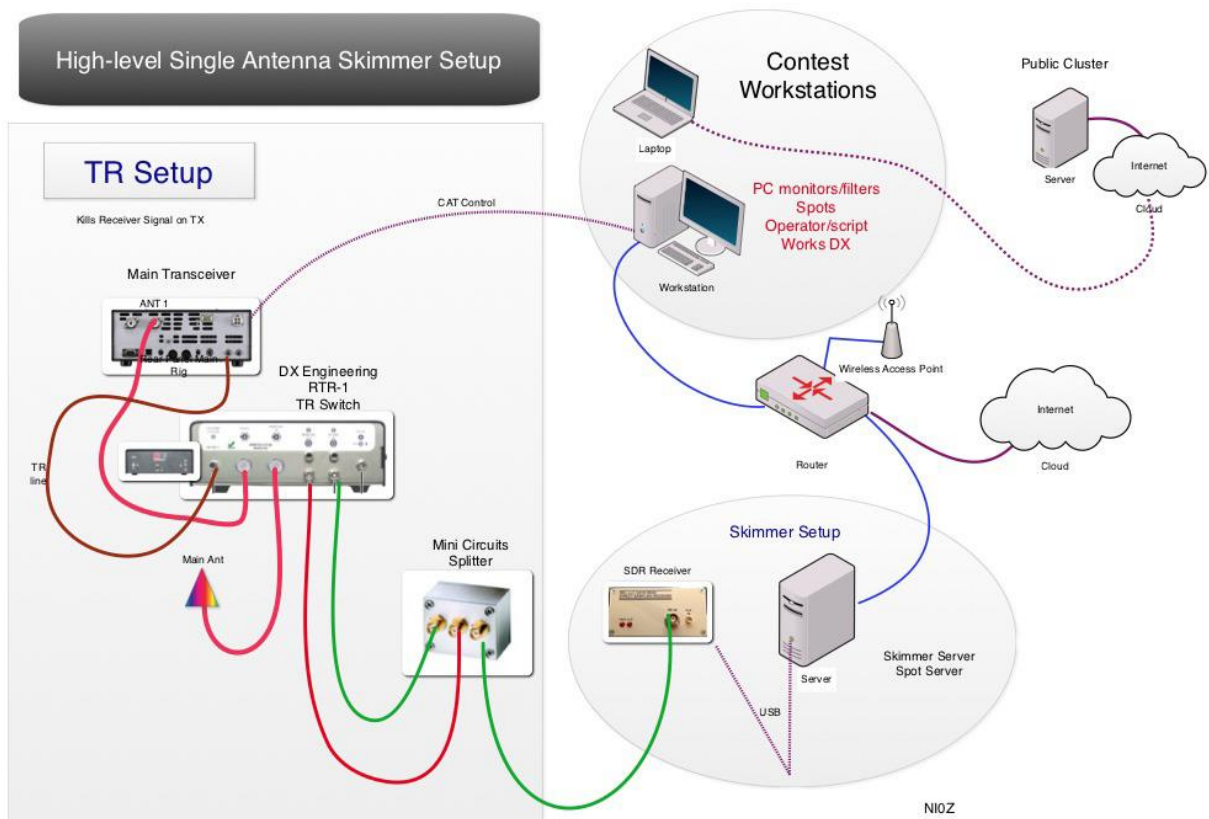


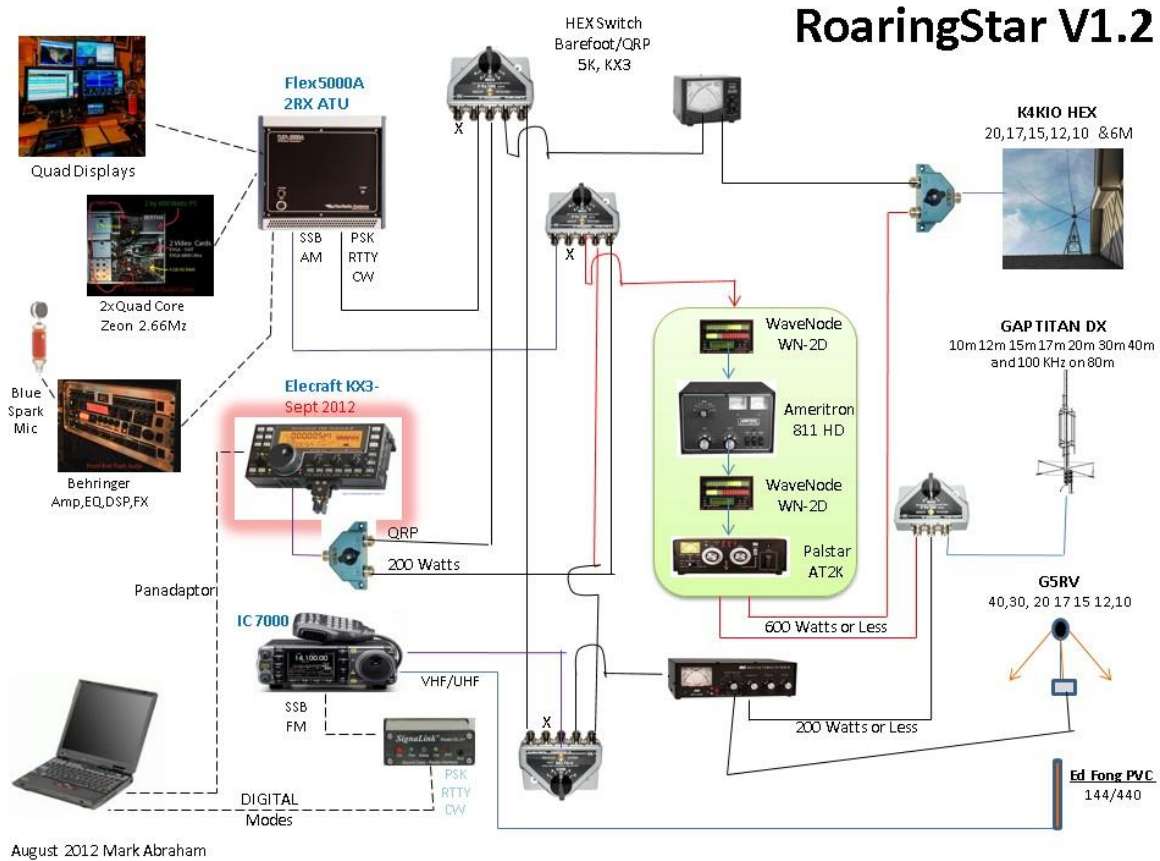
Shack Diagrams



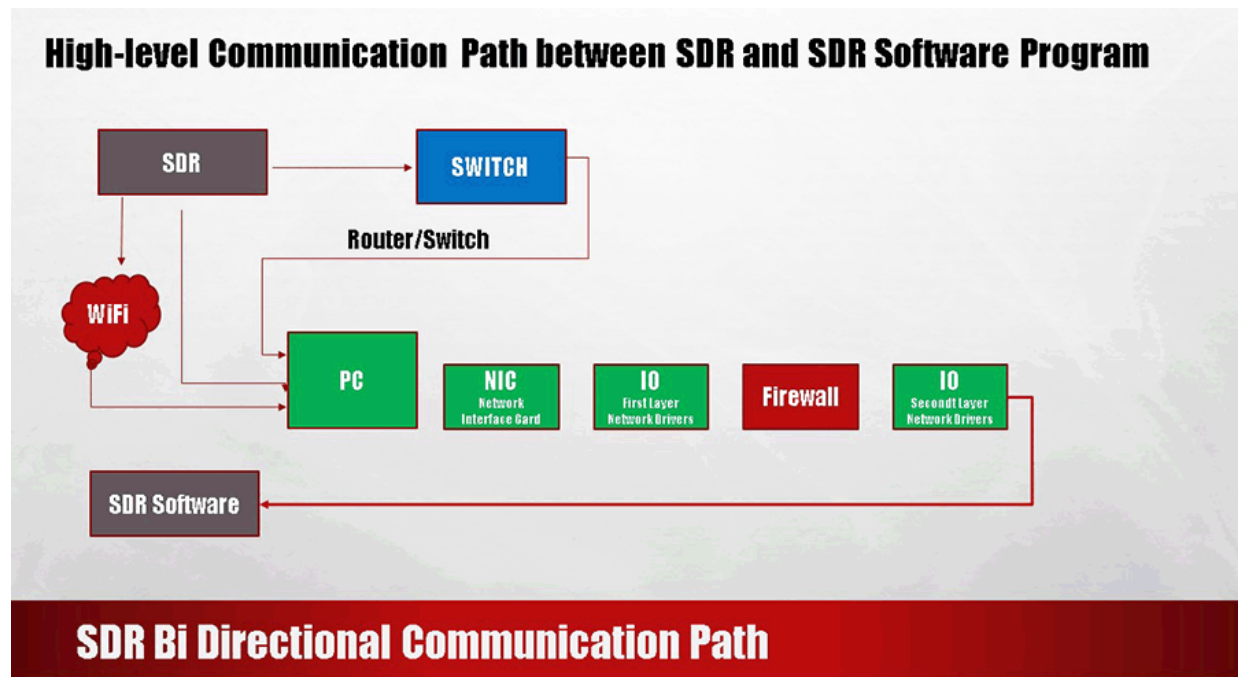
One can ham quite a lot just at the drawing board alone. I have spent quite a few hours lately documenting my shack and also plotting out the future.

In the past I have used various tools to develop diagrams. You may recall these diagrams in the earlier articles on DDC SDRs.

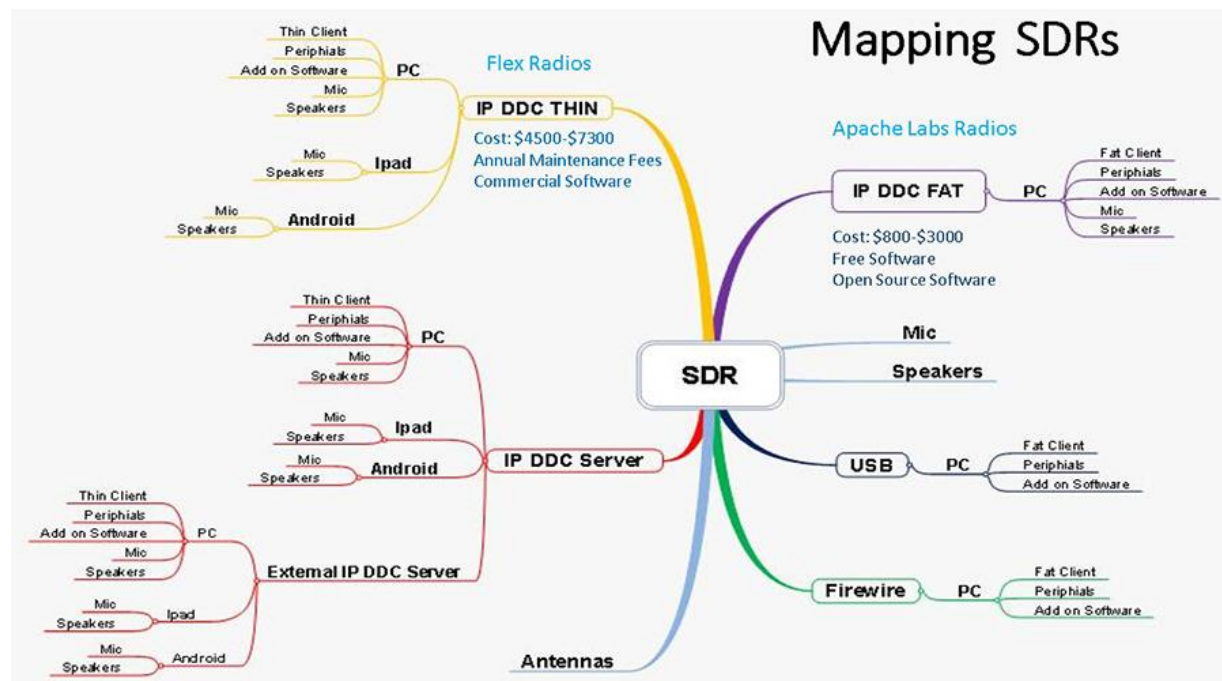
This one (created in PowerPoint) dates back to 2012 where I was planning for the arrival of my KX3.



This one was created in ole MS PowerPoint for the DDC SDR article.



This next one was created in a tool called Mind Mapper. There are lots of mind mapping tools and they are fabulous tools for exploring ideas, relationships, flows ect. If you have not played with mind maps yet, google it and explore what you find, you may be impressed as this map here is a very simple example of what can be done.



The rest of this article shows diagrams from a tool called Grafiio on the iPad. Grafiio is very flexible and can be used to create all kinds of diagrams as well.

It's no mystery that a great part of my hamming is building up the shack and striving to get it just so! Diagramming with Grafiio on my iPad has really added to my fun as well as enabled me to virtually explore various configurations.

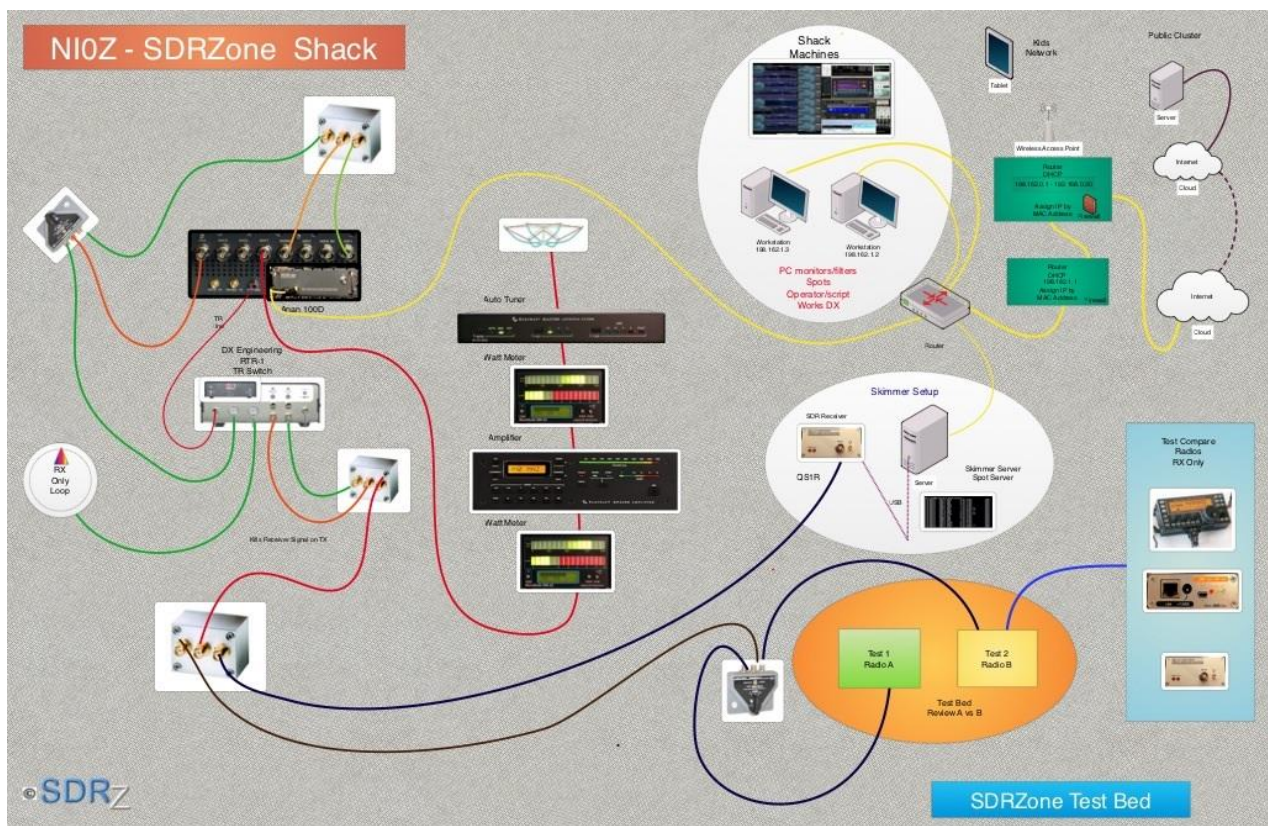
Adding equipment often requires new switching schemes. The switching is required to access the three different HF antennas in my shack. The main antenna is a K4KIO hex beam mounted on a roof tower at 35 feet. The secondary's are a G5RV and a Wellbrook Loop.

The idea is for the switching matrix to allow any radio to access any antenna. The second objective via splitting is to allow the loop to be used as a second antenna for diversity reception and also service skimmer on the QS1R. The scheme must also protect receive only radios or secondary receivers when any transceiver transmits by cutting of the receive lines.

It's harder to accomplish than you might think!

These are great puzzles as not only do you want to manage the complex switching schemes, you also want to minimize switches, cables and splitters as each break point from the primary antenna results in insertion loss and each signal split results in a 3db loss as well as insertion loss. If you go crazy with switches and splitters you can end up losing quite a bit of your signal.

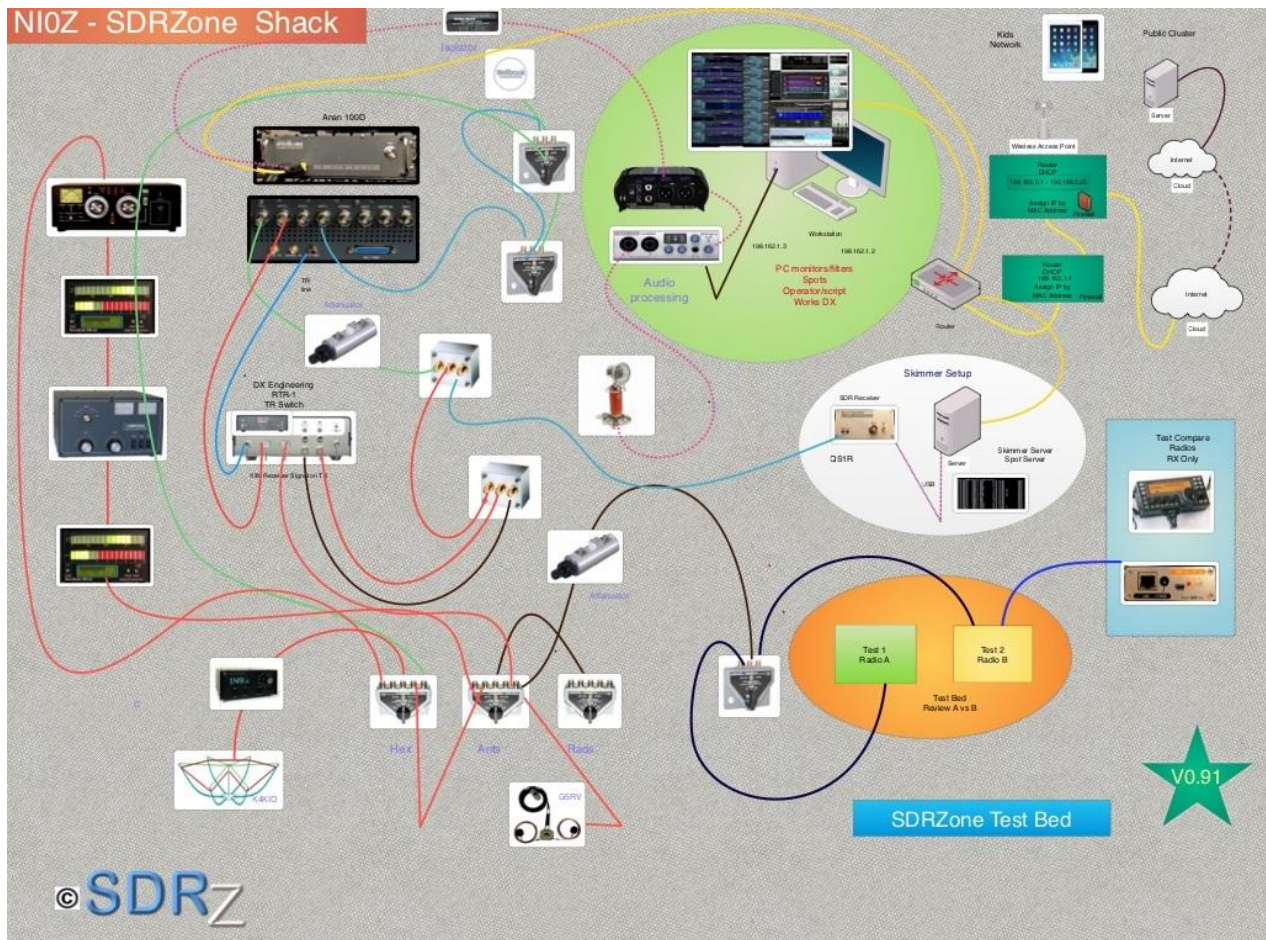
Let's take a look at a diagram!



In diagram above created some months ago to support the QS1R review I started to hash out the foundation of how my shack was setup while not fully flushing it out as to distract from showing a skimmer setup.

This diagram though was not well structured and didn't really cover where I was headed next with switching.

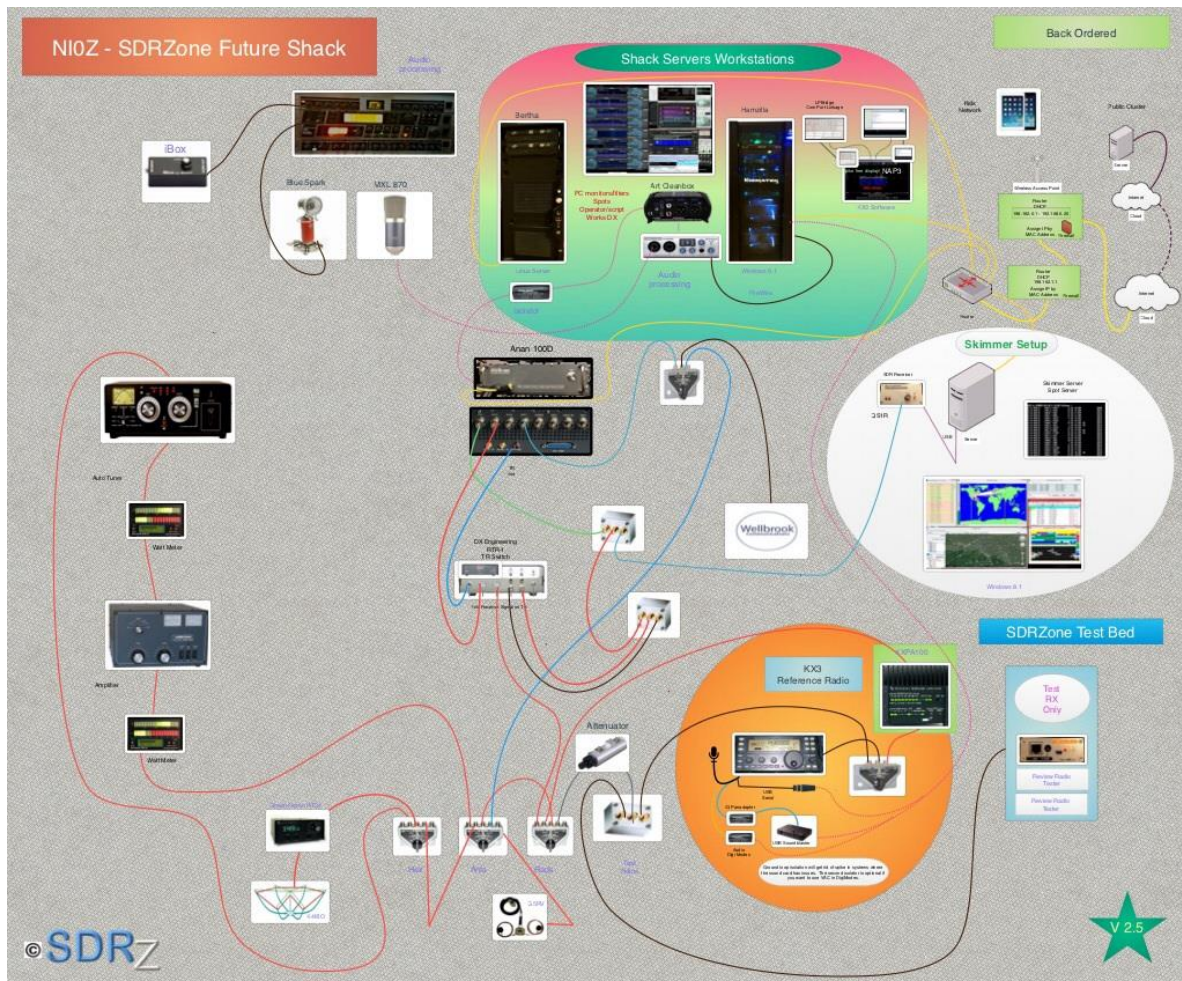
In December over break I had time to rework parts of my shack as posted here before in my blog and I laid the foundation for a future switching scheme. I started to document it and recently emerged with this version.



You can see more structure and organization around the switches and a reflection of the actual equipment in my shack.

Technically this reflects where things roughly stand from a connectivity basis, however, it's still not how I really want to depict things, and the wiring is a little messier than I would like.

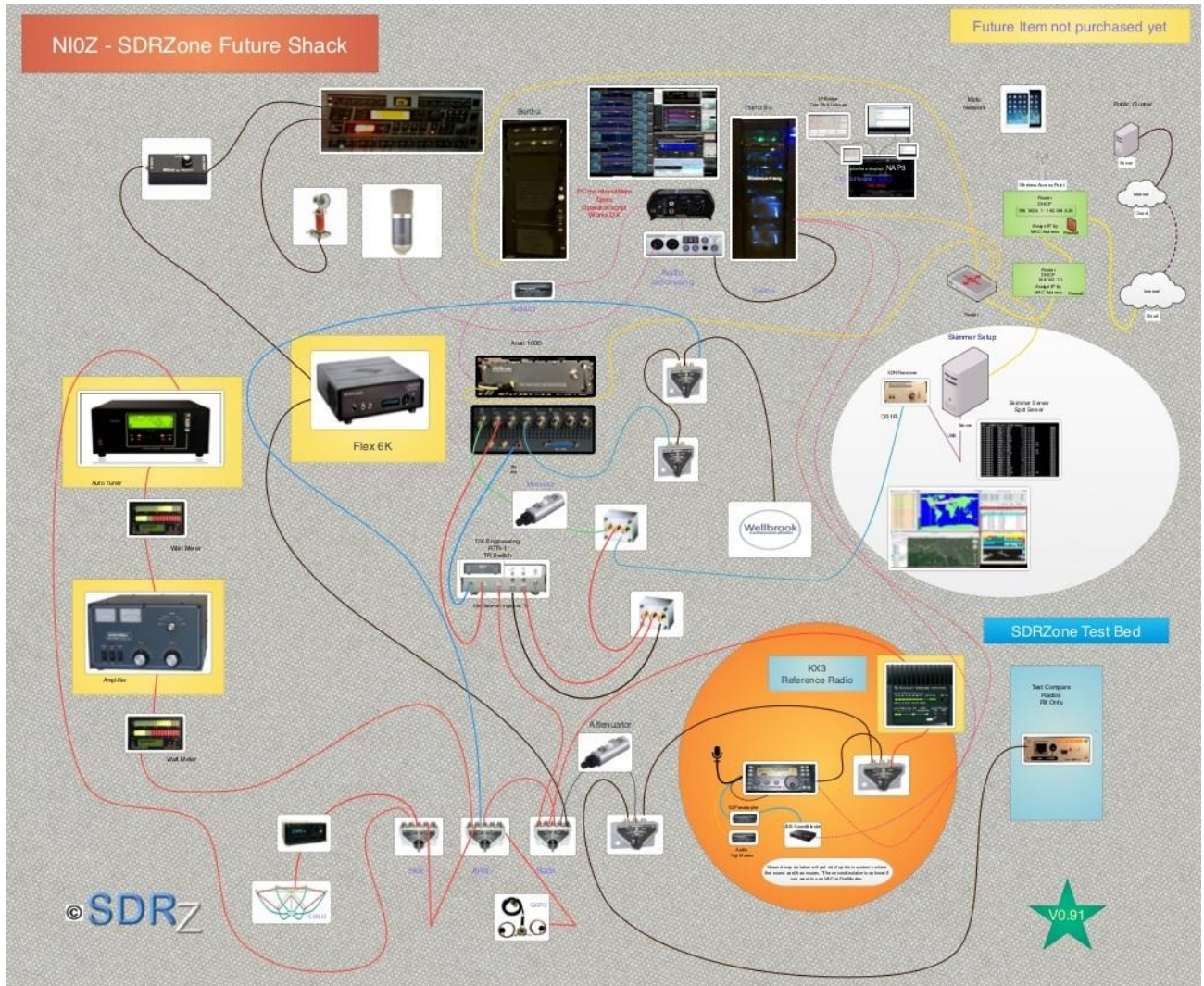
Note, this is the first time I started adding in some of the audio processing into these diagrams. This diagram also shows the variable attenuator inserted in the 2nd receiver line which was used to watch a split signal on the Anan's receivers. Moving forward it will get moved over to the test bed so the presplit signal before it goes to the two radios being compared so we can see the affects of the signal being gradually attenuated and how each performs.



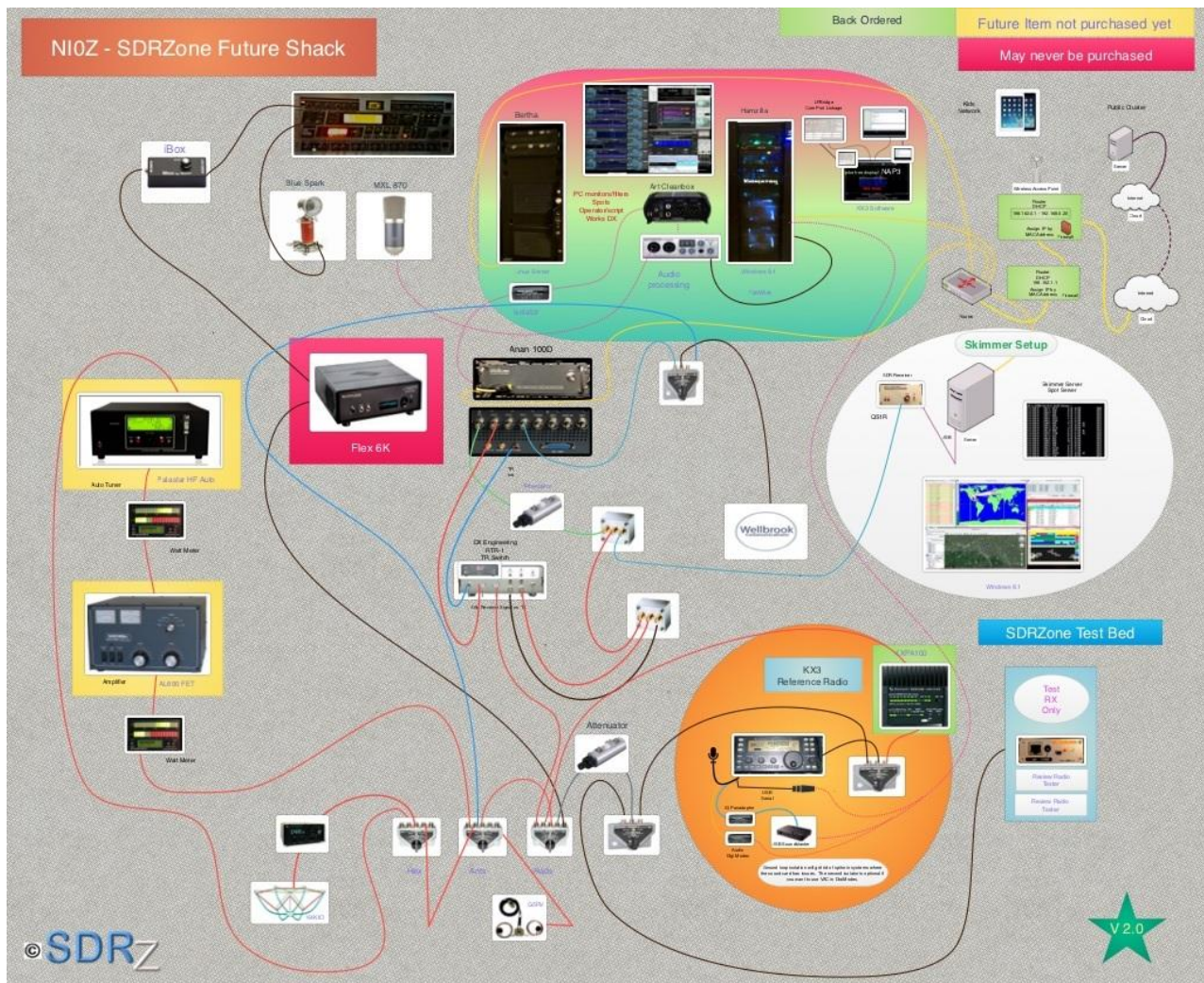
In the next version I wanted to better represent integrating the KX3, show real computers, add the KXPA100 amp that's on order and represent my first attempt at managing switching. The audio rack (not used right now)

was added and more splitters are starting to be added. The wiring was neatened up a bit as well. Also I wanted to start spreading things out a bit for expandability.

The next diagram below attempts to show how I can weave the KX3 in as the main transceiver and turn the Anan into a band monitor using Studio 1.



This last diagram shows new equipment (new amp and new auto tuner).



Once you build these you can reuse and replan diagrams. You can clone and rename and then rearrange.

Believe it or not, I still have a lot of exploring to do and it may even require me to fundamentally change everything. The goal being to avoid the need for another DX Engineering device. I still feel things can be further simplified.

Other things one gleans from these is that as much as I might like a flex 6k series, all this playing really makes it redundant. Quite frankly these diagrams have saved me money and allowed me to explore possibilities without spending any money at all. While I seemingly have a lot of switches, you have no idea how many I had I the first iterations. The

diagrams allowed me to start fat and simple and then analyze how to reduce and simplify.

Well, hopefully this has helped show their utility and gives you ideas on making your own diagrams. Grafio is very affordable for the iPad and you can use other packages to create these per your own preference and device of choice.

Shack diagrams allow you to ham even when your shack is miles away!