A Data-driven Approach to Tackle Network Diversity with Heterogeneous Protocol Configurations.

Usama Naseer, Theophilus A. Benson

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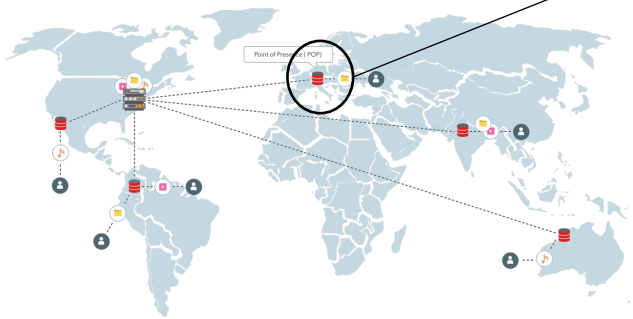
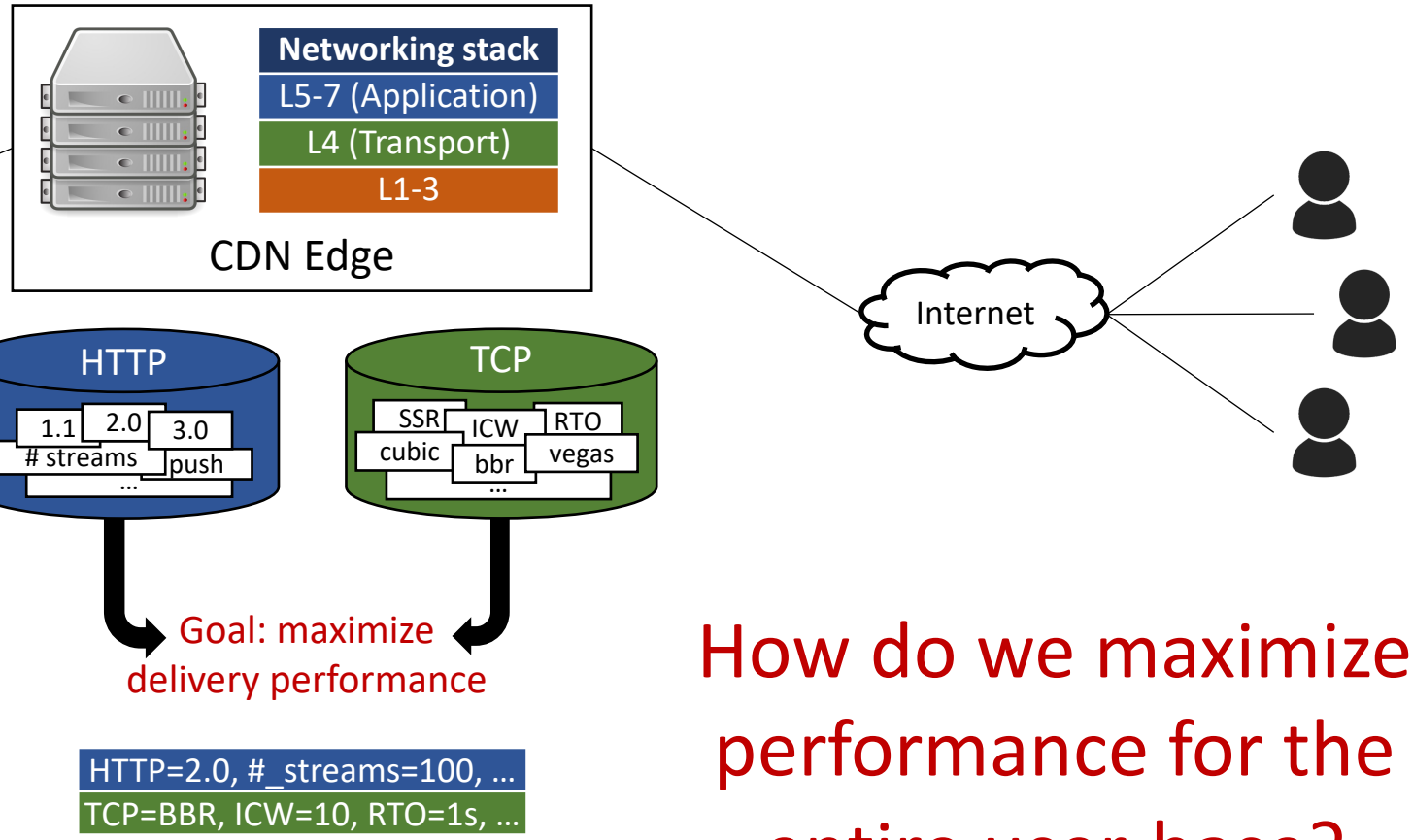
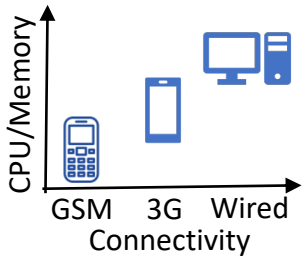
Protocols Configurations at CDN Edge





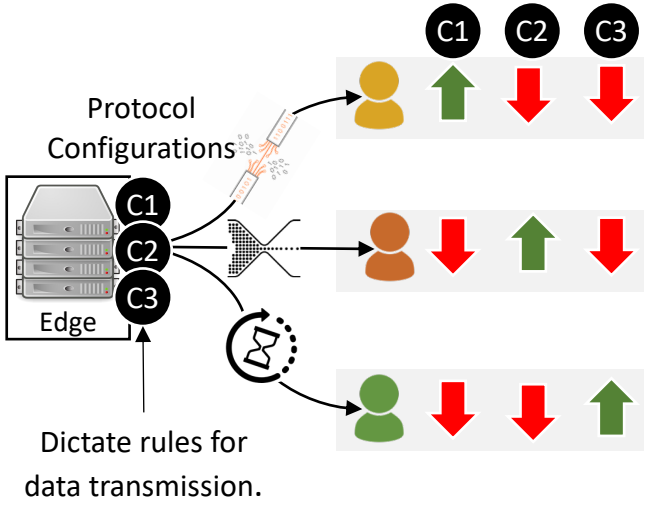
How do we maximize performance for the entire user-base?

Why is it Challenging?

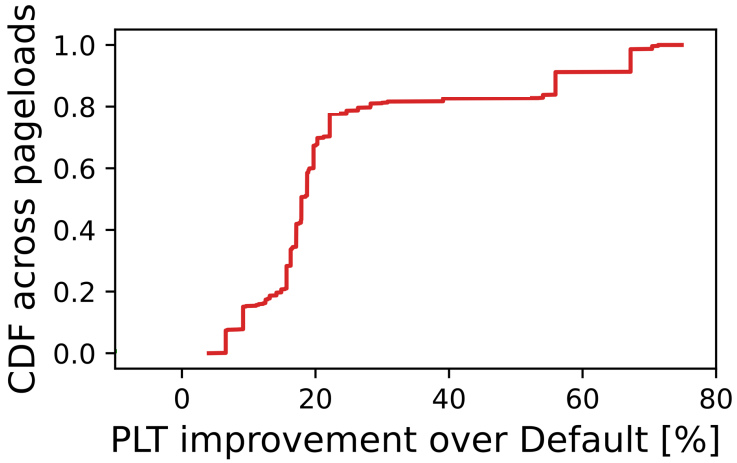


Network	RTT	Bandwidth
2G	300-1000ms	100–400 Kbit/s
3G	100-500ms	0.5–5 Mbit/s
4G	40-100ms	1–50 Mbit/s
Cable	10-100ms	25 Mbit/s

Diverse user-base



Performance Sensitivity of protocols for diverse networks

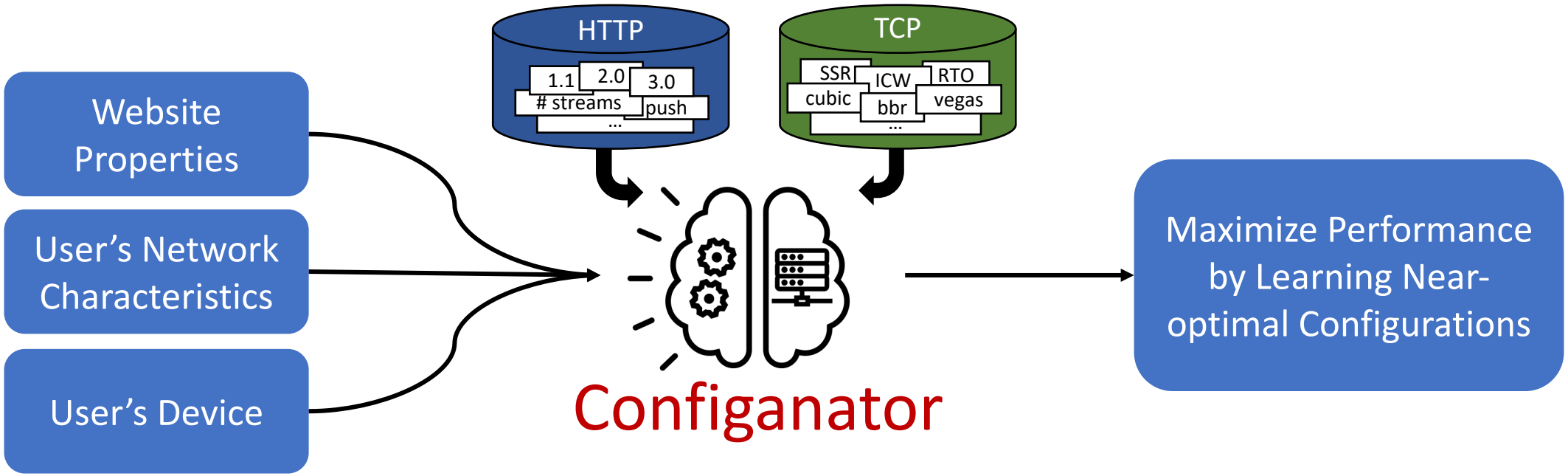


Potential for significant improvements!

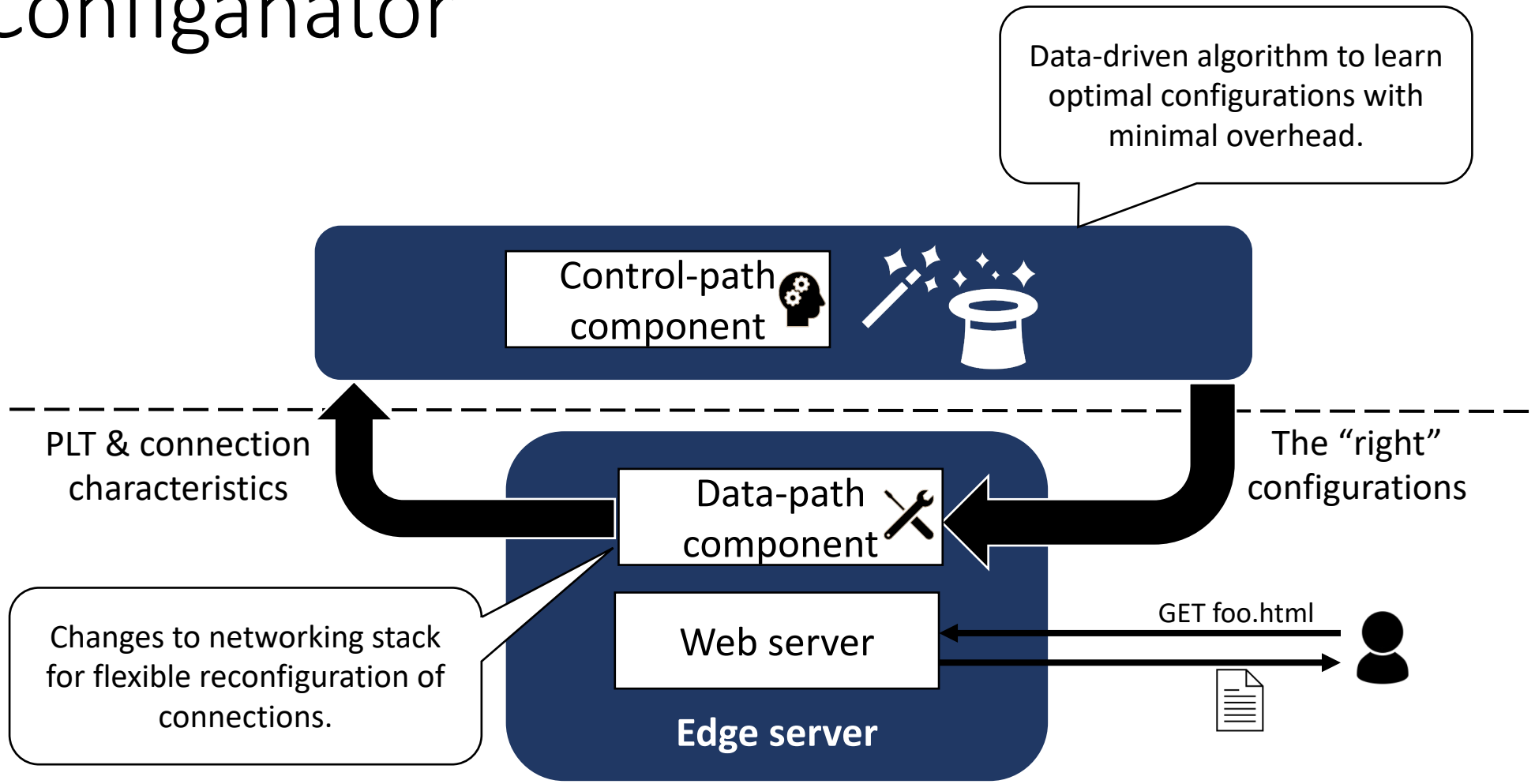
One set of protocol configurations is sub-optimal for diverse connections.

Configanator

Optimizes web performance by systematically reconfiguring network stack in a principled manner.



Configanator



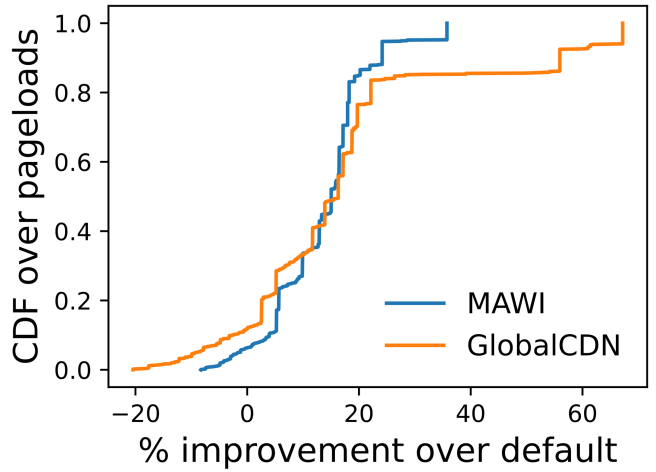
Conclusion

Propose control-plane data-driven algorithm and flexible networking stack to dynamically reconfigure protocol configurations.

Usama Naseer [usama_Naseer@brown.edu]
Theo Benson [theophilus_benson@brown.edu]

Configanator: A Data-driven Approach to Improving CDN Performance.

Authors:
Usama Naseer and Theophilus A. Benson, *Brown University*



36-67% improvement at tail. Low BW, low-high RTT/loss networks, content-rich sites.

15-17% improvement at median