Xunlei's Peer Selection Mechanism in China Telecom Trial

Draft: draft-lee-alto-chinatelecom-trial-01

Guangyao Jian

jianguangyao@xunlei.com

Outline

- Introduction

- Peer Selection Mechanism

- Trial Results
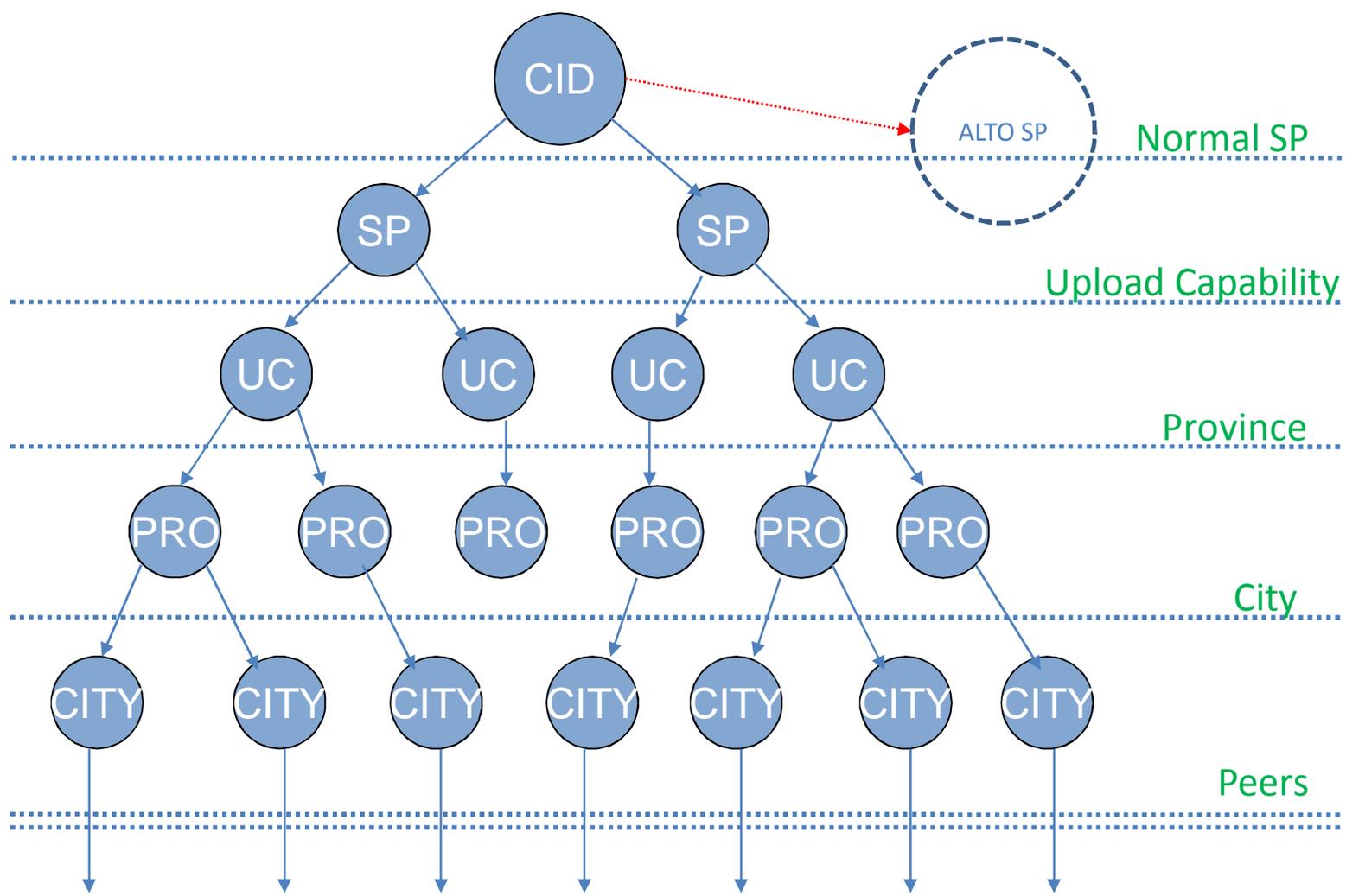
- Conclusions

- Next Steps

Introduction

- Goal:
  - Apply ALTO Effect
    - Inter-traffic ----> Intra-traffic
    - Download Speed
  - Better Scheme to Apply ALTO
    - Peer Selection, Tracker Architecture

- Participants:
  - China Telecom (ISP)
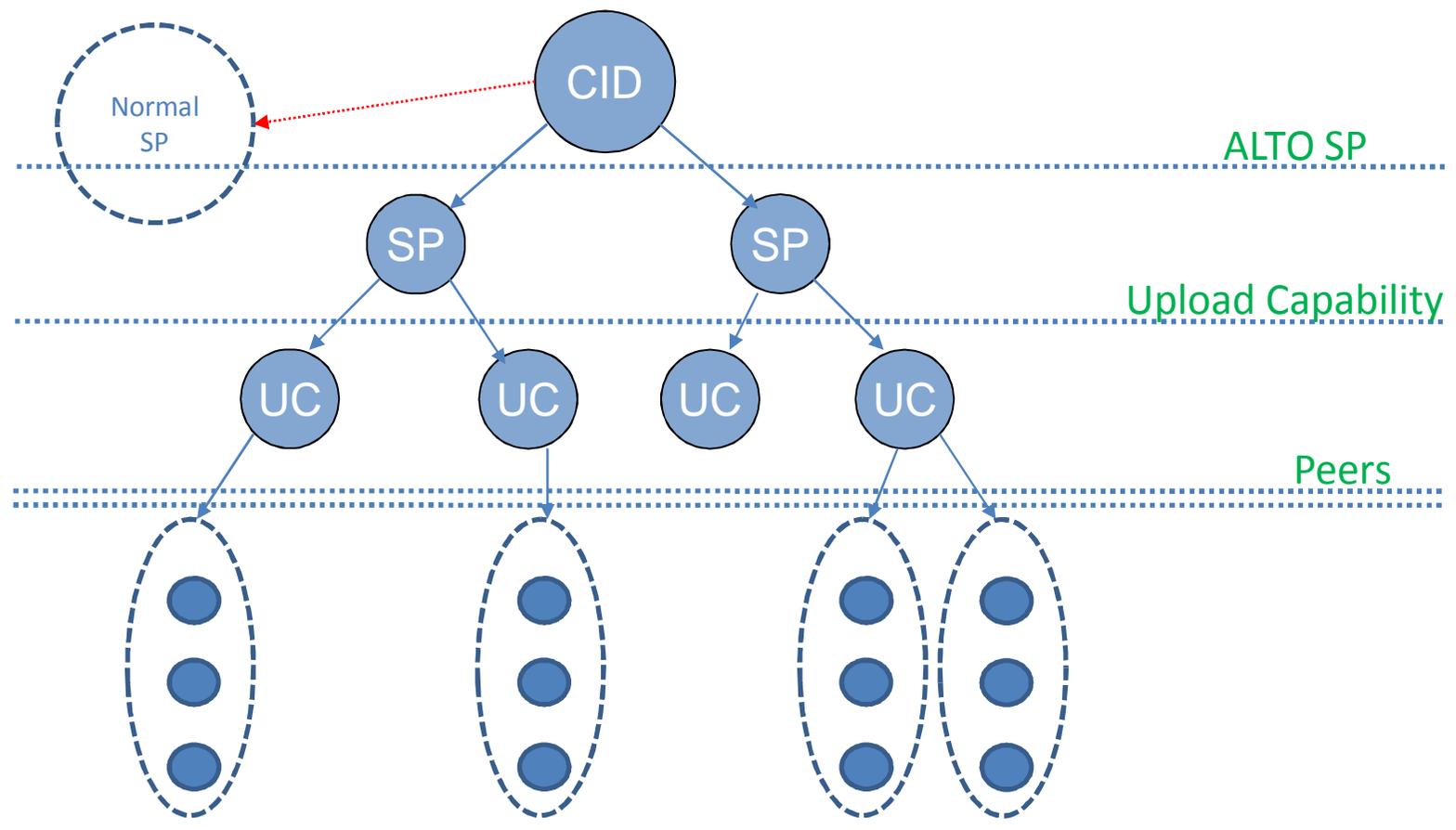 - Xunlei(P2P Application)
  - Yale (initial P4P based design)

Configuration: P2P App (Xunlei)

- Downloads and Media Streaming

- Tracker Server

- Involving Users

Peer Classification Data Structure (without ALTO)

11/9/2010

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Peer Classification Data Structure (with ALTO)

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Cost Map Definition
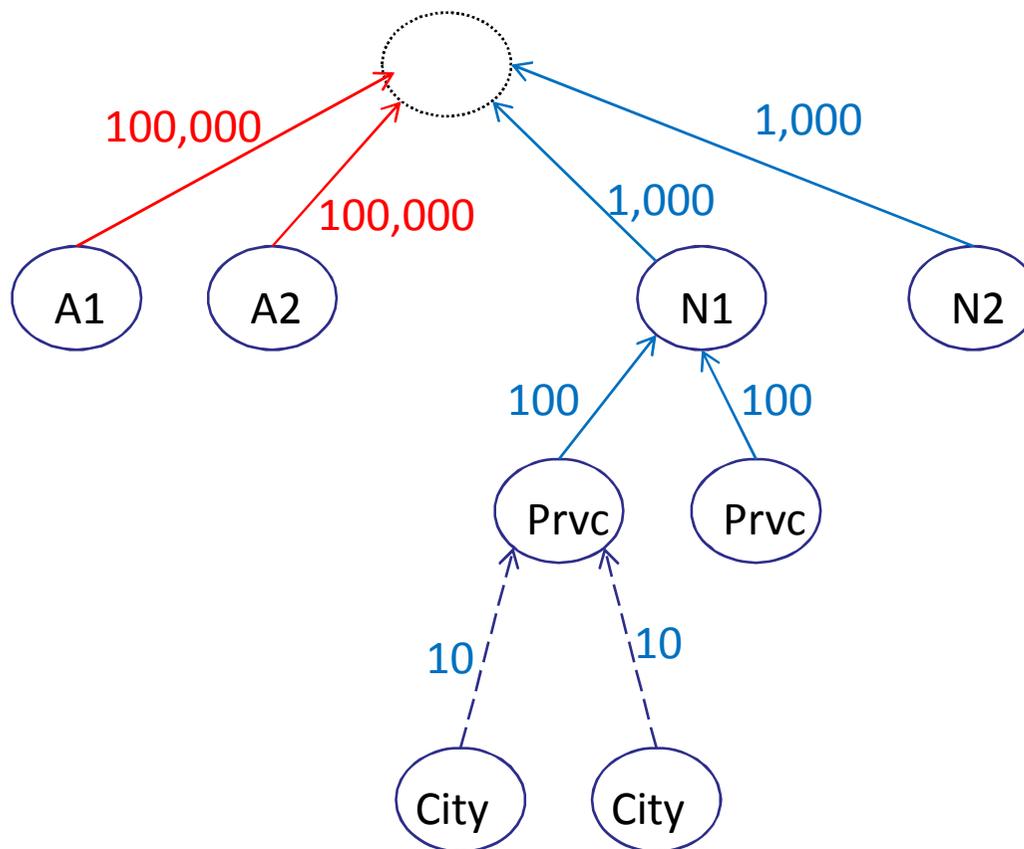
```
if ( peer_o from ALTO_SP )
        if ( peer_d in the same ALTO_SP )            cost = 0;
        else                                         cost = 100000 ;
else  // peer_o from normal_SP
        if ( peer_d from ALTO_SP )                   cost = 1000;
        else  // peer_d from normal_SP
            if ( peer_o and peer_d from different normal_SP )
                    cost =1000;
            else if ( peer_o and peer_d from different province )
                    cost = 100;
            else if ( peer_o and peer_d from different city )
                    cost = 10;
            else
                    cost =0;
```

A Graph Representation of Cost Derivation

- Costs of non-labeled direction of each shown link are 0.
- Cost of traffic from one node to another node is the max of the costs of the traversed links.
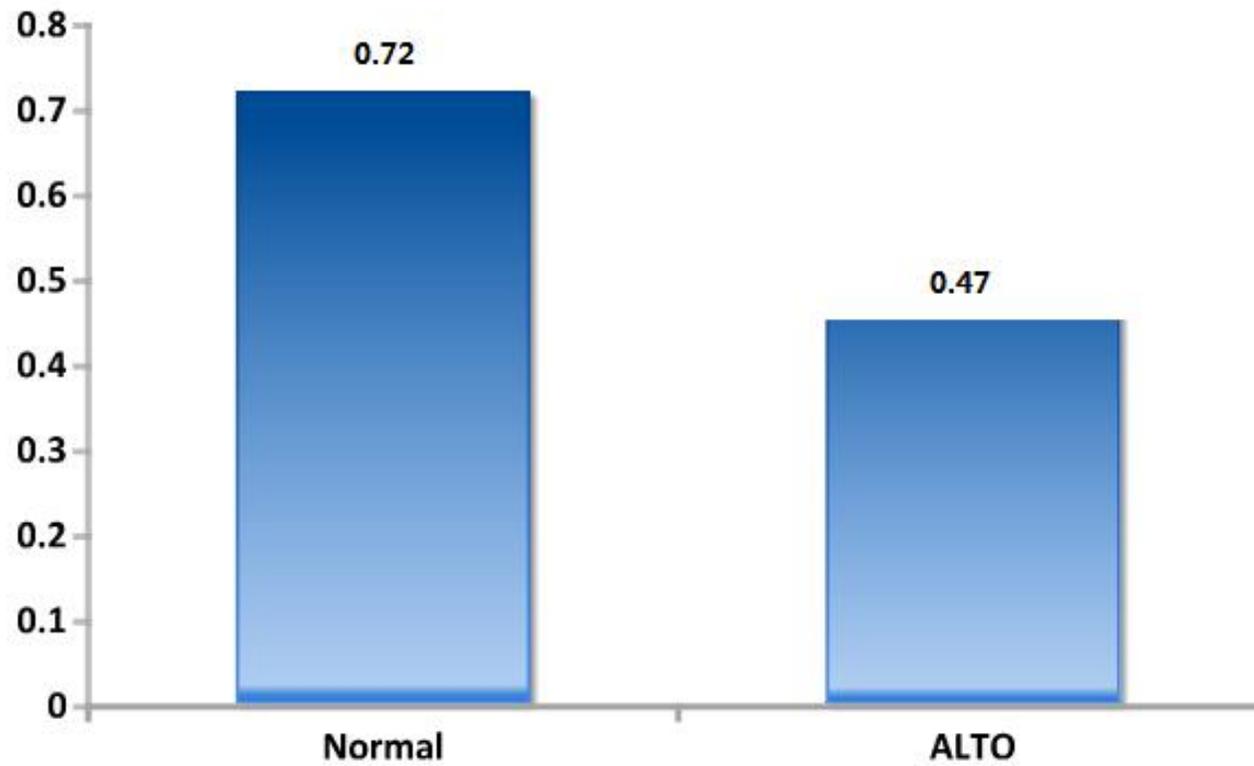
Selection Mechanism Issues

- ## Multiple ALTO SP
  - Issue : It may not select lower cost of alto sp peers.

- ## Same SP ID > Upload Capability
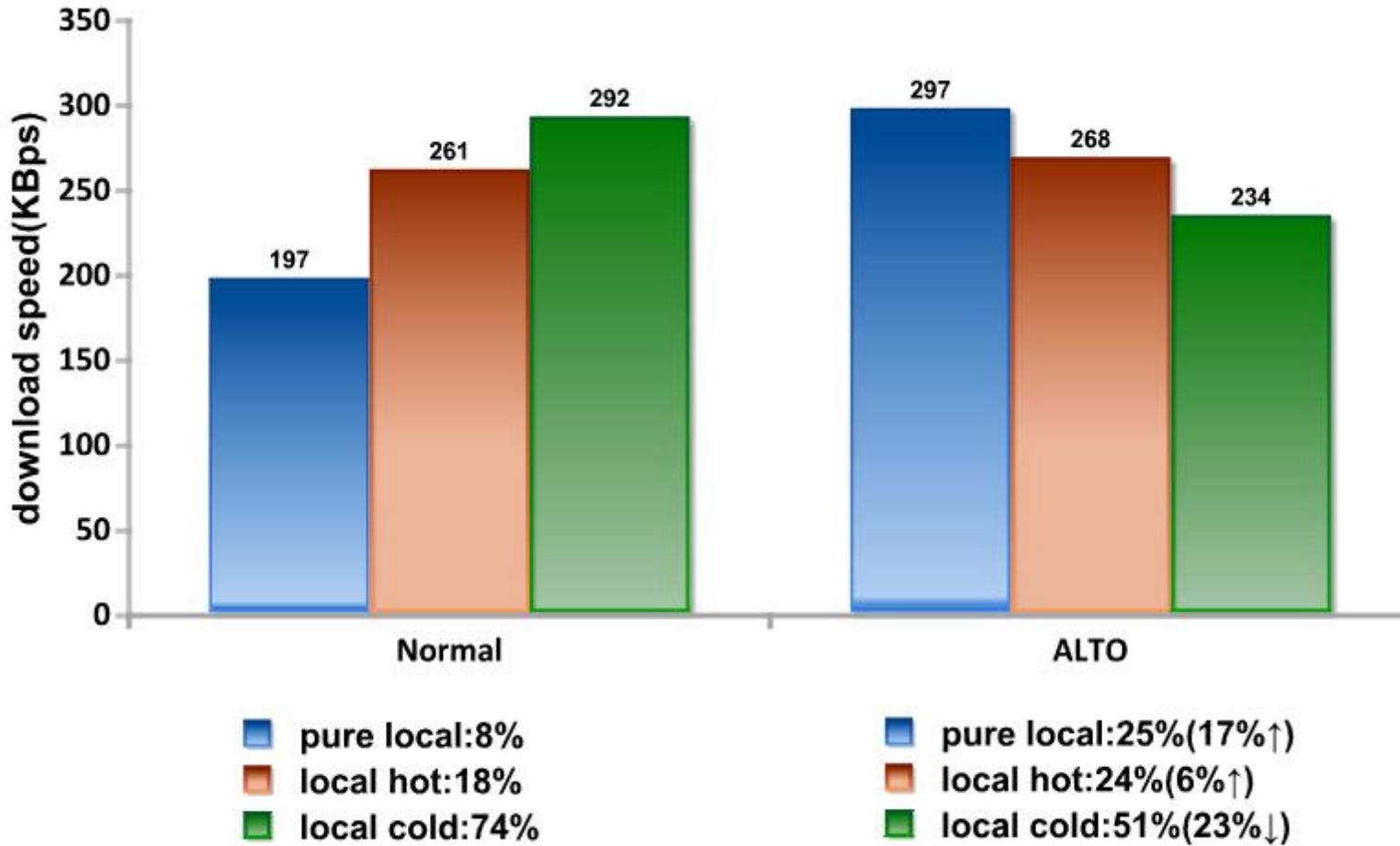 - Issue : The amounts of higher UC peers from other sp reduce.
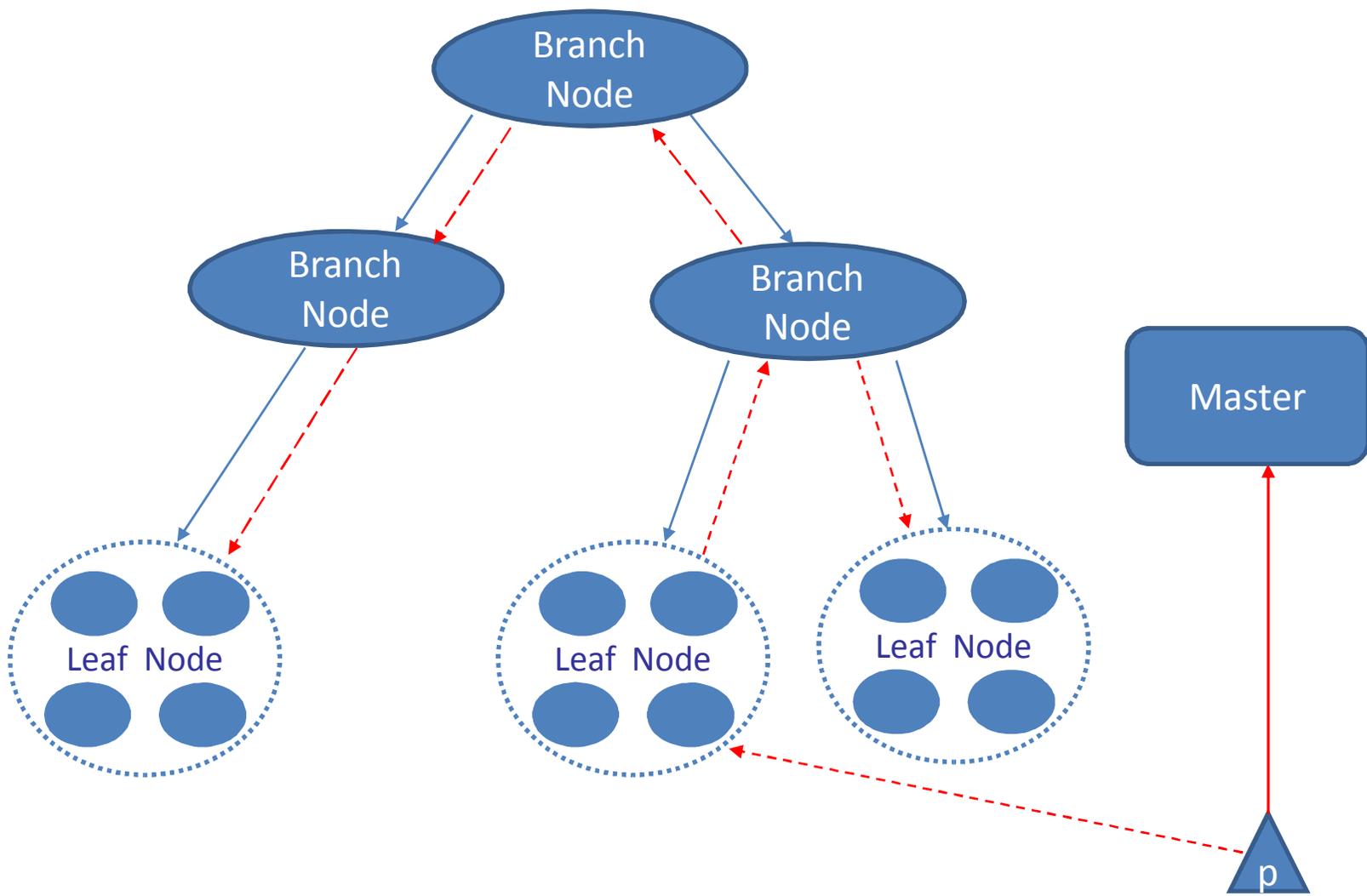
Proportion of Inter-traffic

Download Speed

Conclusions

- Inter-traffic Reduction
  - The increased intra-traffic compensate the inter-traffic effectively

- Download Speed
  - Local hot resources download speed increase
  - Local cold resources download speed reduce

Next Steps

- Peer Selection Mechanism

- Tracker Scalability for Multiple ALTO Services

2nd Phase Tracker Architecture

Benefits

- ## Peers Distributed Management with ALTO
  - Same Cost Peers Distribute Same Domain
  - Search the Lowest Cost Resources Efficiently

- ## Scalability for Multiple ALTO Services
  - Easy to Add/Delete/Merge Leaf Nodes for Map Services Change

Thanks