



The bridge to possible

# Flowin' with Wireshark: Hacks and Tips to Rule the Network

Joe Clarke, Distinguished Engineer  
CISCOU-2029

cisco *Live!*

#CiscoLive

# *Packet Capture or It Didn't Happen*

– Wise network engineer



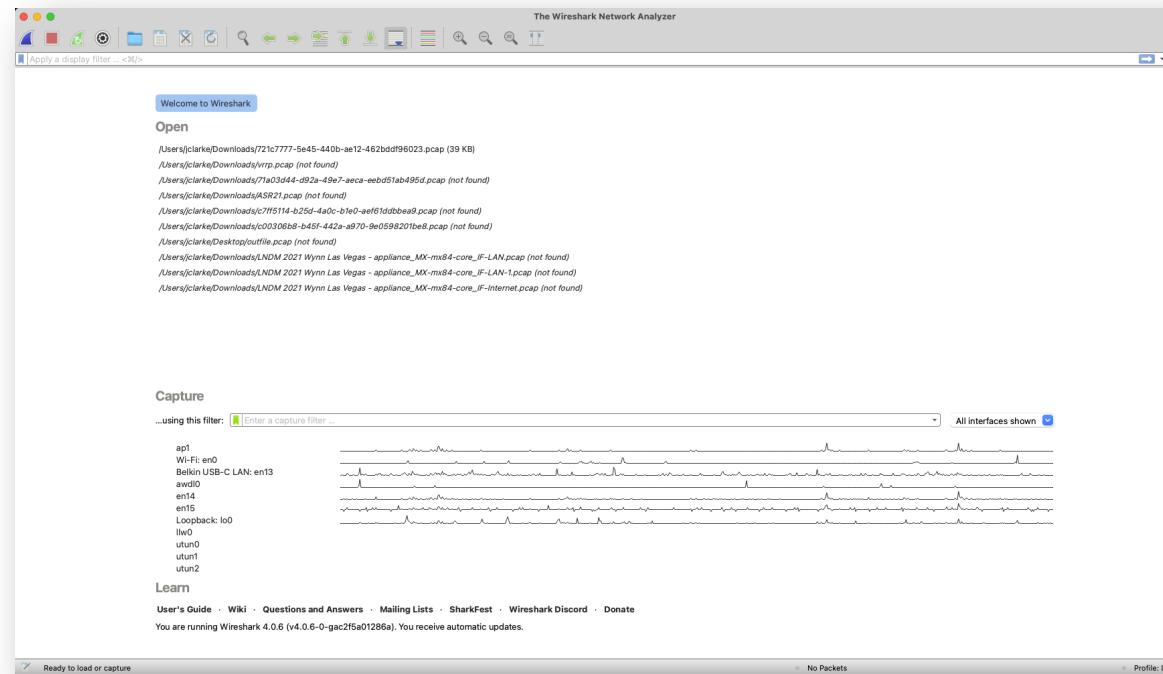
A decorative graphic on the left side of the slide features a series of overlapping, rounded rectangles in shades of red, orange, and yellow, creating a wavy, sunburst-like pattern.

# Agenda

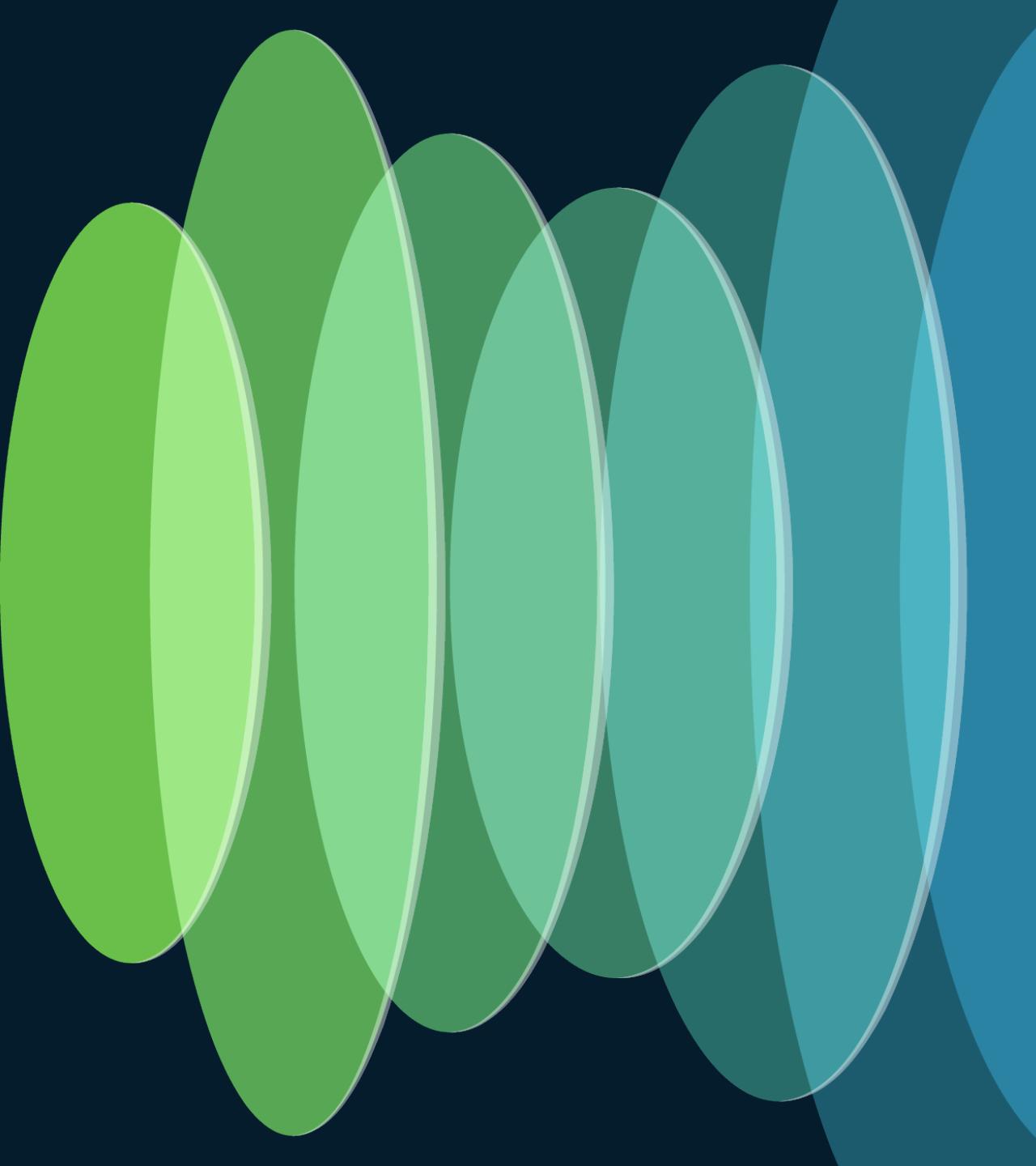
- Following Streams
- Decode As...
- Packet Diagrams
- Remote Capture
- Decrypt the Things!

# But First...

- If you don't know or use Wireshark yet...
  - **GET IT NOW!**
  - <https://wireshark.org>



# Following Streams



# Following Streams

No.	Time	Src MAC	Dest MAC	Source
1	0.000000	Apple_74:b0:67	Cisco_5f:05:f4	10.116.79.233
2	0.001193	Apple_74:b0:67	Cisco_5f:05:f4	10.116.79.233
3	0.001297	Cisco_5f:05:f4	Apple_74:b0:67	2600:1901:0:e988::
4	0.002434	Apple_74:b0:67	Cisco_5f:05:f4	10.116.79.233
5	0.002947	Apple_74:b0:67	Cisco_5f:05:f4	10.116.79.233
6	0.007578	Cisco_5f:05:f4	Apple_74:b0:67	64.102.6.247
7	0.011914	Cisco_5f:05:f4	Apple_74:b0:67	64.101.105.66
8	0.017469	Cisco_5f:05:f4	Apple_74:b0:67	64.102.6.247
9	0.018983	Apple_74:b0:67	Cisco_5f:05:f4	10.116.79.233
10	0.020056	Cisco_5f:05:f4	Apple_74:b0:67	64.102.6.247
11	0.021160	Cisco_5f:05:f4	Apple_74:b0:67	64.102.6.247
12	0.399883	Apple_74:b0:67	Cisco_5f:05:f4	10.116.79.233
13	0.401712	Apple_74:b0:67	Cisco_5f:05:f4	10.116.79.233
14	0.425368	Cisco_5f:05:f4	Apple_74:b0:67	64.102.6.247
15	0.429318	Cisco_5f:05:f4	Apple_74:b0:67	64.102.6.247
16	0.433944	Apple_74:b0:67	Cisco_5f:05:f4	10.116.79.233
17	0.434071	Apple_74:b0:67	Cisco_5f:05:f4	
18	0.434443	Apple_74:b0:67	Cisco_5f:05:f4	
19	0.453942	Cisco_5f:05:f4	Apple_74:b0:67	
20	0.454240	Apple_74:b0:67	Cisco_5f:05:f4	
21	0.456926	Apple_74:b0:67	Cisco_5f:05:f4	
22	0.475223	Cisco_5f:05:f4	Apple_74:b0:67	
23	0.476287	Cisco_5f:05:f4	Apple_74:b0:67	

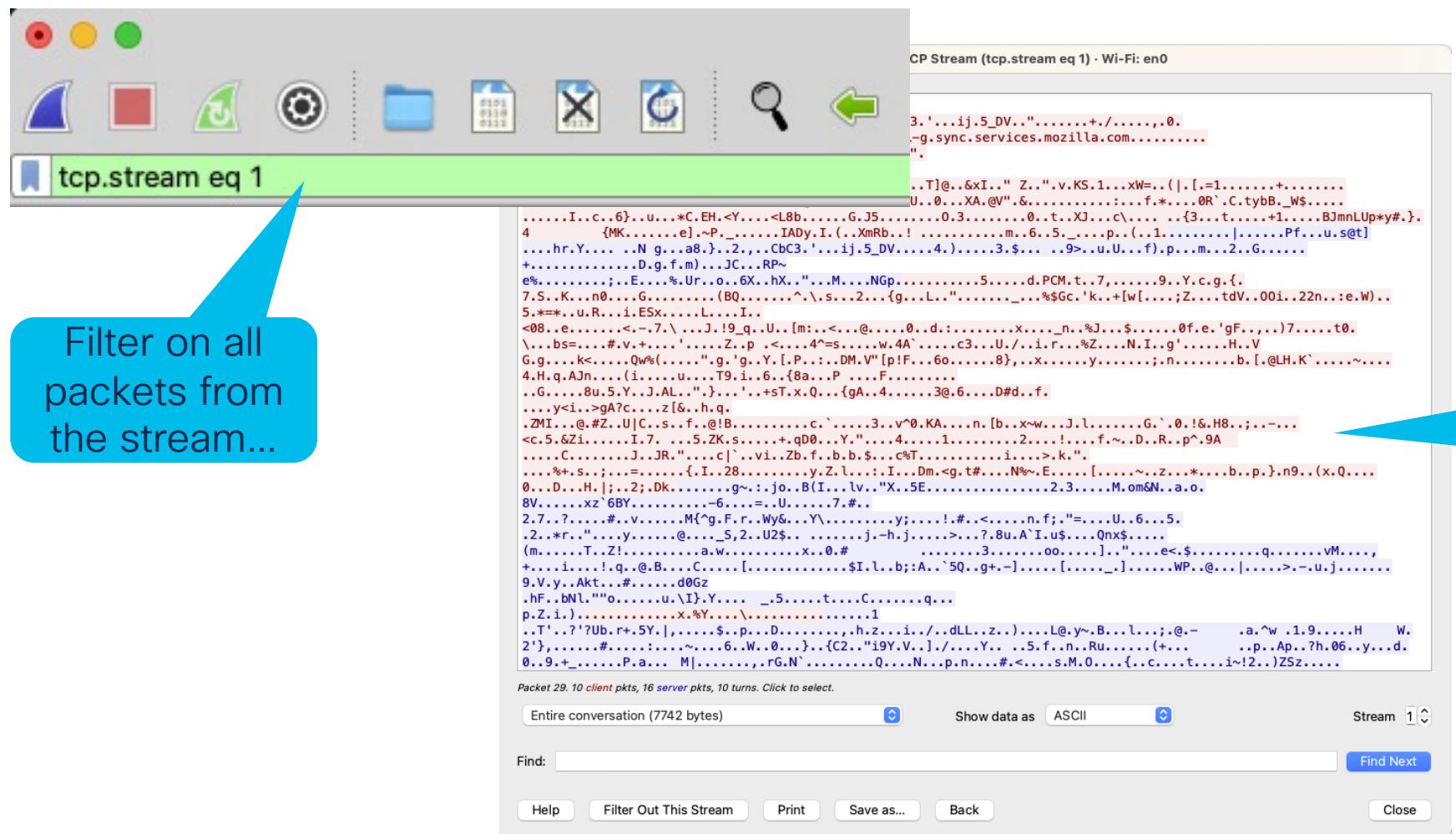
> Frame 17: 78 bytes on wire (624 bits), 78 bytes captured (624 bits)  
> Ethernet II, Src: Apple\_74:b0:67 (f8:4d:89:74:b0:67), Dst: Cisco\_5f:05:f4 (08:00:27:00:00:04)  
> Internet Protocol Version 4, Src: 10.116.79.233, Dst: 35.186.227  
> Transmission Control Protocol, Src Port: 51128, Dst Port: 443, Seq: 1, Ack: 1, Len: 60

Mark/Unmark Packet  
Ignore/Unignore Packet  
Set/Unset Time Reference  
Time Shift...  
Packet Comments ►  
Edit Resolved Name  
Apply as Filter ►  
Prepare as Filter ►  
Conversation Filter ►  
Colorize Conversation ►  
SCTP  
Follow ►  
Copy ►  
Protocol Preferences ►  
Decode As...  
Show Packet in New Window  
TCP Stream  
UDP Stream  
DCCP Stream  
TLS Stream  
HTTP Stream  
HTTP/2 Stream  
QUIC Stream  
SIP Call

- TCP
- UDP
- DCCP
- TLS
- HTTP[/2]
- QUIC
- SIP

Pick the stream to follow based on initial packet

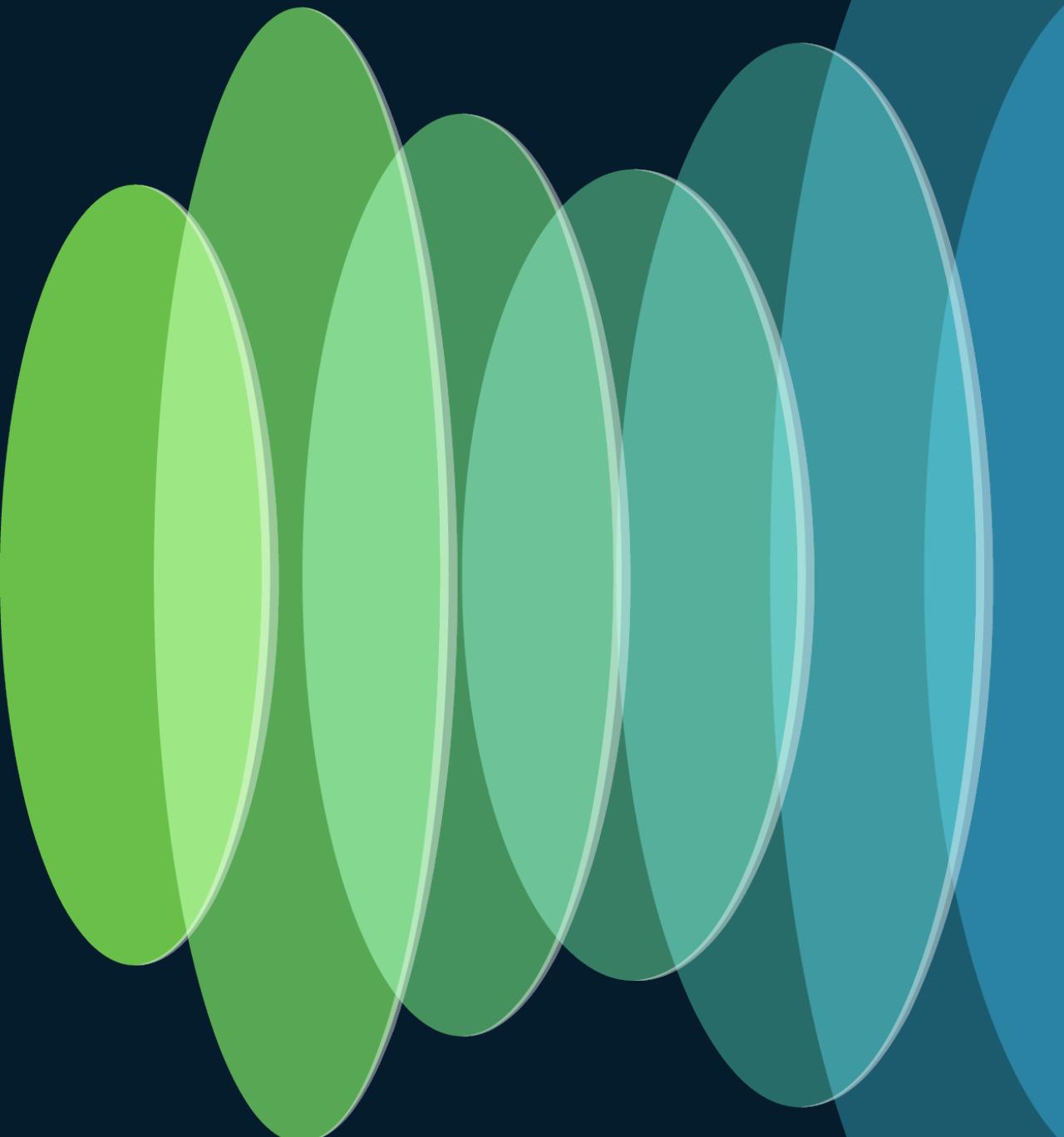
# Following Streams



Filter on all  
packets from  
the stream...

...And assembles  
all data bytes in  
one screen

Decode As...



# Decode As...

No.	Time	Source	Destination	Protocol	Length	Info
2984	109.081002	10.21.9.164	162.223.13.118	UDP	64	62139 → 5514 Len=22

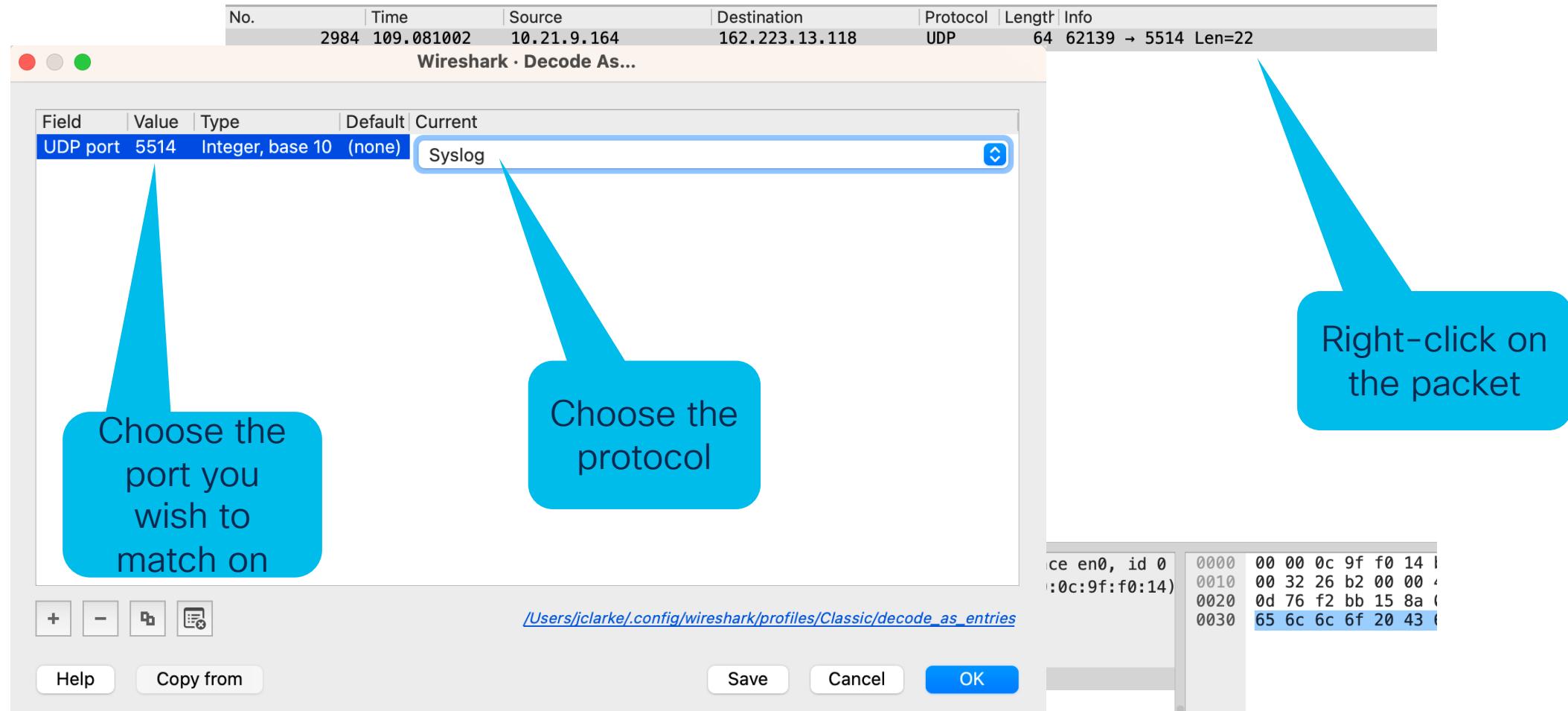
Let's say you have a data stream using non-standard ports. You still want to make use of wireshark's dissectors.

> Frame 2984: 64 bytes on wire (512 bits), 64 bytes captured (512 bits) on interface en0, id 0  
> Ethernet II, Src: Apple\_37:20:69 (bc:d0:74:37:20:69), Dst: Cisco\_9f:f0:14 (00:00:0c:9f:f0:14)  
> Internet Protocol Version 4, Src: 10.21.9.164, Dst: 162.223.13.118  
> User Datagram Protocol, Src Port: 62139, Dst Port: 5514  
  Data (22 bytes)

Data: 3c3135393e48656c6c6f20436973636f4c6976652100  
[Length: 22]

0000	00 00 0c 9f f0 14	I
0010	00 32 26 b2 00 00	4
0020	0d 76 f2 bb 15 8a	0
0030	65 6c 6c 6f 20 43	6

# Decode As...



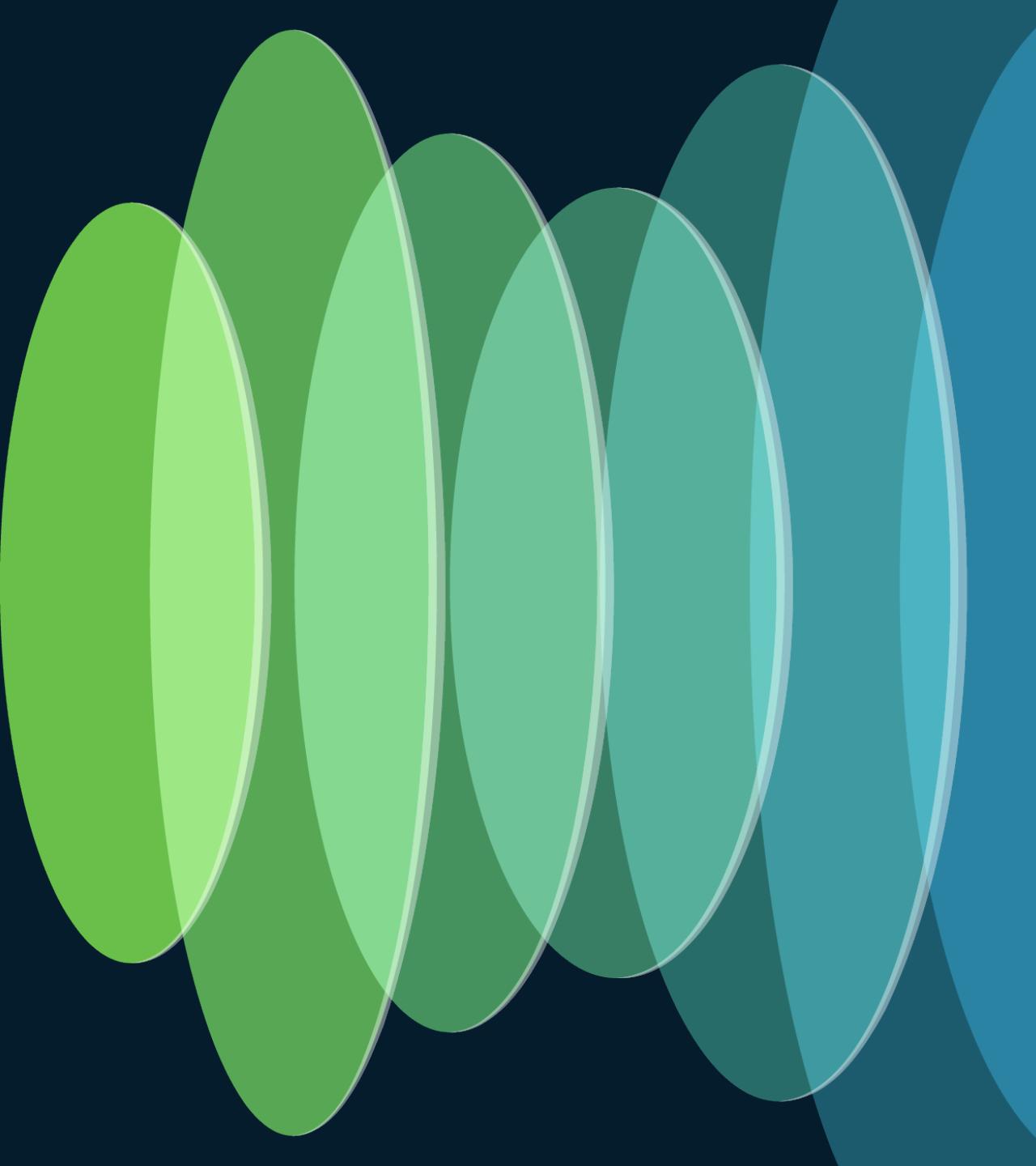
# Decode As...

No.	Time	Source	Destination	Protocol	Length	Info
2984	109.081002	10.21.9.164	162.223.13.118	Syslog	64	LOCAL3.DEBUG: Hello CiscoLive!\000

```
> Frame 2984: 64 bytes on wire (512 bits), 64 bytes captured (512 bits) on interface en0, id 0
> Ethernet II, Src: Apple_37:20:69 (bc:d0:74:37:20:69), Dst: Cisco_9f:f0:14 (00:00:0c:9f:f0:14)
> Internet Protocol Version 4, Src: 10.21.9.164, Dst: 162.223.13.118
> User Datagram Protocol, Src Port: 62139, Dst Port: 5514
<-- Syslog message: LOCAL3.DEBUG: Hello CiscoLive!\000
    1001 1... = Facility: LOCAL3 - reserved for local use (19)
    .... .111 = Level: DEBUG - debug-level messages (7)
    Message: Hello CiscoLive!
```

0000	00	00	0c	9f	f0	14	I
0010	00	32	26	b2	00	00	C
0020	0d	76	f2	bb	15	8a	C
0030	65	6c	6c	6f	20	43	C

# Packet Diagrams



# Packet Diagrams

Network traffic capture showing multiple frames between Cisco and Apple devices. The interface is en0, and the frames are mostly TCP/TLSv1.3 segments.

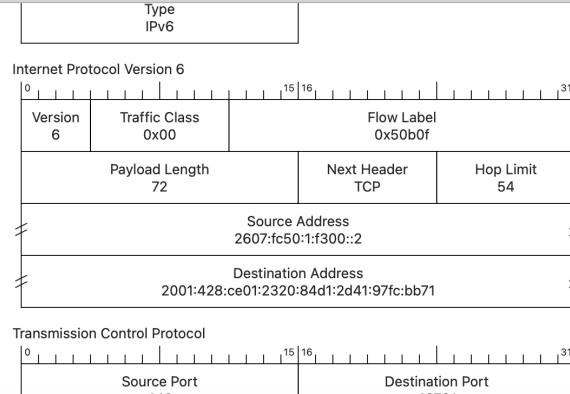
```

> Frame 446: 126 bytes on wire (1008 bits), 126 bytes captured (1008 bits) on interface en0, id 0
> Ethernet II, Src: Cisco_32:72:42 (8c:60:4f:32:72:42), Dst: Apple_37:20:69 (bc:d0:74:37:20:69)
< Internet Protocol Version 6, Src: 2607:fc50:1:f300::2, Dst: 2001:428:ce01:2320:84d1:2d41:97fc:bb71
  0110 .... = Version: 6
  .... 0000 0000 .... .... .... = Traffic Class: 0x00 (DSCP: CS0, ECN: Not-ECT)
  .... 0101 0000 1011 0000 1111 = Flow Label: 0x50b0f
  Payload Length: 72
  Next Header: TCP (6)
  Hop Limit: 54
  Source Address: 2607:fc50:1:f300::2
  Destination Address: 2001:428:ce01:2320:84d1:2d41:97fc:bb71
< Transmission Control Protocol, Src Port: 443, Dst Port: 49791, Seq: 13985, Ack: 1497, Len: 40
  Source Port: 443
  Destination Port: 49791
  [Stream index: 36]
  [Conversation completeness: Incomplete, DATA (15)]
  [TCP Segment Len: 40]
  Sequence Number: 13985 (relative sequence number)
  Sequence Number (raw): 2646950740
  [Next Sequence Number: 14025 (relative sequence number)]
  Acknowledgment Number: 1497 (relative ack number)
  
```

No.	Time	Src MAC	Dst MAC	Source	Destination	Protocol	Length	Info
402	10.9990..	Cisco_32:72:42	Apple_37:20:69	2607:fc50:1:f...	2001:428:ce01...	TCP	468	443 → 49791 [PSH, ACK] Seq=3715 Ack=518 Win=66304 Len=382 TStamp=3527492959 TS...
403	10.9990..	Cisco_32:72:42	Apple_37:20:69	2607:fc50:1:f...	2001:428:ce01...	TLSv1.3	637	Application Data, Application Data, Application Data
404	10.9992..	Apple_37:20:69	Cisco_a0:00:14	2001:428:ce01...	2607:fc50:1:f...	TCP	86	49791 → 443 [ACK] Seq=518 Ack=4648 Win=126528 Len=0 TStamp=2345773811 TSecr=35...
405	11.0039..	Apple_37:20:69	Cisco_a0:00:14	2001:428:ce01...	2607:fc50:1:f...	TCP	86	[TCP Window Update] 49791 → 443 [ACK] Seq=518 Ack=4648 Win=131072 Len=0 TStamp=3527492959 TS...
406	11.0059..	Apple_37:20:69	Cisco_a0:00:14	2001:428:ce01...	2607:fc50:1:f...	TLSv1.3	166	Change Cipher Spec, Application Data
407	11.0060..	Apple_37:20:69	Cisco_a0:00:14	2001:428:ce01...	2607:fc50:1:f...	TLSv1.3	561	Application Data
409	11.0703..	Cisco_32:72:42	Apple_37:20:69	2607:fc50:1:f...	2001:428:ce01...	TLSv1.3	389	Application Data
410	11.0703..	Cisco_32:72:42	Apple_37:20:69	2607:fc50:1:f...	2001:428:ce01...	TLSv1.3	389	Application Data
411	11.0705..	Apple_37:20:69	Cisco_a0:00:14	2001:428:ce01...	2607:fc50:1:f...	TCP	86	49791 → 443 [ACK] Seq=1073 Ack=5254 Win=130432 Len=0 TStamp=2345773882 TSecr=35...
412	11.0733..	Cisco_32:72:42	Apple_37:20:69	2607:fc50:1:f...	2001:428:ce01...	TCP	1324	443 → 49791 [ACK] Seq=5254 Ack=1073 Win=66304 Len=1238 TStamp=3527493037 TSecr=35...
413	11.0733..	Cisco_32:72:42	Apple_37:20:69	2607:fc50:1:f...	2001:428:ce01...	TCP	1324	443 → 49791 [ACK] Seq=6492 Ack=1073 Win=66304 Len=1238 TStamp=3527493037 TSecr=35...
414	11.0733..	Cisco_32:72:42	Apple_37:20:69	2607:fc50:1:f...	2001:428:ce01...	TCP	1324	443 → 49791 [ACK] Seq=7730 Ack=1073 Win=66304 Len=1238 TStamp=3527493037 TSecr=35...
415	11.0733..	Cisco_32:72:42	Apple_37:20:69	2607:fc50:1:f...	2001:428:ce01...	TLSv1.3	151	Application Data
416	11.0734..	Apple_37:20:69	Cisco_a0:00:14	2001:428:ce01...	2607:fc50:1:f...	TCP	86	49791 → 443 [ACK] Seq=1073 Ack=9033 Win=127232 Len=0 TStamp=2345773885 TSecr=35...
417	11.0735..	Apple_37:20:69	Cisco_a0:00:14	2001:428:ce01...	2607:fc50:1:f...	TCP	86	[TCP Window Update] 49791 → 443 [ACK] Seq=1073 Ack=9033 Win=131072 Len=0 TStamp=3527493151 TSecr=35...
428	11.1211..	Apple_37:20:69	Cisco_a0:00:14	2001:428:ce01...	2607:fc50:1:f...	TLSv1.3	510	Application Data
442	11.1875..	Cisco_32:72:42	Apple_37:20:69	2607:fc50:1:f...	2001:428:ce01...	TCP	1324	443 → 49791 [ACK] Seq=9033 Ack=1497 Win=66304 Len=1238 TStamp=3527493151 TSecr=35...
443	11.1875..	Cisco_32:72:42	Apple_37:20:69	2607:fc50:1:f...	2001:428:ce01...	TCP	1324	443 → 49791 [ACK] Seq=10271 Ack=1497 Win=66304 Len=1238 TStamp=3527493151 TSecr=35...
444	11.1875..	Cisco_32:72:42	Apple_37:20:69	2607:fc50:1:f...	2001:428:ce01...	TCP	1324	443 → 49791 [ACK] Seq=11509 Ack=1497 Win=66304 Len=1238 TStamp=3527493151 TSecr=35...
445	11.1875..	Cisco_32:72:42	Apple_37:20:69	2607:fc50:1:f...	2001:428:ce01...	TCP	1324	443 → 49791 [ACK] Seq=12747 Ack=1497 Win=66304 Len=1238 TStamp=3527493151 TSecr=35...
446	11.1875..	Cisco_32:72:42	Apple_37:20:69	2607:fc50:1:f...	2001:428:ce01...	TLSv1.3	126	Application Data

Frame details:

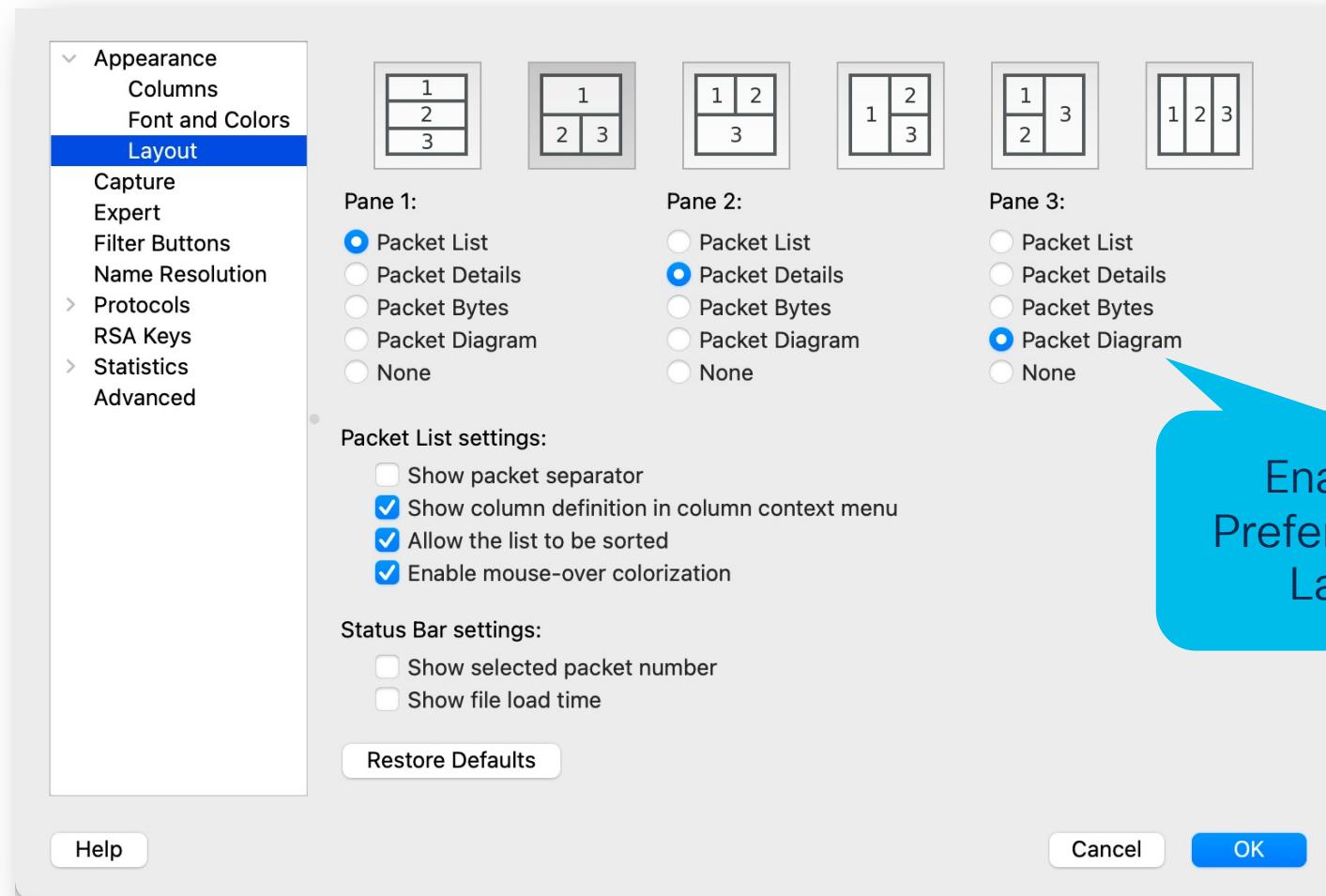
- Frame 446: 126 bytes on wire (1008 bits), 126 bytes captured (1008 bits) on interface en0, id 0
- Ethernet II, Src: Cisco\_32:72:42 (8c:60:4f:32:72:42), Dst: Apple\_37:20:69 (bc:d0:74:37:20:69)
- Internet Protocol Version 6, Src: 2607:fc50:1:f300::2, Dst: 2001:428:ce01:2320:84d1:2d41:97fc:bb71
- Transmission Control Protocol, Src Port: 443, Dst Port: 49791, Seq: 13985, Ack: 1497, Len: 40



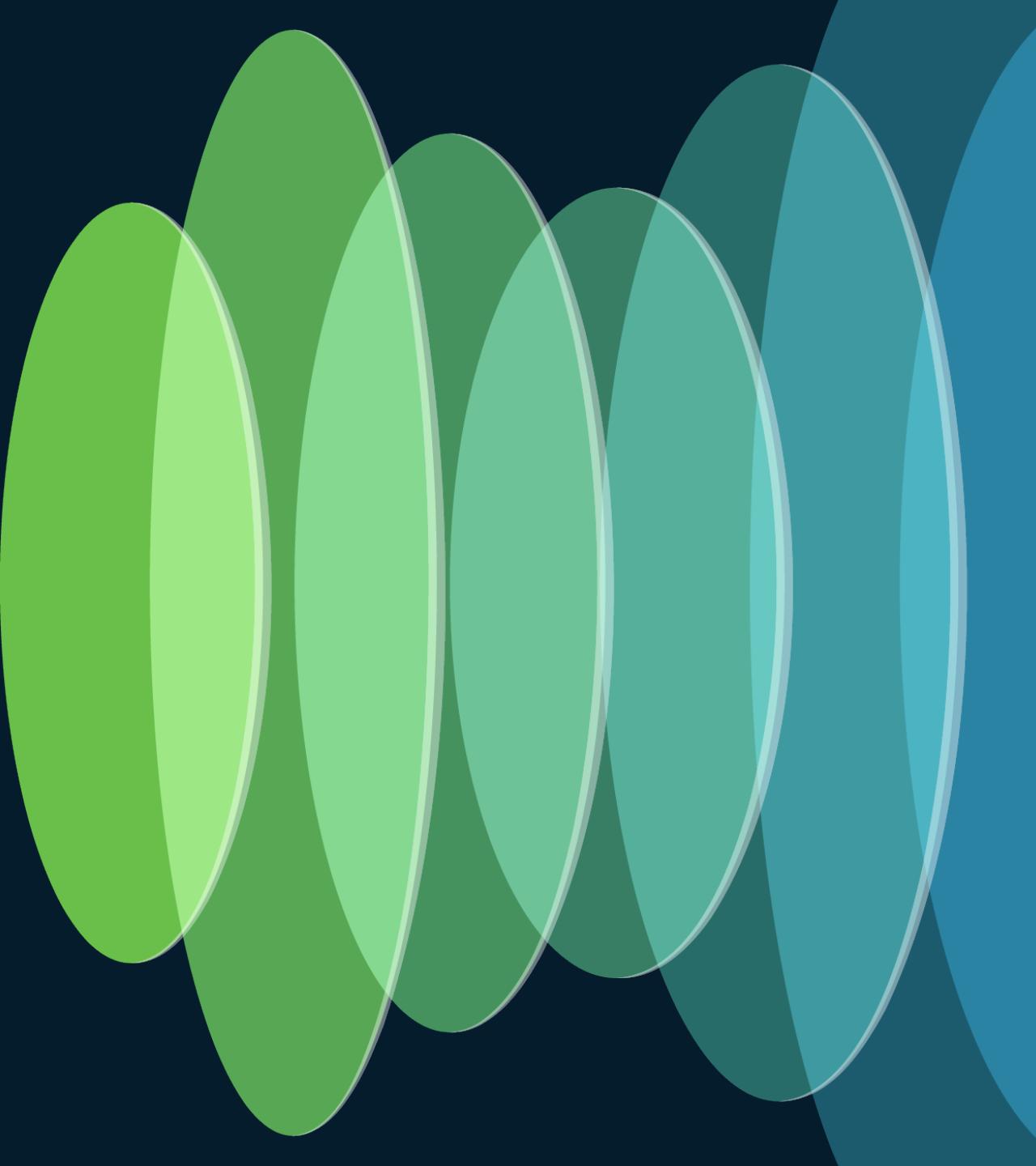
New to Wireshark 3.4

- Save or print them
- Copy as raster images
- Teach new engineers how a frame becomes a packet

# Packet Diagrams



# Remote Capture



# Remote Capture

Input   Output   Options

Interface	Traffic	Link-layer Header	Promisc	Snaplen (B)	Buffer (MB)	Mo
Ethernet Adapter (en4): en4	_____	Ethernet	<input checked="" type="checkbox"/>	default	2	—
Ethernet Adapter (en5): en5	_____	Ethernet	<input checked="" type="checkbox"/>	default	2	—
Ethernet Adapter (en6): en6	_____	Ethernet	<input checked="" type="checkbox"/>	default	2	—
Thunderbolt 1: en1	_____	Ethernet	<input checked="" type="checkbox"/>	default	2	—
Thunderbolt 2: en2	_____	Ethernet	<input checked="" type="checkbox"/>	default	2	—
Thunderbolt 3: en3	_____	Ethernet	<input checked="" type="checkbox"/>	default	2	—
Thunderbolt Bridge: bridge0	_____	Ethernet	<input checked="" type="checkbox"/>	default	2	—
ap1	_____	Ethernet	<input checked="" type="checkbox"/>	default	2	—
gif0	_____	BSD loopback	<input checked="" type="checkbox"/>	default	2	—
stf0	_____	BSD loopback	<input checked="" type="checkbox"/>	default	2	—
(Cisco remote capture: ciscodump	_____	Remote capture dependent DLT	—	—	—	—
(Random packet generator: randpkt	_____	Generator dependent DLT	—	—	—	—
(SSH remote capture: sshdump	_____	Remote capture dependent DLT	—	—	—	—
(UDP Listener remote capture: udpcdump	_____	Exported PDUs	—	—	—	—
(Wi-Fi remote capture: wifidump	_____	Remote capture dependent DLT	—	—	—	—

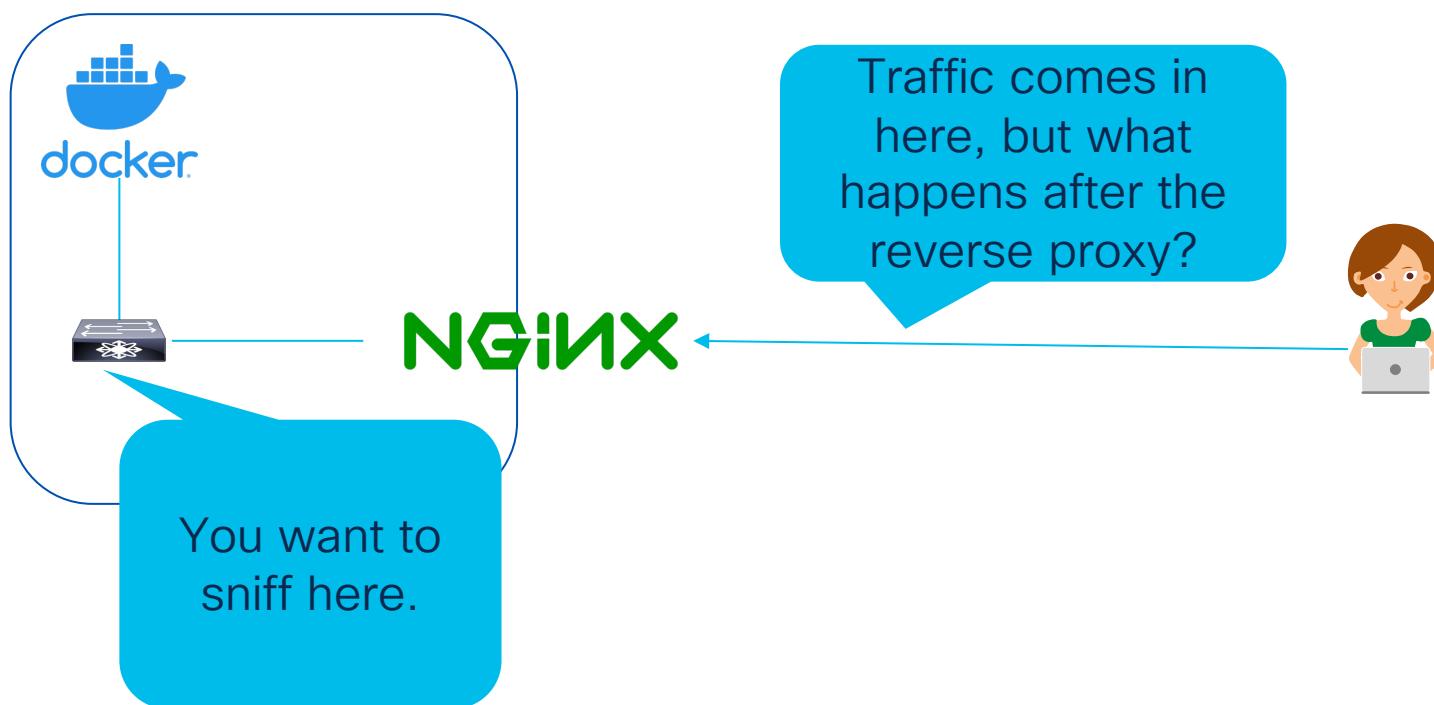
Enable promiscuous mode on all interfaces      [Manage Interfaces...](#)

Capture filter for selected interfaces:  Enter a capture filter ...      [Compile BPFs](#)

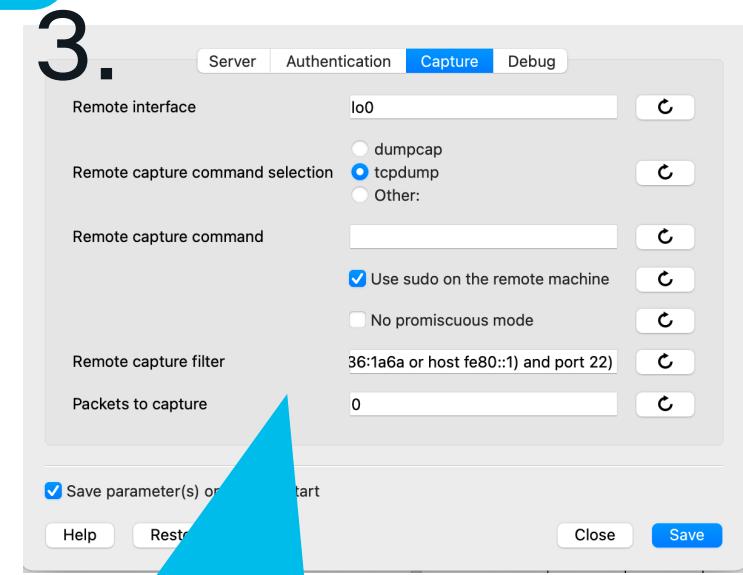
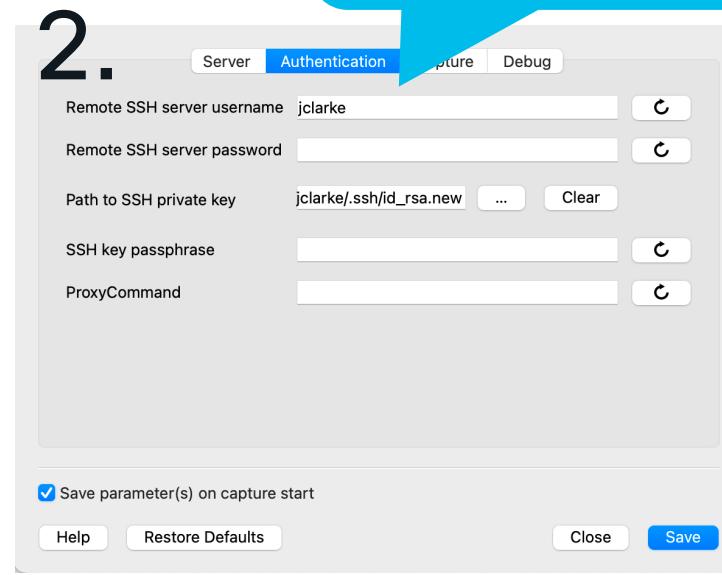
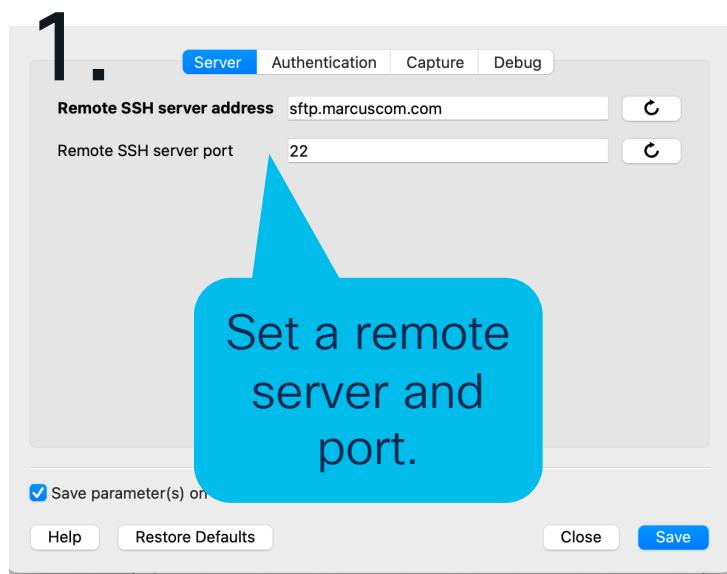
[Help](#)      [Close](#)      [Start](#)

- Don't forget to scroll down and explore the full interface list
- Remote captures are excellent for troubleshooting embedded services or setting up a SPAN server

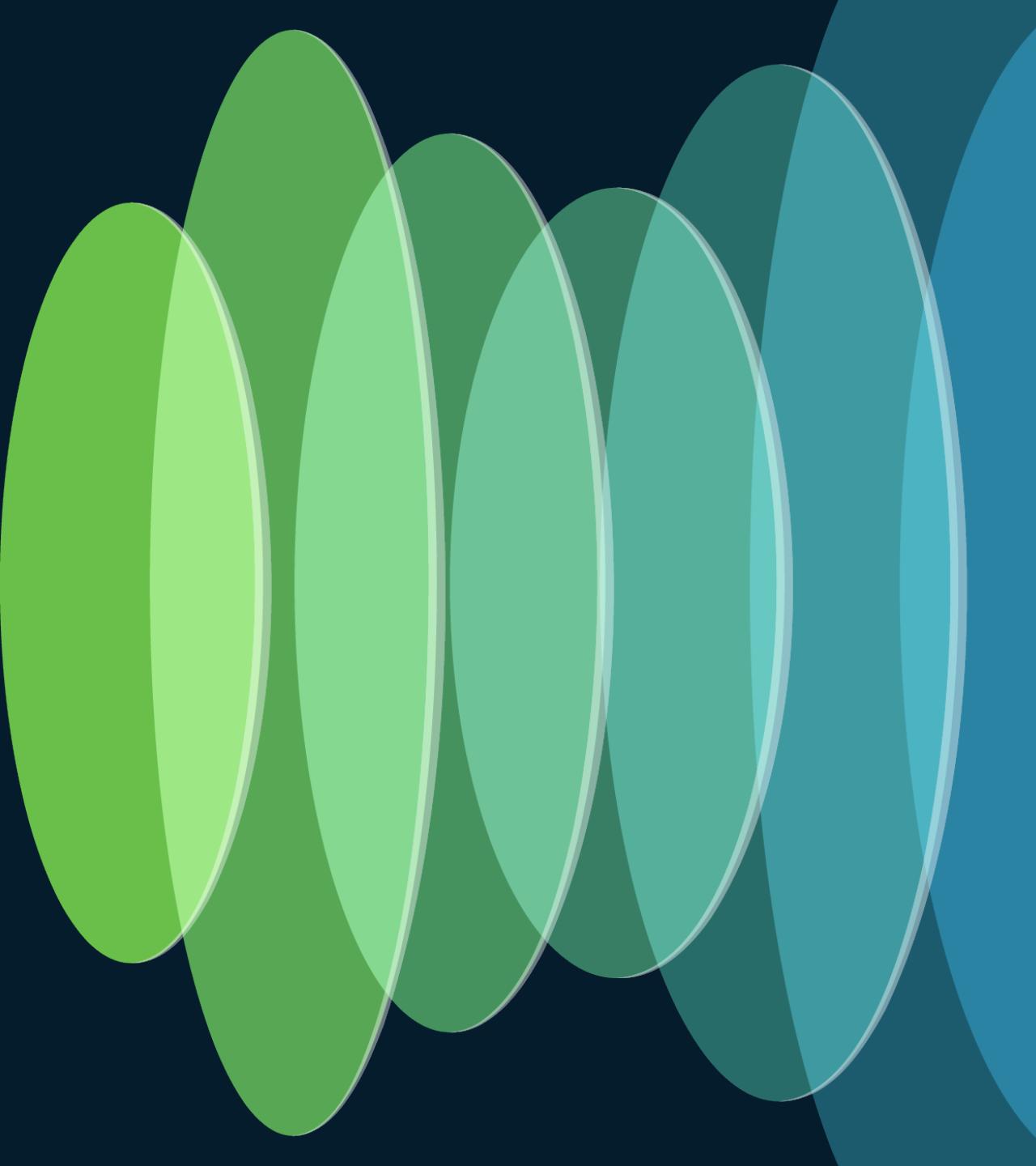
# Remote Capture



# Remote Capture



# Decrypt the Things!



# Decrypt the Things!

```
.....2.j.$.'.....%Tr..ae.\.4EQ.
WV->..2...N.Pu.;..U....?..V.".....+./.....0.
'...../5.....www.marcuscom.com.....  

.....#.....h2.http/1.1.....".
.....3.k.i...m-_7m...a\..L..u...K.#).0nn0d..A.rB.....x.M.....^'..i.?..X.J.....S..t....C?<..be..}..M8},e....+.....  

.....-.....@.....z..v.....  

....._.....a.!7.83...>..2.....N.Pu.;..U....?..V.....+....3.$...=...._Ru4.S..)d..y[..H.....*k.....j.&I.....+l.|.....y.....y.....F...  

1.R..t.....0..d.8.Hco.....]k'7.R.'HIid-..8...0.....Ny..2..H.F..<.....#..~...b..~...|[d..*.$'..*.N..r..x..V.c...C./K..y!.7.c;..9...P.).....P%$..[. ....  

4.G.H.:..T.....'..V..'DXwG.....N#sV.W. <....%....&.5.9..i~..9.eK..U..tX.."t.&F.K..)DLE..;J.g..y.j....eBj..q..4..kx..... UMY.|  

D..g..D.....m.....W(Y...)J.Y..Z.L^`.....0ecdIx.....J.....&(..d...9.p....l)...{.0 ..n.1!..|..R?..j.|..z'....L|....98b.;  

1.N".^t.!.....?..|.....^c.y.al1..v1]Z=....-J..t.|.....4...PGV...@.&.....c.z....9....].B>..X..~....].R....!J....d.4..L.....E..T....  

0..A..n....WW...}.v.....z..I/p.C[..9....{.4C  

...kZ....i.C.=?..T..t....Qx..0.....5'G.s.'#..a.o.....(N&U)..)  

c.[...,t....~{..#.ZL.T.AP.....Y..[....f..~]&..tpe..`t..l.=...)....q.0$.c+3c.|.`I...,.4F)'.....c/..1*..mq.....h.....I..Cr7....  

..Z..0#.a.s....z....b:..EE/1..j(a..e.S....@..rV..}|..V.Z..D.G....-..b.....6Yv.....H.q.....KVC.t..  

.....'....^..8D..T..{v{6/$/.C..A.....V..R.Ics..DM..RwyFV..>....\0'![...  

.e.....Lc.oFU..W....I....5....j....WL...}w.j.....a....E..f'..8t..h....~x.b...t..EM7ls]...6..}V...P*....r..].....1..n.A...Q .....[..h.U.s..h..  

....._w'{..G;~`..A..F..Ph..V..4..9Z..A.  

..0..A....>J.M.....>4Cy....sr.E+r.p...."Q..Bq.[>V....WKM....+.5....G..B....J..3..N--....V..aAU+<....7^....W....C..4.;q....P..,\..<..B.<..R..tJ..m#..*....|  

kvvi+gS1.mT..Y.....M..A8..K..o..{..J..A..12..oW..KN^.....<.,..D..6..0(!^..'.  

...fM..a..o....C..m..!..S=1..{..d..Y$&..Ui..g..2..{..(<..g..{..GD=..<..A..L..v$Q..m....;....0....I..G^..d.."....I..=v.....  

2.zp...../..Gg0..dT..@m.l~..p..L..j9..2....n..2.)....x....C..Y..0..Z..I..M../.4..Bmx..iGINF!.3..4..~..b+..J...  

.t..x..p..{..5ZG.E'..u..yt..V..  

...jw:..Q..  

...Q..of....A;>;x..H..x..2..X0.a.H.N.0....Z}..[..B....}.. .....pv.s.Dj  

.....W..n..  

...y....f..E..^m.A..b.u..T..L..D.....ld.w.."  

%9g.C.U.x.%Z.  

.J..x..A.....*..kPlq.....<..l1.<....[.....Yg..],..A..+(.....B=n..Z\P..)....2..841..X..l..c.....W..V..DA.....;.....r.OR|..d*..>....  

..6f..p..c..'....D..Cw.....'....<j4.....r..Q....a.Q.  

x..?z4..D..g..I..E...../..B..T..".4.....%..Tw..d....G..P:#..3..N..6..o..A.....i..W*S(..i..0..]..C..7....<e.. ..!C ..5"....FAt..o..W..n|..X....`....[....  

4..S..p:.*....R.....:1....!d..V*..w[....Vt..0..E ..S....3..}..P..k..u..Foy)..m..-o.=.%&P=w..%,..b..B..  

[y..$....p..T+f..d8-t..#Yi..@[~<..x..4....hRW..k....Q..Y.....U..6I.....Z..q....._7+W.....2e..a....Zt.....K..L..$....B..}.....a....K..85....p4W..!  

U)..L..V..V..P..&..ZqR..AS..ogh?..{..M9..`..P..4..HR ..k..F..0..(u..g.....Th..T..L..m....=..H..4g..//..cF..s....T.. /....i....3h..G.  

...`....#....y..FR$....4....p..C.....d..itd  

@hb..F..5..X  

9..t..  

..G..S .....j0..3....%..i..3..Q..]..D....0..>C..*..1..c..Sk..3..L..B..l..3Be..*..h&4..(.D..dV..h2....T.  

8..6..h....*ft....r.....U....-..I}.....V..E..S..G.....z^..&1..6]..DB..hu..A..>....n.."Dq..Hi.....\..Bq"....0G6..0....^..&..|..)....0K..wV0..c.....^..<.....5  

...?..A..GU..ve..M..*,..{..^..{..qH..E#R..aj..C.....Z..=..;)..$p....y..}..2..0..q....`..b..%..6..ci..%..m..(..2 ..#3 ..o..h..[..u..a..>....J..a....K..7..}.  

5....5.....E..&..5H..Yp..!..y..0..R....1....)".....3p.....H..ig..>..3..ij.....I..N..58....C$..r..1L..L..F-..P..M..=..e..j.....7....s..[uXN..Zh..i..t...  

(_..xn..Ig..AG.._..f.....^..g..0..IiBeJ..246..</..0..<....~..l..`....S..:..rw..... 0..w.....I..R..<....P..CG).  

.....k..E..* ..$Fz....ud..Y4T{..V-k$N(..9..%p..G..$TT..oxf!..;..p.....C.....m..{..D'..eld[....a..H.....$.4]a.. ..p.....@....r....qlj..IG.  

7..3....\..>..c..o..Et..EZ..0..:..U..5k89e..9..j....'..EcdrL.....d0..(....`....S..Vo..18..R.....ahj6q.....s..K..Ri..^....>..@.."..0..u..!..I..o.....A..cdXX.*..3..kli..J..=..S..t.{..p..N.  

90..c.....&"..E..Aj.....1..E..}..a..0.....#.W..({..6..),..4..K.  

..Sl..H..$..Rm..d..`1  

.....J..OsR..m..uc..0.....t..u..U...  

5 client pkts, 603 server pkts, 7 turns.
```

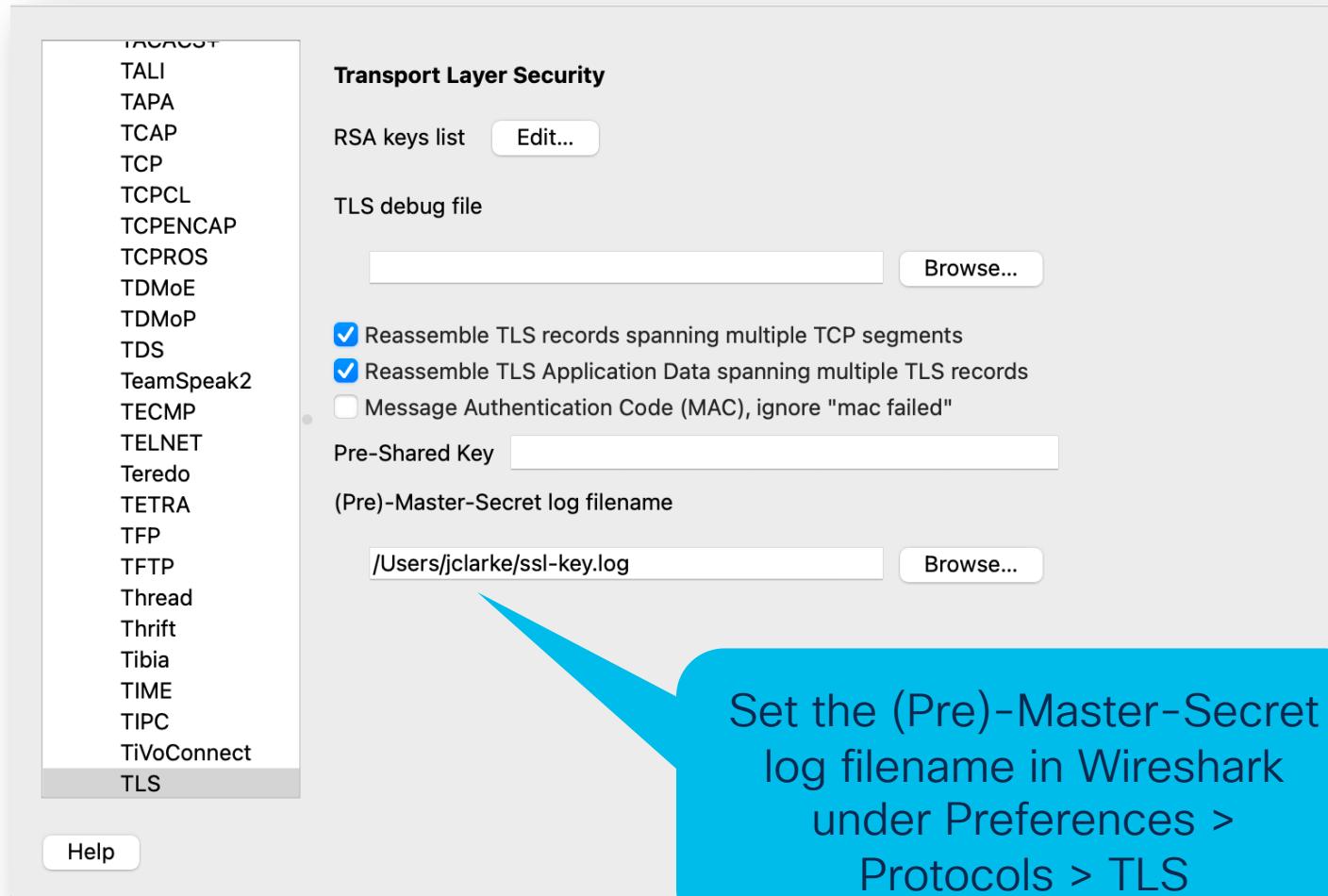
Well this isn't terribly useful...

# Decrypt the Things!

- Set the SSLKEYLOGFILE environment variable
- Refresh your environment (e.g., source your .bashrc)
- Restart your browser

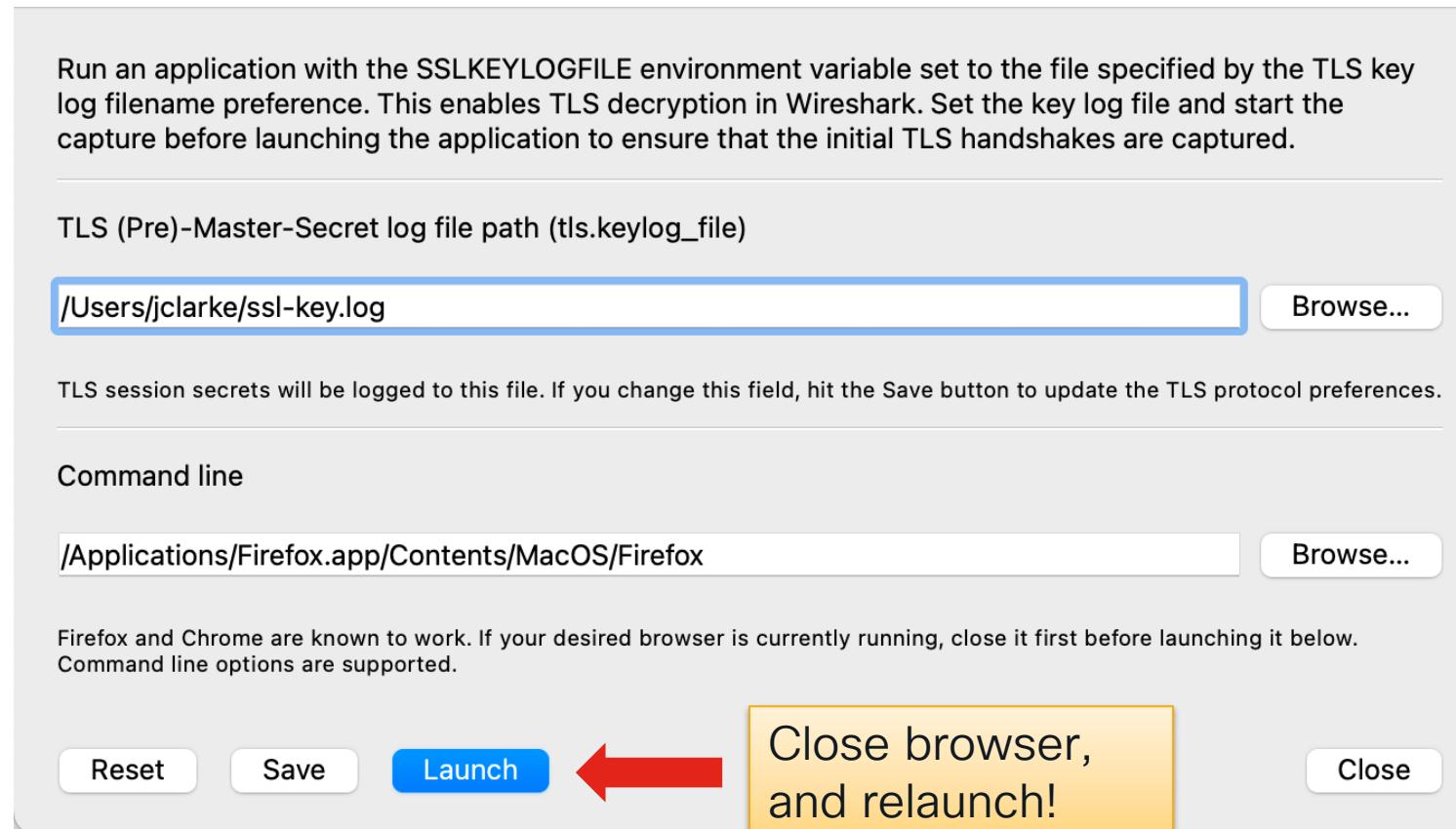
```
$ export SSLKEYLOGFILE=~/ssl-key.log  
$ open /Applications/Firefox.app
```

# Decrypt the Things!



# Wireshark 4.2 Makes It Easier

## Tools > TLS Keylog Launcher



# Decrypt the Things!

```
GET /git HTTP/1.1
Host: www.marcuscom.com
Connection: keep-alive
Pragma: no-cache
Cache-Control: no-cache
sec-ch-ua: "Google Chrome";v="113", "Chromium";v="113", "Not-A.Brand";v="24"
sec-ch-ua-mobile: ?0
sec-ch-ua-platform: "macOS"
Upgrade-Insecure-Requests: 1
User-Agent: Mozilla/5.0 (Macintosh; Intel Mac OS X 10_15_7) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/113.0.0.0 Safari/537.36
Accept: text/html,application/xhtml+xml,application/xml;q=0.9,image/avif,image/webp,*/*;q=0.8,application/signed-exchange;v=b3;q=0.7
Sec-Fetch-Site: none
Sec-Fetch-Mode: navigate
Sec-Fetch-User: ?1
Sec-Fetch-Dest: document
Accept-Encoding: gzip, deflate, br
Accept-Language: en-US,en;q=0.9
Cookie: lang=en-US; i_like_gogs=aae7ad4c5bb693b9; __csrf=el25xoAiIe009cwh6Es30Ng3WGU6MTY4NjA20Dcw0DA4NTUxMTk3NQ

HTTP/1.1 200 OK
Date: Tue, 06 Jun 2023 16:25:32 GMT
Server: Apache/2.4.57 (FreeBSD) OpenSSL/1.1.1t PHP/8.1.19 SVN/1.14.2
Content-Type: text/html; charset=UTF-8
X-Content-Type-Options: nosniff
X-Frame-Options: DENY
Keep-Alive: timeout=5, max=100
Connection: Keep-Alive
Transfer-Encoding: chunked

<!DOCTYPE html>
<html>
<head data-suburl="/git">
    <meta http-equiv="Content-Type" content="text/html; charset=UTF-8" />
    <meta http-equiv="X-UA-Compatible" content="IE=edge"/>

        <meta name="author" content="Gogs" />
        <meta name="description" content="Gogs is a painless self-hosted Git service" />
        <meta name="keywords" content="go, git, self-hosted, gogs">

    <meta name="referrer" content="no-referrer" />
    <meta name="__csrf" content="el25xoAiIe009cwh6Es30Ng3WGU6MTY4NjA20Dcw0DA4NTUxMTk3NQ" />
    <meta name="_suburl" content="/git" />

        <meta property="og:url" content="https://www.marcuscom.com/git/" />
        <meta property="og:type" content="website" />
```

Packet 32. 3 client pkts, 3 server pkts, 5 turns. Click to select.

# Profit!

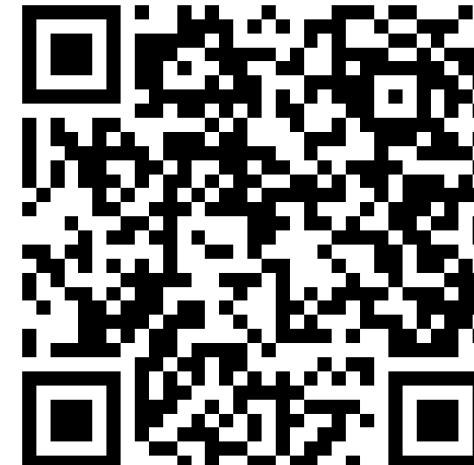
# It's Your Turn

- Get Wireshark (if you don't have it)
- Make use of its powerful features to rule your network
- Keep flowin'

Get Wireshark



These Slides (used to be CISCOU-2000)





The bridge to possible

# Thank you

cisco *Live!*

#CiscoLive