

MY WEIRD PROMPTS

Podcast Transcript

EPISODE #310

The Hidden Hierarchy: Why Your Mobile Plan Might Be Slower

Published January 26, 2026 • Runtime: 26:13

<https://myweirdprompts.com/episode/mno-mvno-network-priority/>

EPISODE SYNOPSIS

Why do some mobile plans cost half as much as others while using the same towers? In this episode, Herman and Corn dive into the complex world of Mobile Network Operators (MNOs) and Mobile Virtual Network Operators (MVNOs) to uncover the "first tenant advantage." They demystify technical concepts like QCI levels and deprioritization, explaining how network traffic is managed when towers get crowded. From the 2012 Israeli telecom revolution to the role of Mobile Virtual Network Enablers (MVNEs), learn the true cost of a bargain connection and whether you are really getting what you pay for.

DANIEL'S PROMPT

Daniel

I'd like to ask you about cellular networks, specifically Mobile Network Operators (MNOs) and Virtual Mobile Network Operators (VMNOs). This system of deregulation is common across the world to increase competition by allowing multiple operators to use the same infrastructure. If I wanted to set up my own virtual network using an existing provider's backbone, how would that process work? Is a VMNO able to provide the same level of connectivity as the infrastructure owner, or do consumers pay a penalty for not using the actual operator? Let's discuss the regulation of the telecommunications industry and whether virtual operators are as effective for consumers as the primary networks.

TRANSCRIPT

Corn

You know, Herman, I was looking out over the Jerusalem skyline this morning from our balcony, and I realized just how many cellular towers are tucked away between the stone buildings. It is like this invisible web of connectivity that we just breathe in like air, but we almost never think about the layers of business and regulation that actually make that signal show up on our phones.

Herman

It is a massive engineering feat, Corn. And I am Herman Poppleberry, for those who might be joining us for the first time. You are right, though. Most people see the bars on their phone and think it is a direct line to a single company, but the reality is much more like a complex real estate market. Our housemate Daniel actually sent us a fascinating prompt about this today. He has been doing some deep dives into failover internet systems lately, and it got him thinking about the distinction between Mobile Network Operators and Virtual Mobile Network Operators.

Corn

Right, the MNOs versus the MVNOs. It is a topic that sounds a bit dry on the surface, but once you peel back the layers, you find this incredible story of government intervention, spectrum wars, and the fundamental question of whether you are actually getting what you pay for when you go with a smaller provider. Daniel was asking about the process of setting up a virtual network and whether there is a hidden penalty for consumers who choose the virtual route over the infrastructure owner.

Herman

It is such a timely question because the barrier to entry has changed so much. Back in the day, if you wanted to start a telecom company, you needed billions of dollars, a massive fleet of trucks, and thousands of permits to dig up streets. Now, you can technically start what Daniel calls Daniel Telecom with a laptop and the right contracts. But as he pointed out, there is that nagging question of the first tenant advantage. Does the company that owns the physical towers treat its own customers better than the ones it leases space to?

Corn

That is the core of the mystery for most people. We see these budget carriers offering plans for half the price of the big three, and we naturally wonder, where is the catch? Is the signal weaker? Does my data get throttled when the stadium is full? I think we should really dig into the mechanics of how these virtual operators function and what the regulatory landscape looks like, especially here in Israel, which had a massive revolution in this exact space about fourteen years ago.

Herman

Oh, the two thousand twelve revolution. That is a case study that is cited all over the world. But before we get into the history, let us define the terms clearly. An MNO, a Mobile Network Operator, is the heavy hitter. They own the radio spectrum licenses granted by the government, and they own the physical hardware. They have the towers, the base stations, the backhaul fiber, and the core network.

Corn

And the spectrum is the key part there, right? It is not just about the towers; it is about the right to use specific frequencies of electromagnetic waves. It is a finite resource, like land.

Herman

Exactly. Governments auction off these slices of spectrum for billions. Now, an MVNO, or Mobile Virtual Network Operator, is a company that provides mobile services but does not own the radio frequency spectrum or the physical infrastructure. Instead, they strike a wholesale agreement with an MNO to buy capacity. They are essentially a tenant in the MNO's house.

Corn

So, if I wanted to start Daniel Telecom, as Daniel suggested, I would not be out there climbing towers in the middle of the night. I would be sitting at a desk negotiating a contract with someone like Cellcom or Partner or Pelephone here in Israel, or AT and T or T-Mobile in the States.

Herman

Precisely. And there are actually different levels of being a virtual operator. You have thin MVNOs and thick MVNOs. A thin one is basically just a marketing and billing engine. They use the MNO's core network, their switching, everything. A thick MVNO might own its own core network elements, like the home location register, which manages subscriber data. This gives them more control over the types of plans and services they can offer, but they still rely on the MNO's towers for the actual radio link to the phone.

Corn

That is an important distinction because it affects how much Daniel Telecom could actually innovate. If we were a thin operator, we would just be reselling the big guy's product with a different logo. But if we were a thick operator, we could potentially offer unique features or better integration with other services. But let's get to the million dollar question Daniel asked. Is the connectivity the same? If I am on a virtual network using a big provider's backbone, am I a second class citizen on that network?

Herman

This is where we have to talk about something called QCI, or Quality of Service Class Identifier. This is the technical mechanism that determines who gets priority on a cell tower when things get crowded. Every data packet on an LTE or five G network has a QCI level assigned to it.

Corn

I love it when you get into the acronyms, Herman. Explain how those levels actually work in practice.

Herman

Think of a cell tower like a highway. When the highway is empty, everyone goes the speed limit. It does not matter if you are a Ferrari or a beat up old truck. But when the highway gets congested, the network starts looking at those QCI levels. MNOs typically reserve the highest priority levels for their own postpaid customers. For example, an AT and T postpaid customer might be on QCI six, which is very high priority. A virtual operator using that same tower might be assigned QCI eight or nine.

Corn

So, in a crowded area, like a protest or a football game or even just a busy downtown area during rush hour, the tower literally tells the packets from the virtual operator's customers to wait in line while the MNO's direct customers zip through?

Herman

That is exactly what happens. It is called deprioritization. It is not the same as throttling, where your speed is capped at a certain number regardless of network conditions. Deprioritization only kicks in when the tower is reaching its capacity. If you are in a rural area with plenty of bandwidth, you will likely see the exact same speeds as a primary customer. But the moment that tower gets stressed, the virtual operator's customers are the first to feel the slowdown.

Corn

That is a huge insight because most people think it is about the signal bars. They see five bars and wonder why their video is buffering. It is not that the signal is weak; it is that the tower is choosing not to talk to you as quickly as it is talking to the person standing next to you who pays twenty dollars more a month.

Herman

Right. And it is not just speed. It can also affect latency and even the reliability of a connection handoff when you are moving between towers. This is the first tenant advantage Daniel was talking about. The MNO spent the billions on the towers and the spectrum, so they are going to make sure their premium customers have the best experience. They use the MVNOs to fill up the excess capacity that would otherwise go to waste, but they do not want that wholesale traffic to degrade the experience for their high margin retail customers.

Corn

It is a classic business trade off. The MNO gets a guaranteed check from the virtual operator every month for that wholesale capacity, which helps pay for the infrastructure. But they keep the best lanes for themselves. Now, from a regulatory perspective, why do governments allow this? Why not just let the big companies own the market they built?

Herman

Because without virtual operators, you end up with an oligopoly. In many countries, there are only three or four companies with the capital to build a national network. Without competition, prices stay high and innovation stays low. Governments use deregulation to force these MNOs to open up their networks to virtual operators. They essentially say, we gave you the license to use this public resource, the spectrum, but in exchange, you must allow others to lease space on your towers at fair wholesale rates.

Corn

We saw this play out in a massive way here in Israel. Before two thousand twelve, mobile prices here were some of the highest in the developed world. It was a cozy group of three operators who basically moved in lockstep. Then the Ministry of Communications stepped in and changed the rules. They made it much easier for virtual operators like Rami Levy to enter the market, and they paved the way for new MNOs like Golan Telecom.

Herman

It was incredible to watch. Prices dropped by something like seventy or eighty percent within a year. It was a textbook example of how lowering the barrier to entry can disrupt a stagnant market. But even there, we saw the technical reality Daniel is asking about. When those new operators launched, especially the virtual ones, there were definitely growing pains with network priority and call quality.

Corn

That makes me think about the process Daniel asked about. If we actually wanted to set up Daniel Telecom tomorrow, how would we do it? Is it just a matter of calling up the MNO, or is there a middleman?

Herman

There is almost always a middleman. They are called MVNEs, or Mobile Virtual Network Enablers. These companies provide the technical platform that sits between the MNO and the virtual operator. They handle the billing, the SIM card provisioning, the customer support portals, and the integration with the MNO's core network. If you wanted to start Daniel Telecom, you would probably go to an MVNE. They have the existing contracts with the MNOs and the software ready to go. You bring the brand and the marketing, and they handle the plumbing.

Corn

So it really is a white label service. But that brings us back to the consumer experience. If I am a consumer looking at Daniel Telecom versus a big MNO, how do I know if the penalty is worth it? Are there ways to measure this priority difference?

Herman

It is hard for the average consumer to measure because the QCI levels are not advertised. You won't find a label on the box that says, this plan is QCI nine. However, there is a general rule of thumb. Postpaid plans directly from the MNO almost always have the highest priority. Prepaid plans from the MNO are often a step down. And third party virtual operators are usually at the bottom of the priority list.

Corn

That is a fascinating hierarchy. So even if you are with the big guy, if you go with their cheaper prepaid option, you might be getting the same priority as a virtual operator customer.

Herman

Often, yes. There are exceptions, of course. Some high end virtual operators, like Google Fi in the United States, have negotiated better priority levels or use multiple networks to ensure a better experience. But for the most part, you are paying for that peace of mind that when the network gets busy, you won't be the one left behind.

Corn

I wonder about the second order effects of this. If everyone switches to virtual operators because they are cheaper, does the overall quality of the network decline because there is less revenue for the MNOs to invest in new towers? Or does it force the MNOs to become more efficient?

Herman

It is a delicate balance. If the wholesale rates are set too low by regulators, the MNOs might not have the incentive to build out five G or maintain rural towers. But if they are too high, the virtual operators can't compete. This is why spectrum auctions are so controversial. If a company pays ten billion dollars for a license, they are going to be very aggressive about protecting their retail margins.

Corn

It feels like a bit of a tragedy of the commons situation. The spectrum is a public resource, but the infrastructure is private property. We want everyone to have access, but we also need someone to pay for the towers. You mentioned five G earlier. How does the shift to five G change this dynamic between MNOs and virtual operators?

Herman

Five G introduces a concept called network slicing, which could be a game changer for virtual operators. In four G LTE, the network is relatively monolithic. You can set priority levels, but it is still one big pipe. With five G, an MNO can literally slice their network into multiple virtual networks, each with its own specific characteristics.

Corn

So Daniel Telecom could buy a slice of a five G network that is specifically optimized for low latency, or one that is optimized for massive numbers of internet of things devices?

Herman

Exactly. Instead of just being a tenant in the MNO's house, a virtual operator could essentially rent a custom built apartment. This could allow for much more specialized MVNOs. Imagine a virtual operator specifically for gamers that guarantees low latency, or one for self driving cars that has ultra high reliability. Network slicing makes the distinction between an MNO and an MVNO much more fluid.

Corn

That is really interesting because it moves the competition from just being about price to being about specific use cases. But I want to go back to Daniel's point about the first tenant advantage. Is there any regulatory move to stop this deprioritization? Could a government say, you must treat all packets equally regardless of whether they come from your customer or a virtual operator's customer?

Herman

That gets into the territory of net neutrality, but on a different layer. Most net neutrality rules focus on the type of content, like not slowing down Netflix to favor your own video service. But prioritizing your own subscribers over a wholesale partner's subscribers is generally seen as a legitimate business practice. It is part of the contract. The virtual operator is paying for a certain class of service, and they know what they are getting.

Corn

So it really comes down to transparency. If consumers knew they were getting lower priority, they could make an informed choice. But right now, it is all hidden in the technical specifications.

Herman

It really is. And for most people, most of the time, they will never notice. If you live in a city with great coverage and you are not trying to stream four K video in a crowded stadium, a virtual operator is a fantastic deal. You are getting the same coverage for a fraction of the cost. But if your job depends on having a rock solid connection at all times, that penalty might be too high.

Corn

I think about the people who live in rural areas too. Often, the virtual operators only have access to the MNO's primary network, but not their roaming partners. So if you travel to a remote part of the country where your big provider uses a local partner's towers, your virtual operator SIM might just stop working.

Herman

That is another huge "catch." MNOs have reciprocal roaming agreements with each other to fill in the gaps in their coverage maps. Virtual operators often do not have access to those roaming agreements. Their coverage is strictly limited to the physical towers owned by their host MNO. So your coverage map might look the same on paper, but in reality, it is much more Swiss cheese like.

Corn

It is like having a key to the main building but not the annexes. You know, we have talked about this in the context of other industries before, Herman. Remember back in episode one hundred fifty one when we discussed mesh versus wired internet? It is the same fundamental issue of shared versus dedicated capacity. The more layers you put between the user and the raw infrastructure, the more potential there is for friction.

Herman

That is a great callback, Corn. It really is about the physics of the medium. Whether it is a Wi-Fi signal in your house or a cellular signal from a tower three kilometers away, there is only so much data you can push through the air at one time. When you add the complexity of multiple companies fighting over that same air, something has to give.

Corn

So, if we look at the future, do you think we will see more MNOs or more MVNOs? With the cost of five G infrastructure being so high, it seems like we might see more consolidation on the hardware side and more explosion on the virtual side.

Herman

I think you are spot on. We are already seeing something called neutral host infrastructure, where a third party builds the towers and leases them out to all the major MNOs. In that world, everyone is essentially a virtual operator on the physical layer. The distinction becomes less about who owns the steel in the ground and more about who owns the spectrum and the core network.

Corn

It is a fascinating evolution. We are moving from a world of vertical integration where one company did everything, to a highly modular world. But for the consumer, the advice remains the same. Understand what you are buying. If you are going the virtual route, you are making a conscious choice to trade a bit of peak performance for a lot of cost savings.

Herman

And honestly, for ninety percent of people, that is a smart trade. The networks are so good now that even a deprioritized connection is faster than what we had ten years ago. But you have to be aware of those edge cases. If you are someone like Daniel, who is setting up mission critical failover systems, you probably want at least one of your connections to be a primary MNO line with high priority.

Corn

That makes total sense. You don't want your backup system to be the first thing that gets kicked off the tower when a local emergency happens and everyone picks up their phones at once. That is exactly when you need the connectivity the most.

Herman

Exactly. And that is why Daniel's work on multi WAN systems is so important. By combining an MNO connection with a virtual operator connection, or even a fiber line, you are diversifying your risk. You are not just relying on one company's priority logic.

Corn

I think we have given a pretty good overview of the landscape, but I want to touch on one more thing. The concept of the "branded" MVNO. We see companies like supermarkets or even celebrities launching their own mobile networks. Is there any technical advantage there, or is it purely a marketing play?

Herman

It is almost entirely marketing and data. For a supermarket, having you on their mobile network gives them incredible insight into your location and habits. They can offer you coupons when you walk past a certain aisle. It is about building a deeper ecosystem. Technically, they are just a thin MVNO using an existing platform. They aren't doing anything special with the signal.

Corn

It is the ultimate loyalty program. Instead of a plastic card in your wallet, they are the very gateway you use to talk to the world. It is a bit dystopian when you think about it that way, but it is the logical conclusion of this deregulation. Everything becomes a service that can be white labeled and resold.

Herman

It really does. And as we move into the era of private five G networks for factories and hospitals, we might see a whole new kind of virtual operator. Companies that manage a localized network that still connects back to the national grid. The boundaries are blurring.

Corn

Well, Herman, I think we have cracked the code on the MNO versus MVNO mystery. It is not a penalty so much as it is a different class of service. You get what you pay for, but for many, the budget option is more than enough.

Herman

I agree. It has been a fun deep dive. And I hope Daniel finds this helpful for his failover project. It is always great to have a prompt that makes us look at the invisible infrastructure around us.

Corn

Absolutely. And before we wrap up, I want to say a huge thank you to everyone who has been listening and following along on our journey. We are at episode three hundred five now, which is just wild to think about.

Herman

It really is. We love doing this. And if you are enjoying the show, we would really appreciate it if you could leave a quick review on your favorite podcast app or on Spotify. It genuinely helps other people discover the show and keeps us going.

Corn

Yeah, it makes a big difference. You can find us on Spotify and at our website, myweirdprompts.com, where we have the full archive and a way to get in touch if you have a prompt of your own.

Herman

Thanks for joining us in Jerusalem today. This has been My Weird Prompts.

Corn

Until next time, stay curious and keep asking those weird questions.

Herman

Bye everyone!

Corn

Take care.

Herman

You know, Corn, I forgot to mention the impact of eSIM on all of this. It makes switching between MNOs and MVNOs so much easier. You don't even have to wait for a piece of plastic in the mail anymore.

Corn

That is a whole other rabbit hole, Herman. Maybe we should save that for episode three hundred six.

Herman

Fair point. There is always more to dig into.

Corn

Always. Let's go see what Daniel is cooking for lunch. I think I smell something good.

Herman

Hopefully it is not another router. He was trying to "optimize" the toaster yesterday.

Corn

Ha! That sounds about right. See you guys.