

7. DNS  $\rightarrow$  IP:  $\sum_{i=1}^n RTT_i$   
 然后一次发送, 一次接收  
 $\therefore$  总时间:  $RTT_0 + \sum_{i=1}^n RTT_i$

22. 客户-服务器:  $T = \max\{NF/u_s, F/d_i\}$

$\frac{F}{u}$	10	100	1000
300 Kbps	10240	68266.7	682666.7
700 Kbps	10240	68266.7	682666.7
2 Mbps	10240	68266.7	682666.7

8. a.  $\sum_{i=1}^n RTT_i + 2RTT_0 + 2 \times 8RTT_0$   
 $= 18RTT_0 + \sum_{i=1}^n RTT_i$

P2P:  $T = \max\{F/u_s, F/d_i, NF/(u_s + \sum_{i=1}^N u_i)\}$

$\frac{F}{u}$	10	100	1000
300 Kbps	10240	34538.7	63412
700 Kbps	10240	20821.3	28700
2 Mbps	10240	10240	10240

b.  $\sum_{i=1}^n RTT_i + 2RTT_0 + 2 \times 2RTT_0$   
 $= 6RTT_0 + \sum_{i=1}^n RTT_i$

c. 串行:  $\sum_{i=1}^n RTT_i + 2RTT_0 + 8RTT_0$   
 $= \sum_{i=1}^n RTT_i + 10RTT_0$   
 并行:  $\sum_{i=1}^n RTT_i + 2RTT_0 + RTT_0$   
 $= \sum_{i=1}^n RTT_i + 3RTT_0$

25.  $n$  个节点, 有  $\frac{N(N-1)}{2}$  条边

27. a. 混合所以要  $n$  个      b. 要  $2n$  个