

15-441 Project 2 Fall 04

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Project 2

- 2a - Implement IP forwarding in the simulator
- 2b - Implement Routing Daemon

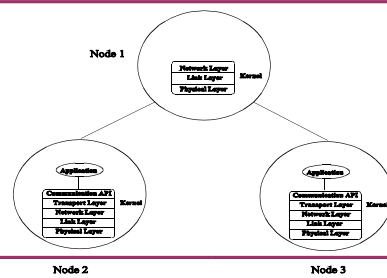
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Project Directory

- \$PDIR = /afs/cs.cmu.edu/academic/class/15441-f04/project2
- Read the README
- Dir structure
 - handouts
 - lib
 - template
 - utils
 - include

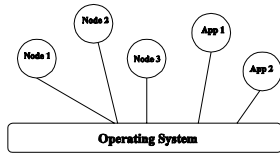
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Logical View of Simulator



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Reality



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To Do



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Network Layer

- Addressing
 - IPv4 (RFC 791)
- Forwarding
 - Exact match of destination IP in forwarding table
 - Statically populate forwarding table (proj 2a)

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Forwarding table

- `$PDIR/template/kernel/rtable.h`
- `struct route_entry {};`
 - add
 - del
 - change
 - lookup

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IP header

- Your implementation need not handle
 - Fragmentation
 - Options
 - Multicast/broadcast
 - ToS
- You must handle
 - Checksum
 - Header length
 - Packet length
 - Src and destn address
 - Protocol number
 - TTL
 - IP version number

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ipforward.h

- \$PDIR/template/kernel/ipforward.h
- void ip_init();
- int ip_output(struct pbuf *pkt, int flags, u_char proto, struct in_addr saddr, struct in_addr daddr);
- void ip_if_input(struct ifnet *ifp, char *data, int datalen);
- void ip_input(struct ifnet *ifp, struct pbuf *pkt);
- void ip_input(struct ifnet *ifp, struct pbuf *pkt);

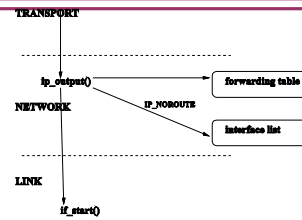
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pbuf

- \$PDIR/include/pbuf.h
- Simulator handout (Section 4.5)

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Sending a Packet



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Receiving a Packet

