draft-ashwood-sdnrg-state-reduction-00

Presentation to STATUS BOF

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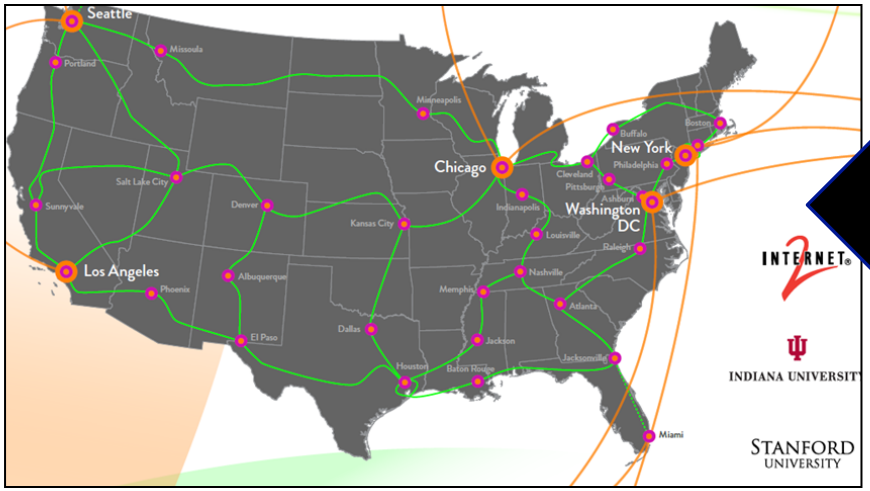
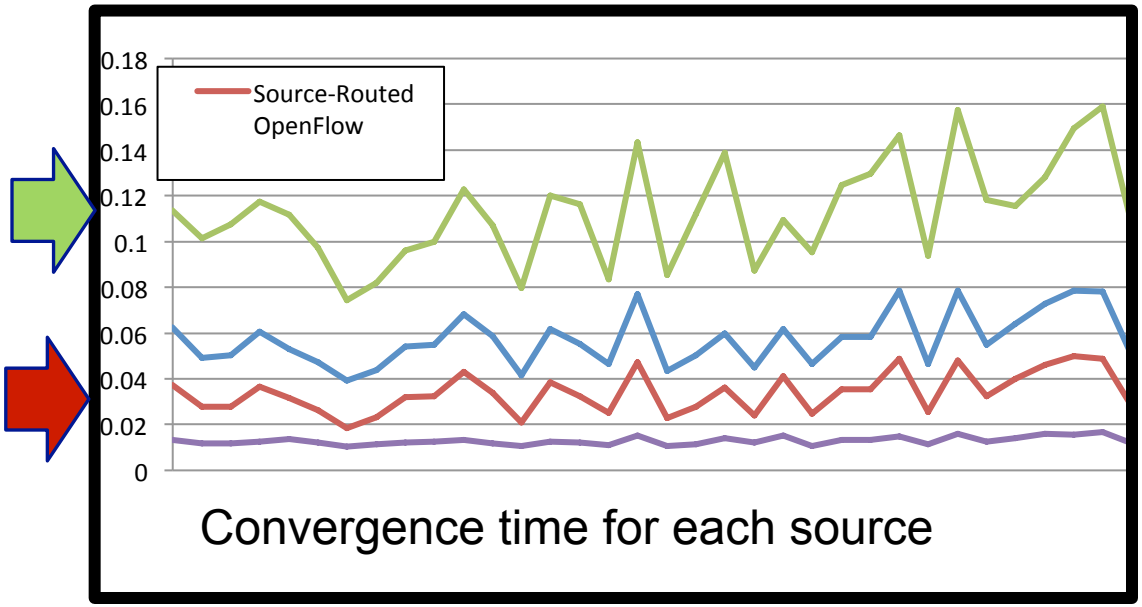
Source/Segment Routed SDN Simulation



We simulated a network of 36 nodes (OS³E), various flows/paths and compared source/segment routed v.s traditional forwarding. Simulator implemented in NS-3.

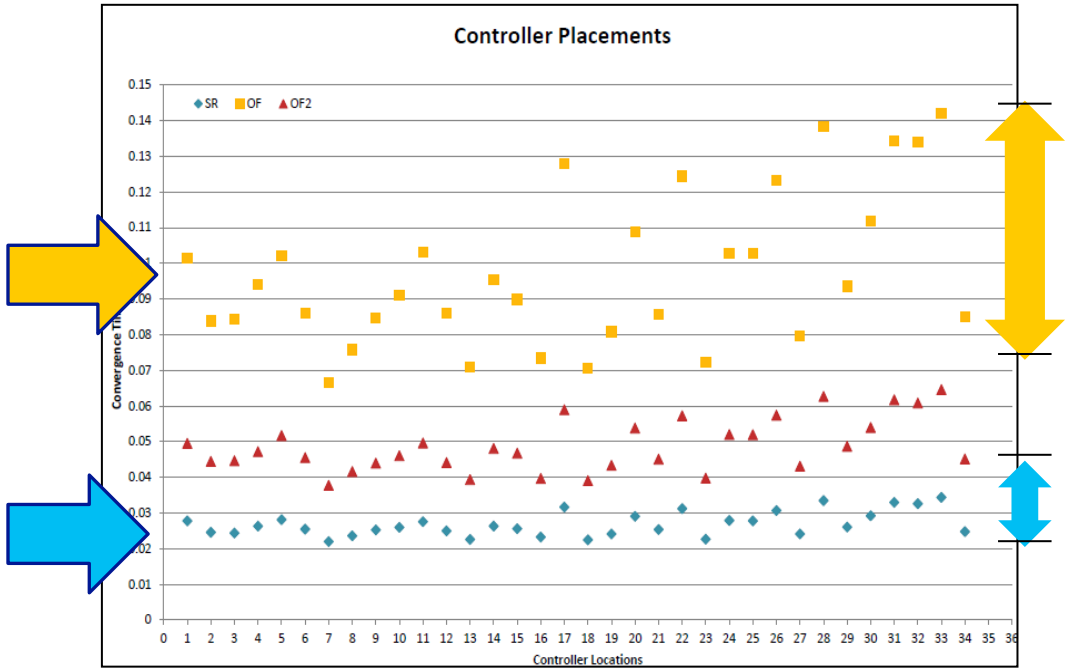
Observed 3 x Improvement



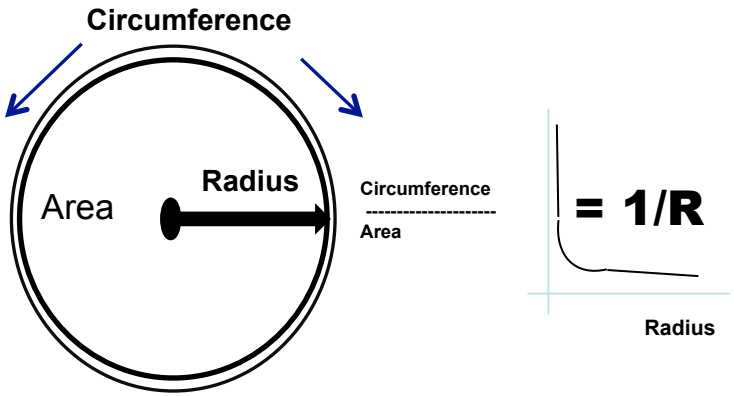
Observed 86 % reduced standard deviation in convergence for all controller placements with source / segment routed v.s. hop-by-hop forwarded SDN

SDN hop-by-hop is very sensitive to controller position.

Source/Segment Routing reduced sensitivity by 86%



Relative Source/Segment Routing performance as function of increasing diameter

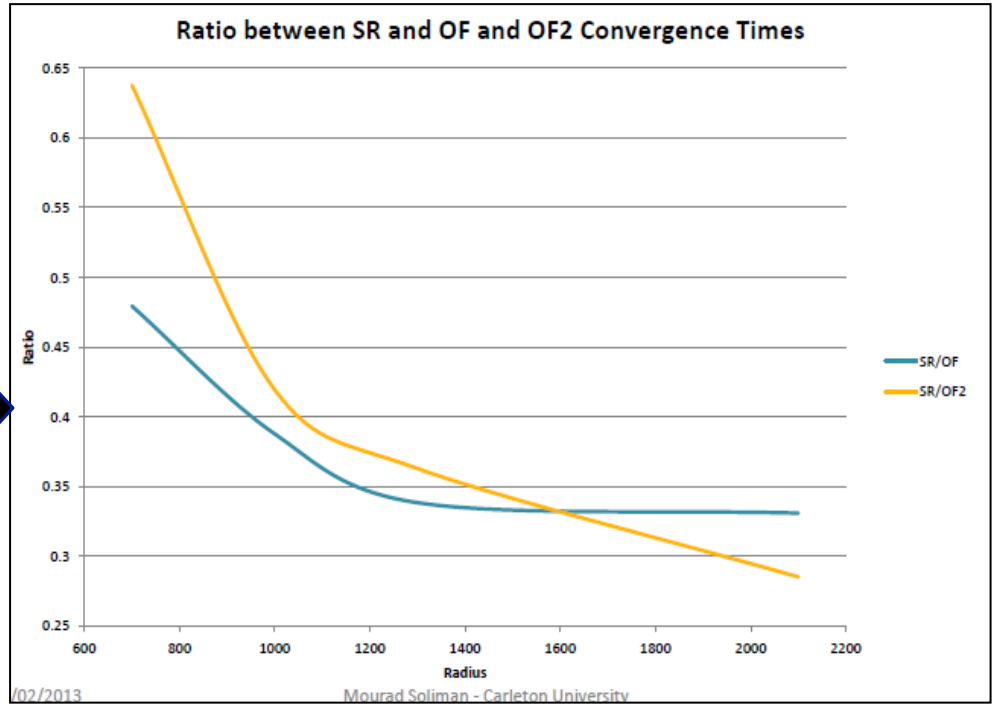


Source/Segment Route Burden is: O(Circumference)

Hop-by-Hop Burden is: O(Area)

Plotted Source/Segment Route convergence divided by hop-by-hop convergence for different network sizes.

We observed 1/R trend… ie linearly better with bigger R.



Conclusions

Definite advantages to source routing/segment routing in SDN.

Advantages grow linearly with network diameter so bigger => more impressive advantages.

Simulations give strong support for segment routing source routing/SDN use case claim.

In SDN with POF can implement smaller overhead.

Thank-You