End-to-end Congestion Control in Datacenter Networks: A Survey

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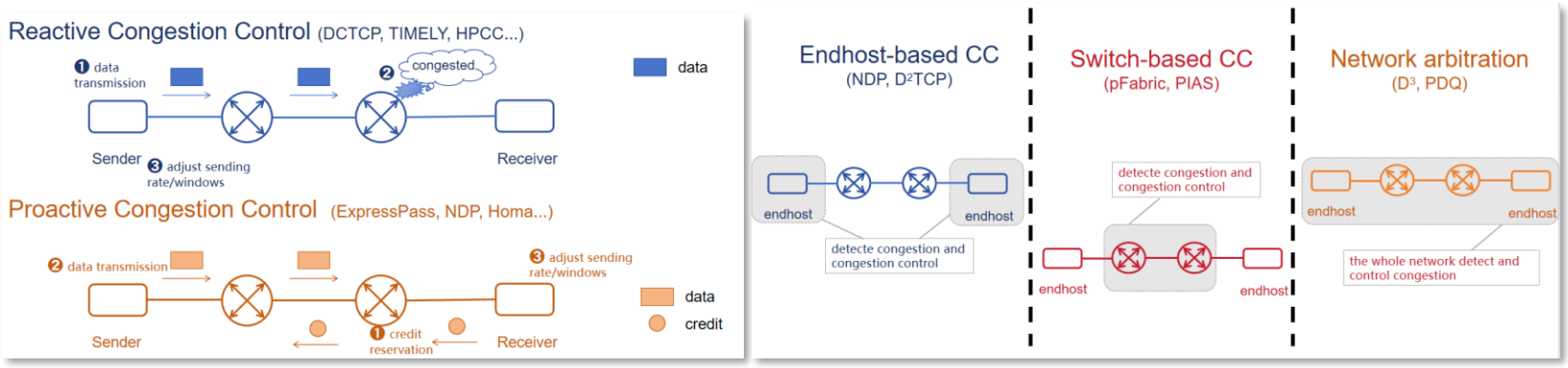
Problems & Ideas

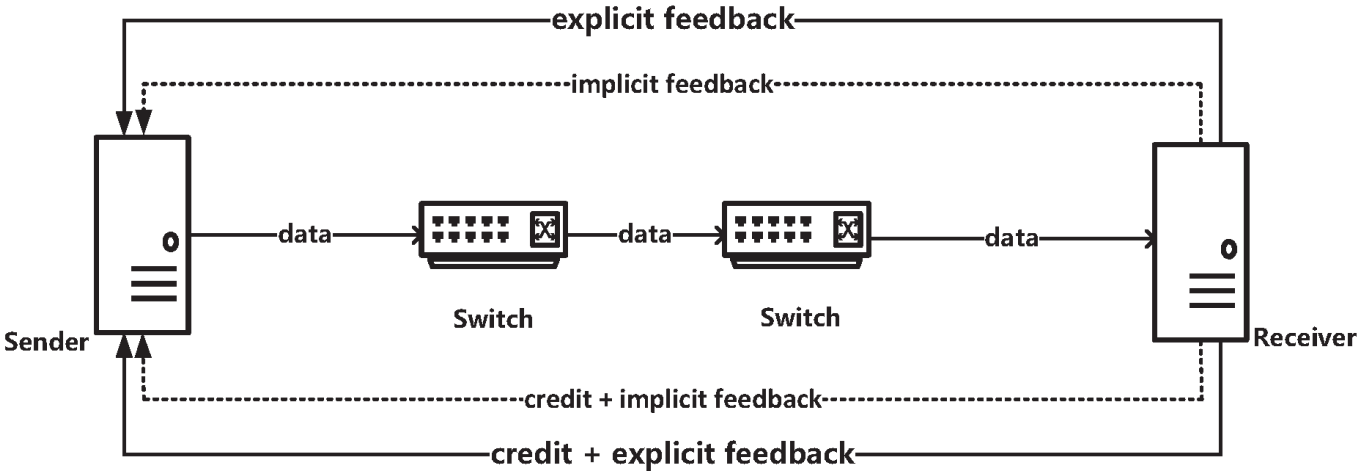
- Problems of end-to-end congestion control classification:
  - Coarse granularity in classification.
  - Lack of adaptability to evolving network technologies.
- Ideas: Deconstruct congestion control from the two dimensions of time and congestion signal, and classify end-to-end congestion control protocols according to credit, data and congestion control signals.



Classifications using different dimensions. Left: Classification of time dimension; Right:Classification of space dimension.

Main Contributions

- Contributions:
  - Analysis of the developmental trends in existing congestion control (CC) protocols
  - Designing a novel end-to-end CC protocol classification framework for data centers, named the Data and Credit End-to-end Feedback(DCEF) framework
  - A comprehensive survey of the state-of-art CC protocols considering their designs and feedback information
  - Discussion of the performance and challenges in end-to-end CC protocols, both in the present and future



Overview of Data and Credit End-to-end Feedback(DCEF) framework.