



Service Description: Cisco Small Cell Optimization Service

This document describes Cisco Small Cell Optimization 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.

Direct Sale from Cisco. If you have purchased these Services directly from Cisco, this document is incorporated into your Master Services Agreement (MSA) with Cisco. In the event of a conflict between this Service Description and your MSA, this Service Description shall govern.

Sale via Cisco-Authorized Reseller. If you have purchased these Services through a Cisco-Authorized Reseller, this document is for description purposes only; is not a contract between you and Cisco. The contract, if any, governing the provision of this Service will be the one between you and your Cisco Authorized Reseller. Your Cisco Authorized Reseller should provide this document to you, or you can obtain a copy of this and other Cisco service descriptions at www.cisco.com/go/servicedescriptions/

Service Summary

The Cisco Small Cell Optimization Service is intended to supplement a current support agreement for Cisco products. Cisco shall provide the Small Cell Optimization 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 upon between the parties and that, additionally, acknowledges and agrees to the terms contained therein.

Cisco Small Cell Optimization Service

General Service Responsibilities of Cisco

Cisco shall provide the following General Service provisions for Services specified in the Quote:

- Under this Service, Cisco shall provide the Small Cell Optimization Service during Standard Business Hours, unless stated otherwise.
 - Provide a single point of contact ("Cisco Project Manager") for all issues relating to the Services.
 - Participate in regularly scheduled meetings with the Customer to discuss the status of the Services.
 - Ensure Cisco employees (including Cisco subcontractors) conform to Customer's reasonable workplace policies, conditions and safety regulations

that are consistent with Cisco's obligations herein and that are provided to Cisco in writing prior to commencement of the Services; provided, however, that Cisco's personnel or subcontractors shall not be required to sign individual agreements with Customer or waive any personal rights.

- Supply Cisco project team personnel with a displayable form of identification to be worn at all times during services activities at Customer's facility.
- Cisco reserves the right to determine which of its personnel shall be assigned to a particular project, to replace or reassign such personnel and/or subcontract to qualified third persons part or all of the performance of Service hereunder. Should Customer request the removal or reassignment of any Cisco personnel at any time; however Customer shall be responsible for extra costs relating to such removal or reassignment of Cisco personnel. Cisco shall not have any liability for any costs, which may occur due to project delays due to such removal or reassignment of Cisco personnel.

Specific Service Responsibilities of Cisco

In addition to the General Responsibilities, Cisco shall provide the following:

Audits & Assessments

Small Cell Network Assessment

- Work with Customer to understand their Small Cell network environment and to qualify Cisco's understanding of their requirements for this project.
- Conduct one (1) project kickoff conference call to discuss the Small Cell Network Assessment goals, process, and requirements.
- Provide the Small Cell Network Assessment questionnaire to be completed by Customer, and/or conduct interviews with Customer to collect the information, as mutually agreed.
- Collect technical documentation, network diagrams topologies, and network device configurations from Customer.
- Collect information from the existing Small Cell infrastructure using Cisco Small Cell Network Assessment tools and techniques.
- Perform a remote Small Cell Network Assessment to include assessment of the architecture, operational status, and security of the existing Small Cell infrastructure focusing on the following areas:
 - Review Small Cell infrastructure device configurations based on Cisco leading practice recommendations;
 - Analyze the security vulnerabilities of the Small Cell infrastructure;
 - Identify potential radio frequency (RF) coverage, interference or contention issues based on

- information collected from RMS
- o Assess the small cell network at the specified sites on the corresponding KPIs and intended mobility scenarios.
- o Assess the Cisco Small Cell deployment for redundancy.
- Develop and provide a Small Cell Network Assessment Report to include:
 - o Executive Summary;
 - o Assessment findings;
 - o Comparison of the Customer's Small Cell network design and configuration against industry and Cisco leading practices;
 - o Recommendations for network design and configuration changes, as applicable.
- Review with Customer the Small Cell Network Assessment Report.
- Remotely present the Executive Summary of the Small Cell Network Assessment Report (including the analysis and recommendations) to the Customer key stakeholders and project sponsor.

Small Cell Operations Risk Management Assessment

Provide Small Cell Operations Risk Management Assessment. Cisco will consult with Customer via a series of meetings to understand Customer's Small Cell operational practices. A Small Cell Operations Risk Management Assessment may include, among other information, the following:

- Review Customer's operational processes regarding problem management, Small Cell network configuration management, change management, release management, capacity and performance management, and Small Cell event (fault) management.
- Review Customer's operational processes of Small Cell Network management systems tools and instrumentation.
- Executive summary identifying and prioritizing gaps in operations processes and Small Cell network management.
- Create a resolution recommendation plan to address operational gaps based on industry leading practices.

Small Cell 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

- 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 Small Cell access point

Small Cell Network Readiness Assessment

Collaborate with Customer to assess gaps between the Customer's current Small Cell network infrastructure design

and its business requirements in support of Mobility Services. Cisco may assist Customer to address the following as part of the collaboration:

- Provide the Cisco Small Cell customer requirements questionnaire to Customer contacts prior to project kick off.
- Conduct project kick-off conference call with the Customer to discuss the Small Cell Network architecture, Mobility Services goals, processes and requirements
- Conduct interviews with key members of Customer's organization involved with the Small Cell network infrastructure.
- Review and verify Customer Small Cell network information and business requirements.
- Provide On Site and/or Remote review of the Customer provided Small Cell RF site survey report including the Small Cell RF infrastructure assessment for an area of up to 250,000 square feet that may include:
 - o RF coverage analysis, including the review of site survey results, Small cell locations, antenna types, frequency plan, Small cell configurations and role and power levels
 - o Interference analysis, including the measurement of internal and external interference sources present at the time of the analysis.
 - o Evaluation of overall Small Cell RF network performance, including review of readiness to support Mobility Services.
 - o Backhaul analysis, requirements and potential limiting factors affecting the performance.
- Analyze the Customer existing Small Cell network infrastructure, architecture, and configurations for readiness to support Small Cell network Mobility services.
- Provide Cisco Small Cell Mobility Services Readiness Assessment Results and Findings presentation with up to two (2) hours of remote or onsite knowledge transfer.

RF and coverage Verification Assessment

- Validate the performance and coverage of the Small Cells against the documented Small Cell RF design.
- Perform a survey of the RF environment for coverage, interference and general performance and network configuration using appropriate Small Cell data collection and analysis tools to determine;
 - o RF Coverage Analysis (review site survey results, AP locations, antenna types, frequency plan, power levels versus the documented design)
 - o Interference Analysis (measure internal/external interference at one moment in time)
 - o Evaluation/review of overall Small Cell network performance and capacity
- Provide a RF Verification Document, which includes analysis and recommendations to align the current state of the network including RF coverage and RF interference to the documented design.

Design

Design Development

Collaborate with Customer to perform design development activities, which may include:

- Customer Requirements Analysis:
 - Collect and re-validate Customers business, technical and operational requirements
 - Review Customer requirements for WLAN technology and mobility applications
- High Level Design
 - Review with the Customer, relevant technical documentation, including any existing high level design, network infrastructure design, existing Small Cell infrastructure design, planned designs if exist, network topology diagrams, network device configurations, software releases, floor maps, provisioning policies, future growth requirements, strategy, and any relevant documents, as required.
 - Create and provide High Level Design Document, which may include technical objectives, high level design requirements, key risks in the Customer's proposed high level design, if applicable, design recommendations, proposed network and Small Cell topology and architecture
- Small Cell Detailed Design
 - Review Customer network documentation, and existing network designs.
 - Verify that the chosen platforms, features, and functionality will meet the Customer communicated design objectives.
 - Create Small Cell detailed design to meet Customer's business and technical requirements, which may include network logical and physical topology, Small Cell design, configurations templates for Cisco infrastructure devices, software release recommendations based on features and/or functionality, and hardware platform recommendations.

Design Consulting

Cisco will provide Design Consulting and guidance, which may include the following:

- Assist Customer with Small Cell design related activities
- Analyze impact of adding new features or making configuration changes to the existing network.
- Consult on Small Cell related projects.

Design Review

Cisco will consult with Customer to develop a thorough understanding of Customer's Small Cell design requirements and provide support for incremental changes to the Small Cell architecture. The Design Review may include:

- Review of the Customer's Small Cell and Network design.
- Analysis of documented feature and functionality requirements as well as business direction compared against current design and needs.
- Review of existing and planned Small Cell platform.
- Provide comments and recommendations on proposed design changes.

Optimization Support

Performance Tuning Support

Cisco will provide periodic, ongoing system analysis to maintain, tune and optimize a high-performance Small Cell network. Performance Tuning Support may include:

- Analyze Small Cell configurations and align them with corporate policies and procedures, and Cisco best practices,
- Recommend tuning changes to optimize system performance and fully leverage Small Cell features of Cisco devices,
- Conduct one (1) interactive tuning session with Customer to implement recommendations.

Proactive Software Recommendations

Cisco will provide proactive software recommendations that evaluate and identify the current Small Cell Software's ability to meet current and future requirements. Each report covers a single Software Track and may include, among other information, the following:

- Obtaining the Customer Software/IOS inventory,
- Gathering Customer provided Software information, feature/functionality and capability requirements;
- Descriptions of new Software features;
- Overall Software recommendation Customer should test and consider;
- Unresolved Software bugs to which Customer may be exposed and if possible, appropriate workarounds;
- Determine and communicate a Software strategy identifying the appropriate Software/IOS releases for the Customer.
- Determine the upgrade strategy for the Small Cell solution based on the Customer's operational requirements.
- Evaluating the installed Software releases and new versions for interoperability issues and the ability to support current and future business and technical requirements; and,
- Provide critical defect analysis for identified Software versions relative to the Customer's current and future requirements.

Software Security Alert

Cisco will provide proactive analysis of the security advisories (PSIRTs) that Cisco generates when security issues are uncovered that may impact networks in which Cisco products operate and the necessary action to repair and/or protect the network from these issues. After Cisco publicly releases the security advisory, the assessment is delivered to the Customer via the Software Security Alert (SSA). Cisco will provide an analysis of the vulnerability and its resolution with regard to its possible impact on the Customer's Small Cell solution.

- Analysis of how a Cisco Security Advisory may or may not affect Customer's Network,
- Recommendations to mitigate risk, and,
- List of affected or potentially affected Networking elements.

Small Cell Change Support

- Advanced Services Engineer will assist with configuration changes related to Small Cell Hardware or Software changes
- Advanced Service Engineer will assist with the TAC resolution of any specific Cisco Small Cell problem that

has been entered as a Severity 1 or Severity 2 TAC case or a Severity 3 TAC case based on Customer prioritization.

Small Cell Performance Analysis

- Cisco performs in-depth performance troubleshooting and analysis on a specific portion of Small Cell network.
- Review and verify Customer objectives for the Small Cell performance, process, and requirements.
- Perform an onsite Performance Analysis of the Customer's Small Cell environment limited to an agreed number of Access Points (APs), e.g. 100 APs, or 250,000 sq. ft. The analysis may include a detailed performance analysis of the Small Cell network infrastructure using Cisco Small Cell Performance Analysis tools and techniques. The Small Cell Performance Analysis may include, among other information:
 - Measuring the actual signal coverage of the Small Cell network;
 - Identifying the overall level of interference and specific sources which may adversely impact Small Cell network performance;
 - Analyzing the network utilization, network radio frequency (RF) signal tracking accuracy and efficiency metrics of the Small Cell network;
 - Performing Small Cell troubleshooting or packet capture and analysis for specific Small Cell issues as needed.
 - Review with Customer the summary of the findings of the Small Cell Performance Analysis

Ongoing Flexible Support

Cisco will provide informal, Ongoing Flexible Support for incremental changes to the Small Cell architecture. This may be applied to other work items within Small Cell Optimization Service. Engineers will be assigned as work items are selected throughout the contract.

Knowledge & Learning

Onsite Educational Workshop

Cisco will provide knowledge transfer and education on Small Cell technology topics via a workshop based on a Customer selected Small Cell topic.

Remote Knowledge Transfer Session

Cisco will consult with Customer to identify requirements and topics for informal training sessions. Remote Knowledge Transfer Sessions are:

- Delivered in English (other languages subject to availability),
- Delivered remotely for up to four (4) hours in length, with no labs and no printed course materials. Cisco will determine an appropriate format and delivery method that may include but shall not be limited to using a shared medium via the Internet, teleconference, and/or onsite with other scheduled events.)
- Relevant to the Cisco products and technologies deployed in Customer's production Network.

General Responsibilities of Customer

General Services

Customer shall comply with the following obligations for General Services for any Service specified in the Quote:

- Designate at least two (2) but not more than six (6) technical representatives, who must be Customer's employees in a network security engineer or administrator role, to act as the primary technical interface to the Cisco designated engineer(s). Customer will designate as contacts senior engineers with the authority to make any necessary changes to the Network configuration. One individual, who is a senior member of management or technical staff, will be designated as Customer's primary point of contact to manage the implementation of services under this Service Description (e.g., chair the weekly conference calls, assist with prioritization of projects and activities).
- Ensure key engineering, networking and operational personnel are available to participate in interview sessions and review reports as required by Cisco in support of Service.
- Customer's technical assistance center shall maintain centralized network management for its Network supported under this Service Description, capable of providing Level 1 and Level 2 support.
- Provide reasonable electronic access to Customer's Network to allow the Cisco designated engineer to provide support.
- Customer agrees to make its production, and if applicable, test Network environment available for installation of Data Collection Tools. Customer shall ensure that Cisco has all relevant Product information needed for an assessment.
- If Cisco provides Data Collection Tools or scripts located at Customer's site, Customer shall ensure that such Data Collection Tools or scripts are located in a secure area, within a Network environment protected within a firewall and on a secure LAN, under lock and key and with access restricted to those Customer employee(s) or contractor(s) who have a need to access the Data Collection Tools and/or a need to know the contents of the output of Data Collection Tools. In the event Data Collection Tool provided by Cisco is Software, Customer agrees to make appropriate computers available and download Software as needed. Customer shall remain responsible for any damage to or loss or theft of the Data Collection Tools while in Customer's custody
- Provide a Network topology map, configuration information, and information of new features being implemented as needed.
- Provide requirements documentation, low-level and high-level designs, implementations plans, and test plans as required for specific services.
- Notify Cisco immediately of any major Network changes (e.g.; topology; configuration; new IOS releases; moves, adds, changes and deletes of devices.).
- In the event the Network composition is altered, after this Service Description is in effect, Customer is responsible to notify Cisco in writing within ten days (10) of the change. Cisco may require modifications to the fee if the Network composition has increased beyond the original pricing

quote for Services.

- Create and manage an internal email alias for communication with Cisco.
- Retain overall responsibility for any business process impact and any process change implementations.
- Supply the workplace policies, conditions and environment in effect at the Customer's facility.
- Provide proper security clearances and/or escorts as required to access the Customer's facility.
- Provide any required safety and security training, if applicable.
- Customer agrees that it will not hire a current or former employee of Cisco, who is involved in the Services under this Service Description, during the term of the Service and for a period of one (1) year after the termination of the Service. As liquidated damages, and not as a penalty, should Customer hire a current or former Cisco employee who is involved in the Services under this Service Description, Customer shall pay to Cisco three (3) times the annual compensation of such employee on the date the employee is hired. If payment is not made on such date, the liquidated damage payment shall be six (6) times the annual compensation of such employee

Specific Service Responsibilities of Customer

Customer shall comply with the following obligations as required specific to the security Services specified in the Quote:

Audits & Assessments

Small Cell Network Assessment

- Attend one (1) project kickoff conference call to discuss the Small Cell Network Assessment goals, process, and requirements.
- Complete the Small Cell Network Assessment questionnaire provided by Cisco, and/or participate in interviews with Cisco to provide the information, as mutually agreed.
- Provide technical documentation, network diagrams topologies, and network device configurations.
- Review with Cisco the Small Cell Network Assessment Report.
- Key stakeholders and project sponsors attend a session for Cisco to remotely present the Executive Summary of the Small Cell Network Assessment Report (including the analysis and recommendations)

Small Cell Operations Risk Management Assessment

- Consult with Cisco via a series of meetings to educate Cisco about Customer's Small Cell operational practices
- Review with Cisco the Executive Summary identifying and prioritizing gaps in operations processes and Small Cell network management, and resolution recommendation plan to address operational gaps.

Small Cell RF Assessment

- Coordinate physical access to the site to allow Cisco to conduct an onsite site survey, which may include collecting coverage interference and performance data. If

an escort or special site access is required, Customer provides escort or access.

Mobility Services Readiness Assessment

- Complete the Cisco Small Cell customer requirements questionnaire prior to project kick off.
- Attend project kick-off conference call to discuss the Small Cell Network architecture, Mobility Services goals, processes and requirements.
- Review Cisco Small Cell Mobility Services Readiness Assessment Results and Findings presentation.

RF Verification Assessment

- Coordinate physical access to the site to allow Cisco to conduct an onsite site survey, which may include collecting coverage interference and performance data. If an escort or special site access is required, Customer provides escort or access.
- Review the RF Verification Document, which includes analysis and recommendations to align the current state of the network including RF coverage and RF interference to the documented design.

Design

Design Development

- Customer Requirements Analysis:
 - Provide business, technical and operational requirements
 - Provide requirements for Small Cell technology and mobility applications
- High Level Design
 - Review with the Cisco, relevant technical documentation, including any existing high level design, network infrastructure design, existing Small Cell infrastructure design, planned designs if exist, network topology diagrams, network device configurations, software releases, floor maps, provisioning policies, future growth requirements, strategy, and any relevant documents, as required.
 - Review High Level Design Document
- Small Cell Detailed Design
 - Review Small Cell detailed design

Design Consulting

- Provide Cisco with direction of activities and projects on which the Customer needs to Cisco engineer to provide design guidance for.

Design Review

- Provide the design document describing the specific set of technical requirements and design goals and specifying the resulting Customer Network architecture and build-out plans to meet those requirements.

Optimization Support

Performance Tuning Support

- Identify the devices to be included.

Proactive Software Recommendations

- Provide Cisco with a list of required features that need supported by the software or the specific software version to be reviewed.
- Review the recommendations.
- Provide background information on the Customer participant skill sets for the knowledge transfer or mentoring sessions.

Software Security Alert

- Provide Cisco with a designated contact to handle all Security related announcements.

Small Cell Change Support

- Designate person(s) from within its technical support organization to serve as a liaison to the Cisco designated engineer.
- Provide its designated person(s) with instructions on process and procedure to engage the Cisco designated engineer.
- Provide information on Network architecture.
- Provide information on Customer Implementation plan and implementation schedule
- Provide maintenance window information and any other constraints.
- Provide information on Customer change control process.
- Provide contact information and the Customer escalation process.
- Review details of planned changes with the Cisco designated engineer.
- Provide all necessary information to enable Cisco to perform root cause analysis.

Small Cell Performance Analysis

- Review with Cisco the Small Cell Performance Analysis goals, process, and requirements.
- Provide physical access to site, if required.
- Provide configurations, performance information, client devices, and other information necessary to effectively troubleshoot or analyze the Small Cell network.
- Review with Cisco the summary of the findings of the Small Cell Performance Analysis

Ongoing Flexible Support

- Provide Cisco with details around what type of support is needed when a request is made.

Knowledge & Learning

Onsite Educational Workshop

- Establish and inform Cisco of dates at least sixty (60) days in advance of workshop.
- Provide Customer facilities and equipment (such as conference rooms, white boards, projectors) and make them available to host the informal technical update sessions.
- Provide technology topics and requirements for workshop.

Remote Knowledge Transfer Session

- Provide details on desired/requested topics Customer wants to see covered during the knowledge transfer and mentoring sessions.