



Service Description: Cisco Managed Services for Data Center: Infrastructure

Technology Addendum to Cisco Managed Services for Enterprise Common Service Description

This document referred to as a **Technology Addendum** describes the **Cisco Managed Services for Data Center - Infrastructure**.

Related Documents: This document should be read in conjunction with the Cisco Managed Services Common Service Description.

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Service Summary

Cisco Managed Services for Data Center – Infrastructure are intended to supplement a current support agreement for Cisco products, and only available where all the Data Center and Application Delivery Managed Components in a Customer's network are supported through a minimum of core services such as Cisco's SMARTnet and Software Subscription Services, as applicable. Cisco shall provide the Services described below as selected and detailed on the Purchase Order for which Cisco has been paid the appropriate fee.

Cisco shall provide a Quote for Services ("Quote") setting out the extent of the Services and duration that Cisco shall provide such Services. Cisco shall receive a Purchase Order that references the Quote agreed between the parties and that, additionally, acknowledges and agrees to the terms contained therein.

Cisco Managed Services for Data Center – Infrastructure

The Service described below will act as additional or clarifying definition to detail contained within the Cisco Managed Services Common Service Description.

Cisco Managed Services for Data Center – Infrastructure provides remote network monitoring and management support for Data Center and Application Delivery devices within the Customer's infrastructure.

This Technology Addendum describes the services capabilities, supported devices, elective changes, and reports delivered. The primary distinction between the Managed service and the Monitoring service is the addition of proactive analysis and remediation of event traffic by Cisco's Operations Center personnel. This addition provides Customer with the 24/7 event analysis, proactive and reactive configuration changes as well as device tuning. The services support all of the primary Cisco Data Center and Application Delivery technologies.

1. Service Levels

The Cisco Managed Services for Data Center – Infrastructure is offered in two service levels:

- **Monitoring Service**
- **Managed Service**

These service levels are described in detail in the Cisco Managed Services Common Service Description. In addition to these two service levels, the Customer can also purchase **Optional** services. The table below outlines the activities and deliverables that are covered under the two service levels and Optional Services for the Cisco Managed Services for Data Center - Infrastructure.

Activities / Deliverables	Monitoring Service	Managed Service	Optional Services	Required Services	Optional
Management Readiness Assessment	✓	✓			
Device Monitoring	✓	✓			
Incident Record	✓	✓			
Incident Notification	✓	✓			
Backup of Cisco Devices	✓	✓			
Incident Management		✓			
Advanced Event Correlation		✓			
Incident Priority and Classification		✓			
Incident Investigation and Diagnosis		✓			
Incident Resolution and Restoration		✓			
Incident Escalations		✓			
Incident Closure		✓			
Incident Resolution		✓			
Root Cause Analysis Reports			✓	Customer Level I	Engineer
Ticket Trending and Analysis			✓	Customer Level II Option	Engineer
Review / Assess Cisco Field Notices			✓	Customer Level II Option	Engineer
Web Accessible Portal	✓	✓			
Standard Reports	✓	✓			
Custom Reporting			✓	Operations Level II	Manager
Customer Engineer Level I and II			✓	Operations Level I	Manager
Operations Manager Level I and II			✓		
Defined Changes			✓	Elective Changes	
Custom Scoped Elective Changes			✓	Elective Changes	
Regulatory Compliance Management			✓	Compliance Management Package	
Policy Management			✓	Compliance Management Package	
Software Image Management (SWIM)			✓	Compliance Management Package	
Ticket Integration			✓	ServiceGrid	

2. Reporting

The Cisco Management Application Platform (“MAP”) collects and gathers log and event information from the Managed Data Center Components covered within the service. This information is compiled and made available via reports available on the Cisco Managed Service portal. Standard reports available are listed below.

- **Top 10 Reports**

- **Interface Utilization Error Out monthly** – interfaces listed in descending order based on how many error packets passed through them in an outbound direction.
- **Interface Utilization Error In monthly** – interfaces listed in descending order based on how many error packets passed through them in an inbound direction.
- **Interface Utilization Discard Out monthly** – interfaces listed in descending order based on how many megabytes of traffic has been discarded in an outbound direction.
- **Interface Utilization Discard In monthly** – interfaces listed in descending order based on how many megabytes of traffic has been discarded in an inbound direction.
- **Interface Utilization MEG’s Out monthly** – interfaces listed in descending order based on how many megabytes of traffic has passed through them in an outbound direction.
- **Interface Utilization MEG’s In monthly** – interfaces listed in descending order based on how many megabytes of traffic has passed through them in an inbound direction.

- **Network Level Reports**

- **Device Specific Real-Time Reports** - Real-time, device specific reports can graph up to 12 months of device metrics. The data can be exported for analyzing. Examples of data points are CPU utilization, interface statistics, environmental sensor values, memory statistics, and many others.
- **Interface Volume Health** - inbound volume (octets), outbound volume (octets), inbound errors, outbound errors, and unknown protocols for each managed interface.
- **Raw Bandwidth Report** –the non-aggregated (raw) data for capacity planning and long-term reporting. The report results are displayed in CSV file format.
- **Infrastructure Report** – IOS® devices, IOS® version, flash size, RAM size and modules installed
- **Cisco CPU Memory Usage** - CPU utilization (%), memory pool utilization (%), memory pool free, memory pool largest free
- **Cisco Sensor** - voltage level, voltage status, fan state, power supply state, temperature level, temperature status
- **Device ICMP** - ICMP messages received (per second), ICMP messages sent (per second), ping replies received (per second), ping replies sent (per second), pings sent (per second), ping replies received (per second)
- **Bandwidth Utilization** – peak and average input and output bandwidth utilized over time.
- **Device IP Statistics** - IP packets received (per second), IP packets forwarded (per second), IP out requests (per second), no route (per second), fragmentation failures (per second), reassembly failures (per second)
- **Interface Volume Health** - inbound volume (octets), outbound volume (octets), inbound errors, outbound errors, unknown protocols
- **Interface Error Discards** - delivered (inbound) packets, inbound errors, inbound discards, outbound errors, outbound discards
- **Interface Throughput Utilization** - inbound utilization (percent), outbound utilization (percent), inbound throughput (bps), outbound throughput (bps)
- **Interface LAN Errors** - inbound abort, inbound CRC, inbound frame, inbound giants, inbound ignored, inbound overrun
- **Interface Multicast** - inbound unicast packets per second, outbound unicast packets per second, inbound multicast packets per second, outbound multicast packets per second, inbound broadcast packets per second, outbound broadcast packets per second
- **Nexus Switches** - high capacity alarms, topology changes/root, environmental alarms, link events

- **Compute/Virtualization Level Reports**
 - **Server Asset Details Report** - Server Name, Model, Manufacturer, Operating system, Operating system revision, Total Random Access Memory, Percent of memory used, Amount of physical memory available, Total virtual memory, Percent of virtual memory used, Amount of virtual memory available
 - **Server System Reports and Operating Systems** - physical and virtual memory stats, CPU usage, interface utilization, file system utilization, configuration reports and change alerts, installed software, running processes, services running/not running, open ports, hardware profile (processors, disks, memory, installed components) for Windows and Linux hosts
 - **UCS Device Specific Real-Time Reports** - Real-time, UCS specific reports that can graph up to 12 months of device metrics. The data can be exported for analyzing. Examples of data points are CPU utilization, interface statistics, environmental sensor values, memory statistics, and many others.
 - **UCS Faults** - Consuming all faults raised by the UCS system. Examples include adapter unit problems, chassis environmental alarms, UCS blade equipment and bios alarms, various fan/power supply alerts, memory alarms, servers discovered/removed/unassociated, port problems, NIC failures, storage capacity, and disk concerns
 - **UCS Configuration** - tracking and alarming on state change for a subset of devices exposed through the API
 - **VMWare Faults** - ESX/ESXi and Virtual Center/Sphere errors, Virtual Center/Sphere system utilization, high availability, and DRS performance
 - **vMotion Sickness** - vMotion failures where VM oscillation or flapping occurs
 - **Virtualization Infrastructure** - VMware ESX/ESXI server information, VMs grouped by ESX/ESXI Server and showing info for each VM, including: guest OS; CPU allocation and utilization; memory allocation and utilization; bandwidth utilization; file systems and their utilization
 - **VM Health Report** - Health and availability for VMs showing CPU, memory and network activity
 - **VM Migration Report** - For each VM a history of where it was, where it is now and when it moved
 - **VM Interface Utilization Report** - Bandwidth utilized by each VM and each ESX/ESXI server
 - **VM Top Utilization Report** - CPU, Memory and Swap for the top most utilized VMs based on resources for CPU, memory and Swap per blade or chassis
- **Storage Level Reports**
 - **File Service Performance Details Report** - Server Operating System, Volume name (logical partition), Volume size for each logical storage volume under management.
 - **Storage Fiber Switches** - FC Interface Status, FC Interface Errors, FC Switch Status, SNMP Uptime , FC Interface Utilization, SNMP Trap Handler. Generic monitor that allows for the capture of SNMP Traps from a storage head device and maps to error conditions
 - **SAN Standard** - SAN Array Disk Group Status, SAN Hardware Status, SAN Diskshelf Status, and SAN Controller Status
 - **NAS NetApp and EMC** - faults for NetApp and EMC on the following NVRAM, Fan, Temperature, CPU, Disk, Disk Status, and Shares. EMC also includes more hardware and array status alerts
 - **Storage Device Capacity Planning Report** - System Name, Number of disks, Capacity, and Percent allocated
- **Service Level Objectives (SLO) Reports**
 - **Mean Time To Notify MTTN** - provides Cisco MAP administrators with data on the length of time for cases to be picked up by the Network operations team and alert the customer of the event. In support of service management initiatives, this data can be used to compile and report on average times and trends for responding to cases of various priorities. The report results are displayed in CSV file format.
 - **Mean Time to Begin Analysis MTBA** - provides Cisco MAP administrators with data on the length of time between a case opening and it being worked by the Network operations team. In support of service management initiatives, this data can be used to compile and report on average times and trends for working cases of various priorities. The report results are displayed in CSV file format.
 - **Mean Time To Isolate MTTI** - provides Cisco MAP administrators with data on the length of time for the Network operations team to identify the cause of a case opened in the platform. In support of service management initiatives, this data can be used to compile and report on average times and trends for isolating problems of various priorities. The report results are displayed in CSV file format.
 - **Mean Time To Resolve MTTR** - provides Cisco MAP administrators with data on the length of time for case completion. These time attributes provide insight into how long it is taking network management personnel to

resolve and close cases of different priorities. In support of service management initiatives, this data can be used to compile and report on average times and trends for responding to and completing cases of various priorities. The report results are displayed in CSV file format.

- **Application Networking Reports**
 - **WAAS or ACNS Events** - WCCP service/cache lost or no-memory/socket, content engine failures for disk, read/write, overloads, various types of WAAS alarm books for critical, major, and minor events
 - **WAAS Mobile** - health events, service/process failures, server start/stop, cache alarms, blackbox/system reports
 - **ACE Events** - real server state alarms or VIP state changes, context, or license problems
 - **GSS Events** - DNS events, peer status, core crashes, or keep alive events
 - **CSS Events** - DNS events, peer status, core crashes, or keep alive events
- **General Reports**
 - **Element Availability Summary** - interface availability (percent) and device availability (percent)
 - **Hardware Inventory Report** - This report will list the device name, IP address, type, model, serial number, and the last successful backup to assists administrators in tracking which devices are being backed up. The Hardware Inventory Report is automatically generated by Cisco MAP on the first of every month for the previous month's data. The report results are displayed in Microsoft Excel file format.
 - **Monthly Device Availability Report** –percentage uptime and downtime for the previous two months. The report runs on a scheduled basis on the first of each month and will pull data for the previous two months. For example, a report run on July 1st will pull data for May and June. The report columns 'This Period Avg Down Time %' and 'This Period Avg Uptime %' would represent data for the month of June while columns 'Last Period Avg Down Time %' and 'Last Period Avg Uptime %' would represent data for the month of May. The up/downtime percentage is calculated by Cisco MAP from SNMP system uptime information obtained through polling each device. The report results are displayed in Microsoft Excel file format.

3. Customer Requested Change Management

Customers purchase a block of support hours that can be leveraged across all MACD Categories and Custom Scoped Elective Changes that a Customer has under their service contract. The Customer must have a sufficient balance of support hours on account to cover the requested change. Additional support hours may be purchased if required.

3.1. Defined Changes

Defined Changes are categorized into Small, Medium, and Large activities. A Defined Change is a requested change by the Customer. Defined Changes are not the result of Cisco Incident Management and Problem Management processes. The Customer identifies the needed type of change and submits a Defined Change Request on the Portal.

Small Defined Change (Type 1)

- **Add configure, change VM resources**
- **Administration user accounts**
- **VLAN access point changes**

Medium Defined Change (Type 4)

- **Apply Application patches**
- **Configure new VM**
- **Deploy new VM from standard template**

Large Defined Change (Type 8)

- **Upgrade new Hypervisor**
- **Upgrade new OS**
- **Upgrade UCSM firmware/software**

3.2. Custom Scoped Elective Changes

Custom Scoped Elective Changes are Customer requested changes that fall outside Incident and Problem (Standard) changes for restoring service. Custom Scoped Elective changes will require a mutually agreed upon statement of work (SOW). See Cisco

Managed Services Common Service Description for more details of Custom Scoped Elective Change support. Some examples of Custom Scoped Elective Change activities are listed below.

- Patches to Cisco equipment and Cisco applications
- Configuration changes to Cisco software and devices
- Investigation and resolution of authentication issues
- Cisco software upgrades for feature enhancements for security-related purposes
- Connectivity and Path Maintenance
 - Packet capture and traffic analysis
 - Device mapping and packet flow monitoring
- Bulk VM Provisioning
 - Creation and deploying of a large number of VM's from a customer provided Golden Image
- Capacity Planning – Optimization services from Cisco's Advanced Services team
 - Evaluation of Network performance and current resource utilization
 - Determining impacts and required modifications to support new applications and services
- Creation of custom reports
 - Consultation
 - Definition
 - Configuration
- Creation of custom dashboards
 - Consultation
 - Definition
 - Configuration