Service Description: Advanced Services – Fixed Price

Cisco Data Center Deployment Service for ACI Starter Kits

(ASF-DCV1-G-ACI-BUN)

This document describes Advanced Services Fixed Price: Cisco Data Center Deployment Service for ACI Starter Kits and is only available in deployments consisting of up to two Nexus 9000 chassis as Spines, up to four Nexus 9000 chassis as Leafs and one APIC cluster based on <1000 leaf ports as per kit.

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. All capitalized terms in this description have the meaning ascribed to them in the Glossary of Terms.

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Cisco Data Center Deployment Service for ACI Starter Kits

Service Summary

- Project Management Plan Development
- AS Validated Design
  - Fabric Build with APIC (3 APICs, 2 spines, 4 leaves - up to 384 ports, i.e. 4x 48 port switches or 4x 96 port switches, or a mix of both not exceeding 384 ports, combined)
  - Basic Design and Topology Definition
  - Layer 2 and Layer 3 Connectivity Setup
  - Build out one (1) user Tenant within the ACI Fabric
- The ACI Fabric Build with APIC Service involves establishing the requirements and developing the basic design and topology definition for deployment. Hardware support for ACI Starter Kit shall not exceed 2 x Nexus 9000 spine switches, up to 4 x Nexus 9300 leaf switches, and 1 x APIC cluster of up to 3 APICs, up to 384 leaf ports total. Any other Cisco devices shall not be part of this build unless specified. The ACI Fabric Build will only support connectivity to L4 Devices comprising Citrix, F5, or ASA. Device package integration is beyond the scope of this service. Instead they will be connected to the

fabric as End Point Groups (EPGs). In this scope, Customer must choose between 1-device cluster (comprising of up to 2 devices) of one of the above devices.

- Eco-System Integration
  - L4-7 Integration
    - Single pair of one of the following Service appliance: Citrix, F5, ASA only (no device package integration)
  - Hypervisor Integration
    - VMware only – not exceeding 1 vCenter with 1 Datacenter. This is restricted to the VMware virtual distributed switch (vDS) and does not include any other kind of supported distributed switches like Cisco Application Virtual Switch (AVS).
- The Layer 2 / Layer 3 Connectivity Setup service will ensure there is base connectivity within the fabric and external to the fabric. Hardware support for ACI Starter Kit shall not exceed 2 x Nexus 9000 spine switches, up to 4 x Nexus 9300 leaf switches, and 1 x APIC cluster of up to 3 APICs, up to 384 leaf ports total. This service will only support external connection up to a single pair (2) of devices as part of its scope.
- L3 connectivity will be restricted to IPv4 only. Routing protocols are limited to OSPF, BGP and EIGRP. No more than one (1) L3 out and/or L2 out will be configured. No more than two border leaf switches with two physical/Port channel/Virtual Port channel interfaces can be configured for these L3 and L2 outs.
- The number of members of a port-channel and virtual port channel is restricted to the scalability guidelines for ACI for that release.
- The Layer 4 - Layer 7 Setup service will ensure that there is connectivity between the service appliance and the ACI fabric. Hardware support for ACI Starter Kit L4-7 services shall not exceed one (1) pair of a service appliance, limited to one of the following:
  - Citrix
  - F5
  - ASA
  - This service will only support fabric or external connection up to a single pair (2) of service appliances as part of its scope.
  - Hardware support for ACI Starter Kit not to exceed 2 x Nexus 9000 spine switches, up to 4 x Nexus 9300 leaf switches, and 1 x APIC cluster of up to 3 APICs, up to 384 leaf ports total. ACI Fabric Build will only support external connection up to a single pair (2) of devices.
  - Operations Guide
  - Knowledge Transfer

Deliverables

- Project Management Plan
- ACI Requirements Document
- AS Validated Fixed Design
- As-Built Document
- Operations Guide
- Knowledge Transfer Material – if applicable

Location of Services

Services are delivered in combination of on site and remote work unless otherwise specified. This is limited to a single Customer site.

Project Management

Project management will be provided in conjunction with and is limited to the management of the Services and Deliverables as described herein.

Cisco Responsibilities

- Provide Customer with a list of designated Cisco personnel roles and responsibilities under this Service.
- 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.
- Work with Customer to identify and document dependencies, risks and issues associated with the successful completion of the project.
- Participate in scheduled project review meetings or conference calls, if required.
- Provide Customer with the identity of personnel requiring access to Customer premises, at least

five (5) Business Days prior to the scheduled date such personnel requires access.

- Deliver a weekly project status report to the Customer.

- Provide a handover; follow on actions, lessons learned, and exception reports (if necessary) upon project completion.

Customer Responsibilities

- Provide the Cisco PM with a list of designated Customer personnel roles and responsibilities under this Service.

- 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 providing Services and complying with Cisco's responsibilities in this Service. 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.

- Identify primary and backup Customer authorized site contacts that shall provide necessary information, obtain access clearances and coordinate with other organizations/third parties with respect to Services at that site.

- Participate in scheduled project review meetings or conference calls, if required.

- Coordinate with any external third parties, such as in country Carrier/Telco activities, deliverables and schedules.

- Ensure that Cisco's request for information or documentation needed for the project is provided within five (5) Business Days of Cisco's request, unless the parties agree to another time period for response.

- Provide an authorized Customer signature for delivery of Cisco Products at Customer location, as it relates to this Service.

Fabric Build with APIC

Cisco Responsibilities

- Cisco's performance under this service is based on the Customer configuration identified at time of order. Cisco is not obligated to provide services if the configuration is changed or swapped during the term of the service.

- Conduct a meeting with the Customer in order to provide information in regards to two Fixed, Validated designs that are to be installed by Cisco – one with L4 service devices connected directly to the fabric and one with L4 service devices connected across an L2/L3 hop. This will be done remotely.

- Advise the Customer of the connectivity requirements for the L2 and L3 connections to their existing environment.

- Review the Customer-provided documents, as requested by Cisco, to include:
    - Connecting device information including, but not limited to:
        - Routing table
        - Routing configuration
        - Spanning tree
        - Port trunking information
        - LACP, etc.
    - Review of the Customer-provided document to confirm alignment with Cisco best practices for implementations, and Customer's business requirements and design goals
    - Identification of design and configuration improvements for performance, functionality, security and availability as required for the ACI fabric.

- Develop a basic ACI Requirements document (ARD) for deployment along with appropriate topology details pertaining to the agreed upon number of devices and associated components, as documented within this service description. The ARD will consist of the following aspects:
    - Validated Design base content

- Tenant requirements including EPGs, Contracts, Bridge domains, etc.
- Application requirements including EPG definitions
- Fabric Access policies
- L2/L3 out connections
- Shared services including in-band or out of band management, NTP, syslog, etc.

- Install and configure the three (3) Application Policy Infrastructure Controllers ("APIC").

- Integration of 1 vCenter with 1 Datacenter as a Virtual Machine Manager (VMM) domain for the supported VMware versions.

- Verify that the right firmware is running across all the nodes in the fabric

Customer Responsibilities

- Provide Customer's final requirements only associated with the number of devices for deployment, to Cisco no later than five (5) Business Days following project kickoff.

- Participate in interviews and / or meetings with Cisco to review design documentation, as requested.

- Provide Cisco any existing LAN / WAN / L4-7 topology diagrams, functional and feature requirements, scalability considerations within five (5) Business Days of project kickoff, pertaining to the deployment hardware.

- Provide IP addressing and subnet masks, network physical and logical schematics, required security policies and any other necessary data to Cisco prior to or during the design discussions.

- 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.

- Review with Cisco the Design Document providing approval in accordance with Document Deliverable Review and Approval Process.

- Customer to provide fixed validated design choice ten (10) business days prior to commencement of ACI service.

- Racking, cabling and powering up equipment in scope must be completed, and access information for the equipment provided to Cisco.

Layer 2 / Layer 3 Connectivity Setup

Cisco Responsibilities

- Work with Customer to create the connectivity plan as per pre-defined requirements, which includes: a) connectivity internal to the Fabric, b) connectivity external to the Fabric – to direct peer devices only and c) In-band or Out-of-band management connectivity. Hardware support will be limited to the scope defined earlier in the document. ACI Fabric Build will only support external connection up to a single pair (2) of devices.

- Cisco will ensure management connectivity to vCenter, if required for validation – with the expectation that this working connectivity profile (L2 or L3) will be repeatable. Any connectivity verification outside of management network will be out of scope for this engagement.

- Review the Connectivity Setup with Customer (as part of As-Built Document) in accordance with the Document Deliverable Review and Approval Process.

- Cisco may possibly leverage scripts for automated configuration deployment, which will remain as Cisco ownership upon project completion.

- Document any connectivity exceptions, caveats, etc. as part of the single build document delivery.

Customer Responsibilities

- Provide the Customer's scope and requirements for the specific topology and connectivity details for review and discussion with Cisco.

- Provide the following information at least five (5) Business Days following receipt of Cisco's request: a) verified interface specifications and

requirements. For example, cabling standards and specifications for interconnect of Cisco and Customer equipment; b) information on distance and interference limitations of interface cables to be used at installation; c) test plan and interconnect process required by any third parties including but not limited to in country carrier/telco.

- Review the Build and Configuration plan with Cisco providing approval in accordance with the Document Deliverable Review and Approval Process.

- Provide any connectivity setup and details for testing out the management setup. For example: provide vCenter access to management network only for verification.

- Provide IP addressing and subnet masks, network physical and logical schematics, required security policies and any other necessary data to Cisco prior to or during the design discussions.

- Configure the external Layer 2 and Layer 3 devices connected to the border leaf switches on the ACI fabric, in accordance with Cisco best practices.

- Responsible for all connectivity external to the fabric, towards the service device and/or vCenter, should they choose this design option.

Layer 4-Layer 7 Responsibilities

Cisco Responsibilities

- Perform integration of chosen service appliance, as defined above per the ARD and ADD.
- Steps to include, but not limited to:
    - Create fabric access policies, including:
        - Switch profiles, interface profiles, interface policy groups, attachable entity profiles, physical domain, VLAN pool.
    - Create no more than two (2) EPGs to attach the service appliance to the fabric
- Create up to two (2) contracts that allow for stitching together the service appliance with prior defined application EPGs or external EPGs or both
- Work with the Customer to verify Device Deployment Strategy around L4-L7 devices related to ACI Fabric.

Customer Responsibilities

- Ensure chosen service appliance as listed in the ARD / ADD, is physically connected to the fabric
- Provide console and management access to the service appliance
- Provide appropriate licenses for the service appliance
- Provide connectivity information, including, but not limited to:
    - Physical connectivity diagrams
    - VLAN and IP subnet ranges
- Configuration of the service appliance.

Tenant Build & Deployment

Cisco Responsibilities

- Create one (1) tenant within the ACI Fabric. This tenant will be used to contain the desired EPG's and BD's required to house applications and traffic to be migrated to the ACI fabric by the customer. This tenant will be above and beyond the management and the common tenant within the ACI Fabric. Tenant build will be enabled to support Network Centric mode only. This means that a single VLAN in the customer's existing environment will be mapped 1:1 to a Bridge Domain and EPG. The tenant build out and deployment will be strictly in line with one of the two fixed validated designs provided by Cisco and chosen by the Customer in addition to the requirements captured in the ARD. Cisco will deploy up to two (2) VLANs with each VLAN representing a subnet of up to a /24 network mask or maximum of 500 hosts across the two VLANs.

- Provide either in-band or out of band management configuration in tenant management on the APIC

- Review the Tenant Build setup with Customer (as part of the As-Built Document) in accordance with the Document Deliverable Review and Approval Process.

- Any application based validation and setup for the Tenant Build is out of scope for this engagement.

- Cisco may possibly leverage scripts for automated configuration deployment, which will remain as Cisco ownership upon project completion.

- Document any Tenant Build exceptions and caveats as part of the single build document delivery.

Customer Responsibilities

- Provide the Customer's scope and requirements for any specific tenant characteristics within the scope of this engagement.

- Provide the following information at least five (5) Business Days following receipt of Cisco's request; a) verified interface specifications and requirements. For example, cabling standards and specifications for interconnect of Cisco and Customer equipment; b) information on distance and interference limitations of interface cables to be used at installation; and c) test plan and interconnect process required by any third parties including but not limited to in country carrier/telco.

- Provide any connectivity setup and details for testing out the management setup. For example: provide vCenter access to management network.

- Provide IP addressing and subnet masks, network physical and logical schematics, required security policies and any other necessary data to Cisco prior to or during the design discussions.

Knowledge Transfer

Cisco Responsibilities

- Provide information to Customer regarding any course pre-requisites for all Customer personnel nominated to attend the remote knowledge transfer session. Cisco will determine an appropriate format and delivery method of the knowledge transfer remote session.

- Provide one (1) knowledge transfer session for up to two (2) Business Days on topics covering ACI fabric including, but not limited to ACI constructs, VMM and the operations guide book delivered as part of this service for up to fifteen (15) participants.

- Reach agreement on the commencement date for the Knowledge Transfer remote session within five (5) Business Days following completion of the Configuration Migration Plan.

- Provide related knowledge transfer material, if any.

Customer Responsibilities

- Provide specific discussion topics for the knowledge transfer session five (5) Business Days prior to the agreed date of the session.

- Provide names and profiles of up to three Customer participants for the knowledge transfer session at least five (5) Business Days before the knowledge transfer session commences.

- Agree with Cisco on the commencement date for the knowledge transfer session within five (5) Business Days following completion of the Configuration Migration Plan

- Ensure that Customer's personnel attending the knowledge transfer session meet all course pre-requisites notified by Cisco to Customer.

- Ensure that Customer's facility contains all the resources required for supporting the knowledge transfer session per Cisco's determination.

General Customer Responsibilities

- 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.

- Customer acknowledges that the completion of Services is dependent upon Customer meeting its responsibilities as indicated herein.
- 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.
- 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.
- Support services provided by Cisco comprise technical advice, assistance and guidance only.
- Customer expressly understands and agrees that the Services shall take place and complete within ninety (90) calendar days from issuing a Purchase Order to Cisco for the Services herein.
- Customer understands and acknowledges that use of Pre-Packaged Software Scripts provided under this Service is governed by the software license terms in the Master Agreement between the parties.
- Customer understands and acknowledges that support of Pre-Packaged Software Scripts is out of scope of this effort. Customer will need to purchase such support separately, either directly from the third party or resold by Cisco.

Invoicing and Completion

Invoicing

Services will be invoiced upon completion of the Services.

Completion of Services

Cisco will provide written notification upon completion of the Services to Customer. The Customer shall within five (5) Business Days of receipt of such notification provide written acknowledgement of Cisco's completion of the Services. Customer's failure to acknowledge completion of the Services or to provide reasons for rejection of the Services within the five (5) Business Day periods signifies Customer's acceptance of completion of the Services in accordance with this Service Description

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:

- Cisco will present the draft Document Deliverable to Customer when the document is ready for review and approval.
- 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.
- 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.
- If Customer provides comments, then Cisco shall address such comments in a timely manner and this process for review and approval will be repeated.
- No further Services will be performed until the Customer's acceptance of Document Deliverables is received by Cisco.
- If Customer nevertheless insists on Cisco performing any further Services, the relevant Document Deliverable as presented by Cisco will be deemed accepted.