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1. What are the SSIDs of the two access points that are issuing most of the beacon frames in this trace?
Cisco-Li is 30 Munroe, and Linksys is Linksys12

The image shows a Wireshark packet capture of an IEEE 802.11 network. The packet list on the left shows several beacon frames. The packet details pane on the right shows the structure of an IEEE 802.11 Beacon frame, including the Channel frequency, Channel flags, Antenna signal, Antenna noise, Signal Quality, Antenna, dB antenna signal, RX flags, 802.11 radio information, IEEE 802.11 Beacon frame, and IEEE 802.11 wireless LAN. The packet bytes pane at the bottom shows the raw data of the beacon frame.

No.	Time	Source	Destination	Protocol	Length	Info
7	0.188935	IntelCor_d1:b6:4f	Cisco-Li_f7:1d:51	802.11	54	QoS Null function (No data), SN=1483, FN=0, Flags=...P...TC
8	0.189034	IntelCor_d1:b6:4f	IntelCor_d1:b6:4f	802.11	38	Acknowledgement, Flags=.....C
9	0.290284	Cisco-Li_f7:1d:51	Broadcast	802.11	183	Beacon frame, SN=2857, FN=0, Flags=.....C, BI=100, SSID=30 Munroe St
10	0.294432	LinksysG_67:22:94	Broadcast	802.11	90	Beacon frame, SN=3072, FN=0, Flags=.....C, BI=62, SSID=li\357\277\275\
11	0.393174	Cisco-Li_f7:1d:51	Broadcast	802.11	183	Beacon frame, SN=2858, FN=0, Flags=.....C, BI=100, SSID=30 Munroe St
12	0.396690	00:ae:93:3d:0a:4a	ff:ff:ff:ff:bf:4a	802.11	90	Association Response, SN=3073, FN=0, Flags=.....C
13	0.495032	Cisco-Li_f7:1d:51	Broadcast	802.11	183	Beacon frame, SN=2859, FN=0, Flags=.....C, BI=100, SSID=30 Munroe St
14	0.499197	LinksysG_67:22:94	Broadcast	802.11	90	Beacon frame, SN=3074, FN=0, Flags=.....C, BI=100, SSID=linksys12
15	0.597382	Cisco-Li_f7:1d:51	Broadcast	802.11	183	Beacon frame, SN=2860, FN=0, Flags=.....C, BI=100, SSID=30 Munroe St
16	0.601687	LinksysG_67:22:94	Broadcast	802.11	90	Beacon frame, SN=3075, FN=0, Flags=.....C, BI=100, SSID=linksys12

Channel frequency: 2437 [BG 6]
Channel flags: 0x00a0, Complementary Code Keying (CCK), 2 GHz spectrum
Antenna signal: -29dBm
Antenna noise: -100dBm
Signal Quality: 82
Antenna: 0
dB antenna signal: 71dB
RX flags: 0x2608
802.11 radio information
IEEE 802.11 Beacon frame, Flags:C
IEEE 802.11 wireless LAN

0000 00 00 18 00 ee 58 00 00 10 02 85 09 a0 00 e3 9cX.....
0010 52 00 00 47 08 26 7e 05 00 00 00 00 ff ff ff ff R-G-&.....
0020 ff ff 00 16 b6 f7 1d 51 00 16 b6 f7 1d 51 60 b2Q.....
0030 82 e1 38 9e 28 00 00 00 64 00 01 06 00 0c 33 30 -8-(...d...30
0040 20 4d 75 6e 72 6f 65 20 53 74 01 04 82 84 8b 96 Munroe St.....
0050 03 01 06 05 04 00 01 00 00 07 06 55 53 49 01 0bUSI...
0060 1a 0c 12 0f 00 03 a4 00 00 27 a4 00 00 42 43 5eBC^...
0070 00 62 32 2f 00 2a 01 00 32 08 8c 12 98 24 b0 48 b2/*...2...\$^H
0080 60 6c dd 15 00 0a f5 0a 02 40 c0 00 03 01 03 05 \.....@.....
0090 0e 04 ff 00 03 00 11 01 01 dd 18 00 50 f2 02 01P.....
00a0 01 0f 00 03 a4 00 27 a4 00 00 42 43 5e 00 62BC^b
00b0 32 2f 00 08 26 7e 05 2/-&~

2. What are the intervals of time between the transmissions of the beacon frames the *linksys_ses_24086* access point? From the *30 Munroe St.* access point? (Hint: this interval of time is contained in the beacon frame itself)

0.102400

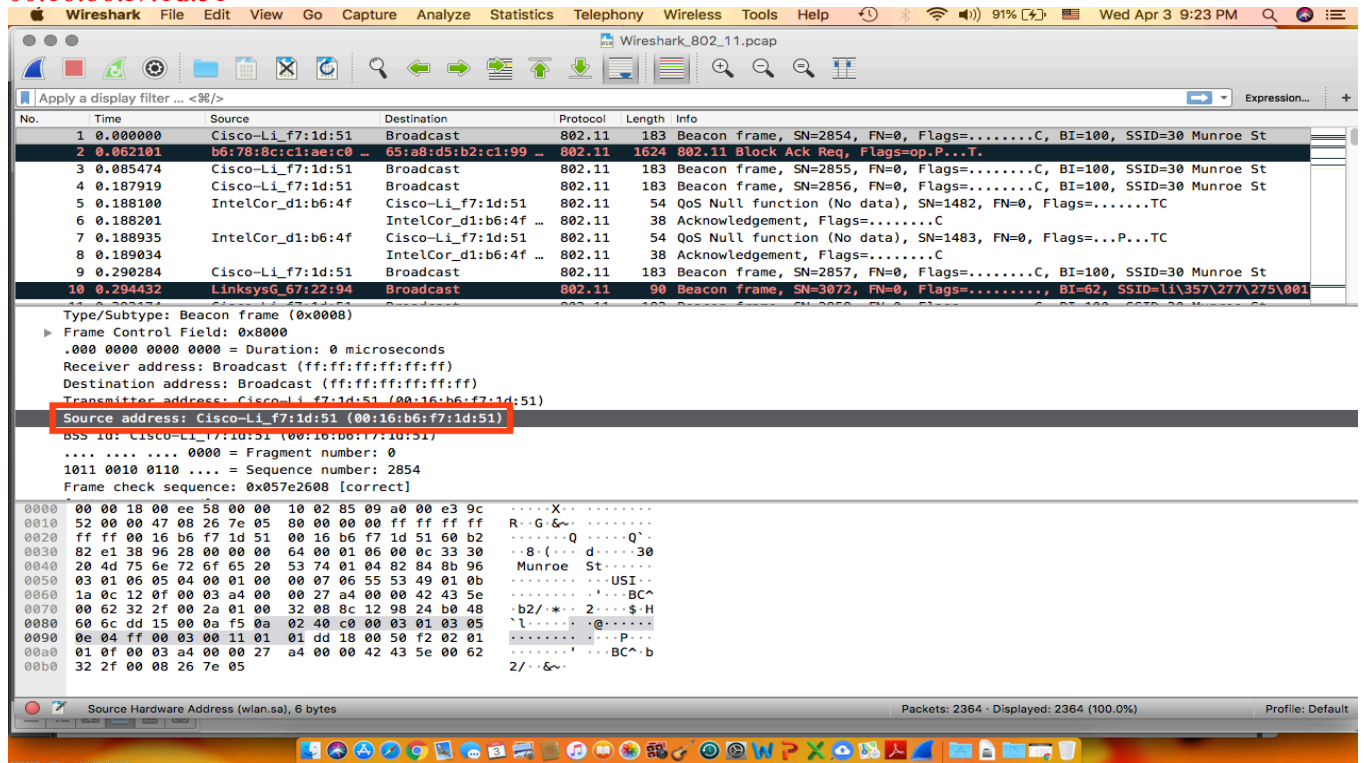
The image displays two screenshots of the Wireshark network protocol analyzer interface, showing packet captures of IEEE 802.11 beacon frames.

Top Screenshot: The packet list shows a beacon frame from source `Cisco-Li_f7:1d:51` (Destination: Broadcast) at time 0.294432. The packet details pane shows the IEEE 802.11 wireless LAN section, where the **Beacon Interval: 0.102400 [Seconds]** is highlighted in a red box. The packet bytes pane shows the raw data of the beacon frame.

Bottom Screenshot: The packet list shows a beacon frame from source `linksysG_67:22:94` (Destination: Broadcast) at time 43.658960. The packet details pane shows the IEEE 802.11 wireless LAN section, where the **Beacon Interval: 0.102400 [Seconds]** is highlighted in a red box. The packet bytes pane shows the raw data of the beacon frame.

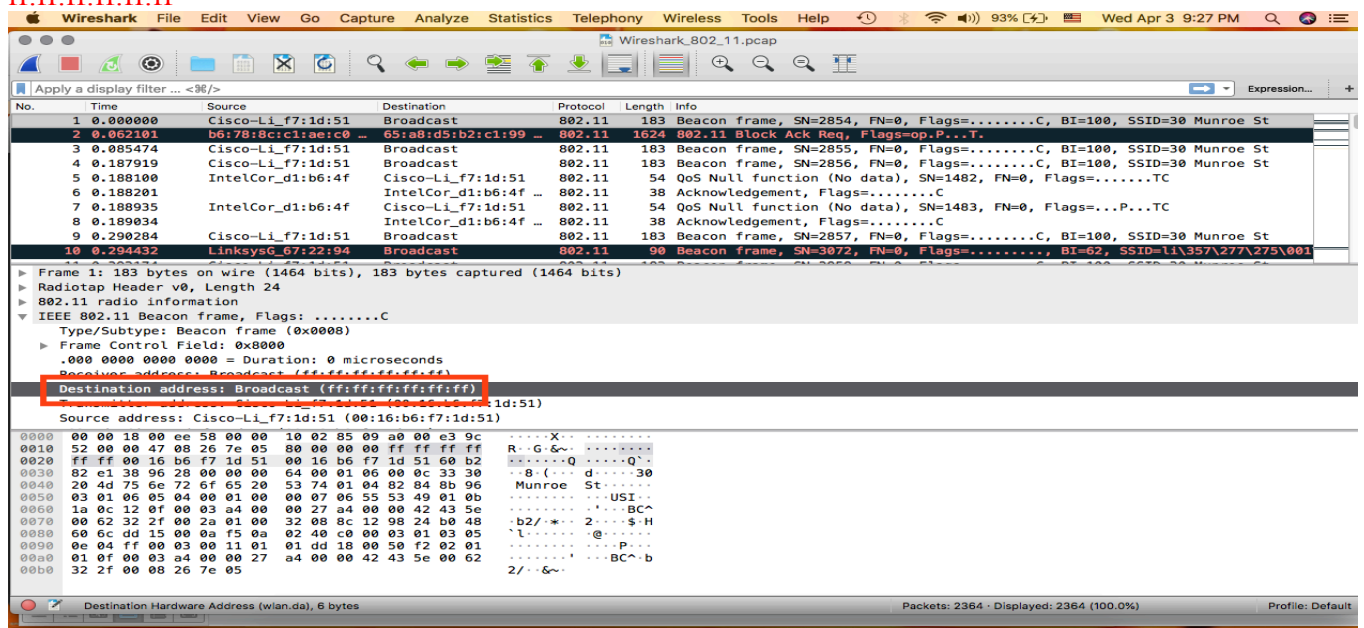
3. What (in hexadecimal notation) is the source MAC address on the beacon frame from *30 Munroe St*? Recall from Figure 7.13 in the text that the source, destination, and BSS are three addresses used in an 802.11 frame. For a detailed discussion of the 802.11 frame structure, see section 7 in the IEEE 802.11 standards document (cited above).

00:16:b6:f7:1d:51



4. What (in hexadecimal notation) is the destination MAC address on the beacon frame from *30 Munroe St*??

ff:ff:ff:ff:ff:ff



5. What (in hexadecimal notation) is the MAC BSS id on the beacon frame from 30 Munroe St?

Cisco-Li f7:1d:51 (00:16:b6:f7:1d:51)

Wireshark packet capture showing IEEE 802.11 Beacon frames. The selected packet (No. 10) is a Beacon frame from Cisco-Li f7:1d:51. The BSS Id field is highlighted in red, showing Cisco-Li f7:1d:51 (00:16:b6:f7:1d:51).

No.	Time	Source	Destination	Protocol	Length	Info
1	0.000000	Cisco-Li_f7:1d:51	Broadcast	802.11	183	Beacon frame, SN=2854, FN=0, Flags=.....C, BI=100, SSID=30 Munroe St
2	0.062101	b6:78:8c:c1:ae:c0 ..	65:a8:d5:b2:c1:99 ..	802.11	1624	002.11 Block Ack Req, Flags=op,P...T.
3	0.085474	Cisco-Li_f7:1d:51	Broadcast	802.11	183	Beacon frame, SN=2855, FN=0, Flags=.....C, BI=100, SSID=30 Munroe St
4	0.187919	Cisco-Li_f7:1d:51	Broadcast	802.11	183	Beacon frame, SN=2856, FN=0, Flags=.....C, BI=100, SSID=30 Munroe St
5	0.188100	IntelCor_d1:b6:4f	Cisco-Li_f7:1d:51	802.11	54	QoS Null function (No data), SN=1482, FN=0, Flags=.....TC
6	0.188201	IntelCor_d1:b6:4f ..	Cisco-Li_f7:1d:51 ..	802.11	38	Acknowledgement, Flags=.....C
7	0.188935	IntelCor_d1:b6:4f	Cisco-Li_f7:1d:51	802.11	54	QoS Null function (No data), SN=1483, FN=0, Flags=...P...TC
8	0.189034	IntelCor_d1:b6:4f ..	IntelCor_d1:b6:4f ..	802.11	38	Acknowledgement, Flags=.....C
9	0.290284	Cisco-Li_f7:1d:51	Broadcast	802.11	183	Beacon frame, SN=2857, FN=0, Flags=.....C, BI=100, SSID=30 Munroe St
10	0.294432	LinksysG_67:22:94	Broadcast	802.11	90	Beacon frame, SN=3072, FN=0, Flags=....., BI=62, SSID=l1\357\277\275\001

IEEE 802.11 Beacon frame, Flags:C
Type/Subtype: Beacon frame (0x0008)
Frame Control Field: 0x8000
.000 0000 0000 0000 = Duration: 0 microseconds
Receiver address: Broadcast (ff:ff:ff:ff:ff:ff)
Destination address: Broadcast (ff:ff:ff:ff:ff:ff)
Transmitter address: Cisco-Li_f7:1d:51 (00:16:b6:f7:1d:51)
Source address: Cisco-Li_f7:1d:51 (00:16:b6:f7:1d:51)
BSS Id: Cisco-Li_f7:1d:51 (00:16:b6:f7:1d:51)
.... 0000 = Fragment number: 0
1011 0010 0110 = Sequence number: 2854

0000 00 00 18 00 ee 58 00 00 10 02 85 09 a0 00 e3 9cX.....
0010 52 00 00 47 08 26 7e 05 80 00 00 00 ff ff ff ff R..G.&.....
0020 ff ff 00 16 b6 f7 1d 51 00 16 b6 f7 1d 51 60 b2Q.....Q`..
0030 82 e1 38 96 28 00 00 00 64 00 01 06 00 0c 33 30 ..8.(...d.....30
0040 20 4d 75 6e 72 6f 65 20 53 74 01 04 82 84 8b 96 Munroe St.....
0050 03 01 06 05 04 00 01 00 00 07 06 55 53 49 01 0bUSI..
0060 1a 0c 12 0f 00 03 a4 00 00 27 a4 00 00 42 43 5eBC^..
0070 00 62 32 2f 00 2a 01 00 32 08 8c 12 98 24 b0 48 ..b2/*..2....\$.H
0080 60 6c dd 15 00 0a f5 0a 02 40 c0 00 03 01 03 05 `l.....@.....
0090 0e 04 ff 00 03 00 11 01 01 dd 18 00 50 f2 02 01P...
00a0 01 0f 00 03 a4 00 00 27 a4 00 00 42 43 5e 00 62BC^..b
00b0 32 2f 00 08 26 7e 05 2/..&~..

Basic Service Set ID (wlan.bssid), 6 bytes
Packets: 2364 · Displayed: 2364 (100.0%)
Profile: Default