

# Monitoring & Management

Product E-Book

Technology of People, Innovation & Simplicity



TECHNOLOGY SOLUTIONS FOR BUSINESS

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### Product Overview

Our Monitoring and Management offering is actually two separate services:

- **Monitoring:** Scheduled and automatic checks of customers' IT infrastructure
- **Monitoring & Management:** Everything described above plus advanced troubleshooting, repair and changes to customers' IT infrastructure and voice infrastructure

These services are available in the following models:

1. CBTS Monitored – CBTS monitors customer-owned equipment and sends notification to the customer (no management)
2. CBTS Managed – CBTS monitors and manages customer-owned equipment
3. CBTS Managed Utility – CBTS provides the equipment, monitors and manages as a service

### Benefits

- Constant monitoring of critical systems and components
- Latest monitoring technology without upfront capital costs and risks
- Access to CBTS' experienced engineers
- Enables customer internal IT resources to focus on more strategic initiatives
- Predictable operational costs
- 24 x 7 x 365 support for detection/resolution of issues

### Pricing Overview

Pricing for this service consists of two components:

- 1) One-time setup charge per device, which varies depending on the type of IT infrastructure.
- 2) Monthly recurring charge per device for ongoing monitoring and management (if applicable), which varies depending on the type of IT infrastructure.

### Product Details

CBTS' ENOC provides:

- 24 x 7 x 365 monitoring of devices
- Management of Service Requests and Incidents

CBTS assigns qualified resource(s) with solid technical, process and management experience, and proven success to deliver the services.

Support for business impacting critical events is 24 hours per day, 7 days a week, and 365 days a year. Support for all other events is 8 a.m. to 5 p.m., five days a week, local site time, excluding holidays.

CBTS can also conduct an optional inventory assessment to identify all of the assets on a specific network (at an extra charge).

### Monitoring Only

CBTS uses the latest technology to monitor servers, network routers, switches, load balancers and firewalls. The types of data that we monitor includes:

- Availability, latency, and uptime
- CPU, memory, and virtual memory utilization
- Network interface utilization, errors, and discards
- Module statuses and states
- Filesystem/Disk utilization
- Vendor, model, and version specific vital metrics
- Various SNMP trap and logs from monitored device

### Monitoring & Management

In addition to the above monitoring tasks, Monitoring and Management Services include the following:

#### **Server Monitoring & Management**

- OS Support for Windows and Linux (Ubuntu, RedHat, and CentOS)
- Administrator Account Management
- Incident Remediation
- Anti-Virus Management
- Coordinate Break/Fix Services

We also have the ability to offer Patch Management

#### **Network Monitoring & Management**

- Authentication, Authorization and Accounting
- Configuration Management
- Incident Remediation
- Coordinate Break/Fix Services

### Voice Monitoring & Management (Server & Network Equipment Based on Cisco Collaboration Software Only)

- Authentication, Authorization and Accounting on Cisco Collaboration Software
- Configuration Management of Cisco Collaboration Software (Server & Network Equipment)
- Incident Remediation
- Coordinate Break/Fix Services

### Security

- Firewall configuration management
- Intrusion detection and prevention solution
- System log management
- Vulnerability scanning internal and external (Optional)
- Security information and event management (Optional)

### Out of Scope Items

- Security / Security Audits and Compliance
- End User Services (i.e., desktop, applications, printers, etc.)
- Domain Controllers, DNS, DHCP Management
- Group Policy Admin
- User Account Admin
- Application Ownership
- Quality Assurance Testing

### SKU Detail

<b>Server</b>	<b>Monitoring &amp; Management</b>
Microsoft Windows Server	X
Linux Server	X
Unix Server	X
<b>Network</b>	
Router	X
Switch	X
Firewall	X
VPN	X
Load Balancer	X
Wireless	X

IPS/IDS	X
<b>Voice Only</b>	
Cisco Telephony Physical Server	X
Cisco Telephony Application	X
Voice Gateway	X
Switch	X
Analog Voice Gateway	X

For Voice Monitoring & Management, additional charges based on the number of endpoints, video endpoints, UCCX and UCCE agents.

## Service Level Agreements (SLAs)

A **Service Level Agreement** (“SLA”) is the commitment that prevails between a service provider and the customer. A **Service Level Objective** (“SLO”) is the specific, measurable characteristics of the Service Level Agreement.

### Incident Management

Incidents are the result of service failures or interruption. Incidents are assigned priorities based on the impact and urgency of the failure or interruption. The following table includes Service Level Objectives (“SLOs”) for Incident Management.

Priority	Repair Time SLO	Short Description
<b>Priority 1</b>	4 hours	Business impacting outage
<b>Priority 2</b>	24 hours	Performance issues that are business impacting or a non-business impacting event
<b>Priority 3</b>	5 Business Days	Performance issues with little or no business impact
<b>Priority 4</b>	10 Business Days	Non-business impacting, scheduled repair time, or incident impacting out of scope services

- A customer-provided resource must be available to approve configuration changes (e.g. Emergency Change Approval).
- For customer-owned equipment, a customer-provided resource must be available to CBTS and all necessary equipment must be on-site to facilitate repair.
- Hardware or service must be monitored by CBTS.

**Repair SLA:** A Service Level Agreement is the aggregation of all SLO for each Priority type during a given month. Based on the table below, if a Service Level Attainment percentage drops below the minimum, then it results in one (1) Service Level Default.

Priority	Repair SLA
Priority 1	95%
Priority 2	90%
Priority 3	85%
Priority 4	No SLA*

*\* Used for Extended Issues – Customer can escalate as needed*

If the volume of tickets during the calendar month is less than ten, then CBTS can have one (1) missed SLO without an SLA default.

## Roles and Responsibilities Matrix

Roles and Responsibilities	CBTS	Customer
Provide a 24X7X365 Staffed Monitoring Center	X	
Provide log platform	X	
Manage and maintain the monitoring solution	X	
Provide a customer portal for performance and monitoring statistics	X	
Historical data for all tickets created for device is retained for a minimum of 1 year	X	
Historical data for all polled statistics (log information is retained for a minimum of 180 days)	X	
Incident ticket tracking	X	
Notify customer when events are triggered via the monitoring system	X	
Configure Configuration Items (SNMP, logging, access control, etc.)		X
Resolving incidents (monitor-only)		X

## Reporting

The following reports are provided with Monitoring and Monitoring & Management solutions:

<i>Report</i>	<i>Description</i>	<i>Monitoring</i>	<i>Monitoring &amp; Management*</i>
Chronic Alarm Trend Report	Tracks repeating device alarms and overall volume trend (monthly)	X	X

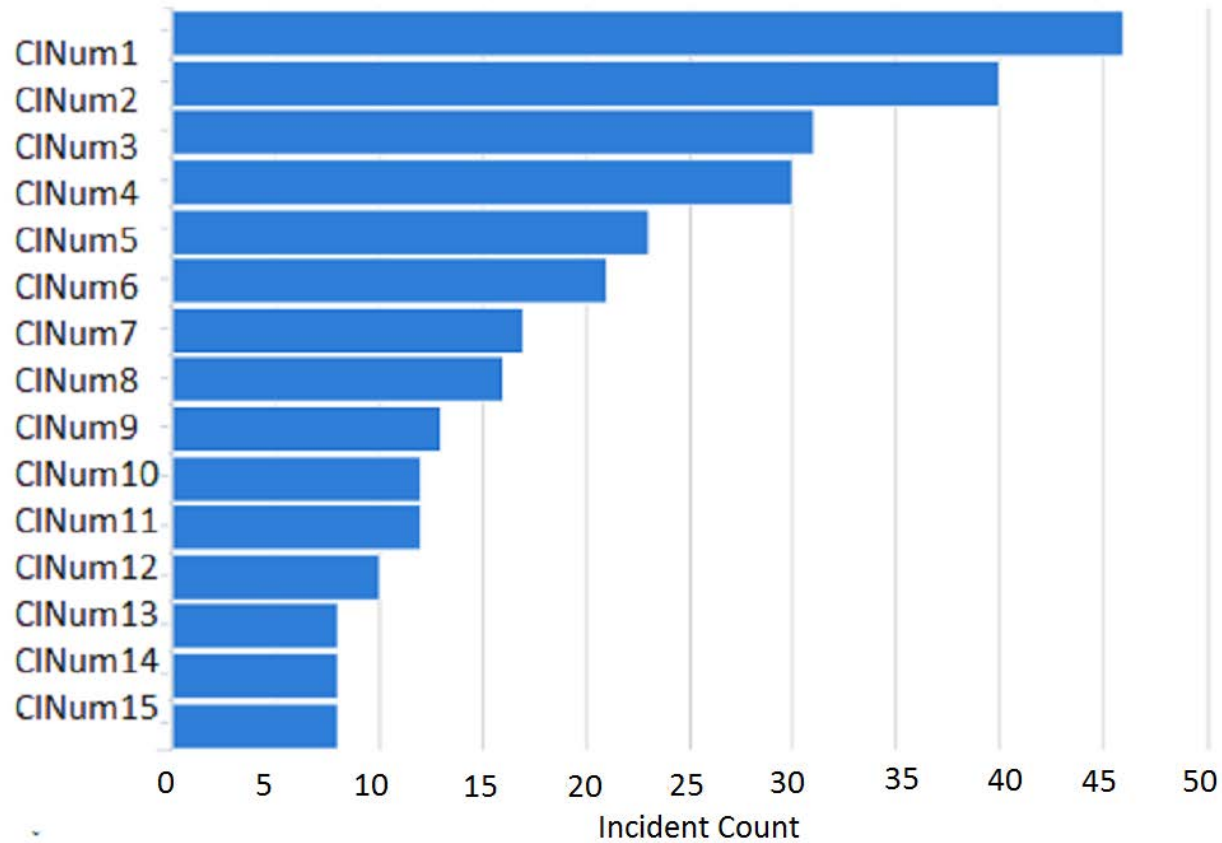
Incident Management Responsiveness	Tracks SLA incident performance on time between alarm & ticket creation		X
Service Request Timeliness	Tracks SLA performance on time between service request opened to service request closed (less pause time if applicable) for the following types of change requests: standard, normal simple, normal project, normal complex		X
MTTR (Mean-Time to Repair)	Time between alarm and incident closed (less pause time if applicable).		X

*\* 'Monitoring & Management' includes voice offering as well*

The following pages show examples of each report



Top 15 CIs Creating Incidents Last 30 Days



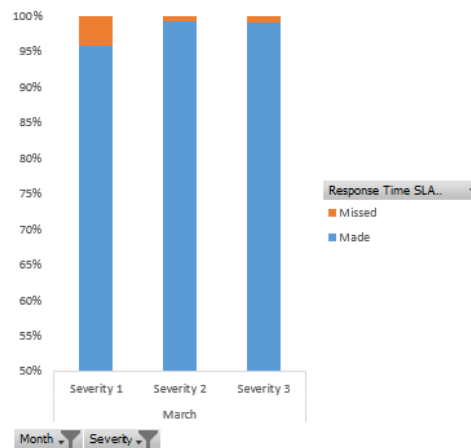
CI = Configuration Item (i.e., server name, router name, etc.)



Overview of Service Level Objectives

7/1/2016 - 9/30/2016

Month	Made	Missed
<b>September</b>	99%	1%
Severity 1	100%	0%
Severity 2	99%	1%
Severity 3	99%	1%
Severity 4	100%	0%
<b>August</b>	99%	1%
Severity 1	100%	0%
Severity 2	99%	1%
Severity 3	100%	0%
Severity 4	100%	0%
<b>July</b>	99%	1%
Severity 1	98%	2%
Severity 2	100%	0%
Severity 3	99%	1%
Severity 4	100%	0%
<b>Grand Total</b>	99%	1%



Month	Made	Missed
<b>September</b>	668	4
Severity 1	26	
Severity 2	399	3
Severity 3	171	1
Severity 4	72	
<b>August</b>	866	5
Severity 1	20	
Severity 2	514	5
Severity 3	230	
Severity 4	102	
<b>July</b>	1188	6
Severity 1	56	1
Severity 2	578	2
Severity 3	467	3
Severity 4	87	
<b>Grand Total</b>	2722	15

Report Name: Service Request Timeliness

Sample Report



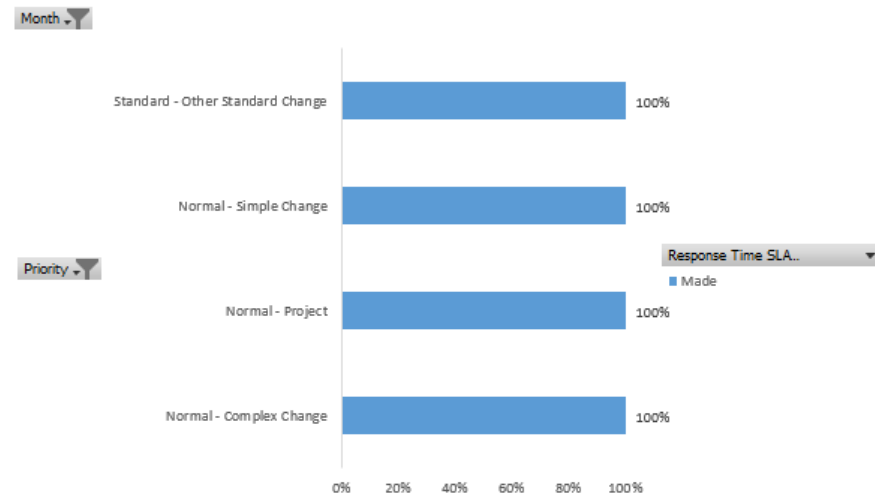
Overview of Service Call SLA Performance  
7/1/2016 - 9/30/2016

November: Service Call Response SLAs  
Month: September

Type	Made	Grand Total
Normal - Complex Change	100%	100%
Normal - Project	100%	100%
Normal - Simple Change	100%	100%
Standard - Other Standard Change	100%	100%
<b>Grand Total</b>	<b>100%</b>	<b>100%</b>

Analysis Type: Change

Type	Made	Grand Total
August	35	35
n/a	1	1
Normal - Complex Change	2	2
Normal - Project	13	13
Normal - Simple Change	7	7
Standard - Other Standard Change	12	12
July	40	40
Normal - Complex Change	2	2
Normal - Project	17	17
Normal - Simple Change	6	6
Standard - Other Standard Change	15	15
June	37	37
n/a	1	1
Normal - Project	12	12
Normal - Simple Change	24	24
<b>Grand Total</b>	<b>112</b>	<b>112</b>



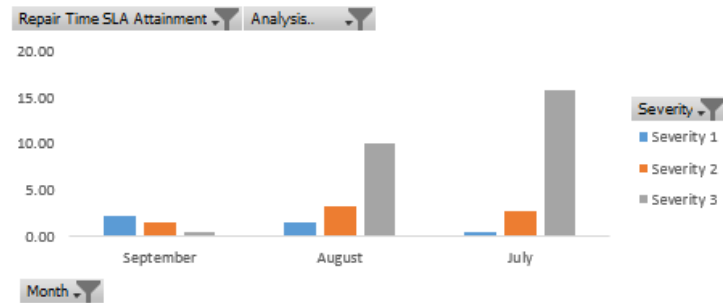
Report Name: MTTR (Mean-Time to Repair)

Sample Report



Incident - MTTR

7/1/2016 - 9/30/2016



Average Time to Repair - Hours

Month	Severity 1	Severity 2	Severity 3	Average
September	2.15	1.46	0.42	1.19
August	1.46	3.23	10.04	5.22
July	0.40	2.69	15.85	8.16
<b>Average</b>	<b>1.05</b>	<b>2.55</b>	<b>11.27</b>	<b>5.56</b>