

**Intermediate Node Algorithm:** Each intermediate node  $u$  selects the number of credits for session  $i$  to transfer to all of its next-hop nodes at each time slot as follows:

$$\{X_{uv}^i(t)\}_{v \in V} = \arg \max_{\vec{X}} \sum_{v \in V} \left( (q_u^i(t) - q_v^i(t) X_{uv}^i) \right)$$

subject to:

$$\sum_{v \in J} X_{uv}^i \leq \alpha_u^i R_{uJ} \quad \forall i, \forall J.$$