NEWS

The largest network in the world

From pulse to data stream

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When we praise the World Wide Web as one of mankind's greatest inventions with a certain solemnity and pride, we tend to overlook the actual first owner of the patent. The largest living creature on earth is not a blue whale or a sequoia, but a fungus. More precisely, a single hallimash in the Malheur National Forest in Oregon, whose mycelium stretches over almost ten square kilometers of forest floor and is estimated to be several thousand years old. You can see practically nothing of it from above. Only here and there, when the conditions are right, does a small fruiting body, which we call a mushroom, push its way through the foliage. The rest has been working invisibly, underground, in secret, since the end of the last ice age.

This network is not a simple distribution system. It is an ecosystem, a symbiosis that modern IT jargon would have to refer to, with some discomfort, as the world's oldest software-as-a-service model. The plants above it regularly pay for the service. Up to thirty or forty percent of the sugar that a plant produces from the sun and carbon dioxide does not flow into its leaves or trunk, but through the roots into the soil. The fungus receives this sugary excretion like a service provider receives a monthly subscription fee. In return, it does what the plant could not do on its own: It organizes water,

nutrients and trace elements from distant regions of the soil and delivers them precisely to those roots that feed it. Sugar in, nutrients out. What looks like a simple transport of substances from the outside is in fact an exact real-time calculation.

However, the real intelligence of this system does not lie in transportation. It lies in communication. Researchers are now measuring electrical impulses and chemical waves in the mycelium, which are structurally reminiscent of nerve signals. The network does not move resources blindly, but decides where they flow. If a part of the network encounters phosphorus, the message races through the entire network as an impulse and the demand from other regions directs the flow. If one tree is weakened, other trees react via the mycelium - it redirects resources, sometimes even between different species. To use a slightly rude comparison, this can be described as the oldest peer-to-peer routing protocol on earth: decentralized, context-sensitive, self-learning. Impulses are not a by-product here, they are the actual currency of the network.

It is precisely at this point, in the subtle difference between silent transportation and intelligent communication, that digital signage becomes interesting. A modern signage network is no longer a playlist that plays itself from A to B in a well-behaved manner. What the mushroom is the electrical impulse, ScreenWay is the data stream. Today, information that goes far beyond pure content flows continuously behind every screen: Time, weather, pedestrian density, target group structure, dwell time, ambient noise levels, pollen count, sales data, the city's event calendar. The network absorbs these signals like mycelium absorbs its chemical stimuli and uses them to form a real-time picture of what is needed and where.

What takes on the role of the silent mushroom brain in this network is an AI agent. It sits between the data stream and the fruiting body and does exactly what the fungus in the soil of Oregon has been doing for thousands of years. It organizes what is needed where. If it detects high pollen levels at the location of a pharmacy, the allergy topic moves to the front. If it notices a change in the audience structure on a train platform during rush hour, it adjusts the sound, language and image rhythm of the content being played. If it detects a different buying behavior in retail on Friday afternoon than on Tuesday morning, it shifts the weighting of the product range on the screens in real time. The logic is not programmed in the traditional sense and has grown from observation, feedback and repetition. It is amazingly similar to the logic of a mycelium: decentralized intelligence, context-based routing, real-time response.

Perhaps the most beautiful part of the parallel is hunger. Every network needs input, otherwise it doesn't work or starves. The mushroom in Oregon lives on sugar: it is its fuel, its reward, its currency. Without the sugary excretion of the roots, there is no network. A ScreenWay network, like any digital system, thrives on two things and both depend on each other - electricity and data. Electricity is the physical fuel, it makes the hardware work, the pixels light up, the edge devices calculate. Data is the nutrient for the intelligence above it. Without it, there are images, but no fit, no reaction, no sense of the moment. If one of the two fails, the organism falls silent. The connection is not metaphorical, but a deep structure of every living, distributed system: there is no output without input, no performance without feeding, no network without metabolism.

What this means for the individual screen is a small but decisive shift. In the old logic, screens were simple displays, passive advertising spaces that were filled centrally. In the mycological logic, they are fruiting bodies with sensory organs. They not only play out content, they also record it; audience measurement, environmental sensors, interaction data. Every ScreenWay screen is both an output and input point, just as a fruiting body in the forest not only releases spores, but also reacts to humidity, light and temperature. The ecosystem flows in both directions and the network learns with every single impulse.

This quietly dissolves an old distinction. A modern digital signage network is no longer a distribution system, but a nervous system. The individual screen is no longer the point - the network is. And this network, very much like the silent, giant mushroom under the Oregon forest, knows more about its surroundings than we usually give it credit for. It receives, evaluates, responds, organizes. It is fed and it delivers back. Anyone who understands it in this way is no longer operating screens in a city, but a mycological organ - a digital mycelium that transforms electricity into attention and data into the right word at the right time.