The Demise of the Set-Top Box Makers

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> How does change happen? Slowly, then all at once.

I recently wrote about the disruption of cable TV (note here). As I dive further into the Cord Shaving theme, I find myself struck by the unnecessary complexity of the set-top box industry. And I can't help but consider the parallels between today's set-top box makers and Nokia, which went from a dominant handset maker to irrelevant in just a few short years (background here).

Instead of reviewing the maze of middleware, software and protocols that defines the set-top box market, I think it is more helpful to abstract the complexity away and start with a very simple question:

What is a set-top box?

To me, it's just a technical layer that translates input to output.

Once you understand that part, you get to the question that really matters:

What's proprietary about this "technical layer"?

And the answer to that question may surprise investors: Nothing.

You see, in July 2007 the FCC mandated that equipment that accesses video programming (e.g., set-top boxes) be opened up so cable providers wouldn't have a monopoly on what controls your TV. They called this standard CableCARD (background here). CableCARD hasn't been a massive commercial success (although TiVO uses CableCARD technology), but that's not the point. What's important here is that walled gardens became off-limits; from mid-2007 forward, no US cable company could lock you into equipment that controls your television, enabling competition to enter the market.

Today, not only can any consumer electronics company access your television*, but getting live TV data isn't hard either – it doesn't require special cable company or TV network contracts. All one needs is a licensing agreement with Rovi or Tribune Media Services and you're ready to enter the set-top box market. Well, not exactly… you still need to solve the technical challenges of network delivery methods, subscriber side devices with multiple versions of control and physical layer transport, data decrypting / decoding, etc. It's all very complicated. But these are exactly the types of problems Apple, Google, Amazon, Microsoft and Samsung excel at solving.

After this background, you might find yourself wondering why incumbent set-top box makers like

Arris still have such large businesses today. The answer lies in their distribution. Set-top box makers have long-term contracts with MSOs (cable companies) to distribute their hardware to consumers via the “cable guy”. Without any other options (or unaware of any other options), consumers have been forced to accept whatever crappy hardware is pushed on them by the cable company.

But this is changing as two competitive forces are weakening the stranglehold legacy set-top box makers have on this market:

1. **New entrants:** Apple, Roku, Amazon and others are aggressively developing streaming media players / platforms. Each of these companies has the marketing dollars and the distribution network to disrupt the status quo. Now, many investors will point out that consumers today use these products as companions to their set-top box – not as replacements for their set-top box. But this is only temporary... you better believe the upcoming product roadmaps for AAPL, Roku, GOOG, AMZN and MSFT all include true set-top box replacements – today’s products are merely a bridge to that eventuality.
2. **Open source alternative:** The emergence of RDK as an open-source, royalty-free platform significantly lowers the barrier to entry for new set-top box makers going forward. Interestingly, in mid-December Samsung signed up as a licensee of RDK (source) - if Samsung's entry doesn't scare the shareholders of Arris, Pace, et al, I don't know what will (side note: in a recent Charlie Rose interview - min 26:30 here - Larry Ellison said, "Samsung is perhaps the most formidable of all the [technology] companies. [...] Maybe the #1 technology company in the world."). My view is that RDK will compress the profits out of the market as commoditization catalyzes a race to the bottom. The outcome I envision already has precedent - just ask yourself who won the smartphone market: Android or Nokia?

These two relentless, well-funded competitive forces are working to impair the business of every existing set-top box maker and component supplier. It’s capitalistic Darwinism. And for investors, it’s time to start positioning yourself for this evolutionary shift – **billions of dollars are at risk**.

Here’s the list of public companies that I believe are in the early phase of a long-term secular decline (I have omitted Espial, Amino and Concurrent because their market caps are

US-Listed

- Arris (NASDAQ: ARRS)
- SeaChange International (NASDAQ: SEAC)
- Harmonic (NASDAQ: HLIT)
- Rentrack (NASDAQ: RENT) – Buyside Note here

International

- Pace (LON: PIC)
- Netgem (EPA: NTG)

- Technicolor (EPA: TCH)
- Kudelski (SWX: KUD)
- Humax (KOSDAQ: 115160)

The regime is changing. I expect the decline of the set-top box makers to happen slowly, then all at once.

*Here's the back-and-forth with Jeremy Toeman, CEO of Dijit, and I on the nuances of today's unnecessarily complex set-top box market:

Can a manufacturer use CableCard to build a set-top box that fully works with a cable company's broadcast services?

> Yes.

Can a manufacturer use CableCard to access every possible feature a cable company might offer?

> It is technically feasible.

Can a manufacturer use CableCard to replicate the Roku app-driven 'streaming cable app' services?

> Not without support from the cable company.

Can a manufacturer build their own internet set-top box to access a cable company's app-driven 'streaming cable app' services?

> Not without support from the cable company.

Can a manufacturer use CableCard to access the TV and change the channel / do DVR and concurrently use their existing technology to provide access to internet services like NFLX / iTunes without signing partnerships with all the cable companies?

> I believe that is exactly what TiVo does.
>
> My take is that CableCard is the "official way to get access to cable channels" and as such, Time Warner Cable (TWC) must support anyone who tries to use it. But the streaming TWC "app" - which is basically what it is - does not fall under the same rules and restrictions. After all, it's now streaming, instead of broadcasting, so it's definitely a

different animal. I don’t believe the law in question covers streaming services. So in a cable / broadcast world, all TWC has to do to comply is support CableCard.