Thru Node
for Distributed Hybrid Architecture

TECHNICAL INFORMATION

Version 1.4

Thru®

Contents

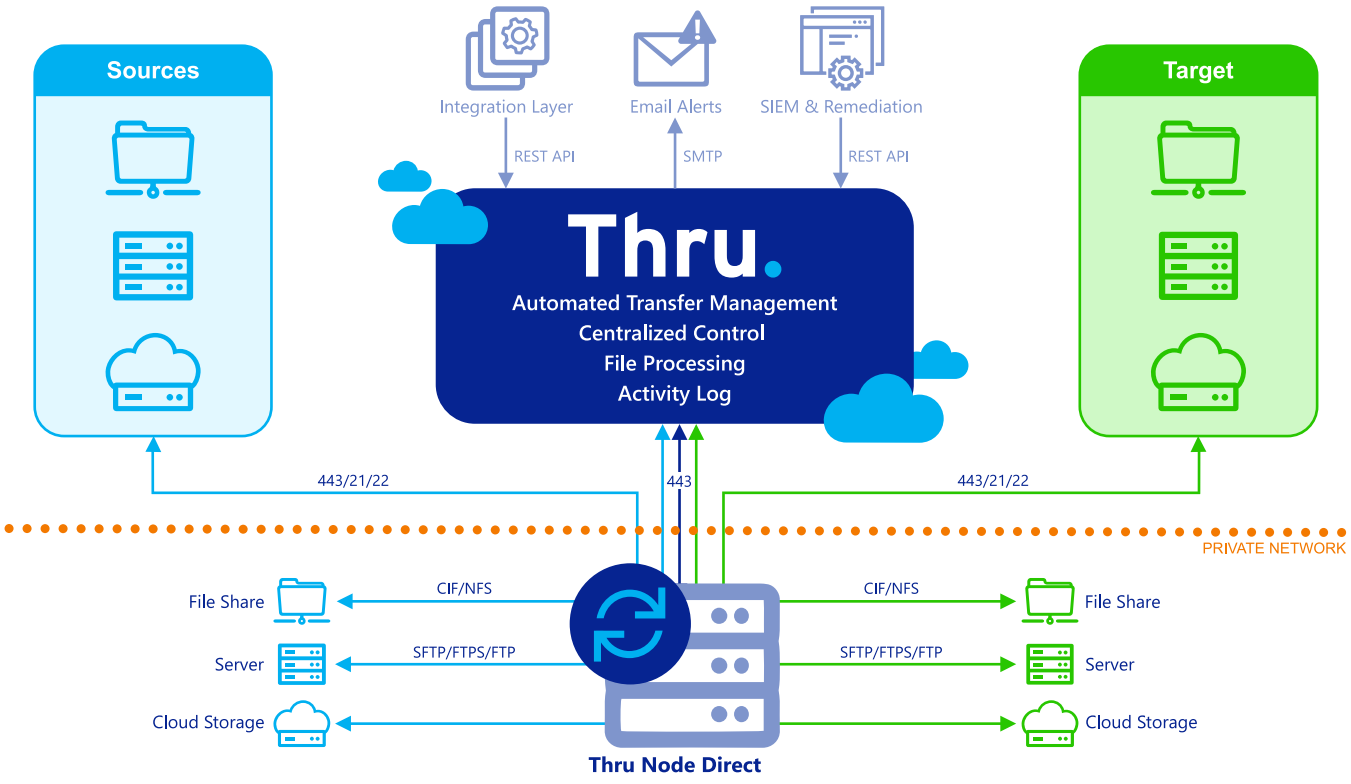
Introduction

Thru is a cloud-native managed file transfer (MFT) service that operates as the exchange for all file transfers as well as corresponding metadata. Thru is the control plane where all processes are configured. Furthermore, Thru records all file transfer transactions and configuration changes to provide data governance and monitoring.

The Thru Node, also referred to as an MFT agent, is a key component in creating a distributed hybrid architecture for Thru's cloud-native managed file transfer workflow. Thru Nodes are installed on servers or server clusters while being orchestrated over secure connections with the Thru cloud environment. The nodes enable direct file transfers to multiple types of file repositories, both within and outside private enterprise networks.

The on-premises Thru Node complements the Thru cloud solution by providing an instance on the network to execute file transfers. Nodes can be used for all files traversing a network: for file transfers between systems on an enterprise network, between the network and Thru cloud or between the network and remote file repositories. The primary benefit of this hybrid architecture is to maximize the use of a SaaS model and minimize the on-premises footprint for file transfers across the enterprise landscape.

Note: Thru Node uses only outbound HTTPS connections for control channels, while data channels support HTTPS, SFTP and FTPS.



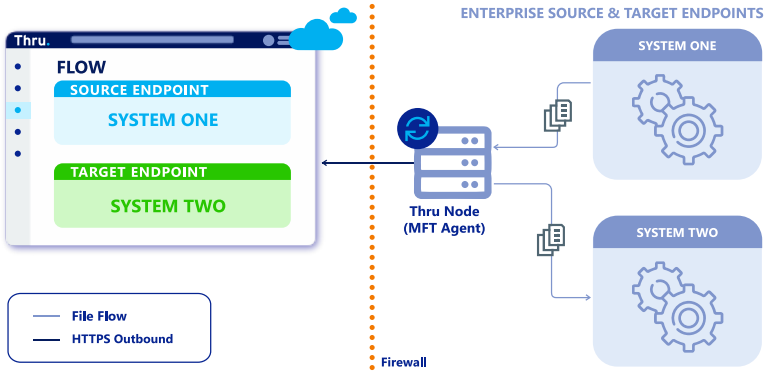
Using Thru Node in Your Network

Thru Node is a runtime installed on a machine within a network to connect to Thru over an outbound HTTPS connection, usually over port 443. In accordance with a configured workflow, simply called a *flow*, the node can transfer files between accessible file system paths on enterprise network and other supported internal and external file repositories.

Note: Thru Node does not need to be installed on the system from which it is picking up or dropping off files. As long as the node has access to the folder path from the machine it is installed on, the node can function.

Understanding Thru Flows

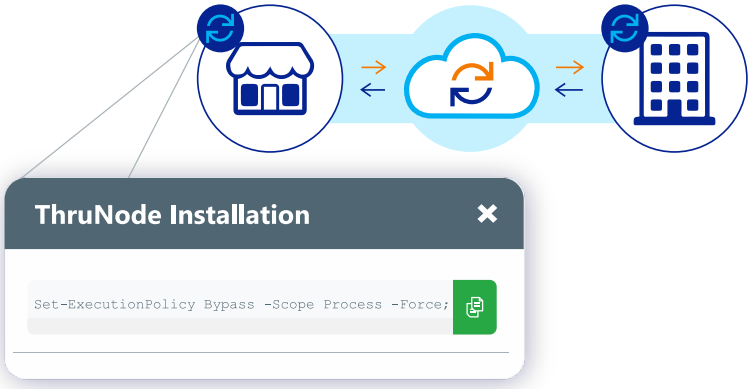
Flows are configured using the graphical user interface, known as Thru Flow Studio, or via APIs. A flow is a directional workflow consisting of any number of source and target endpoints. A node can serve an endpoint of a flow as a source, target or both. Each endpoint in a flow can have a set of specific processing and file routing rules.



When a flow's source and target locations are on the same network and the endpoints are served by the same Thru Node, the file remains on the network and is not exposed to the internet. The file is moved from the source to target location over the network's file system or file transfer protocols such as NFS, SMB, SFTP, FTPS or HTTPS. The metadata associated with the file transfer is transmitted via an outbound connection to Thru cloud over HTTPS and is recorded in Thru Audit.

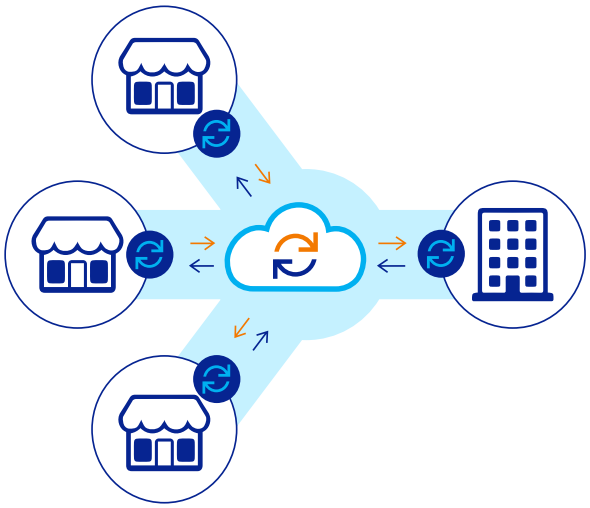
Installation

When a node is created in Thru, an installation script (Windows PowerShell or Linux Script) is made accessible via the GUI. The runtime package downloads and installs when the script is executed.



Upgrading Thru Nodes

Thru Nodes follow a continuous deployment pipeline and are automatically updated when a new release is pushed by Thru.



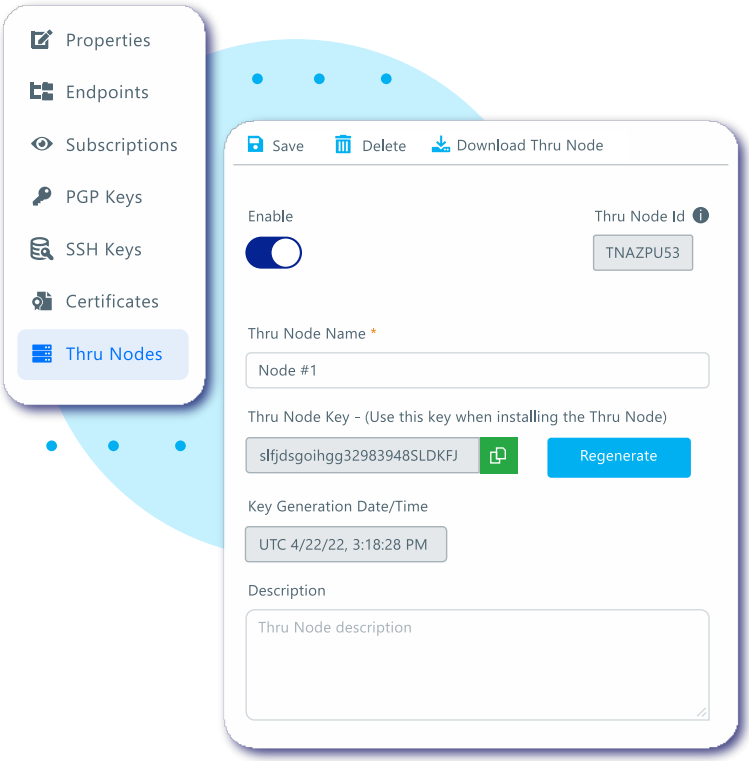
Authentication & Network Firewall Permissions

Thru Node connects to the Thru Cloud over HTTPS with token-based authentication. Connection direction is always from Thru Node to Thru Cloud. This means no inbound ports are opened in the corporate firewall when the node is installed on an internal network.

Monitoring & Alerting

Thru Nodes connect to the Thru cloud via API, each node is assigned a unique ID. Every node sends a heartbeat signal over HTTPS at five-minute intervals. If a Thru Node fails to send a heartbeat for five to ten minutes, an alert is triggered in Thru cloud management portal and email notifications are sent to customer administrators.

Additionally, each Thru Node exposes a health check port that can be monitored locally by an enterprise monitoring system. This Node health data can be integrated with event or IT service management tools to generate alerts and enable automated responses, ensuring proactive system management.



High Availability Configuration

Thru Node high availability is achieved by deploying at least two identical nodes—*Primary* and *Secondary*—sharing the same Node ID. The Primary Node actively processes file transfer tasks, while the Secondary remains on standby, ready to take over when needed. Both nodes can be installed independently using the same script or by copying the installation folder.

When the Primary becomes unresponsive, the Secondary automatically takes over, with minimal downtime. Thru Node's built-in heartbeat mechanism prevents conflicts: If a node detects another instance already running, it does not accept new tasks.

A configurable delay (default 180 seconds) allows the system to confirm that the primary process has completely shut down before reassigning any tasks, reducing the risk of data collisions or duplicated processing. Multiple identical nodes can run in parallel, but only one actively processes tasks at any given time.

Note: During a failover from Primary to Secondary, partially transferred files may not resume automatically on the Secondary Node in the current implementation. Some partially transferred files may require resending following a failover.

Thru Node Processing Features

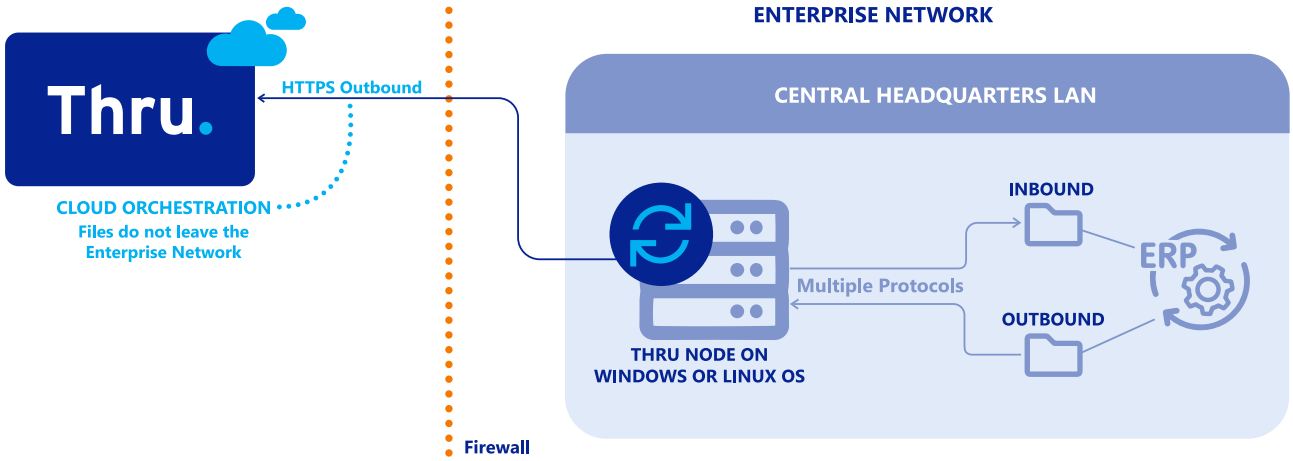
Thru Node, in addition to transferring files, also has the capability to apply a range of rules based on the flow endpoint:

- Compress/decompress files
- Encrypt/decrypt files with PGP
- Archive files at source
- Rename files at source or target
- Use trigger files to synchronize transfers
- File name filters
- Schedules and date/time filters

Use Cases

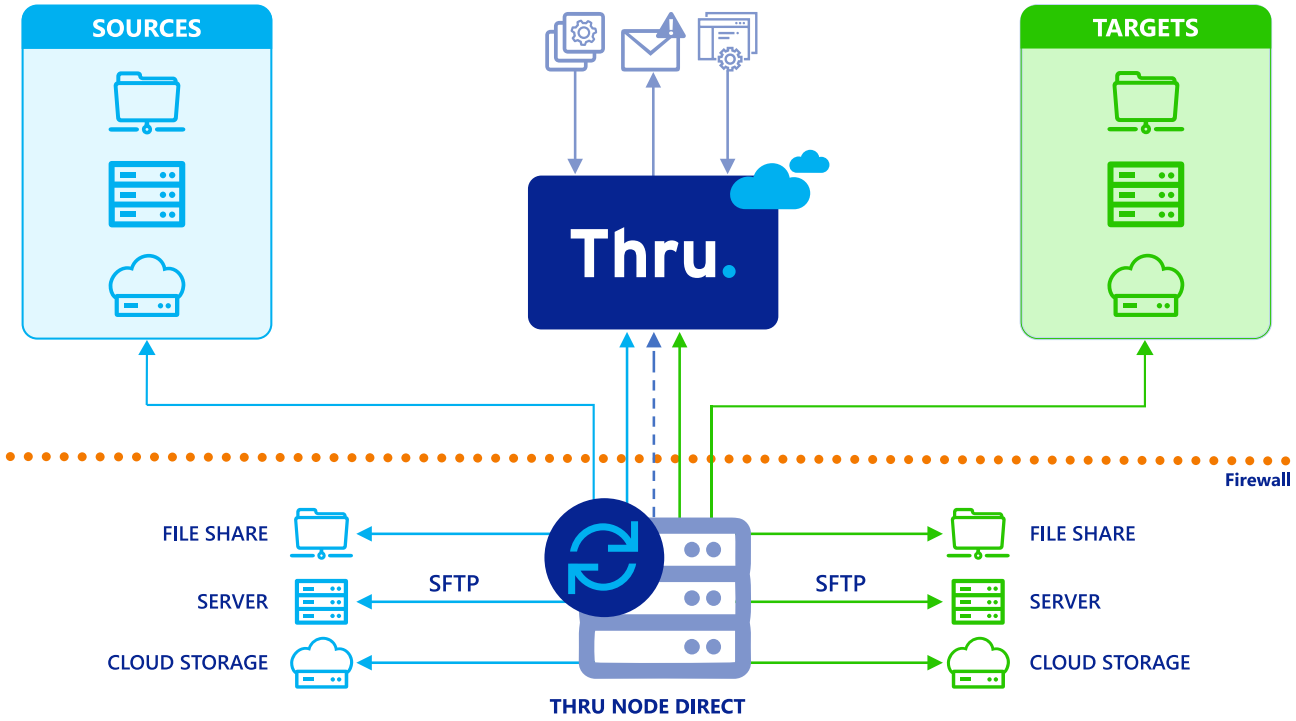
Between Systems on a Network

One of the common use cases when using Thru Node in the distributed hybrid architecture is to transfer files between systems in a local or wide area network (LAN or WAN). As long as the node is installed on a machine with access to network directories or file repositories on the enterprise network, it can execute the file transfers.



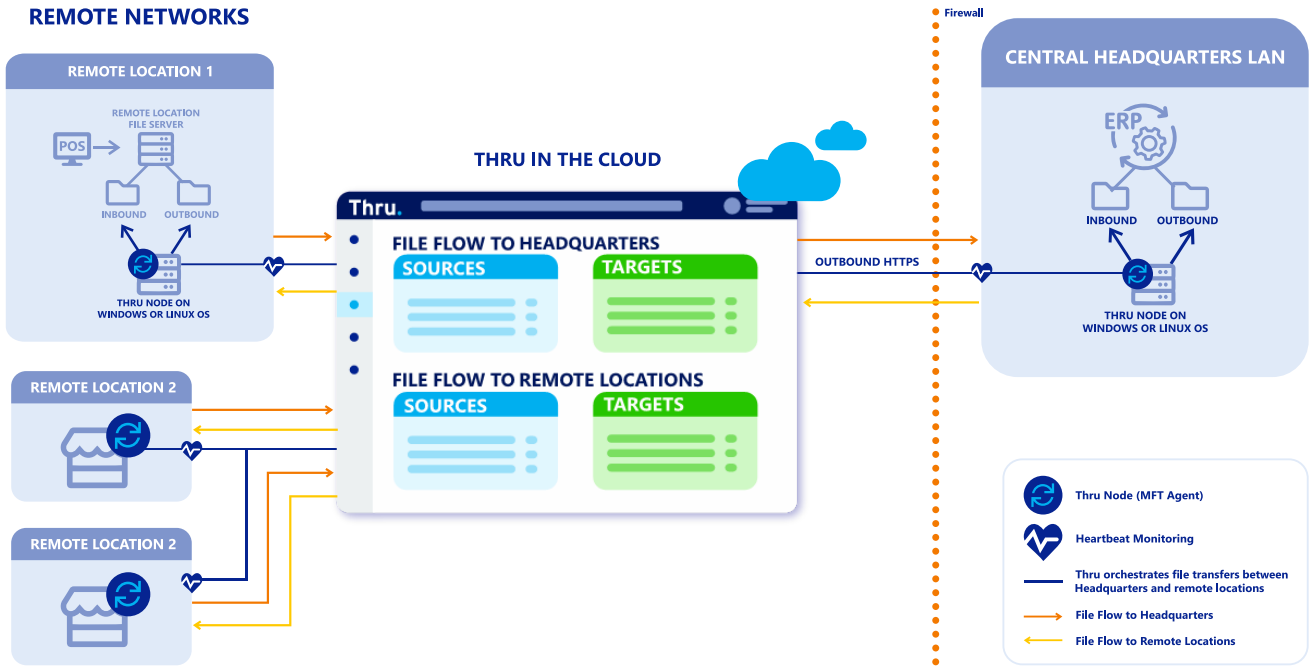
Thru Node Direct Connection for High Compliance Environments

Endpoints external to enterprise network can be served by either Thru Node or Thru Cloud. When an endpoint is served by Thru Node, external file repository connections and file transfers are executed via the Node direct connection, rather than passing through the cloud. This approach ensures that files never reside in Thru Cloud, effectively meeting security, compliance and performance requirements for specific use cases.

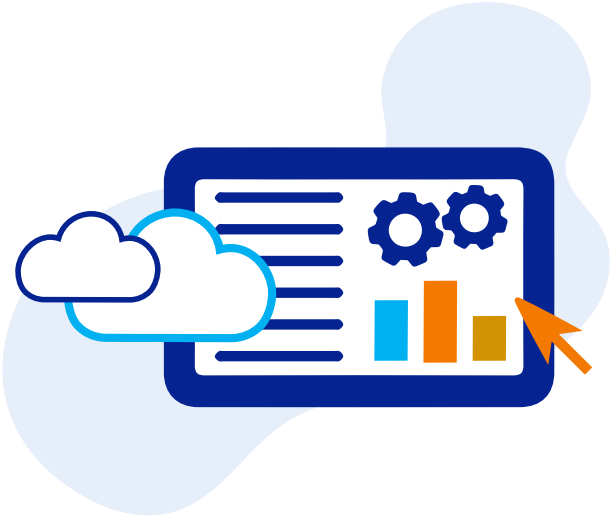


Between Remote Networks and Central Network

Use of Thru Node is also common in retail and distribution network environments where remote locations transfer daily business critical data files between core systems on the central network and many remote locations. In some cases, the remote locations number in the thousands.



System Requirements



Tested Operating Systems

Windows

- Windows 10 / 11
- Windows Server 2012 (which is close to end of life)
- Windows Server 2019
- PowerShell 5.1 (or greater)
- Windows Task Scheduler

Linux

- Ubuntu 18.04 / 20.04 / 20.04.4
- RedHat 7.9 / 8.6 / 9.2

Minimum Hardware Requirements to Run Thru Node

Processor

- 1.4 GHz 64-bit processor or faster processor
- CPU cores - (2) cores for few flows, little processing, (4) cores for more flows and/or more processing

RAM

- 8 gigabytes (GB) with no file processing
- 16 gigabytes (GB) with file processing (encryption/decryption/compression/decompression)

Hard Disk Space

- Varies depending on the type of flow configurations
- For LAN transfers only, a minimum of 100GB is recommended
- For high file volumes and large files, storage may need to be as much as 1 TB
- Retention of files and configuration of retention policies will also affect storage requirements

Additional Notes

Thru Nodes have built-in support to run on machines configured with proxies.