

TANDsoft

Business Continuity and
Ransomware solutions

Jack Di Giacomo





TANDsoft - Jack Di Giacomo

TANDsoft – NonStop solutions used for business continuity, system migration, time virtualization and application modernization.

Business Continuity - Blazing fast products using Block reading and hashing technology:

- FS Compare & Repair (fastest Compare and Repair solution for NonStop)
- FS Backup & Restore (speeds up Backups and provides Ransomware Recovery)
- FileSync (fastest DR file synchronization solution for NonStop)

Seamless intercept technology products:

- OPTA2000 – Virtual Clock and Time Zone simulator
- SDI (seamless sensitive data intercept for Enscribe, MP and MX).
- E2S 4.0 – Enscribe to SQL (supports SQL/MP and SQL/MX and uses static SQL)



Who is using TANDsoft products and Why ?

A large European bank, was running a complex environment that had grown and evolved considerably over the course of decades.

“To help this client enhance its file comparison and repair capabilities, we tested **FileSync and FS Compare and Repair**.

Both solutions were easy to install and configure.

Most importantly, compared to alternatives that employ record-by-record comparisons, TANDsoft’s block-level approach was ten times faster.”

A hand holding a glowing blue globe with a city skyline in the background. The globe is illuminated with a bright light, and the city skyline is visible in the background. The text "Who is using TANDsoft products and Why ?" is overlaid on the image.

Who is using TANDsoft products and Why ?

A world leading technology company
uses FS Compare and Repair to
compare very large files and tables,
exceeding 200 partitions and 1 TB.

A hand holding a glowing globe with a city skyline in the background. The globe is blue and white, with a grid of lines. The city skyline is in the background, with several tall buildings. The background is a gradient of blue and white.

Who is using TANDsoft products and Why ?

The largest provider of electronic transactions
in Latin America
uses TANDsoft to
automatically synchronize and
compare thousands of files between NonStop systems.
It was relied on extensively for System Migration.

A hand holding a glowing blue globe with a city skyline in the background. The globe is illuminated with a bright light, and the city skyline is visible in the background. The overall scene is set against a blue and white background with a grid pattern.

Who is using TANDsoft products and Why ?

An American multinational investment bank and
financial services holding company
uses TANDSoft
to compare and repair SQL/MX tables.



What is Block Hashing Technology ?

TANDsoft 'Block technology' incorporates **Blazing fast reading** and **Block / Record hashing** of Enscribe, OSS, SQL/MP and SQL/MX files.

Block/Record hash compare allows for very quick identification of data block differences between files.

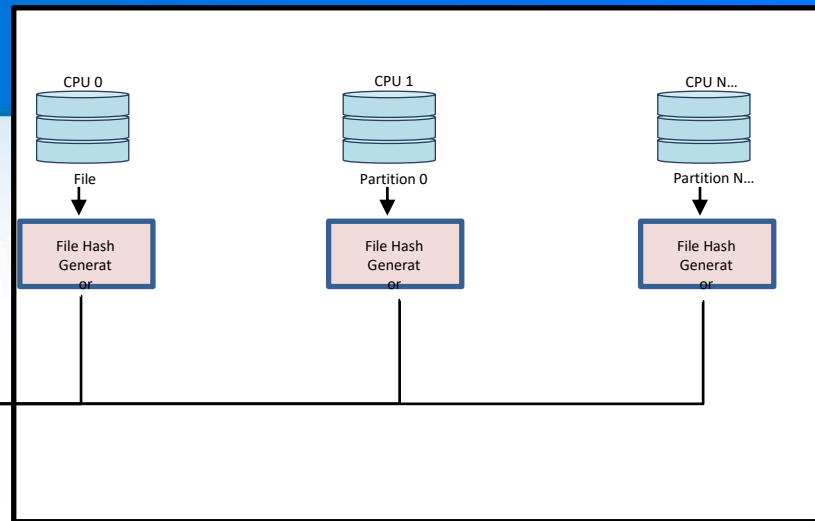
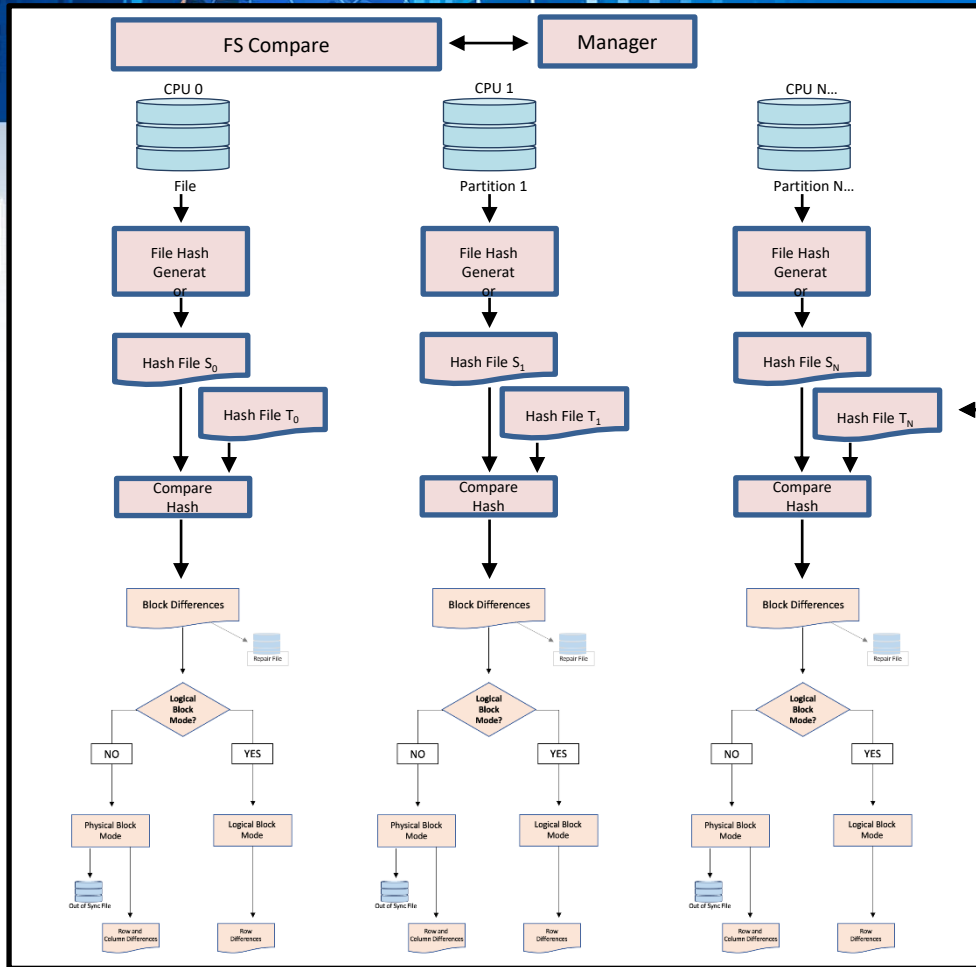
This core Block technology is used in all the TANDsoft FS family of products.

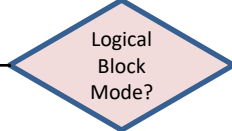
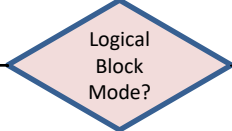
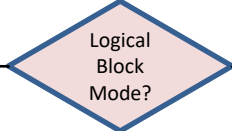
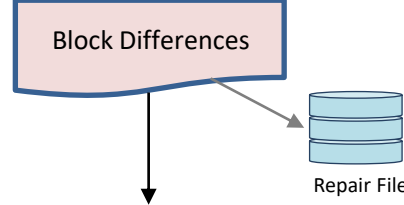
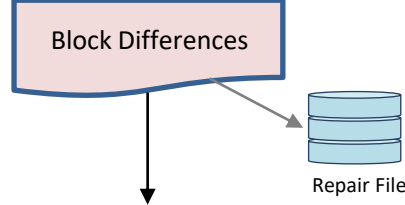
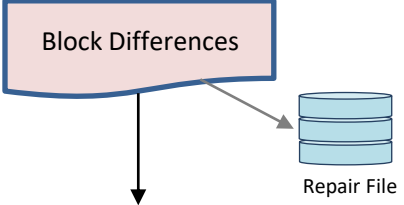
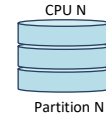
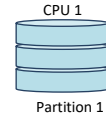
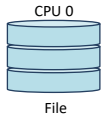
- FS Compare and Repair
- FS Backup and Restore
- FileSync

Source System

FS Compare and Repair

Target System





NO

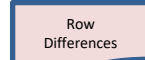
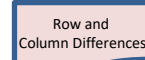
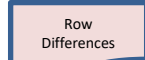
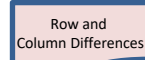
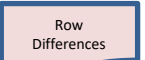
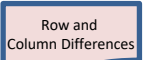
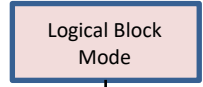
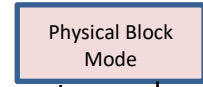
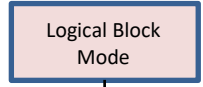
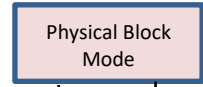
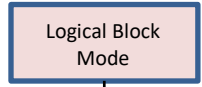
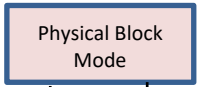
YES

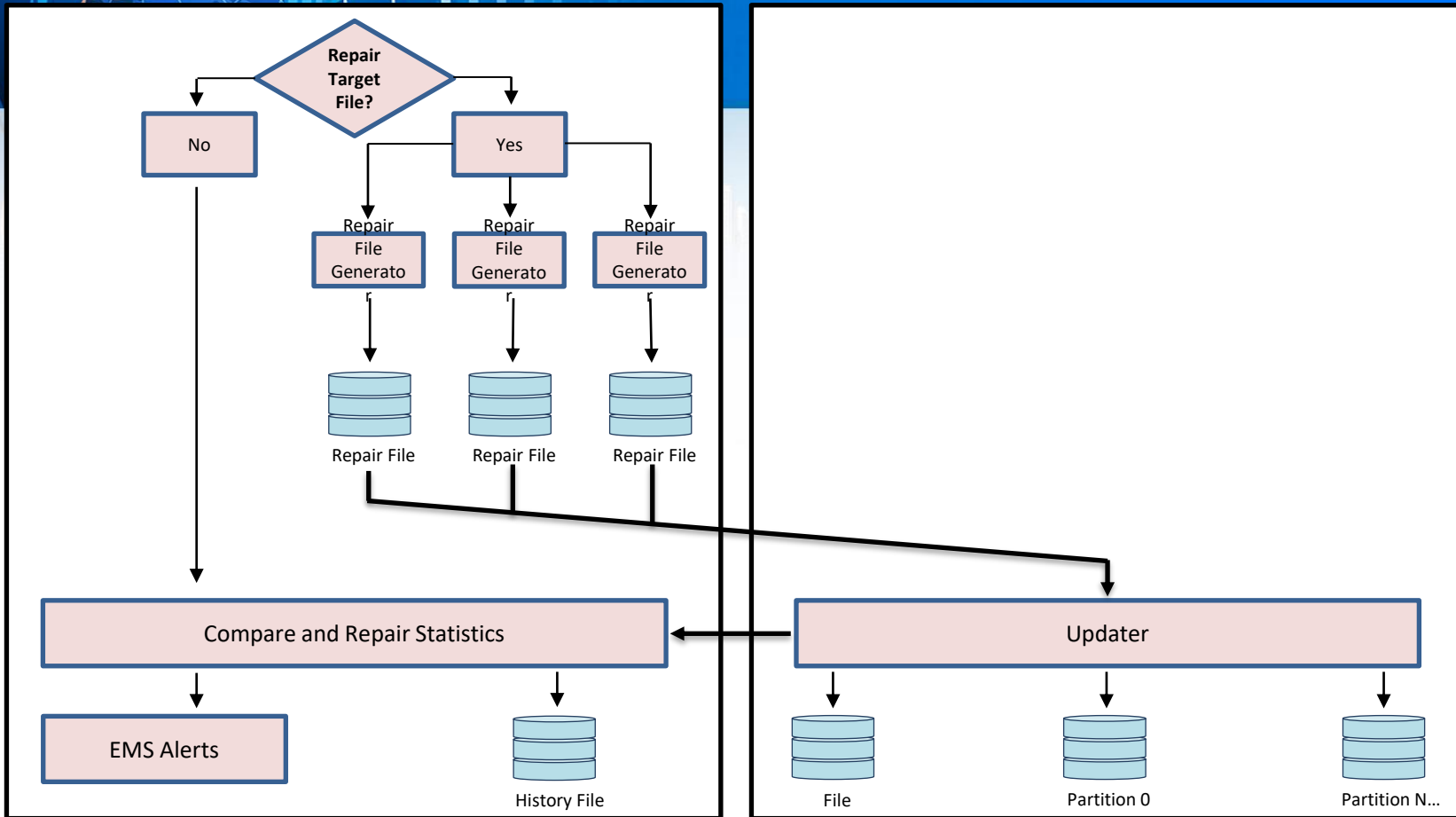
NO

YES

NO

YES







FS Compare and Repair - Highlights

Blazing Fast Compare

10,000,000 records in 13 seconds.. 1 TB multi-partitioned file in 10 minutes

Supports Compare and Repair for all NonStop databases

OSS, Enscribe, SQL/MP and SQL/MX

Accurately detects and displays data differences in Live Databases.

Ignores False positives.

The DBA “must have” solution for NonStop OSS, Enscribe, SQL/MP and SQL/MX files.

Compare and Repair individual partitions or entire files.

Parallel Re-loading of Partitions or Indices (only changed blocks, not entire file)



ES Compare and Repair - version 4.2

Compare and Repair of ALL file types using TCP/IP instead of Expand.

With TCP/IP, Production, DR and System migration Databases can all be Compared and Repaired.

Support for SQL/MX table wildcarding.

Added Compare and Repair for Active – Active environments.

Other product highlights.

Blazing Fast reading, Source and Target parallel partition hash generator and efficient use of Network resources.

Record Repair mode.

- Target Database is Repaired by applying Record / or Row Inserts, Deletes and Updates.

Block Repair mode.

- Target Partitions/Indices Repaired by updating Target Partition/Index Blocks.

FS Compare and Repair - Differences

SQLCI Update \CGNAC2.\$DATA11.FS32.PANP1 set Pan2 = '123456' where Pan = '000000';

Update Record on Target -----

Source ...

Block: 00002000 Record: 0 Address: 2028, Len 51

0000: 0006 3030 3030 3030 3030 4333 3433 2020 2020 2000 0432 3232 3233 3333 3320 2020 2020 2020 2000 0434 3434 3400 0631 3233 3435 36
0000: ..00000000C343..22223333..4444..123456

Block: 00002000 Record: 0 Key: (0: PAN,8), Len 8

0000: 0006 3030 3030 3030 ..000000
... Address: 002B, Column: 5, PAN2, Len 8
0000: 0006 3132 3334 3536 ..123456

Target ...

Block: 00000000 Record: 0 Address: 0000, Len 51

0000: 0006 3030 3030 3030 3030 4333 3433 2020 2020 2000 0432 3232 3233 3333 3320 2020 2020 2020 2000 0434 3434 3400 0630 3043 3334 33
0000: ..00000000C343..22223333..4444..00C343

Block: 00002000 Record: 0 Key: (0: PAN,8), Len 8

0000: 0006 3030 3030 3030 ..000000
... Address: 002B, Column: 5, PAN2, Len 8
0000: 0006 3030 4333 3433 ..00C343

FS Compare and Repair – Blazing fast

```
run FSCOMP Source " \cgnac2.$data11.fs32.test4gb " Target " \cgnac2.$data11.fs32.test4gbx "
```

File	Last Modtime [*]	EOF	Blocks	!=	Rows
S-1	20-04-26 10:27:56	4,483,469,856	1,094,598	0	1,094,598
T-1	20-04-26 10:27:56	4,483,469,856	1,094,598	0	1,094,598

S-1 = \CGNAC2.\$DATA11.FS32.TEST4GB

T-1 = \CGNAC2.\$DATA11.FS32.TEST4GBX

Profile : Profile-Enscribe-4gb, Config-file \$DATA11.FS32.FSCONFIG

File/Part/Index : 1 (Equal)

Blocks : 1094598 (Equal)

Records/Rows : Source 1094598, Target 1094598 (Not Equal 0) : **Inserts 0, Deletes 0, Updates 0**

Errors/Warnings : 0 Errors, 0 Warnings

Elapsed Time : 00:00:48.402

File Equal : **Yes**

File Repaired : No

EMS File Alerts : 0



Solving Enterprise Challenges today

How do I ensure that my Active-Passive or Active-Active databases are equal ?

Compare over 250,000 files between Production and DR environments.

Compare very large files and tables in minutes or hours, not days and weeks.

I want to know if my Production data is ever out of Sync ?

Scheduled and repeated Compares for critical production files.

Automatic EMS alerts are generated when File discrepancies are detected.

Has my Production data ever been out of sync before ?

Compare statistics database can be queried using SQL.

Simple and easy to read Compare reports for Management.



Compare product differences

Competitor Compare products:

- use Record or Block compression

- compare records one at a time

- consume much more System and Network resources

- compares large files and tables in days or weeks, instead of minutes or hours

- Can not Compare and Repair all NonStop file types

FS Compare - CO-operative Licensing model available.

If you already License a Compare product and would like to use FS Compare for very large files or thousands of files, contact us to see how we can help.

FS Backup and Restore

Provides Fast Ransomware recovery
Reduces Daily Backup times from Hours to Minutes



FS Backup and Restore



FS Backup and Restore - Highlights

Ransomware

- Provides Continuous Data Protection (CDP).
- Can be used in an Air Gap environment.
- Recovery - Supports database Roll forward. (Roll backward is planned for a future release)

You start with a Full backup from a known good state, called a gold backup, and CDP automatically backs up all Block changes to the data, along with when they occurred. This means you can perform a full restore from the gold backup plus all the changes. (like TMF architecture)

CDP is implemented on disk or immutable storage instead to meet fast-as-possible goals.

Daily Backups

- Uses TANDsoft 'Block Technology' to detect and save file block changes to reduce Daily, Weekly and Monthly backup times from hours to minutes.
- Supports Backup and BR2, all NonStop files (OSS, Enscribe, SQL/MP, SQL/MX) and works with ALL Tape and Virtual Tape Storage solutions.



Solving Enterprise Challenges today

The right kind of continuous data protection is the key to business survival

CDP - a **best practice** to enable swift recovery from **Ransomware** attacks and other disasters.

There is a straight trade-off between cost and the ability to recover from disasters quickly.

Paying ransom to a Ransomware attacker is no guarantee of data recovery.

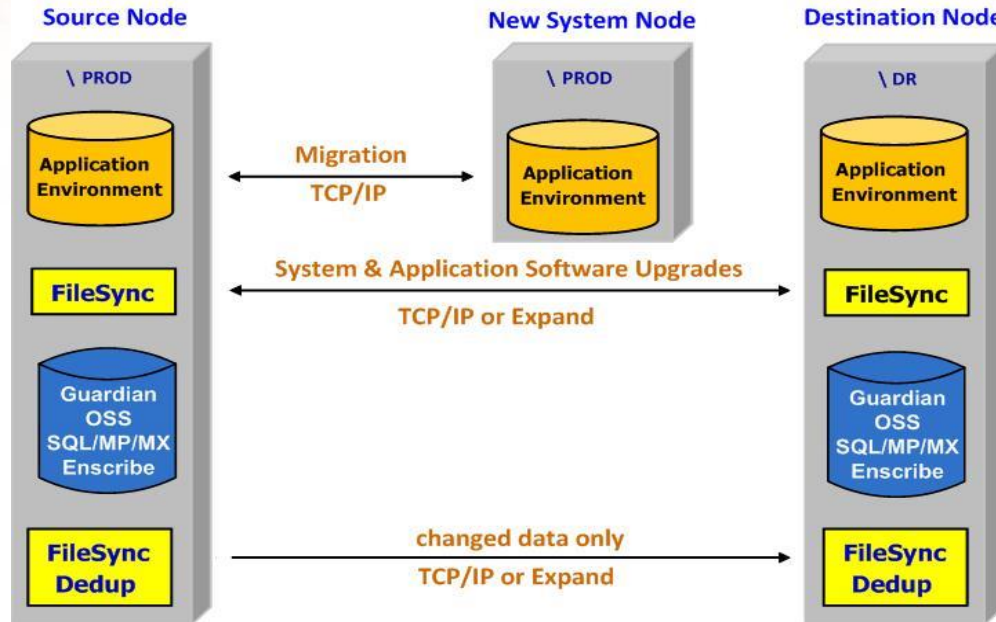
The best outcome from a Ransomware attack is to block it before it gains entry. But that can't be your whole strategy.

You need to plan for recovery from the attacks that will invariably make it through.

Ransomware recovery has to be as fast as possible so the business at large can get back up and running.

A **new approach**, called **continuous data protection**, allows for fast recovery from even significant data losses.

Replicates and synchronizes File modifications between NonStop Servers





FileSync - Highlights

Synchronizes all NonStop files, Enscribe, OSS, SQL/MP and SQL/MX between Production, DR and Migration environments, over Expand or TCP/IP and works with ALL file replicator solutions.

For Large files, it uses TANDsoft 'Block Technology' to identify and synchronize only the File Data Block differences to the Target, instead of the Entire file, reducing Synchronization time from hours to minutes.

FileSync can be used to continuously synchronize thousands of files between Production, DR and Migration environments.



Why Enscribe to SQL ?

E2S 4.0 is the next generation of the ENSCRIBE-to-SQL Toolkit solution.

ENSCRIBE to native SQL/MX (or SQL/MP) migration

Transparent Intercept - No code changes required

Automatic Data Transformations (e.g. JULIANTIMESTAMP from/to DATETIME(6))

Uses Static compiled SQL/MX, not Dynamic SQL for much better performance.

E2S APIs exposed for customer use

Supports Guardian, OSS, TNS & Native ENSCRIBE applications (C, C++, Cobol, Tal & pTal)

E2S is the most cost efficient and secure solution to modernize your application



TANDsoft – other solutions

OPTA2000 - Virtual clock and Virtual time zone simulator.

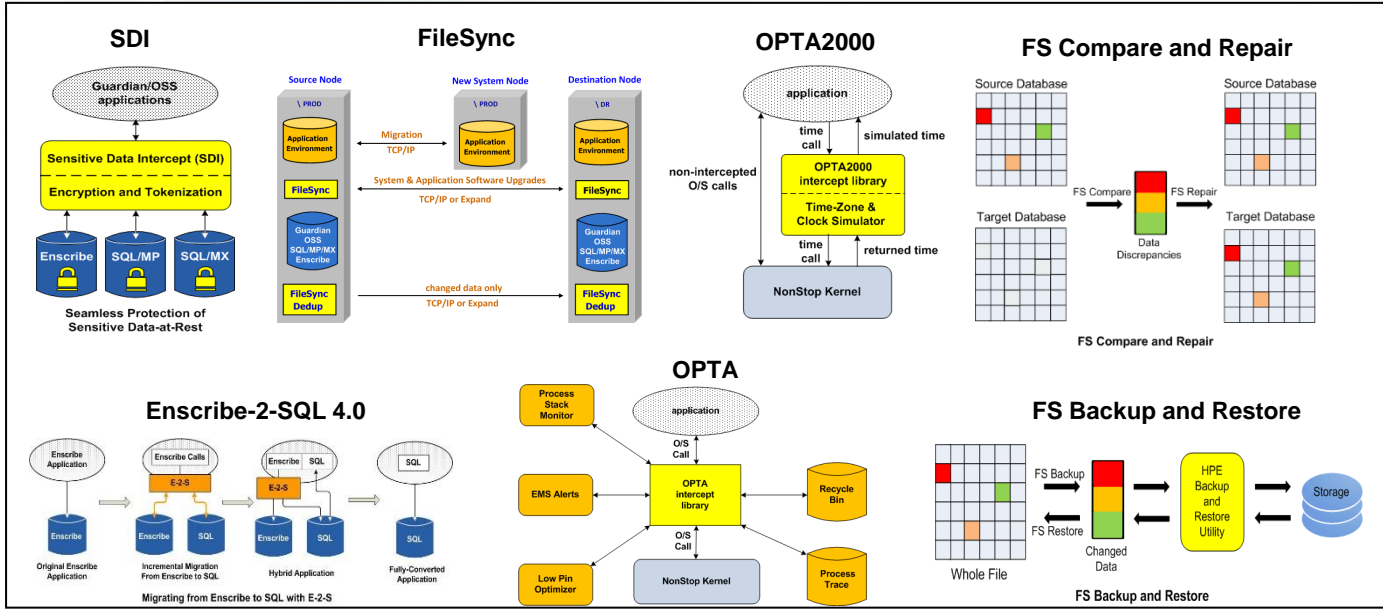
HPE, third-party and customer applications can run in different time zones on one NonStop server with NO source code changes.

One customer in Boston, uses OPTA2000 with NetBatch and schedules Jobs to run every Weekday at 4:00 pm Local time in New York, London, Paris and Sydney, regardless of the Daylight Savings Time.

SDI – Seamless interception of Enscribe, SQL/MP and SQL/MX DB access.

- Used for encryption, auditing, E-2-SQL and tracing of database access.

TANDsoft products



Thank You for Attending

Additional information or questions ?

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