



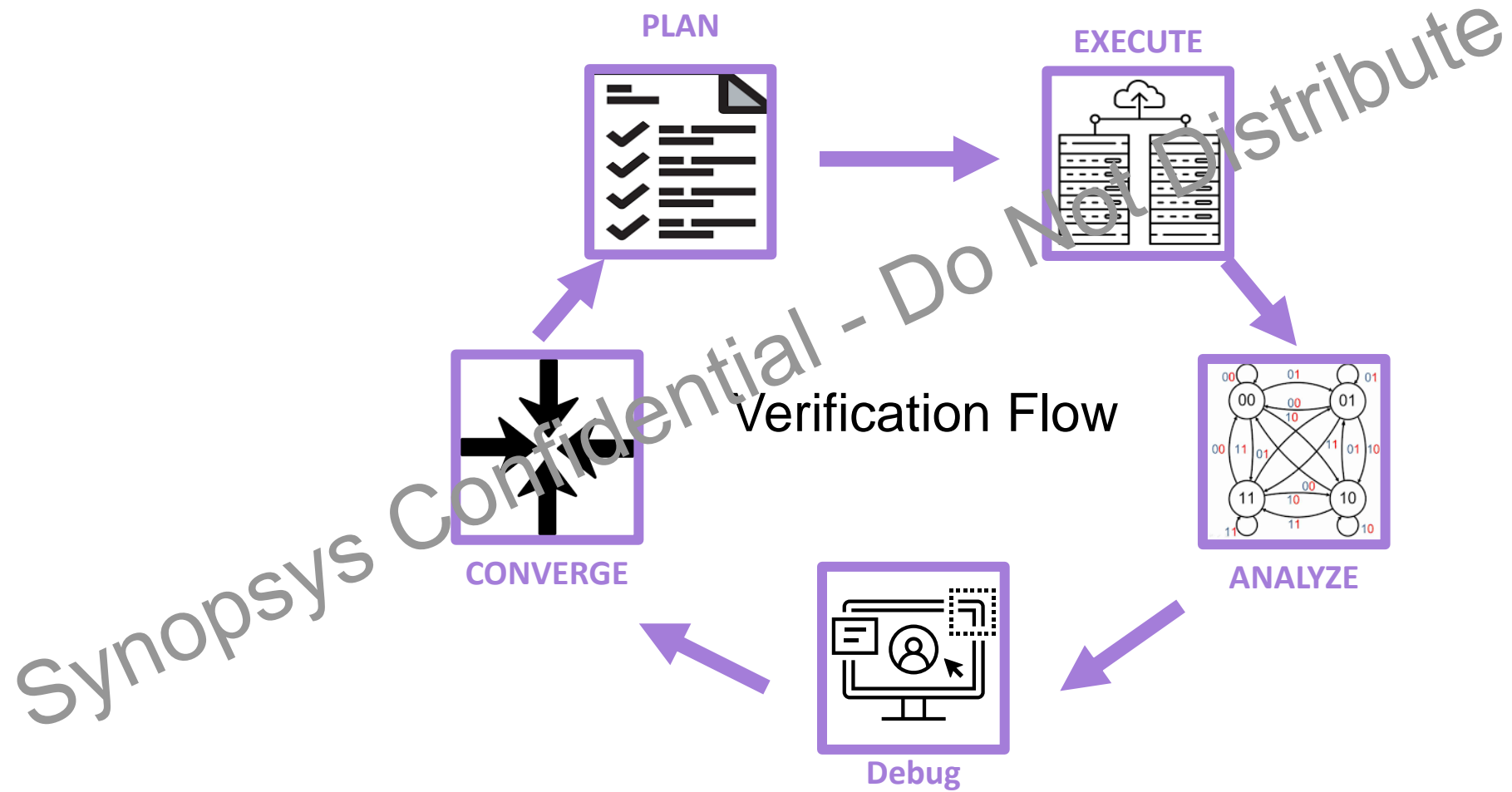
# Integrated Verification Ecosystem for Regression Management, Coverage convergence, and Debug Automation

Ching-Yi Huang, William Huang, Craig Yang  
Synopsys

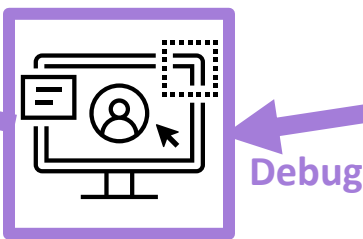
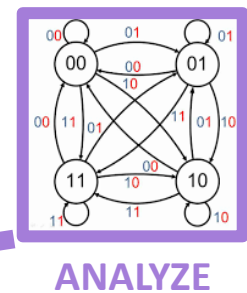
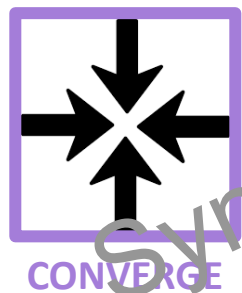
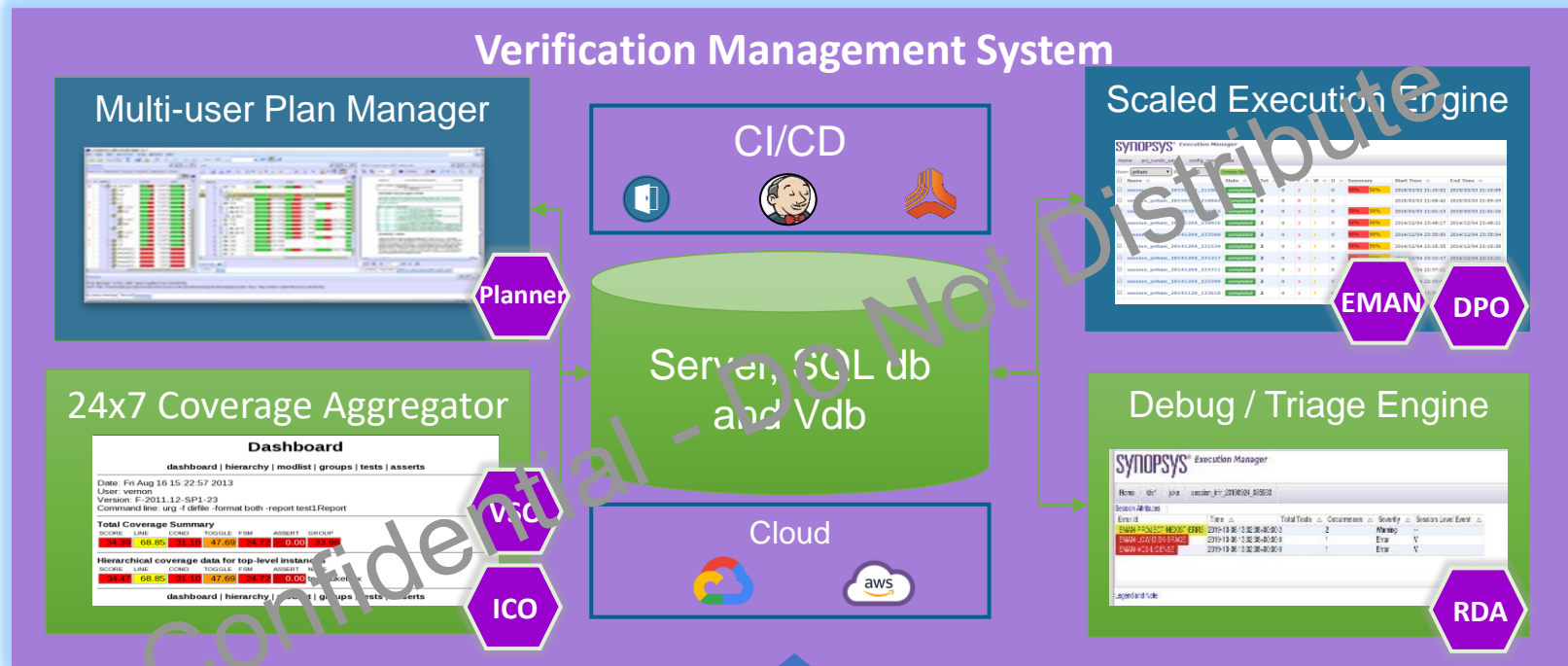
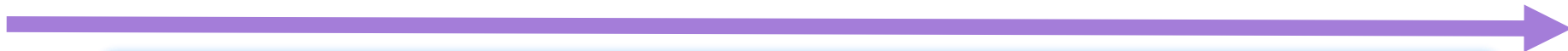
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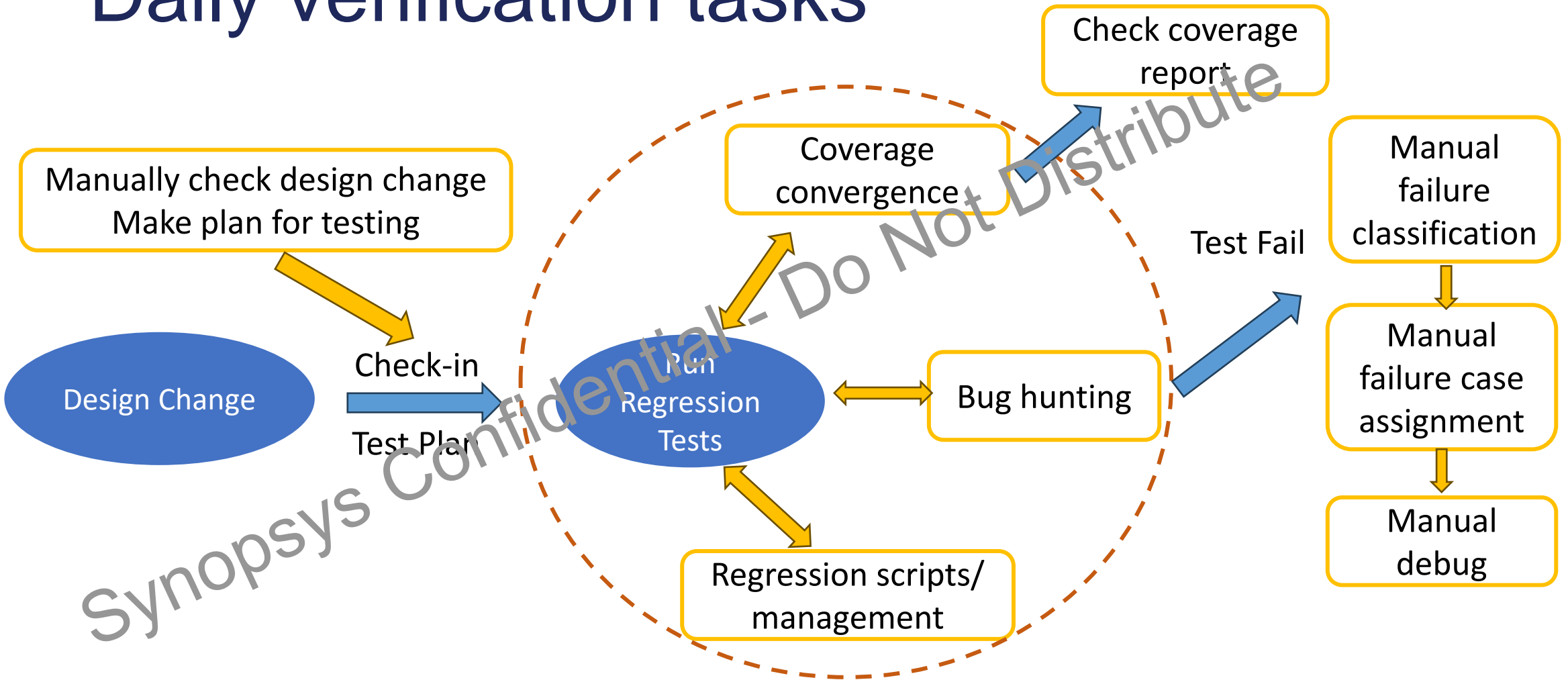
# Next-Generation Verdi



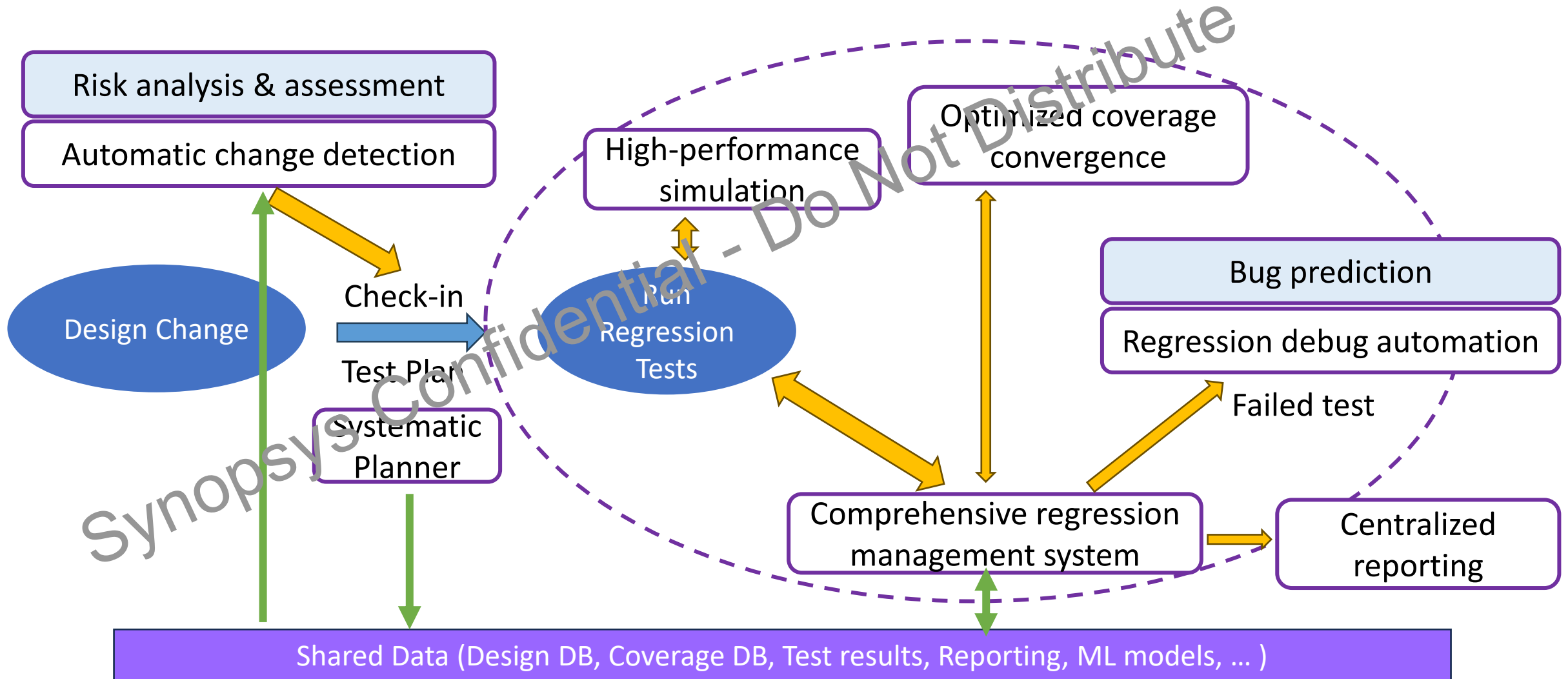
# Next-Generation Verdi



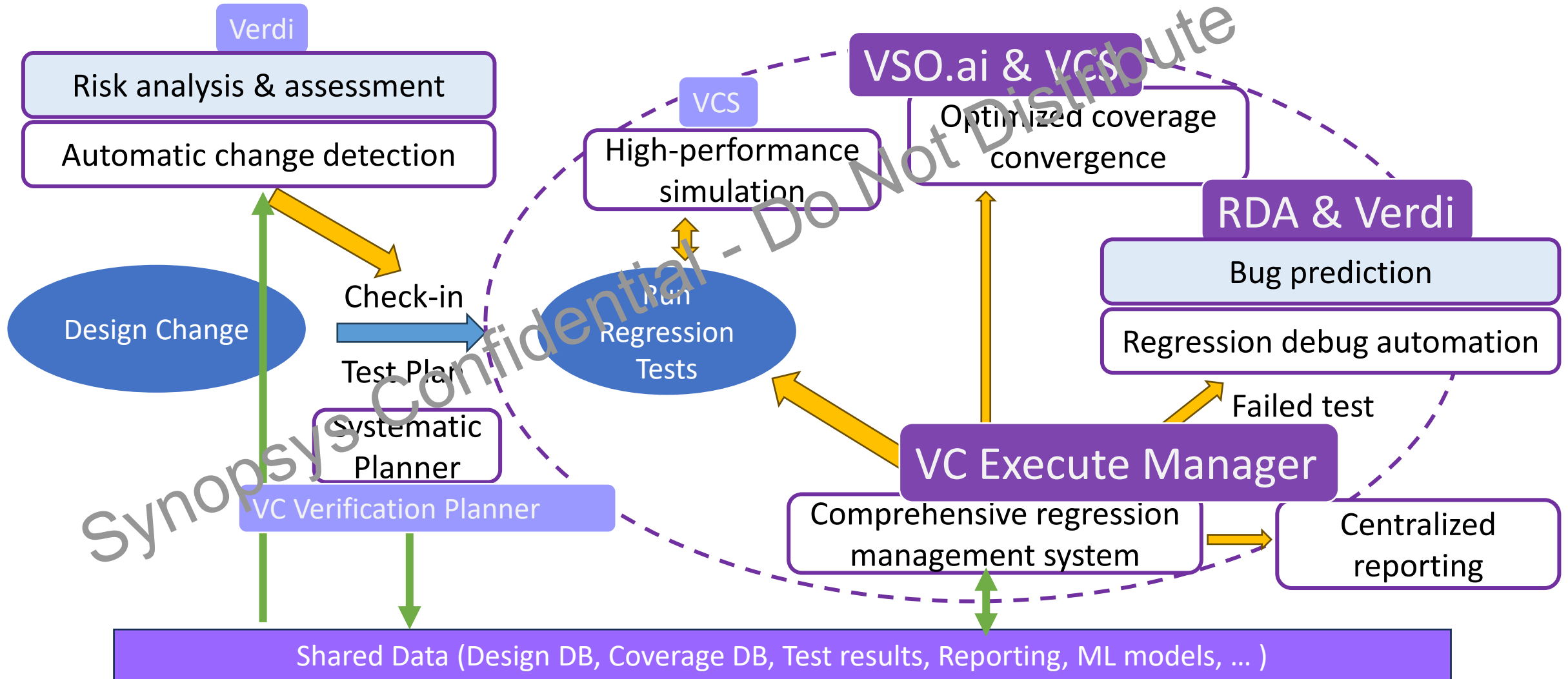
# Daily verification tasks



# Automatic verification flow



# Automatic verification flow

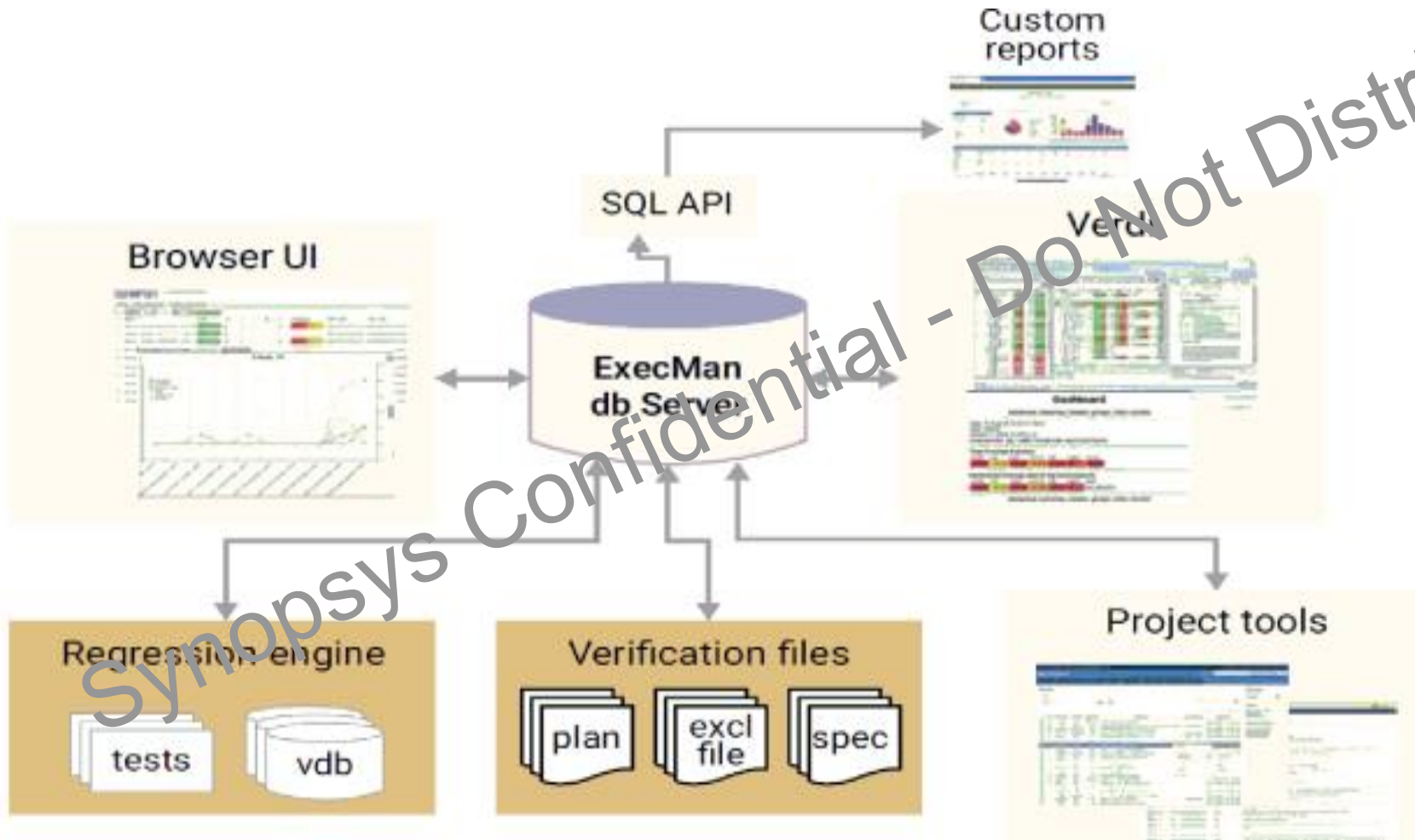


# Outline

- Introduction of the Verdi verification platform
- Introduction of VC Execution Manager (VC EMAN)
- Introduction of VSO.ai
- Introduction of RDA
- Benefits of integration
- Complementing technologies in the verification ecosystem
- Conclusion

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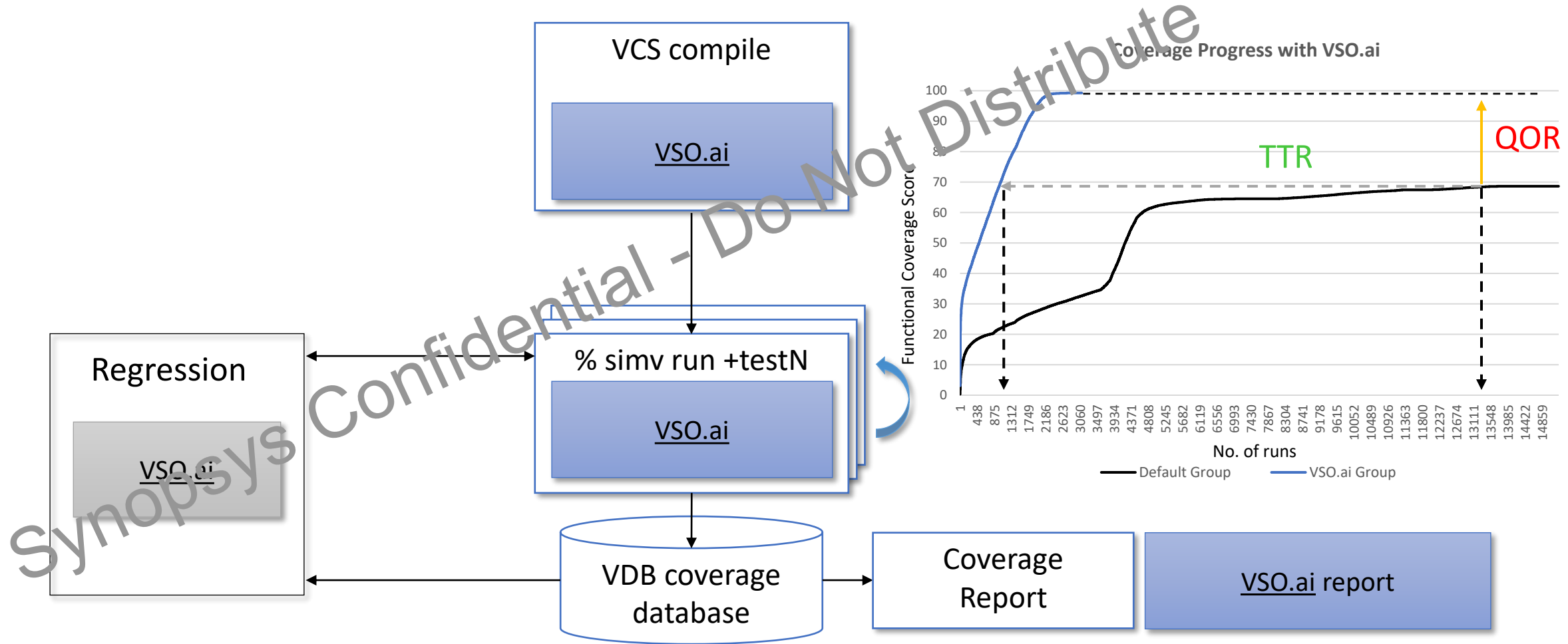
# VC Execution Manager



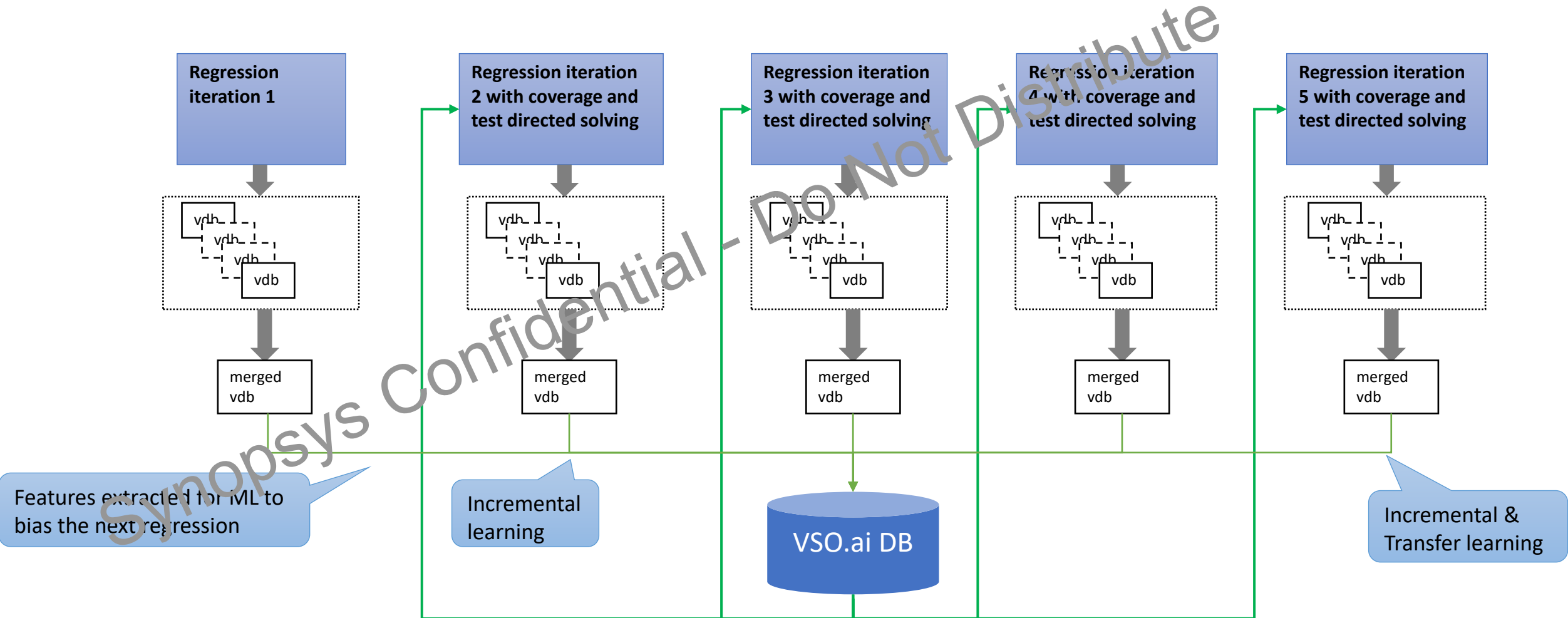
- Data organized by session
- Track across life of project
  - Test results & performance
    - Verification Plan scores
- Analysis & debug in Verdi
- Tracking in Browser UI
- Open API to all stored data for customized project tracking
- Enhance the teams to coordinate
- Support both database server and serverless capability
- Support execution on local host and grid managers
- Support automatic coverage merging and debug rerun



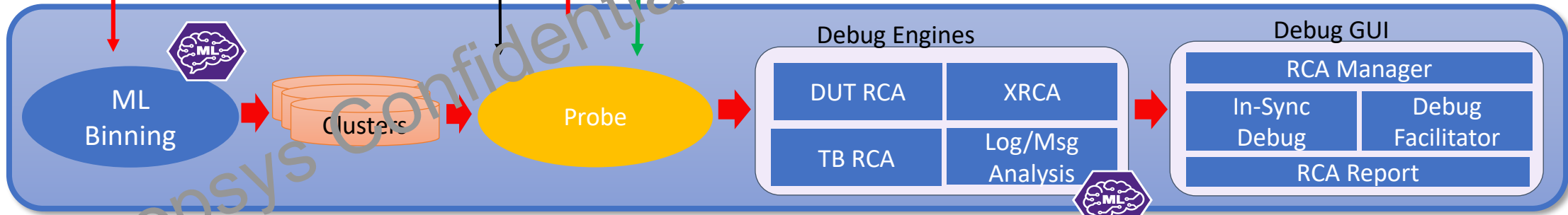
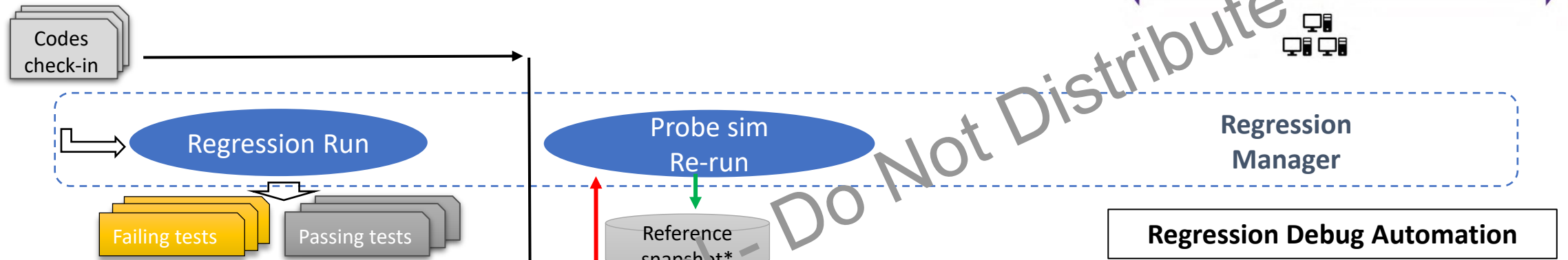
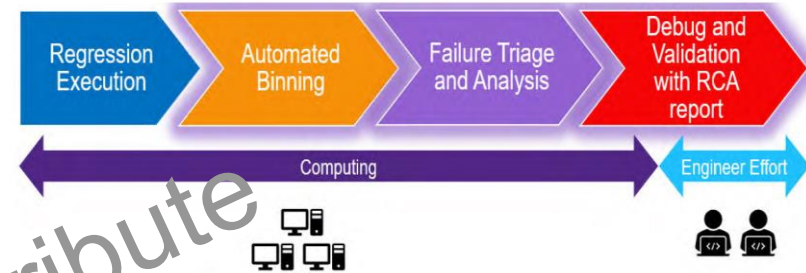
# Optimized Regression with VSO.ai



# Use Model for VSO.ai



# Regression Debug Automation



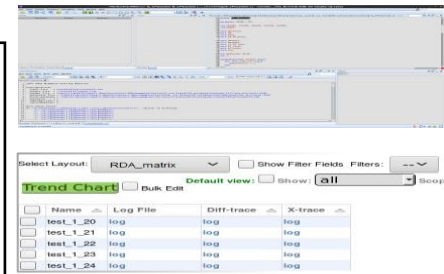
User consumable results

- Bucketize reg failures.
- Representative case picked

- Probe code changes checked-in that cause failures

- If ref. snapshot found, debug engines to root cause the bugs

- Debug GUI to complement the debug engines.
- RCA Manager and Report for engineer to review

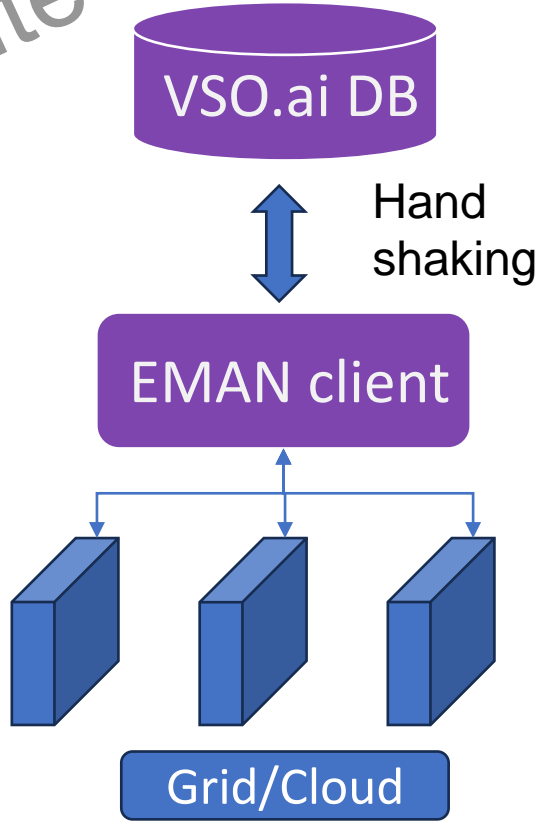
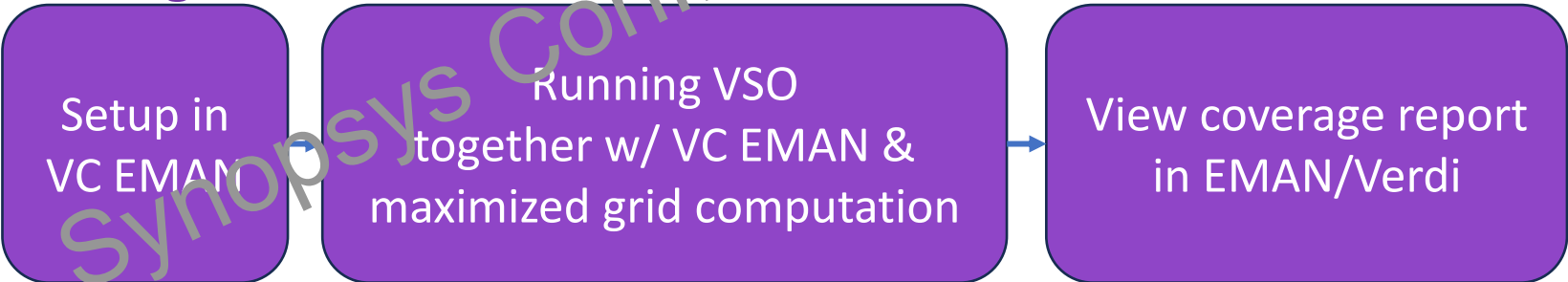


# EMAN-VSO

w/o integration



w/ integration



# EMAN-RDA

- Simpler configuration and automatically invoke RDA

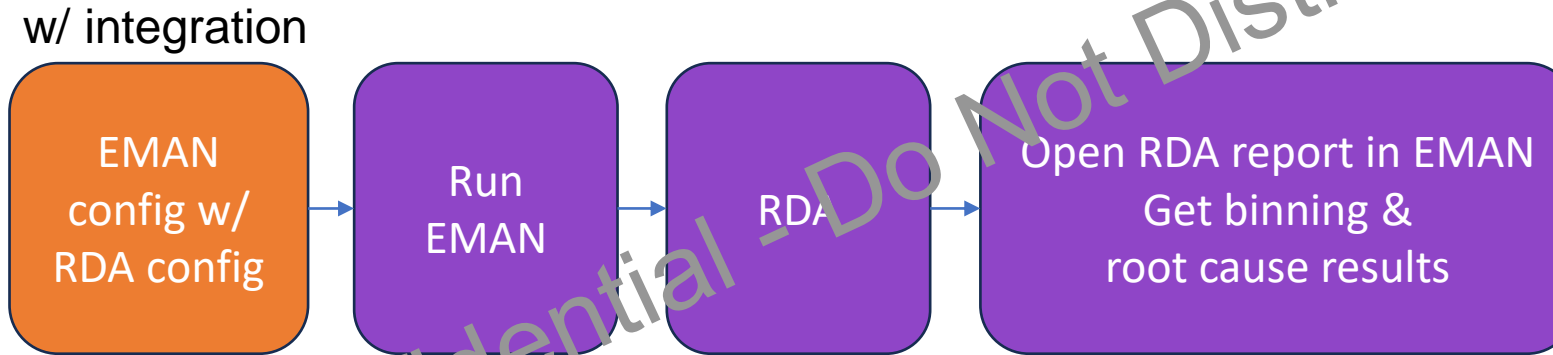
w/o integration



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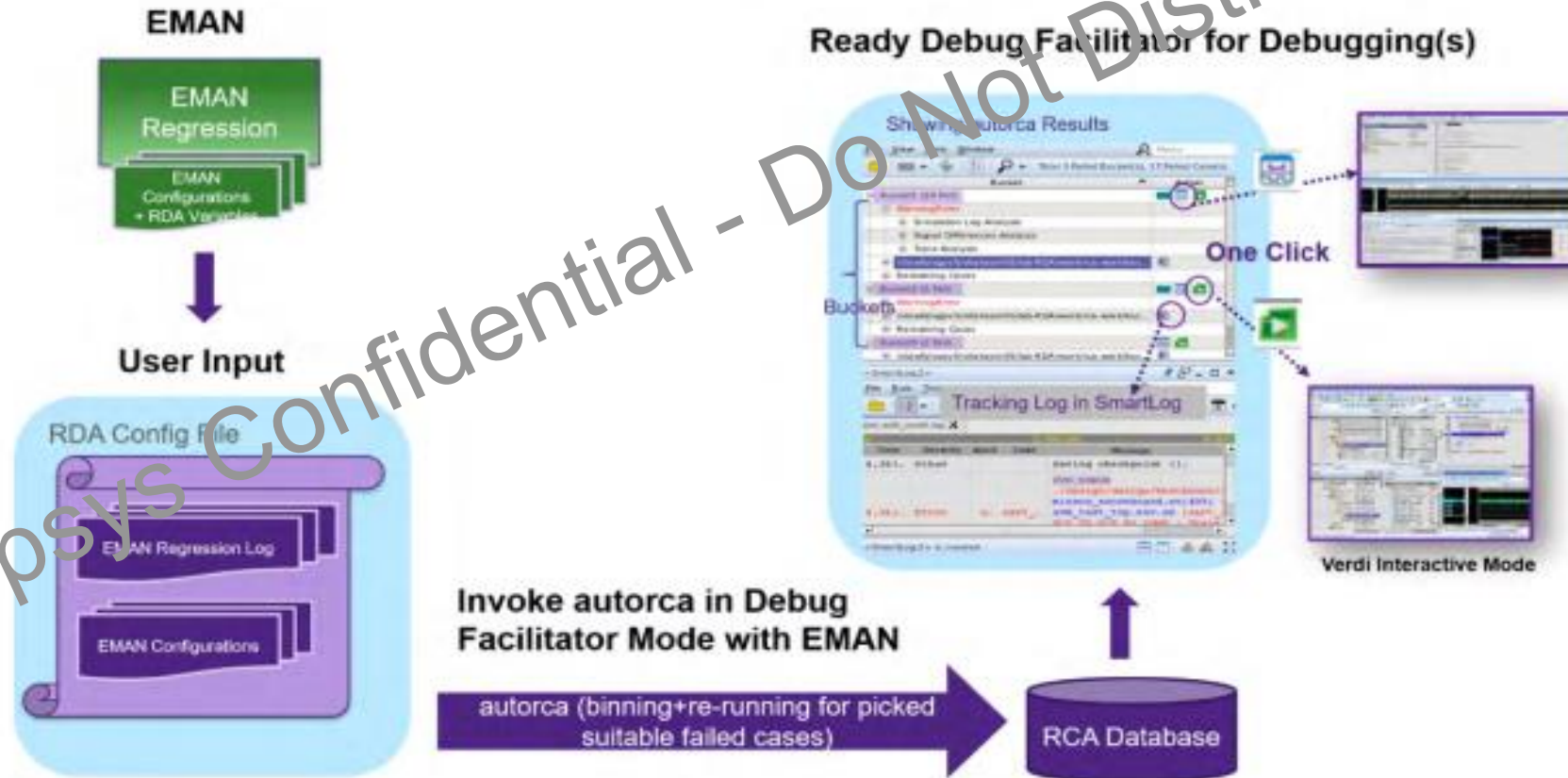
# EMAN-RDA

- Simpler configuration and automatically invoke RDA



# EMAN-RDA

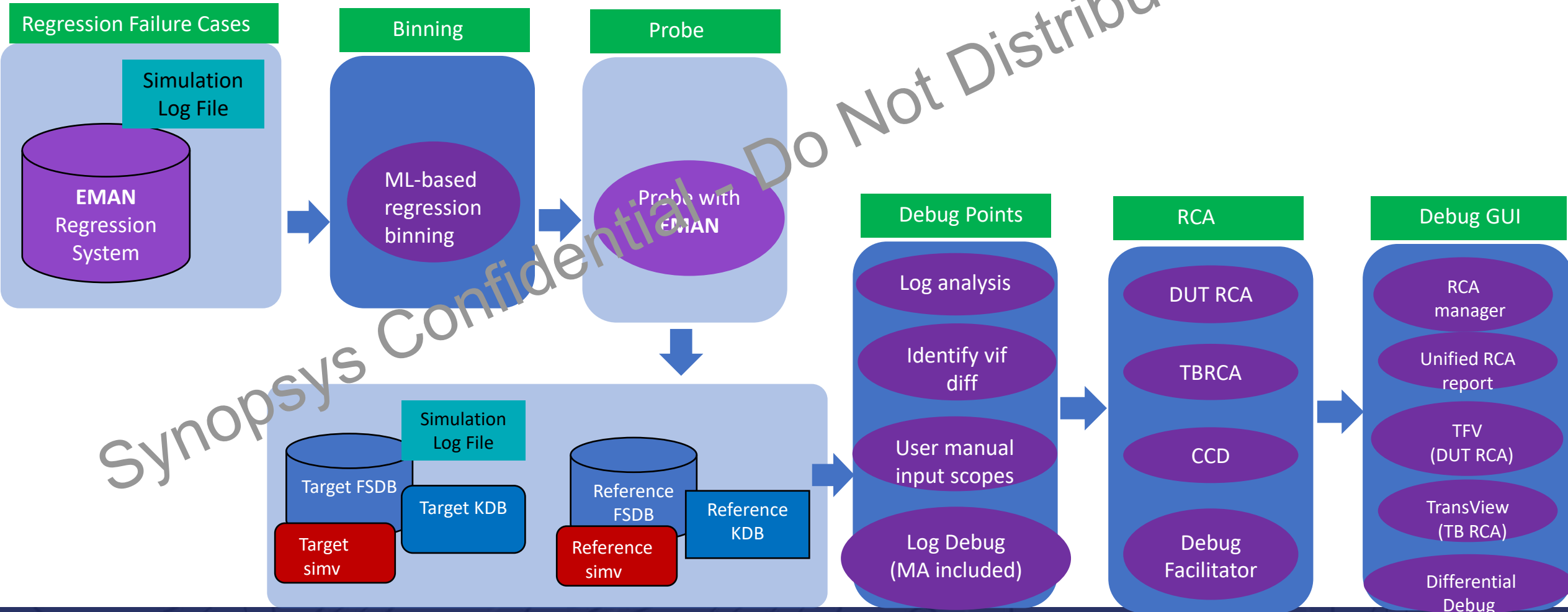
- Simpler configuration and automatically invoke RDA



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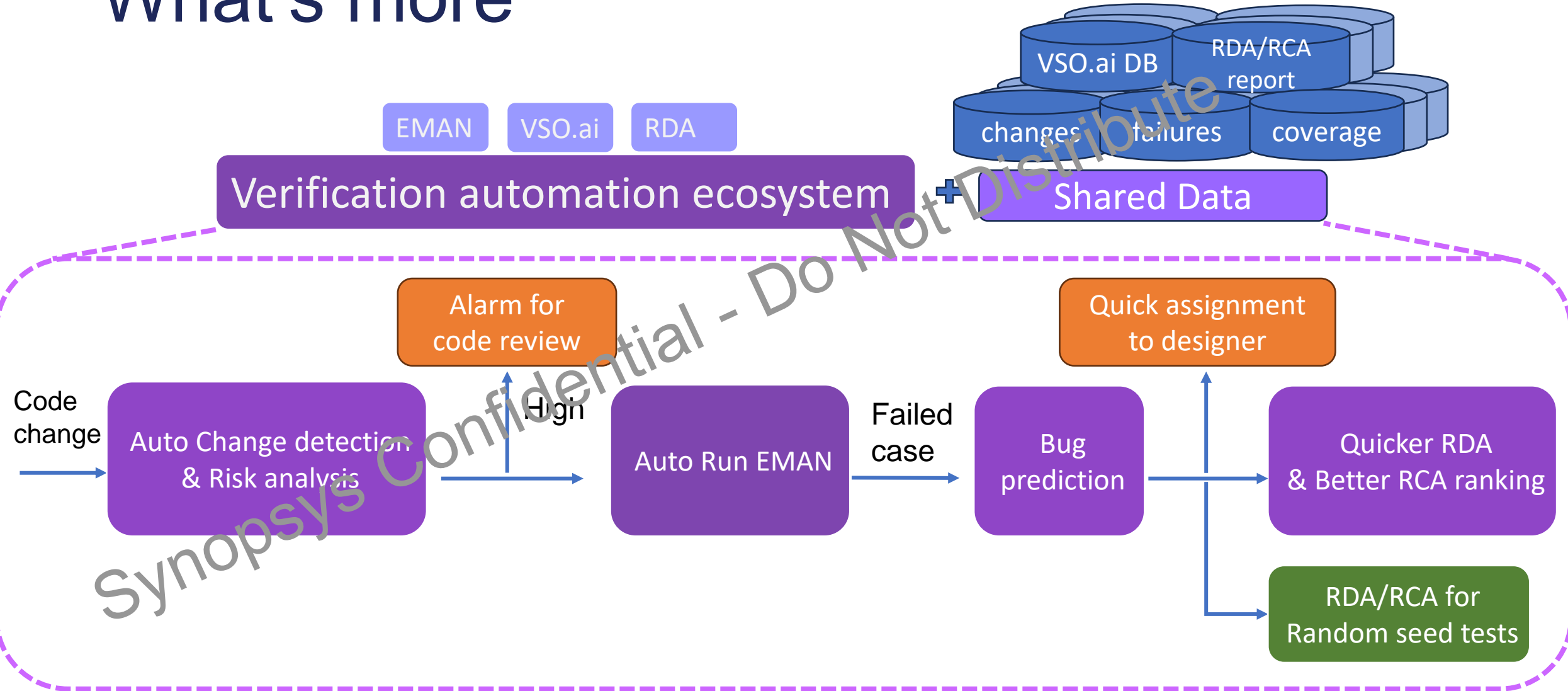
# Regression Debug Automation w/ EMAN

Unified Configuration, Usage Flow for Different Usage Scenarios





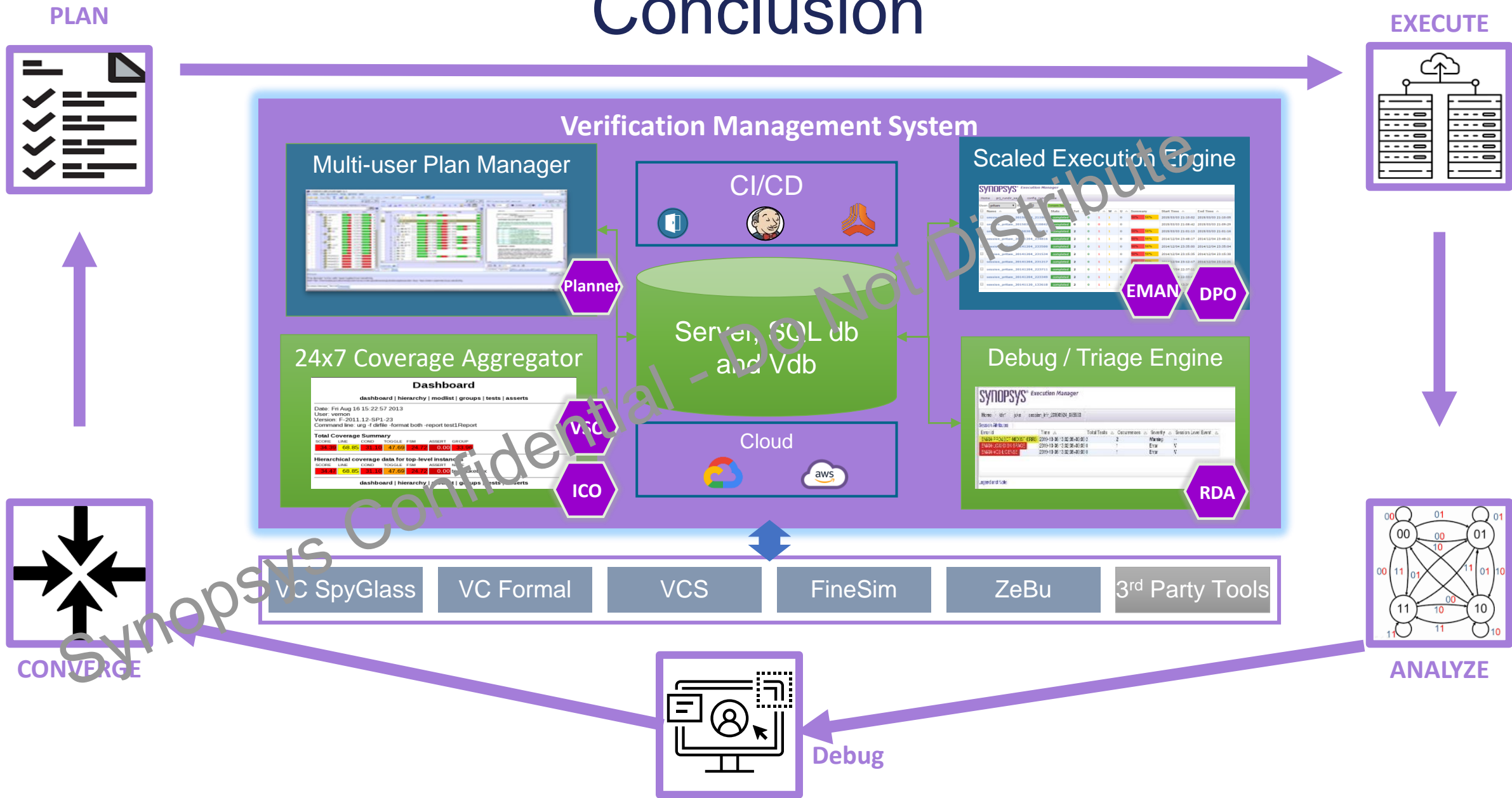
# What's more



# Complementing technologies

- VCS DPO:
  - Dynamic Performance Optimizer (DPO) is an intelligent automated approach that enables necessary diagnostics during VCS compile and simulation and leverages AI to recommend the appropriate set of options for enabling maximum performance without manual intervention
- VCS ICO:
  - Add-on for VCS fits seamlessly in your regression environment and enables you to improve verification productivity (hitting more and efficiency by generating better stimulus using Reinforcement Learning

# Conclusion



# Questions

- Thank you for listening

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