hx Hystax Acura

Live Migration and Disaster Recovery

Migration and Disaster Recovery: Source and Target Platforms

Source Platform

- VMware
- Hyper-V
- Amazon Web Services
- Microsoft Azure
- Oracle Cloud
- OpenStack
- KVM
- Bare Metal

Target Platform

- Amazon Web Services
- KVM / OpenStack
- *Microsoft Azure*
- *AliCloud*
- *Google Cloud*

Real-time cloud migration

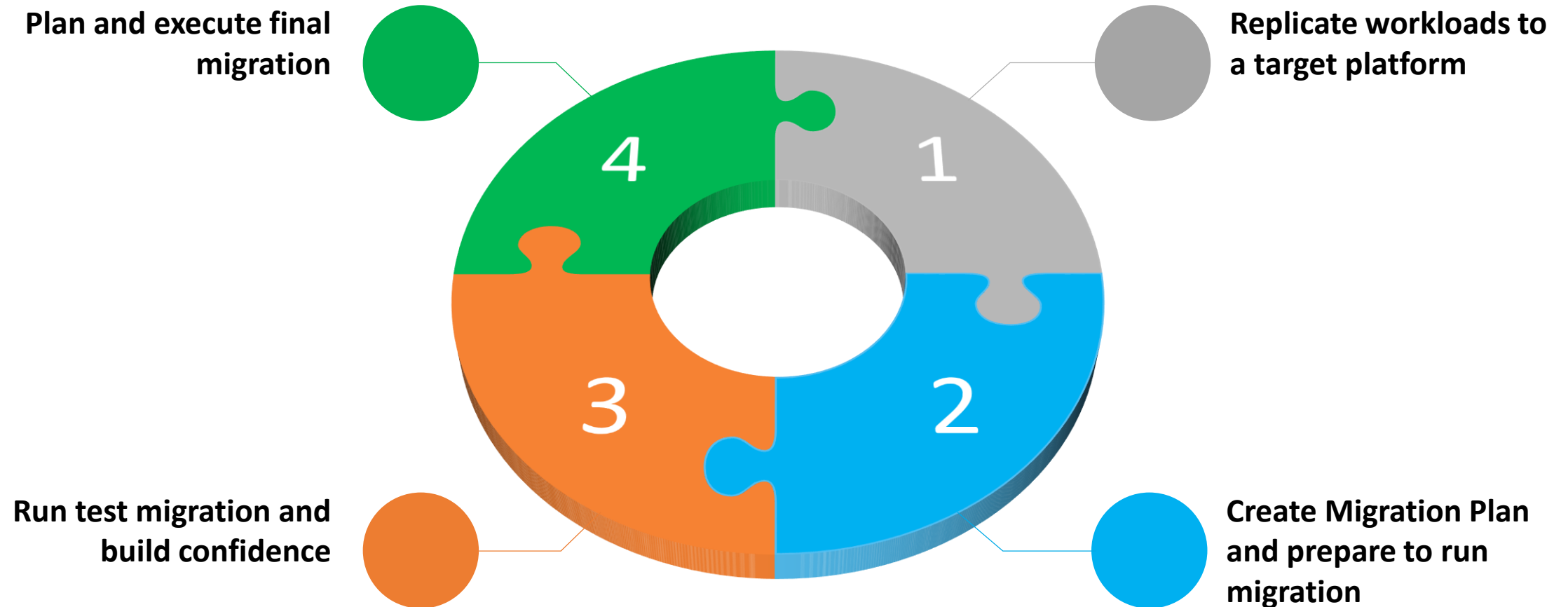# Hystax Acura: Enterprise-grade Real-time Migration

Real-time background data replication to a target site

Agentless migration without any data loss
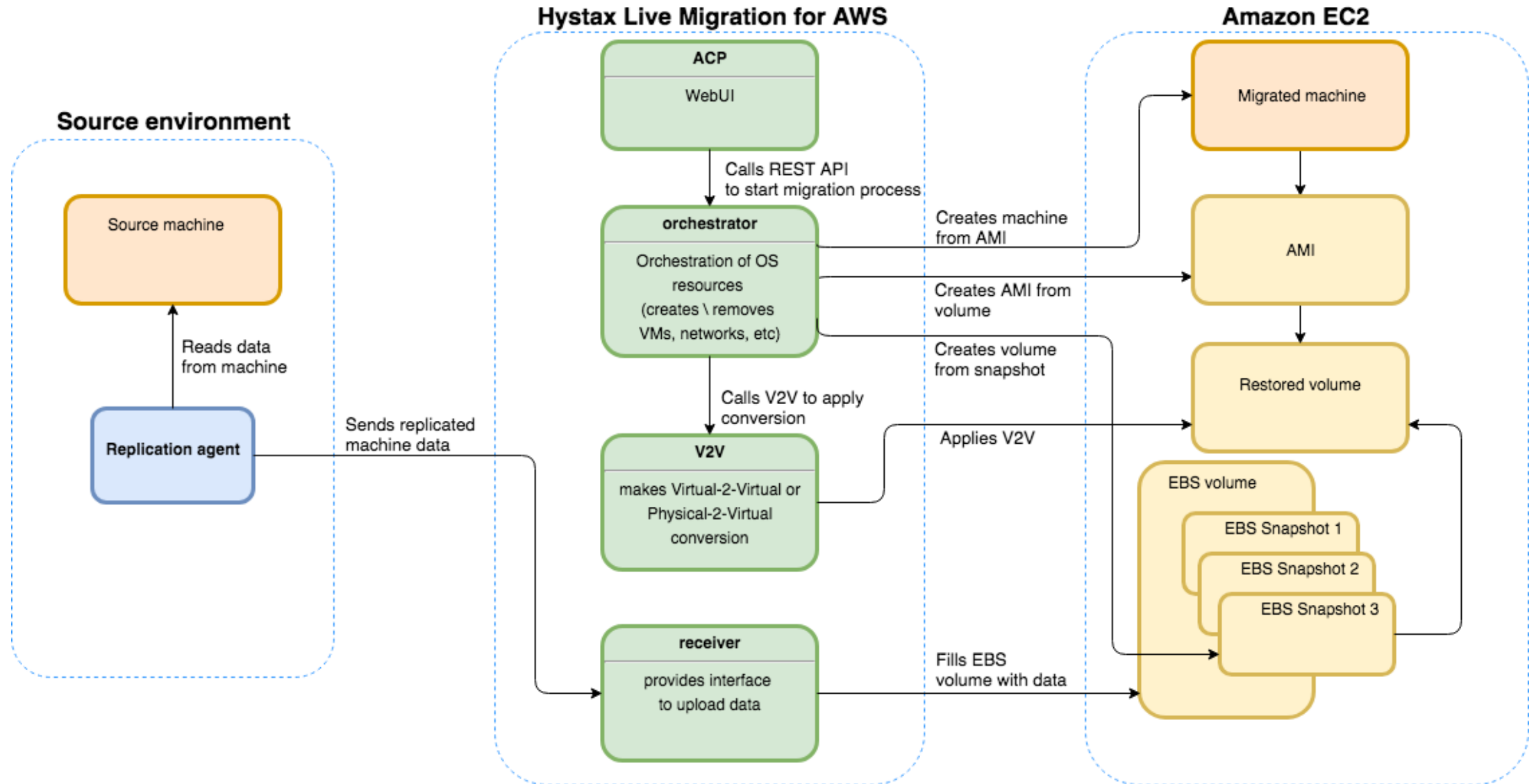
Migration within a small maintenance window

Testing and configuration of migrated site before making it primary
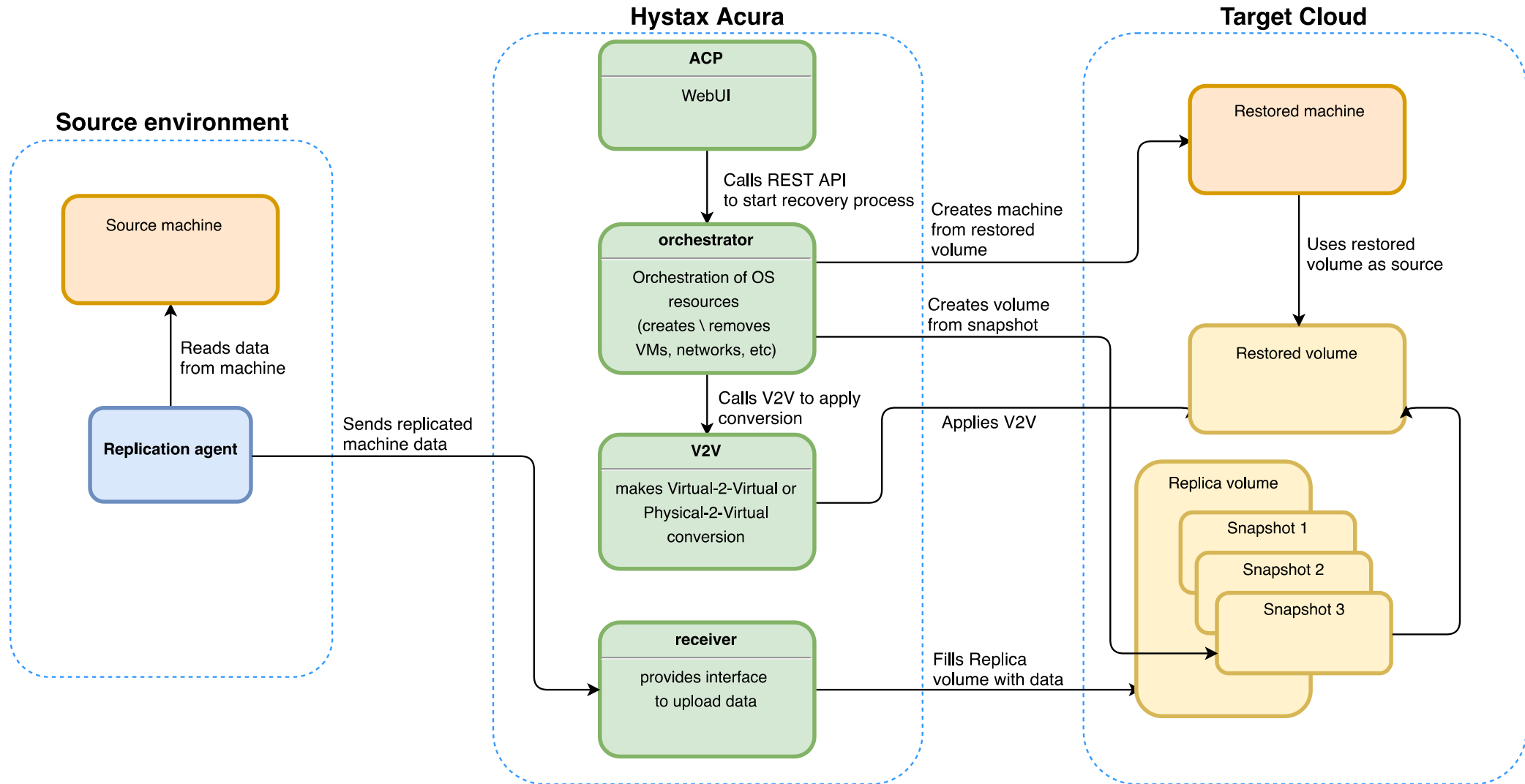
Migration Stages

Plan and execute final migration

Replicate workloads to a target platform

Run test migration and build confidence

Create Migration Plan and prepare to run migration

4

1

3

2

AWS: Migration Data Flow

KVM: Migration Data Flow

Source environment

Source machine

Reads data
from machine

Replication agent

Sends replicated
machine data

Hystax Acura

ACP

WebUI

Calls REST API
to start recovery process

orchestrator

Orchestration of OS
resources
(creates \ removes
VMs, networks, etc)

Calls V2V to apply
conversion

V2V

makes Virtual-2-Virtual or
Physical-2-Virtual
conversion

receiver

provides interface
to upload data

Creates machine
from restored
volume

Creates volume
from snapshot

Applies V2V

Fills Replica
volume with data

Target Cloud

Restored machine

Uses restored
volume as source

Restored volume

Replica volume

Snapshot 1

Snapshot 2

Snapshot 3

Migration Case Studies

Sberbank – Russian Bank #1

- Consolidation of two datacenters into a new one

- 2 000+ VMs to migrate

- VMware / OpenStack to OpenStack (KVM) migration

- Oracle and WebSphere workloads running on Windows and Linux

Italy to Czech Republic / VMware to OpenStack

- Italian customer migrating from VMware to Host-Telecom OpenStack cloud

- 152 VMs with Exchange, SAP, Active Directory, Oracle

- 4 weeks project, A to Z
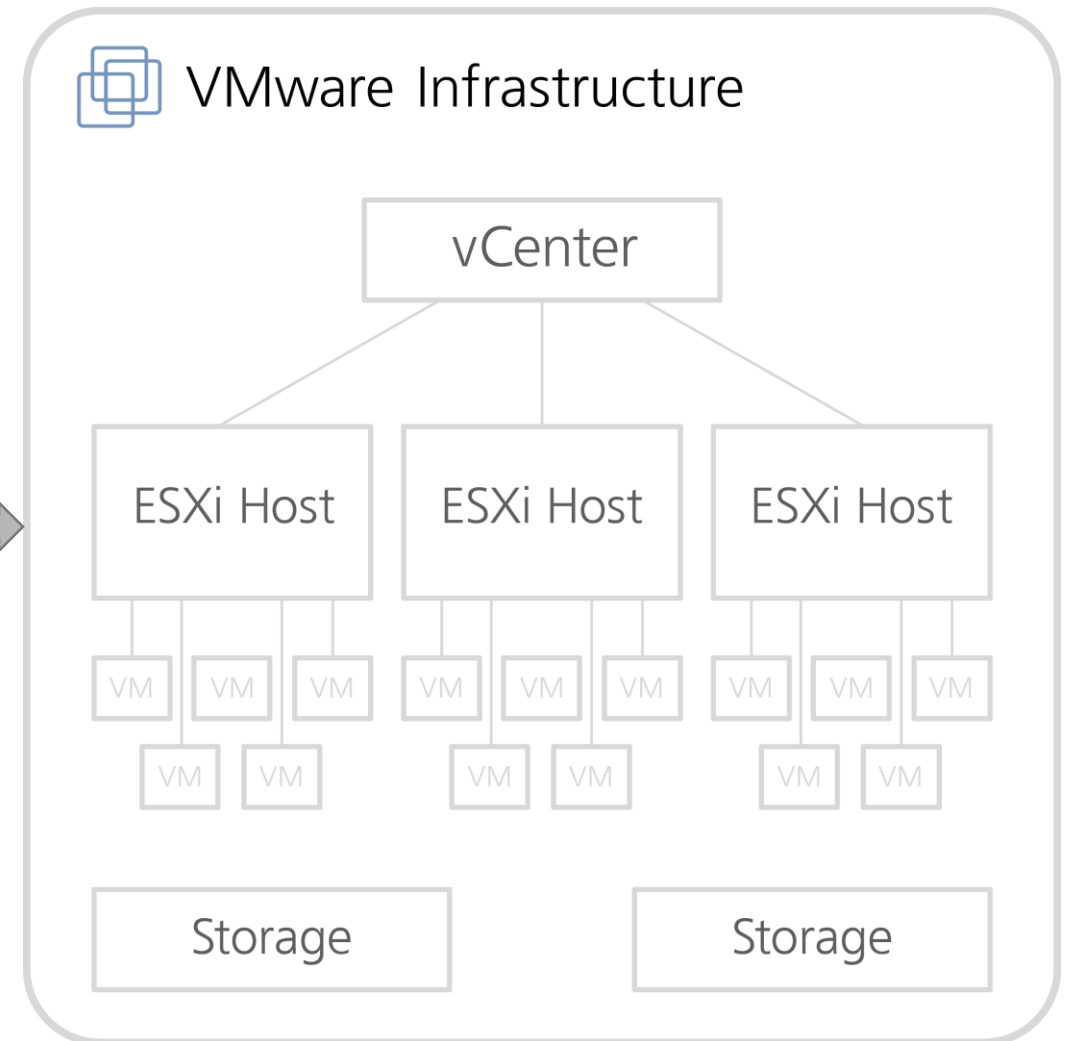
- Case study available at: https://www.youtube.com/watch?v=hgdcmM77J98

Disaster Recovery

Traditional Disaster Recovery Architecture
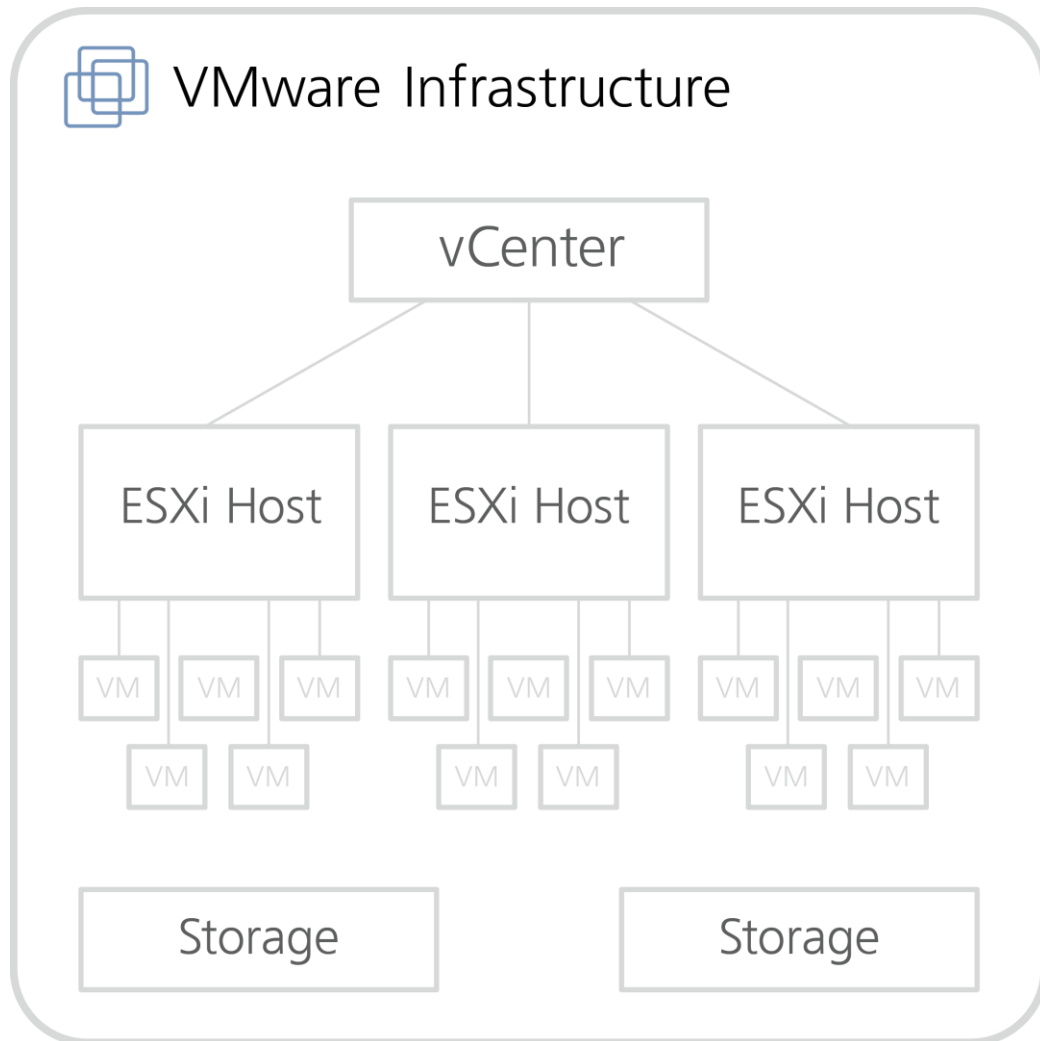
Production Site with main VMware infrastructure
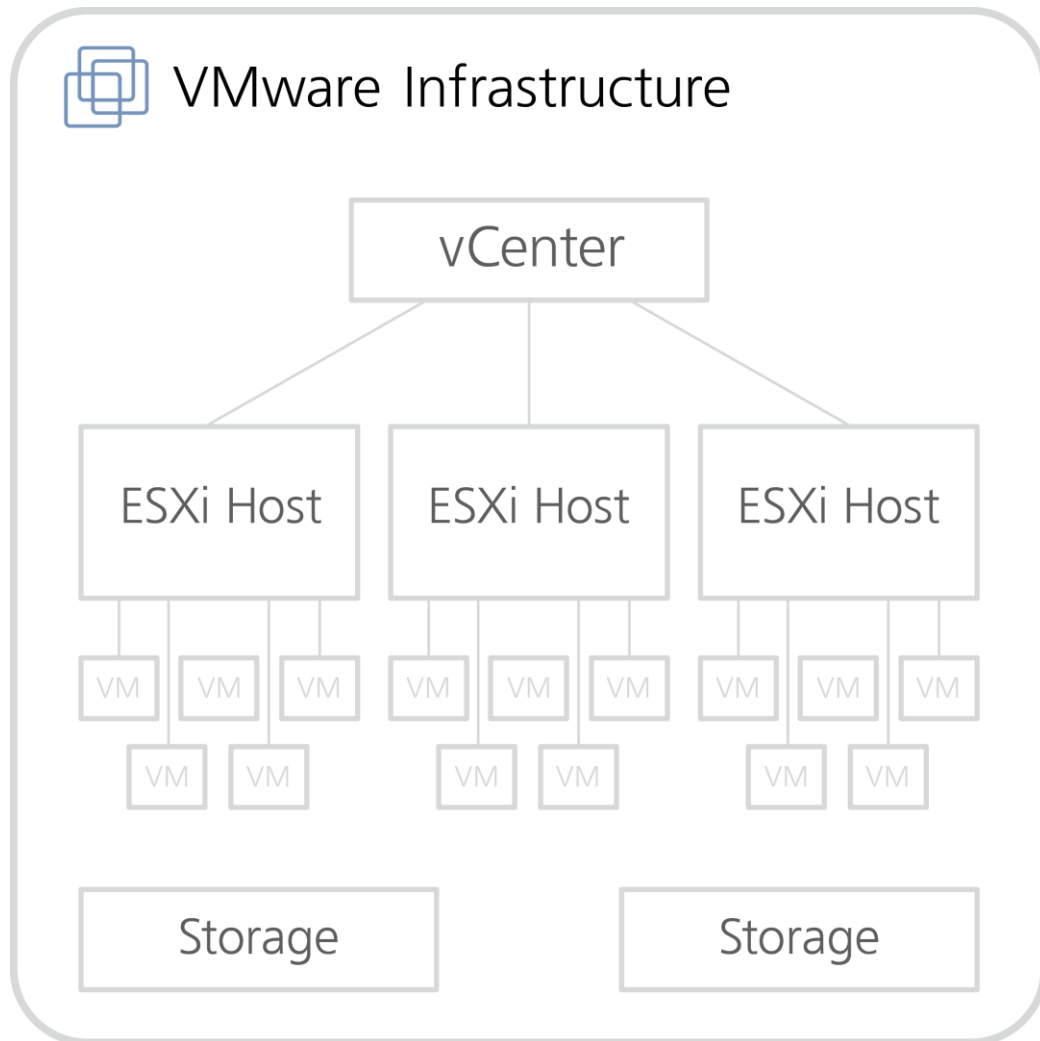
DR Site with a copy of VMware infrastructure + VMware SRM or any DR solution
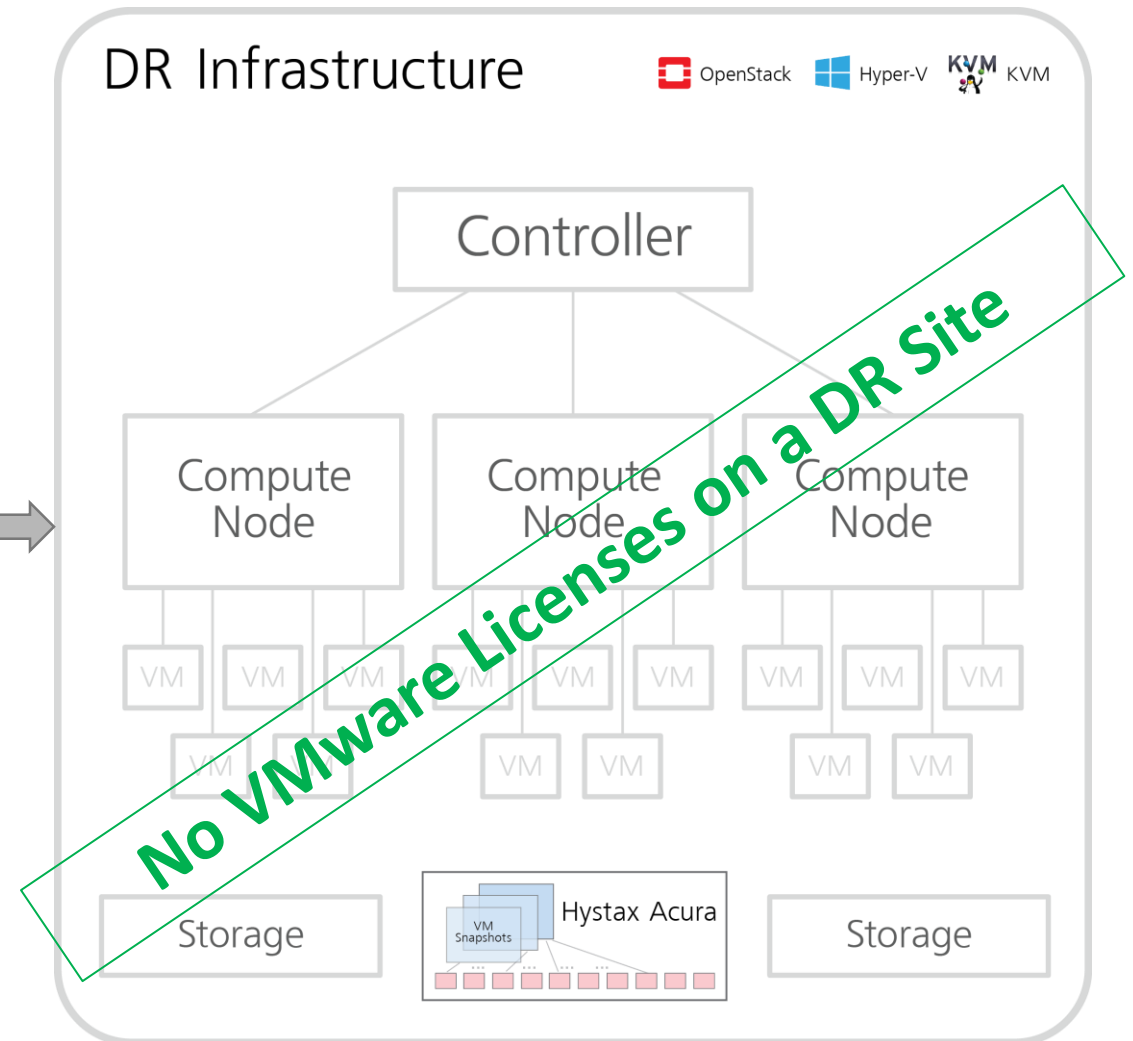
New Look at Disaster Recovery Architecture

Production Site with VMware infrastructure

Disaster Recovery Site with Hystax Acura

Hystax Acura Disaster Recovery

Disaster Recovery to Public Cloud

Backup and Disaster Recovery solution with significant cost reduction and minimal RPO/RTO recovering to DR site or doing failover back to production. Use low-cost failover platforms or AWS for recovery.

On-premise Disaster Recovery

Build a full Disaster Recovery solution on customer premises. Use your infrastructure and tools to monitor and troubleshoot on-premise installations.

Cloud Backup

Store customer data in your storage in a deduplicated and resilient way. Up to 70% of deduplication ratio.

Hystax Acura Disaster Recovery

Significant Economy on Disaster Recovery

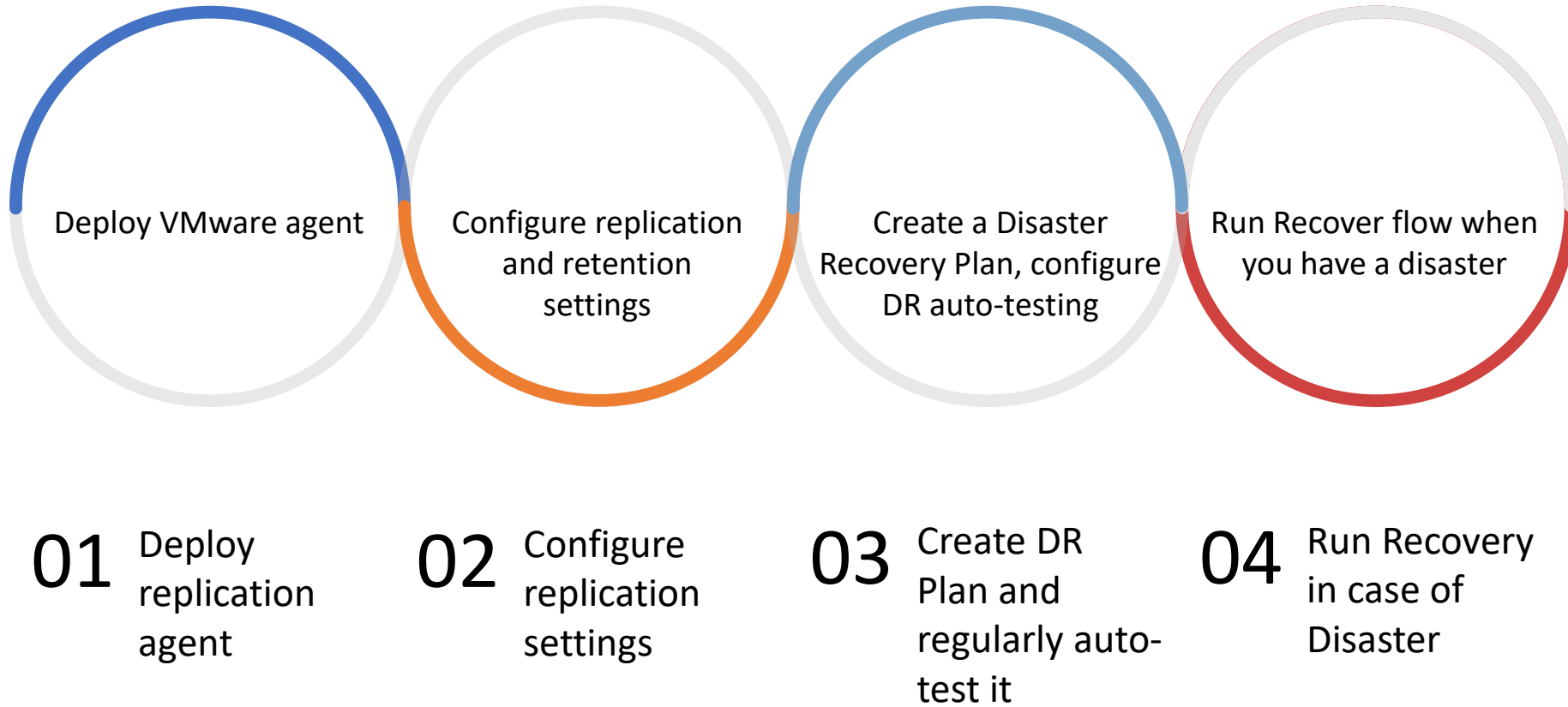On-premise and cloud disaster recovery

Instant business application recovery and no vendor lock-in

Agentless replication and regular automatic DR scenarios testing

Hystax Acura Disaster Recovery Capabilities

➢ **Single control plane for all customers or projects** – manage all your customers through one console

➢ **Sophisticated role-based access management and audit** – manage user access and assign granular roles to various resources. View and export audit logs

➢ **Logs collected in one place** – logs from all customers are concentrated in one place.

➢ **Full coverage with RESTful API** – Hystax Acura is 100% covered with RESTful API. Easy automation and integration with current management systems.

➢ **Low RPO and RTO –** best-in-class RPO values and instant RTO

➢ **Flexible reports and event notification –** get full resource utilization report and configure all level event notifications

➢ **Custom PSA Integration** – integrate solution with existing PSA systems, automatically create and file tickets

➢ **Deduplicated storage and configurable retention policies** – optimized resource utilization by unique deduplication technologies. Flexible snapshot retention policies

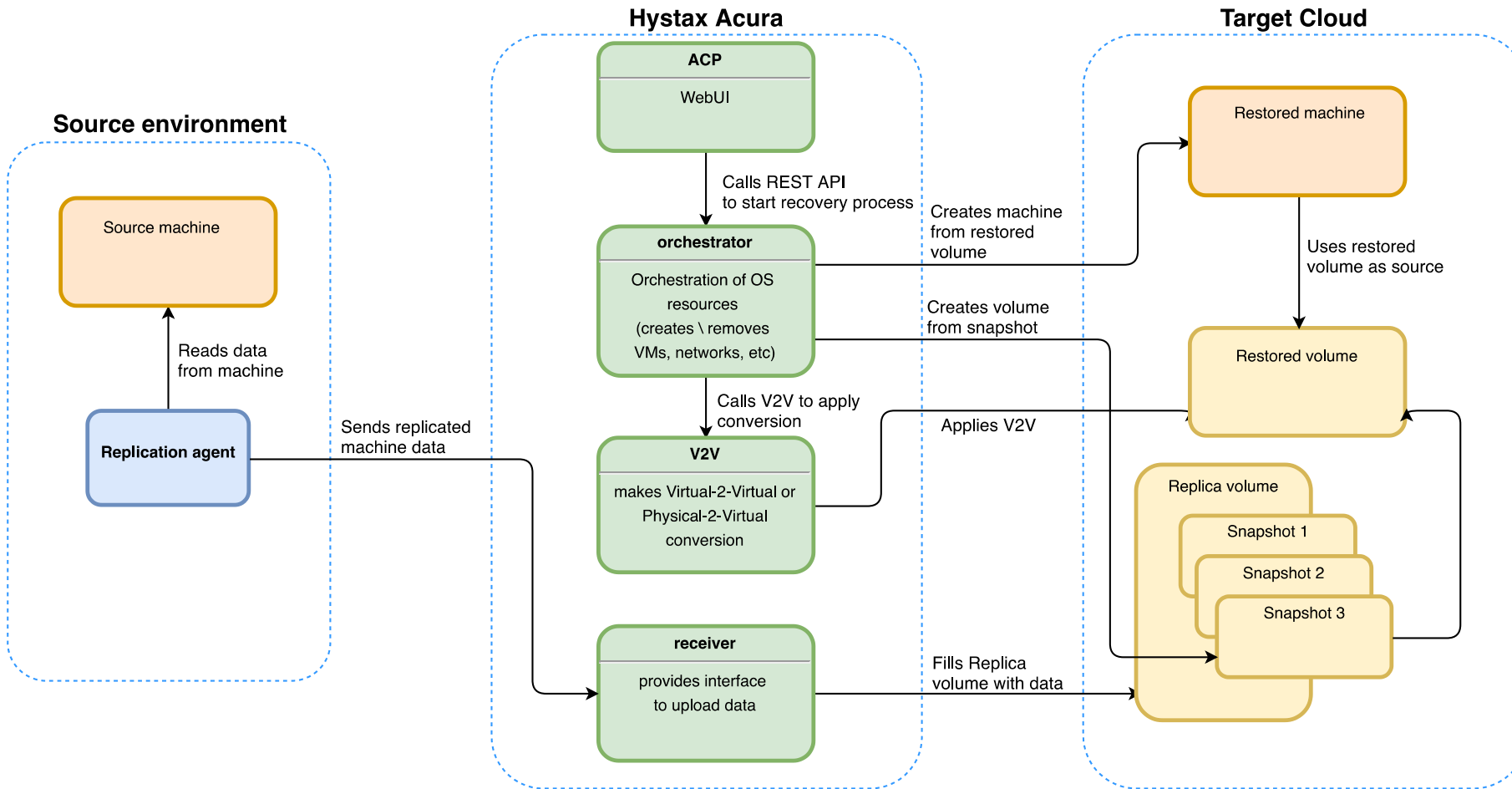# Disaster Recovery Flow: 4 Easy Steps and You are All Set

Deploy VMware agent

Configure replication and retention settings

Create a Disaster Recovery Plan, configure DR auto-testing

Run Recover flow when you have a disaster

01 Deploy replication agent

02 Configure replication settings

03 Create DR Plan and regularly auto-test it

04 Run Recovery in case of Disaster

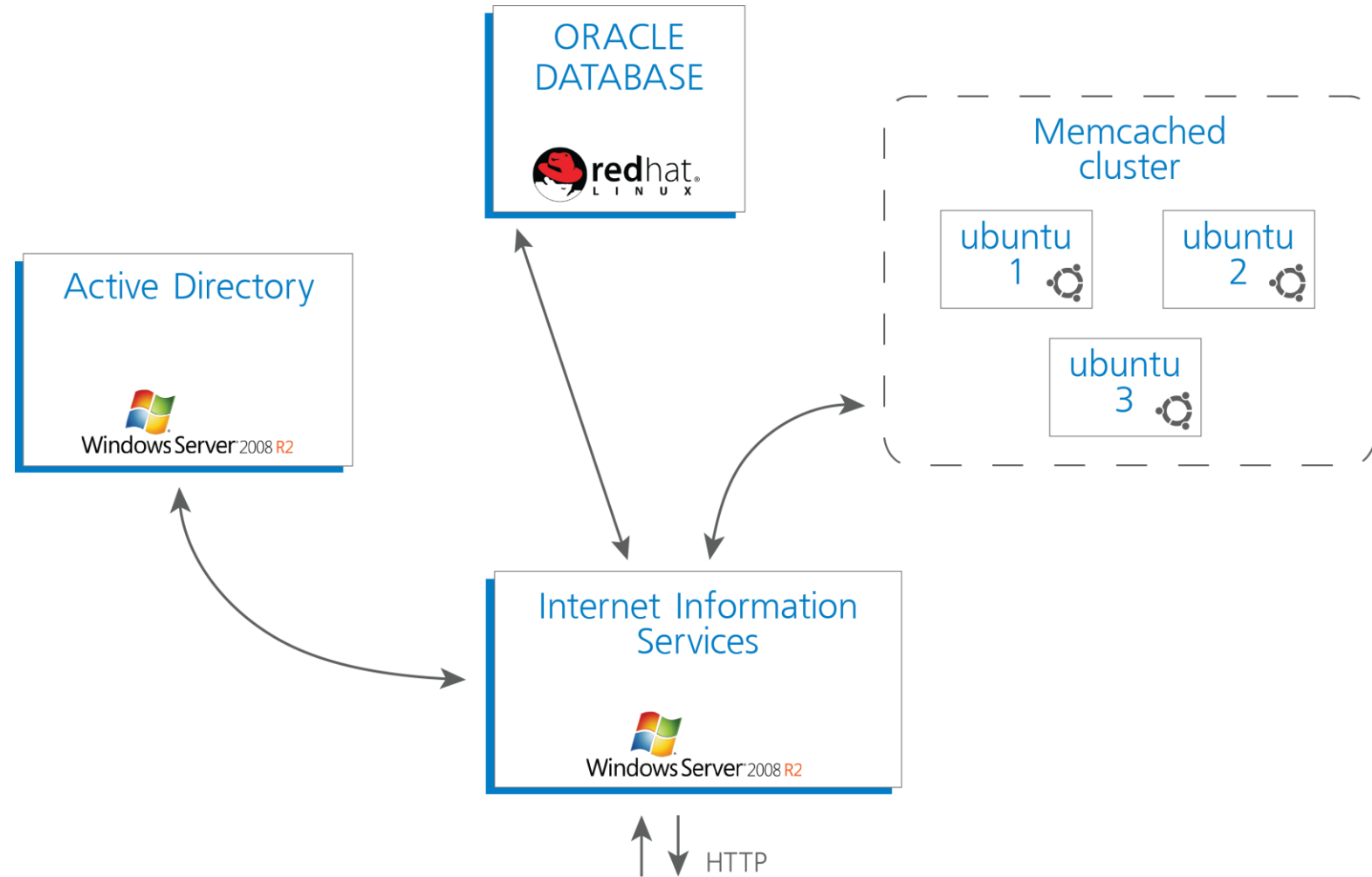# Architecture

Solution Components

➤ Business application

   ➤ RHEL with Oracle 12c

   ➤ 17 Ubuntu 16 with Memcached

   ➤ Windows Server 2008r2 with Active Directory

   ➤ Windows Server 2008r2 with Internet Information Services

Challenges of IT Resilience and BCDR, main approaches and their issues

hx

Challenges of IT Resilience and BCDR...

World business daily runs into different types of disasters...

➢ **Internal:** environment failure, application failure, **human error**

➢ **External:** power outage, environment theft, fire, impact of virus attacks, emergency disaster, etc.

- Human errors — 75%
- Software errors — 14%
- Hardware issues — 8%
- Natural disaster and others — 3%
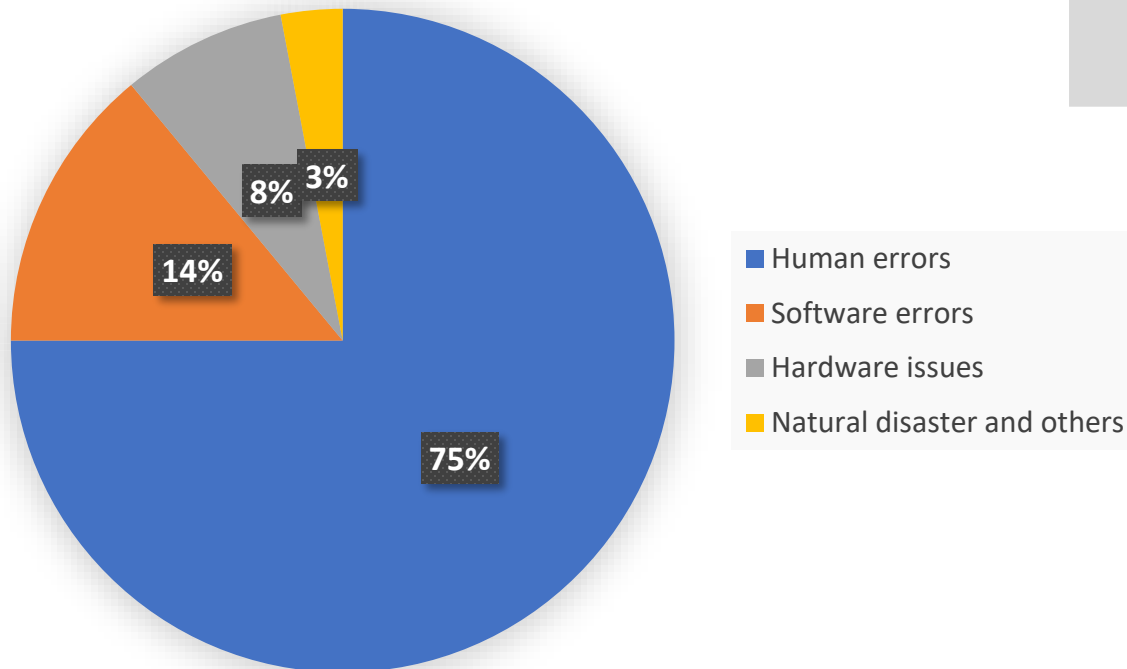
...that it's not ready for...

~59%
Doesn't have DR plan

Only 41% of medium and large U.S. businesses say they have a disaster recovery and business continuity plan and test it regularly, according to InformationWeek's 2014 State of Enterprise Storage Survey.

...inspite of anually growing losses.

$164K
Average loss within an hour

Downtime costs are rising dramatically. In 2013, companies that experienced a business interruption lost an average of nearly $164,000 per hour, compared with just $100,000 in 2010, according to the Aberdeen Group.

Human error – the main reason of disaster.

~75%
Human errors

Reputable studies have concluded that as much as 75% of downtime is the result of some sort of human error. It's always easy to say "lack of training," but even the best trained people still make mistakes...

Why is Disaster Recovery important? Recent Cases...

GitLab

GitLab downtime due to sysadmin error – **300GB** of data were accidently deleted

British Airways

British Airways outage with a bill that could reach **£150m** and grounded **75,000** of passengers

Amazon AWS

Amazon blamed human error for the the big AWS outage that took down a bunch of large internet sites for several hours

Traditional BCDR strategies and their weak points

Actions taken:

➢ High-Availability of nodes in business application and infrastructure

➢ Redundancy of data and infrastructure

➢ Backup of block devices and general data

➢ Usage of DR solutions and elaboration of DR plans

Weak point of traditional solutions:

➢ High price of environment for HA and Redundancy

➢ High Recovery Point Objective (RPO) and Recovery Time Objective (RTO) values

➢ No solution for disaster, concerning virus attacks or human errors

Appendix

Disaster Recovery

- Replication of client IT infrastructure (physical and virtual machines, networks) and willingness to re-create the infrastructure for continuous functioning of client's business with minimal delay according to a previously prepared scenario.

- **Recovery Point Objective (RPO)** – time between replication periods or maximum data size, that a client is ready to sacrifice in case of disaster

- **Recovery Time Objective (RTO)** – time between reaction to the disaster and infrastructure recovery. Usually, this parameter is analyzed for the case of one-machine recovery.

Minimal RPO and RTO are critical for business
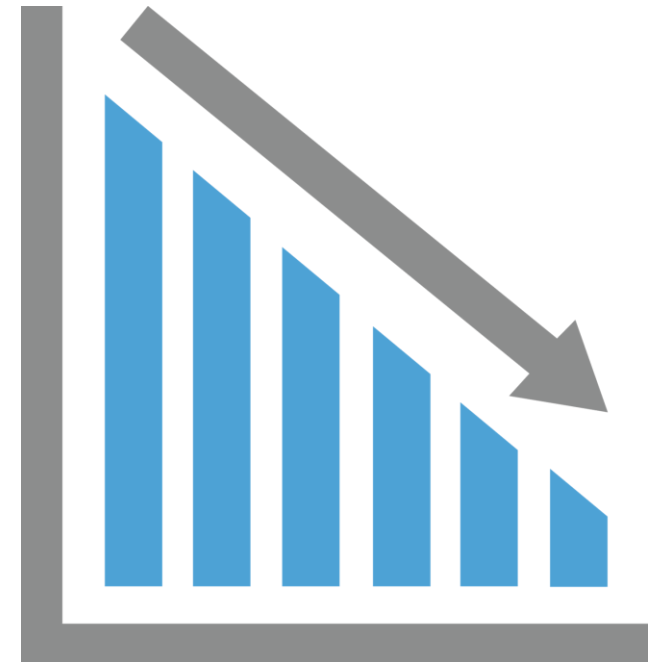
Hystax B.V.

Location

Hystax located in Netherlands, with wide expertise in replication and disaster recovery areas.

Expertise

Proven track record in Migration, Data and Disaster Recovery, previous experience in Gartner Leaders of DRaaS.

Solutions

Disaster Recovery and enterprise-grade real-time migration of business applications and NFV solutions, unique tools for instant replication.

http://hystax.com | https://www.linkedin.com/company/hystax

Business cases

Backup and Disaster Recovery

Backup and Disaster Recovery functionality with significant cost reduction and minimal RPO/RTO recovering to DR site or doing failover back to production. On-premise installations and DR to Cloud Service Providers datacenters.

Enterprise-grade Migration

Real-time migration of complex business applications, ability to test migrated application before making it primary site.

Disaster Recovery for NFV

Disaster Recovery for Virtual Network Functions. Self-healing scenarios of current infrastructure and instant recovery in a new location.

Contacts

Email: info@hystax.com

Phone: +31 85 888 62 80

https://www.linkedin.com/company/hystax