



TRACE THE WUMPUS

A text adventure on the net

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TRACE THE WUMPUS

A text adventure on the net

»An exciting simulated hunt in a hidden maze of caverns and twisting tunnels! Seek out the lair of the Wumpus, while avoiding perils along the way!«

Hunt the Wumpus (1973)



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Interactive text adventure

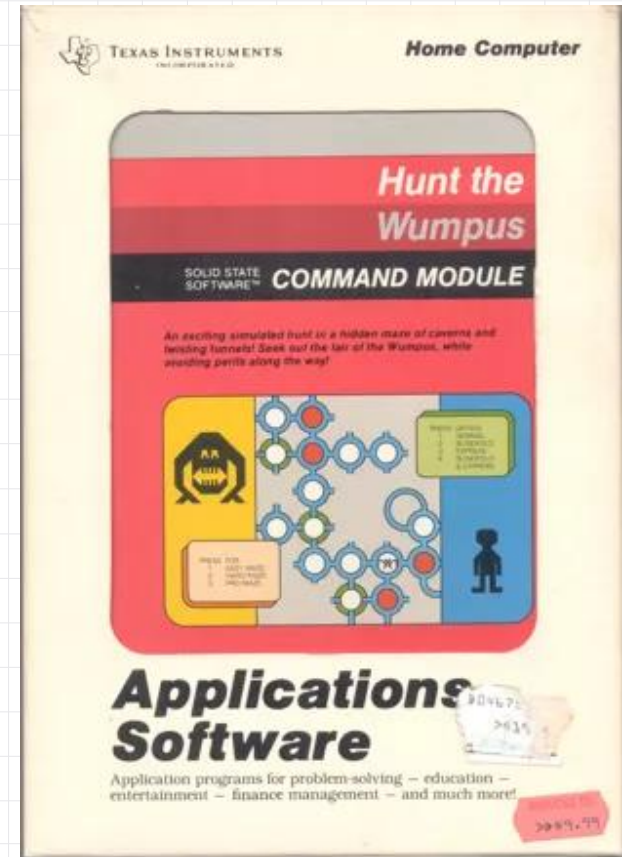
- ▶ Move through a cave with **interconnected rooms**
- ▶ Shoot up to 5 **crooked arrows** through multiple rooms
- ▶ Sharpen your senses for natural drafts and telling smells
- ▶ Hunt down **the Wumpus** – or die facing its hazards

Dangerous environment

- ▶ **Bottomless pits** in two rooms – *certain death*
- ▶ **Super bats** in two rooms – *random relocation*
- ▶ **Wumpus** in one room – *moves or kills when woken*

Non-grid-like map

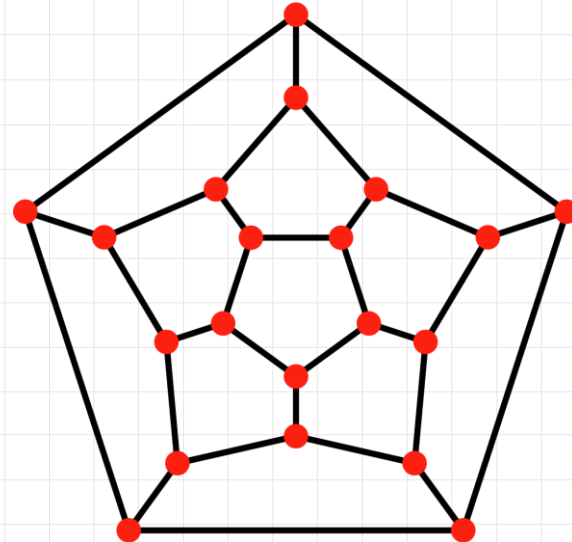
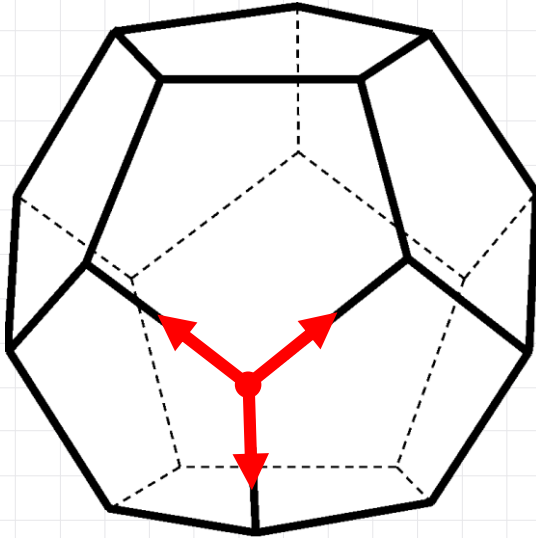
- ▶ 20 rooms with 3 tunnels per room
- ▶ Placed on vertices of a **dodecahedron**



Anyways...what is a dodecahedron?

The regular dodecahedron

- ▶ One of five **Platonic solids** (together with tetrahedon, cube, octahedron, and icosahedron)
- ▶ Consists of 12 regular **pentagonal** faces, i.e. 20 vertices (rooms) and 30 edges (tunnels)
- ▶ Can be projected onto two dimensions using a **Schlegel diagram** or a Hamilton cycle



Trace the Wumpus (2024)

Original game

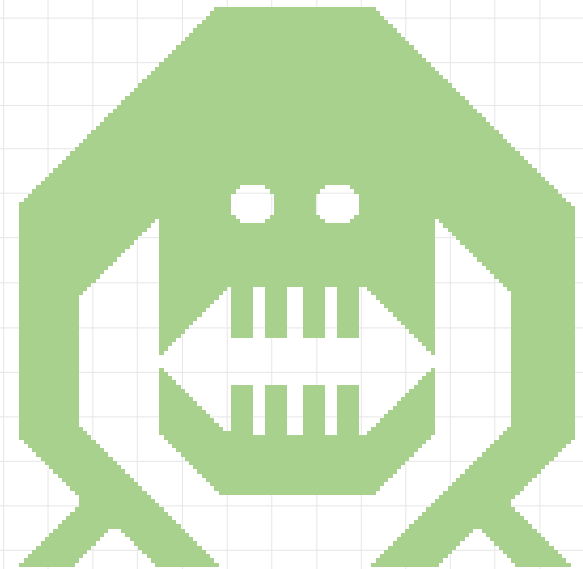
- ▶ 226 lines of **BASIC code** written by *Gregory Yob* in 1973
- ▶ Source code published in *Creative Computing* in 1975
- ▶ Several sequels and ports to various platforms

Revived game

- ▶ Use standard Linux/Windows/macOS **traceroute** as client
- ▶ Model commands as **forward DNS** traceroute targets
- ▶ Preregister complete game output in **reverse DNS**

Official release

- ▶ Scheduled **for this very moment** – i.e. now 😊
- ▶ No, I don't have any t-shirts – yet ^^



Trace the Wumpus (2024) – How to play (I)

```

~$ traceroute6 -f 8 -q 1 wumpus.quest
traceroute to wumpus.quest (2a06:2904::10:10:10), 30 hops max, 80 byte packets
 8  W-----W (2a06:2907::ff:ff:10) 32.379 ms
 9  W---WWWWWWW---WWWWWWW---WWWW---WWWWWWW---WWWWWWW-----W (2a06:2907::ff:ff:11) 56.951 ms
10  W---W--W--W--W---W---W---W---W---W---W---W---W-----W (2a06:2907::ff:ff:12) 69.030 ms
11  W-----W-----WWWWWWW---WWWW---W-----WWWW-----W (2a06:2907::ff:ff:13) 59.887 ms
12  W-----W-----W---W---W---W---W---W---W---W-----W (2a06:2907::ff:ff:14) 41.416 ms
13  W-----WWW---WW---WW---WW---WW---WWWWWWW---WWWWWWW-----W (2a06:2907::ff:ff:15) 44.857 ms
14  W-----W-----W-----W-----W-----W-----W-----W (2a06:2907::ff:ff:16) 62.604 ms
15  W-----WWWWWWW---WW---WW---WWWWWWW-----W (2a06:2907::ff:ff:17) 51.063 ms
16  W-----W--W--W---W---W---W---W---W-----W (2a06:2907::ff:ff:18) 53.221 ms
17  W-----W-----WWWW---WWWW-----W (2a06:2907::ff:ff:19) 47.669 ms
18  W-----W---W---W---W---W-----W (2a06:2907::ff:ff:1a) 38.514 ms
19  W-----WWW---WW---WW---WWWWWWW-----W (2a06:2907::ff:ff:1b) 74.751 ms
20  W-----W-----W-----W-----W-----W-----W-----W (2a06:2907::ff:ff:1c) 71.737 ms
21  W---WW-----WW---WW---WW---WW---WW---WWWWWWW---WW---WW---WWWWWWW---W (2a06:2907::ff:ff:1d) 35.490 ms
22  W---W---W---W---W---W---W---WW---W---W---W---W---W-----W (2a06:2907::ff:ff:1e) 26.461 ms
23  W---W--W--W---W---W---W---W---WWWWWWW---W---W---WWWWWWW---W (2a06:2907::ff:ff:1f) 65.190 ms
24  W---W---W---W---W---W---W---W---W---W---W---W-----W (2a06:2907::ff:ff:20) 55.469 ms
25  W---WW---WW---WWW---WW---WW---WW-----WWW---WWWWWWW---W (2a06:2907::ff:ff:21) 17.370 ms
26  W-----W-----W-----W-----W-----W-----W-----W (2a06:2907::ff:ff:22) 44.477 ms
27  W---NEW GAME---play.wumpus.quest-----HELP---help.wumpus.quest---W (2a06:2907::ff:ff:23) 18.802 ms
28  W-----W-----W-----W-----W-----W-----W-----W (2a06:2904::10:10:10) 33.176 ms

```

Trace the Wumpus (2024) – How to play (II)

```
~$ traceroute6 -f 8 -q 1 wumpus.quest
```

```
traceroute to wumpus.quest (2a06:2904::10:10:10), 30 hops max, 80 byte packets
```

8	W	(2a06:2907::ff:ff:10)	32.379 ms
9	W	(2a06:2907::ff:ff:11)	56.951 ms
10	W	(2a06:2907::ff:ff:12)	69.030 ms
11	W	(2a06:2907::ff:ff:13)	59.887 ms
12	W	(2a06:2907::ff:ff:14)	41.416 ms
13	W	(2a06:2907::ff:ff:15)	44.857 ms
14	W	(2a06:2907::ff:ff:16)	62.604 ms
15	W	(2a06:2907::ff:ff:17)	51.063 ms
16	W	(2a06:2907::ff:ff:18)	53.221 ms
17	W	(2a06:2907::ff:ff:19)	47.669 ms
18	W	(2a06:2907::ff:ff:1a)	38.514 ms
19	W	(2a06:2907::ff:ff:1b)	74.751 ms
20	W	(2a06:2907::ff:ff:1c)	71.737 ms
21	W	(2a06:2907::ff:ff:1d)	35.490 ms
22	W	(2a06:2907::ff:ff:1e)	26.461 ms
23	W	(2a06:2907::ff:ff:1f)	65.190 ms
24	W	(2a06:2907::ff:ff:20)	55.469 ms
25	W	(2a06:2907::ff:ff:21)	17.370 ms
26	W	(2a06:2907::ff:ff:22)	44.477 ms
27	W	(2a06:2907::ff:ff:23)	18.802 ms
28	W	(2a06:2904::10:10:10)	33.176 ms

WE HAVE A SCREEN OF 63 x 20 CHARACTERS that can be trimmed (-f) and stabilized (-q)

Trace the Wumpus (2024) – How to play (III)

```

~$ traceroute6 -f 8 -q 1 help.wumpus.quest
traceroute to help.wumpus.quest (2a06:2904::10:10:13), 30 hops max, 80 byte packets
 8  W-----W (2a06:2907::ff:ff:4c) 62.812 ms
 9  W--WELCOME.TO.TRACE.THE.WUMPUS-----W (2a06:2907::ff:ff:4d) 95.257 ms
10  W----THE.WUMPUS.LIVES.IN.A.CAVE.OF.20.ROOMS--EACH.ROOM-----W (2a06:2907::ff:ff:4e) 74.113 ms
11  W--HAS.3.TUNNELS.LEADING.TO.OTHER.ROOMS--LOOK.AT.A-----W (2a06:2907::ff:ff:4f) 56.114 ms
12  W--DODECAHEDRON.TO.SEE.HOW.THIS.WORKS--IF.YOU.DONT.KNOW-----W (2a06:2907::ff:ff:50) 92.559 ms
13  W--WHAT.A.DODECAHEDRON.IS.ASK.SOMEONE-----W (2a06:2907::ff:ff:51) 83.420 ms
14  W-----W (2a06:2907::ff:ff:52) 26.880 ms
15  W-----HAZARDS-----W (2a06:2907::ff:ff:53) 68.385 ms
16  W--BOTTOMLESS.PITS---TWO.ROOMS.HAVE.BOTTOMLESS.PITS.IN.THEM---W (2a06:2907::ff:ff:54) 65.621 ms
17  W-----IF.YOU.GO.THERE.YOU.FALL.INTO.THE.PIT--AND.LOSE-----W (2a06:2907::ff:ff:55) 88.876 ms
18  W--SUPER.BATS---TWO.OTHER.ROOMS.HAVE.SUPER.BATS--IF.YOU-----W (2a06:2907::ff:ff:56) 85.648 ms
19  W-----GO.THERE.A.BAT.GRABS.YOU.AND.TAKES.YOU.TO.SOME.OTHER---W (2a06:2907::ff:ff:57) 77.328 ms
20  W-----ROOM.AT.RANDOM--WHICH.MIGHT.BE.TROUBLESOME-----W (2a06:2907::ff:ff:58) 70.953 ms
21  W-----W (2a06:2907::ff:ff:59) 80.394 ms
22  W--NEW.GAME--play.wumpus.quest--CONTINUE--help.wumpus.quest--W (2a06:2907::ff:ff:5a) 41.372 ms
23  W-----W (2a06:2904::10:10:13) 59.378 ms
  
```

COMMANDS ARE INVOKED BY TRACEROUTING SUBDOMAINS

Trace the Wumpus (2024) – Let's go hunting (I)

```
~$ traceroute6 -f 8 -q 1 play.wumpus.quest
traceroute to play.wumpus.quest (2a06:2904::10:10:12), 30 hops max, 80 byte packets
 8  W-----W (2a06:2907::ff:ff:cb) 39.869 ms
 9  W--TRACE.THE.WUMPUS-----W (2a06:2907::ff:ff:c4) 48.953 ms
10  W-----W (2a06:2907::ff:ff:cb) 53.075 ms
11  W--YOU.ARE.IN.ROOM-16-----W (2a06:2907::ff:ff:97) 36.391 ms
12  W--TUNNELS.LEAD.TO-15-17-20-----W (2a06:2907::ff:ff:b5) 27.204 ms
13  W-----W (2a06:2907::ff:ff:cb) 32.963 ms
14  W--MOVE---move.ROOM.wumpus.quest-----W (2a06:2907::ff:ff:c9) 43.015 ms
15  W--SHOOT--shoot.ROOM1.ROOMX.wumpus.quest-----W (2a06:2907::ff:ff:ca) 30.387 ms
16  W-----W (2a06:2904::10:10:12) 45.608 ms
```

EACH GAME STARTS AT A RANDOM LOCATION ON THE MAP

Trace the Wumpus (2024) – Let's go hunting (II)

```

~$ traceroute6 -f 8 -q 1 move.20.wumpus.quest
traceroute to move.20.wumpus.quest (2a06:2905::10:10:24), 30 hops max, 80 byte packets
 8  W-----W (2a06:2907::ff:ff:cb) 49.915 ms
 9  W--BATS.NEARBY-----W (2a06:2907::ff:ff:d9) 47.119 ms
10  W-----W (2a06:2907::ff:ff:cb) 43.860 ms
11  W--YOU.ARE.IN.ROOM-20-----W (2a06:2907::ff:ff:9b) 34.346 ms
12  W--TUNNELS.LEAD.TO-13-16-19-----W (2a06:2907::ff:ff:b9) 37.324 ms
13  W-----W (2a06:2907::ff:ff:cb) 40.889 ms
14  W--MOVE---move.ROOM.wumpus.quest-----W (2a06:2907::ff:ff:c9) 26.946 ms
15  W--SHOOT--shoot.ROOM1.ROOMX.wumpus.quest-----W (2a06:2907::ff:ff:ca) 58.124 ms
16  W-----W (2a06:2905::10:10:24) 54.022 ms
    
```

WE ALWAYS GET A GLIMPSE INTO NEIGHBORING ROOMS

Trace the Wumpus (2024) – Let's go hunting (III)

```

~$ traceroute6 -f 8 -q 1 move.19.wumpus.quest
traceroute to move.19.wumpus.quest (2a06:2905::10:10:23), 30 hops max, 80 byte packets
 8  W-----W (2a06:2907::ff:ff:cb) 42.850 ms
 9  W--I.SMELL.A.WUMPUS-----W (2a06:2907::ff:ff:d8) 59.955 ms
10  W-----W (2a06:2907::ff:ff:cb) 56.573 ms
11  W--YOU.ARE.IN.ROOM-19-----W (2a06:2907::ff:ff:9a) 28.844 ms
12  W--TUNNELS.LEAD.TO-11-18-20-----W (2a06:2907::ff:ff:b8) 47.775 ms
13  W-----W (2a06:2907::ff:ff:cb) 50.178 ms
14  W--MOVE---move.ROOM.wumpus.quest-----W (2a06:2907::ff:ff:c9) 62.512 ms
15  W--SHOOT--shoot.ROOM1.ROOMX.wumpus.quest-----W (2a06:2907::ff:ff:ca) 53.715 ms
16  W-----W (2a06:2905::10:10:23) 66.820 ms
    
```

WE DON'T WANT TO BUMP A WUMPUS – SHOOT IT FROM AFAR

Trace the Wumpus (2024) – Let's go hunting (IV)

```

~$ traceroute6 -f 8 -q 1 shoot.18.wumpus.quest
traceroute to shoot.18.wumpus.quest (2a06:2906::10:10:22), 30 hops max, 80 byte packets
 8  W-----W (2a06:2907::ff:ff:cb) 70.798 ms
 9  W--AHA---YOU.GOT.THE.WUMPUS-----W (2a06:2907::ff:ff:ee) 60.103 ms
10  W-----W (2a06:2907::ff:ff:cb) 76.536 ms
11  W--HEE.HEE.HEE---THE.WUMPUS.WILL.GETCHA.NEXT.TIME-----W (2a06:2907::ff:ff:c5) 63.207 ms
12  W-----W (2a06:2907::ff:ff:cb) 49.027 ms
13  W--NEW.GAME--play.wumpus.quest-----W (2a06:2907::ff:ff:c7) 30.882 ms
14  W--RESET.GAME--replay.wumpus.quest-----W (2a06:2907::ff:ff:c8) 66.168 ms
15  W-----W (2a06:2906::10:10:22) 73.438 ms

```

IT IS A THRILLING CAT-AND-MOUSE-GAME

Trace the Wumpus (2024) – Hidden features (I)

```
~$ traceroute6 -f 8 -q 1 map.wumpus.quest
```

```
traceroute to map.wumpus.quest (2a06:2904::10:10:14), 30 hops max, 80 byte packets
```

8	W-----W	(2a06:2907::ff:ff:2e)	38.722 ms
9	W--The.WUMPUS-----WWWWW-01-WWWW-----W	(2a06:2907::ff:ff:2f)	26.558 ms
10	W--Dodecahedron-----WWW-----WW-----WWW-----W	(2a06:2907::ff:ff:30)	62.984 ms
11	W-----WWW-----08-----WWW-----W	(2a06:2907::ff:ff:31)	68.847 ms
12	W-----WWW-----WW-WW-----WWW-----W	(2a06:2907::ff:ff:32)	35.721 ms
13	W-----WWW-----WW-----WW-----WWW-----W	(2a06:2907::ff:ff:33)	29.347 ms
14	W-----WWW-----WWW-07-----09-WWW-----WWW-----W	(2a06:2907::ff:ff:34)	53.779 ms
15	W-----05-WWW-WWW-----WW-----WW-----WWW-WWW-02-----W	(2a06:2907::ff:ff:35)	65.416 ms
16	W-----WW-----06-----17-WW-18-----10-----WW-----W	(2a06:2907::ff:ff:36)	45.107 ms
17	W-----WW-----WW-----WW-----WW-----WW-----WW-----W	(2a06:2907::ff:ff:37)	47.944 ms
18	W-----WW-----WW-----WW-----WW-----WW-----WW-----W	(2a06:2907::ff:ff:38)	42.286 ms
19	W-----WW-----15-WW-16-----19-WW-11-----WW-----W	(2a06:2907::ff:ff:39)	51.024 ms
20	W-----WW-----WW-----WW-----WW-----WW-----WW-----W	(2a06:2907::ff:ff:3a)	71.427 ms
21	W-----WW-----WW-----20-----WW-----WW-----W	(2a06:2907::ff:ff:3b)	56.744 ms
22	W-----WW-----WW-----WW-----WW-----WW-----W	(2a06:2907::ff:ff:3c)	32.964 ms
23	W-----WW-----WW-----13-----WW-----WW-----W	(2a06:2907::ff:ff:3d)	59.706 ms
24	W-----WW-----14-WWWWWW-----WWWWW-12-----WW-----W	(2a06:2907::ff:ff:3e)	54.146 ms
25	W-----WW-----WW-----WW-----WW-----W	(2a06:2907::ff:ff:3f)	55.833 ms
26	W-----04-WWWWWW-WWWWWW-WWWW-WWWW-WWWW-WWWW-WWWW-WWWW-03-----W	(2a06:2907::ff:ff:40)	57.791 ms
27	W-----W	(2a06:2904::10:10:14)	59.450 ms

Trace the Wumpus (2024) – Hidden features (II)

```
~$ traceroute6 -f 8 -q 1 score.wumpus.quest
```

```
traceroute to score.wumpus.quest (2a06:2904::10:10:15), 30 hops max, 80 byte packets
```

8	W-----W	(2a06:2907::11:10:10:10)	44.633 ms
9	W--WW-----WW--WW--WW--WW--WW--WWWWWWW--WW--WW--WWWWWW--W	(2a06:2907::11:10:10:11)	47.697 ms
10	W---W--W--W--W--W--W---WW-WW---W---W--W--W--W-----W	(2a06:2907::11:10:10:12)	63.271 ms
11	W---W-W-W-W-W---W--W---W-W-W---WWWWWWW--W--W--WWWWWW--W	(2a06:2907::11:10:10:13)	27.519 ms
12	W---W--W-----W--W---W--W---W-----W--W-----W--W	(2a06:2907::11:10:10:14)	66.723 ms
13	W---WW--WW-----WWW--WW--WW--WW-----WWW--WWWWWW--W	(2a06:2907::11:10:10:15)	53.865 ms
14	W-----W	(2a06:2907::11:10:10:16)	56.956 ms
15	W--HIGH.SCORE--score.wumpus.quest-----W	(2a06:2907::11:10:10:17)	50.573 ms
16	W-----W	(2a06:2907::11:10:10:18)	59.668 ms
17	*		
18	*		
19	*		
20	*		
21	*		
22	*		
23	*		
24	*		
25	*		
26	*		
27	W-----W	(2a06:2907::ff:ff:cb)	25.903 ms
28	W--NEW.GAME--play.wumpus.quest-----W	(2a06:2907::ff:ff:c7)	18.430 ms
29	W-----W	(2a06:2904::10:10:15)	29.565 ms

PUTTING MY MANRS ASIDE...FOR A SPOOFED HIGH SCORE LIST
Also check out round trip times (1 ms ≈ one second played)

Trace the Wumpus (2024)

WHAT THE FORK?

```
~$ traceroute6 wumpus.quest
```


Trace the Wumpus (2024) – Not available on IPV4

```
~$ traceroute -f 9 -q 1 wumpus.quest
```

```
traceroute to wumpus.quest (194.145.125.135), 30 hops max, 60 byte packets
```

```
 9  W-----W (194.145.125.147) 23.836 ms
10  W--WELCOME.TO.TRACE.THE.WUMPUS-----W (194.145.125.146) 43.844 ms
11  W----THE.WUMPUS.LIVES.IN.A.CAVE.OF.20.ROOMS--EACH.ROOM-----W (194.145.125.145) 40.354 ms
12  W--HAS.3.TUNNELS.LEADING.TO.OTHER.ROOMS--LOOK.AT.A-----W (194.145.125.144) 55.933 ms
13  W--DODECAHEDRON.TO.SEE.HOW.THIS.WORKS--IF.YOU.DONT.KNOW-----W (194.145.125.143) 48.479 ms
14  W--WHAT.A.DODECAHEDRON.IS.ASK.SOMEONE-----W (194.145.125.142) 73.799 ms
15  W-----W (194.145.125.141) 62.962 ms
16  W--HUNT.THE.WUMPUS-1973-----W (194.145.125.140) 36.706 ms
17  W----BY.GREGORY.YOB-----W (194.145.125.139) 51.342 ms
18  W----REVIVED.AT.LEITWERT.NET-----W (194.145.125.138) 59.134 ms
19  W-----W (194.145.125.137) 66.558 ms
20  W--THIS.GAME.CANNOT.BE.PLAYED.ON.IPV4--START.USING.IPV6-----W (194.145.125.136) 32.467 ms
21  W-----W (194.145.125.135) 69.779 ms
```

HOW TO DEDICATE A /25 FOR AN IPV4 GRAVESTONE

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ADDRESS

WE'RE HIRING

OOPS – BUMPED A WUMPUS
START USING **IPV6** TODAY