Cisco Context-Aware Mobility Service Software Release 5.1

PB472985

Overview

The Cisco® Context-Aware Mobility Service provides the ability to take full advantage of the Cisco Unified Wireless Network and other wired and wireless networks to dynamically collect contextual information (such as identity, location, temperature, pressure, and humidity). What's more, the solution uses an open API to make this information available to any business application to help create, change, or optimize business processes.

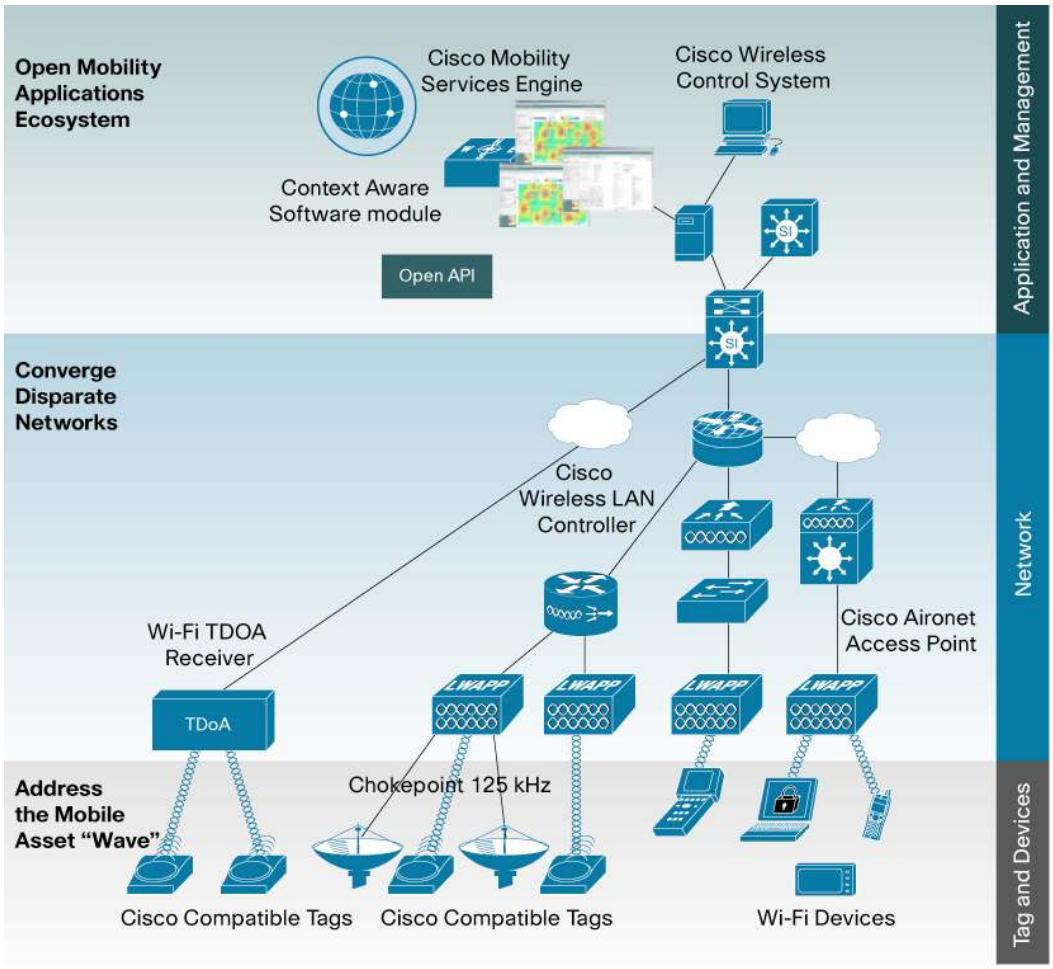
Enterprises that want to empower workers and drive efficiency in business processes face challenges in eliminating silos and unifying the mobile network. On the network side, the challenge is retrieving information from siloed networks (Wi-Fi, outdoor mesh, cellular, GPS, and so on) and doing it in such a way so as not to increase latency and error rates. On the mobile asset side, the challenge is collecting contextual information from multiplying assets and employees who are increasingly mobile; manually collecting this information is not realistic. Contextual information can be automatically collected using either the Wi-Fi connectivity of the asset (such as for laptops, Wi-Fi phones, smartphones, and other devices with a Wi-Fi radio) or for mobile assets without wireless connectivity, Wi-Fi tags placed on the asset (examples include wheelchairs, pallets, and projectors). On the business application side, the Cisco Context-Aware Mobility Service offers an open API that allows business applications to access the relevant contextual information and integrate it.

Currently two methods are used to gather and calculate location information as part of the contextual data: the context-aware engine for clients and context-aware engine for tags. For devices with Wi-Fi radio (such as Laptops, wireless phones, and some smartphones) in an indoor office environment, the context-aware engine for clients uses received signal strength indication (RSSI) to calculate location information. Devices without a Wi-Fi radio must be associated with a Wi-Fi tag. To calculate location information for these tags, the context-aware engine for tags uses RSSI in indoor environments (such as hospitals, university classrooms, and corporate offices) and time difference of arrival (TDoA) in high-ceiling or outdoor environments (for example, manufacturing facilities or challenging RF environments).

The Cisco Context-Aware Mobility Solution provides true enterprise mobility by capturing crucial contextual information for both clients and tags and integrating it into business processes that directly impact the organization's bottom line.

By simply adding the Cisco 3300 Series Mobility Services Engine (MSE) with the Cisco® Context-Aware Mobility Software to your Cisco Unified Wireless Network, as shown in Figure 1, you instantly benefit from the ability to dynamically capture and use contextual information from mobile assets. You can use a combination of modules as needed (one for Wi-Fi clients and one for Wi-Fi tags) to optimize, change, or create communications flow in business processes.

Figure 1. Cisco Context-Aware Mobility Service



Features

The following context-awareness features are included in Cisco Mobility Services Engine Release 5.1.

Table 1. Summary of Cisco Context-Aware Mobility Service Features

Feature	Description	Benefit
Context-Aware Engine for Tags	Context-Aware Mobility Solution has the capability to gather Wi-Fi tag information either from the Cisco Unified Wireless Network using an RSSI algorithm or from TDoA receviers for outdoor or high-ceiling environments or RF challenging environments (both indoor and outdoor environments can be RF challenging). The context-aware engine for tags can run standalone or simultaneously with the context-aware engine for clients.	Integration of both context-aware engine for Tags and context-aware engine for clients truly highlights the strong benefits of Cisco MSE with the Context-Aware Mobility Software to provide identity, location, and other useful information from clients or tags and to deliver a complete solution for multiple environments (indoor, outdoor and warehouses or open spaces environments) across different industries.
Rails and Regions	This feature is designed to define map areas to use for gathering location information. It allows areas to be excluded, such as open areas in middle of a building for multifloor facility (for example, atriums). Rails help determine and set boundaries like hallways, corridors, or the facility perimeter. Multiple rails and regions can be identified and selected to narrow down the area to use for location calculation.	Selecting the areas where location shouldn't be calculated increases efficiency in location calculation by excluding areas where the assets wouldn't show up to the user can configure exclude regions based on prior knowledge of physical areas.

Feature	Description	Benefit
Configuration Information Exchange	This feature allows you to specify which RSSI information gets forwarded from controller to the Context-Aware Mobility Software. Without this feature, all of the RSSI information (such as rogue, client, and tag RSSI information) would be sent, thus utilizing more bandwidth.	Selecting which traffic is sent from controller to the Context-Aware Mobility Software allows for better bandwidth utilization, especially when information has to be sent over WAN links. The processing power of the MSE is conserved by restricting the information sent from controller side.
Operating System Hardening	Operating system hardening allows protection of the Context-Aware Mobility Software against certain common network security attacks (such as denial of service).	Network attacks cause hours, sometimes even days, of downtime, affecting the availability of critical network resources including availability of context information needed for business applications, and creating a serious breach in data confidentiality and integrity. Operating system hardening for the Cisco Context-Aware Mobility Software helps in mitigating the threat posed by network attacks, including loss or delay of business-critical applications.
Site Survey Calibration	Site survey calibration is needed to support location services. Collecting data points for such a survey is easier and more accurate when multiple calibration methods are used.	The site survey calibration features allow faster, simpler troubleshooting of the RF environment to ensure improved location accuracy in a third less time.
Location Optimized Monitor Mode	Location optimized monitor mode (LOMM) is an access point configuration that enables the detection of Wi-Fi tags even if a wireless network is not actively deployed. LOMM access points can be easily added exactly where they are needed to provide ideal coverage and location accuracy without disrupting existing network configurations. LOMM access points are well suited for multiservice network environments that already support voice or intrusion detection systems and want to add location without causing network interference.	LOMM allows organizations to easily implement the Context-Aware Mobility Service to detect mobile assets equipped with Wi-Fi tags, such as wheelchairs or manufacturing parts, without disrupting the existing network. In a mixed-network environment, adding LOMM access points to support tracking of Wi-Fi tags conserves network resources and maximizes utilization.
Location Accuracy Tool	The Location Accuracy tool improves the usability of current accuracy testing by providing point-and-click test execution and user friendly reports for enhanced accuracy measurement, including basic troubleshooting, inter-floor-level accuracy, and alarm notification reports.	The Location Accuracy tool provides network administrators with increased visibility of issues impacting location accuracy within the RF environment. The tool simplifies location troubleshooting by providing quick access to test results and reports, enabling faster problem resolution.
Location History Enhancements	Enhancements to the Location History feature allow location tracking information to be collected and stored based on the occurrence of specific events. A transition tracking algorithm logs location events triggered by a predefined condition, including when a Wi-Fi tag: • Changes floor location • Enters or leaves a specified area • Moves beyond a 30-foot distance	The Location History feature enables more effective management, storage, and reporting of location tracking data by capturing only predefined significant location events.
Inter-floor Differentiation	This feature allows customers to determine more precisely the floor location of a mobile asset. Organizations have the flexibility to choose from either chokepoint solution or Wi-Fi only or a combination of both configurations to meet their specific needs.	This feature is especially beneficial in buildings with unconventional shapes such as hospitals. With this feature, a laptop (or other Wi-Fi clients) can be tracked to determine when it entered a specific floor or moves within a specific floor.

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