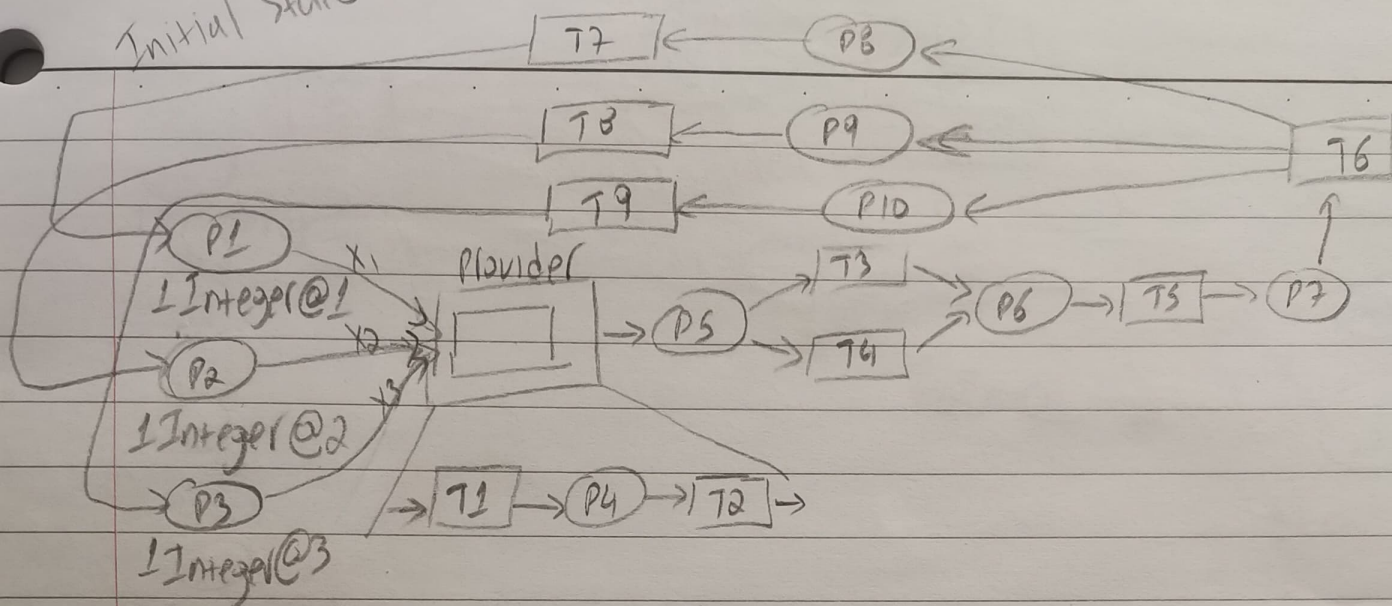


Initial State



P1: Advertiser 1

P2: Advertiser 2

P3: Advertiser 3

P4: Max bid

P5: Client get the result

P6: waiting to update stats

P7: waiting to send back stats

P8: Advertiser 0 read stats

P9: Advertiser 1 read stats

P10: Advertiser 2 read stats

T1: bids finished $\max\{x1, x2, x3\}$

T2: send max bid to client

T3: buy

T4: don't buy

T5: update stats

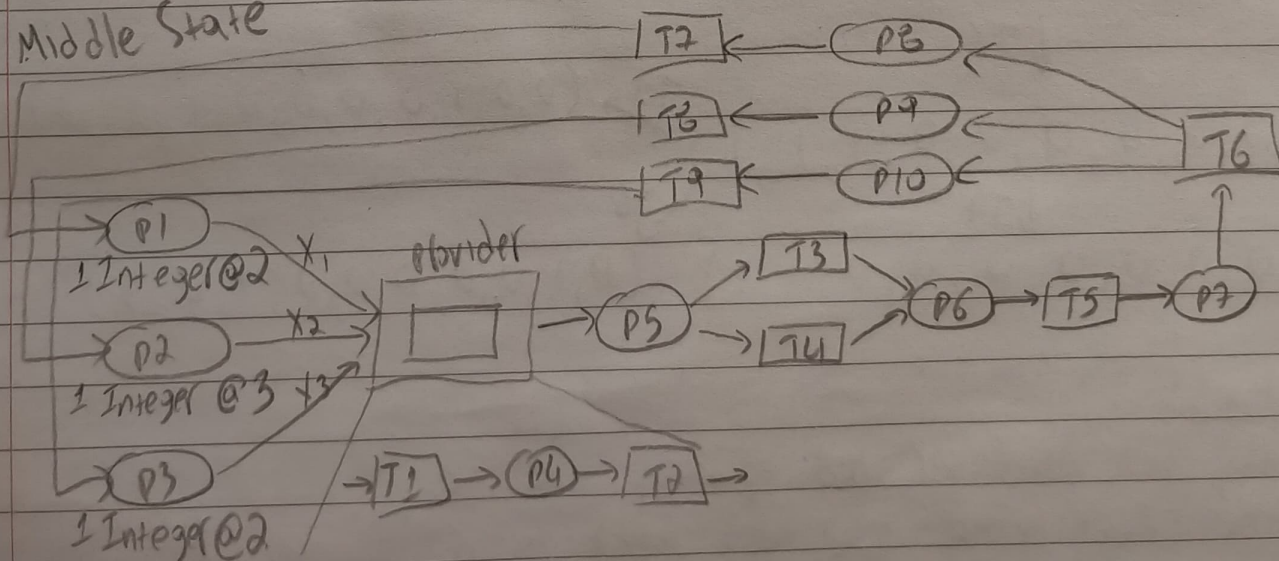
T6: send stats back to Advertisers

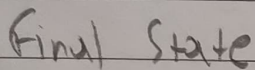
T7: Advertiser 0 decide new bid

T8: Advertiser 1 decide new bid

T9: Advertiser 2 decide new bid

Middle State





$\downarrow T_1$

$(0, 0, 0, 1, 0, 0, 0, 0, 0, 0)$

$\downarrow T_3, T_4$

↓ TS

(0, 0, 0, 0, 0, 0, 1, 0, 0, 0)

↓ T6

$$(0, 0, 0, 0, 0, 0, 0, 1, 1, 1)$$

↓ T7

$(1, 0, 0, 0, 0, 0, 0, 0, 1, 1) \quad (0, 1, 0, 0, 0, 0, 0, 1, 0, 1)$

Assumptions: 4) Provider choose the Ad with max bid and always him the client click

Initially each Advertiser bid equally, i.e. id

2) In the first round max was adv3 but client didn't buy, so he decrease his bid at the end, but others increase it to get clicked

3) Final State end with Advertiser get stats but don't bid (Stats = clicked Adv Id)