

ThingSpace Services

Helping you simplify and automate your IoT lifecycle management.



ThingSpace Services is a set of tools that simplify device lifecycle management of your Internet of Things (IoT) and Fixed Wireless Access (FWA) solutions. We provide cellular cloud-based services, making it simpler to implement, secure and manage your deployments.

End-to-end solutions

Unlike many solutions that require new network infrastructure and on-premises equipment that is costly to set up and maintain, Verizon offers ThingSpace, a cloud-based platform-as-a-service (PaaS) alternative that reduces the barriers to IoT & FWA solution adoption. By removing the headaches of supporting expensive new networks and servers, Verizon enables you to focus on your core competencies.

Advanced Device Diagnostics

The complexity of IoT ecosystems can make it difficult to identify device or network performance issues without the right tools to detect anomalies and investigate the root cause.

With Advanced Device Diagnostics, you can:

- Monitor advanced LWM2M* device network connection status
- Monitor device radio frequency (RF) performance in real time or historical
- Remotely reboot LWM2M IoT and FWA devices

*Device must support LWM2M diagnostics

Benefits:

- Monitor device presence on the Verizon network
- Troubleshoot suspect devices without needing to call Verizon support
- Determine course of action to fix device problems
- Build API automation to remotely reboot problematic devices

Anomaly Detection

As the diversity in IoT devices, use cases and solutions increases; spotting unusual behavior can be as easy as finding a needle in a haystack. This overhead of analyzing device health and performance is highly administrative, requires high touch troubleshooting and can still result in gaps in identifying patterns of behavior.

Verizon ThingSpace Anomaly Detection Service performs machine learning based on Verizon network metadata. Users can opt-in to be alerted when the signals appear to be algorithmically or statistically “abnormal”. It learns clusters of “normal” and “abnormal”, behavior and can explain why, so the you can focus on mitigating scenarios, including: stolen, hacked, customer misuse, weather-compromised, etc.

The ThingSpace Anomaly Detection Service can help you identify atypical device behavior through proactive alerting.

With Anomaly Detection you can:

- Set anomaly thresholds against data usage behavior
- Intelligent rules available for Anomaly
- Detection in the portal or automation with API's
- Baseline Anomaly Detection on different metrics like session times, data tonnage, and usage patterns
- Identify devices misbehaving – perhaps due to security incidents or faulty software/hardware

Benefits:

- Reduce data overages, by trending usage; increase asset efficiency through anomaly detection
- Increase device and IoT solution uptime
- Provide IoT managers with the ability to identify issues and predictive maintenance opportunities, reducing operational costs


Device Location

Keep track of your cellular devices wherever they are deployed. Location data is key to a comprehensive solution. However, knowing the precise location of devices or machines is not necessary for many applications. For example, in applications where assets are fixed or have limited movement, asset location is used more to validate the asset position with its expected address than to track its movement. In many cases, a coarse or rough estimate of where devices are located will meet the needs of the application or use case.

ThingSpace Coarse Location Service collects coarse location data with an accuracy range of 200 to 2,000 meters, saving money and energy and eliminating the need for additional chipsets or sensors.

You get actionable data with out-of-the box cellular devices, while conserving device power, lowering deployment and data collection costs, and simplifying maintenance. You'll be able to identify and locate all your devices on the network, as well as get more context about the device data you collect and use for reports, maps and websites.

With Device Location you can:

- Locate cellular devices with or without GPS on the Verizon network
- Get actionable, contextual location data indoor and outdoor at around 500 meters with Coarse location
- Use the data for reports, maps and websites and simplify data collection
- Compare and audit expected (registered) service address with real-time and last known location
- Receive alerts when your assets move outside of their expected location

Benefits:

- Generate location reports to review and share
- Locate devices – even devices that are often powered off or power-saving by storing their last known location and querying location once they are online
- Reduced power consumption when compared to GPS based location

Use the Verizon network to audit the device location indoors and outdoors out-of-the box for any 4G or 5G IoT & FWA device.


Rules

ThingSpace Rules allows you to set automation activities based on device behaviors. Triggers for the automation activities include transactions, data usage or network behavior. ThingSpace rules also works with Anomaly detection (if subscribed).

The actions vary by trigger; for example, users can be alerted via email or the devices can be suspended.

With Rules you can:

- Create rule settings such as suspend if usage exceeds a specified amount, network changes and more, etc.
- Connect usage rules to changing price plans based on data usage of individual device, account, group or pool based
- Create rules to be alerted by Email, SMS or API callback

Benefits:

- Alerting of unexpected device behavior such as SIM swaps, excessive connections
- Alerting of transactions both expected or unexpected

Leverage Verizon's network insights, expertise and scale to reduce the complexity of managing your IoT or FWA solution.

SIM Secure

SIM Secure prevents unauthorized use of SIMs on IoT or FWA devices. The service offers a controlled, easy to use, over-the-air solution for protecting cellular assets and controlling unwanted expenses by locking a specific SIM to a customer-specific device.

Keeping your device firmware up to date and securing the SIM can help reduce security threat vectors on your IoT solution.

ThingSpace SIM Secure Service can prevent fraud by binding a specific SIM to a customer-specified device via ThingSpace.

With SIM Secure you can:

- Manage SIM Secure licenses (by type)
- Provision security over-the-air for devices already in the field
- Secure devices at the endpoint
- Protect assets from unauthorized connection to the network
- Reduce fraud or unauthorized use of SIMs
- Control unwanted or unauthorized expenses
- Reduce cost of management with remote provisioning
- Enjoy greater control over device and data

Software Management

IoT solutions can range in size and scope, with up to thousands of connected devices spread across a building, plant or large geographical area. High-touch truck rolls and technician dispatches to troubleshoot or upgrade these devices can be time intensive and costly. ThingSpace Software Management Services can help you monitor, configure and update your devices using firmware-over-the-air (FOTA) technology.*

This will help you prevent downtime and maintain the compliance of your IoT devices. The service is compatible with Verizon-certified HTTP, Open Mobile Alliance Device Management (OMA-DM), Lightweight Machine-to-Machine (LWM2M) and devices.

With ThingSpace Software Management you can:

- Schedule upgrade campaigns around user business requirements
- Host firmware for many devices and modules in one place
- Manage device licenses and subscriptions
- Report firmware history and campaign status

Benefits:

- Improve product performance
- Increase coverage and operational speed Reduce truck rolls
- Quickly address security vulnerabilities Manage remotely with ease
- Increase device compliance rates
- Avoid unexpected surprises

Usage Analytics

Since IoT and FWA devices are not routinely monitored by humans, rogue behavior can cause headaches for Solution managers, such as changes in data usage, unplanned outages, malfunctioning devices and security risks.

Usage analytics helps understand data usage and how to optimize operations.

With Usage Analytics you can:

- Analyze device-data plan usage trends (daily and cumulative), devices with top data usage within the billing cycle, the last 7 days or the last 30 days and more
- Analyze device attributes and their distributions, such as device states, rate plans, groupings, makes and models, etc.
- Analyze provisioning provisioning status and history
- Analyze whether devices are up-to-date and firmware campaign status

Benefits:

- Anticipate and reduce cost variability
- Manage device uptime
- Protect assets
- Increase visibility to operations

Wireless Network Performance

When you have a holistic, detailed view into the performance of your devices on our network, you can gain greater insights into key metrics, such as status, coverage, experience and more. And the more insights you have, the easier it becomes to make the smart business decisions your business needs to thrive.

With Wireless Network Performance you can:

- View outage, event and service notifications
- Check network coverage
- View real time coverage (Premium)
- View device and network performance metrics (Premium)
- Overlay network with weather data analysis (Premium)

*Device must support Verizon FOTA

Benefits:

- Deeper insights into connectivity solutions to quickly and more accurately make strategic and tactical decisions
- See the azimuth and approximate distance for the nearest servicing nodes
- Integrate network performance data using API's (Premium)

 **How to get ThingSpace Services**

Verizon offers two convenient bundles to access the Intelligence services of the ThingSpace platform.

With ThingSpace Intelligence Services Basic Bundle:

To get more out of your connectivity and simplify management, the ThingSpace Intelligence Basic Bundle allows you to access value-added services to enable security protection, detection of issues and a means to respond to those issues.

For a fixed cost per line, the bundle includes:

- Analytics dashboard
- Coarse Location Services
- Precise Location Services
- Diagnostic Services
- Software Management Services
- SIM-Secure
- Wireless Network Performance basic features:
 - Network ticket tracking
 - Unplanned network events
 - Planned network maintenance
 - Data usage
 - Device models
 - Static coverage map

Benefits:

- Complete toolset for device lifecycle management
- Improve efficiencies for device lifecycle management
- Full visibility to network, device and provisioning status, such as diagnostics and location information, can increase availability of real time sensor data for critical business operations
- Improve visibility and security for assets

 **ThingSpace Intelligence Services Premium Bundle**

For customers with thousands of lines on their account, the Verizon ThingSpace Intelligence Premium Bundle offers a flat rate tier (based on the number of lines). With thousands of lines, anomalous behavior can be more difficult to detect which is why Anomaly detection is included.

For a fixed cost per tier, the bundle includes:

- Everything in the Basic Bundle
- Behavior Anomaly detection
- Wireless Network Performance premium features:
 - Experiences score
 - Site proximity
 - Near real-time coverage
 - Weather information
 - Custom map analytics
 - Service notifications
 - Service diagnostic tool

Benefits:

- Complete toolset for device lifecycle management
- Improve efficiencies for device lifecycle management
- Full visibility to network, device and provisioning status, such as diagnostics and location information, can increase availability of real time sensor data for critical business operations
- Improve visibility and security for assets
- Proactive alerts for unusual behavior
- Deeper insight into the network performance

How to get ThingSpace Services

For existing ThingSpace customers, sign up for the free trial under the “Subscriptions” page within ThingSpace manage.

Or they can click “Shop now” from this page: thingspace.verizon.com/services/intelligence.html

Note that customers with a la carte subscriptions including Device Location, SIM Secure or Software Management cannot subscribe to the bundle unless they cancel those a la carte subscriptions.

Product	Available a la carte	Basic Intelligence bundle	Premium Intelligence bundle	As a Managed Services
Advanced Device Diagnostics with API's		✓	✓	✓
Anomaly Detection with API's			✓	✓
Device Location with API's	✓	✓	✓	✓
SIM Secure with API's	✓	✓	✓	✓
Software Management with API's	✓	✓	✓	✓
Usage Analytics		✓	✓	✓
Wireless Network Performance Basic	✓	✓	✓	✓
Wireless Network Performance Premium with API's	✓		✓	✓

Learn more.

Contact your Verizon Business Account Manager to discover how ThingSpace Services can streamline the way you manage your IoT deployments or visit thingspace.verizon.com.

To learn about certified devices or modules on the Verizon network, please visit opendevelopment.verizonwireless.com.