



SystemC as a Tool for Product Definition

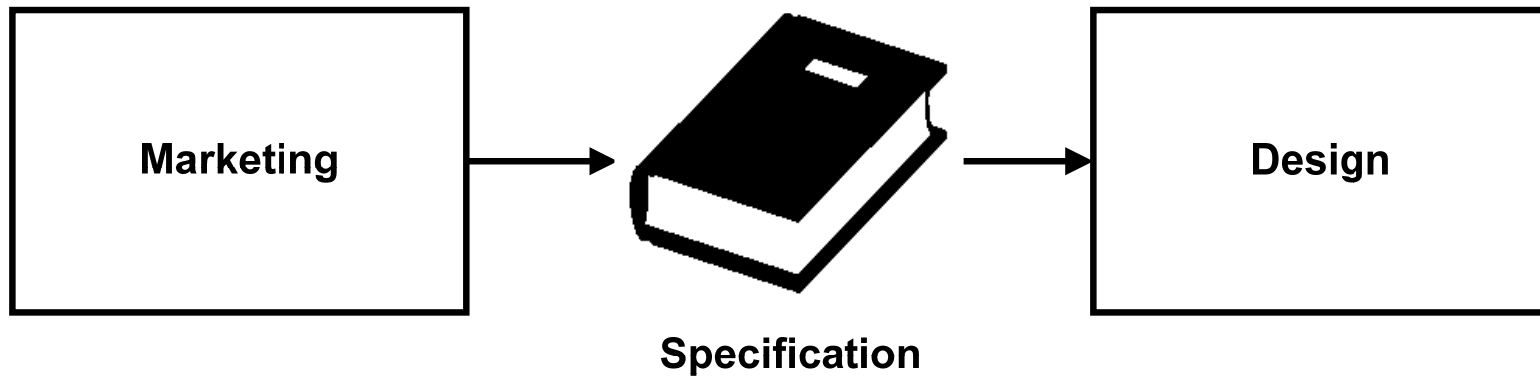
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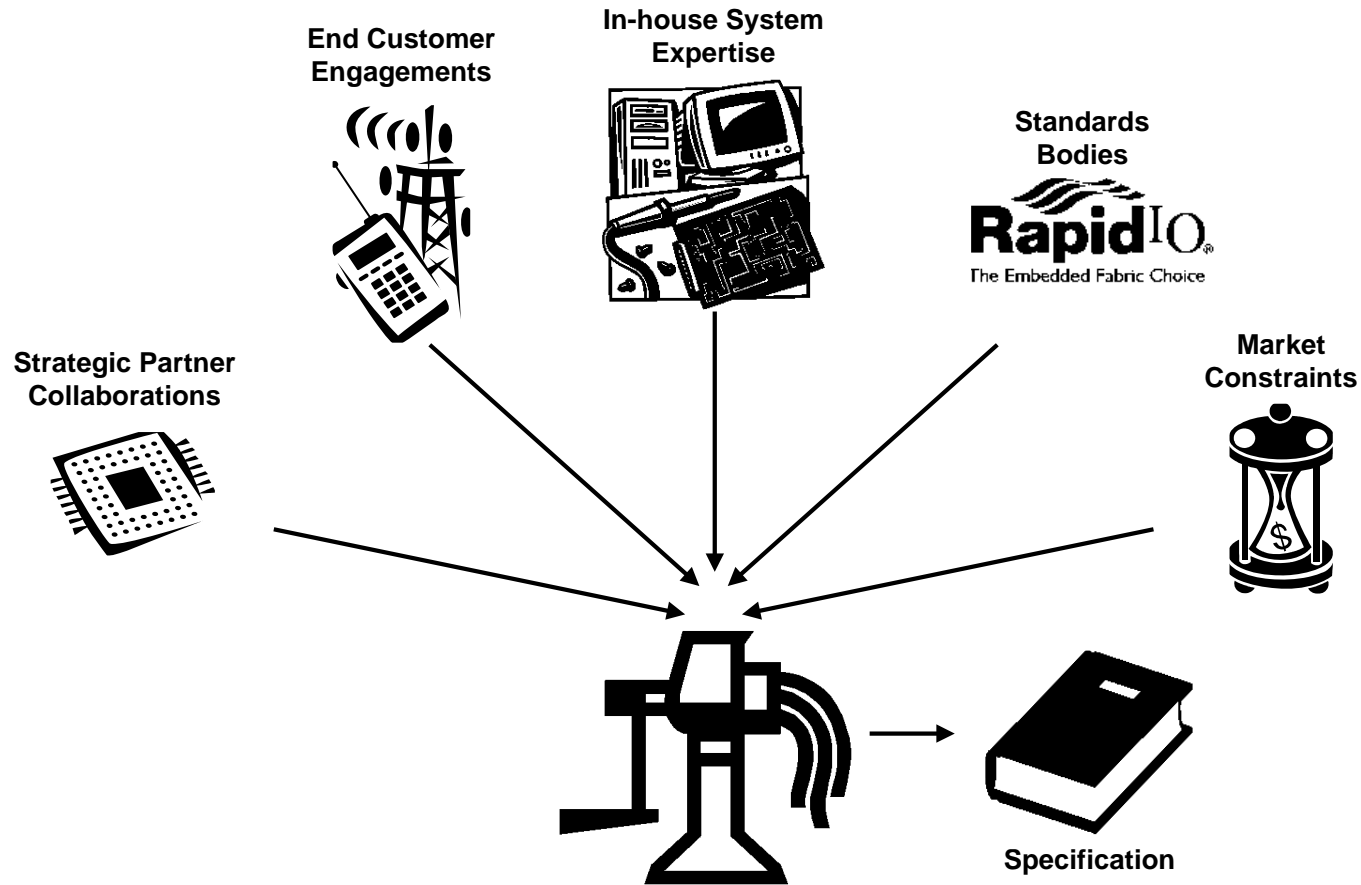
Integrated Device Technology, Inc.



Product Definition – A Simple Concept

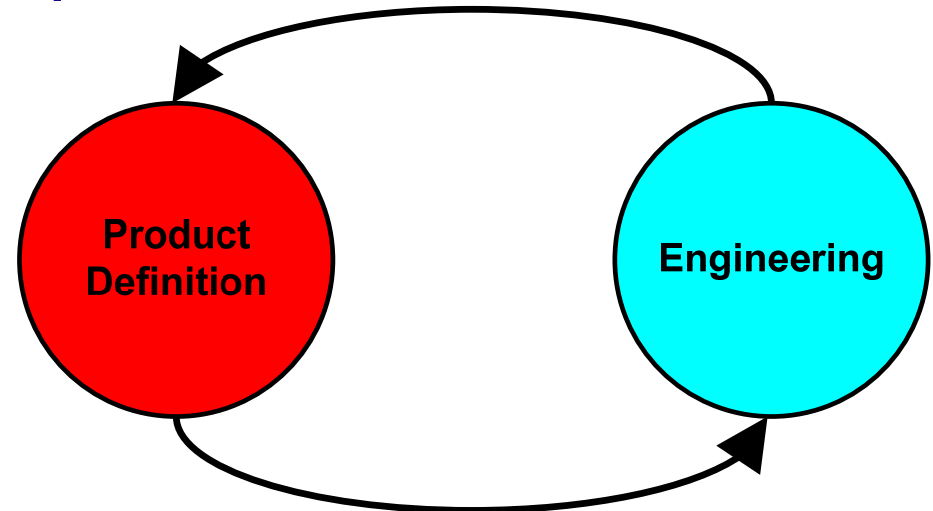


Product Definition – A Daunting Reality

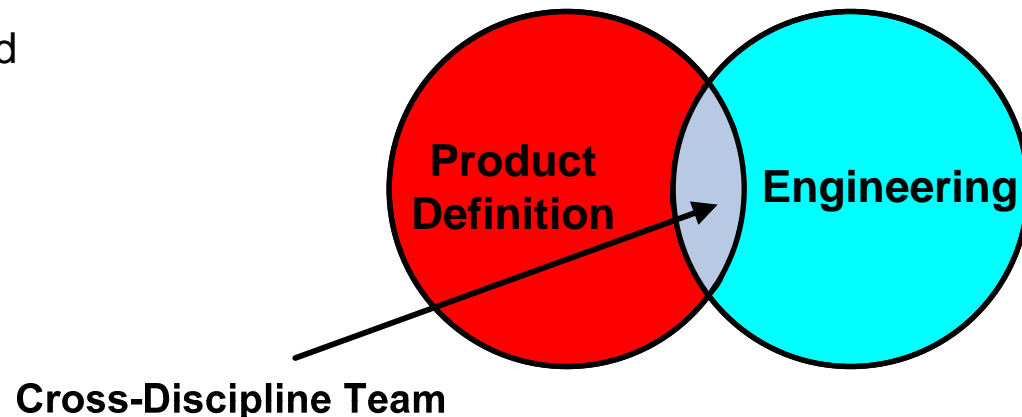


Strategic Tradeoffs - Data Requirements

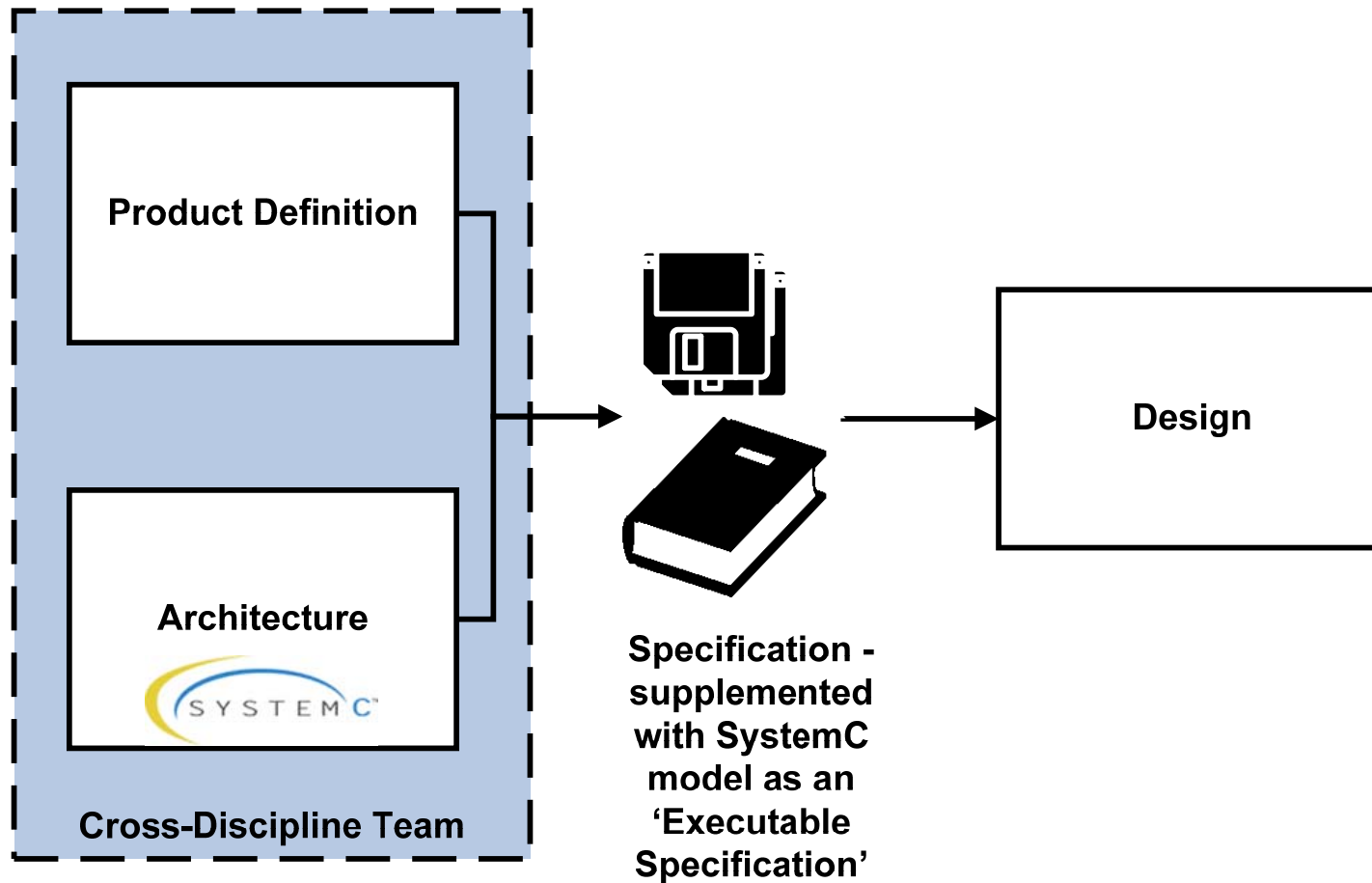
- Traditional approach for product definition to acquire data
 - Delayed into design phase
 - High cost
 - Risk of schedule slips, redesign and lost opportunities



- A new approach was needed
 - Earlier
 - Lower cost
 - Mitigate risks



SystemC – The Enabling Technology



Specification Effort – IP Module Supporting sRIO Switching

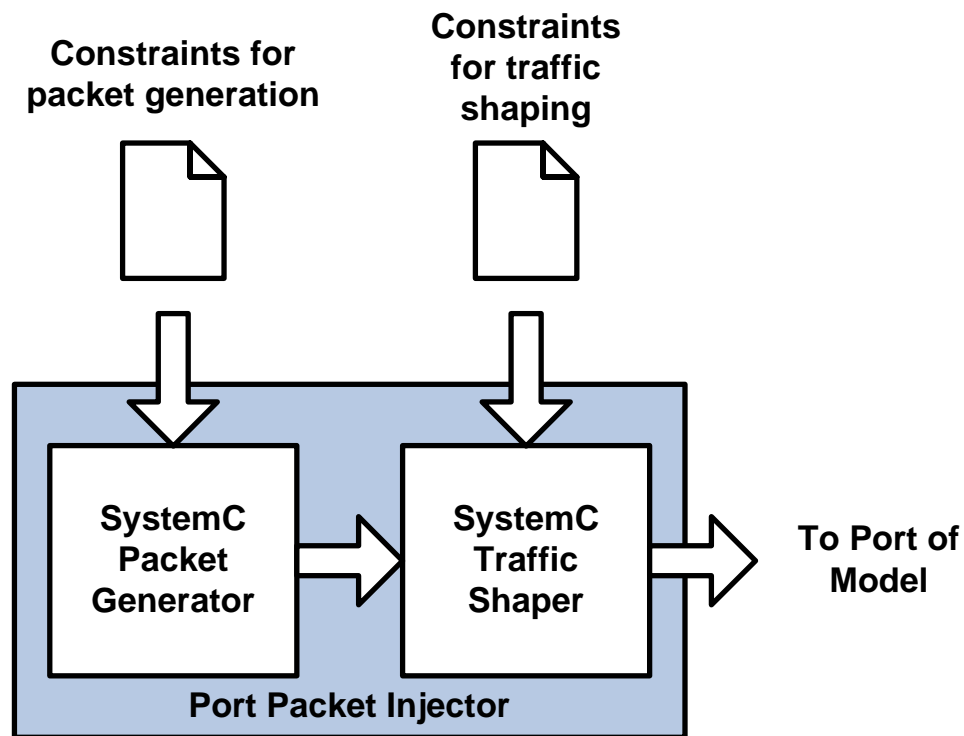
- Next Generation Serial RapidIO switch IP block
 - Virtual channels
 - Bandwidth reservation
 - Traffic management and fairness challenges
- Supporting multiple future products
 - Wide variety of target applications
 - Numerous key customer requirements to incorporate
 - Modular and scalable
- Beyond switching – supporting enhanced pre-processing functions
- Presently in design phase

SystemC – Key Component 1: TLM

- Exhaustive architecture and algorithm analysis enabled by TLM simulation efficiency
 - All modeling was at the TLM level
- Complex customer specific application data patterns modeled
- Application expertise is directly integrated into the product specification
- Over 20X speed improvement compared to RTL level analysis
 - No license costs also helped things, too

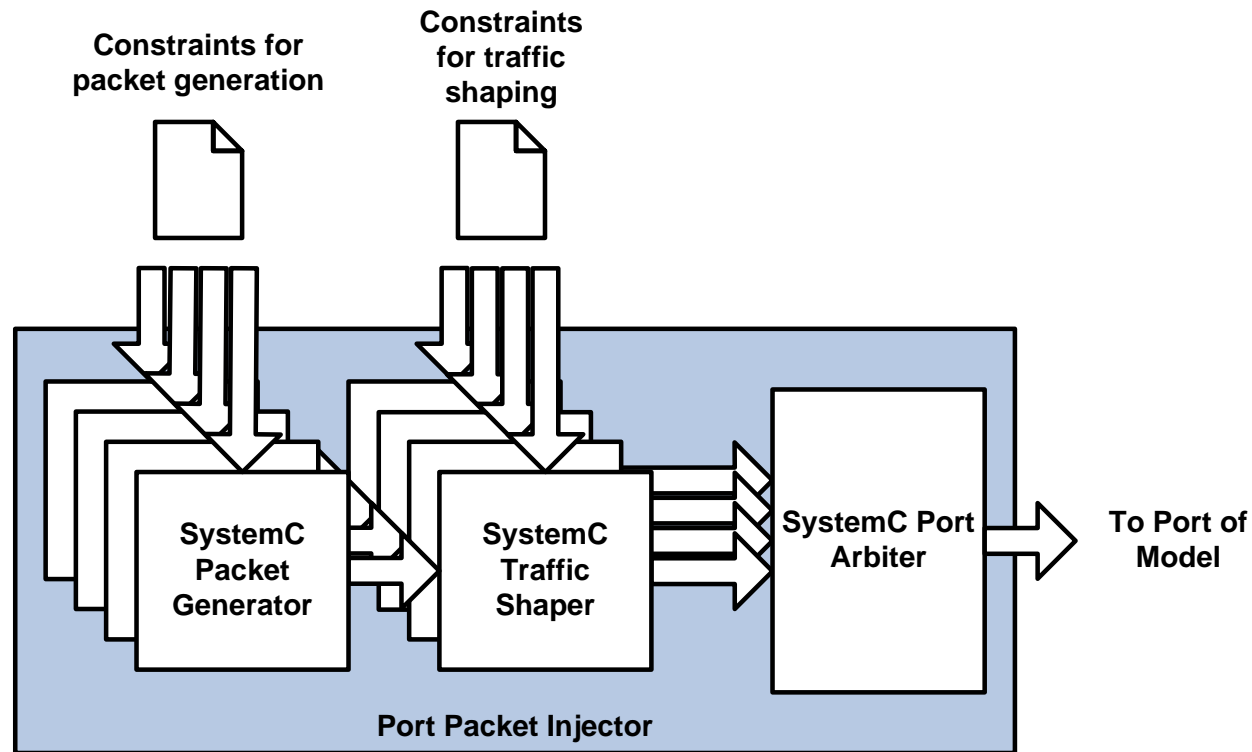
SystemC – Key Component 2: SCV

- A critical tool for architecture analysis
 - Constrained random packet generators
 - Constraints passed by test file for efficient regressions
 - Control of seeds allowed for reproducible results and more accurate analysis

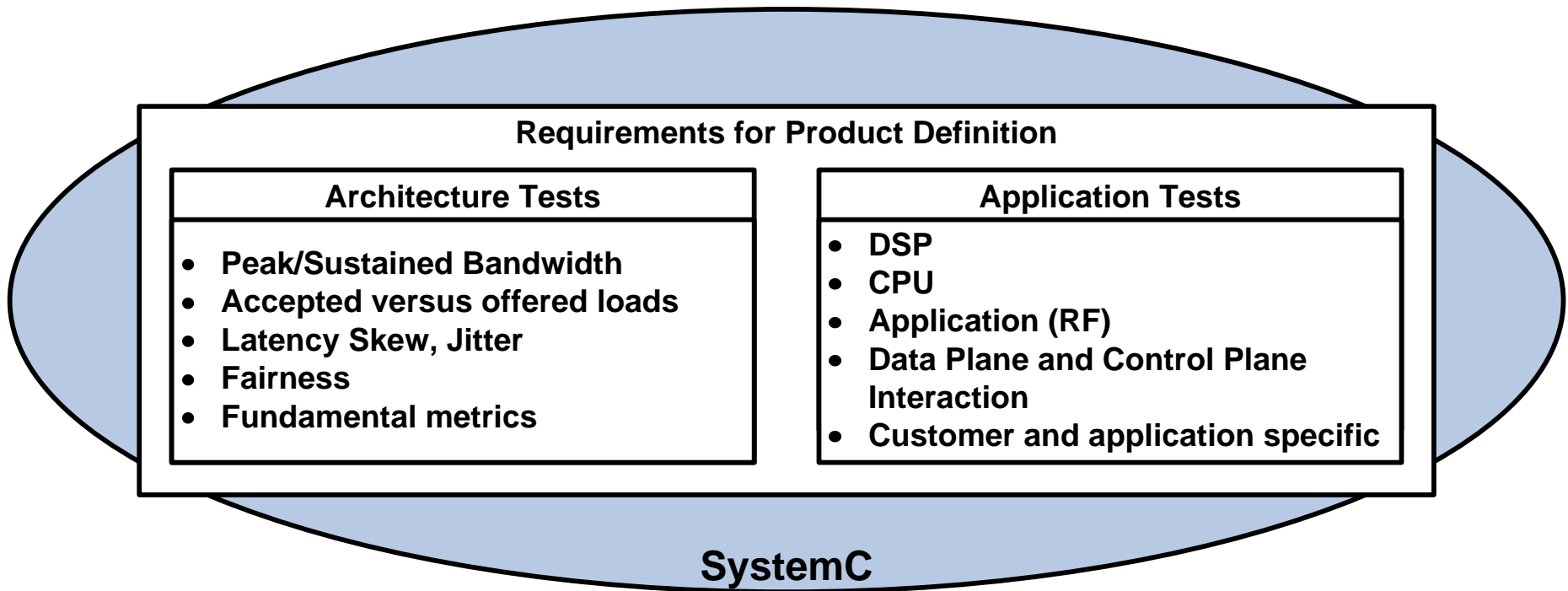


SystemC – Key Component 3: Dynamic Processes

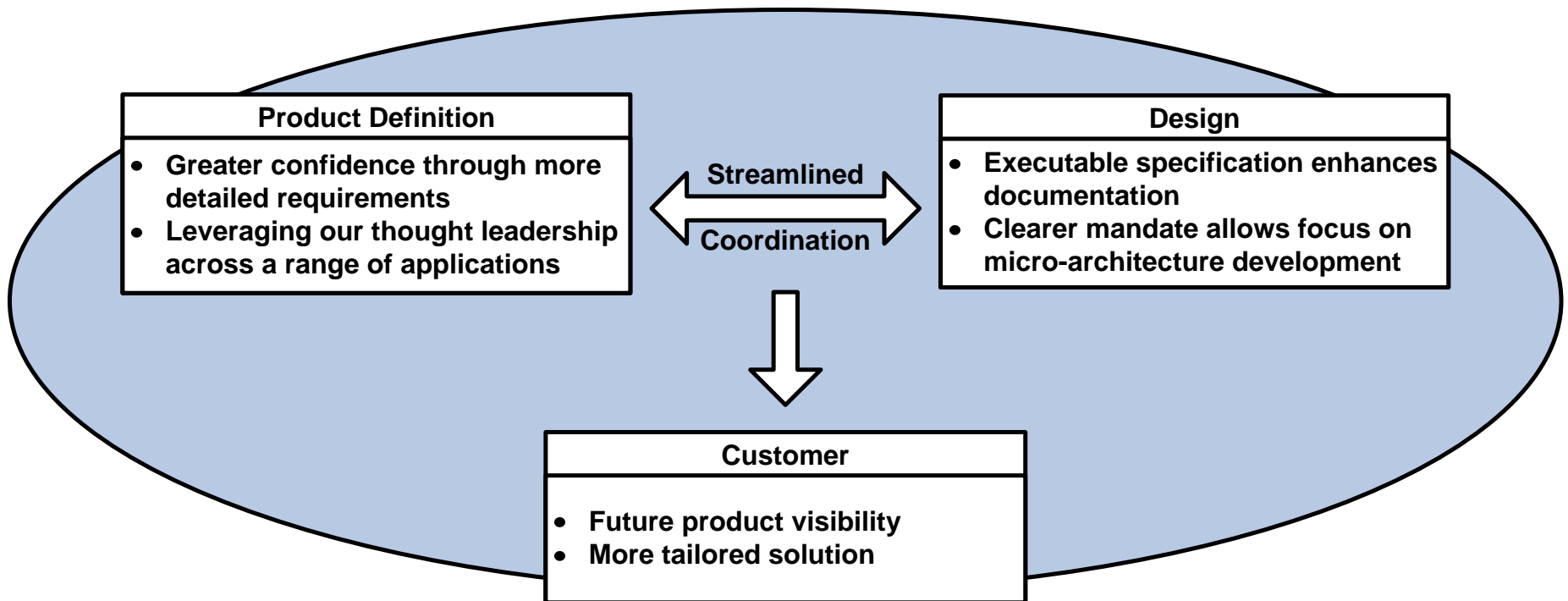
- Actual customer traffic tested
- Realistic traffic flows as produced by sources such as DSPs, CPUs and RF cards
- Dynamically spawned, parameterized modules enable complex packet injectors



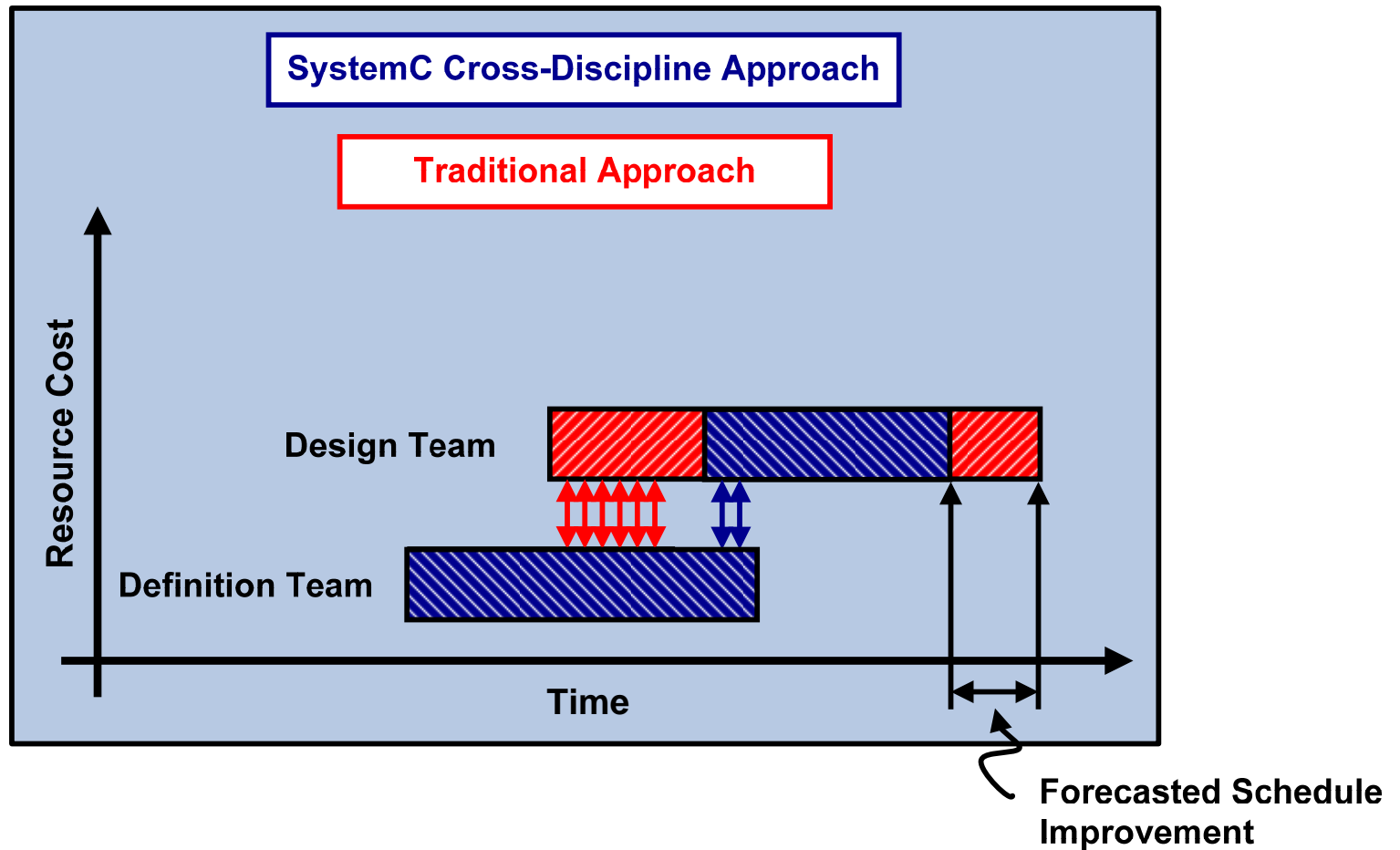
SystemC – Supports all Requirements



New Definition Process – Benefits all Parties



New Definition Process – Benefits in Cost and Schedule



Questions