



Service Description: Wireless LAN Planning and Design Service

This document describes Wireless LAN Planning and Design Service.

Related Documents: This document should be read in conjunction with the following documents also posted at www.cisco.com/go/servicedescriptions/: (1) Glossary of Terms; (2) List of Services Not Covered; and (3) Severity and Escalation Guidelines. All capitalized terms in this description have the meaning ascribed to them in the Glossary of Terms.

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Cisco shall provide the Wireless LAN Planning and Design Service described below as selected and detailed on the Purchase Order for which Cisco has been paid the appropriate fee. Cisco shall provide a Quote for Services ("Quote") setting out the extent of the Services and duration that Cisco shall provide such Services. Cisco shall receive a Purchase Order that references the Quote agreed between the parties and that, additionally, acknowledges and agrees to the terms contained therein.

Service Summary

Wireless LAN Planning and Design Service provides Design, Planning, Architecture and Assessment services in support of Wireless LAN and Mobility Services solutions: Adaptive Wireless IPS, Context Aware, Voice over Wireless LAN, and Guest Access.

Wireless LAN Planning and Design Service

Under this Service, Cisco shall provide the Wireless LAN Planning and Design Service during Standard Business Hours, unless stated:

Wireless LAN Project Management

- Provide a single point of contact ("Cisco Project Manager") as well as a designated backup for all issues relating to the Wireless LAN ("WLAN") Planning and Design Services selected by Customer under this Service Description. The Cisco Project Manager responsibilities typically include, amongst other things, the following:
 - Initiate the project by conducting kickoff meetings, defining project scope, work breakdown structure and identifying risk and mitigation plan.
 - Define and execute change management process which includes informing customer of risks and negotiating changes to the schedule and the budget based upon the agreed upon changes.
 - Maintain project plan and risk management and change management processes.
 - Manage project cost and resource budget.
 - Provide periodic project progress report throughout the performance of Service.
 - Provide Customer satisfaction surveys to Customer.

Wireless LAN High-Level Architectural Design

- **Customer Requirements Document ("CRD") Development.**
 - Collaborate with the Customer to remotely collect and document Customer's communicated business requirements to be used by the high level network design. The Customer requirements may include:
 - Wireless features and functionality are required to meet business objective.
 - Review and analyze the existing Network architecture for performance, traffic analysis, Hardware and Software versioning, security and WLAN/legacy Network integration.
 - Provide Customer Requirements Document ("CRD") that contains Customer requirements, collected data,

information, observations, and the results of the high level analysis.

- Collaborate with Customer during their high level Network detailed design process. Cisco will assist the Customer to address the following issues as part of the collaboration:
 - Defining the high-level Network architecture and topology.
 - Integration and aggregation points for the WLAN deployment including protocols, security and NMS considerations.
 - WLAN application environment, bandwidth requirements, quality-of-service (QoS) and class of service discussions, guidelines for testing the types of WLAN, configuration recommendations.
 - WLAN radio frequency (RF) deployment scenarios, recommend best practices for: RF 'footprints' types of WLAN, configuration recommendations, frequency plans, power and environmental factors.
- Assist the Customer in the creation of its high level Network design.

Wireless LAN RF Assessment

- Collaborate with the Customer to coordinate and perform an onsite site survey that captures the site details including physical, environmental considerations, electrical – AC/DC supplies, cabling, Network synchronization, peripheral equipment and remote access. The Customer requirements may include:
- Perform critical radio frequency survey to determine the optimal access point placement.
- Analyze the information obtained from the site survey and develop recommendations for site modification and improvements.
- Provide a site survey report detailing the results of the site survey, radio frequency assessment, environmental requirements and optimized placement of wireless access point.

Wireless LAN Low Level Detailed Network Design

- Collaborate with Customer during their low level Network detailed design process. Cisco will assist Customer to address the following as part of the collaboration:
 - Examine and evaluate Customer network documentation, and existing network designs.

- Verify that the chosen platforms, features, and functionality will meet the Customer communicated design objectives.
- Perform design activities including bandwidth modeling, capacity planning, WAN analysis, architecture review, addressing and routing strategy, scalability and redundancy assessment, and security assessment.
- Assist the Customer in the creation of its low level Network design.

Wireless LAN Controller Design Planning

- Collaborate with Customer during WLAN controller design process. Cisco may assist Customer to address the following as part of the collaboration:
 - Provide on-site support for Cisco wireless LAN controller network level design support and recommend wireless LAN controller and access point software release.
 - Recommend access point assignment to the required wireless LAN controller according to the design.
 - Recommend security policy configurations including IEEE 802.1x (or VPN) authentication to the RADIUS server and external database.
 - Recommend radio management settings including RF interference detection, transmit power, and channel selection.
 - Recommend security monitoring setting, including rogue AP detection, and intrusion detection.
 - Recommend policy provisioning fault settings
 - Provide support for the test and turn-up of wireless LAN controllers and access points
 - Provide Cisco Wireless LAN Controller Design Template

Wireless LAN Control System (WCS) Design Planning

- Collaborate with Customer during WLAN Control System (WCS) design process. Cisco may assist Customer to address the following as part of the collaboration:
 - Provide on-site support for Cisco WLAN Control System (WCS) design activities and recommend software release.
 - Recommend settings for wireless LAN controllers in the WCS based on the design.

- Recommend settings for up to 50 access points in the WCS.
- Recommend settings for WCS scheduled tasks, user accounts, and logging to match Cisco leading practice recommendations and the Customer environment.
- Provide a review for Customer operations staff (or provide up to two hours of knowledge transfer), how to use the key features of WCS and WLAN management.
- Provide Cisco WCS Design Checklist.

Wireless LAN Mobility Services Engine (MSE) Design Planning

- Collaborate with Customer during WLAN Mobility Services Engine design process. Cisco may assist Customer to address the following as part of the collaboration:
 - Provide on-site support for Cisco Mobility Services Engine network level design support.
 - Gather information on existing WLAN infrastructure and validate all design prerequisites.
 - Recommend software releases for the WCS, wireless LAN controllers and access points.
 - Recommend the recommend MSE software release.
 - Provide Cisco Mobility Services Design Template.

Wireless LAN Context Aware Design Planning

- Collaborate with Customer during the WLAN Context Aware design process. Cisco may assist Customer to address the following as part of the collaboration:
 - Recommend settings for one Mobility Services Engine for Context Aware location including:
 - Provide guidelines for importing Mobility Services Engine into WCS
 - Provide recommendations based on the design for device tracking
 - Recommend polling intervals to optimize MSE and network resources

- Recommend basic and advanced server history parameters.
- Support the test and turn-up of the Mobility Services Engine.
- Recommend MSE maintenance tasks.
- Provide a WLAN specialist for on-site Mobility Services Engine calibration support.
- Recommend settings for calibration to attempt to improve location accuracy.
- Recommend location of additional access points to improve location accuracy performance.
- Assist in a demonstration to Customer operations staff (or provide up to one hour of a workshop type knowledge transfer), on how to use the key features of Context Aware location and perform calibration.
- Provide Cisco Context Aware Design Template.

Wireless LAN Adaptive wIPS Design Planning

- Collaborate with Customer during the WLAN Adaptive wIPS design process. Cisco may assist Customer to address the following as part of the collaboration:
 - Recommend software releases for the Wireless Control System (WCS), wireless LAN controllers and access points for support of Mobility Services Engine (MSE) and wIPS services.
 - Recommend settings for one Mobility Services Engine for Adaptive wIPS including:
 - Provide guidelines for importing Mobility Services Engine into WCS
 - Provide recommendations for wIPS service synchronization and activation with Wireless LAN controllers
 - Recommend polling intervals to optimize MSE and network resources
 - Recommend basic and advanced server history parameters.
 - Support the test and turn-up of the Mobility Services Engine.
 - Recommend MSE maintenance tasks.

- Recommend locations and configurations for designated access points for WPS-optimized monitor mode
- Recommend WPS profile definition for adaptive intrusion prevention and policy rules.
- Assist in a demonstration to Customer operations staff (or provide up to one hour of a workshop type knowledge transfer) on; how to use Cisco WCS to manage and monitor profiles and alarms generated by the WPS, capture attack forensics via WPS-optimized access points for additional analysis, use advanced reporting options via third party tools.
- Provide the Cisco Adaptive WPS Design Checklist.
- Design support for one centralized one Guest Access Gateway (WLC or NAC), a registration portal, and <one/ two >pilot guest user sites (guest hotspots)
- Recommend settings to allow the NAC Guest Server to communicate with an existing WLAN controller or an existing NAC Manager.
- Recommendations for customization of the NAC Guest Server guest registration portal to allow an authorized internal user to register a guest user, including authentication against an employee directory.
- Participate in the design of the user welcome page of the guest access gateway (WLC or NAC) including logo and acceptable use policy.

Wireless LAN Guest Access Design Planning

- Collaborate with Customer during the WLAN Guest Access design process. Cisco may assist Customer to address the following as part of the collaboration:
 - Provide detailed design assistance for an overall WLAN guest access solution
 - Participate in Guest Access design planning including; “anchor” WLAN controller to enable tunneling of guest traffic between “local” WLAN controller(s) and the “anchor” controller gateway, tunneling of guest traffic to DMZ/public internet, rate limiting and/or IP services management.
 - Recommend settings for the WLAN controller(s) to enable a Guest SSID on Wireless Access Points.
 - Participate in the design of the Guest Registration (internal employee portal) planning including gathering information on employee (guest sponsor), or guest.
 - Recommend Guest Authentication & Accounting Planning, including Generating, distributing, expiring, and tracking guest accounts / access codes.
 - Provide guidelines for design of the Welcome “page” with company logo, message, & terms of use.
 - Provide guidelines for development of processes for supporting guest requests for technical support.
 - Provide Cisco Wireless Guest Access Design Template

If the design includes a NAC Guest Server:

Wireless LAN Voice Design Planning

- Collaborate with Customer during Voice over WLAN design process. Cisco may assist Customer to address the following as part of the collaboration:
 - Provide on-site support for Cisco Voice over WLAN design support and recommend wireless LAN controller and access point software release.
 - Recommend settings for WLAN to maximize wireless handset performance on the existing IP telephony network infrastructure (i.e., CallManager, QoS, etc.) according to the design.
 - Recommend radio management settings including RF interference detection, transmit power, and channel selection.
 - Provide support for the test and provisioning of wireless handsets.
 - Provide Cisco Wireless LAN Voice Design Checklist

Wireless LAN Video Design Planning

- Collaborate with Customer during Video over WLAN design process. Cisco may assist Customer to address the following as part of the collaboration:
 - Provide on-site support for Cisco Video over WLAN design support and recommend wireless LAN controller and access point software release.

- Recommend settings for WLAN to maximize device performance and video quality according to the design.
- Recommend radio management settings including RF interference detection, transmit power, and channel selection.
- Provide support for the test and provisioning of planned camera types, frame rates and video CODECs.
- Provide Cisco Wireless LAN Video Design Checklist

Wireless LAN Network Design Validation

- Collaborate with Customer to validate the performance and coverage of the WLAN and validate against the documented WLAN design. Cisco may assist Customer to address the following as part of the collaboration:
 - Perform a WLAN Performance Analysis, including using appropriate WLAN collection and analysis tools to capture utilization and traffic patterns.
 - Perform an RF Coverage Analysis includes review of the site survey results, AP locations, antenna types, frequency plan, power levels versus the documented design.
 - Perform an Interference Analysis including measurement of internal and external interference sources present at the time of the analysis.
 - Evaluate overall WLAN network performance, including (if required) readiness to support Key Applications specified in the architectural design.
 - Review of WLAN device configuration(s)
 - Provide a WLAN Network Verification Document which includes analysis and recommendations to align the current state of the network including; RF coverage, RF interference, WLAN utilization and traffic patterns and wireless device configuration to the documented design.

Wireless LAN Network Assessment

- Work with Customer to understand their Wireless LAN network environment and to qualify Cisco's understanding of their requirements for this project.

- Conduct one (1) project kickoff conference call to discuss the Wireless Local Area Network (LAN) Network Assessment goals, process, and requirements.
- Provide Wireless LAN Network Assessment questionnaire to be completed by Customer, and/or conduct interviews with Customer, as appropriate.
- Collect technical documentation, network diagrams topologies, and network device configurations from Customer.
- Collect information from the existing wireless LAN infrastructure using Cisco wireless LAN network assessment tools and techniques.
- Perform a remote Wireless LAN Network Assessment to include assessment of the architecture, operational status, and security of the existing wireless infrastructure focusing on the following areas:
 - review wireless infrastructure device configurations based on Cisco leading practice recommendations;
 - analyze the security vulnerabilities of the wireless LAN infrastructure;
 - identify potential radio frequency (RF) coverage, interference or contention issues based on information collected from the Cisco WLAN Controllers;
 - assess the Cisco Wireless LAN Controller deployment for redundancy.
- Develop and provide a Wireless LAN Network Assessment Report to include, amongst other things, an executive summary, assessment findings, comparison of the Customer's wireless network design and configuration against industry and Cisco leading practices, recommendations for network design and configuration changes, as applicable.
- Review with Customer the Wireless LAN Network Assessment Report for comment and approval before it is formally completed and released.
- Remotely present the executive summary of the Wireless LAN Network Assessment Report (including the analysis and recommendations) to the Customer key stakeholders and project sponsor.

Wireless LAN Performance Analysis

This performance analysis is an option to the WLAN Network Assessment Service if in-depth performance troubleshooting and analysis on a specified portion of wireless LAN network is desired.

- Review Customer's Wireless LAN Performance Analysis goals, process, and requirements.
- Perform an onsite performance analysis of the Customer's Wireless LAN environment limited to a maximum of ten (10) Access Points (APs) or 25,000 sq. ft. The analysis will include a detailed performance analysis of the wireless network infrastructure using Cisco Wireless LAN performance analysis tools and techniques. The Wireless LAN Performance Analysis may include, amongst other information:
 - measuring the actual signal coverage of the wireless network;
 - identifying the overall level of interference and specific sources which may adversely impact wireless network performance;
 - analyzing the network utilization, network radio frequency (RF) signal tracking accuracy and efficiency metrics of the wireless network;
 - Performing wireless LAN troubleshooting or packet capture and analysis for specific wireless LAN issues as needed.
- Review with Customer the summary of the findings of the Wireless LAN Performance analysis.
- Obtain Customer signoff of the findings summary.

Wireless LAN Mobility Services Readiness Assessment

- Collaborate with Customer to assess gaps between the Customer's current wireless network infrastructure design and its business requirements in support of Mobility Services; Voice over WLAN, or Context Aware or Adaptive Wireless IPS. Cisco may assist Customer to address the following as part of the collaboration:
 - Provide the Cisco WLAN customer requirements questionnaire to Customer contacts prior to project kick off.
 - Conduct project kick-off conference call with the Customer to discuss the Wireless Network architecture, Mobility Services goals, processes and requirements
 - Conduct interviews with key members of Customer's organization involved with the wireless network infrastructure.
 - Review and verify Customer wireless network information and business requirements.

- Provide On Site and/or Remote review of the Customer provided wireless RF site survey report including the wireless RF infrastructure assessment for an area of up to 25,000 square feet that may include:
 - RF coverage analysis, including the review of site survey results, AP locations, antenna types, frequency plan, and power levels
 - Interference analysis, including the measurement of internal and external interference sources present at the time of the analysis.
 - Evaluation of overall wireless RF network performance, including review of readiness to support Mobility Services.
- Analyze the Customer's wireless network existing architecture and the readiness of existing architecture and infrastructure to support wireless network Mobility services. The review may include:
 - Current and planned security infrastructure such as VPN concentrators, RADIUS servers, external authentication databases (e.g., Active Directory, NT, LDAP)
 - Current and planned wired network infrastructure design
 - Current and planned network management infrastructure
 - Current and planned client management processes.
 - Review of the wireless network controller configuration template to determine whether it will support the introduction of Mobility Service
 - Review the Cisco Wireless Control System (WCS) configuration to support the introduction of Mobility Service.
 - Review Mobility Services Engine (MSE) configuration operating over the Cisco centralized WLAN architecture in support of Mobility Services
- Provide Cisco Wireless LAN Mobility Services Readiness Assessment Results and Findings presentation with up to two (2) hours of remote or onsite knowledge transfer.

Wireless LAN Migration Plan Review

- Collaborate with Customer to validate the migration plan to the Cisco Unified Wireless Network (CUWN).

Cisco may assist Customer to address the following as part of the collaboration:

- Assess the existing network architecture documentation and analyze the readiness of existing network architecture and infrastructure in order to support the migration to a CUWN-based wireless architecture and network services by reviewing the following documentation:
 - Customer's documented high level wireless network design documentation;
 - Customer's migration implementation plan.
- Review the network design document and the migration implementation plan, perform a verification of Customer's migration implementation procedure(s) for CUWN on site at one Customer location in a non-production environment which may include the following tasks:
 - Review design configuration of up to one controller for the non-production network.
 - Recommend the process for migrating up to ten (10) Access Points to CUWN in the non-production environment.
 - Assess controller configuration and new AP image.
 - Assess client security configuration with controller based architecture.
 - Collaborate with Customer to assess no more than three (3) key applications on the CUWN wireless network architecture.
- Recommend CUWN migration plan's steps, processes and tasks and document the recommended Access Point migration procedure and the Access Point verification procedure (if any).
- Provide Cisco Wireless LAN Migration Plan Document

Wireless LAN Outdoor Detail Design Planning

- Collaborate with Customer to plan a single site design template for the key networking infrastructure devices. Cisco may assist Customer to address the following as part of the collaboration:
 - Provide wireless detailed design assistance by working with Customer staff to develop

detailed plan. Design elements to be considered include;

- Security infrastructure.
 - IP Addressing scheme
 - Switching & routing infrastructure
 - Wired and wireless backhaul design.
 - Network management infrastructure
 - Provide software image recommendations
- Provide Cisco Wireless LAN Outdoor Detailed Design Document.

Wireless LAN Outdoor Site Design Planning

- Collaborate with the customer to assess the available wireless node sites, provide a predictive coverage model utilizing designated sites, and specify a detailed site design template for 1 site. Cisco may assist Customer to address the following as part of the collaboration:
 - Onsite assessment of available wireless node site
 - Assess a detailed predictive coverage model with wireless nodes deployed according to available sites.
 - Recommend areas where additional sites are required to achieve coverage goals;.
 - Recommend for 1 site a design for physical locations of wireless Access Points, AP power / channel settings (if required),
 - antenna type, location and orientation and identify any special mounting or cabling requirements.
 - Provide Cisco Wireless LAN Outdoor Detailed Design Document.

Wireless LAN Outdoor Design Verification Audit

- Collaborate with the customer to assess the performance and coverage of the wireless network for one site. Cisco may assist Customer to address the following as part of the collaboration:
 - Perform a survey of the RF environment for coverage, interference and general performance and network configuration using appropriate WLAN data collection and analysis tools to determine;
 - RF Coverage Analysis

- Interference Analysis (measure internal/external interference at one moment in time)
- Evaluation/review of overall WLAN network capacity
- Perform an audit of the prediction coverage analysis process and customer access points against the documented design.
- Provide Cisco Wireless LAN Outdoor Design Verification Audit Results and Findings presentation with up to two (2) hours of remote or onsite knowledge transfer.

Service Responsibilities of Customer

Customer shall comply with the following obligations:

- Provide a Network topology map, configuration information, and information of new features being implemented as needed.
- Retain overall responsibility for any business process impact and any process change implementations
- Ensure key Customer networking and operational personnel are available to participate in interview sessions as required.
- Unless otherwise agreed to by the parties, Customer shall respond within two (2) business days of Cisco's request for documentation or information needed for the Service.
- Customer acknowledges that Cisco's obligation is to only provide assistance to Customer with respect to the tasks detailed and that such assistance may not result in some or all of the tasks being completed.
- A list of all of the WLAN networking components including but not limited to Hardware, Software and solution configurations;
- A high-level architectural drawing showing the type of Hardware, Software, and application solutions configurations and where they are physically located (for example, geographical location or location within the Network);
- Detailed definitions of the type of application (for example mobile traveler, corporate workforce or verticals) and features; detailed definition of Customer's implementation strategy and schedule;
- Copies of Network implementation plan and product configuration templates.
- Customer is responsible for managing any internal change management procedures, providing access to network devices, and providing qualified engineers to perform any configuration changes to production network devices, LAN switches, routers, and other wired infrastructure components.)
- Provide physical access to facilities, remote network access (e.g., via IPsec VPN), relevant network documentation and device configurations.
- Provide the wireless LAN controller hardware and software, rack, power, and physically install WLAN controller hardware.
- Ensure that the access points are properly installed on the network with access to the controllers.
- Provide information on the required authentication, security, QoS, mobility, optimization, fault and configuration provisioning policies to be applied to each wireless LAN controller and access point.
- For Voice Design, the Customer must provide detail information that the existing IP telephony network infrastructure (i.e., CallManager, QoS, etc.) consistent with Cisco IP Telephony design recommendations and document any pre-existing performance or stability problems in the existing wired IP telephony network that may adversely impact the Voice over WLAN deployment.
- For Assessment services, provide the following; a completed Cisco WLAN Network Assessment questionnaire following project kickoff, current technical document including network diagrams and device configurations, remote network access to areas within the scope of the service, design specifications including relevant site survey reports and device inventory information for all access points, wireless LAN controllers, LAN switches, access control services, and network management systems, and WLAN technology requirements for standards (i.e. 802.11a/b/g/n), tools, mobility services, capacity requirements, performance requirements, accessibility/reliability requirements, and infrastructure management. For the WLAN Performance Analysis service option, Customer will provide onsite, physical access to facilities for areas within the scope of the Service.
- Provide a knowledgeable engineer to work with the Cisco Advanced Services on making any configuration changes to the Customer network.