

## Packet Switching on a network

### The basic idea..

Using TCP/IP packets are sent randomly from computer to computer in any order until they happen to arrive at their destination. They can follow any route and arrive in any order. The TCP/IP application layer makes sense of the messages when they arrive.

Have everyone seated round the room (next to a computer).  
Allocate each student an IP address in the range of...

**192.168.1.3 to 192.168.1.20** (or beyond if needed)

One student could role-play the router **192.168.1.1**  
(which routes out to the Internet if needed)

**If they get given an Internet address they pass the packet out the door (out the gateway onto the Internet).**

One student could role-play the BBC **212.58.246.91**

One student could role-play Google **74.125.132.94**

**These two students should actually be outside the door (on the Internet)**

**Instructions:** Hand out the random packets (Page 8) randomly to each student.

Give **message 23** packets to Sue (**192.168.1.4**).

Give **message 33** packets to **192.168.1.2**

Give **message 76** packets to **192.168.1.6**

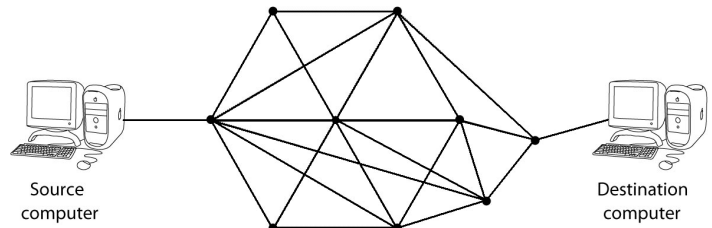
Give **message 84** packets to **192.168.1.3**

Each student gives any of their packets to any other student at random.

If a student gets given a message with their IP on it, they keep it.

Each student should try and make sense of any message they get.

Only when student **192.168.1.5** gets Sue's email (makes sense of it) do you hand out the **message 27** packets to student **192.168.1.5**



Message ID	From	To	Content
Message 23	192.168.1.4 (Sue)	192.168.1.5	email
Message 27	192.168.1.5	192.168.1.4	email reply to Sue
Message 33	192.168.1.2	74.125.132.94 www.google.co.uk	Typing into a search engine asking about IP Addresses and TCP/IP.
Message 76	192.168.1.6	212.58.246.91 www.bbc.co.uk	Message uploaded to a blog about TV programming
Message 84	192.168.1.3	192.168.1.7	email

MessageID	MessageSeqNum	SourceIP	DestinationIP	Payload	Checksum
23	01	192.168.1.4	192.168.1.5	Why d	233

MessageID	MessageSeqNum	SourceIP	DestinationIP	Payload	Checksum
23	02	192.168.1.4	192.168.1.5	on't yo	233

MessageID	MessageSeqNum	SourceIP	DestinationIP	Payload	Checksum
23	03	192.168.1.4	192.168.1.5	u go on Fa	213

MessageID	MessageSeqNum	SourceIP	DestinationIP	Payload	Checksum
23	04	192.168.1.4	192.168.1.5	cebook an	222

MessageID	MessageSeqNum	SourceIP	DestinationIP	Payload	Checksum
23	05	192.168.1.4	192.168.1.5	d see th	208

MessageID	MessageSeqNum	SourceIP	DestinationIP	Payload	Checksum
23	06	192.168.1.4	192.168.1.5	e photo o	193

MessageID	MessageSeqNum	SourceIP	DestinationIP	Payload	Checksum
23	07	192.168.1.4	192.168.1.5	f you th	183

MessageID	MessageSeqNum	SourceIP	DestinationIP	Payload	Checksum
23	08	192.168.1.4	192.168.1.5	at I upl	217

MessageID	MessageSeqNum	SourceIP	DestinationIP	Payload	Checksum
23	09	192.168.1.4	192.168.1.5	oaded?	205

MessageID	MessageSeqNum	SourceIP	DestinationIP	Payload	Checksum
23	10	192.168.1.4	192.168.1.5	You loo	186

MessageID	MessageSeqNum	SourceIP	DestinationIP	Payload	Checksum
23	11	192.168.1.4	192.168.1.5	k as tho	199

MessageID	MessageSeqNum	SourceIP	DestinationIP	Payload	Checksum
23	12	192.168.1.4	192.168.1.5	ugh you	211

MessageID	MessageSeqNum	SourceIP	DestinationIP	Payload	Checksum
23	13	192.168.1.4	192.168.1.5	have s	206

MessageID	MessageSeqNum	SourceIP	DestinationIP	Payload	Checksum
23	14	192.168.1.4	192.168.1.5	een a gh	233

MessageID	MessageSeqNum	SourceIP	DestinationIP	Payload	Checksum
23	15	192.168.1.4	192.168.1.5	ost!!!	200

MessageID	MessageSeqNum	SourceIP	DestinationIP	Payload	Checksum
27	01	192.168.1.5	192.168.1.4	Hi S	233

MessageID	MessageSeqNum	SourceIP	DestinationIP	Payload	Checksum
27	02	192.168.1.5	192.168.1.4	ue, I saw t	233

MessageID	MessageSeqNum	SourceIP	DestinationIP	Payload	Checksum
27	03	192.168.1.5	192.168.1.4	he pictu	233

MessageID	MessageSeqNum	SourceIP	DestinationIP	Payload	Checksum
27	04	192.168.1.5	192.168.1.4	re you uplo	207

MessageID	MessageSeqNum	SourceIP	DestinationIP	Payload	Checksum
27	05	192.168.1.5	192.168.1.4	aded - I	213

MessageID	MessageSeqNum	SourceIP	DestinationIP	Payload	Checksum
27	06	192.168.1.5	192.168.1.4	was ama	208

MessageID	MessageSeqNum	SourceIP	DestinationIP	Payload	Checksum
27	07	192.168.1.5	192.168.1.4	zed tha	178

MessageID	MessageSeqNum	SourceIP	DestinationIP	Payload	Checksum
27	08	192.168.1.5	192.168.1.4	t you m	199

MessageID	MessageSeqNum	SourceIP	DestinationIP	Payload	Checksum
27	09	192.168.1.5	192.168.1.4	anaged t	233

MessageID	MessageSeqNum	SourceIP	DestinationIP	Payload	Checksum
27	10	192.168.1.5	192.168.1.4	ake the p	237

MessageID	MessageSeqNum	SourceIP	DestinationIP	Payload	Checksum
27	11	192.168.1.5	192.168.1.4	hoto pr	245

MessageID	MessageSeqNum	SourceIP	DestinationIP	Payload	Checksum
27	12	192.168.1.5	192.168.1.4	operly.	231

MessageID	MessageSeqNum	SourceIP	DestinationIP	Payload	Checksum
33	01	192.168.1.2	74.125.132.94	What i	144

MessageID	MessageSeqNum	SourceIP	DestinationIP	Payload	Checksum
33	02	192.168.1.2	74.125.132.94	s an IP	123

MessageID	MessageSeqNum	SourceIP	DestinationIP	Payload	Checksum
33	03	192.168.1.2	74.125.132.94	adres	166

MessageID	MessageSeqNum	SourceIP	DestinationIP	Payload	Checksum
33	04	192.168.1.2	74.125.132.94	s and ho	231

MessageID	MessageSeqNum	SourceIP	DestinationIP	Payload	Checksum
33	05	192.168.1.2	74.125.132.94	w does T	109

MessageID	MessageSeqNum	SourceIP	DestinationIP	Payload	Checksum
33	06	192.168.1.2	74.125.132.94	CP/IP	177

MessageID	MessageSeqNum	SourceIP	DestinationIP	Payload	Checksum
33	07	192.168.1.2	74.125.132.94	work ove	156

MessageID	MessageSeqNum	SourceIP	DestinationIP	Payload	Checksum
33	08	192.168.1.2	74.125.132.94	r a netw	146

MessageID	MessageSeqNum	SourceIP	DestinationIP	Payload	Checksum
33	09	192.168.1.2	74.125.132.94	ork?	155

MessageID	MessageSeqNum	SourceIP	DestinationIP	Payload	Checksum
76	01	192.168.1.6	212.58.246.91	Why c	144

MessageID	MessageSeqNum	SourceIP	DestinationIP	Payload	Checksum
76	02	192.168.1.6	212.58.246.91	an't the B	123

MessageID	MessageSeqNum	SourceIP	DestinationIP	Payload	Checksum
76	03	192.168.1.6	212.58.246.91	BC hav	166

MessageID	MessageSeqNum	SourceIP	DestinationIP	Payload	Checksum
76	04	192.168.1.6	212.58.246.91	e a progr	231

MessageID	MessageSeqNum	SourceIP	DestinationIP	Payload	Checksum
76	05	192.168.1.6	212.58.246.91	am on abou	109

MessageID	MessageSeqNum	SourceIP	DestinationIP	Payload	Checksum
76	06	192.168.1.6	212.58.246.91	t how co	177

MessageID	MessageSeqNum	SourceIP	DestinationIP	Payload	Checksum
76	07	192.168.1.6	212.58.246.91	mputers a	156

MessageID	MessageSeqNum	SourceIP	DestinationIP	Payload	Checksum
76	08	192.168.1.6	212.58.246.91	nd the Inte	146

MessageID	MessageSeqNum	SourceIP	DestinationIP	Payload	Checksum
76	09	192.168.1.6	212.58.246.91	rnet work?	155

MessageID	MessageSeqNum	SourceIP	DestinationIP	Payload	Checksum
84	01	192.168.1.3	192.168.1.7	Who d	144

MessageID	MessageSeqNum	SourceIP	DestinationIP	Payload	Checksum
84	02	192.168.1.3	192.168.1.7	o you t	123

MessageID	MessageSeqNum	SourceIP	DestinationIP	Payload	Checksum
84	03	192.168.1.3	192.168.1.7	hink wi	166

MessageID	MessageSeqNum	SourceIP	DestinationIP	Payload	Checksum
84	04	192.168.1.3	192.168.1.7	ll win t	231

MessageID	MessageSeqNum	SourceIP	DestinationIP	Payload	Checksum
84	05	192.168.1.3	192.168.1.7	he nex	109

MessageID	MessageSeqNum	SourceIP	DestinationIP	Payload	Checksum
84	06	192.168.1.3	192.168.1.7	t worl	177

MessageID	MessageSeqNum	SourceIP	DestinationIP	Payload	Checksum
84	07	192.168.1.3	192.168.1.7	d cup?	156

MessageID	MessageSeqNum	SourceIP	DestinationIP	Payload	Checksum
84	08	192.168.1.3	192.168.1.7	Mayb	146

MessageID	MessageSeqNum	SourceIP	DestinationIP	Payload	Checksum
84	09	192.168.1.3	192.168.1.7	e Fiji?	155

MessageID	MessageSeqNum	SourceIP	DestinationIP	Payload	Checksum
44	01	192.168.1.44	192.168.1.44	null	144

MessageID	MessageSeqNum	SourceIP	DestinationIP	Payload	Checksum
46	02	174.168.2.2	192.168.1.28	null	123

MessageID	MessageSeqNum	SourceIP	DestinationIP	Payload	Checksum
97	03	177.168.9.9	192.168.1.28	null	166

MessageID	MessageSeqNum	SourceIP	DestinationIP	Payload	Checksum
57	04	188.125.5.87	192.168.1.44	null	231

MessageID	MessageSeqNum	SourceIP	DestinationIP	Payload	Checksum
11	05	216.239.55.99	192.168.1.53	null	109

MessageID	MessageSeqNum	SourceIP	DestinationIP	Payload	Checksum
14	06	216.239.55.99	192.168.1.67	null	177

MessageID	MessageSeqNum	SourceIP	DestinationIP	Payload	Checksum
17	07	216.239.55.99	192.168.1.62	null	156

MessageID	MessageSeqNum	SourceIP	DestinationIP	Payload	Checksum
88	08	216.239.55.99	192.168.1.44	null	146

MessageID	MessageSeqNum	SourceIP	DestinationIP	Payload	Checksum
19	09	216.239.55.99	192.168.1.33	null	155