

Multipath Steering Modes in 3GPP ATSSS

("3GPP Access Traffic Steering Switching and Splitting (ATSSS)")

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Disclaimers and References

This presentation is only on ATSSS steering modes
ATSSS, 5G, and 3GPP are a LOT bigger than what I'm talking about now.

*This presentation is **my** understanding, wearing no 3GPP or IETF hats*

ATSSS Phase One is documented [here](#)

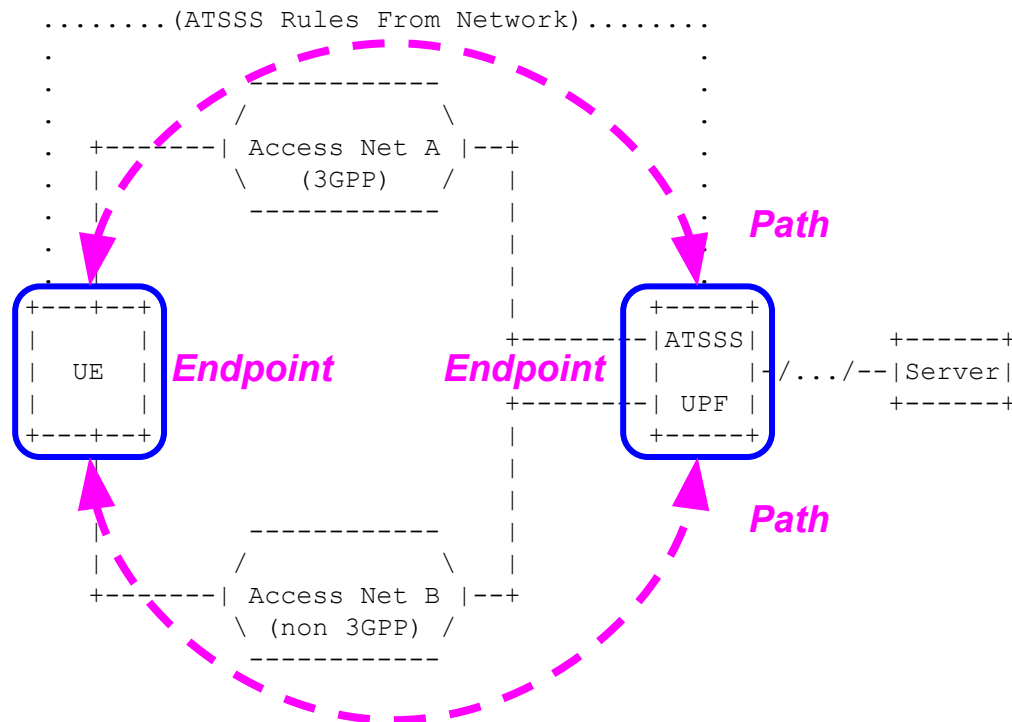
ATSSS Phase Two Study is documented [here](#)

ATSSS Overview for IETF Participants is documented [here](#)

I gave a presentation at IETF 108 based on that Overview, available [here](#)

3GPP reference model in IETF terminology

- *ATSSS uses only two paths*
 - *One 3GPP, one non-3GPP*
- *Network provides ATSSS rules*
 - *Modes assigned “per flow”*
- *Steering*
 - *Selecting a path*
- *Switching*
 - *Selecting a different path*
- *Splitting*
 - *Using multiple paths*



ATSSS Phase 1 steering modes in Release 16

- "Active-Standby"
 - Forward traffic via “active access” when available, switching to “standby”
- "Smallest Delay"
 - Forward traffic on access with the smallest RTT measured by UE/UPF
- "Load-Balancing"
 - Forward traffic distributed among available access networks (“30%/70%”)
- "Priority-based"
 - Assign priorities to accesses
 - Forward traffic on “high priority” path until congestion is encountered

ATSSS Phase 2 steering modes under consideration

- "Autonomous"/"Autonomous with advanced PMF"
 - Allow UE and UPF to change access splitting weights dynamically
 - "Advanced PMF" adds measurement for per-QoS RTT, loss ratio, jitter
- "Redundant"
 - Adds capability to forward on both accesses only when necessary
- "RTT Difference"
 - Allow use of both accesses if RTT difference is below a threshold
- "UE-assisted"
 - UE makes decisions about uplink access on its own
 - Reasons to choose an access include battery, energy consumption, etc.

What QUIC WG might wonder about

- How do use cases we hear about map onto these steering modes?
- How many other steering modes could show up in the future?
- How much “steering” is reasonable to include in a multipath QUIC?
- Are any of these steering modes candidates for a multipath QUIC?

Questions and Comments?