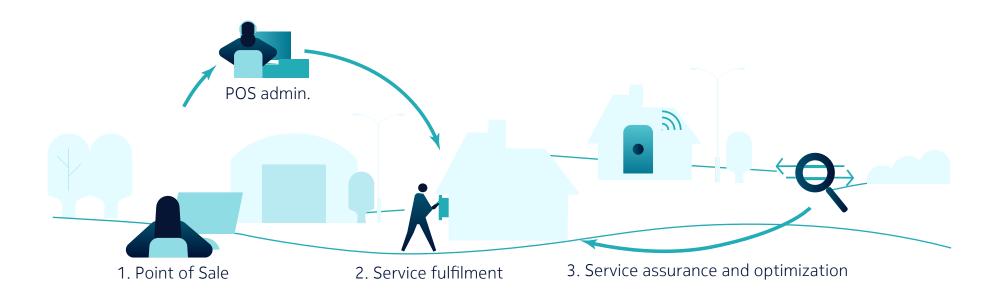


The Nokia FastMile FWA Controller is a specialized cloud-based domain controller for Fixed Wireless Access (FWA) services. It provides FWA service lifecycle management for Nokia FastMile Gateways, Receivers, and third-party FWA devices.

With the FastMile FWA Controller, service providers can rapidly deploy FWA services in a controlled manner to optimize spectral efficiency and deliver the best possible user experience. This is achieved with Radio Access Network (RAN) insights gathered through open APIs and advanced tools for service level prediction, capacity management, and service optimization.

End-to-end service lifecycle management including Point of Sale, Service Fulfilment and Service Assurance and Optimization.





Point of Sale (POS)

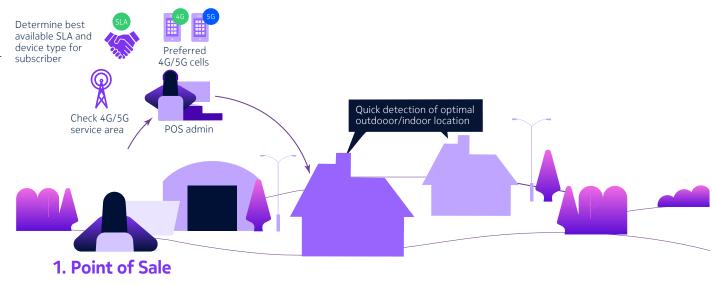
The Point of Sale (POS) tool enables operators to predict achievable service levels during the sales process.

With POS tools you can start the new customer relationship right by accurately predicting the service level that you can provide while still ensuring that existing mobile and fixed services aren't compromised.

The qualification of the service is based on:

- Mobile coverage.
- Available cell capacity and radio resources
- Customer location.
- Requested service level agreement.

To ensure optimal Quality of Service and Experience, the POS provides a ranked list of the best 4G/5G cells and makes recommendations concerning the optimal FWA device type.



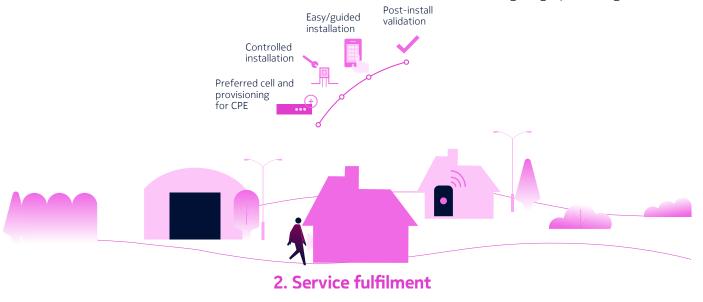
Service Fulfilment

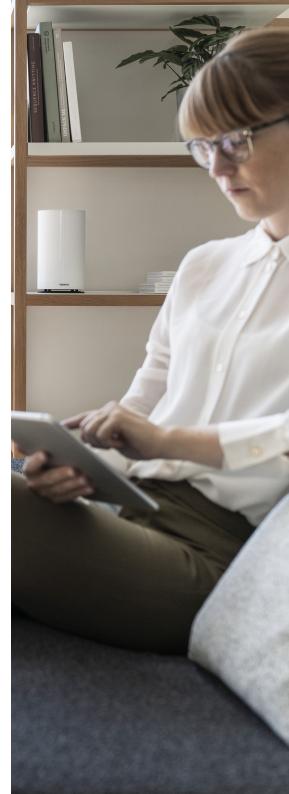
Service Fulfilment enables operators to provision FWA subscribers and device at predetermined service levels with intent based networking (IBN)

- Unique identification that links a consumer to a service subscription.
- Provisioning of service Access Point Name (APN) based on requested SLA.

- Provisioning of the preferred 4G/5G cell list.
- Control of the installation by validating if an authorized subscriber installs the CPE at the planned location.
- Easy, guided home installation including the optimal installation location and antenna direction.
- A mobile app guides the installer to the best location considering line of sight and radio signal quality.
- Post-installation diagnostics, including TR-0143 speed test and 4G/5G signal quality.

Operators can partition FWA subscribers and devices into groups enabling the operator to implement a wholesaling model or to realize multiple geo-graphical regions.





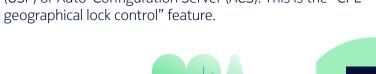


Service Assurance & Optimization

The Service Assurance measures include:

- The FWA service health.
- Monitoring of the promised vs achieved service level.
- Control of the physical location of the FWA device through high-precision telemetry of alarms, status data, and performance management data of the FWA CPE and cells.

Certain alarms or events may trigger an automated (intent-based) Service Optimization. For example, when a "new cell", "cell outage" or "congested cell" event is reported, the FWA Controller may redistribute the FWA devices across the cells by updating the preferred cell list. If the FastMile FWA Controller detects that the FWA device has moved to another location it will raise an alarm and can optionally suspend the datatraffic on the CPE via the User Services Platform (USP) or Auto-Configuration Server (ACS). This is the "CPE





Service health monitoring

3. Service assurance and optimization

CPE and cell performance

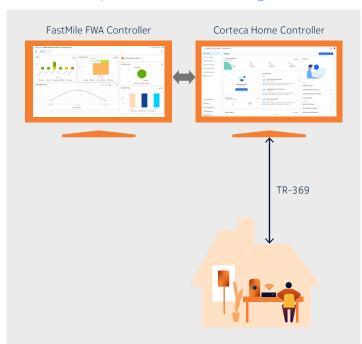
Speed test diagnostic

data and alarms

FastMile FWA Controller Solution Types

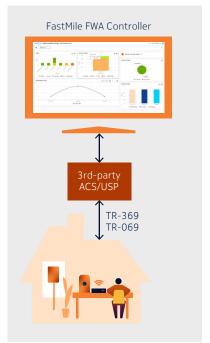
You will need a device manager for basic FWA device management (USP or ACS). The Nokia FastMile FWA Controller, as an open platform, can work with third party device managers. In cases where no USP or ACS exists in an operator network, Nokia offers the following solutions enabled by a single -pane-of-glass GUI enabling integrated operations.

Operator has NO device manager

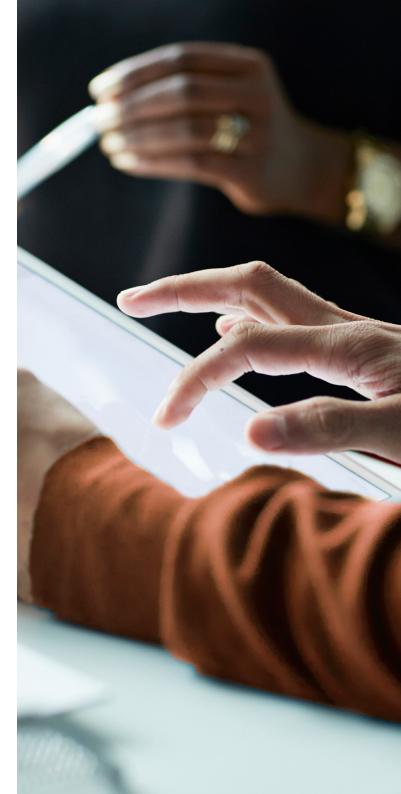


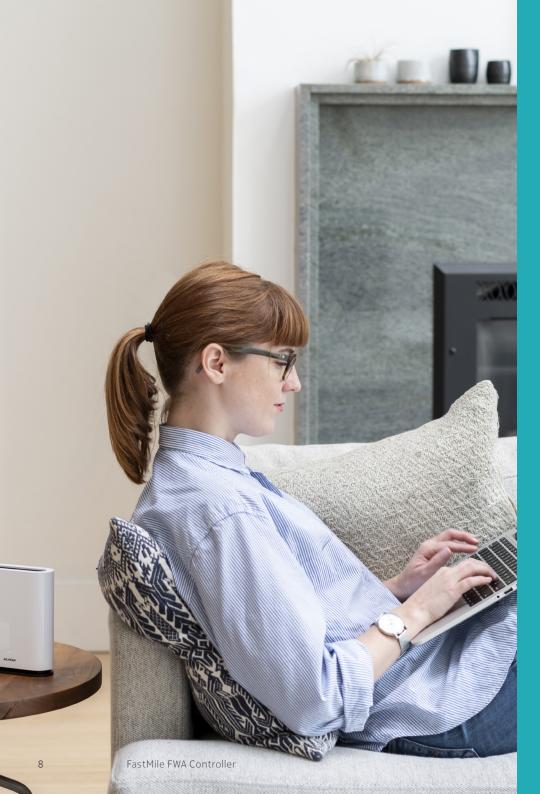
Nokia provides a solution for operators that do not have a device manager by combining FastMile FWA Controller with the Nokia Corteca Home Controller for managed Wi-Fi and TR-369/USP based management services. Optionally, Nokia can provide an ACS for the management of TR-069 3rd party devices.

Operator has a device manager



If you have an existing ACS or USP, Nokia can provide integration services for 3rd party solutions.





The FastMile FWA Controller gives operators end-to-end service lifecycle management of FWA deployments. It is a full multi-vendor solution supporting easy integration for any TR-369 or TR-069 CPE, User Services Platform or Auto Configuration Server, RAN-Network Management System, Network Planning tool and OSS/BSS.

It is a win-win for everyone. Rapid FWA service deployment and guided self-install support mean fewer truck rolls for the service provider along with the best SLA and Quality of Experience for consumers.

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At Nokia, we create technology that helps the world act together.

As a B2B technology innovation leader, we are pioneering the future where networks meet cloud to realize the full potential of digital in every industry.

Through networks that sense, think and act, we work with our customers and partners to create the digital services and applications of the future.

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