

The Center That Should Not Exist

Picture a doctor in a small regional town. Not a remote village - a regional town, three hours from a major city. He has patients with chronic conditions who need continuous monitoring. He has sensors that can measure blood pressure, blood sugar, heart rate. He has a phone with internet access.

What he does not have is reliable connectivity. Not because the technology is unavailable. Because building a base station to serve three thousand residents is not commercially viable for whoever owns the network center.

A patient with diabetes does not receive a timely alert. The doctor does not see the data. The person ends up in hospital with a crisis that would not have happened if the signal had gone through.

This is not a story about poverty. It is a story about architecture.

Why the Center Remains

The two previous articles in this series described how a network without a center could work - on the principles of an ant colony, through distributed memory in the environment, through a tagging mechanism in the protocol. The technologies exist. The algorithms have been described. The precedents are there.

The center remains. Why?

Not because it is technically necessary. Because it is economically convenient for those who hold it.

The owner of the network center knows about every connection. They know who speaks to whom, when, for how long, and about what. They know which applications are installed on the device. They know movement patterns. They know payment habits. This knowledge is not a side effect of the architecture. It is its purpose.

One qualification is important here: modern encryption hides the content of transmitted data. But even encrypted traffic cannot hide the most valuable part - the metadata: who connected to whom, when, how often, and for how long. Metadata is often more valuable than content - it allows precise behavioral models to be built without reading a single message.

A centralized network does not simply transmit data. It collects it. Every packet passing through the center leaves a trail - not in the environment, like the pheromone of an ant, but in the owner's database. This trail does not evaporate. It is stored, analyzed, and monetized.

There is a second layer, less obvious. Early generations of communications were built centrally out of technical necessity: devices of that era physically could not function as network nodes - they lacked the computational power and radio resources. Centralization was the only solution that worked. That constraint no longer exists - a modern smartphone is more powerful than entire server rooms of the 1990s. But the architecture reproduces itself through inertia: through regulatory frameworks, through the business models of operators, through standards written by

those who benefit from the center. The technical necessity is gone. The institutional inertia remains.

This is why the center is built again and again - in each new generation of communications, with each new standard. Not only by design. Also simply because no one knows how to do it any other way.

What Is Lost by Those Who Live Far from the Center

"Far from the center" describes two different distances at once. The first is geographic: three hours from a major city, poor coverage, no base station. The second is architectural: any user who is not a priority for the network owner - regardless of which city they live in. Both distances produce the same effect: the network performs worse than it could.

The doctor from our story is not an exception. He is the rule.

A farmer who wants to know the precise precipitation forecast for a specific field, not an average for the district. He needs a soil moisture sensor connected to an irrigation system. The center is far away - signal latency is too high, reliability too low. The solution that works in the city does not work here.

A small manufacturer who wants to track his supply chain in real time. His suppliers are in several villages within a fifty-kilometer radius. There is no reliable coverage there. The digitization of logistics that people discuss at conferences exists for him only as a slide in a presentation.

A teacher in a small school who wants to use online resources for a lesson. The connection drops halfway through. The lesson is built around the limitations of the infrastructure rather than the needs of the children.

In all of these cases the problem is the same. The network is built to serve those who are close to the center. The periphery is what remains after the center has served itself.

These three stories are not about individual failures of specific people in specific places. They are about the same design decision, made long before any of these people were born: the network is built around the center, not around people.

What Changes When There Is No Center

Let us return to the doctor.

In a network without a center, every device is a participant, not a client. The doctor's phone, the patient's sensor, a router in a neighboring house, a device in the car of a passing driver - each of them simultaneously serves as a network node. The data packet from the patient's sensor does not look for a base station. It looks for the nearest node - and finds it. Then the next. And the next. Until it reaches the doctor.

No one made a commercial decision about whether to cover this area. Each device owner made only one local decision - to participate. From thousands of such local decisions, the network emerges on its own - without permission from above, without a central operator.

This is not fiction. Such networks exist today. Mesh network protocols - OLSR, BATMAN, Meshtastic - allow devices to find each other and transmit data without a base station. Meshtastic, for example, runs on inexpensive radio modules and is used in areas without coverage - from mountain trails to disaster zones. This is not an experiment. It is a working technology available off the shelf.

What is being discussed in the context of 6G is the same principle, elevated to a global standard with bandwidth and latency comparable to urban networks.

For the farmer this means: a sensor in the field connects through a network of neighboring devices - other farmers, roadside nodes, passing vehicles. Latency is minimal because the path is short. Reliability is high because there are many paths.

For the small manufacturer this means: every supplier in the network is a node. Supply data travels through the same network people use to talk and pay. No separate infrastructure is needed.

For the teacher this means: the school does not depend on the quality of a connection to a distant center. It depends on the presence of devices within a few kilometers. That is enough.

Access as an Architectural Question

There is a temptation to frame this problem in terms of inequality - wealthy areas with good connectivity against poor ones without it. This is true, but it is a consequence. The cause runs deeper.

Centralized network architecture structurally produces unequal access. Not as a side effect - as the necessary result of its own logic. A center pays for itself where user density is high. Where density is low, the center does not come. Not out of malice. Out of arithmetic.

Architecture without a center structurally produces a different result. The network exists wherever devices exist. Devices exist wherever people exist. Therefore the network exists wherever people exist.

This is not a political statement. It is a consequence of geometry.

This is precisely the question missing from the current 6G discussion. Much is said about speed, latency, and throughput. Little is said about why any of this matters to a specific person. The three articles in this series have tried to give an answer. It is a simple one.

So that the doctor receives the alert in time.

Closing the Cycle

The first article in this series asked: why does an ant network have no owner? Because an architecture distributed across the environment physically cannot have one. There is no one to own it.

The second article asked: how can this be implemented technically? Through the tagging mechanism - a distributed memory of path quality, accumulated by the packets themselves.

This third article asks: for whom does it matter? For everyone the center does not serve. For those who live not where the network is profitable, but where the network is needed.

The difference between those two places is the whole point.

An ant does not know whether it lives at the center or on the periphery. For it there is no periphery - there is an environment, and in it there is a trail. It goes where the trail is.

A network built on this principle also knows nothing of the periphery. It simply goes where the devices are.

Devices are everywhere. The 6G standards are being shaped right now. Every architectural decision made in this process will reproduce itself for the next twenty years - through equipment, through regulatory frameworks, through the habits of billions of users. This is a rare moment when the choice is still open.