



Enterprises unable to quantify business risk or overcome IT challenges usually end up delaying their move to the cloud. Is this hesitancy caused by an overabundance of caution? Hardly. The costs of downtime are considerable resulting in business disruption, lost revenue, and loss of reputation. A series of sobering statistics speak to the importance of business assurance before, during, or after a move to cloud-based services and operations:

- Average costs of downtime is estimated at \$8,850 per minute¹
- 43% of SMBs go out of business immediately following a major data loss, with a mere 6% survival rate²
- If major cloud providers were to go offline for 3-6 days, US customers would lose \$6.9 to \$14.7B in potential business³
- In March 2018, an AWS power outage shutdown hundreds of online services, one year after Amazon's S3 outage made unwelcome headlines for cloud customer disruptions worldwide⁴
- 77% of organizations remain unaware of the financial costs of cloud outages⁵
- The Bank of England (BoE) and the Financial Conduct Authority said two days is the maximum acceptable time for systems to be down⁶

1. Ponemon Institute Research Report, Cost of Data Center Outages, January 2016

2. Gartner Group Research Study, February 2010

3. Lloyd's of London and AIR Worldwide joint report, 2018

4. Computer Weekly News Article, March 2018

5. Veritas Truth in Cloud study, March 2017, global survey participated in by 1200 business and IT decision makers

6. Computer Weekly News Article, July 2018

One myth about moving to a leading cloud provider's infrastructure, such as Amazon, Microsoft, or Oracle, is that applications and services are somehow reliable because of legacy backup strategies and technology. The statistics show, however, that the same rules apply to IT infrastructure no matter where the business's operations and data is hosted. This is why high availability, or having a safety net to support critical workloads, is such a key ingredient of a successful cloud implementation. There are two sides to the story: the first is safeguarding business continuity during migration, and the second is ensuring application resilience after migration is complete. This paper shows how ZeroDown Software provides a safety net that covers both aspects.

HA for Oracle Cloud

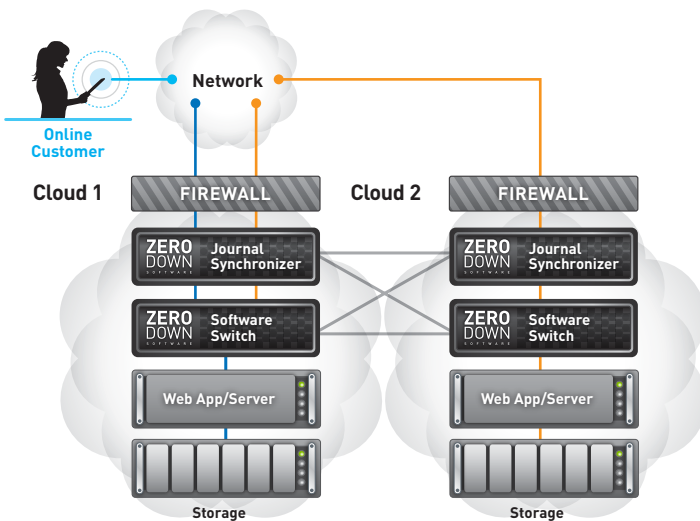
At ZeroDown® Software, we empower organizations of any size to complete rapid migration to the cloud. Our technology is a best fit for any enterprise who relies on software applications to serve their customers, manage operations, and communicate, and who cannot tolerate the high costs and severe business impacts of downtime. We have learned from experience that, while there is undoubtedly broad agreement on the vision, there remains little consensus as to how the shift can best be accomplished or at what speed and at what scale. Moving workloads and data from one infrastructure to another is a significant logistical challenge requiring new skills and capabilities. It also involves risk. When engaging with business leaders and IT organizations around the globe on cloud-based deployments, we meet with the same questions everywhere: how can I migrate without disruption to my customers? How can I reduce the business risk of moving business critical applications to the cloud? And what assurances do I have of uninterrupted services once I get there?

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If you are an ISV, MSP, CSP, or Oracle Partner with customers asking similar questions of you, then read on to find out more about how HA for Oracle Cloud provides a safety net for migration and beyond. When partnering with us, you will be able to leverage not only our tools and technologies to help drive migration and cloud adoption. Since we do not sell directly to customers, we are seeking to grow and establish partnerships with best-of-breed Systems Integrators and Oracle partners who are ready to capitalize on the cloud market opportunity that is here today.

Unique HA Architecture

In terms of the customer's Oracle Cloud journey, HA for Oracle paves the last mile of a secure and rapid pathway to the cloud. What makes HA for Oracle Cloud distinct from other solutions is our patented technology, designed to minimize the risk of data lost in flight. ZeroDown Software enables companies to run applications in an active/active configuration from their environment to a Cloud Service Provider (CSP), or from one cloud instance to another. Rather than replicating processed data from one location to the next, ZeroDown Software allows the transaction to be processed in the secondary site, maintaining the processing state of the transaction in two (or more) locations at the same time.



Features and benefits of this unique approach include:

- Enables simultaneous processing of transactions between two app deployments
- Each deployment is a replicated image of the application and backend infrastructure
- Transactions are independently processed at each location providing an active-active infrastructure
- ZeroDown® Software is agentless, focused on application transactions, as opposed to block replication, can be installed as a Virtual Machine image
- The software uses a planned and repeatable process

Safety Net for Cloud Migration

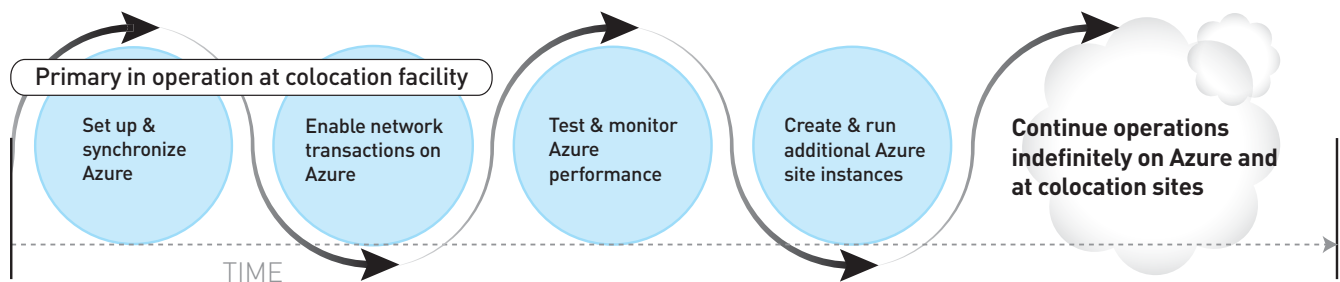
ZeroDown® Software offers safe and easy cloud migration leading to uninterrupted run/operate on Oracle Cloud Infrastructure using a scalable and repeatable methodology.

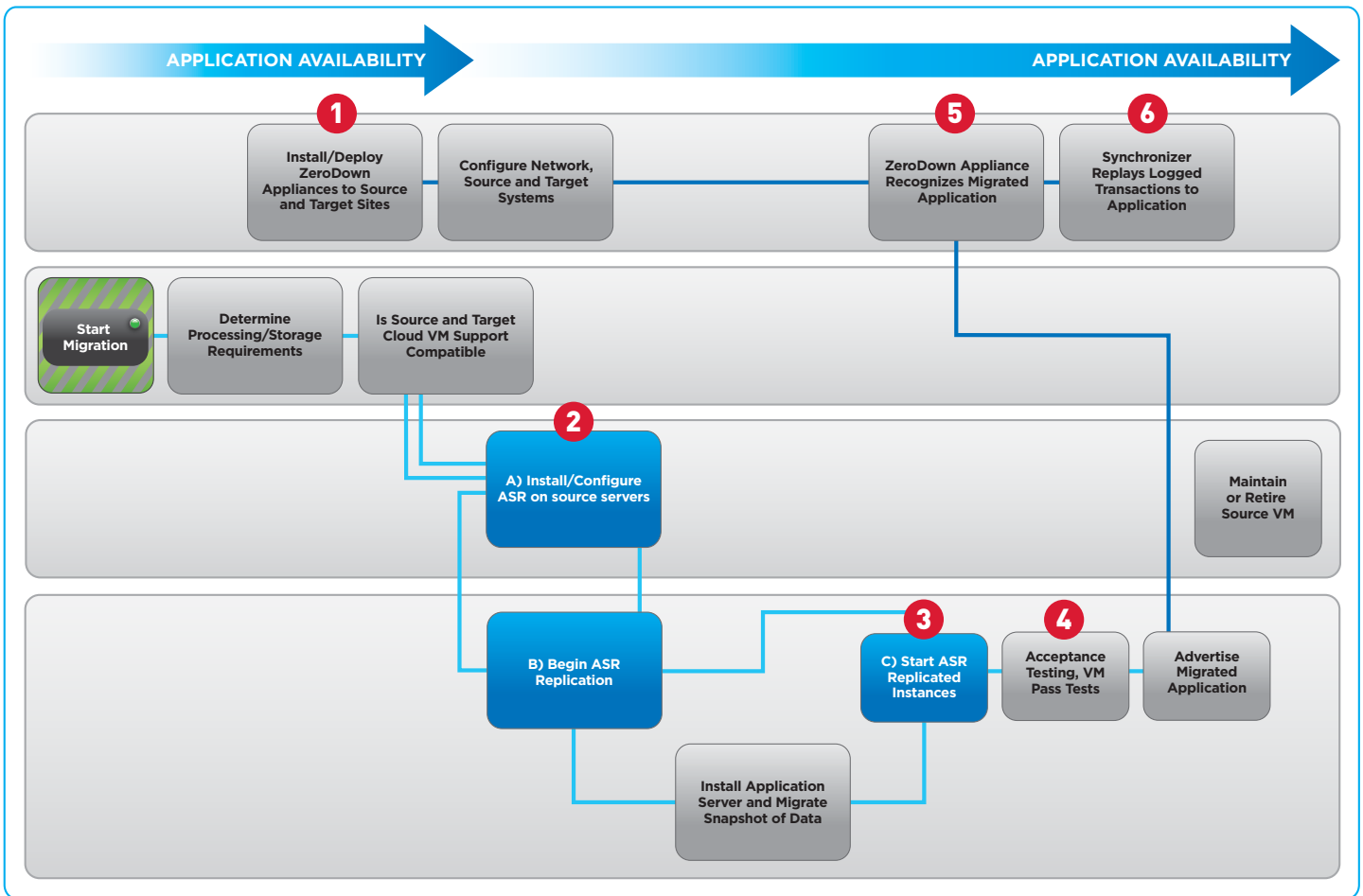
See graphic below:

To get started on a deployment, all the customer needs to provide is the source and target destinations. From there, migration is a simple six step process to move the data and get the applications running in the new environment. The following illustration shows the migration flow that is used to ensure high availability for the application at all times.

While the business application and its data are being migrated, ZeroDown® Software (ZDS) allows the source location (VM, container, or server) to continue operations. This allows users to continuously use the application at their source site until the image at the target site is started. Once an app has been migrated, ZDS recognizes the availability of services and automatically begins to replay transactions processed at the Source site to the Target site. This activity fully synchronizes the source and target environments. The complete end-to-end process is transparent to any online customer who may be using the application during the migration, with zero downtime and zero loss of in-flight transactions.

“HA for Oracle paves the last mile of a secure and rapid pathway to the cloud.”





Additional Use Cases and Benefits

ZeroDown Software offers more than just a lift and shift for legacy applications moving to the Oracle Cloud Infrastructure. For modern cloud-based applications, our software is compatible with container orchestration technology such as Swarm or Kubernetes to create a set of microservices. This allows us to work with application modernization partners as part of a hybrid cloud configuration, enabling HA features at the application layer.

“ZeroDown Software eliminates the downtime risks commonly associated with standard lift and shift operations.”

Where data sovereignty is a primary concern, we can enable partners and clients to utilize the Oracle Cloud Infrastructure as an alternative location to their own. HA for Oracle Cloud is a great fit therefore for service providers that are deploying cloud services in their prospective countries and who require redundancy by region or geographies. In cases such as these, they can use ZeroDown’s high availability solution to deliver an Oracle hybrid cloud that extends operations from their client premises to the cloud service offering but not beyond. When it comes time to extend these services to new geographies or to use the Oracle public cloud, then HA for Oracle can be deployed to additional locations wherever and whenever it is needed.

Compare ZeroDown with other Migration Solutions

The key differentiator for ZeroDown Software's patented technology is that it supports active live-live transactions in multiple locations, eliminating the downtime risks typically associated with standard lift and shift operations. The following table highlights some key differences with other leading cloud migration solutions.

Product Features Compare with ZeroDown Software	ZeroDown Software High-Availability for Web Apps/Services	Storage Based Migration AWS, Azure	Hypervisor Migration ASR, Cloud Endure, Racemi, VMware SRM
Eliminates downtime during migration	✓	X	X
App. based High Availability →99.999%	✓	X	X
Guaranteed rapid disaster recovery	Does Not Apply	X	X
Eliminates single points of failure	✓	X	X
Hardware agnostic	✓	?	✓
Protects transactions/data in flight	✓	?	?
Continuous truly synchronous replication	✓	X	?
Eliminates time-sensitive "snapshots"	✓	X	?
Scalability: Zones, Servers, VMs	✓	X	X
Active-Active at any distance	✓	X	X
Software-only solution	✓	X	✓
Transaction-level replication	✓	X	?
Prevents cascading failures	✓	?	?
Low, controlled costs	✓	?	?
Supports Open Source Community	✓	?	X
Agentless	✓	X	X
Supports Containers	✓	?	X
Mixed environment (Multi-Cloud)	✓	X	X

Find Out More about HA for Oracle Cloud

To find out more about how HA for Oracle Cloud can help you drive adoption and accelerate consumption by providing a safety net for cloud migration and more, visit <http://www.zerodownsoftware.com/>

Contact us at Sales@ZeroDownSoftware.com

Contact ZeroDown Software Today Sales@ZeroDownSoftware.com • 844-ZRO-DOWN

**ZERO
DOWN**
SOFTWARE

Corporate HQ
5445 DTC Parkway
Penthouse Four
Greenwood Village, CO
80111

ZeroDown® Software technology provides businesses with continuous access to their company data via their High Availability as a Service (HAaaS™) architecture, protecting applications, and transactions in the event of network interruptions that would normally cripple the enterprise. They make this environment accessible through their patented HAaaS™ system, lowering barriers to entry on cloud applications and infrastructure by eliminating downtime. HAaaS™ provides an active/active environment whereby transactions are processed in replicated application environments. As a result, HAaaS™ provides zero Recovery Time Objective (RTO) and zero Recovery Point Objective (RPO). 082818