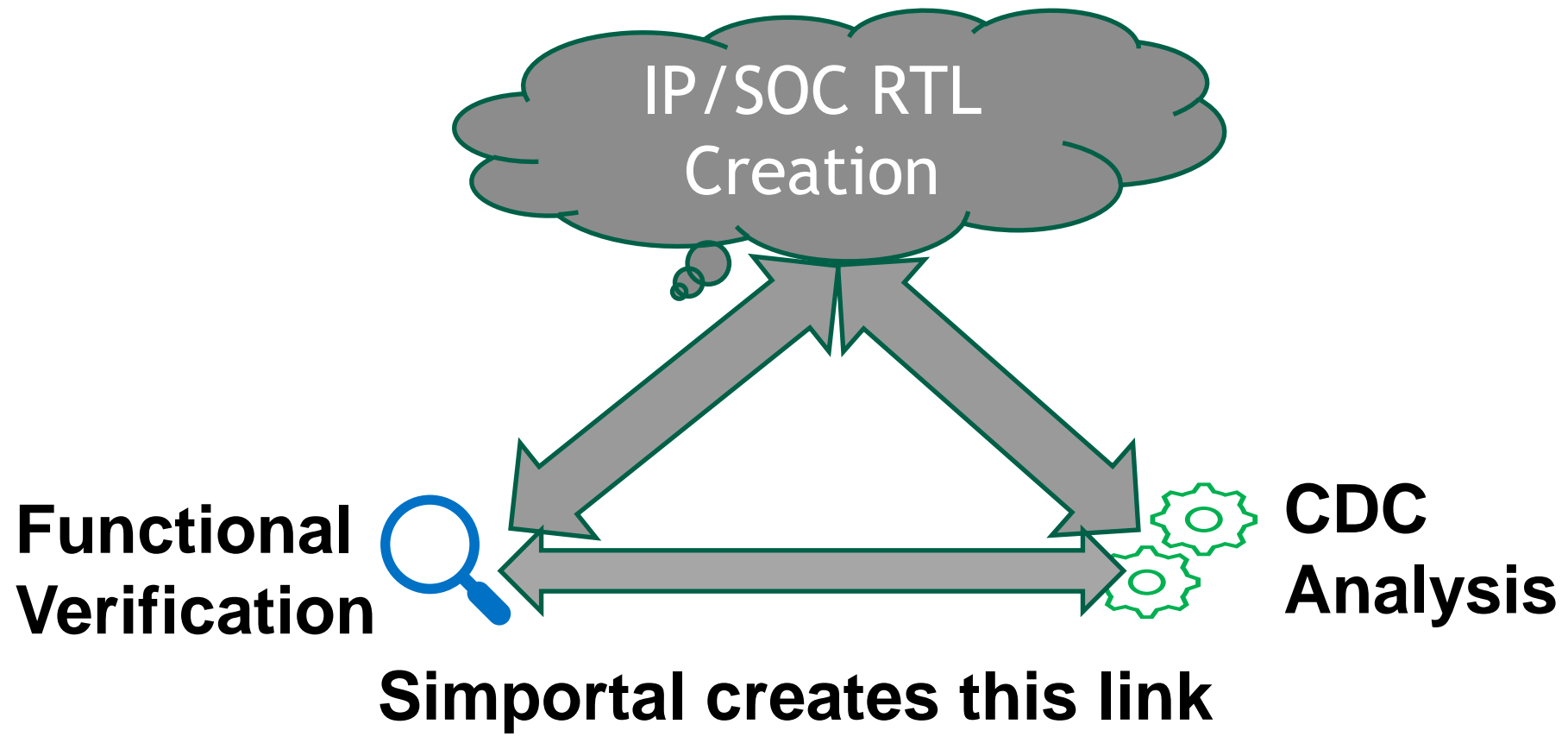
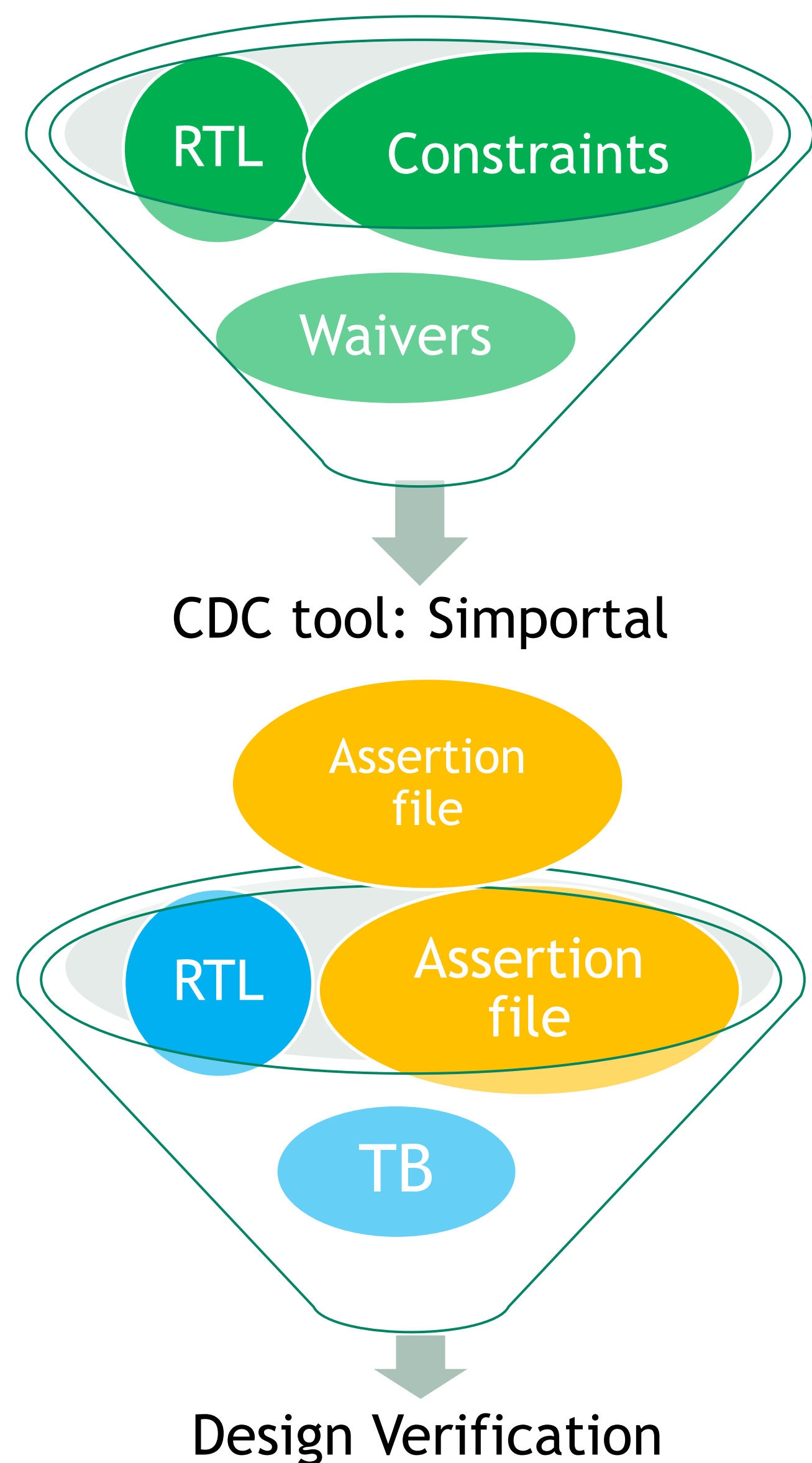


Krithivas Krishnaswami (Nvidia), Vivek Gupta (Nvidia), Louis Cardillo (Nvidia), Varun Sharma (Real Intent Inc.), Vikas Sachdeva (Real Intent Inc.)

What is Simportal?



Workflow

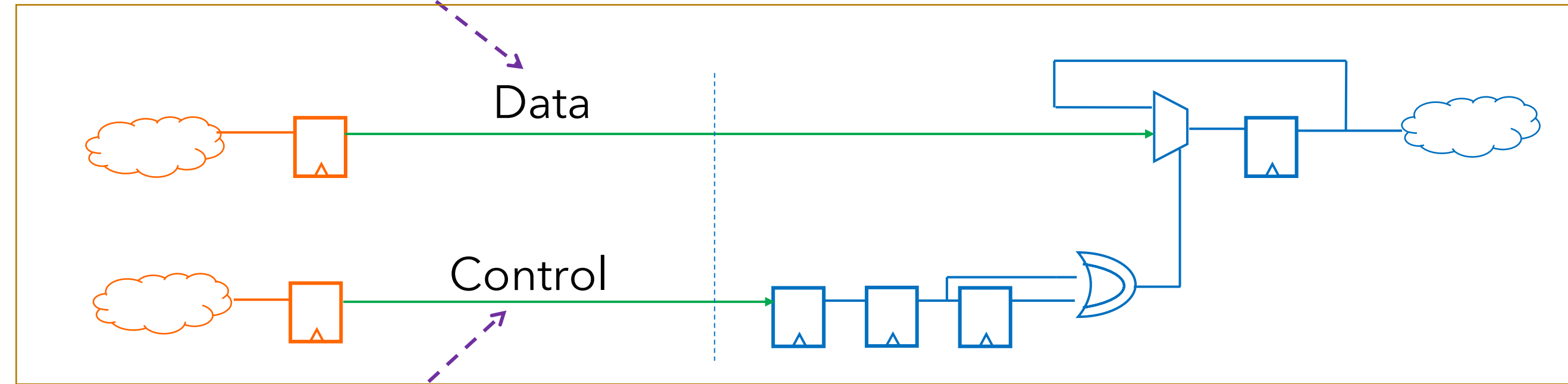


Simportal Checks

Protocol checks

Data crossing: Simportal library cells instantiates:

- 1.Data Stability checker library cell & metastability injection



Control crossing: Simportal library cells instantiates:

- 1.Metastability injection library Cell
- 2.Pulse-width checker library cell
- 3.Gray-code checker library cell for FIFO Synchronizers

Intent Checks

CDC Constraints

- Mutually exclusive assumption

Design Constraints

- Constant assumption
- Stable assumption

Challenges

Hierarchy differences

- **Problem:** CDC run at different hierarchy compared to functional simulation.
- **Solution:** Glue logic to stitch the two "designs".

Metastability injection

- **Problem:** Using tool's metastability injection model vs in-house metastability models.
- **Solution:** Evaluate pros and cons of the different metastability models and pick one.

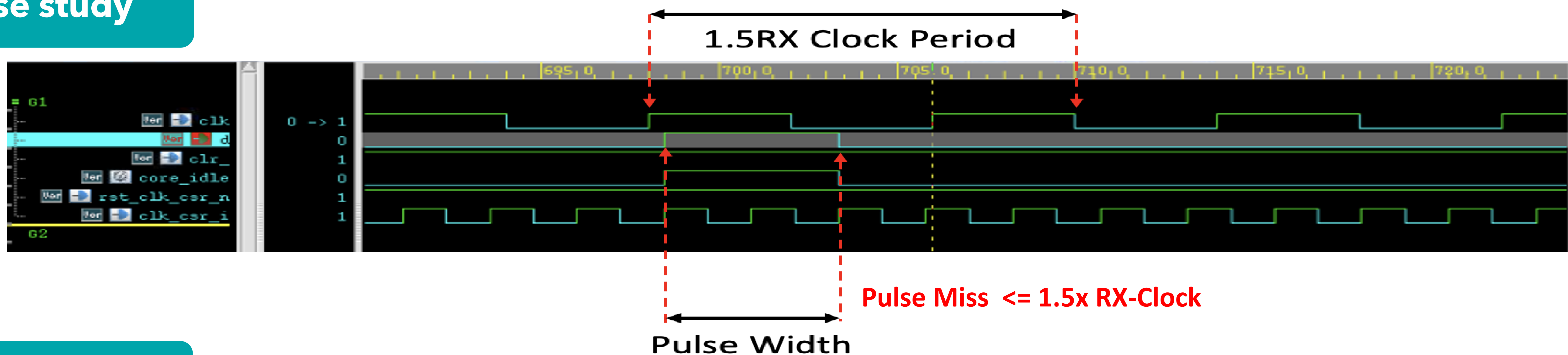
Noise

- **Problem:** False violations caused due to environment differences between CDC and functional verification.
- **Solution:** Introduce waiver mechanism in simulation checks from Simportal.

Coverage

- **Problem:** Simportal results are only as good as the verification tests picked to run.
- **Solution:** Create separate test pattern list for this new methodology.

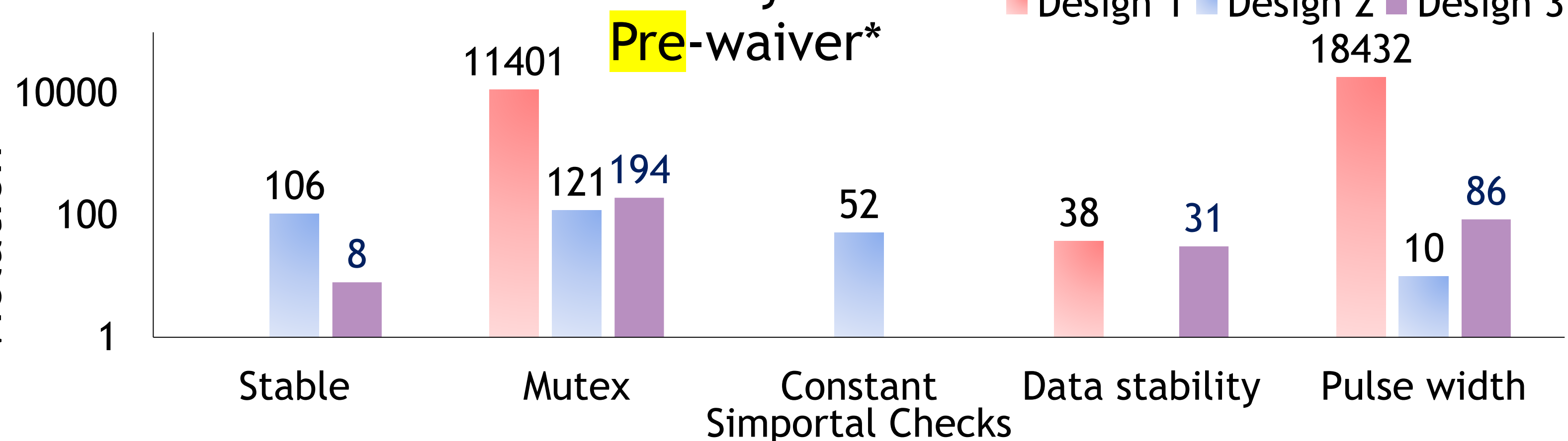
Case study



Results

Case study results

Pre-waiver*



*Waiver: Simulation checker off in SVAs.

Case study results

Post-waiver* (Existing testlist)

