Extending Buffer-Aware Worst-Case Timing Analysis of Wormhole NoCs

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ISAE-Supaero – Université de Toulouse, France

Introduction and Context

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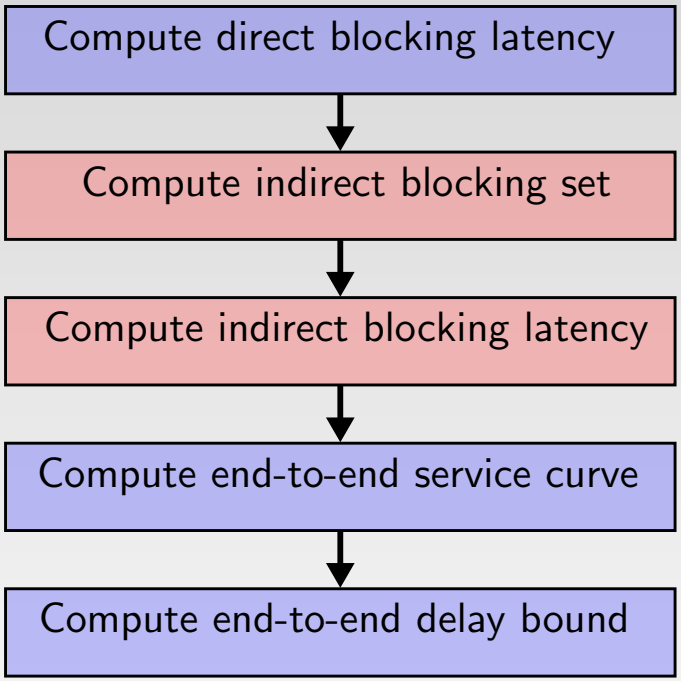
Obective

Extend our previously published approach (RTAS18) to cover bursty traffic flows

RTAS18: Main steps



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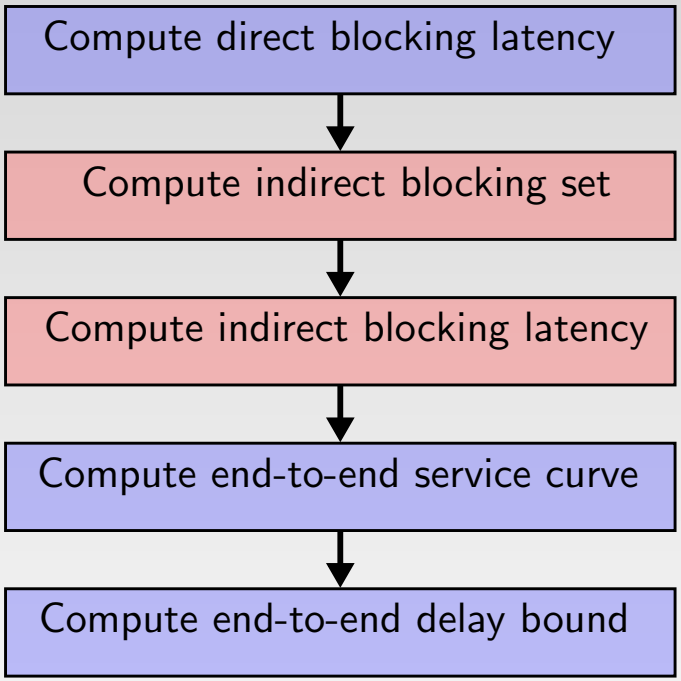

- Account for **Direct Blocking Latency**

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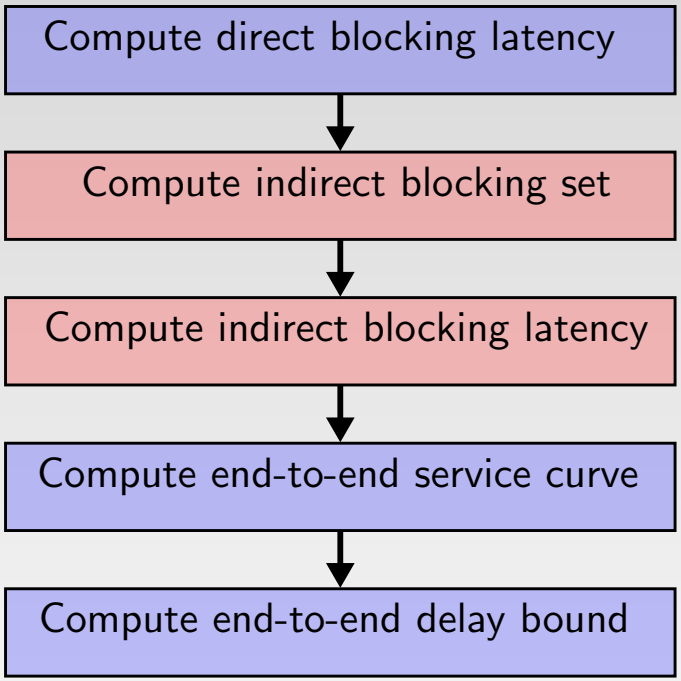

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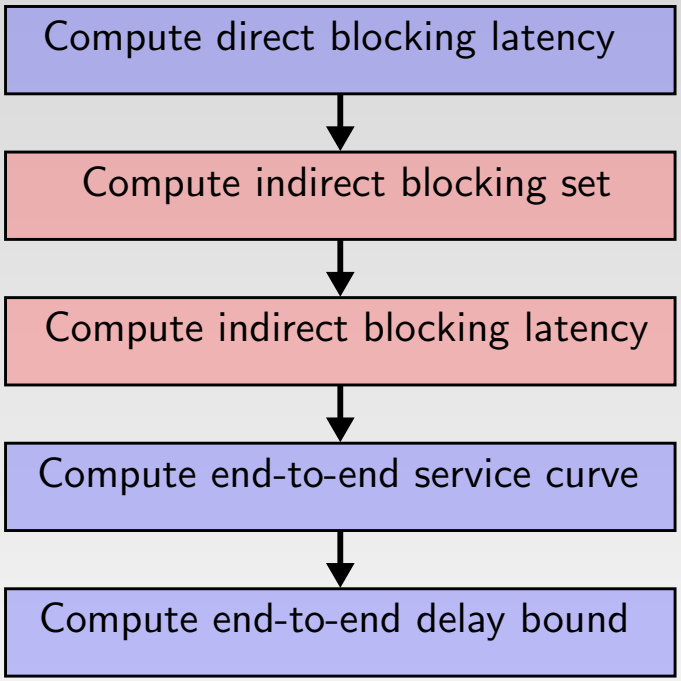

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- Derive corresponding **Indirect Blocking Latency**

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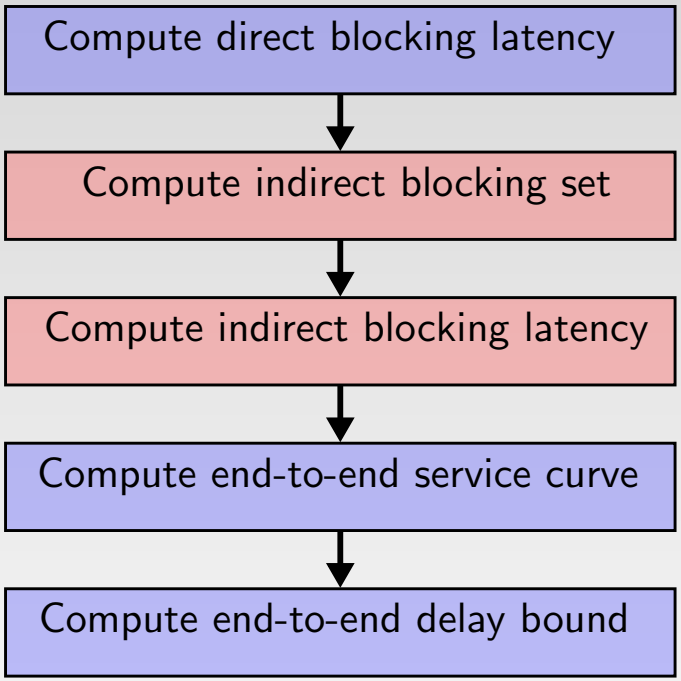

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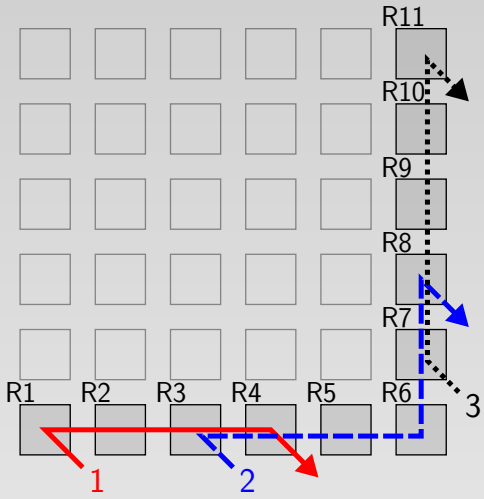
- Derive corresponding **Indirect Blocking Latency**
- Compute service curve and **worst-case latency bound**

RTAS18: Limitations



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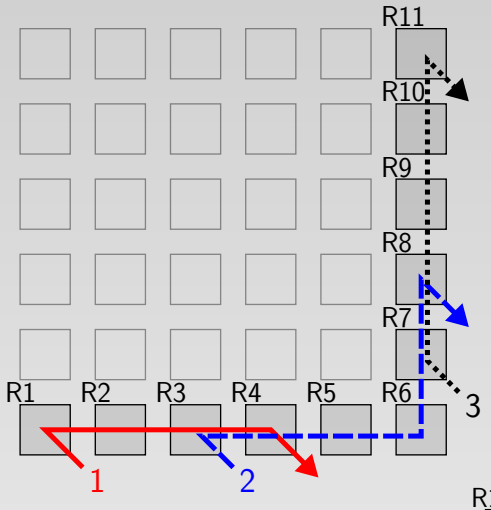

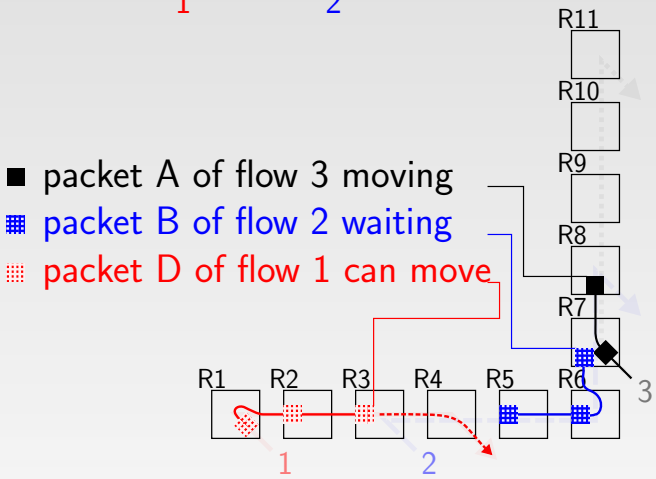

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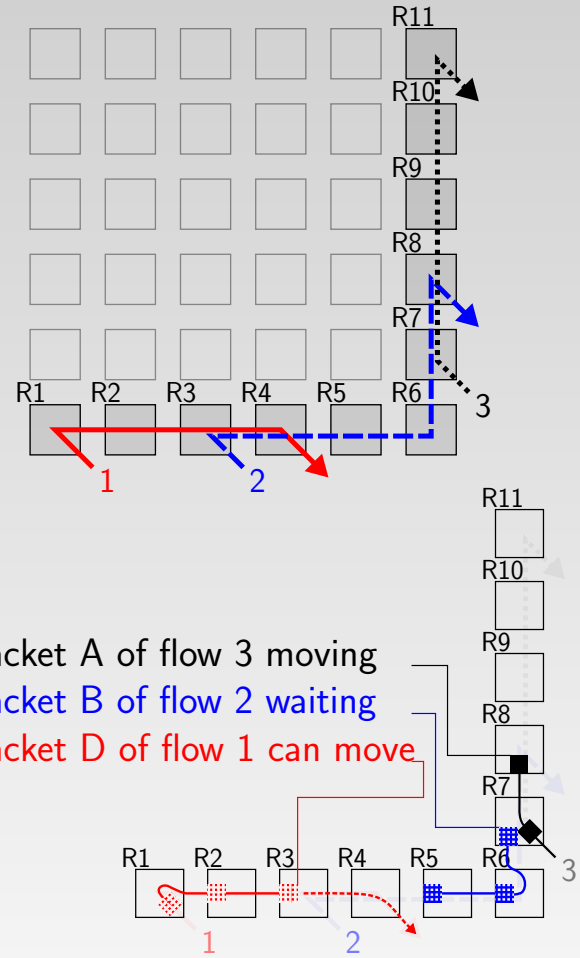

Under no CPQ assumption,
$IB_1 = \{\}$

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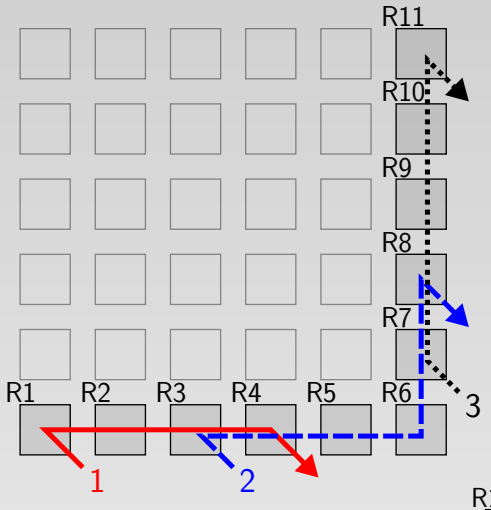

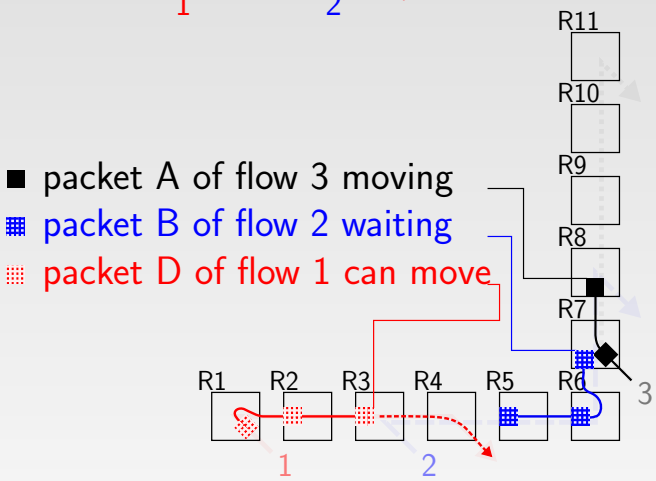

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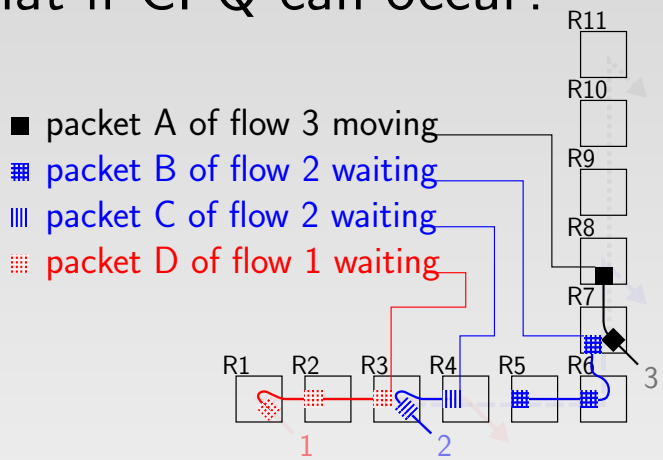

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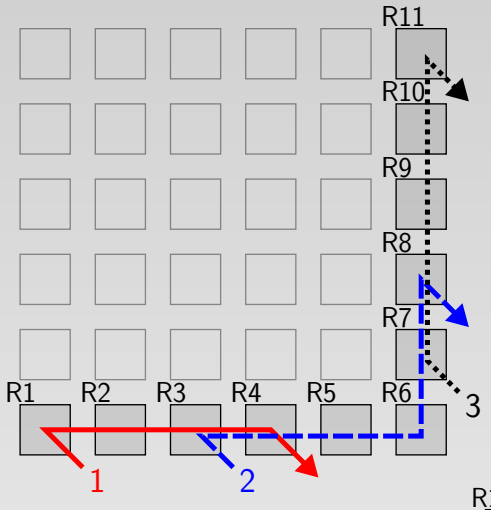

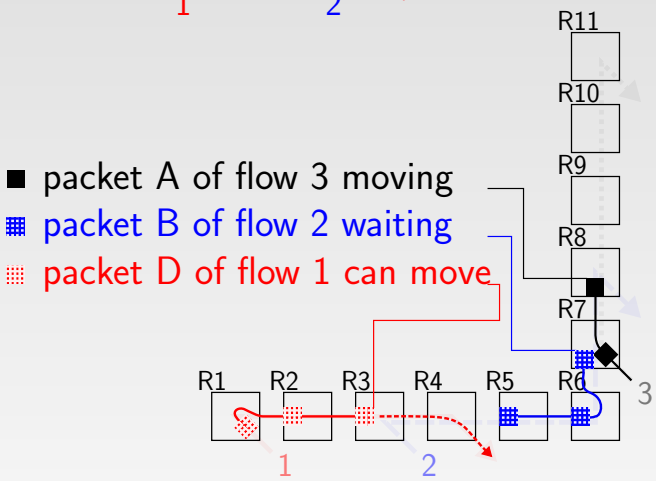

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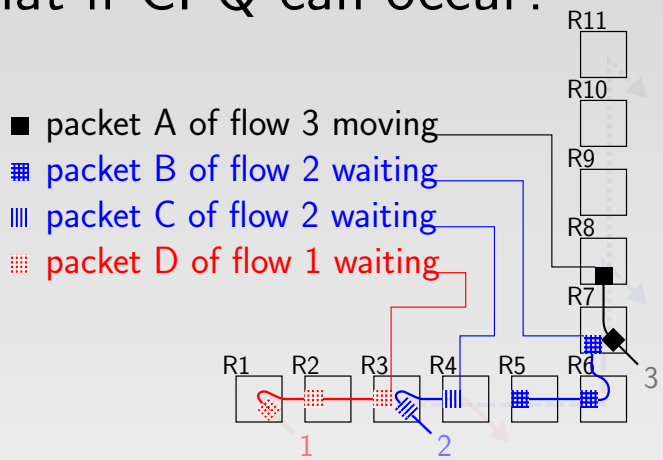

CPQ causes unexpected indirect blocking scenarios

Leads and Perspectives

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- We have a poster! Come and check it out ☺