

AT&T Innovations

AT&T is Deploying White Box Hardware in Cell Towers to Power Mobile 5G Era



AT&T plans to be the first to mobile 5G in the United States. To power our new network this year and beyond, we're building our towers and small cells in a radically new way.

We're going with white box.

What does that mean? It means we're transitioning from the traditional, proprietary routers that sit inside these structures to new hardware that's built around open standards and can be quickly upgraded via software. We expect to roll out over 60,000 of these white box routers over the next several years across the U.S.

A year ago, we announced our [first successful trial](#) with white box equipment. We expanded on that trial this year.

"White box represents a radical realignment of the traditional service provider model," said Andre Fuetsch, Chief Technology Officer and President, AT&T Labs. "We're no longer constrained by the capabilities of proprietary silicon and feature roadmaps of traditional vendors. We're writing open hardware specifications for these machines, and developing the open source software that powers these boxes. This means faster hardware upgrades, since anyone can build to these specs. And software upgrades that move at internet speed. We're doing this all while keeping costs low so we can focus on expanding our nationwide mobile 5G footprint for our customers as quickly as possible."

These machines will use open hardware designs so anyone can build to our specifications.

DANOS on White Box

These white box routers run what we call our "Disaggregated Network Operating System," or DANOS. DANOS is the network operating system for white boxes. We hope to see it adopted as open source software across our industry.

ONAP and DANOS

Orchestrating these DANOS-powered white box machines is [ONAP](#), or Open Network Automation Platform. ONAP is an operating system for the network cloud.

We've committed to virtualizing 75% of our core network functions by 2020. We hit our 55% goal in 2017. **We are announcing that our goal for 2018 is 65%.**

Tools like ONAP are vital to deploying and managing the next generation of ultra-fast broadband speeds for our customers.

Why it All Matters

We believe that a virtualized, open-source, white box approach is the best way to go. Mobile 5G will be about more than just speed. It will also bring much lower latency. Latency is the time between when you press play on your favorite video streaming app and the moment your show appears on the screen. For some applications, latency is critical.

Mobile 5G can make that super-low latency possible. But to run those applications in the cloud, you need a network and a platform that can host those applications at the cell towers and small cells in close physical proximity to users. This is known as "[edge computing](#)".

Using white box routers and other hardware in our towers and small cells help those types of edge applications smoothly. And it means we can update and upgrade them at the push of a button.

5G. SDN. Edge computing. [They all work together.](#) ONAP, DANOS, and white box will help make them a reality.