**Quality of Service for NDN**

The QoS mechanisms comprise three main functions:

- **Flow identification/classification** – traffic distinction
- **Flow specification** - the QoS requirements to be met
- **Flow treatment** - how the flow is handled

**NDN and RSVP - Similarities**

- Receiver driven.
- Storage of soft state.
- Aggregation of queries.
- Unicasting/multicasting.
- Hop-by-hop decision making.
- NACK response.
- Lifetime of resource reservation is analogous to the interest lifetime in ICN.

**RSVP-like Reservation in NDN – Related work and Open Challenges**

- **Scalability.**
- **Distinguished flow treatments.**
- **End-to-end resource reservation.**
- **Admission control.**
- **Mitigation of wasteful resource reservation.**
- **Using resource reservation to attack the network.**

**Resource Reservation in NDN – Potential Directions**

- **Need for coarse grained treatment.**
- **Traffic classes from 5G network slicing.**
  
  **High Bandwidth**
  - e.g. internet streaming

  **Traffic Aggregation Types**
  - High Connection Density
    - e.g. smart factory
  - Low Latency
    - e.g. tele-operated driving

**In Band Reservation**

- Assumptions on the data characteristics and take advance actions.
- Fixed path routing is avoided.

**Video conferencing applications demand dedicated bandwidth.**

- A need for "better than best effort" service provisioning.
- Resource reservation helps achieve performance guarantees in real time applications.
- NDN has similarities with the IP-based Resource reSerVation Protocol (RSVP)

**Flow treatment**

Resources available?

Data in CS?

Forward upstream

RSVP inspired Resource Reservation in ICN

Adaptive Bandwidth Reserve

SDN based centralized approach

**References**