

Service Guide

This Service Guide (“SG”) describes all services offerings (“Service” or “Services”) offered by Lightstream Managed Services, LLC, and includes Services details and additional requirements or terms, if any. The specific details, service terms, and commitments, of the Services ordered by each Lightstream customer (“Customer”) Customer shall be set forth on a separate Service Order Form.

Managed Services

Service Description

The Managed Services offering provides monthly management and support of either Lightstream-provided or carrier-provided services to Lightstream Customers. Managed Services are available for Customers with managed hosting, network, colocation, or cloud services. Several tiers are available for the Customer to select when ordering the Service, as described below.

Base Service Packages: Service Tiers for Lightstream Managed Services include Essential, Standard, Advanced, Enterprise, and Enterprise Plus. Service for Essential and Standard Tiers will consist of Customer support from a Lightstream Client Service Manager (“CSM”). Service for Advanced and higher Tiers may consist of CSM support, or proactive technical consultation provided by a Client Solution Architect (“CSA”), or both. Each Tier includes a block-time billing methodology of a pre-defined allowance of monthly billable hours, up to the amounts listed in Table 1.

Table 1: Managed Services Base Package Tiers

| Tier Level | Essential | Standard | Advanced | Enterprise | Enterprise Plus |
|---------------------------------|-----------|----------|-----------|------------|-----------------|
| Resource(s) assigned | CSM | CSM | CSM / CSA | CSM / CSA | CSM / CSA |
| Monthly billable hours included | 8 | 20 | 80 | 160 | 360 |

In addition to a Base Package, Customer may order additional hours and resources by ordering an additional monthly Supplemental Services Package.

Supplemental Service Packages: Customer must have a Base Package in order to add monthly Supplemental Service hours. Additional monthly hours for the Service shall follow the same block-time billing methodology as the Base Packages and may be ordered in blocks of 20, 40, 60, 80, and 160 hours per month. Each Supplemental Service Package shall designate a particular role (e.g., either CSA or CSM, but not both). Different personnel resources may not be combined in the Supplemental Service Package. One or more Supplemental Service Packages may be added on to any Base Package.

| Supplemental Service | | | | | |
|---------------------------------|------------|------------|------------|------------|------------|
| Resource assigned | CSM or CSA | CSM or CSA | CSM or CSA | CSM or CSA | CSM or CSA |
| Monthly billable hours included | 20 | 40 | 60 | 80 | 160 |

Each Managed Services Package constitutes Customer’s minimum monthly commitment for that Package, and the aggregate of all Packages constitute Customer’s total minimum monthly

commitment (“MMC”) for Lightstream Managed Services. Customer will be invoiced for each amount listed in the Service Order Form “SOF” for each Package, regardless of whether all hours in that Package are consumed in a given month. Hours supplied to Customer in excess of the allowed amount or amounts in Customer-ordered Package or Packages shall be billed at standard billing rates as listed in the SOF, and will be billed as an overage in addition to the monthly recurring charge for each Package. If no standard billing rate is listed in the SOF, overage hours will be billed at the highest average hourly rate of any Package. Detail of hours worked and services provided in delivery for these Managed Services, including Base Package, Supplemental Service Packages, and overages, are available from the Lightstream Account Management team.

Unless otherwise specified, Managed Services personnel are available during business hours (9am to 5pm local time on business days). If after-hours support is provided, Lightstream may allocate 1.5 times the number of hours against the Package allotted hours. The Managed Services organization will support major events with significant business impact outside of normal business hours.

The following pages describe CSM and CSA roles and responsibilities, as well as listing tasks or activities that may be performed by CSM and CSA support personnel. Additional detail for each task or activity is provided further below.

Client Service Manager (CSM)

Tasks and Activities List

The following is a list of all tasks and activities that may be performed in the course of a CSM's delivery of services as limited by the hours per month included in the Managed Services Base Package or as supplemented through purchase of a Supplemental Package as listed in the Service Description section above.

CSM tasks provided with the Services are set forth below and are limited to the hours per month purchased by Customer within the Service Package. Additional hours will be charged to Customer as specified in the Service Description section above.

| Code | Name of Task / Activity |
|---|--|
| Customer Relationship Management | |
| CRM1 | Customer Communication |
| CRM2 | New Product / Product Enhancement |
| CRM3 | Site / Data Center Visit |
| CRM4 | Contact Management |
| CRM5 | Customer Request Resolution |
| CRM6 | Customer Advocacy |
| CRM7 | Contract Management |
| CRM8 | Provider Changes/Maintenance |
| CRM9 | Portal Training |
| Incident / Trouble Management | |
| Incident / Problem Management | |
| ITM1 | Incident Response |
| ITM2 | Escalation Management |
| ITM3 | RCA / RFO |
| ITM4 | Automated Service Procedures |
| Change Control Management | |
| CCM1 | Documentation of Standard Changes |
| CCM2 | Management of Non-Standard Change Requests |
| CCM3 | Management of Emergency Change Requests |
| CCM4 | Risk Assessment |
| CCM5 | Proactive Maintenance Advisement |
| CCM6 | Development of Project Plans |
| CCM7 | Change Review |
| Service Delivery Management | |
| Release Management (Install & Decommissioning) | |
| SIM1 | Service Integration Oversight |

| Code | Name of Task / Activity |
|-----------------------------------|--|
| SIM2 | Customer Handover Documentation |
| SIM3 | Customer Information Handbook |
| SIM4 | Service Personnel/Organization Interface |
| Configuration Management | |
| CFM1 | Customer Infrastructure Service Review |
| CFM2 | Firewall Rule Set Review |
| CFM3 | Alert / Monitoring Review |
| CFM4 | Documentation Update |
| CFM5 | Maintain authorized Customer contact list |
| Service and SLA Management | |
| Service Level management | |
| SSM1 | Periodic Service Review |
| SSM2 | SLA and Availability Stewardship |
| SSM3 | Business Review |
| SSM4 | Trouble / Maintenance Impact Communication |
| Billing Management | |
| Finance | |
| BLM1 | Proactively manage / audit billing |
| BLM2 | Customer Billing Review |
| BLM3 | Service Credits |
| Performance Management | |
| PFM1 | Performance Management |

Description of CSM Task and Activities

| Code | Description of Task / Activity |
|---|--|
| Customer Relationship Management | |
| CRM1 | A service meeting or status update call (including weekly/monthly service meetings) |
| CRM2 | Provide Customer with information on Lightstream and/or providers' new products and product enhancements |
| CRM3 | Occasional site visit for Customer, including Customer requested tour of a provider data center |
| CRM4 | Introduction of new Lightstream, provider, or Customer personnel assigned to Customer team, including training of new contact on Customer process, procedure, and environment; this include introduction to Lightstream, provider, and/or Customer, and Lightstream / provider's services, Customer's committed Services, infrastructure environment, contact details, etc. |
| CRM5 | Ownership and driving to completion of all Customer requests associated with Lightstream / provider services |
| CRM6 | The CSM is familiar with Customer's business, services and requirements in general and is responsible for managing Customer satisfaction with all areas of Lightstream and provider services. The CSM represents the Customer internally within Lightstream, and will work with Customer to maximize Customer's use of Services, including quote timescales, service delivery and incident management. |
| CRM7 | Management of Customer provider contracts, including information supplied on billing variances, contract term maturity, shortfall situations, etc. |
| CRM8 | Notification to Customer on events provider maintenance windows; education on items such as technology refresh / new products, product updates, portal enhancements, etc. |
| CRM9 | Introductory or periodic training on Lightstream and/or provider tools, portals |
| Incident / Trouble Management | |
| ITM1 | Assistance with opening of tickets on report of incident/trouble; regular periodic review of open tickets still in process; report on month-over-month incident trending; data provided in Essential Package is limited to data supplied via provider portal |
| ITM2 | Escalation of service outage incidents to resolution |
| ITM3 | Compilation of data following major incident or outage to obtain root cause; follow-up with provider to obtain Root Cause Analysis (RCA) and/or Reason For Outage (RFO) report; explanation and review of RCA/RFO with Customer; data provided in Essential Package is limited to data supplied via provider portal |
| ITM4 | Establishment of Customer-specific service procedures specifying actions that to be followed in response to an incident |

| Code | Description of Task / Activity |
|---------------------------------------|--|
| Change Control Management | |
| CCM1 | Documentation of repetitive change requests to establish a standard change script to be supplied to provider to enable repeated implementation after approval from provider change control process |
| CCM2 | Identification of Customer requirements and required Lightstream / provider resources necessary to perform the change, assessment of technical feasibility to implement, securing of authorization from Customer, establishment with technical team to develop implementation and back out plans, coordination of implementation, communication to Customer throughout the process |
| CCM3 | Identification of Customer requirements and reason for urgency, resolution of issue as specified in CCM2; emergency changes may bear additional charges as per the Agreement. |
| CCM4 | Identification of risks associated with change and communication of same to Customer along with suggestions or alternatives; full risk assessment documentation is provided with the Advanced and Enterprise Packages |
| CCM5 | Notification to Customer with details of standard or emergency maintenance as supplied by provider; assessment and advance notification to Customer of potential impact to Customer environment |
| CCM6 | Oversight of major changes including communication of updates to Customer; development of implementation / project plans to complete changes to Customer requested specifications where possible |
| CCM7 | Periodic review with Customer of all pending and active changes to Customer environment |
| Service Integration Management | |
| SIM1 | Oversight of new service integrations or service decommissioning; coordination and communication of regular updates to Customer |
| SIM2 | Oversight of provider Project Management team to facilitate service handover documentation, providing of detail of services integrated by provider (e.g., server, OS, applications, storage, routing architecture, security, etc.) |
| SIM3 | Delivery of Customer Information Guide and Handbook outlining Lightstream and provider processes and functions, as well as an inventory of services that functions as a Customer documentations set or "run book" identifying all information relevant to Lightstream / provider services |
| SIM4 | Establishment and maintenance of Customer / Lightstream / provider relationship, including introduction of key provider personnel to relevant Customer personnel; maintenance of contact information for all parties; documentation and update of provider service delivery and support model and processes; education of relevant provider personnel on Customer organization, business applications, and technical environment |
| Configuration Management | |
| CFM1 | Periodic review of Customer infrastructure located in provider environment, to be reported at regular service reviews with Customer |
| CFM2 | Annual proactive review with Customer of Customer firewall rule set located in provider environment |
| CFM3 | Quarterly review of infrastructure monitoring thresholds to ensure efficient response to proactive alerts |

| Code | Description of Task / Activity |
|-----------------------------------|---|
| CFM4 | Coordination of updating Customer configuration documentation following major changes; distribution to Customer personnel |
| CFM5 | Oversight of Customer contact list to ensure proper notifications sent to proper personnel; update of provider portal with Customer contact lists as requested |
| Service and SLA Management | |
| SSM1 | Preparation and delivery of regular periodic service reviews, in person or via conference call, including ticket volume trending, incident review, proactive recommendations, SLA reporting; on-site visit limitations are detailed at the end of this document |
| SSM2 | Reporting on SLA attainment / variance, service availability metrics; management to resolution chronic service issues; management of SLA credit requests with provider |
| SSM3 | Executive reviews are targeted to aid each company in understanding each other's future business direction to proactively provide information that may be useful in future product and service releases and Customer's future business needs. |
| SSM4 | Communication to Customer of incident and problem management; coordination of delivery of desired service improvements and service developments |
| Billing Management | |
| BLM1 | Work with billing organizations to proactively check service data in an effort to provide correct monthly billing |
| BLM2 | Communication and review with Customer billing personnel to determine billing errors |
| BLM3 | Ownership of service credit request for mis-billed Customer services; tracking to resolution |
| Performance Management | |
| PFM1 | Review of key services for capacity utilization; identification of areas needing Customer to review for potential service changes such as upgrade or downgrade of service with provider |

Client Solutions Architect (CSA)

Tasks and Activities List

The following is a list of all tasks and activities that may be performed in the course of a CSA's delivery of services as limited by the hours per month included in the Managed Services Advanced or Enterprise Base Packages or as supplemented through purchase of a Supplemental Package as listed in the Service Description section above.

CSA tasks provided with the Services are set forth below and are limited to the hours per month purchased by Customer within the Service Package. Additional hours will be charged to Customer as specified in the Service Description section above.

| Code | Name of Task / Activity |
|--|--|
| Technical Leadership | |
| TEC1 | Technical Advocacy |
| TEC2 | Understand Customer Environment |
| TEC3 | Representation at Technical Forums |
| TEC4 | Service Optimization Recommendations |
| TEC5 | Product Updates |
| TEC6 | Provider Facility Tours |
| TEC7 | Technical Overview for new Customer Contacts |
| Incident / Trouble Management | |
| ITM1 | Incident Response |
| ITM2 | Technical Escalation Management |
| ITM3 | RCA / RFO |
| Change Control Management | |
| CCM1 | Documentation of Standard Changes |
| CCM2 | Management of Non-Standard Change Requests |
| CCM3 | Management of Emergency Change Requests |
| CCM4 | Technical Risk Assessment |
| CCM5 | Maintenance Technical Impact Advisement |
| CCM6 | Technical Oversight of Project Plans |
| CCM7 | Technical Change Review |
| Service Integration Management | |
| SIM1 | Service Integration Technical Oversight |
| SIM2 | Customer Handover Documentation |
| SIM3 | Customer Information Handbook |
| SIM4 | Service Personnel/Organization Technical Interface |
| Configuration Management | |
| CFM1 | Customer Infrastructure Service Technical Review |
| CFM2 | Firewall Rule Set Review |
| CFM3 | Technical Alert / Monitoring Review |
| CFM4 | Customer Technical Configuration Documentation |
| Reporting / Service Improvement | |
| RSI1 | Technical Reports and Documentation |
| RSI2 | Technical Service Review |
| RSI3 | Technical Recommendations |
| RSI4 | Service Improvement Plan |
| RSI5 | Performance Reporting |

Description of CSA Tasks and Activities

| Code | Description of Task / Activity |
|--------------------------------------|---|
| TEC - Technical Leadership | |
| TEC1 | Technical point of contact and liaison between Customer and provider; engagement of provider resources to address Customer technical requirements, design changes, service changes, etc. |
| TEC2 | Familiarization with Customer technical environment, business applications, and IT strategy; technical point of reference for the Customer internally at Lightstream as well as with provider; responsible for thought leadership and knowledge transfer |
| TEC3 | Function as an extension of the Customer's technical team, representing Customer from a technical standpoint on provider technical or engineering calls; attendance at Customer technical meetings to provide input into strategy and requirements specifications |
| TEC4 | Engagement of Lightstream and provider technical resources to make proactive recommendations to Customer for service optimization and enhancement; leadership in Customer technical workshops to design and strategize solutions with and for Customer; identification of service efficiencies (e.g., server / storage consolidation, automation, etc.) |
| TEC5 | Provide Customer with information on the Lightstream and provider product roadmap and review, evaluate, and propose new products and product enhancements |
| TEC6 | Coordination of and accompanying Customer to site visits of provider facilities; providing information and answering of technical questions relating to services proposed or provided |
| TEC7 | Education of new Customer technical personnel by providing overview of the technical environment and services provided by Lightstream and providers; work with a Customer's technology partner to assist with solution design, implementation or support, activities which fall outside of normal service management |
| Incident / Trouble Management | |
| ITM1 | Technical assistance with service outages; technical review of ticket history to identify and investigate trends; proactive recommendation of technical service or design changes to mitigate future outages |
| ITM2 | Technical involvement in escalation to provide technical input and ensure necessary troubleshooting measures are taken |
| ITM3 | Technical assistance in compilation and analysis of data following major incident or outage to obtain and identify root cause; follow-up with provider to obtain Root Cause Analysis (RCA) and/or Reason For Outage (RFO) report; explanation and review of RCA/RFO with Customer |
| Change Control Management | |
| CCM1 | Assistance to CSM in providing documentation of repetitive change requests to establish a standard change script to be supplied to provider to enable repeated implementation after approval from provider change control process |

| Code | Description of Task / Activity |
|---------------------------------------|---|
| CCM2 | Assistance to CSM to identify Customer requirements and required Lightstream / provider resources necessary to perform the change, assess technical feasibility to implement, collaborate with technical team to develop implementation and back out plans, communication to Customer throughout the process |
| CCM3 | Assistance to CSM to identify Customer requirements and reason for urgency, drive resolution of issue as specified in CCM2; emergency changes may bear additional charges as per the Agreement. |
| CCM4 | Analysis and communication of potential impact of changes to Customer environment, including high level impact assessment of changes upon Customer environment along with creation of test and backout plans, if necessary |
| CCM5 | Assessment of provider-proposed maintenance events to identify potential impact to Customer environment; collaboration with Customer / provider technical resources to address, mitigate impact |
| CCM6 | Technical oversight and responsibility for design and impact analysis of major changes to Customer environment; coordination with Customer personnel and provider project management and technical resources |
| CCM7 | Technical review and evaluation of all changes and potential Customer environment impact |
| Service Integration Management | |
| SIM1 | Technical oversight of and responsibility for new service integrations or service decommissioning; coordination and communication of regular updates to Customer |
| SIM2 | Technical oversight of and responsibility for service handover documentation, providing of detail of services integrated by provider (e.g., server, OS, applications, storage, routing architecture, security, etc.) |
| SIM3 | Creation of technical content for Customer Information Guide and Handbook outlining Lightstream and provider processes and functions, as well as an inventory of services that functions as a Customer documentations set or "run book" identifying all information relevant to Lightstream / provider services |
| SIM4 | Establishment and maintenance of Customer / Lightstream / provider technical relationships, including introduction of key provider personnel to relevant Customer personnel; maintenance of contact information for all parties; documentation and update of provider service delivery and support model and processes; education of relevant provider personnel on Customer organization, business applications, and technical environment |
| Configuration Management | |
| CFM1 | Periodic technical review of Customer infrastructure located in provider environment, to be reported at regular technical reviews with Customer |
| CFM2 | Annual proactive review with Customer of Customer firewall rule set located in provider environment |
| CFM3 | Quarterly technical review of infrastructure monitoring thresholds to ensure efficient response to proactive alerts |

| Code | Description of Task / Activity |
|--|---|
| CFM4 | Creation and updating of technical Customer configuration documentation following major design changes; distribution to Customer personnel |
| REP - Reporting and Service Improvement | |
| RSI1 | Creation of Customer facing technical documentation including consolidation of technical documentation from provider technical resources |
| RSI2 | Assistance to CSM in preparation and delivery of regular service reviews either in person or via conference call; contribution of technical reports (e.g., server, storage, bandwidth utilization, along with proactive recommendations to enhance the technical solution. On-Site visit limitations are detailed at the end of this document. |
| RSI3 | Identification of any suboptimal design or process execution of services; recommendation of redesign /remediation options |
| RSI4 | Technical oversight and responsibility for Service Improvement Plan designed to improve performance of Customer environment and thus increase Customer satisfaction; implementation of Customer-approved redesign, process changes |
| RSI5 | Technical oversight and responsibility for performance reporting on key elements of Customer environment (e.g., cloud applications, servers, network, etc.); compilation of data from provider portals (and Lightstream APM metrics, if applicable) to provide trending for utilization, capacity, and trouble; recommendation of service upgrades as necessary |

Roles and Responsibilities

Responsibilities for delivery of Lightstream Managed Services are divided among Lightstream, Customer, and provider personnel. The following table identifies defines roles and responsibilities and specifies overall ownership by individual, as well as additional personnel that are required to providing contribution or support for that task.

| Code | Role | Description |
|------|----------|--|
| O | Owner | Ownership of task, responsible to ensure completion |
| A | Approver | Responsible for approval/sign-off of task quality and completeness. |
| S | Support | Contributor, responsible for assistance, contribution of skill, resources and/or tools required to complete task |
| I | Informed | Individuals who must be informed about the progress of task (typically stakeholders) |

| SERVICE LIFECYCLE | | | | |
|--|--------|-----|-----|---|
| Service Order Process | | | | |
| Task | Client | CSM | CSA | P |
| Receive request for move/add/change/disconnect of services | S | O | I | S |
| Confirm design of MACD changes | A | | O | S |
| Create contract / service order package for MACD changes | I | O | | S |
| Perform impact analysis and feasibility review of MACD changes | A | | O | S |
| Present contract / service order to Customer for MACD changes | | S | S | |
| Create technical documentation | S | S | O | S |
| Manage quote activities / escalation issues | I | O | | S |
| Service Delivery / Onboarding | | | | |
| Task | Client | CSM | CSA | P |
| Escalation awareness of service delivery delay / jeopardy | I | O | I | S |
| Provide overview of provider processes / lifecycle | I | O | | S |
| Handoff of customer environment to Customer | A | S | S | S |
| Coordinate technical resources necessary for delivery of provider services | S | S | O | S |
| Training and overview of customer on portal and processes | I | O | | S |
| Complete customer contact information in portal | A | O | | S |
| Review of provider change management process | I | O | | S |

| SERVICE LIFECYCLE | | | | |
|---|---------------|------------|------------|----------|
| Review of provider operations process (Lightstream / provider contracts, escalation process / structure, etc.) | I | O | | S |
| Create support process workflow | S | O | | |
| Billing Support | | | | |
| Task | Client | CSM | CSA | P |
| Customer billing review (first-bill review, quarterly bill review, billing resolution, customer credit requests, invoice training/overview, etc.) | I | O | | S |
| Production Support | | | | |
| Task | Client | CSM | CSA | P |
| Continual evaluation of process improvement in support of Customer environment | I | O | S | S |
| Identify opportunities for environment design and architecture enhancements | S | I | O | S |
| Incident / Trouble Management | | | | |
| Task | Client | CSM | CSA | P |
| Notification of ticket events | I | S | | O |
| Ticket escalation point | I | O | | I |
| Customer communication throughout incident | I | O | | S |
| Aid in troubleshooting | S | S | O | S |
| Work with provider operations to ensure proper attention / escalation | | O | | I |
| Incident trending, analysis, reporting | I | O | S | S |
| LIFECYCLE ACCOUNT MANAGEMENT | | | | |
| Task | Client | CSM | CSA | P |
| Relationship management | S | O | | |
| Periodic customer technical architecture review | S | | O | S |
| Periodic solution review optimization | A | S | O | S |
| Ensure solution meets Customer requirements | A | S | O | S |
| Customer service reviews (weekly, monthly, quarterly) | I | O | S | S |
| Customer environment documentation ("run-book") | | | | |
| Overall coordination | I | O | S | S |
| Technical components | S | I | O | S |
| Operations components | S | O | | S |
| Proactive notification to Customer of potential billing overages | I | O | | S |
| SLA metric trending, reporting, and accountability | I | O | | S |

| SERVICE LIFECYCLE | | | | |
|--|----------|----------|----------|----------|
| Service availability reporting, trending and analysis | I | O | | S |
| Customer environment audits (ordered vs provisioned) | I | O | S | S |
| Provide Lightstream Service Guide ("SG") change notification | I | O | | S |
| Provide Acceptable Use Policy ("AUP") change notification | I | O | | S |

The CSM and CSA are available for on-site visits within the Advanced, Enterprise, and Enterprise Plus service tiers. Enterprise Plus Service Customers are eligible for a CSM and/or CSA on-site up to 100% of the time. Customers with the Standard Service may have a CSM on-site when required. The Essential Service tier includes no on-site travel. If Customer location exceeds 50 miles from the assigned Lightstream personnel location, Lightstream shall charge Customer for travel expenses and accommodations at cost and within the Lightstream travel and expense policy.

Lightstream shall provide coverage for Managed Services during working hours on business days on a reasonable basis for the Customer's allocated CSM. Business Days shall mean Monday through Friday, and does not include Public Holidays.

Monthly hours must be used within the month for which Services are billed and cannot be transferred to another account or carried over to a subsequent month. Billing for the Service shall begin upon assignment and introduction of resources and shall be billed at the beginning of the month during which Services are to be performed.

Should Customer requirements change, Customer may upgrade or increase the level of Managed Services Package, or purchase additional Supplemental Services Packages. In either event, Lightstream shall not be obligated to maintain the same individual(s) for the Services. However, Lightstream shall use good faith efforts to maintain continuity of support personnel where possible. If Customer chooses to downgrade or terminate the Lightstream Managed Services Package, advance notification of at least ninety (90) days is required.

Managed Services – last updated July 2014

Monitoring Services

Service Description

The Monitoring Services offering provides monthly network monitoring and proactive fault management of carrier-provided services to Lightstream Customers. Monitoring services provide network support services for Customer locations for the purpose of assisting in the diagnosing and resolving network and network-related failures. Multiple tiers are available for the Customer to select when ordering the Service, as described below.

Standard Monitoring Service

The Standard Monitoring Service Package includes the use of an Enterprise Monitoring System (“EMS”) to proactively monitor Customer IP-enabled devices – typically Customer Edge (“CE”) routers connected to an MPLS or Internet connection.

In response to EMS network outage alerts, Lightstream Network Operations Center (“NOC”) staff respond to EMS network outage reports by contacting the carrier to verify a trouble ticket has been opened and, if not, to open a trouble ticket with the carrier. Tickets are monitored and escalated with the carrier on behalf of Customer as necessary on a 24 x 7 x 365 basis. Customer is apprised of event status via the EMS as well as direct communication from NOC staff as appropriate.

Monitoring Services requires Customer to enable EMS read-only access via both ICMP and SNMP to each monitored Customer device. For multisite MPLS networks, Customer is also required to provision an MPLS circuit to the Lightstream NOC for purposes of facilitating this access into the Customer environment.

The EMS continuously PINGs each monitored device at predefined intervals. Upon non-response of the monitored device during at least two consecutive intervals (4 minutes), the node is transitioned to “Alert” state in the EMS and appears as a “yellow” node on the EMS dashboard. Lightstream NOC are alerted and begin to monitor the node for potential action needing to be taken. Nodes in an Alert state are aggressively PINGed to confirm loss of connectivity. Any ICMP response from device currently in Alert state returns the node to “Up” or “green” state, and no further action is taken regarding the event.

A node that remains in Alert status for thirty (30) minutes is transitioned to “Down” state in the EMS and appears as a “red” node on the EMS console. Upon transition of a node to Down state, Customer is immediately notified via automated notification to a predefined email distribution list. Simultaneously, Lightstream NOC staff contact the carrier providing the service to open a trouble ticket on the circuit connected to the monitored device, and a notification is sent via the EMS to the email distribution detailing the time, circuit ID, and both Lightstream and carrier ticket numbers for the event. During both Alert and Down periods, Lightstream NOC staff may take several courses of action to determine causality and attempt to remediate the outage, including assessment of SNMP data gathered immediately prior to the event, contacting the site to determine potential power or hardware issues, use of out-of-band management (if applicable) to assess nature of outage, and opening a ticket with the carrier.

For the duration of the outage, Lightstream NOC staff continue to monitor the outage and escalate with the carrier according to the pre-defined carrier-approved ticket escalation schedule. All activity performed is notated in the Lightstream EMS and preserved as notes under the ticket for the event. At Customer’s request, the EMS may be configured to send automated notifications to the Customer email distribution in response to any update of all Customer tickets, including addition of any notes. The entire content of the note history would be sent in each automated notification.

In addition to proactive action due to nodes entering Down state, upon notification and request by Customer service desk of an outage for which a monitored node has not yet transitioned to

Down state, Lightstream NOC staff shall also open a ticket with the carrier for the affected circuit. Workflow for such reactive tickets shall proceed subsequently in an identical fashion as to proactively generated events associated with monitored nodes transitioning to Down state as described above.

Monitor Only

The Monitor Only Service Package includes the proactive monitoring of Customer IP-enabled devices as described in the Standard Service Package. Automated alerting as described in the Standard Service via the EMS to a predefined email distribution list is also included. However, with the Monitor Only Service Package, no action is taken by Lightstream NOC staff in opening, escalating, or management or communication of network outage reports. Opening and/or resolution of tickets with carriers on monitored services by Lightstream NOC staff is not supported.

Customer Responsibilities:

In conjunction with Lightstream providing Monitoring Services to Customer, Customer shall be responsible for the following tasks:

Prior to deployment of any Services, provide to Lightstream:

- A list corporate IT contacts and escalation procedures
- A complete site list, complete with local contact name, phone, street address (including city, state, ZIP) for each site
- Customer distribution email address to be utilized for automated notification
- Other requested information and/or documentation as needed or requested by Lightstream
- For monitored MPLS circuits, installation of a network node at the Lightstream NOC to facilitate on-net network monitoring
- Execute Letter of Agency (LOA) entitling Lightstream to contact carrier on Customer behalf
- (Recommended) out-of-band management for all monitored devices

During operational "run state" of Services:

- Provide to Lightstream updated site information in an expeditious time-frame following any changes
- For each Customer-initiated service request, promptly provide to Lightstream and validate the following:
 - o Contact name, phone, street address (including city, state, ZIP) for each site affected
 - o Updated site lists with status of network, equipment, or service changes
 - o Hours of operation for each site

Custom Monitoring Service

In addition to Standard and Premium Service Packages, Lightstream also offers Custom Monitoring Service Packages that are tailored to individual Customer requirements. Such Custom engagements may include:

- monitored device configuration backups
- configuration management
- proactive telephone notification of Customer by Lightstream NOC staff
- support for non-CE-router devices (e.g., switch, firewall, server, etc.)

Monitoring Services – last updated February 2014

Lightstream Managed Services – Service Guide: Rev 1.4.4

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