Are You Really There? Analyzing the Deployment of Remote Peering in the Brazilian IXP Ecosystem

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Motivation and Problem

Remote peering (RP) enables ASes connectivity to IXPs **without having a physical presence** at their switching infrastructure

RP usage is still **poorly understood**. Its invisibility leads to **unpredictable behavior of application**s [3] and interconnection quality

Recent studies [1,2] have focused mainly on North Hemisphere, not deeply investigating **relevant IX** ecosystems elsewhere, such as **Latin America** and rely on either infrastructure **data** that **may not be available** or simplistic latencies measurements
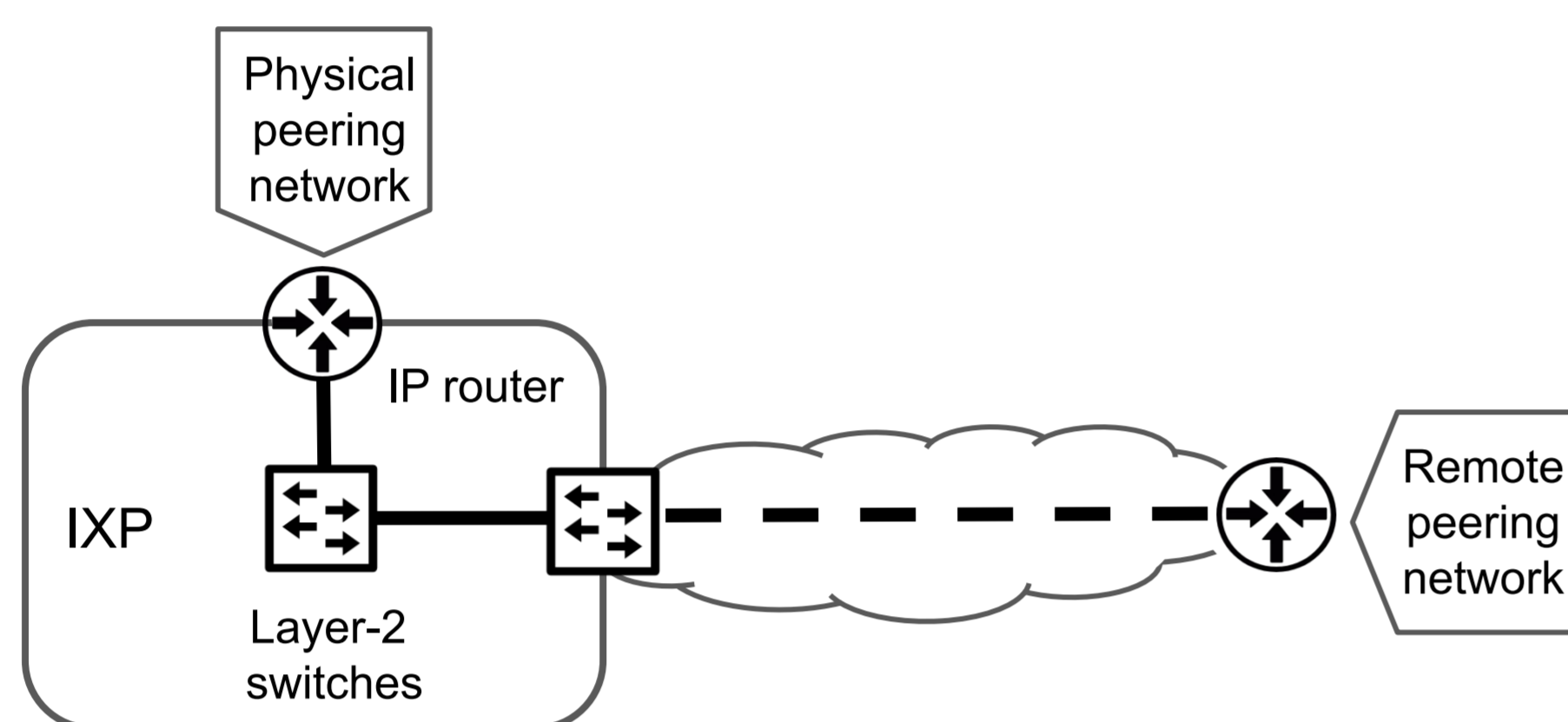
To analyze the utilization of **RP in Brazil** and the **impact of scarce public data available** required as input to the current methodology, we evaluate the state-of-the-art methods [1, 2] in three of the largest Brazilian IXPs (SP, RJ, CE)

Dataset. **2-day ping measurement** campaign from **6 different VPs** within IXPs infrastructure to all IXP interfaces

Research Goals

1. Analyze the **deployment of Remote Peering** in the Brazilian IXP ecosystem

2. Evaluate the **accuracy of state-of-the-art techniques** to infer RP in other scenarios where **public information** may be not available

3. Identify the **impact of RP on current traffic** over the Brazilian IXP infrastructure

4. Understand the **influence of RP** on application and protocol **performance** (e.g., BGP, inspired by [3])

Preliminary Analysis of RP on IX.br using state-of-the-art methods

2ms Latency Threshold [2]

10ms Latency Threshold [1]

Inferences using [2] methodology
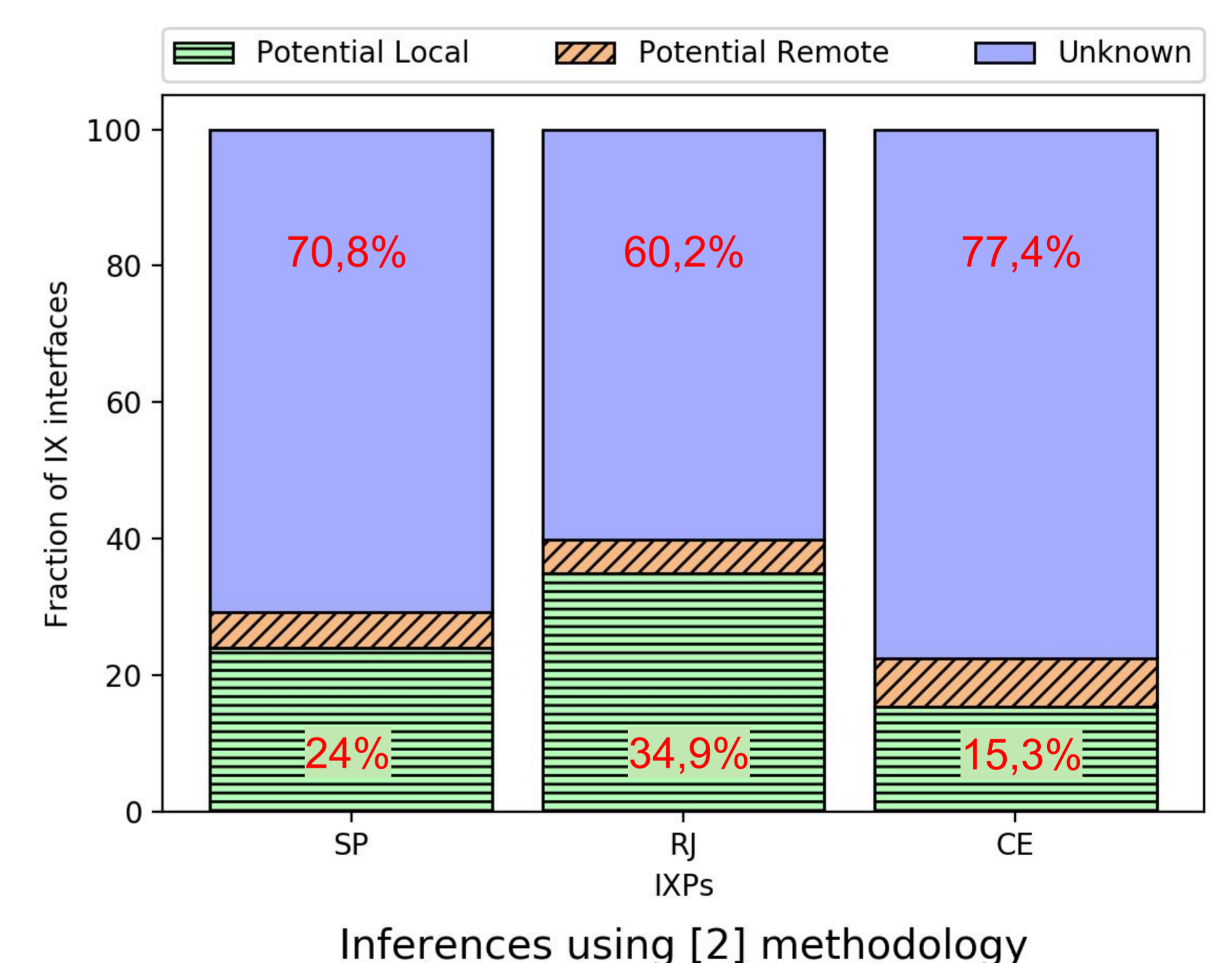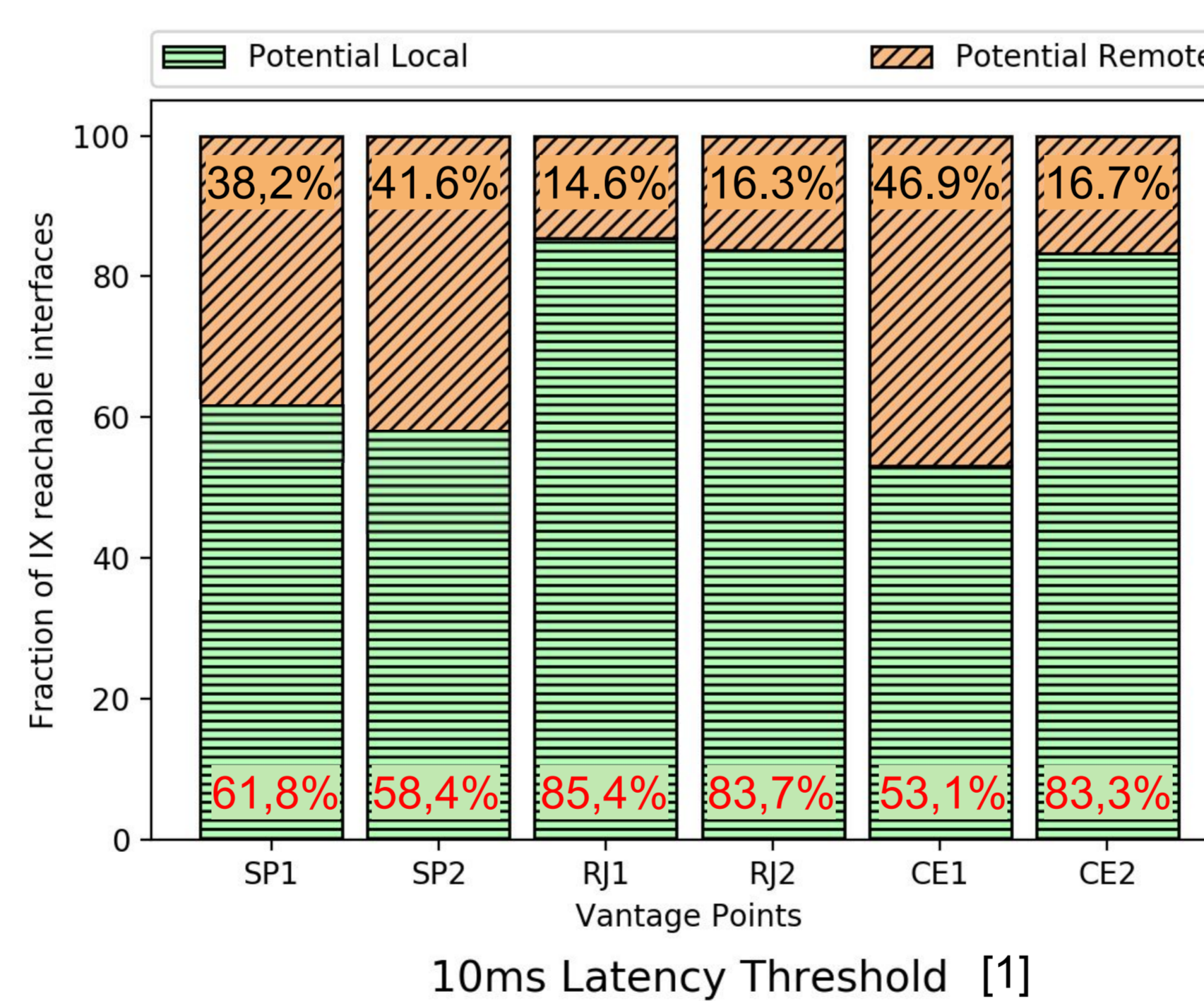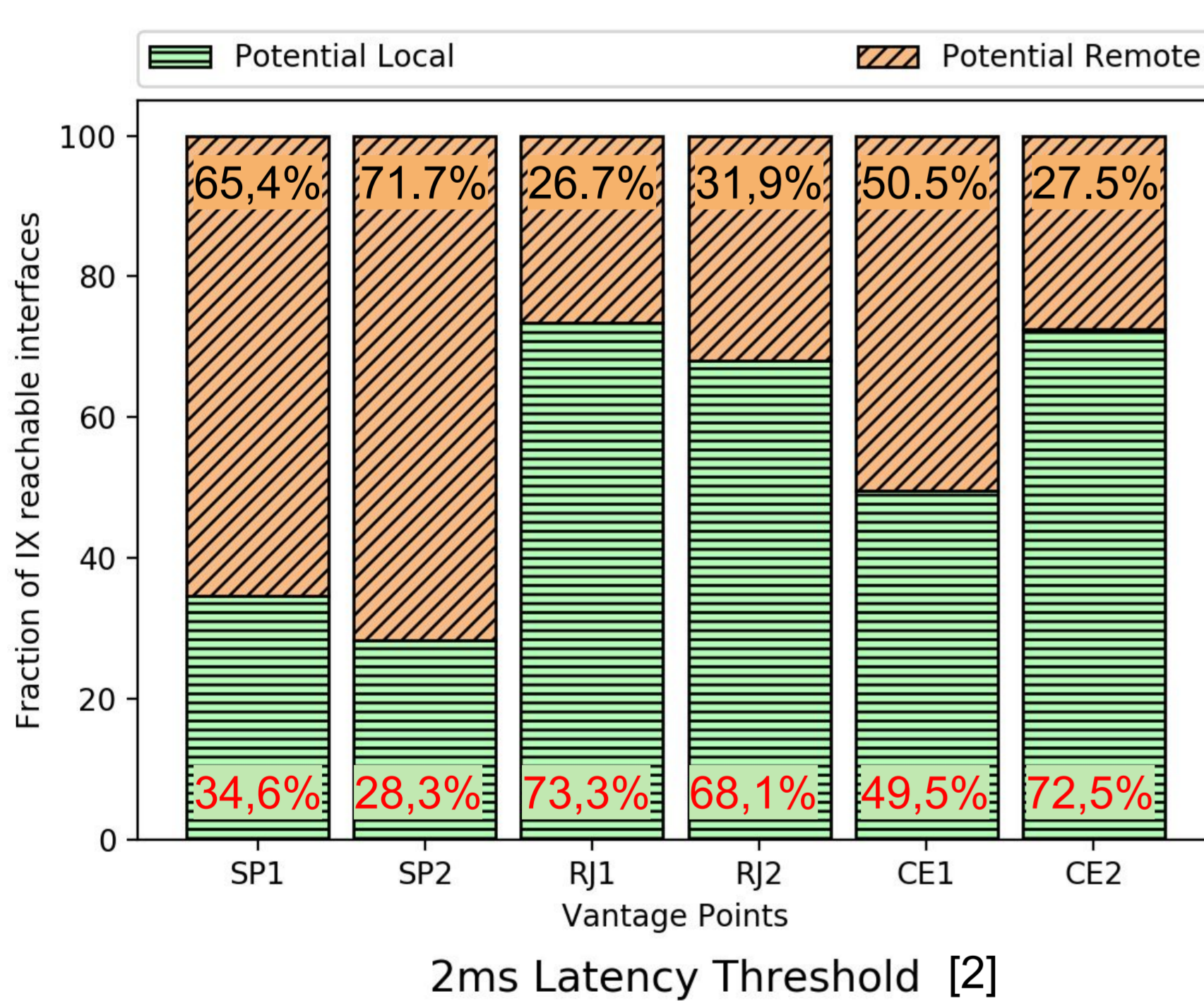
Summary

In SP-IX, using only latency thresholds, approx. 40-70% of members seems to be RPs, indicating a preference for connectivity and diversity instead of local traffic exchange

RJ-IX and CE-IX inferred less than 30% of IX members as RPs, on average, showing priority for local traffic exchange, when analyzing latency only

When applying the state-of-the-art methodology, the lack of public information led to a high number of unknown inferences (approx. 60-77%), exposing its lack of generality

References

[1] Castro et al. Remote Peering: More Peering without Internet Flattening. In CoNEXT , 14

[2] Nomikos et al. O Peer, Where Art Thou?: Uncovering Remote Peering Interconnections at IXPs. In IMC, 18

[3] Bian et al., Towards Passive Analysis of Anycast in Global Routing: Unintended Impact of Remote Peering. In CCR, 19