EDpCloud For Tech People With No NDA

Features & Architecture Overview

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SOLUTION: EDpCloud

EnduraData EDpCloud: Automated and encrypted data movement between business processes, heterogeneous systems and different geographic sites.

Accelerated data movement solution for:

- Multiple Platform
- Multiple Sites
- The Cloud
- Big Data
EDpCloud Suite:
Transfer data between different OS’s and different locations

Real Time Replication

Automate or Scheduled, Secure Data Synchronization

Share Data Between Different Operating Systems

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Healthcare: Automated data movement and processing

Provider Process

Data

Clinic 1
Clinic 2
Hospital
Hospital

Reporting

Private Cloud

Payer Process

Public Cloud

CA
IL
NY
WA

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EDpCloud One To Many Replication:
Distribute data automatically anywhere

Cross Platform
VUpdates (Windows, Linux)
Scheduled Updates
Data movement/sync
Automate Workflow
Relay & Forward Data
Share Data
Open File Support
EDpCloud Many To One Replication: Bring data to a central location automatically

- Backup Consolidation
- Data Aggregation
- Data Migration
- Data Sharing
- Versioning
- Continuous Data Protection (CDP)
- Virtual machines
- Physical machines
Use EDpCloud in:
Private – Public – Hybrid
Bring data to a central location automatically

On premise – to cloud – between different clouds
Migration Uses
Automated Data Migration & Movement

Cloud to Cloud
Platforms to Cloud
Cloud to platforms

Big Data Aggregation,
Cluster to cluster
Virtual to Physical Machines
Physical to Virtual Machines
Ransomware Protection with multi OS, versioning & isolation

EDpCloud

DENVER
Replicate/Back up Data from Windows servers

ATLANTA
Save on/Restore from a LINUX/OpenBSD server
Data streams are encrypted (AES 128 by default)

Data can remain encrypted at rest if you chose to

Other rules: Regex on both sender and receiver.

Multiple authentications:
- Hosts allowed
- Passwords for management
- Passwords for transport
- File encryption keys
Configuration and Management

XML Configurations:
- One to One
- One to Many
- Many to One
- Many to Many
- Bidirectional:
  - / to / on Linux
  - C: to C: etc.

Command Line
Browser GUI.
Bandwidth & Compression

Reduce bandwidth used & sync time by sending only deltas (small blocks that changed)

Use bandwidth throttling

Use adaptive compression

Use Pause and Resume: Start at time T1, pause at time T2, resume at time Tn ...
Post/Pre & Isolation

Post & pre processing hooks on sender

Isolation of receiver from sender (See ransomware).

Example data ingestion (sensors, reports, etc.)

Post & pre processing hooks on receiver
Email Alerts

- Configure alerts to notify you on failures
- Network to remote down
- Replication failures
- Disk space issues
- etc.

- Receive alerts only from sender
- Receive alerts only from receiver
- Receive alerts from both.
Learning algorithms

Some Machine Learning:
- When to use parallel Disk I/O
- Parallel Streams for efficient bandwidth utilization
- Learn from past performance
- Learn from current performance
- Self Tune, Predict ETA
- CPU Load optimization
- Balance I/O, CPU usage.
Journal File Changes: Rules & Policies

- Journal file changes for each subscriber:
  - If subscriber is interested in a file system
    - && If it matches a regex in includes
    - && If it does not match regex in exclude.
  - Then pass to transport layer
Brief Overview of the architecture

**SENDER**
- GLM Analytics Orchestrator
- Perf Analyzer
- Dynamic Load

**JNRNL**
- JRx-Regex Filters
- File System Module

**FEEDBACK METRICS**
- Parallel IO Sec Xfer

**RECEIVER**
- FS
- FS
Sender side: real time module: Monitors data and metadata changes

- Monitor I/O changes:
- Mutator system calls:
  - Write
  - Truncate
  - Chmod
  - Chgrp
  - Chown
  - Rename
  - Delete
  - Symlink
  - Mkfifo
  - Rmdir
  - Change attributes
Data Transfer

- Use multiple threads: 1 thread per stream or more
- Get info from journal
- Slice and dice to create well balanced payloads
- Group compressing and non compressing blocks
- Consolidate operations if needed
- Consolidate blocks if needed (dedupe)
- Adaptively compress and encrypt
- Send only what has changed (plus some delta).
ACLs and Security preservation

Windows to Windows: acls and permissions

Windows to Linux: Files owned by root or specified user

Mac, Linux, Solaris: Posix acls (setfacl, getfacl) between same platform

TBD: Windows2unix: Samba style sec mappings.

Mac, Linux, Solaris: uid, gid, ... mode bits
Some operations are more complex:

Rename across multiple machines

**Traditional File systems: Rename is:**
- Copy
- Delete

**EnduraData: Rename is more efficient & faster:**
- Attempt rename on remote
- Copy to remote if different or missing
- Delete.
Deal with open files

Windows:
- VSS
- Snap shots

Re-queue changes.
Management

- XML configurations
- CLI or Browser management & configurations
- Scheduled
- Real Time
- Pause/Resume/Cancel
- Priority control
- Queue, put, get
- History and logs.
Requirements

- VM or Physical machine memory: 8GB
- Network: LAN, WAN, MAN or Internet
- CPU speed: min 1Ghz
- Available free storage for logs, binaries, history, libraries: 4GB
- Operating systems supported:
  - Linux
  - Solaris x86
  - Solaris Sparc
  - AIX
  - OpenBSD
  - Mac/OSX
  - Other Unix
Requirements for Linux Real Time

Kernel $\geq 2.4$
Util-Linux $\geq 2.18$
Major features

- Cross platform between operating systems
- Replicates between SARC & Intel & IBM power
- Supports most operating systems
- Real-time
- Scheduled
- On demand
- Pause
- Resume
- Bandwidth throttling
- Multiple streams
- Parallel I/O.
Major features

- Replicate only file changes (deltas).
- Adaptive compression
- Encryption
- Meta data (permissions, ACLs) sync
- Aggregate data from multiple locations
- Multi-cloud support
- On-premise support
- On-premise to cloud
- Cloud to on premise
- VM to VM
- VM to Physical
- Physical to Physical
- Physical to VM.
Major features

- Bandwidth throttling and control
- One to one
- One to many
- Many to one
- Cascaded and mesh transfers
- Post and Pre processing hooks
- Filter files with includes regular expressions
- Filter files with excludes regular expressions
- Transfer PHI and confidential information.
Major features

• Server isolation for ransomware protection
• Versions and archives
• Bidirectional
• Multi-directional
• Open file support
• File name case preservation
• Data distribution
• Data aggregation
• Data migration
• Support for renames, deletes, meta data change, data changes, etc.
Major features

- Support for a very large number of files.
- Support for very large files (Limit dictated only by the OS).
- Support for many file systems including network file systems.
- Data immediately available and usable on the destination (No need for restore).
- Conflict detection.
- File change and replication history.
- Tools for storage management and monitoring (Find files modified files, sizes, md5, etc).
Get Started now
Cross Platform file Replication Software

EDpCloud

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