

## **Implementation of Rules Based Routing for Optimization of Statistical Process Control Sampling**

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Introduction & Problem Statement: Sampling plans for process control have been guided by analysis of variance including the within die, die to die, within wafer, and wafer to wafer components. However, historically there has been no way to adjust sampling based on analysis of lot to lot variation. Due to the limitations of Workstream, every lot has been measured even if this was not statistically justified. Rules Based Routing (RBR) has been implemented at Hewlett Packard, Corvallis fabs to address this issue. RBR is integrated with Workstream and at selected operations it applies rules that direct metrology to happen every  $n$  lots or every  $h$  hours or triggered by specific Workstream events.

Implementation: Statistical analysis of metrology was performed to identify operations which were clearly over-sampled due to the limitations of Workstream. Visual inspection was a priority given its operator intensive nature. A valid sampling plan was developed, translated into rules, and stored in a rules server. Workstream consults the rules server and then decides which lots will be sent to metrology operations based on the rules for that operation.

Results: Implementation has resulted in significant savings in operator FTE & tool availability.

The presentation will cover details of the implementation, best practices, lessons learned, and benefits of RBR implementation.