



Service Description: Advanced Services Configurable Design Services

This document describes Advanced Services Configurable Services for Design Services activities and deliverables.

1.1 Service Summary

Design Services help Customers with the creation high-level, low-level and/or review of architectures designs, operational design models, business design models or IT service management designs to meet the Customer's technical and business requirements. Design Services concentrate on the development on four (4) critical design areas: infrastructure, application, operation management, and service management. : <http://www.cisco.com/web/services/portfolio/index.html>.

1.2 Related Documents

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

1.3 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/servicesdescriptions/.

1.4 Direct Sale from Cisco

If you have purchased these Services directly from Cisco for your own internal use, this document is incorporated into your Master Services Agreement, Advanced Services Agreement, or other services agreement covering the purchase of Advanced Services-based services with Cisco ("Master Agreement") If no such Master Agreement exists, then this Service Description will be governed by the terms and conditions set forth in the SOW Terms & Conditions Agreement (Direct Sale Only) posted at: http://www.cisco.com/web/about/doing_business/legal/terms_conditions.html, which is incorporated into this Service Description by this reference. In either case, this Service Description shall be treated as a "SOW" or a "Statement of Work" under the most recent agreement between the parties or by the SOW Terms & Conditions Agreement referenced above.

Cisco shall provide the AS-C Design activities and deliverable described below as selected and detailed on the Purchase Order for which Cisco has been paid the appropriate fee. Cisco shall provide a Service Bill of Material ("SBOM"), identifying Cisco's quote for performance of Services, which details the extent of the Services and duration that Cisco shall provide such Services. Customer's issuance of Purchase Order, referencing the Configuration ID associated with the SBOM, will constitute its acknowledgement and agreement to the terms of this SBOM. Availability of Services described herein and service delivery may vary by geographical region.

1.5 Location of Services

Services are provided remotely and onsite, as required and quoted.

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3.0 General Service Activities

3.1 Project Management

Project management will be provided for the duration of the Service, including a Project Manager (PM) who will have the primary responsibilities to conduct the project kick off meeting, develop a project plan, schedule resources, and provide change management. Project management services will be provided for the duration of the project.

3.1.1 General Responsibilities

Cisco Responsibilities

- 3.1.1.1 Provide Customer with a list of designated Cisco personnel roles and responsibilities under this AS-C Design Service offer.
- 3.1.1.2 Provide a Project Management Plan ("PMP"). PMP is a baseline document from which the Cisco PM can manage deliverables, assess progress, and manage change management issues and any on-going questions.
- 3.1.1.3 Work with Customer to identify and document dependencies, risks and issues associated with the successful completion of the project.
- 3.1.1.4 Provide a Project Schedule highlighting deliverables, corresponding milestones, planned project events, resource(s) and timescales.
- 3.1.1.5 Participate in scheduled project review meetings or conference calls, if required.
- 3.1.1.6 Provide Customer with the identity of personnel requiring access to Customer premises, at least ten (10) Business Days prior to the scheduled date such personnel requires access.
- 3.1.1.7 Deliver a weekly project status report to the Customer.
- 3.1.1.8 Provide a handover; follow on actions, lessons learned, and exception reports (if necessary) upon project completion.

Customer Responsibilities

- 3.1.1.9 Provide the Cisco PM with a list of designated Customer personnel roles and Design Service offer.
- 3.1.1.10 Ensure that key Customer personnel (such as architecture design and planning, network engineering, network operations personnel) are available to provide information and to participate in review sessions, workshops and other information gathering activities. The Customer PM will also ensure that Cisco is provided with all information, data and documentation, as Cisco reasonably requires to provide Services and comply with Cisco's responsibilities in this AS-C Design Service offer. This information includes, but is not limited to: (i) information relating to Customer's network, design, business and other applicable requirements; (ii) functional and/or technical documentation relating to such requirements; and (iii) topology maps, configuration information and existing and proposed network infrastructure.
- 3.1.1.11 Identify primary and backup Customer authorized site contacts who shall provide necessary information, obtain access clearances and coordinate with other organizations/third parties with respect to Services at that site.
- 3.1.1.12 Participate in scheduled project review meetings or conference calls, if required.
- 3.1.1.13 Coordinate with any external third parties, such as in country Carrier/Telco activities, deliverables and schedules.
- 3.1.1.14 Ensure that Cisco's request for information or documentation needed for the project is provided within three (3) Business Days of Cisco's request, unless the parties agree to another time period for response.

Deliverables

- 3.1.1.15 Project Management Plan

4.0 Infrastructure High Design Supporting Services

4.1 Infrastructure High Level Design Development

Cisco will provide a detailed Infrastructure High Level Design Specification document.

4.1.1 General Responsibilities

Cisco Responsibilities

- 4.1.1.1 Obtain from the Customer any up to date customer strategy, roadmaps and planned designs (if existing) documentation for review prior Customer Requirements/High Level Design meetings(s) and/or interview(s).
- 4.1.1.2 Conduct (if applicable) High Level Design/Customer Requirements meetings(s) and/or interview(s) to gather and document the Customer's business and technical high level design requirements.
- 4.1.1.3 Create the Infrastructure High Level Design Specification by incorporating the information gathered from the Customer Requirements/High Level Design sessions and/or interviews.
- 4.1.1.4 Refer to the architecture/technology-specific sections in section 4.1.2 in addition to the activities defined here."
- 4.1.1.5 Provide the Infrastructure High Level Design Specification remotely to the Customer for review for approval in accordance with the "Document Deliverable Review and Approval Process."

Customer Responsibilities

- 4.1.1.6 Identify and schedule key knowledgeable contacts who shall be available for attending High Level Design/Customer Requirements onsite meetings(s) and/or interview(s).
- 4.1.1.7 Submit to Cisco any up to date business and technical requirements documents such as strategy, roadmaps, network topology diagrams, functional specifications, planned designs within ten (10) Business Days of starting the High Level Design /Customer Requirements, sessions and interviews.
- 4.1.1.8 Schedule key Customer stakeholders and project sponsors to attend the Cisco's remote presentation of the Infrastructure High Level Design Specification.
- 4.1.1.9 Refer to the architecture/technology-specific sections in section 4.1.2 in addition to the activities defined here."
- 4.1.1.10 Review and approve the Infrastructure High Level Design Specification with Cisco in accordance with the "Document Deliverable Review and Approval Process."

Deliverables

- 4.1.1.11 Infrastructure High Level Design Specification

4.1.2 Additional Infrastructure High Level Design Development Activities and Deliverables by Architecture/Technologies.

Refer to the applicable architecture/technology supported below.

4.1.3 Architecture – Technology: Data Center/ Networking-Nexus

Cisco Responsibilities

- 4.1.3.1 Technology-specific activities related to this SSC Conduct onsite meetings(s) and/or interview(s) with the Customer networking staff to develop a thorough understanding of the Customer's Nexus Network requirements and the information in the Infrastructure High Level Design Specification addressing to the following areas: existing local area network (LAN) and wide area network (WAN) topology diagrams, functional requirement, feature recommendations, intra-data center connectivity, network sizing, and key application requirements and scalability design considerations.
- 4.1.3.2 Create a Infrastructure High Level Nexus Design Specification including the Customer Requirements information which integrates the design goals gathered with Cisco proven design principals which may include the following design features:

Overlay Transport Virtualization (OTV), Fiber Channel over Ethernet (FCoE), Layer 2 Multi-Pathing (L2MP), Network Disaster Recovery, Multi-tenancy.

Customer Responsibilities

- 4.1.3.3 Provide Infrastructure High Level Nexus Design Specification information to Cisco related to the following areas: existing LAN/WAN topology diagrams, functional and feature requirements, scalability and redundancy design considerations and any other information deemed necessary by Cisco.
- 4.1.3.4 Customer must qualify the Nexus configuration prior to Cisco's verification of compliance of the Customer's link to the configuration. Customer or the replication application vendor, as applicable, must set the parameters under which the replication application is certified.

4.1.4 Architecture – Technology: Data Center Storage-SAN

Cisco Responsibilities

- 4.1.4.1 Conduct onsite meetings(s) and/or interview(s) with the with Customer resources to gather the requirements necessary to develop the Infrastructure High Level SAN Design.
- 4.1.4.2 Review Customer's SAN infrastructure requirements, including SAN, backup, and replication infrastructure details, as well as storage subsystems, tape libraries, tape drives, hardware and software.
- 4.1.4.3 Create the Customer a High Level SAN Specification may contain following information: current storage topology diagrams, functional requirements, feature considerations and scalability design considerations; types and number of hosts attached to the MDS switches, disk subsystems, IP infrastructure, high availability requirements, zoning, VSAN, and security requirements; and Fabric Management, including features such as call home, Authentication, Authorization and Accounting (AAA), User Roles, Security, Access Control Lists (ACL), Secure Shell (SSH), SSH File Transfer Protocol (SFTP), and Trivial File Transfer Protocol (TFTP), and troubleshooting functionality.
- 4.1.4.4 Schedule a remote the Infrastructure High Level SAN Design Specification review with the Customer.

Customer Responsibilities

- 4.1.4.5 Provide Infrastructure High Level SAN Director Design Specification information to Cisco related to the following areas: device configurations, Virtual Storage Area Networks (VSANs), Fiber Channel over Internet Protocol (FCIP), naming conventions, device and port mapping, addressing, and SAN management infrastructure.
- 4.1.4.6 Designate key knowledgeable contacts who shall be available for attending Customer Requirements/High Level Design sessions and interviews.
- 4.1.4.7 Customer must qualify the SAN configuration prior to Cisco's verification of compliance of the Customer's link to the configuration. Customer or the replication application vendor, as applicable, must set the parameters under which the replication application is certified.

4.1.5 Architecture – Technology: Borderless Networks/ Wireless LAN

Cisco Responsibilities

- 4.1.5.1 Gather Customer requirements and desired wireless network design specifications for each WLAN technology and mobility application through one or more following methods: one (1) requirements workshop, two (2) remote interview(s) and/or provide a WLAN Requirements Questionnaire to collect business, technical and operational requirements. These discussions will determine the Customer's architectural, topological, and functional requirements including performance, scalability, capacity, availability, resiliency and security; and future technology plans for each Wireless LAN technology and mobility application to necessary to develop the Infrastructure High Level Wireless LAN Design.
- 4.1.5.2 Work with Customer to review existing architecture and analyze readiness of existing infrastructure to support new WLAN services and applications. Areas to be addressed include the following: existing and planned authentication infrastructure such as RADIUS servers, and external authentication databases (e.g., Active Directory, LDAP); existing and planned wired network infrastructure design and implementation; existing and planned network management infrastructure; existing and planned client devices, applications and management processes.
- 4.1.5.3 Create an Infrastructure High Level WLAN Architecture Design Specification which includes: Customer WLAN Architecture Design requirements; WLAN architecture diagram and recommendations; suggested wireless design

requirements, including: required signal strength and SNR design targets; required data rates, target throughput, and desired availability; capacity requirements (number of users); WLAN security recommendations; network management recommendations; and hardware and software release recommendations.

- 4.1.5.4 Schedule a remote the Infrastructure High Level Wireless LAN Design Specification review with the Customer.
- 4.1.5.5 Provide the Infrastructure High Level Wireless LAN Design Specification to the Customer for review and approval in accordance with "Document Deliverable Review and Approval Process".

Customer Responsibilities

- 4.1.5.6 Provide detailed information and review technical documentation with Cisco including the following: Business and technical requirements including mobility applications for each type of location (campus/branch office, etc.); and provide information on the existing network infrastructure at each location; locations requiring WLAN coverage; high-level designs, network topology diagrams, network device configurations, software releases, floor maps, provisioning policies, Bills of Materials; type of client devices, radio technology (i.e., 802.11a/b/g/n), voice/data support, capacity requirements, performance requirements, accessibility/reliability requirements, infrastructure management, and client management; list of Wireless client cards with driver versions and existing and planned wired network infrastructure, QoS, and network design;
- 4.1.5.7 Provide current/planned WLAN devices, code versions and configuration files of appropriate devices; existing/planned security infrastructure such as VPN concentrators, RADIUS servers, and external authentication databases (e.g., Active Directory, NT, LDAP) and existing and planned network management infrastructure and operational procedures; current and planned client management processes; current IP telephony network infrastructure details (i.e., wired network infrastructure, CallManager, QoS, etc.) is 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 implementation.
- 4.1.5.8 Only Voice and Data over WLAN available within this project scope.
- 4.1.5.9 Customer requirements for guest access and guest use policies.
- 4.1.5.10 Participate remotely with Cisco and Customer stakeholder(s) and project sponsor(s) to review the analysis and recommendations summary of the Infrastructure High Level Wireless LAN Architecture Design Specification.'

4.1.6 Architecture- Next Generation Networks/Core Routing and Switching- Data Communication Network (DCN)

Cisco Responsibilities

- 4.1.6.1 Gather Customer requirements and desired Data Communications Network (DCN) design specifications for Optical technology through one or more following methods: one (1) requirements workshop, two (2) remote interview(s) and/or provide a Requirements Questionnaire to collect business, technical and operational requirements. These discussions will determine the Customer's architectural, topological, and functional requirements including performance, scalability, capacity, availability, resiliency and security; and future technology plans for each technology necessary to develop the Infrastructure High Level Design.
- 4.1.6.2 Provide remote design workshop to begin the process of creating a High Level Design ("HLD") document, for DCN optimization of an existing ONS 15454 MSTP.
- 4.1.6.3 Review Customer provided documentation, review of existing customer initiated TAC cases, if any, as related to DCN visibility and reporting if applicable.
- 4.1.6.4 Remotely collect DCN network design and configuration information, subnet, OSPF configurations, circuit maps and remotely verify that the existing optical network is operating within the design limits and free of any major/critical alarm conditions.
- 4.1.6.5 Assess the existing DCN configuration against recommended Cisco best practices. Document findings and recommendations in the Infrastructure High Level Design Specification which may include one or more of the following: Define new OSPF areas; define GNE node and assign ABR within a specified OSPF Area; define Subnet assignments; ENE node addressing to follow OSFP area with summarization at ABR; GNE addresses to use separate blocks; CTM Node partitioning rules and recommendations (if applicable); Define SOCKS proxy node configuration as required; DCC channel change requirements
- 4.1.6.6 Provide remote knowledge transfer related to DCN network optimization best practices and the proposed High Level Design Specification and recommendations for the Data Communications network optimization.

- 4.1.6.7 Provide the Infrastructure High Level Optical Design Specification to the Customer for review and approval in accordance with "Document Deliverable Review and Approval Process".

Customer Responsibilities

- 4.1.6.8 Provide Cisco the network physical and logical schematics, required security policies and any other necessary data to Cisco prior to or during the design workshop.
- 4.1.6.9 Provide Cisco the following information and documentation: IP addressing, subnet masks, node naming convention, ONS15454, default gateway interface, e.g. router/switch nodes and other ancillary devices utilized in the Data Communications Network for the MSPP/MSTP network.
- 4.1.6.10 If requested by Cisco, provide physical and logical network schematics for other network elements not included in the scope of this project but reasonably necessary for the provision of Services.
- 4.1.6.11 Ensure all network elements are visible in the network.
- 4.1.6.12 Provide fix action to rectify issues and inconsistencies found in the network, which impede Cisco's ability to perform its duties.
- 4.1.6.13 Participate remotely with Cisco and Customer stakeholder(s) and project sponsor(s) to review the analysis and recommendations summary of the Infrastructure High Level Optical Design Specification.

4.1.7 Architecture-Borderless Networks/ Core Routing and Switching-IPV6 and Next Generation Network/Core Routing and Switching-IPV6

Cisco Responsibilities

- 4.1.7.1 Review Customer's existing IPv6 network architecture strategy and designs, and planned designs (if exist) including some or all of the following: Core network infrastructure; data center infrastructure; security infrastructure; branch infrastructure; host/endpoint; network management; future growth requirements and IPv6 build out time frames; network application services (e.g. voice, video); quality of service (QoS) and support level agreement (SLA) requirements; and addressing plan.
- 4.1.7.2 Create and provide the Infrastructure High Level IPv6 Design Specification that shall be limited to the following: new technical objectives and requirements fulfillment; proposed IPv6 addressing plan; proposed IPv6 network topology; IPv6 network protocols and features; resiliency of network/system high availability; scalability; IPv6 security protocol features; IPv6 QoS effects on existing infrastructure; address device (hardware and software) readiness for desired features; network management instrumentation and systems supportability considerations; IPv6 effects on current multicast implementation; Customer objectives and high level design requirements; key risks in the Customer's proposed Infrastructure High Level IPv6 Design Specification, if applicable; and design recommendations.
- 4.1.7.3 Provide the Infrastructure High Level IPv6 Design Specification to the Customer for review and approval in accordance with "Document Deliverable Review and Approval Process".

Customer Responsibilities

- 4.1.7.4 Provide detailed information and review technical documentation with Cisco including some or all of the following, as requested: Existing and planned core network infrastructure design; existing and planned data center infrastructure design; existing and planned security infrastructure design; existing and planned branch infrastructure design; existing and planned host/endpoint design; existing and planned network management design; and future growth requirements and network build out time frames.
- 4.1.7.5 Participate remotely with Cisco and Customer stakeholder(s) and project sponsor(s) to review the analysis and recommendations summary of the Infrastructure High Level IPv6 Design Specification.'

4.1.8 Architecture-Borderless Networks / Core Routing and Switching and Next Generation Networks / Core Routing and Switching

Cisco Responsibilities

- 4.1.8.1 Gather from Customer and review the following information prior to the Customer Requirements meeting: business, technical and operational requirements; future technology plans; and network design/topology documents.

- 4.1.8.2 Conduct some or all of the following to gather and review Customer Network Architecture requirements for each technology discipline: one (1) requirements workshop; interviews with Customer key personnel; and a requirements questionnaire for Customer to complete.
- 4.1.8.3 Create and provide the Customer Requirements Document based on findings from the Requirements workshop, and the Customer provided documentation.
- 4.1.8.4 Review Customer's existing network architecture strategy and designs, and planned design (if any exist) for core network infrastructure.
- 4.1.8.5 Create and provide the Infrastructure High Level Design which shall be limited to the following: new technical objectives and requirements fulfilment; definition of design recommendations; network topology; switching protocols routed and routing protocols; high availability platform features/protocols; quality of service and security infrastructure;
- 4.1.8.6 Provide the Network Infrastructure High Level Core Routing and Switching Design Specification to the Customer for review and approval in accordance with "Document Deliverable Review and Approval Process".

Customer Responsibilities

- 4.1.8.7 Provide input for each technology discipline to Cisco through some/all of the following methods: one (1) requirements workshop; interviews of key personnel conducted with Cisco; and completing requirements questionnaire provided by Cisco.
- 4.1.8.8 Provide and review with Cisco the following information: business, technical and operational requirements; future technology plans; and network design/topology documents.
- 4.1.8.9 Provide information for some or all of the following, as requested: existing and planned core network infrastructure design; existing and planned data center infrastructure design; existing and planned security infrastructure design; existing and planned branch infrastructure design; existing and planned host/endpoint design; and future growth requirements and network build out time frames.
- 4.1.8.10 Participate remotely with Cisco and Customer stakeholder(s) and project sponsor(s) to review the analysis and recommendations summary of the Network Infrastructure High Level Core Routing and Switching Design Specification and the Customer Requirements Document.

5.0 Infrastructure Design Service Supporting Services

5.1 Infrastructure Low Level Design Development

Cisco will provide a detailed Infrastructure Low Level Design Specification document.

5.1.1 General Responsibilities

Cisco Responsibilities

- 5.1.1.1 Gather and review the information from the Customer remotely which may include the following: existing Infrastructure High Level and/or Infrastructure High Level Designs, network topologies, third party products, configurations, functional requirements and any other information requested.
- 5.1.1.2 Conduct (if applicable) meetings(s) and/or interview(s) to gather in-depth content required for the Infrastructure Low Level Design Specification.
- 5.1.1.3 Create the Infrastructure Low Level Design Specification documenting the detail information gathered during Customer meetings(s) and/or interview(s) and from additional content provided by Customer.
- 5.1.1.4 Refer to the architecture/technology-specific sections in section 5.1.2 in addition to the activities defined here."
- 5.1.1.5 Provide the Infrastructure Low Level Design Specification remotely to the Customer for approval in accordance with the "Document Deliverable Review and Approval Process."

Customer Responsibilities

- 5.1.1.6 Identify and schedule key knowledgeable contacts who shall be available for attending High Level Design/Customer Requirements onsite meetings(s) and/or interview(s).
- 5.1.1.7 Submit to Cisco business and technical documentation as requested from Cisco within ten (10) Business Days of starting the Low Level Design project.
- 5.1.1.8 Schedule key Customer stakeholders and project sponsors to attend the Cisco remote the Infrastructure Low Level Design Specification.
- 5.1.1.9 Refer to the architecture/technology-specific sections in section 5.2.2 in addition to the activities defined here."
- 5.1.1.10 Review and approve the Infrastructure Low Level Design Specification in accordance with the "Document Deliverable Review and Approval Process."

Deliverables

- 5.1.1.11 Infrastructure Low Level Design Specification

5.1.2 Additional Infrastructure Low Level Design Development Activities and Deliverables by Architecture/Technologies

Refer to the applicable architecture/technology supported below.

5.1.3 Architecture – Technology: Data Center/ Networking-Nexus

Cisco Responsibilities

- 5.1.3.1 Create the Infrastructure Low Level Nexus Design Specification which documents the detailed design for the proposed Nexus architecture, which may include: a) hardware device configuration templates; b) naming conventions; c) IP addressing; d) hardware device and port mapping; and e) routing and switching configuration templates but does not include following design features: Fiber Channel over Ethernet (FCoE), Layer 2 Multi-Pathing (L2MP), IPv6, TRILL, Data center interconnect, Multi-tenancy, Firewall and load balancing design and/or integration.
- 5.1.3.2 Schedule a remote Infrastructure Low Level Nexus Design Specification Deliverable review with the Customer.

Customer Responsibilities

- 5.1.3.3 Customer must qualify the Nexus configuration prior to Cisco's verification of compliance of the Customer's link to the configuration. Customer or the replication application vendor, as applicable, must set the parameters under which the replication application is certified.
- 5.1.3.4 Participate in the remote Infrastructure Low Level Nexus Design Specification Deliverable review with the Cisco.

5.1.4 Architecture – Technology: Data Center/ Storage-SAN

Cisco Responsibilities

- 5.1.4.1 Create the Infrastructure Low Level SAN Design Specification by working with the Customer on the SAN architecture including following areas: naming conventions, zoning, specific switch configurations, IP addressing, device and port mapping, and other information specific to your environment and areas related to the Customer's site(s) including but not limited to: layout of the connections between the MDS switches, including the port cabling, hosts and subsystems, as well as the detailed configuration templates for the Cisco MDS switches that will guide installation and the MDS management subsystem, port numbering of host and storage ports ISLs.
- 5.1.4.2 Review the Infrastructure Low Level SAN Design (LLD) Specification that includes one or more of the following sections: Low Level Design worksheet with a detailed SAN design, configuration templates that will guide installation, the layout of the connections between the MDS switches and the hosts and storage subsystems, including the port cabling.
- 5.1.4.3 Schedule a remote Infrastructure Low Level SAN Design Specification Deliverable review with the Customer.

Customer Responsibilities

- 5.1.4.4 Provide Infrastructure Low Level SAN Design Specification information to Cisco related to the following areas: device configurations, Virtual Storage Area Networks (VSANs), Fiber Channel over Internet Protocol (FCIP), naming conventions, device and port mapping, addressing, and SAN management infrastructure.
- 5.1.4.5 Customer must qualify the SAN configuration prior to Cisco's verification of compliance of the Customer's link to the configuration. Customer or the replication application vendor, as applicable, must set the parameters under which the replication application is certified.
- 5.1.4.6 Participate in the remote Infrastructure Low Level SAN Design Specification Deliverable review with the Cisco.

5.1.5 Architecture – Technology: Borderless Networks/ Wireless LAN

Cisco Responsibilities

- 5.1.5.1 Review with the Customer remotely the Customer requirements and desired wireless design requirements through one (1) or more of the following methods: one (1) requirements workshop; and/or completing WLAN Requirements Questionnaire for each WLAN technology and mobility application gathering the following information: Business, technical and operational requirements; detailed design, topological, and functional requirements including scalability, capacity, availability, resiliency and security; and future technology plans with the Customer and technical documentation, including high level design, network topology diagrams, network device configurations, software releases, floor maps, provisioning policies, Bills of Materials.
- 5.1.5.2 Evaluate network device configurations and technical documentation with the design elements that may include: WLAN infrastructure including WLAN security, management and performance features available via the Cisco Network Control System (NCS), the Cisco Wireless LAN Controllers (WLC), and the Cisco WLAN Access Points including 802.1x and Clean Air capabilities; Mobility Services Engine applications including context-aware, adaptive wireless Intrusion Prevention Systems (wIPS); Cisco Unified Wireless Network infrastructure; Access Point configuration; Type of client devices, 802.11a/b/g, voice/data support, capacity requirements, performance requirements, accessibility/reliability requirements, infrastructure management, and client management; Security infrastructure; IP addressing scheme; Switching and routing infrastructure; Network management infrastructure; WLAN client devices; IP telephony infrastructure.
- 5.1.5.3 Create the Infrastructure Low Level WLAN Design Specification which typically includes some or all of the following: Network logical and physical topology; IP addressing scheme; switching and routing design; WLAN design; Access Point configuration (SSIDs, VLANs, Security, RF settings, etc.); type of client devices, 802.11a/b/g, voice/data support, capacity requirements, performance requirements, accessibility/reliability requirements, infrastructure management, and client management; security design; software protocols and feature configurations; Wireless LAN network management design; WLAN IP telephony design; sample configurations templates for Cisco wireless infrastructure devices; software recommendations based on feature/functionality; software image recommendations for all Cisco WLAN devices (as

required) and Hardware recommendations (as applicable) and software image recommendations for all Cisco WLAN devices, as required.

- 5.1.5.4 Schedule a remote Infrastructure Low Level WLAN Design Specification Deliverable review with the Customer.

Customer Responsibilities

- 5.1.5.5 Provide Customer requirements and desired wireless network design specifications for each WLAN technology and mobility application through one (1) or more of the following methods: one (1) requirements workshop; and/or completing WLAN Requirements Questionnaire for each WLAN technology and mobility application gathering the following existing/planned information: Business, technical and operational requirements; detailed design, topological, and functional requirements including scalability, capacity, availability, resiliency and security; and future technology plans with the Customer.
- 5.1.5.6 Technical documentation, including high level design, network topology diagrams, network device configurations, software releases, floor maps, provisioning policies, planned network architecture and high level design; Access Point Configuration (SSIDs, VLANs, Security, RF settings, etc.); detailed inventory of all access points including their physical location, Ethernet MAC address, Radio MAC addresses, connected LAN switch and interface; type of client devices, 802.11a/b/g, voice/data support, capacity requirements, performance requirements, accessibility/reliability requirements, infrastructure management, and client management; security infrastructure such as VPN concentrators, RADIUS servers, and backend; authentication databases (Active Directory, LDAP, NT); switching & routing infrastructure, QoS, network design, etc.; network management infrastructure and operational procedures; IP telephony network infrastructure; information on current and planned traffic characteristics and Bills of Materials.
- 5.1.5.7 Work with Cisco to analyze and develop the Infrastructure Low Level Wireless LAN Design Specification with configuration recommendations.
- 5.1.5.8 Participate in the remote Infrastructure Low Level WLAN Design Specification Deliverable review with the Cisco.

5.1.6 Borderless Networks/ Core Routing and Switching-IPV6 and Next Generation Network (NGN)/ Core Routing and Switching-IPV6

Cisco Responsibilities

- 5.1.6.1 Gather information from Customer containing Hardware, Software levels, topologies, and as-built configurations.
- 5.1.6.2 Review the High Level IPV6 Design Specification and transition schedule document as inputs to be used in the Infrastructure Low Level IPV6 Design Specification.
- 5.1.6.3 Create Detailed Design Document including detailed IPv6 design and configuration templates, using information from the High Level Design and any additional input provided by Customer. The Detailed Design Document may include some or all of the following: network logical and physical topology; IPv6 addressing scheme; switching and routing; d). IPv6 security infrastructure features; software protocols and features configuration; sample configurations templates for Cisco infrastructure devices; software release recommendations based on features and/or functionality; and Hardware platform considerations.
- 5.1.6.4 Provide the Infrastructure Low Level IPV6 Design Specification to the Customer for review and approval in accordance with "Document Deliverable Review and Approval Process".

Customer Responsibilities

- 5.1.6.5 Provide any additional detailed information as requested by Cisco that may include one or more of the following: Hardware; Software versions; topologies; and as-built configurations.
- 5.1.6.6 Work with Cisco to analyze and develop the Infrastructure Low Level IPV6 Design Specification templates providing information and feedback.
- 5.1.6.7 Participate in the remote Infrastructure Low Level IPV6 Design Specification Deliverable review with the Cisco.

5.1.7 Architecture-Borderless Networks / Core Routing and Switching and Next Generation Networks / Core Routing and Switching

Cisco Responsibilities

- 5.1.7.1 Review the Infrastructure High Level Design document as inputs to be used in the Low Level design.
- 5.1.7.2 Create infrastructure Low Level Design using information from the High Level Core Routing and Switching Design Specification and any additional input provided by Customer. The Infrastructure Low Level Specification may include some or all of the following: network logical and physical topology; Internet Protocol (IP) addressing scheme; configuration templates comprised of: routing and switching; quality of services; IP multicast; platform high availability protocols/features; infrastructure security; Hardware platform recommendations; and Software release recommendations based on features and/or functionality.
- 5.1.7.3 Provide the Infrastructure Low Level Core Routing and Switching Design Specification to the Customer for review and approval in accordance with "Document Deliverable Review and Approval Process".

Customer Responsibilities

- 5.1.7.4 If needed, provide any additional detailed information on existing infrastructure as requested by Cisco, including: a) Hardware; b). Software versions; c) topologies; and d) as-built configurations.
- 5.1.7.5 Work with Cisco to develop Infrastructure Low Level Core Routing and Switching Design Specification providing information and feedback.
- 5.1.7.6 Participate in the Infrastructure Low Level Core Routing and Switching Design Specification Deliverable review with Cisco in a timely manner.

6.o General Customer Responsibilities

- 6.1.1.1 All information (such as but not limited to: designs, topologies, requirements) provided by Customer is assumed to be up-to-date and valid for the Customer's current environment. Cisco Services are based upon information provided to Cisco by Customer at the time of the Services.
- 6.1.1.2 Customer shall ensure that contracts with its own vendors and third parties are fully executed and reflect the correct terms to enable Customer's business requirements to be met in full. In addition, Customer shall be responsible for all pay to and the work performance of, all non-Cisco entities assigned to, or working on this Service under this Service Description.
- 6.1.1.3 Customer acknowledges that the completion of Services is dependent upon Customer meeting its responsibilities as indicated herein.
- 6.1.1.4 Identify Customer's personnel and define their roles in the participation of the Services. Such personnel may include but is not limited to: architecture design and planning engineers, and network engineers.
- 6.1.1.5 Ensure Customer's personnel are available to participate during the course of the Services to provide information and to participate in scheduled information gathering sessions, interviews, meetings and conference calls.
- 6.1.1.6 Customer shall provide reasonable access to computer equipment, facilities, workspace and telephone for Cisco's use during onsite Service.
- 6.1.1.7 Unless otherwise agreed to by the parties, Customer shall respond within five (5) Business days of Cisco requesting documentation and/or information needed for the Service.

7.0 Project Assumptions and Exclusions

- 7.1.1.1 Services and service pricing are based upon the following assumptions and exclusions ("Assumptions").
- 7.1.1.2 Customer is responsible for determination and implementation of Customer design requirements and implementation of any recommendations provided by Cisco. Cisco recommendations are based upon information provided to Cisco at the time of the services. In no event shall Cisco be liable for the accuracy or completeness of the information contained in the Cisco recommendations.
- 7.1.1.3 Service Description should be read in conjunction with the Advanced Services General Assumptions and Exclusions document posted at: www.cisco.com/go/servicedescriptions which is hereby incorporated for reference. To the extent there is a conflict between the terms of this Service Description and such document, the terms of this Service Description shall control.
- 7.1.1.4 All services will be provided in the English language unless otherwise agreed to by Customer and Cisco.
- 7.1.1.5 Customer expressly acknowledges and agrees that Customer is solely responsible for determination and implementation of Customer's architecture solution requirements and implementation of any recommendations provided by Cisco. In no event shall Cisco be liable for the accuracy or completeness of the information contained in any report.
- 7.1.1.6 Services do not include software upgrade planning or execution. If needed, these can be quoted separately.
- 7.1.1.7 Services do not include the migration of existing endpoints to new infrastructure. This remains the responsibility of the Customer.
- 7.1.1.8 Services quote assume work is performed during Standard Business Hours.
- 7.1.1.9 Services do not include any additional applications not mentioned in Service Description. Assumes Customer's LAN/WAN meets or exceeds Cisco's published specifications for architecture solution.
- 7.1.1.10 Services may be performed at Cisco's discretion by Cisco or individuals, contractors, agent's suppliers or organizations employed or hired under contract with Cisco.

8.0 Document Deliverable Review and Approval Process

For Document Deliverables that are subject to review and approval from Customer, the parties will adhere to the following review and approval process:

- 8.1.1.1 Cisco will present the draft Document Deliverable to Customer when the document is ready for review and approval.
- 8.1.1.2 Customer shall review the draft Document Deliverable with Cisco, providing written comment or approval of the Document Deliverable within two (2) business days immediately after completion of such review.
- 8.1.1.3 If no comment or approval is received by Cisco within said time period, the Document Deliverable as provided by Cisco is deemed to be accepted by the Customer.
- 8.1.1.4 If Customer provides comments, then Cisco shall address such comments in a timely manner and this process for review and approval will be repeated.
- 8.1.1.5 No further Services will be performed until the Customer's acceptance of Document Deliverables is received by Cisco.
- 8.1.1.6 If Customer nevertheless insists on Cisco performing any further Services, the relevant Document Deliverable as presented by Cisco will be deemed accepted.