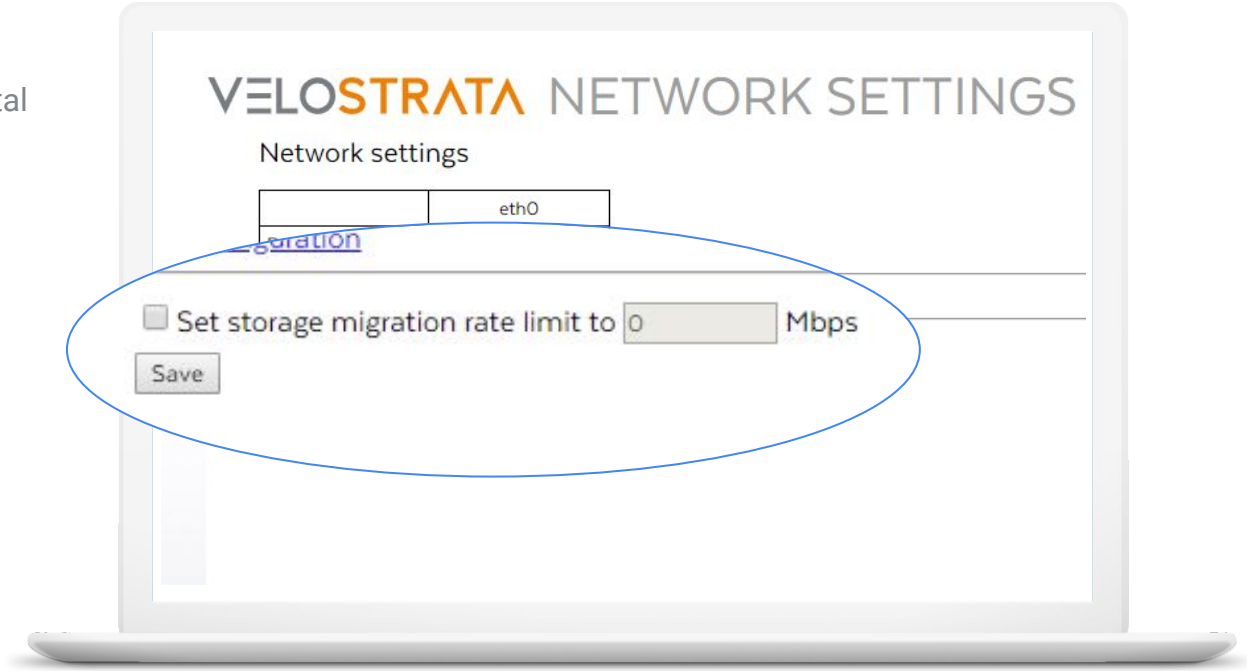
Site-level bandwidth throttling

- Configured at Site level
- Simple - automatically governs total BW usage across all targets
- Throttling background storage migration only
- Maintains priority for on-demand application access



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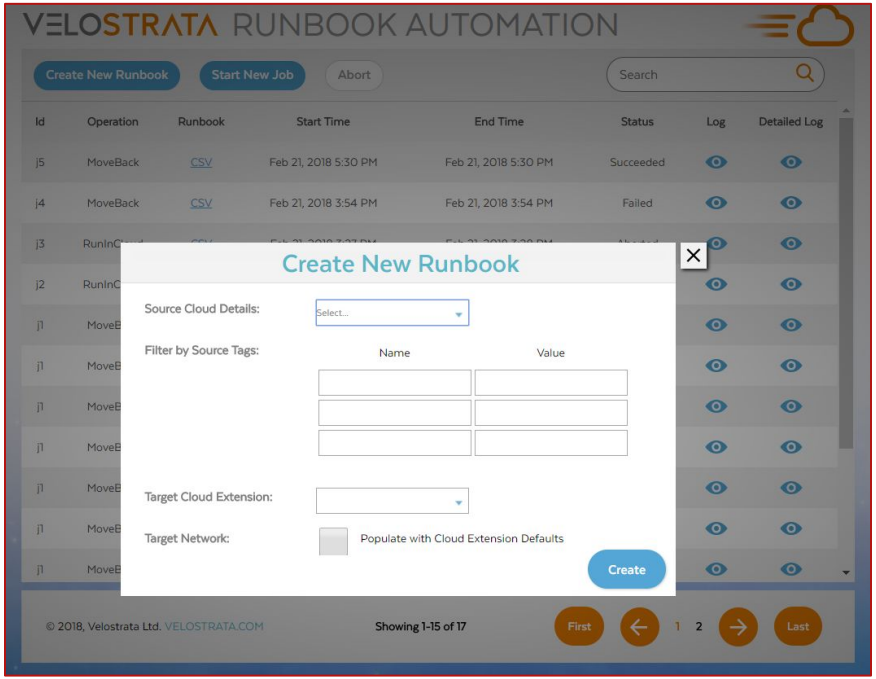
Automation Runbook, server-side orchestration

- Serves as a self-documenting, auditable migration plan
  - Describes source application components, dependencies, run order and desired end state in cloud
  - Defined CSV schema allows for verifiable generation and integration with 3rd party generators from discovery and planning phase of the migration project.
- Runbook templates generated with vCenter Inventory as source CMDB
  - Identifies source VMs and service probes per VM
  - Run groups (parallel migration)
  - Target cloud instance types
  - Target cloud network config – subnet, security groups, static IP



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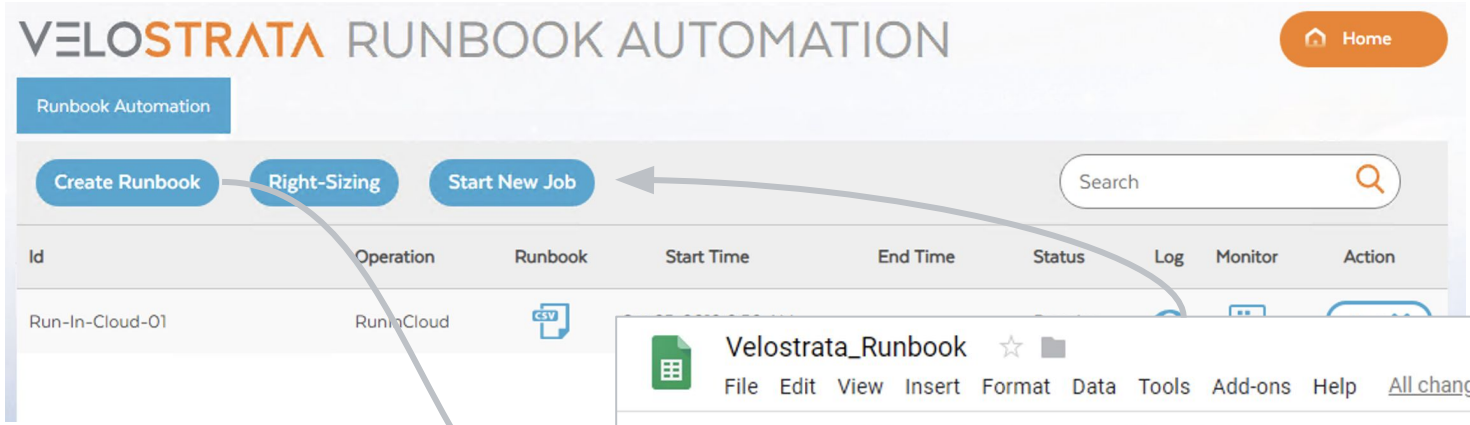
Automation Runbook, Job Creating



Velostrata_Runbook

File Edit View Insert Format Data Tools Add-ons Help All changes saved in Drive

n1-standard-1

	C	D	E	F	G	H	I
1	VmID	SourceCloudDet	OsType	OsLicense	NumCPU	MemoryGB	NumDisks
2	Datacenter/vm/CentOS7min		centos64Guest		1	0.78125	1
3	Datacenter/vm/CentOS7min-01		centos64Guest		1	0.78125	1
4	Datacenter/vm/velostrata		ubuntu64Guest		2	4	2
5	Datacenter/vm/vCenter Server		other3xLinux64Guest		2	6	12
6	Datacenter/vm/CentOS7min-02		centos64Guest		1	0.78125	1
7	Datacenter/vm/CentOS7		centos64Guest		1	2	1
8	Datacenter/vm/Windows7		windows7_64Guest		1	2	1

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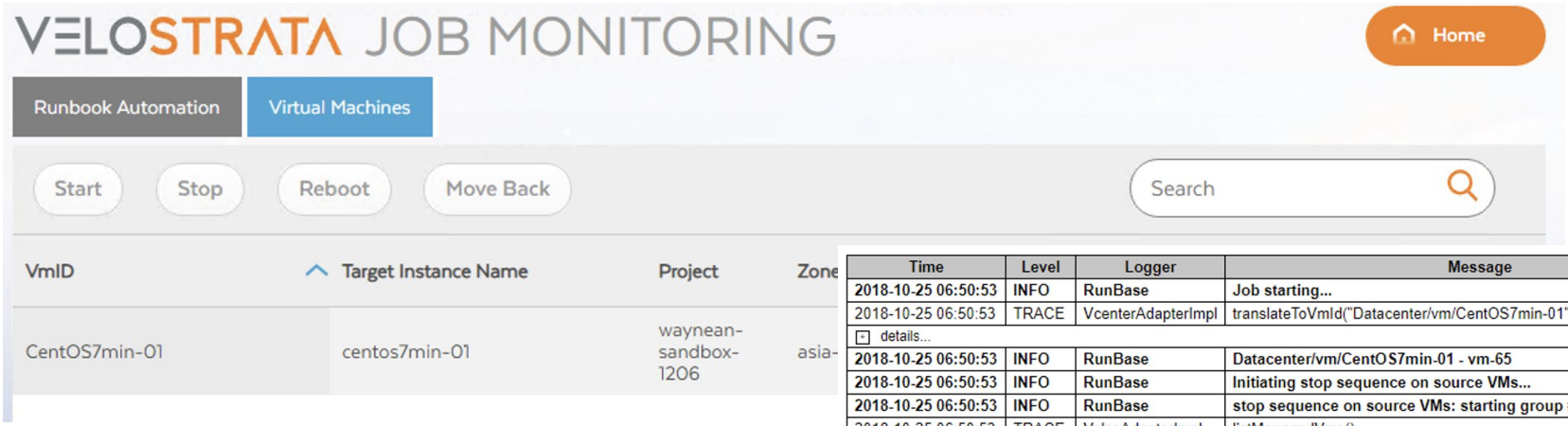
Automation Runbook, Monitoring



Time	Level	Logger	Message
2018-10-25 06:50:53	**INFO**	**RunBase**	**Job starting...**
2018-10-25 06:50:53	TRACE	VcenterAdapterImpl	translateToVmId("Datacenter/vm/CentOS7min-01")
details...			
2018-10-25 06:50:53	**INFO**	**RunBase**	**Datacenter/vm/CentOS7min-01 - vm-65**
2018-10-25 06:50:53	**INFO**	**RunBase**	**Initiating stop sequence on source VMs...**
2018-10-25 06:50:53	**INFO**	**RunBase**	**stop sequence on source VMs: starting group #1**
2018-10-25 06:50:53	TRACE	VelosAdapterImpl	listManagedVms()
details...			
2018-10-25 06:50:53	TRACE	VcenterAdapterImpl	getVmPowerStates(["vm-65"])
details...			
2018-10-25 06:50:53	DEBUG	Wait	Waiting for stop VMs for PT20M, polling period: PT20S
details...			
2018-10-25 06:50:53	**INFO**	**RunBase**	**stop sequence on source VMs: finished group #1, can continue: true**
2018-10-25 06:50:53	**INFO**	**RunBase**	**Finished stop sequence on source VMs**
2018-10-25 06:50:53	TRACE	VelosAdapterImpl	listAllCloudExtensions()
details...			
2018-10-25 06:50:53	**INFO**	**RunBase**	**Initiating run in cloud...**
2018-10-25 06:50:53	**INFO**	**RunBase**	**run in cloud: starting group #1**
2018-10-25 06:50:53	TRACE	VelosAdapterImpl	listManagedVms()
details...			
2018-10-25 06:50:53	DEBUG	Wait	Waiting for tasks to finish, polling period: PT30S
details...			

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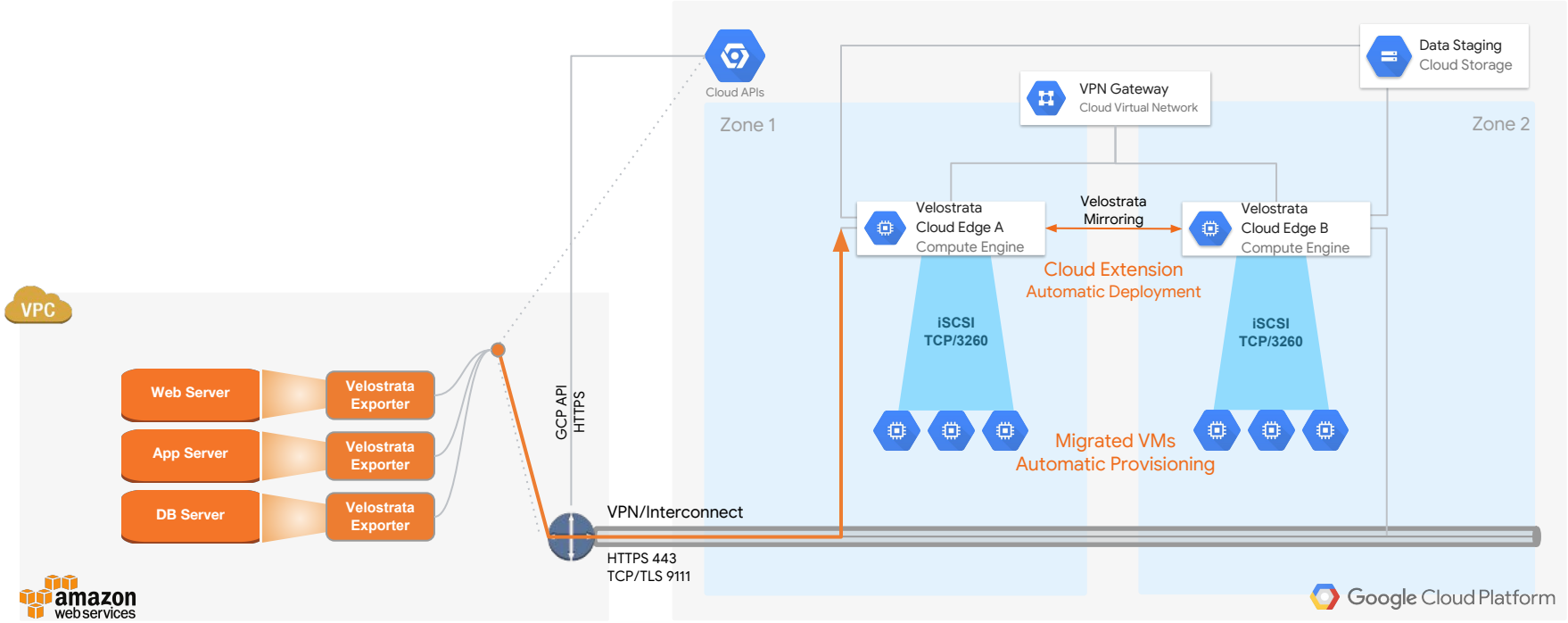
AWS to GCP Migration



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Real World Example

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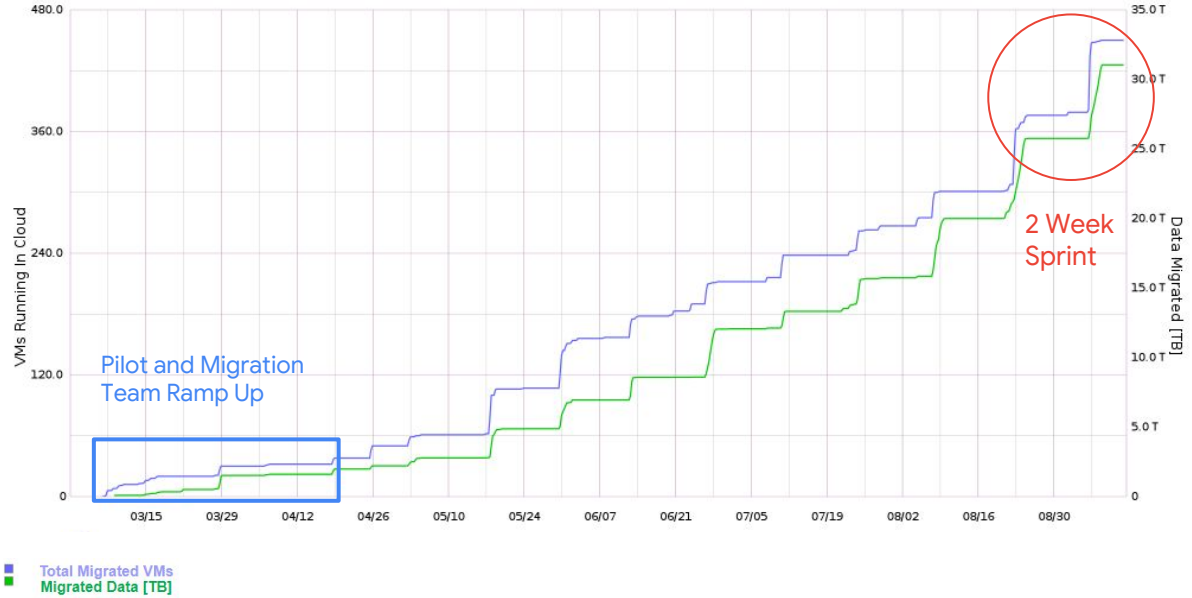
Scale validation - real world example

- **2-week sprint size grows to 40-100 VMs**
- **Up from 6-12 during PoC**
- **8-10x improvement = 8-10x faster completion**



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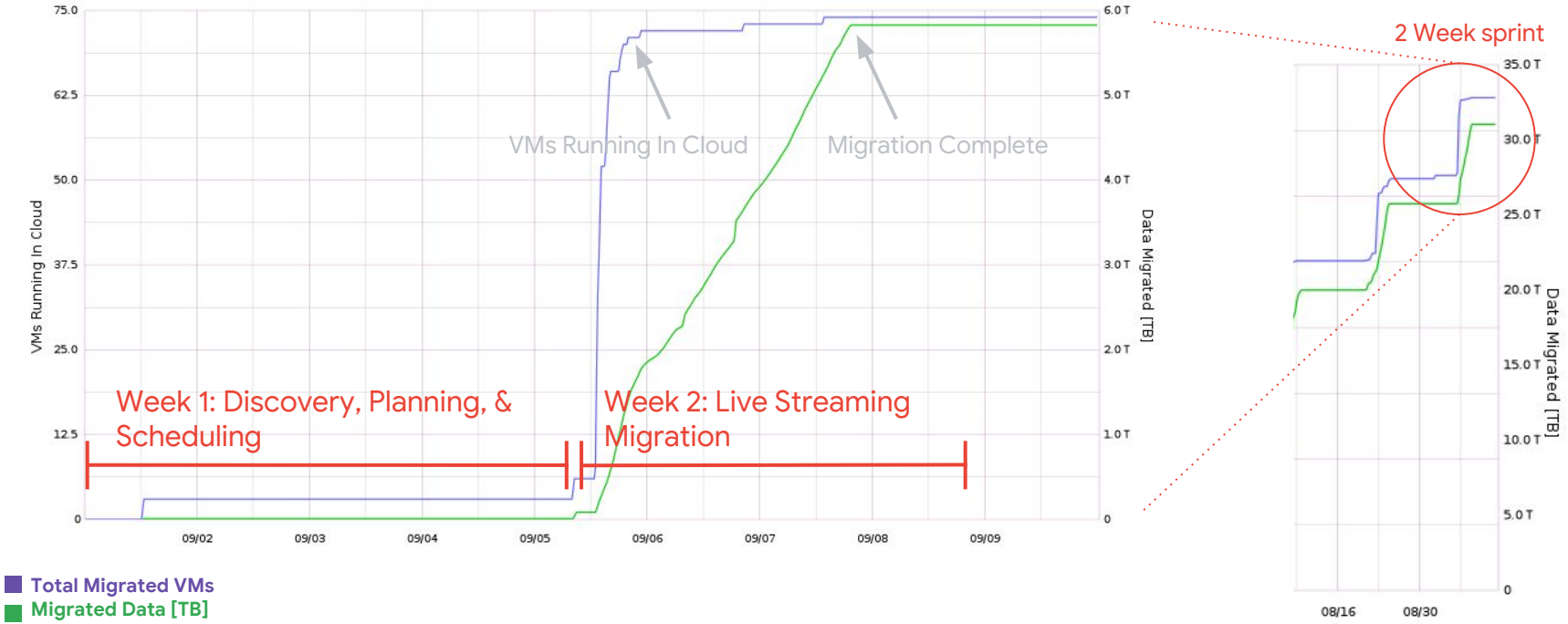
Scale validation - real world example



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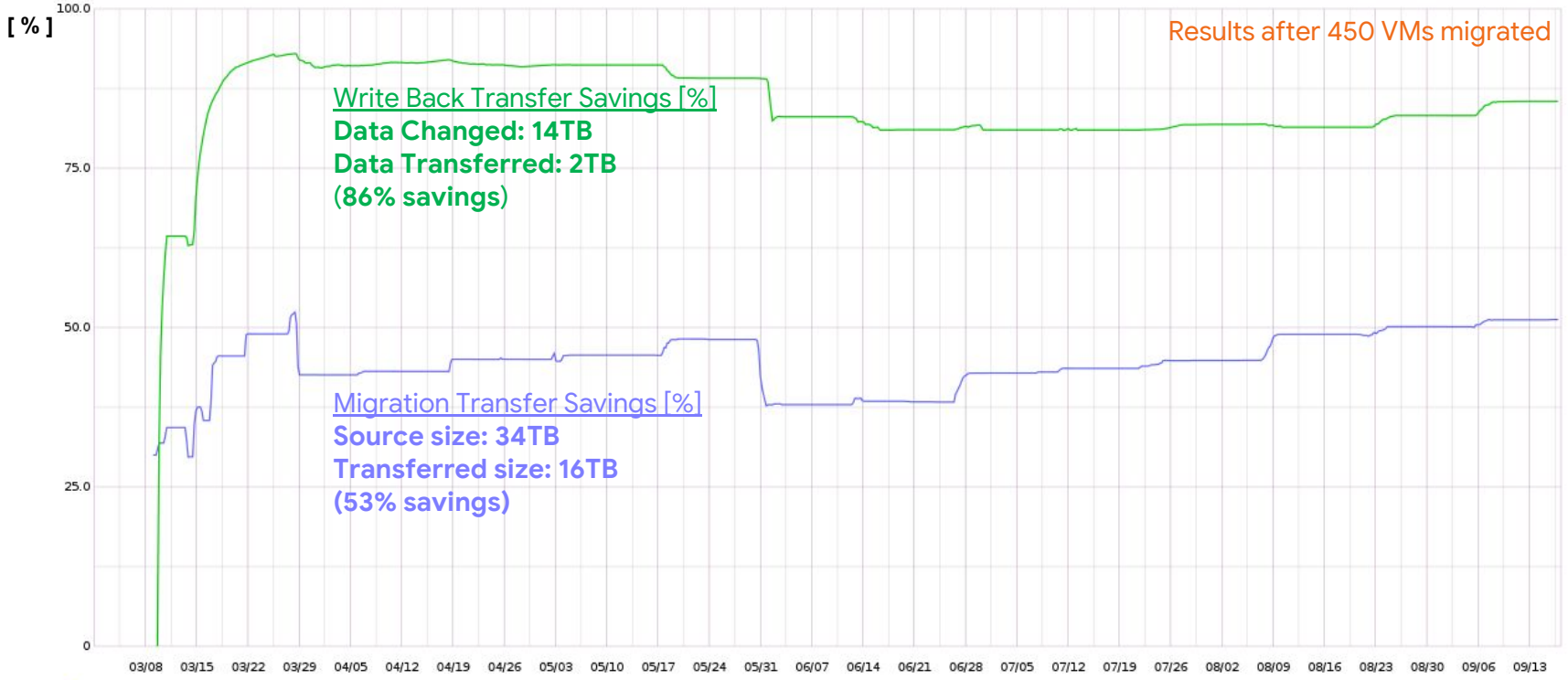
WAN Optimization - real world example



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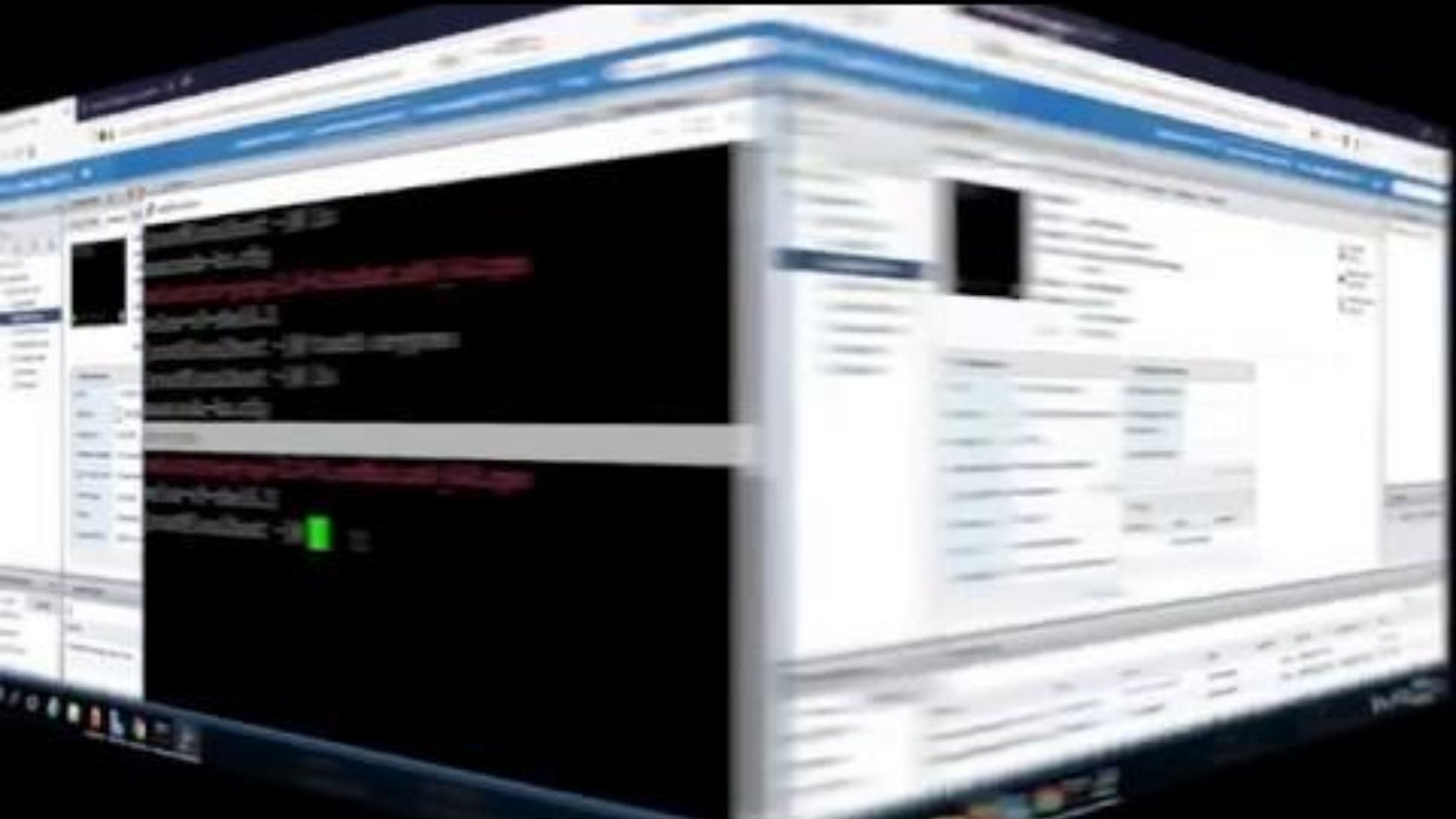
Demo



Velostrata migration best practices

- Determine workloads for migration
  - Use Discovery & Assessment tools
- Build migration pipeline w/ iterative sprint-based process
- Automate using runbook
  - Implement tagging strategy at time of migration
- Quickly establish critical mass in cloud to increase project commitment and success

Google Cloud

About CloudEndure

- Founded in 2012
- Offices : NYC, Seattle, Boston, Tel-Aviv
- Investors : Magma Venture Partners, Infosys, Mitsui
- Now the **partner of choice** for migrating infrastructure to Google Cloud Platform.
- Cost? **FREE!**

Mission

- Enable migration from any to any Infrastructure

About CloudEndure

- Disaster Recovery
- Migration

Google Cloud

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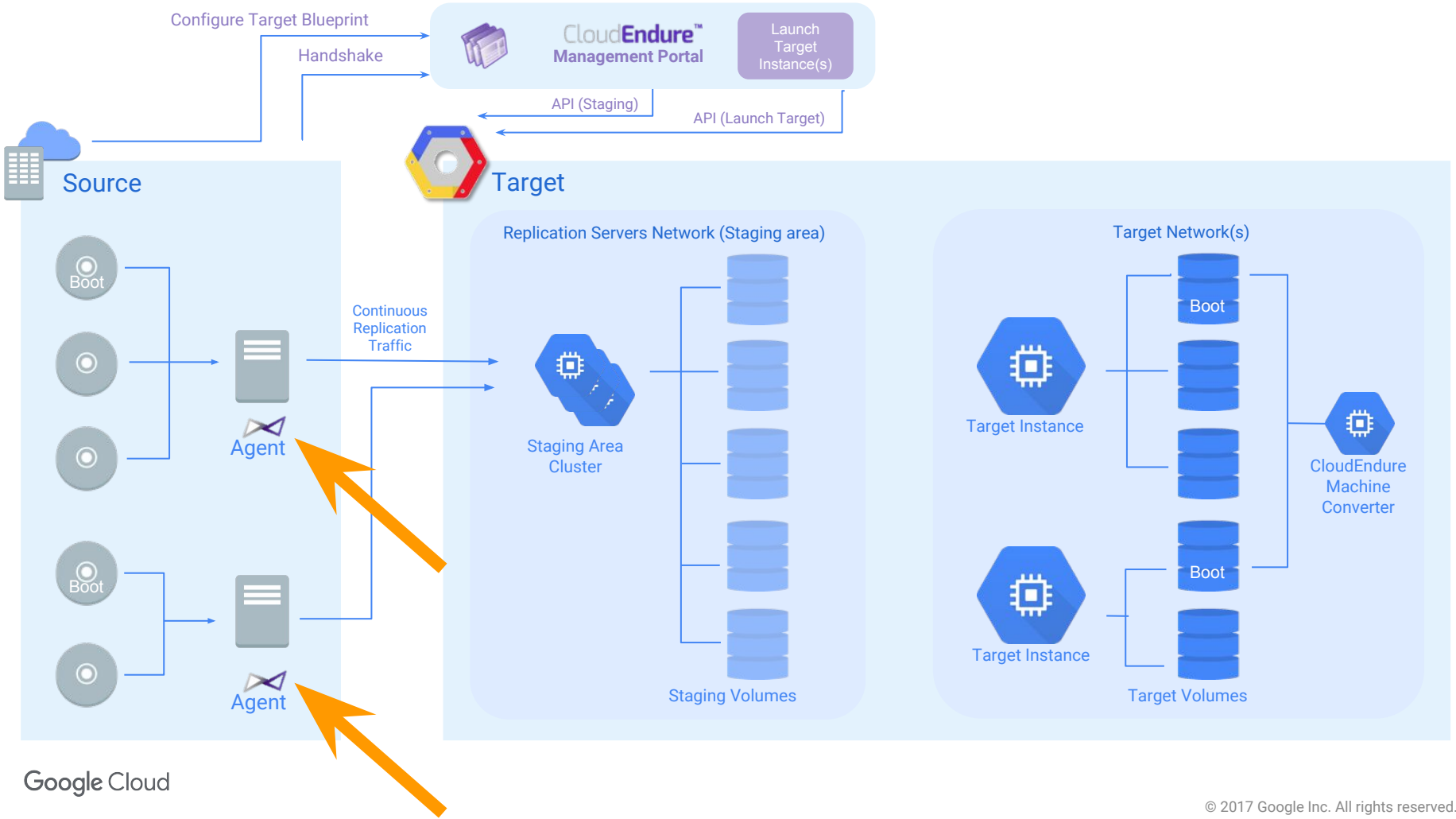

Google Cloud

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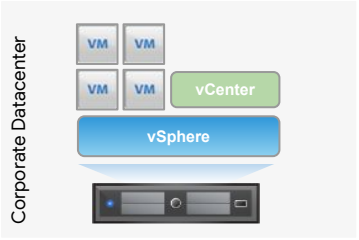
Velostrata vs CloudEndure

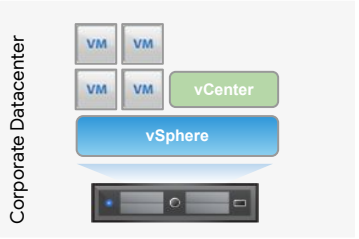
	CloudEndure	Velostrata
Technical Architecture	• Agent Based • More supported platforms	• No Agent Needed • Support limited OS
Scale	• Small and mid market	• Enterprise customers currently on VMware
Differentiation	• Supports on-prem to cloud and Cloud to cloud migrations. • Simple to use Cloud Service - no Virtual Appliance to deploy and manage. • Agent based Live Migration. • Attractive DR-in-cloud up-sell opportunity	• Focused on VMware and AWS • Integrates with VMware console. • WAN optimized streaming technology for fast migrations • Certified for SAP migrations
Marketing Focus	• Market to small, midmarket and enterprise IT generalist currently using Azure, AWS...	• Market to VMware IT Pro, large enterprise

Better together: Migration + DR

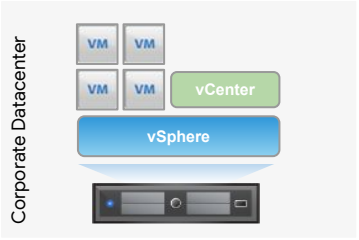
Total Cost	Business Continuity
High	Mid



VMware SRM



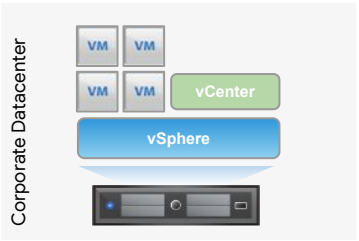
Total Cost	Business Continuity
Low	Mid



Cloudendure DR

Google Cloud Platform

Total Cost	Business Continuity
Mid	High



VeloStrata Migration

Cloudendure DR

Google Cloud Platform

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Free for migrations to GCP

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Wayne An waynean@google.com | Customer Engineer,Google Cloud

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Thank you