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P4 Insight: P4 visualization

Fitting the Logical into Physical

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ABSTRACT

Barefoot Networks P4 Insight™ is a graphical tool that supports P4 data-plane programming for the Barefoot Networks Tofino family of chips. P4 Insight™ helps developers understand the resource consumption and physical layout of their P4 program on the Tofino chip. The poster/demo will demonstrate the visual representation of the program mapping and how to use the differential visual comparison to enable programmers optimize their program.

PROBLEM

P4 data-plane programming is constrained by the physical capabilities of the target chip and the logic within the P4 compiler. Fitting and optimising a feature dense complex P4 program onto a Tofino chip is challenging.

SOLUTION

P4 Insight™ provides an interactive visual representation of the physical view of your P4 program, enabling you to maximise feature density, compiler optimisation decisions, and program performance. The programmer can search and drill down based on either P4 objects or physical resources using the browser UI.

P4 Insight™ additionally provides program differential analysis to facilitate master=>branch program analysis, with a particular focus on identifying the physical differences adding new features to existing programs incurs.

CONCLUSION

Complex feature dense optimal P4 data-plane programming is facilitated by the visual representation and interactivity, making P4Insight™ a must have tool in the developer's portfolio.