

Ridgewood Commons provides free internet access over two wireless networks. The network buildout and maintenance has been the result of many contributors over the years. This snapshot of understanding and opinions is an invite for discussion, disagreement, and reflection.

I hope to build our resilience and have fun maintaining our network. I also kinda owe it to RC Tech & Comms since I've been noodling with the system a bit.

[Tasks up on vikunja](#)

Forward

Why write this?

because micro's memory of conversations is poor

to help [RC Tech & Comms](#) more safely and swiftly respond to changing community internet needs to improve the resiliency of the space, and extend that resiliency to our neighbors

How we help each other

Folks with **interests and expertise beyond technical** can share their values, so we can maintain a network that reflects those values.

Folks with technical interest or expertise can **help demystify what the internet is**, making it knowable and malleable.

How to get involved

Reach out to [RC Tech & Comms](#), directly or indirectly. Introduce yourself when you see someone messing with big loops of wire or electronics with blinking lights. I'm probably gonna do office hours, using a tool a community member made to help find a good time for us to do so.

The networks

We operate two semi-public networks for use in the space. One network is commercial provided by verizon, and the wifi named `RidgewoodCommons` is the advertised way to connect in the space, complete with silly-hard-to-say-aloud password with qr code that works-ish. The second network

`RidgewoodCommonsMesh` is provided by [NYC Mesh](#), **a community and volunteer run internet provider**. No commercial interests, just neighbors sharing wifi with each other, [really well](#)

[documented operations](#) complete with considerations. Reading some of the writing on that wiki directly motivated me to fill out this page.

RidgewoodCommons

We pay around \$85/mo for Verizon. They have provided internet that people expect to have in a community space, and especially as a requirement for coworking, and expectation for events. Its fine, but also fuck Verizon. So here are the details:

There is a modem and router in the gym. The router provides wifi, dhcp, and hopefully (we should audit) nothing else. I also heard Common Strength will reach new PRs with the electronics removed, since members won't have to hold back as a courtesy to the network.

device	does what	model	notes
WiFi Router	wifi + dhcp + ???	Verizon Something	password on router or ask rc tech
Modem / ONT	gateway to internet	Verizon Something	

RidgewoodCommonsMesh (Under Testing)

We donate \$0/month to [NYC Mesh](#), a volunteer-run, community organized internet service provider. I gushed above about what the org does. Currently we are upgrading our connection to the wider mesh, and asking folks to try it out but that it is unstable. If you are interested reach out, we will announce when we are more confident in taking on more testers.

The mess of electronics mounted on the southeast (right) wall under the projector screen is the inside half of our network. The outside half is up on the roof, which connects us to the wider mesh and eventually to the internet.

If you connect to `RidgewoodCommonsMesh` your device will receive a DHCP address by the raspberry pi in `10.70.127.1/24`. This pi on the wall network **peers** with a omnitik on the roof network over a protocol called BGP. (TODO: is this iBGP? is everything in the mesh iBGP? If Ridgewood Commons applied for an AS number, we could make it iBGP right? Is the specialness of the mesh that its the most open AS to be a part of?)

This means the board in the basement is a complete, literal example of how the internet works. If you think this is cool, then you are cool. ☐☐

location	model	service	notes	power	\$
wall	Ubiquiti Unifi UAP-AC Pro	<code>RidgewoodCommonsMesh</code> access point	OpenWRT 25	9W	120
wall	Netgear GS308EP manual	10.70.127.9 VLAN port mapping PoE+	60W PoE+ 30W/port	6W	80

wall	Raspberry Pi 4 Model B PoE+ Hat	DHCP 10.70.127.1/24 Mesh 10.69.2.154/32 Web Server	Arch Linux Arm linux-rpi kernel ipv4 forwarding	15W	145
wall	RPi 7" touchscreen	hypno-animation	~/fb16/build/bin/t estLines	1W	40
roof	Mikrotik Omnitik	Mesh peer 10.69.2.54/32 [future] switch + wds??	PoE + switch, bird, routing solarprotocol	18W	120
roof	Ubiquiti Litebeam AC Gen 1/2	5Ghz gateway to vernon		7W	75
roof	AF60-LR	60Ghz gateway to vernon		18W	270
roof	sxtsq ac?	router offload for omnitik	TODO: make router	6W	70

VLAN

To have our own network, the pi is the dhcp server and router. The pi only has 1 ethernet port, so we use a vlan to create a second virtual cable. **Ports 2 and 7 are the special ones.**

port	mode	pvid (primary vlan id)	vlan memberships
1	trunk	1	1U
2	trunk	1	1U, 52T
3	trunk	1	1U
4	trunk	1	1U
5	trunk	1	1U
6	trunk	1	1U
7	access	52	52U
8	trunk	1	1U

[ridgewood-commons-mesh-inside.jpg](#)[nycmesh-roof-install](#)

Technical Details

A ton of random things to know

Router Setup

```
/etc/sysctl.d/10-enable-ipv4-forwarding.conf
```

```
net.ipv4.forward = 1
```

Peering with the roof

```
[root@alarm ~]# birdc show ospf neighbors
```

```
BIRD 3.2.0 ready.
```

```
ospf1:
```

Router ID	Pri	State	DTime	Interface	Router IP
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10.69.2.54	1	Full/PtP	38.928	end0.52	10.69.2.54
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