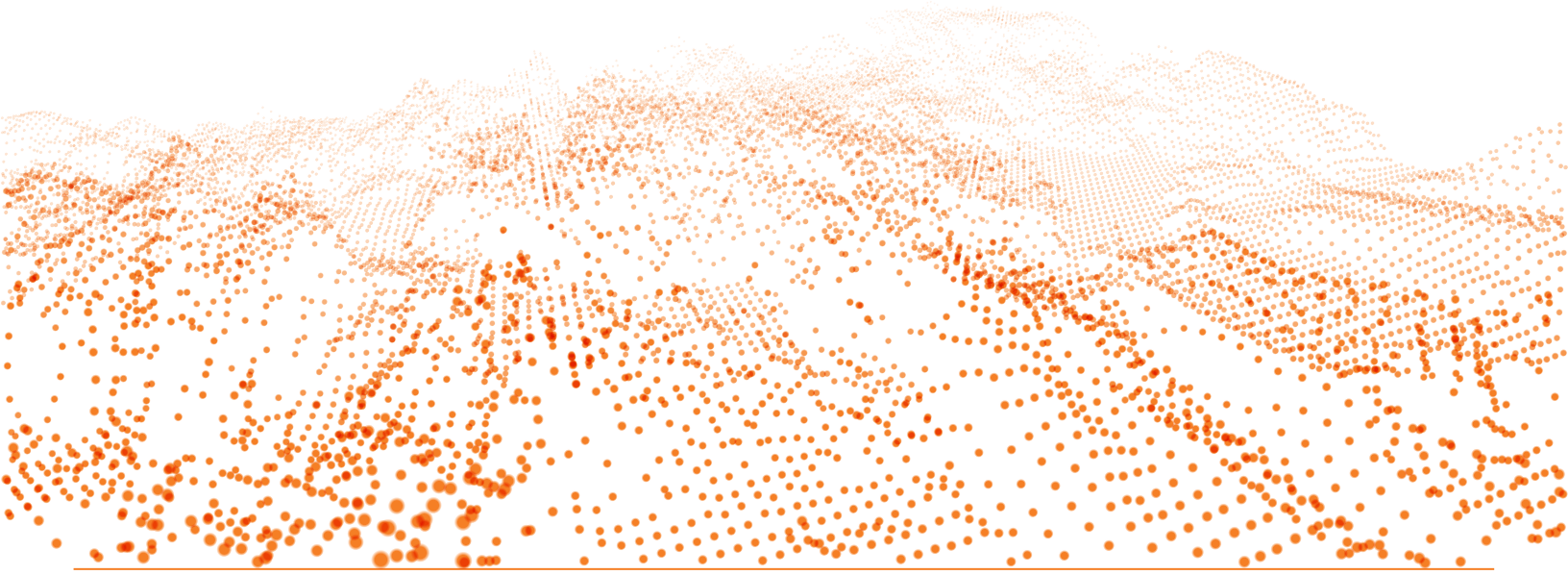
TECHNICAL BRIEF

Cayosoft Guardian Instant Forest Recovery

CLEAN, VALIDATED, TESTED, AND CONTINUOUSLY ASSURED ACTIVE DIRECTORY FOREST RECOVERY



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OVERVIEW

Cayosoft Guardian Instant Forest Recovery maintains a continuously prepared standby Active Directory forest that is clean by design, validated through enforced trust gates, tested through full restore execution, and continuously assured through identity threat detection and change monitoring.

Recovery is not treated as a one time event triggered by an outage. It is treated as an ongoing identity assurance process in which backups, recovery points, and the resulting standby forest are continuously evaluated for integrity, security, and operational readiness.

CORE PRINCIPLE: RECOVERY STARTS BEFORE THE INCIDENT

Traditional Active Directory recovery assumes backups are trustworthy and focuses on rebuilding identity after compromise. Guardian takes a different approach.

Guardian continuously monitors identity changes and threats in production so that recovery points can be evaluated in context. This allows organizations to determine when compromise began, what changed, and which recovery points are safe before restore ever occurs.

As a result, recovery is not a blind rollback. It is a controlled promotion of a known good identity state.

ARCHITECTURE SUMMARY

PRODUCTION IDENTITY ENVIRONMENT

Guardian continuously monitors Active Directory for configuration changes, privilege escalation, and other identity impacting activity. Every change is captured with context, including what changed, when it changed, and who initiated the change.

This change history and threat telemetry establish an identity timeline that is later used to evaluate recovery points and eliminate persistence risks.

RECOVERY ENVIRONMENT

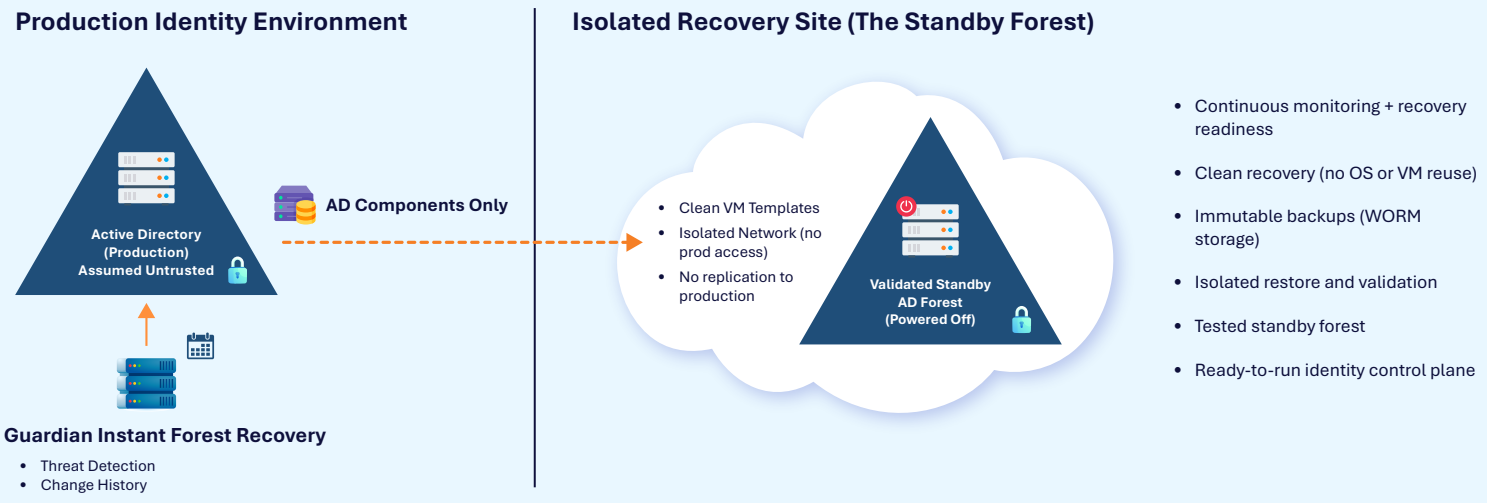
Recovery is performed in an isolated cloud recovery site hosted in Azure or AWS. This environment is provisioned independently of production and is separated through strict network isolation. There are no trust relationships or replication paths between production and the recovery environment during restore and validation.

STANDBY FOREST OUTCOME

The outcome is a fully restored Active Directory Forest replica that has been brought online, validated, and powered off. This standby forest represents a known good identity control plane that can be activated when required.

Cayosoft Guardian Instant Forest Recovery

Clean, Validated, Tested Standy AD Forest (AZURE/AWS)



Guardian continuously monitors identity, builds clean recovery points, and maintains a validated standby forest so recovery is a controlled activation, not a rebuild under pressure.

CLEAN ACTIVE DIRECTORY FOREST RECOVERY

Clean means nothing that could be compromised is reused.

Guardian backs up and restores Active Directory components only. Operating systems, system state, drivers, installed software, and virtual machine artifacts are explicitly excluded. This eliminates common persistence paths such as malicious services, scheduled tasks, kernel level implants, tampered drivers, and boot level malware.

Active Directory backups are encrypted and stored in immutable WORM cloud storage. Once written, backup data cannot be modified or deleted until retention expires. This prevents ransomware, attackers, or insiders from tampering with recovery data.

Recovery is performed on new cloud virtual machines deployed from trusted, hardened templates. No production servers, domain controllers, or virtual machines are reused.

Isolation further enforces cleanliness. The recovery environment blocks traffic from production and prevents replication from compromised domain controllers.

Production operating systems and virtual machines are never reused. Recovery is limited to validated directory data only.

CONTINUOUS THREAT DETECTION AND CHANGE MONITORING AS RECOVERY CONTROL

Clean recovery is only possible if the integrity of recovery points can be evaluated.

Guardian continuously monitors Active Directory for identity threats and changes, including:

- Privilege escalation and group membership changes
- Modifications to Tier 0 objects and policies
- Security relevant configuration drift
- Anomalous or suspicious identity activity

This monitoring produces a complete, immutable change history of the identity environment.

During recovery planning and execution, this history is used to:

- Identify the onset of compromise or malicious activity
- Determine which backups predate the compromise window
- Validate that no known persistence mechanisms were present in selected recovery points

Threat detection and change monitoring ensure that recovery does not reintroduce attacker controlled state, even if the backup itself is technically valid.

In other words, Guardian does not just restore data. It restores identity trust.

VALIDATED ACTIVE DIRECTORY FOREST RECOVERY

Validated means the recovered forest must prove trustworthiness before it is accepted.

After restore, the forest is fully brought online inside the isolated recovery environment. Validation is performed against the running forest and is enforced through gates that must all succeed.

Validation includes but not limited to:

- Microsoft Best Practice Analyzer checks
- Active Directory health validation, including replication topology and global catalog availability
- DNS validation to ensure zone integrity, service locator records, and name resolution correctness
- SYSVOL validation to confirm policy consistency
- Metadata cleanup to remove stale or invalid domain controller references
- Double KRBTGT resets to invalidate existing Kerberos tickets and eliminate ticket based persistence
- Verification of controlled administrative access using a Zero Trust break glass account

Authentication, name resolution, and privileged access must function correctly within the isolated environment.

Validation is authoritative. If any validation step fails, the recovery instance is rejected and never promoted to a standby forest.

Because DNS is restored and validated alongside Active Directory, authentication flows and service resolution behave as they would in production once the standby forest is activated.

TESTED ACTIVE DIRECTORY FOREST RECOVERY

Tested means the forest has been proven to work, not assumed to work.

Every recovery cycle results in a full forest restore that is booted, validated, and exercised in isolation. Once validation is complete, the forest is deliberately powered off and retained as a ready to run replica.

This lifecycle proves that:

- Backups are usable
- Restore automation functions correctly
- Authentication and directory services operate as expected
- The environment can be safely activated on demand

Because every backup goes through this process, recovery is continuously proven during normal operations rather than discovered during an outage.

Recovery is already done before the incident happens. Cutover becomes an operational decision, not a technical rebuild.

END TO END IDENTITY RECOVERY LIFECYCLE

1. Guardian continuously monitors identity changes and threats in production.
2. Active Directory components are backed up and stored immutably.
3. Threat detection and change history are used to evaluate recovery point integrity.
4. An isolated recovery environment is provisioned in Azure or AWS.
5. New cloud virtual machines are deployed from trusted templates.
6. Directory data is restored and the forest is brought online in isolation.
7. Validation gates are executed across AD, DNS, SYSVOL, Kerberos, and administrative access.
8. Failed recovery instances are rejected. Successful instances are powered off and retained as standby.

WHY THIS MODEL IS DIFFERENT

Traditional recovery treats security and recovery as separate phases. Guardian integrates them.

Threat detection and change monitoring ensure that recovery points are trustworthy. Clean recovery eliminates reinfection paths. Validation enforces trust gates. Testing proves operational readiness.

The result is not just faster recovery, but safer recovery.

SUMMARY

Cayosoft Guardian Instant Forest Recovery delivers Active Directory Forest recovery that is:

- Clean, by eliminating OS reuse and enforcing immutable backups
- Continuously assured, through identity threat detection and change monitoring
- Validated, through enforced trust gates
- Tested, through full restore execution before incidents occur

The outcome is a standby Active Directory forest that is trusted, tested, and ready to run when needed.