

CSCE 463/612

Networks and Distributed Processing

Spring 2024

Network Layer

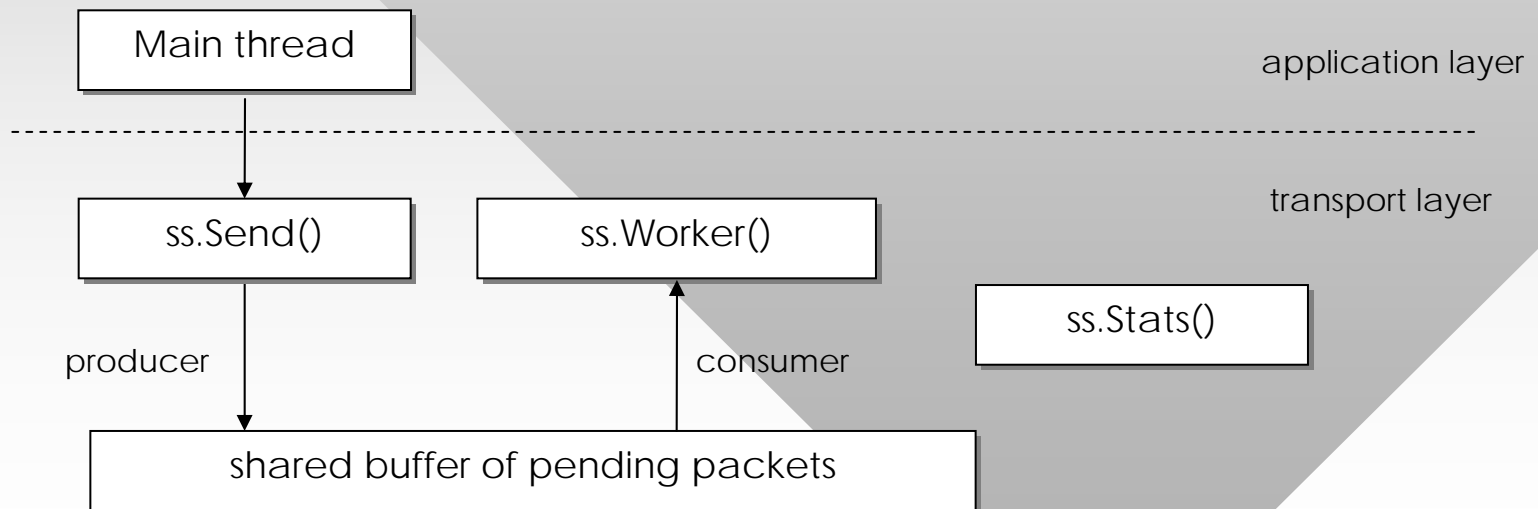
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Homework #3

- Part3 requires three threads in SenderSocket
 - `ss.Send()` is the producer into a bounded buffer of W packets (W = sender window)
 - Worker thread is the consumer from this buffer (ACK arrival that moves `sndBase` by X pkts releases X slots in buffer)
 - Requires two semaphores



Homework #3

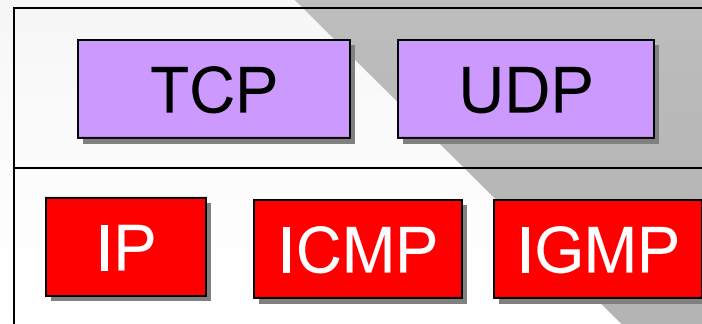
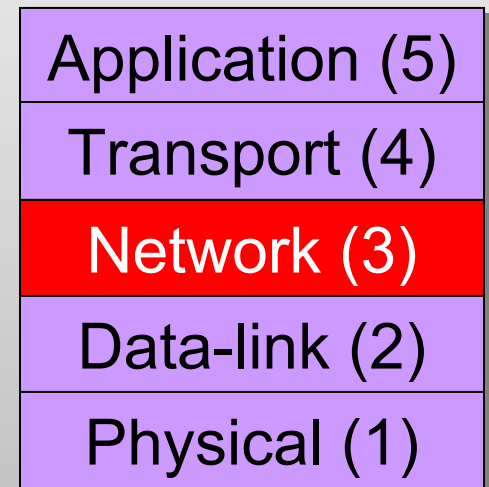
- Interesting aspect is how to release semaphore to accommodate flow control
 - Assume sndBase, nextSeq, window W are known
 - Receive ACK with sequence $y > \text{sndBase}$, $\text{recvWnd} = R$
 - By how much to release semaphore?

```
lastReleased = 0;
sndBase = -1;      // SYN-ACK 0 will move this to 0
while (not end of transfer)
{
    get ACK or SYN-ACK with sequence y, receiver window R
    if (y > sndBase)
    {
        sndBase = y
        effectiveWin = min (W, R)
        // how much we can advance the semaphore
        newReleased = sndBase + effectiveWin - lastReleased;
        ReleaseSemaphore (s, newReleased);
        lastReleased += newReleased;
    }
}
```

Chapter 4: Network Layer

Chapter goals:

- Understand principles behind network layer services:
 - How a router works (forwarding)
 - Routing (path selection)
 - Dealing with scale
 - Other topics: IPv6, multicasting
- Traceroute program as hw#4
- Big picture:



transport

network