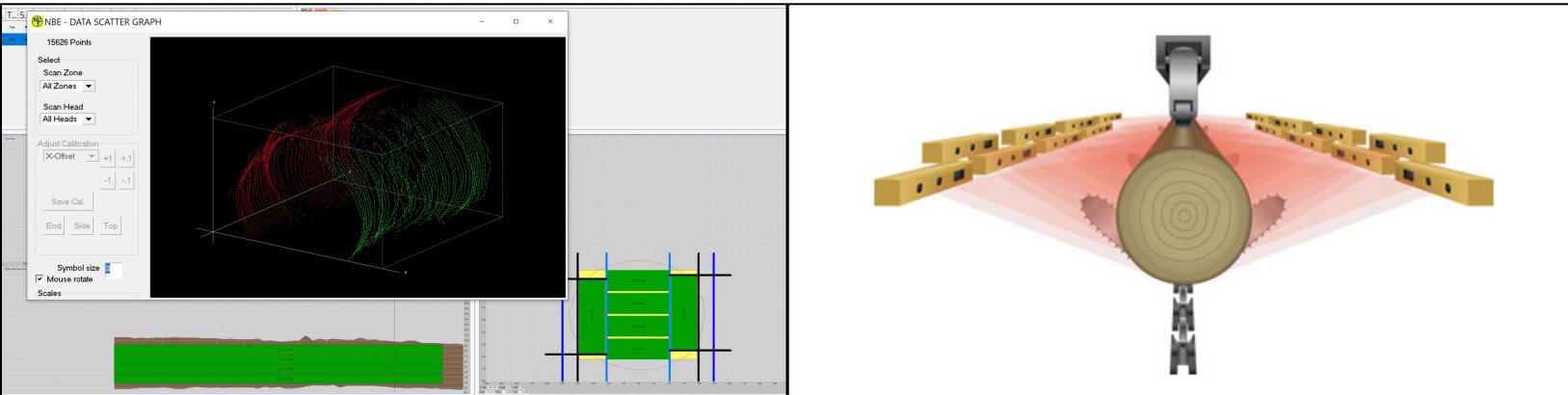


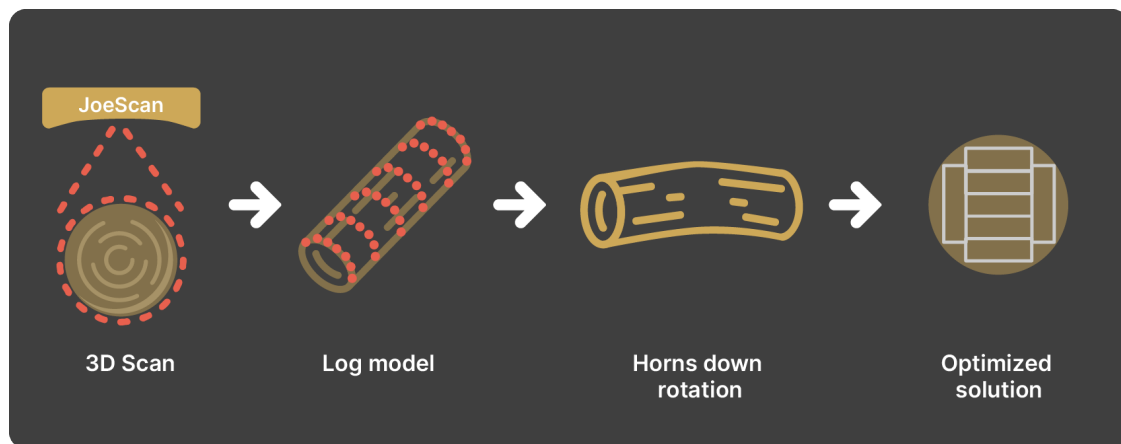


# Primary Breakdown Sharp Chain Log Optimizer

A log is scanned by a 3D scanner. The optimizer computer calculates a cutting solution to maximize the value of the products that can be produced downstream. The iterative process involves generating dollar-driven cutting solution scenarios of which the highest dollar-value scenario is chosen.



## Sharp Chain Optimizer



1. Obtain 3D scanning data from scan heads.
2. Combine all cross-section data sets over the full length of the log to build a full 3D log model.
3. Optimized Rotation: to orient the log horns down.
4. Optimization: iterative process to find the optimal solution which is to maximize the most valuable products.
5. Offset and skew log for impaling on the sharp chain.
6. Verification scan after log impaled on the sharp chain.

# Optimizing System Features

## Optimization speed

Time is very limited in a log scanning system because the solution needs to be computed after the full length is scanned and before the log reaches the cutting saw. The cutting saw must have time to be positioned to make the cut. Our optimizer system is designed to get solutions very quickly, knowing that we have limited time. to train an operator (learning curve).

## Multiple scan zones

Nearly all of our Optimizers can be used in a Lineal Scan configuration. In cases where a full log length of travel for the piece is not available for the scan, we can configure the scanners in multiple "Scan Zones". The Scan Zones are stacked side-by-side, with enough separation between the zones that each scan zone scans a shorter length range of the piece. At the completion of the scan process, the scans from each zone are then placed back together by the optimizer to get the full-length scan. This scan process allows the scan to be completed in a distance of travel that is considerably less than the full length of the piece being scanned.

## General Features

Optimized log autorotation:

- Optimized log offset and skew
- Final verification scan after the log is impaled on the sharp chain
- Scan system supported configurations: lineal scanning single or multiple scan zones or snapshot scanning systems available
  
- All NBE optimizers have tools for saving scan data, replaying saved files and assessing optimization decisions.
- The optimizer screen dashboard contains production statistics and current solution statistics.
- The supervisor computer enables the user to review past piece solutions.

## User Interface of Solution Screen

Visually shows the user the piece that was scanned and the solution that has been computed. The table included with solutions for each scanned piece, allowing the operator to review current and recent solutions.

## Historical Solution Analysis

We save the recent scanned pieces in the history for your review to be able to evaluate your system performance.

## Windows-based system

The Optimizer software runs on a standard Desktop PC on a Standard Windows Operating System and is fully customized to each sawmill application:

- Each system features 2 identical computers: an Optimization Computer, and a Supervisor Computer.
- Optimizer Computer is devoted full time to dollar-driven, real-time optimization.
- Supervisor Computer provides Windows-based simulations and solution parameter editing.
- Supervisor Computer serves as a "built-in" spare to the Optimizer Computer.
- The Supervisor Computer is not required for production.