Instructions for Getting Zoom to Display on a Large Screen TV
by Jim Morgenstern

Contemplating the bleakness of celebrating High Holiday services at home on my tiny screen I decided that I would make Zoom happen on my big TV screen in the living room, thereby making more of a common experience for my family. I found that it was both easy to do and highly non-trivial! I am writing to share with the community the how-to of it, to encourage them to try it and to offer to help them to do this as well.

Overview: Typically we use a small device that accesses the internet to connect to Zoom [or YouTube!] and hence to BIC services. This may be a Windows PC laptop or desktop, Apple laptop, cell phone or Tablet of either Android or Apple iOS persuasion. The large screen we can easily share is any TV but with some restrictions discussed below.

First off, there are two different techy buzz words that seem to be interchangeable but they actually mean different things:
* Mirror or mirroring is when the large TV screen reproduces the images and sound from the small screen device.
* Cast or casting is when the large TV screen can receive pictures or video and/or sound from an app running on the small device.

We will want to *Mirror* onto the TV because Zoom [app or the Zoom tab on a browser] is technically not capable of 'casting'.

In every event, it is important to remember that the small device [phone/tablet/laptop etc.] is the device actually in communication with the internet and is the device that has the TVcamera and/or microphone to communicate back to the Zoom meeting; hence it is always on during a Zoom service and simultaneously transmitting the video and audio to the mirroring device. We are not replacing the small device -- just enabling a larger display in parallel.

The actual steps to mirror onto a TV seems to be different for every TV/streaming device/tablet/laptop/cell phone. So the best I can do here is describe some ways that this happens and suggest tactics and resources. There are some general rules that can be followed:

Broadly speaking, there are two different approaches to take for mirroring: Wired and Wireless

> IF Wired Connection:
* if the small device has an HDMI port [typically laptops do, tablets do not] then an extra HDMI cable [probably have to purchase one] can be used to connect the small device to an HDMI port on the TV and the TV setup is used to point the TV to the laptop as the source; sometimes the laptop needs to be tweaked into Projector mode or screen sharing mode. The HDMI carries both video and audio so the sound would come from the TV.

> IF Wireless Connection

* The TV **HAS** to have WiFi capability, either natively as a 'Smart TV' or by means of an added streaming device like Firestick TV, Roku, etc. [I would have thought that Xfinity cable box would enable this but I have not found a way to do that as yet.]
* Both the Smart TV / Streaming device attached to the TV **AND** the internet device you use to connect to Zoom [tablet / phone / laptop] **HAVE** to be on the same home network [or subnetwork] -- that is they both connect to the same router SSID.
* Both devices will use what is called 'WiFi Direct' which means that they will communicate directly to each other rather than communicating via the router.
* Typically you first set the TV for 'Mirroring' -- somewhere in the settings you will find an option to enable Mirroring. Google is a good resource for finding exactly how to do this for your TV or streaming device.
* Then set the small device to broadcast a Mirror: On my Android devices there is Settings / Connections / WiFi / WiFi Direct. Once I did that then I got a list of the devices that I could choose to connect to via WiFi Direct; I chose my Firestick TV device.

At this point, I should have seen my tablet's screen replicated on the TV. Didn't happen .... apparently my Samsung Android tablet doesn't do this even though Samsung said it would. So I went into the Google Play app store and found a mirroring app called 'Miracast', installed it and ran it. It too asked me which device to connect to and I clicked on the Firestick TV. Magic! Video and audio instantly appeared on my TV. Nothing more to do.

So the conclusion is that projecting video and audio onto the large family TV is both amazingly simple and highly non-trivial. Its why we call this stuff high-tech. I encourage you all to try this out and contact me if you get stuck or would like some coaching to get this to work for you. Contact me at jmorgie@yahoo.com and put BIC in the subject line.