



Lenovo ThinkAgile CP Backup and Disaster Recovery (Technical Brief)



Models: CP 4000, CP 6000

Note

Before using this information and the product it supports, be sure to read and understand the safety information and the safety instructions, which are available at the following address:

http://thinksystem.lenovofiles.com/help/topic/safety_documentation/pdf_files.html

In addition, be sure that you are familiar with the terms and conditions of the Lenovo warranty for your solution, which can be found at the following address:

<http://datacentersupport.lenovo.com/warrantylookup>

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Backup and Disaster Recovery

Unlike many cloud platforms, ThinkAgile CP includes built-in, application-consistent backups for local data protection and disaster recovery without the need for guest agents or third-party backup software. We see built-in backups as a key component of any cloud infrastructure as they cut administrative time and complexity while boosting resilience, all with no additional cost. This document describes the key backup and disaster recovery features and benefits within the ThinkAgile CP platform.

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Refer to the following topics:

- [“Application backup - Recovery Point Objective ” on page 1](#)
- [“Application Backup - Recovery Time Objective ” on page 1](#)
- [“Local protection” on page 2](#)
- [“Site protection” on page 3](#)
- [“Site disaster recovery” on page 3](#)
- [“Application backup integration” on page 4](#)
- [“Integration with Third-party Backup Solutions” on page 5](#)

Application backup - Recovery Point Objective

A Recovery Point Objective (RPO) is the time interval in which you can recover data in the event of a failure, such as data corruption, a ransomware attack, a power outage, user error, and so on.

For example, if you have an RPO of 15 minutes for your applications, you could lose up to 15 minutes of data, as the last automated backup was constructed within the last 15 minutes. With ThinkAgile CP, you can select which applications to protect and define the RPO for each. You can choose a backup interval from 15 minutes to 24 hours.

Backup Settings for "CentOS 7.5 (64-bit) - Lenovo Template"

1 Overview — 2 Local Backups — 3 Quick DR Backups — 4 External Backups

Enable Local Backups

Local Backups
You can set local backups to occur automatically at different time intervals and rates. All local backups will be saved on the same TACP stack that your app instance is running on.

Backup Interval NOTE: The oldest local automatic backup will be deleted to maintain the number of automatic backups configured.

Retention Will save the last 14 backups (max of 1024)

Starting at Time relative to the selected timezone in account settings. UTC -05:00:00 EST (America/New York)

Figure 1. Settings for local backups

Application Backup - Recovery Time Objective

A Recovery Time Objective (RTO) is the time that it takes to recover data and applications.

In the event of a failure (such as a system-wide virus, a deletion of production data due to user error, or hardware failure), the RTO is the time it takes to recover from the disaster and have your data and applications back online and running in your recovery site.

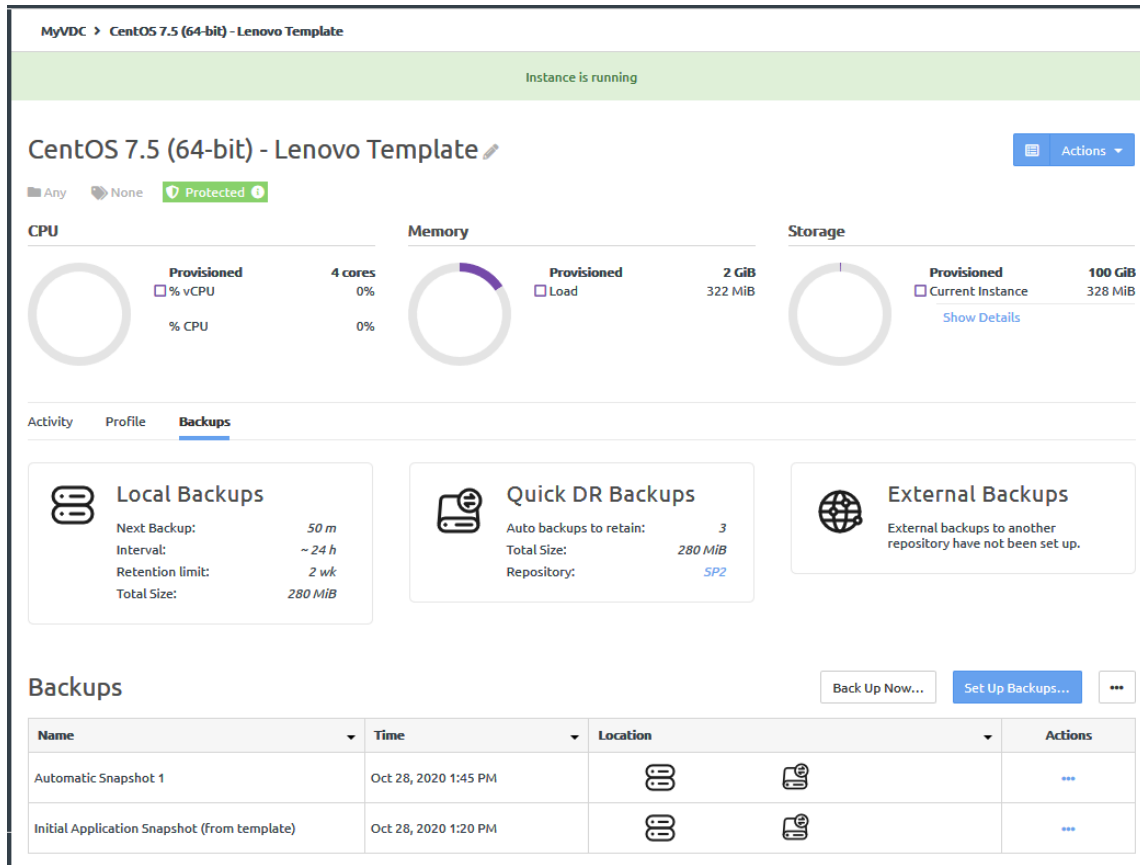


Figure 2. The Backups tab for an application instance

The downtime associated with waiting for applications and data to be recovered can result in significant loss of revenue and productivity. ThinkAgile CP can deliver an RTO within seconds. Meeting that objective can be as simple as selecting a quick DR backup for an application and creating a new instance. In this case, the entire application is recovered to the selected point in time, including all disks, the operating system, and the application data, to an application-consistent state. ThinkAgile CP also gives you the ability to temporarily revert to a local backup at a specific point in time. As needed, you can either cancel the temporary revert and return to the latest backupschedule, or you can make the revert permanent.

Local protection

Local backups are supported with application-consistent backups (for all instances running with ThinkAgile CP guest tools) on a per-application basis.

Backups are maintained locally; they are compressed and deduplicated to reduce storage requirements. Backups are immutable for compliance purposes; however, you can clone the backups and attach the clones to virtual machines (VMs) as mountable file systems. The instant clone-and-attach capability allows for fast and space-efficient restoration and sharing of data without having to create multiple copies.

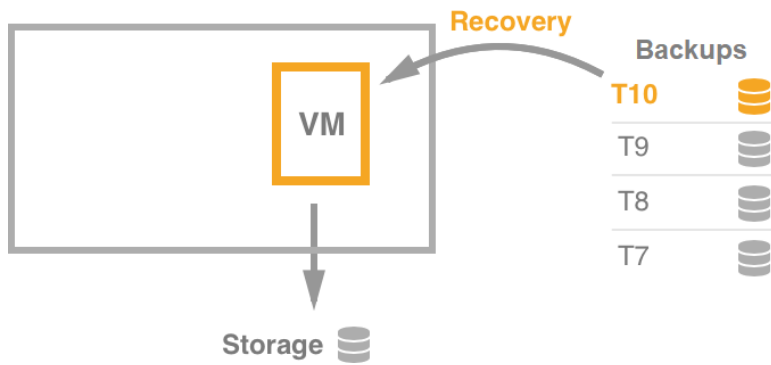


Figure 3. Instant backup clone-and-attach capability for recovery

Site protection

Site disaster recovery is supported by using application-consistent backups on a per-application basis that are replicated to another ThinkAgile CP organization at a remote site.

Once a local backup is completed, the quick DR backup is asynchronously replicated to the remote site, either through quick DR backups or through external backups to Amazon S3 (if either of these mechanisms are configured). Data is deduplicated and compressed on both sides, ensuring that only unique data is transferred across the network.

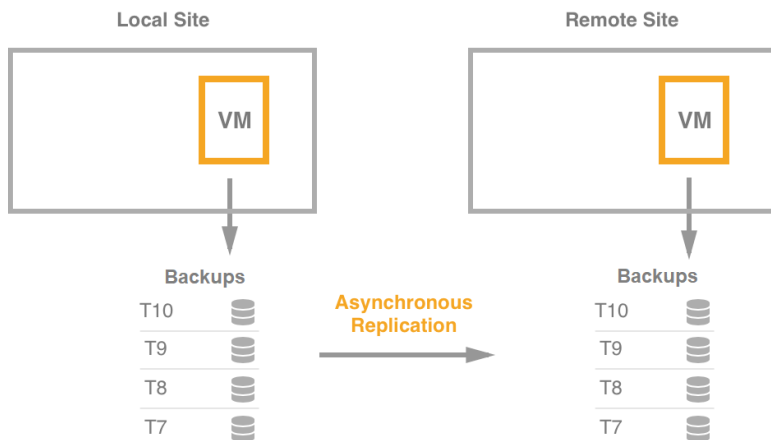


Figure 4. Site disaster recovery

For more information about quick DR backups, see the following topic:

https://thinkagile.lenovofiles.com/help/topic/thinkagile_cp/manage-quick-dr-backups.html

For more information about external backups, see the following topic:

https://thinkagile.lenovofiles.com/help/topic/thinkagile_cp/manage-external-backups.html

Site disaster recovery

The remote site is an exact copy of the local site and is available for failover in the event of a disaster.

Failover is manual and requires that the remote virtual machines and network function virtualization services are started in the event of a disaster. You can script the disaster recovery process so that it is continually tested, without impacting the production environment, in preparation for an actual disaster.

Protection against rack failures

ThinkAgile CP offers Disaster Recovery functionality to replicate from one rack to another to safeguard against rack failures. ThinkAgile CP provides a highly available platform that can sustain any single point of failure in the system. With the built-in Disaster Recovery capability, you can set up replication from one rack to another within the same site, thereby protecting your applications from multiple hardware failures or even “whole rack” failures.

Item-level recovery

You can recover individual items from a backup by cloning and attaching a backup to a virtual machine and copying the file to the required destination location. Using a Windows application as an example, you would select the backup from which to restore a file within the ThinkAgile CP Cloud Controller, select clone and attach feature, and then select the Windows instance to which to attach the file. The data in the backup is then available on the Windows instance as a set of disks from which to recover.

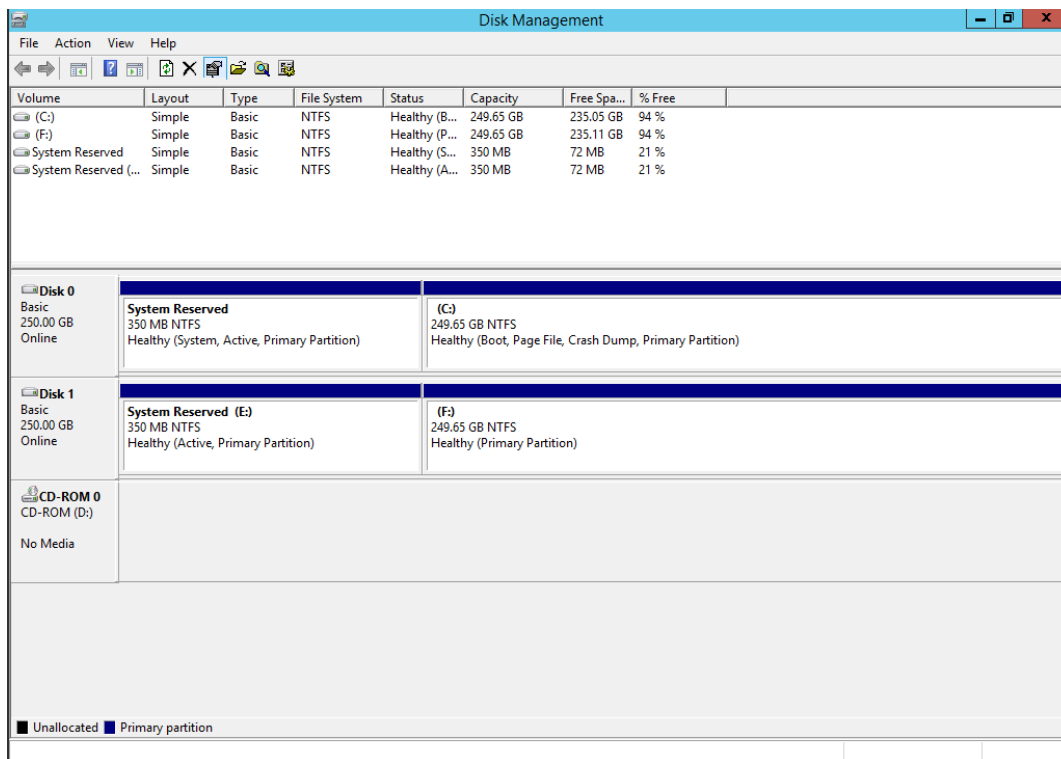


Figure 5. Fast availability of data on a Windows instance

For more information about cloning and attaching a backup, see the following topic:

[Technical brief: clone and attach a vDisk](#)

Application backup integration

For Windows virtual machines, ThinkAgile CP is integrated with VSS to deliver application-consistent backups. For Linux virtual machines, ThinkAgile CP is integrated with the block sub-system to deliver crash-consistent backups.

Backups can be prepared for special use cases by using the pre- and post-backup command options, which enable special flush or other application preparation commands to be processed. For database backups, ThinkAgile CP provides integration that can execute pre- and post-backup scripts for backups that will be application-consistent backup images. This integration can also work with agent-based database backup solutions. Because a backup can be taken instantaneously, it greatly reduces backup windows.

Integration with Third-party Backup Solutions

Third-party, agent-based backup products are supported on the ThinkAgile CP platform, including Commvault, Veeam, Rapid Recovery, and NetBackup.

No special changes are required to support these backups; they will work “out-of-the-box.” A backup agent must be installed on each guest and must be configured to back up to a repository. Recovery from a backup will require customers to use PXE boot. Currently, many ThinkAgile CP customers leverage our built-in backup functionality for local and site protection and fast recoveries and use third-party backup for long-term archive purposes.

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