

Functional Specifications



Stream System Backup/Recovery

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Document Overview

This document details different levels/modes of system backup/redundancy that Cleo's Stroom system supports. The actual level(s)/mode(s) available to a customer will depend on the (recovery) hardware and software purchased by that customer from Cleo.

Modes supported by the Stroom system will be listed in the order of increasing levels of system backup/redundancy they provide. For each mode, detailed instructions are provided on how to help the system recover in case of a hardware/software disaster.

Definitions

Stroom System:

Stroom software and hardware running on server hardware. Every Stroom System has one Stroom Server and may have one or more Stroom Node(s).

Stroom Server:

The server hardware where all the Stroom software is installed and runs. It also contains Telco hardware. Stroom nodes, when present, are controlled by it.

Stroom Node:

When present, a Stroom Node contains Telco hardware, and minimal Stroom software needed to communicate with this hardware and the Stroom Server.

Stroom System – Server Only:

A Stroom System in which all software and hardware is installed and running on the Stroom server, and there is no Stroom node.

Stroom System – Server and Node:

A Stroom System that has one or more Stroom Node(s). This is, generally, used to support more hardware i.e. higher numbers of fax/voice ports in a system.

Note: Anytime the term Stroom System is used in this document, it represents either a Server Only or a Server and Node configuration.

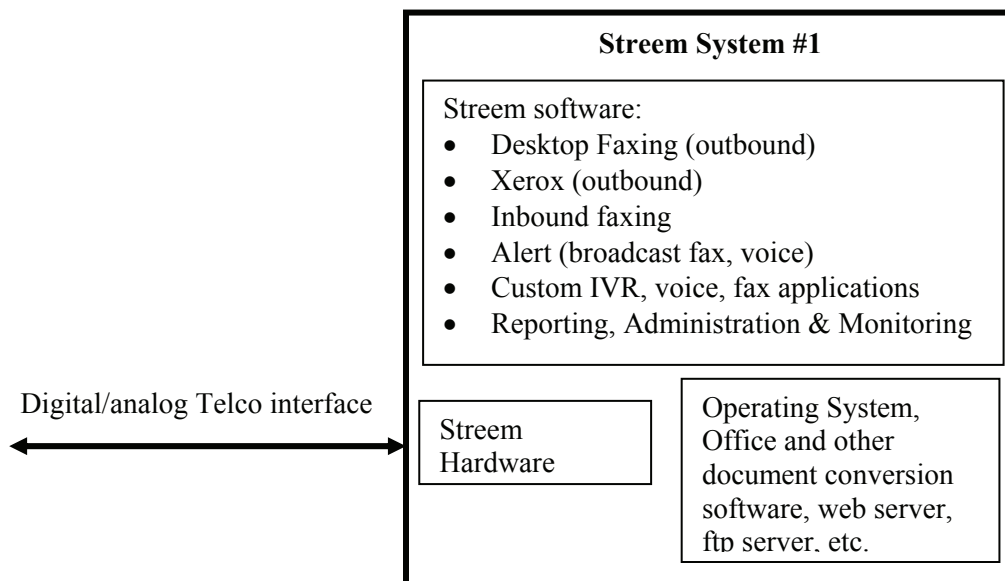
History

By	Date	Description
Haroon Najam	7/15/2007	Original

Mode 0 – Single Stream System

System Diagram

Note: Exactly what Stream modules are running on a customer system will vary, depending on what the customer has purchased. Reporting, Administration and Monitoring will be installed on all systems.



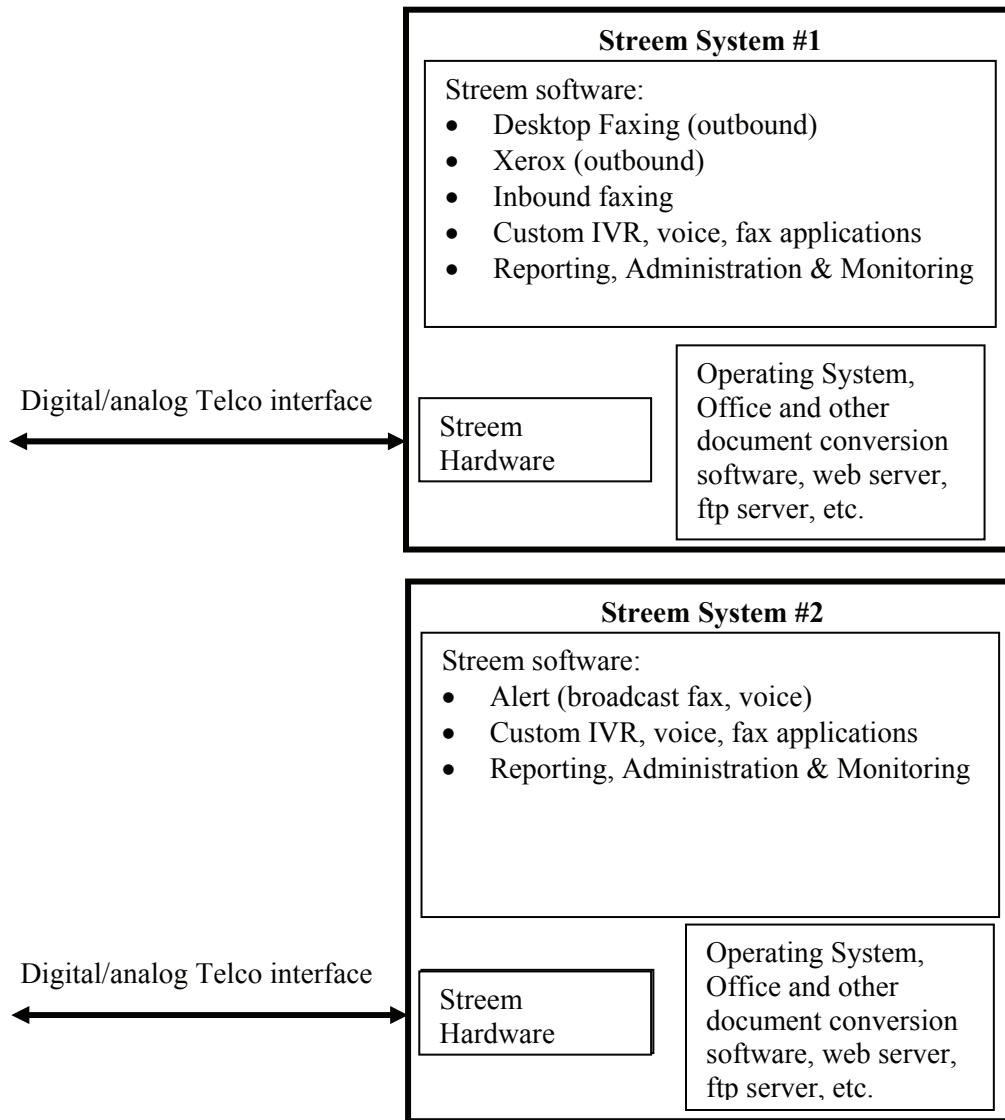
System Backup/Redundancy features overview

A single Stream System offers no possibilities for system backup/redundancy.

Mode 1 – Two Stream Systems – *both active*

System Diagram

Note 1: Both systems will be installed and configured identically. Which Stream module is actually activated on each server will, then, be determined using consideration such as call load distribution, customer preferences etc. Reporting, Administration and Monitoring will be active on both systems. The distribution shown below is just one example. Others may be all outbound on one system, all inbound on the second; desktop fax on one, Xerox on the second, etc.



System Backup/Redundancy features overview

In this mode a second Stroom System – with its own Stroom software and hardware – offers the possibility of system backup/redundancy, in case the first system fails. The exact procedure needed to move modules running on the system that is down to the system still functional will depend on the exact distribution of Stroom modules, in a given system. However, the following guidelines, specific to moving each module from the system it normally runs on to the other system, will help restore functionality in case of either system going down.

Module considerations

If the Stroom System that is down was running:

Desktop Faxing (outbound):

- For MS Exchange Server, point the Fax Connector setup to the other Stroom system. For Lotus Notes Server, point the Fax Connector setup to the other Stroom system. For details on how to implement these changes see Stroom's online documentation under 'Exchange Connector' and 'Lotus Notes Connector'.
- OR, in order to leave the Connector unchanged, update the DNS setting for the system that is down and point it to the IP address for the functional system.

Xerox Faxing (outbound):

- Update the DNS setting for the system that is down and point it to the IP address for the functional system. **Note** that some (older) Xerox® Multi-Function Products™ (MFPs) devices may be setup with IP addresses instead of DNS names; customers with these devices will have to manually update the IP address.

Inbound Faxing:

- Move the T1 connection from the system that is down to the functional system, if possible, OR
- Move all the inbound numbers from the T1 connected to the system that is down to the T1 connected to the system that is functional. **Note** that the customer must have a pre-defined plan for what numbers must rollover and how to do that. Depending on the Telco provider, customers may be able to activate this plan automatically (via web or phone) or they may have to contact Telco personnel.

Alert (broadcast, fax, voice, email, text):

- Update the DNS setting for the system that is down and point it to the IP address for the functional system, OR
- Point the browsers used to launch alerts to the functional system.

Custom IVR, voice, fax applications:

- This process will depend on what these applications will do and what resources they use. Stroom will work with customers to determine exact procedures.

Stroom Reporting, Administration & Monitoring:

- These are local to each Stroom system.

Data availability between the two systems

Configuration data:

This may be different on each system since both systems are actively used for operations. Customers are strongly encouraged to perform identical configuration changes on each system to minimize impact while using a backup system.

File, Message, Template data:

This may be different on each system since both systems are actively used for operations. If the customer desires to have the same file, message and template data on each system for consistency after failover, the customer must add/update these items on each system identically. This means that any operation that adds *templates, pre-recorded files acknowledgment messages* etc. to one of the servers must be repeated on the other server.

Job data:

This will be different on each system since both systems are actively used for operations. Data for past jobs on the system that is currently down will have to be accessed after that system is functional again.

User, Department and Company data:

User, department and company data should be the same on both systems.

1. In implementations where Stroom imports/synchronizes this data from/with the customer's Active Directory (AD), or Lotus Notes/Domino Directory (LD), information, user data synchronization is achieved by setting up both systems to interface with the same AD or LD
2. In implementations where no such AD or LD interface is possible, or desirable, Stroom can use SQL Server replication to synchronize user data. **Note** that SQL Server 2005 Standard Edition must be purchased and running, at a minimum, on both Stroom Systems to enable this replication.

Recipient and List data:

Recipient data should be the same on both systems. Stroom can use SQL Server replication to synchronize recipient data. **Note** that SQL Server 2005 Standard Edition must be purchased and running, at a minimum, on both Stroom Systems to enable this replication.

Requirements/Recommendations:

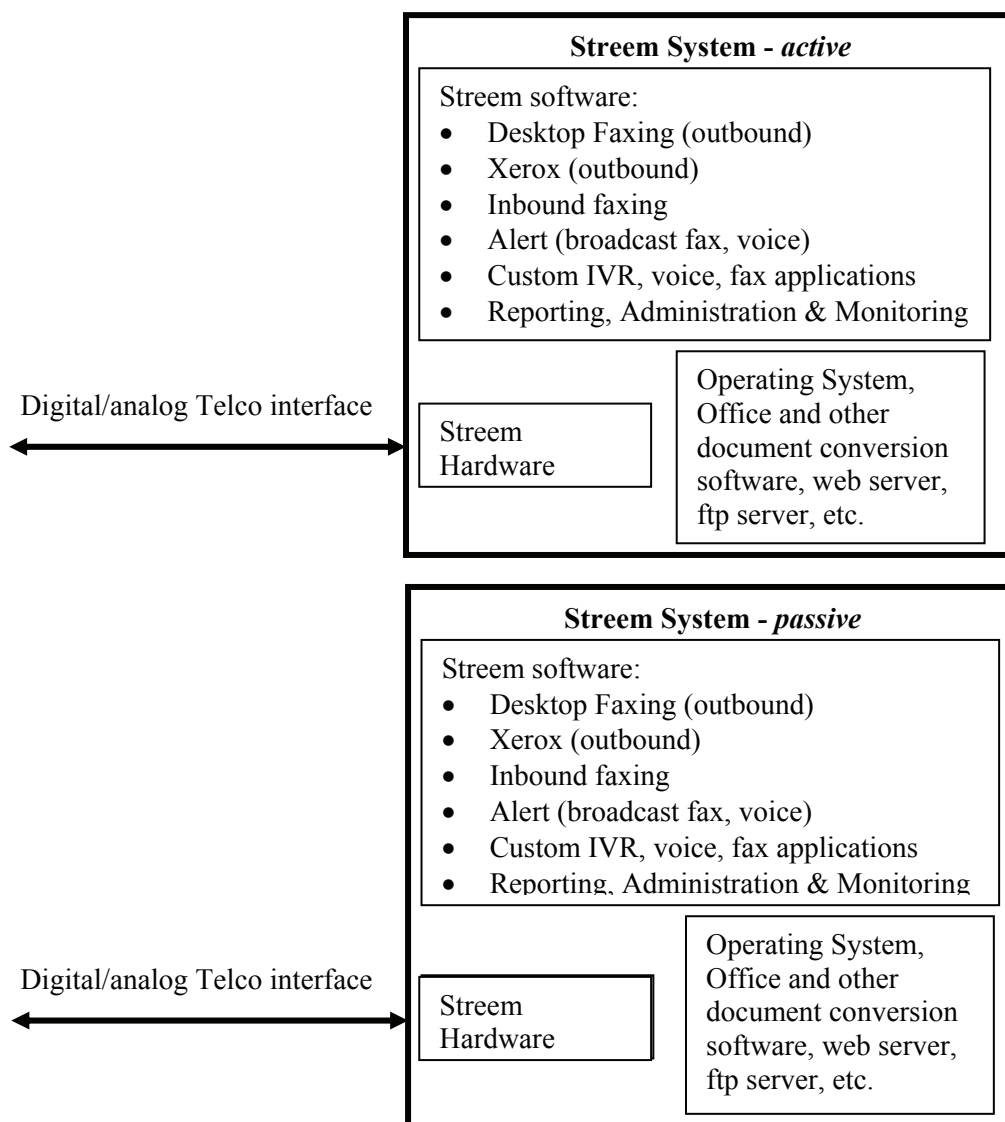
- Enough fax and voice ports must be available on both systems to handle the transfer of required functionality to either server.
- Both systems must have been purchased with and be running on SQL Server 2005 Standard Edition, at a minimum.
- All Xerox MFPs must be configured such that their File Repository setup includes the DNS name, and not the IP address, of the Stroom system. **Note** that some (older) Xerox MFPs may be setup with IP addresses instead of DNS names; customers with these devices will have to manually update the IP address.
- If Stroom Alert has been purchased, it must be setup on both systems, regardless of what primary system it runs on.
- Customer must be ready and able to switch T1 connections and/or roll numbers over from one system to the other. **Note** that this may involve getting help from the customer's switch or Telco personnel.

Mode 2 – Two Stream Systems – *one active, one passive*

System Diagram

Note 1: Both systems will be installed and configured identically. Reporting, Administration and Monitoring will be installed on all systems.

Note 2: *Passive*, in this context, means that the Stream system is not available for any use under normal operation. The *passive* system is only activated for use once the *active* system fails (for whatever reason.)



System Backup/Redundancy features overview

In this mode one, *active*, Stroom System runs all the purchased modules, under normal operation, while a second, *passive*, Stroom System – with an *identical* Stroom setup – offers the possibility of complete system backup/redundancy, in case the first, *active*, system fails. The *passive* mode of the second system allows for complete synchronization of job data across both systems. This allows the same job data reporting to be available across a system failure.

Module considerations

The following module specific procedures will activate each module on the *passive* Stroom system:

Desktop Faxing (outbound):

- For MS Exchange Server, point the Fax Connector setup to the other Stroom system. For Lotus Notes Server, point the Fax Connector setup to the other Stroom system. For details on how to implement these changes see Cleo's online documentation under 'Exchange Connector' and 'Lotus Notes Connector'.
- OR, in order to leave the Connector unchanged, update the DNS setting for the system that is down and point it to the IP address for the functional system.

Xerox Faxing (outbound):

- Update the DNS setting for the *active* system and point it to the IP address for the *passive* system. **Note** that some (older) Xerox MFPs may be setup with IP addresses instead of DNS names; customers with these devices will have to manually update the IP address.

Inbound Faxing:

- Move the T1 connection from the *active* system to the functional system, if possible, OR
- Move all the inbound numbers from the T1 connected to the *active* system to the T1 on the *passive* system. **Note** that the customer must have a pre-defined plan for what numbers must rollover and how to do that. Depending on the Telco provider, customers may be able to activate this plan automatically (via web or phone) or they may have to contact Telco personnel.

Alert (broadcast, fax, voice, email, text):

- Update the DNS setting for the *active* system and point it to the IP address for the *passive* system, OR
- Point the browsers used to launch alerts to the *passive* system.

Custom IVR, voice, fax applications:

- These must always be configured similarly on both the *active* and *passive* systems. This process will depend on what these applications will do and what resources they use.
- Cleo will work with customers to determine exact procedures. Under some conditions these applications (workflows, services, executables) may be *disabled* on the *passive* system under normal operation, and, thus, may have to be *enabled* when rolling over to the *passive* system.

Stream Reporting, Administration & Monitoring:

- These are local to each Stream system.

Data availability between the two systems**Configuration data:**

This will be the same on both systems, since the two systems participate in two-way SQL Server replication.

File, Message, Template data:

This may be different on each system, since the Stream System does not synchronize files between the *active* and *passive* systems. If the customer desires to have the same file, message and template data on each system for consistency after failover, the customer must copy related files manually from the *active* to the *passive* server. *Contact Stream support for details on how to do this.*

Job data:

This will be the same on both systems, since the two systems participate in two-way SQL Server replication.

User, Department and Company data:

This will be the same on both systems, since the two systems participate in two-way SQL Server replication.

Recipient and List data:

This will be the same on both systems, since the two systems participate in two-way SQL Server replication.

Requirements/Recommendations:

- *The switch from the active to the passive system will require some manual intervention from customer personnel.*
- Both systems must contain Telco hardware (i.e. Cantata's Brooktrout cards), and enough fax and voice ports must be available on the *passive* system to handle the required functionality and load.
- Both systems must have been purchased with and be running on SQL Server 2005 Standard Edition, at a minimum.
- All Xerox MFPs must be configured such that their File Repository setup includes the DNS name, and not the IP address, of the Stream system. **Note** that some (older) Xerox devices may be setup with IP addresses instead of DNS names; customers with these devices will have to manually update the IP address.
- If Stream Alert has been purchased, it must be setup *identically* on both systems.
- Custom IVR, voice and fax applications must be installed on both systems but only activated on one.
- Customer must be ready and able to switch T1 connections and/or roll numbers over from one system to the other. **Note** that this may involve getting help from the customer's switch or Telco personnel.
- Once the *active* (failed) system comes back up, all job and user data will be synchronized with the *passive* system
- Once the *active* (failed) system comes back up, the customer should reverse the changes made at failure time, and go back to using the (original) *active* system.