Investigating Evergreen Holds functionality in PINES
Executive Summary

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Since its founding in 1999, PINES was intended to be a "borderless library" providing all PINES patrons with equal access to materials beyond their local library shelves. This means that patrons from any library can request books from any library and have them delivered to their home library free of charge. The goal of statewide lending as implemented through PINES holds is to get the right item in the hands of the right patron where that patron is, as quickly as possible. Recognizing that holds are a key element in how we create the borderless library and PINES consortia success, the PINES community has pursued a course of increasing the efficiency of the structures that support holds. As a result, holds has become a much loved public feature of PINES yet remains a service that tends to find its users discussing, debating, and generally wondering just how the holds functionality in Evergreen for PINES works. We have attempted on several occasions to elicit descriptions of this functionality from developers; but, it has frankly been a moving target as development by the broader Evergreen community has refined and changed functionality, sometimes in positive ways for PINES and sometimes not. As the complexity of holds has increased, PINES library staff and PINES staff have questions about how holds work, particularly in concert with PINES stated policies. As a result, in spring of 2013, we launched a testing program to determine how holds functions within the context of the PINES database and customizations.

PINES holds have proven to be challenging to administer because of the size of the consortium, the geographic area covered by it, the sheer number of items that move about the state, and the system processes that control holds. As the PINES community gained experience with the pros and cons of statewide lending, the membership developed guidelines and management solutions and directed development of software solutions to fulfill the goal of statewide lending through holds. What we want to know now, 14 years after PINES started and seven years after Evergreen was implemented, is whether the software is providing what the PINES community needs and if not, what is needed and how does PINES get it? We want to know how and why copies are targeted and filled by the Evergreen ILS. Does holds functionality within Evergreen both support PINES policies and provide the efficiency we desire? Can a set of best practices be defined that will help provide our end users the best experience PINES can deliver?

Perception amongst PINES libraries staff is that there are differences between how the software works and how the PINES community wants it to work. This perception may be due to lack of knowledge of the true functionality of the software and/or that the software fails to deliver expected results. Resolution of the problem called for an investigation into the software's functionality, investigation into the PINES community's directives, documentation of any differences, and investigation into those

differences. Discovery of answers to these questions will provide solutions to how the PINES community can move forward to improve holds functionality and service for patrons and staff.

Examination of the software documentation, PINES policy and procedures, help desk tickets, Executive Committee meeting minutes, forum discussions, and software testing were conducted to define holds processing functionality. These procedures resulted in a significantly improved understanding of how holds functionality works from the targeting process with its logic gates for patron, copy and organizational unit suitability for holds, to the opportunistic stall and capture process (which uses the same logic gates as the targeter). [See charts at end: *Holds Targeter Workflow*, *Targeter: Why That Copy*, *Opportunistic Capture*, and *Proximity: Organizational*.]

Testing resulted in a significantly improved understanding of how the holds process works. Particularly the logic gates guiding the targeting and opportunistic capture processes and opportunistic stall. Testing showed that the holds process is functioning as described in the software documentation and as PINES Community guidelines specify. Key guidelines that are supported and holds processing characteristics discovered in testing include:

- Patrons not in good standing don't have access to holds.
- Patrons are limited to 50 active holds.
- Items eligible for IntraPINES holds are books only (Except for the AV agreement between Lee County Public Library and Dougherty County Public Library Systems, which is working as designed).
- Age protection is working appropriately within the three and six month parameters.
- Opportunistic capture of copies from outside a library branch/system is stalled for five days to allow a local copy to fill the hold first.
- Each hold request contains a default 6 month expiration, if set when the item is added to the PINES database.
- Holds are consistently filled first from the requesting library, then from the requesting library system, and finally from outside the requesting library system.
- The software recognizes unavailable copies by moving targeting to the next appropriate copy.
- A patron is defined as local based on their designated pickup library.
- Each hold level has its own queue position list within a hold queue.
- Once a hold is captured no other copy will be targeted or opportunistically captured to fill the hold

Several key misunderstandings about how holds processing occurs in Evergreen have led to some of the staff perceptions that it does not function as the PINES community has requested.

- Stalling: Our collective understanding of stalling went astray during the first iteration of the holds working group and the belief that stalling was for all holds slid into our documentation and understanding. Our testing confirms the original intent and Evergreen documentation for stalling to apply only to opportunistic capture. Stalling is very simplistic and does not take into consideration whether copies are owned by the patron pick-up library.
- Proximity: Due to a miscommunication between staff at Equinox Software and GPLS, proximity was defined as geographic rather than organizational.

With these misconceptions in mind, processing around some functionality appears flawed.

The complexity of holds processing does result in what appear to be anomalies that are outside holds policy parameters. Testing and investigation, however, generally discovered that the anomalies actually are conforming to functionality. What we have discovered that creates the appearance of anomalies and errors:

- User pickup library trumps other locations.
- Checkin library trumps owning library.
- Current proximity is organizational not geographic (See chart: *Proximity: Organizational*).
- Opportunistic capture and the holds targeter are different, yet similar, processes.
- Stall is only on opportunistic capture.
- Stalling is still in effect even if the patron home library does not have a copy.
- Placing a hold is a different set of processes than targeting a hold.
- Where a hold is placed can override patron based restrictions.

Testing revealed that some of the perceived problems with holds may be created by users, are the unintended consequence of policy decisions, or because of the large number of holds being processed. These issues are the largest causes of slow hold fulfillment. They are:

- Slow targeting by the software due to large numbers of holds in the queue results in 24 hour processing time rather than the desired 15 minutes, creating a backlog.
- Copies become trapped in a checkin system or branch that is not the owning library, filling those holds before returning to owning library or branch.
- When a patron becomes ineligible for the hold due to fines, overdue materials, and other blocks on their record, they are blocked from holds and no copy is targeted. The hold is still in the system to be evaluated each time the targeter runs.
- Slow transits inside library systems (branch to headquarters) and therefore increased time between systems.
- Staff failure or inability to execute the pull holds list and to transit items in a timely manner.
- Staff failure or inability to follow through on holds shelf maintenance.
- Staff placement of copy and volume level holds for patrons.

A number of solutions that could result in improved holds functionality and service for patrons and staff became evident with these conclusions. Some of the solutions are software based and others are from staff implementation of improved practices in holds maintenance.

Proposed software solutions that become available in the next upgrade and require testing to determine suitability for implementation are:

- Best-hold selection sort order - The ranking algorithm that chooses the best hold to target a copy in hand at a capture time used to be fairly simple with only two modes, FIFO (First in, First Out) and not-FIFO. In the latest versions, the ranking algorithm has more configuration options meaning PINES will be able to choose exactly which comparisons the software makes and in what order (within PINES policies). The new feature eliciting the most excitement amongst the authors is the inclusion of a choice to send a copy back to the home library after a predetermined length of time.
- Proximity settings that help to alleviate slow transits. In this case proximity does mean geographic proximity. However, it is within library systems and not from organizational unit to organizational unit. For example, each multi-branch library system would be able to set proximity for its branches in order to force the software to identify first those copies in branches with faster transit times.
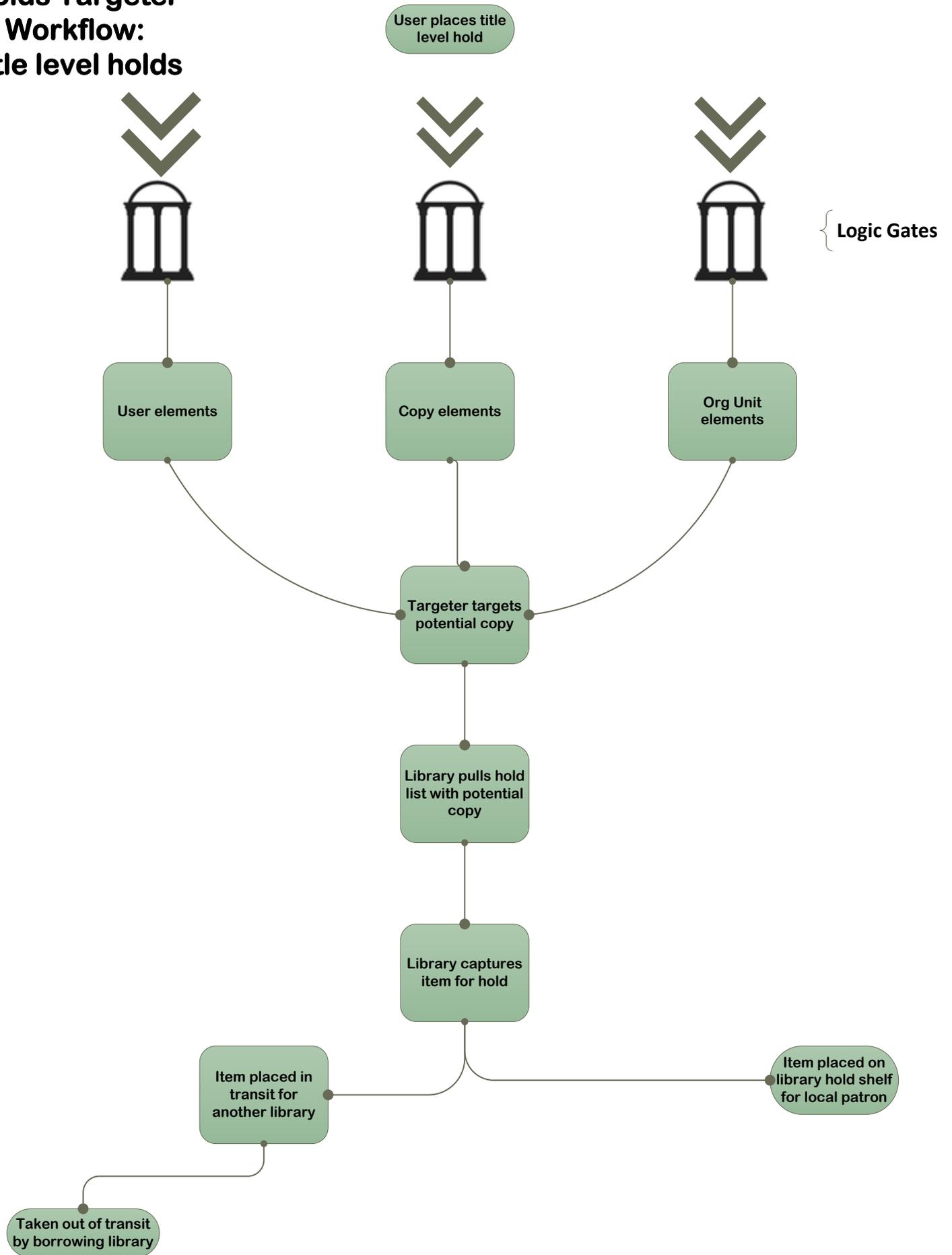
Implementation of improved practices in holds maintenance:

- The holds targeter was refined on 11/20/2013 to add a third parallel process. The speed of targeting has significantly improved from more than 24 hours to five hours and less.
- Decreasing time an item waits in branches for transit to headquarters library.
- Pulling holds daily; retrieving library holds pull list immediately prior to pulling holds.
- Best Practices Tools to assist holds shelf management – PINES staff can assist in the creation of a package of personalized monthly reports for each library system/branch that include:
  - Purchase alert report - This report produces a list of titles that have more than a set number of holds.
  - Holds to Copies ratio - This report will show which titles have a high ratio of holds to available items.
  - Old holds lists - Two reports to help identify problems: one report for a library's items that are on hold; and a second report on holds by a library's patrons. Reports include holds over 60, 90, or 120 days.
  - Clear Holds Shelf - this report lists expired, canceled, and suspended holds.
  - Old Transits – This report will identify items that have been in transit longer than a specified period of time.
- Staff Education/Training on:
  - Using Best Practice Tool reports to manage the holds process.
  - General training/retraining/cross-training on how holds works and how to work holds.
  - Transit training/retraining – best practices for transiting items.
- Missing item management.
- Ongoing bibliographic database cleanup.
- Implementation of monographic parts functionality.
- Creation and implementation of PINES community best practices.

Proposed future development solutions:

- More sophisticated and specific communication mechanisms for patron-placed holds process so that a patron understands why a hold was not placed.
- Better hold notifications to patrons with pertinent details such as the number of days an item is held and a reminder that the same card that made the hold must be presented at hold pickup.
- Expanded functionality of hold suspensions to include required expiration set at time of suspension. Expiration would result in cancellation of the hold. The ability for staff to discover history of the suspension (i.e. when a hold was suspended, how many times it has been suspended, dates of suspension and reactivation).
- Develop a proactive system of alerts for staff management of holds and holds related activities. The alert activity would be generated from a set of locally set defaults with time-limit triggers. Once the limit has been met the system would generate a daily online report containing all alerts. This would take the place of the necessity of generating monthly reports.
- Others as suggested by PINES community discussions.

Holds Targeter Workflow: Title level holds

User places title level hold

Logic Gates

User elements

Copy elements

Org Unit elements

Targeter targets potential copy

Library pulls hold list with potential copy

Library captures item for hold

Item placed in transit for another library

Item placed on library hold shelf for local patron

Taken out of transit by borrowing library

Holds Targeter: Why that copy?

Holds List

- Previous check time ≤ 24
- No item has been captured
- Has not been fulfilled
- Have not been cancelled
- Are not frozen

List ordered by request time and previous check time

Multiple processes to compile list

All copies list

Verifies previous processes to see if status changed since start
Any eligible copy in PINES (gathers all non-deleted copies attached to the bib record)
Randomizes list

Good copy list

Is status non-holdable
Is copy location non-holdable
Is copy nonholdable
Is copy deleted
Randomizes list

Multiple processes to compile list

Analyzes OrgUnits based on proximity list
Chooses structurally nearest copy to pick-up library
Is copy capturable?
Randomizes list

Best copy list

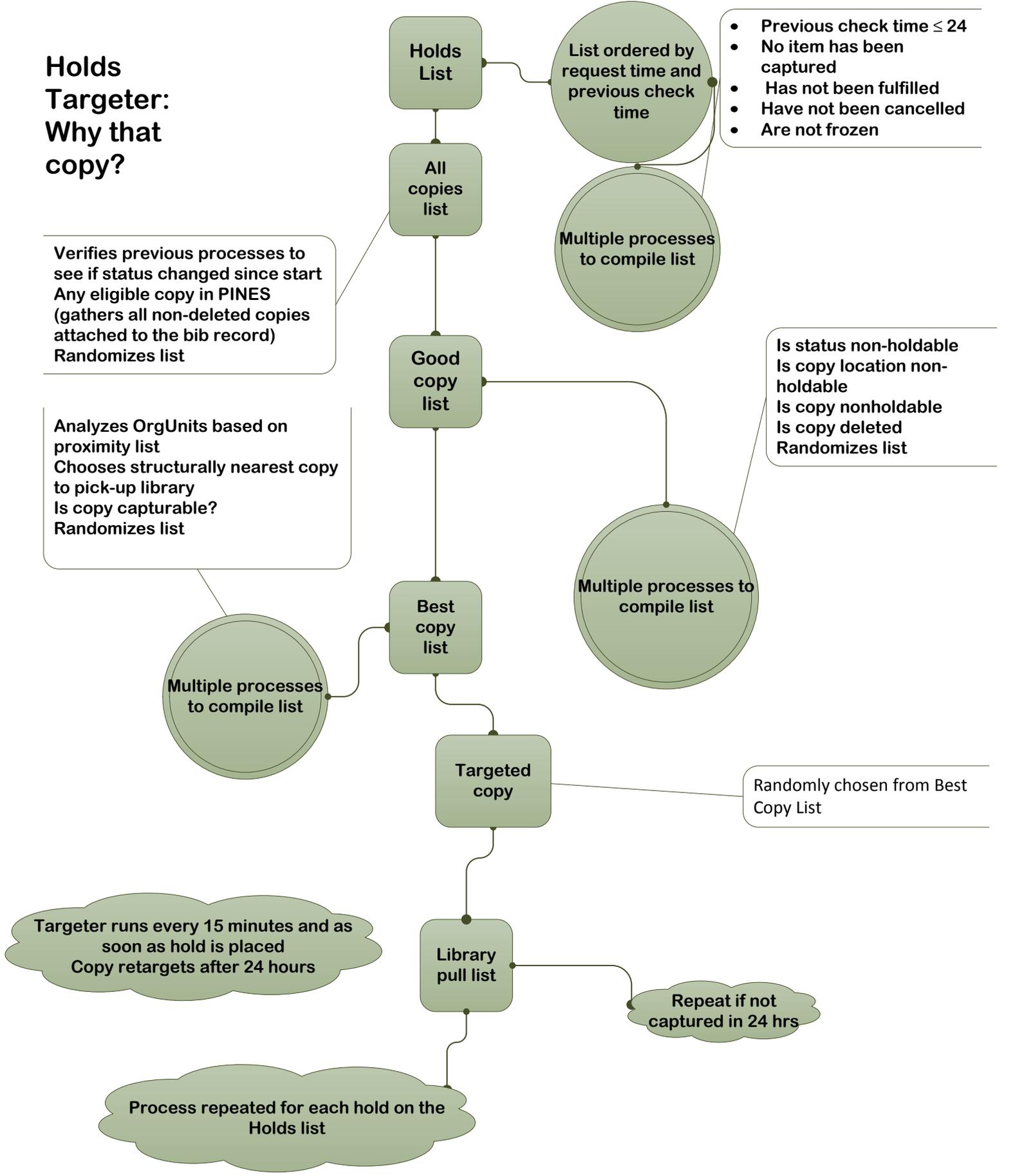Multiple processes to compile list

Targeted copy

Randomly chosen from Best Copy List

Targeter runs every 15 minutes and as soon as hold is placed
Copy retargets after 24 hours

Library pull list

Repeat if not captured in 24 hrs

Process repeated for each hold on the Holds list

Opportunistic capture

- Similar process to targeting runs at every check in!
- Holds stalling is for opportunistic capture only!
- Stalling does not care whether or not patron pick-up library has a copy!
- Transit status is not a parameter, but capture is!

Item checked in

Is there a hold I can fill?

Multiple processes to compile list

- Am I too new?
- Is my status non-holdable?
- Is my copy location non-holdable?
- Am I nonholdable?
- Have I been deleted?
- Does my Org Unit match the pick-up location?
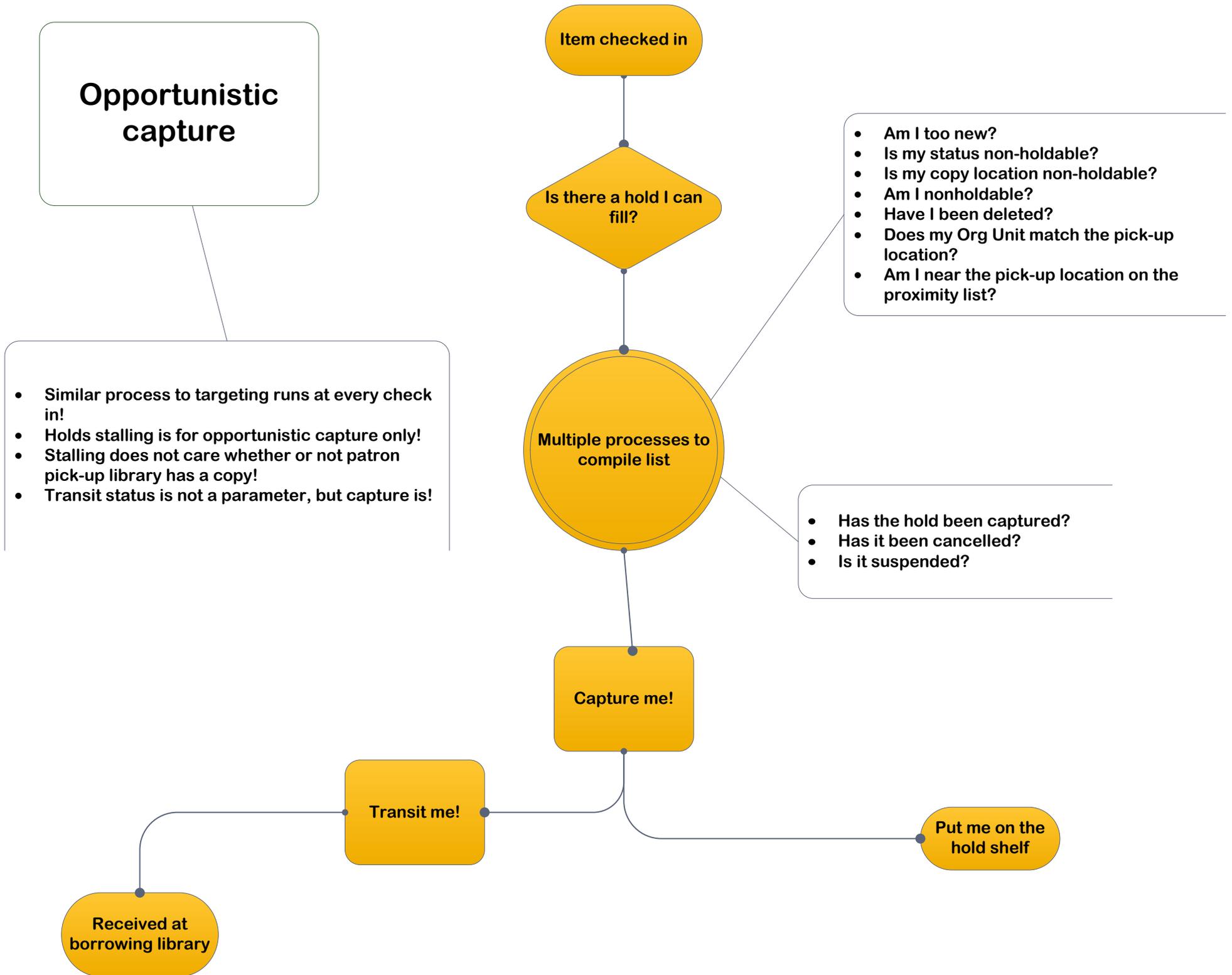- Am I near the pick-up location on the proximity list?

- Has the hold been captured?
- Has it been cancelled?
- Is it suspended?

Capture me!

Transit me!

Put me on the hold shelf

Received at borrowing library

Proximity:
Organizational

PINES

Parent Level

Bartram Trail
Regional Library

Brooks County
Public Library

Lee County
Public Library

Sibling Level

BTRL-MWL

BTRL-TCL

BTRL-MCD

BROOK-HQ

LEE-OAK

LEE-LSB

LEE-RED

LEE-SMV