SCHEDULE DOCUMENT
CONNECT MPLS SERVICES

PUBLIC
NODE4 LIMITED
17/07/2017
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Additional terms, Service Description & Service Level Agreement for ConnectMPLS Services

1. SERVICE DESCRIPTION
The Node4 ConnectMPLS service provides the customer with point-to-point or point-to-multipoint, connectivity over the Node4 core network infrastructure and, optionally, external ethernet or leased lines. ConnectMPLS Services can be provided from our Data Centres or Points of Presence (POPs).

Layer-2 point-to-point MPLS Virtual Private Networks (L2VPN) using VLAN-CCC or Ethernet-CCC encapsulation, and Layer-3 point-to-multipoint MPLS Virtual Private Network (L3VPN) are supported.

2. DEFINITIONS
“Additional Terms” means this Schedule forming part of the Master Agreement which consists of the Order Form, Terms and Conditions and Service Schedules, which describes the Products and/or Services to be provided and the relevant service levels;

“Bandwidth Charge” means charges payable by the Customer to Node4 as defined in the Order Form;

“Business Hours” means Monday to Friday, 9am to 5pm, excluding Bank and other Public Holidays;

“Charges” means charges as described in this Schedule and where relevant set out in the Order Form, and shall be payable by the Customer in accordance with Clause 3 of Node4’s Standard Terms and Conditions (Schedule 1);

“Customer Responsible Faults” means in the event that a Service Affecting or Non-Service Affecting Fault is identified as being attributable to Customer Provided Equipment, Premises, Customer power supplies, or the action of the Customer, employees or agents of the Customer, the fault shall be deemed the responsibility of the Customer. Any downtime shall not be included in service availability measurements and does not qualify for compensation.

“Equipment” means, without limitation, any equipment, machinery, and apparatus provided by Node4 as part of the Services, and/or used in order to make available the service to the Customer;

“Fault Ticket Number” means the unique number issued when logging a fault with Node4.

“Installation Charge” means charges payable by the Customer for the installation of the service as provided in the Order Form;

“Monthly Review Period” means the calendar monthly periods commencing on the 1st of each month during the Term, over which Service performance measurements are calculated, provided that the first Monthly Review Period will commence on the Service Commencement Date;

“Network Management System” means Node4’s network integrated fault management system;

“Node4 Network” means the network wholly owned and managed by Node4;

“Non-Service Affecting Fault” means a fault or condition which is not a Service Affecting Fault.

“Planned Outage” means in maintaining the service provided, Node4 may with reasonable notice require a temporary outage in service. Wherever possible Node4 will agree the outage with you in advance of the required work. Any planned downtime shall not be included in fault or service reliability measurements;

“Professional Service Charges” means the professional service charges detailed on the Order Form or otherwise agreed in writing between the Parties in accordance with Clause 4 below;

“Service Affecting Fault (SAF)” means any failure of Node4 Network, equipment or service, which, in our reasonable opinion causes a loss of a customer’s service. In all such cases the service shall be deemed unavailable and the length of downtime recorded by Node4 from when the fault is registered by Node4 and a fault ticket number allocated.
“Service Availability” means the time for which a Node4 service is usable, expressed as a percentage of the total time in a given Service Measurement Period. The Node4 service shall be deemed available for the purposes of calculating Service Availability if it is not usable due to an event outside our reasonable control, a Customer Responsible Fault, a Third Party Attributable Fault or is due to a Planned Outage.

“Service Commencement Date” means the date when Node4 provides the Service tested and ready for use;

“Service Measurement Period” means a calendar month for which the Service is available.

“Successful Call” means a call which has established a voice path and therefore has billable duration;

“Technical Support Centre” means Node4’s fault management centre, which operates the Node4 Network Management System;

“Third Party Attributable Faults” means in the event that a Service Affecting or Non-Service Affecting Fault is identified as being attributable to a third party this measurement period shall not be included in service availability measurements. Such faults do not qualify for rebates or compensation. Node4 will endeavor to resolve and rectify such Third Party Attributable Faults as soon as possible.

“Time to Resolve Fault (TTRF)” means the length of time from the issue of the fault ticket number to repair and resolution or the service circuit and/or associated equipment.

“Web Portal” means a website Customer may use to view online service reports.

3. MPLS CONNECT SUPPORT TERMS
The following terms and conditions shall apply when Node4 provides ConnectMPLS Services to the Customer.

4. CHARGES

4.1 CHARGES PAYABLE BY THE CUSTOMER
Charges for the ConnectMPLS Service may comprise any or all of the following Charges including an installation charge and a monthly or annual service charge. In addition the service requires hardware which is charged for separately.

4.1.1 SET-UP CHARGES
Any applicable design, configuration, and installation charges for the implementation of the ConnectMPLS service shall be detailed on the Order Form.

4.1.2 SERVICE CHARGES
Service charges are paid either monthly or annually in advance based on the support provided and any other related service and are identified on the purchase order.

Service charges are applied as and when the service is made available.

4.1.4 ADDITIONAL PROFESSIONAL SERVICES
A full range of Professional Services are available to the customer in addition to what is provided as part of the support contract. The Professional Service Charges include but are not limited to:-

- Installation and configuration
- Remote services
- Management

The Professional Services are subject to the price list below. Specific rates for large or repeat orders can be agreed on a case by case basis in writing.

All incremental expenses incurred during these Professional Services will be passed directly to the customer. Provisioning costs such as cabling will be discussed and agreed with the customer in the purchase order.

Tasks undertaken by Node4 at the request of the customer or activities undertaken by the customer which require the remote support of Node4 personnel will be charged at the hourly rates shown below.
### Time support required:

<table>
<thead>
<tr>
<th>Day</th>
<th>Per hour</th>
<th>Per day</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mon – Fri</td>
<td>£60.00 per hour</td>
<td>£480.00</td>
</tr>
<tr>
<td>business hours</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mon – Fri</td>
<td>£100.00 per hour</td>
<td>POA</td>
</tr>
<tr>
<td>other times</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Saturday</td>
<td>£100.00 per hour</td>
<td>POA</td>
</tr>
<tr>
<td>Sunday</td>
<td>£100.00 per hour</td>
<td>POA</td>
</tr>
</tbody>
</table>

Time is charged by the hour. These rates are for a trained technician and are subject to an annual review by Node4. For advanced engineers with MCSE or CCIE status or for on-site services please contact Node4 for pricing.

### 4.1.6 MINIMUM COMMITMENT

The service is subject to a minimum contract term which is outlined on the Order Form. For termination of the services, there is a minimum notice period of 3 months written notice the earliest of which can be given at the end of the minimum contract term. Details of minimum commitment terms for additional services shall be detailed in the order form.

### 5. PROVISION OF CONNECTMPLS SERVICES

The Node4 ConnectMPLS service provides the customer with L2VPN and/or L3VPN MPLS connectivity.

Access is to the ConnectMPLS service will be via Ethernet connectivity. 10/100/1000 Copper ports are provided as standard, fibre ports are available as an option and will be identified on the order form.

### 5.1 SITE EQUIPMENT

Unless identified on the order form it is the customers responsibility to provide the equipment which will connect to the Node4 ConnectMPLS Service. Node4 will supply configuration details in an email to the customer named contact on the order form prior to the service live date.

### 5.2 CABLEING

Within Node4’s Data Centre cabling between the customers equipment or circuit(s) to Node4’s MPLS PE equipment will be provided by Node4. Any applicable costs will be identified on the order form.

Within Node4’s POP locations it is the customer’s responsibility to cable to our rack. We will provide the customer with the appropriate information for our location. In certain cases we may be able to facilitate the cabling, in this case applicable costs will be identified on the order form.

Where customer’s cable to our racks charges may occur for site visits to connect this cabling to our equipment. Applicable costs will be identified on the order form.

### 5.3 HOSTING & CO-LOCATION

The customer MPLS VPN can have access to the Node4 Data Centre where customer hardware can be located. Any hosted services are identified on the order form and are subject to the Hosted Services or Colocation Schedule.

### 5.4 PROFESSIONAL SERVICES

Node4 can provide a range of services including:

- router pre-configuration - this means that the router is pre-configured at Node4 and delivered to the customer site. The customer will have to provide someone on-site to connect the router. In the event of technical difficulties Node4 may require ‘remote hands’ to check connections and status. If the router cannot be set-up correctly or is faulty it will need to be returned to Node4 to be checked before a replacement is sent out. Costs for this service are based upon the complexity of the customer configuration. Node4 technical support will require the customer to define their configuration requirements via email.
- on-site installation
- Node4 can provide an engineer to install and configure the router on the customer site.
- firewall configuration and set-up

Support on configuration is provided within business hours only and for a period not exceeding 15 working days from installation. Technical Support is provided for the configuration implemented by Node4; we will not provide support
for configuration outside of the original customer requirement.

5.5 INTERNET SECURITY
Node4 can provide ConnectMPLS customers with public internet access. Internet Security and Virus Protection is the responsibility of the customer.

All internet usage is subject to the Acceptable Use Policy (AUP)

Firewall and virus protection options are available from Node4 on request.

5.6 IP ADDRESSING AND ROUTING PROTOCOLS
For L3VPN’s the customer must provide documentation clearly identifying what IP address and mask will be used on Node4’s MPLS PE interfaces.

For L3VPN’s we support static routes and RIPv2, BGP and OSPF routing protocols to the customers networks.

5.7 MONITORING
Node4’s core infrastructure is monitored and supported on a 24/7 basis. This excludes customer equipment.

As an option Node4 can provide a device monitoring service for customer equipment. This service provides pro-active fault management by Node4 during the contracted support hours. As standard this service includes monitoring device response time/device availability, interface statistics (utilisation & errors), CPU and Memory usage. In the event the device stops responding, or a monitored threshold is exceeded, Node4 Technical Support will pro-actively investigate the issue during the contracted support hours.

5.8 DISPUTES
Node4 shall not be liable in respect of any contract, agreement or relationship that the Customer may have with any third party. If a dispute arises between the Customer and a third party involving Node4’s ConnectMPLS service, Node4 shall provide the Customer with reasonable information and assistance (to the extent that such is not adverse to Node4’s interests to Customer (at Customer’s expense)) in the resolution of such dispute.

5.9 CUSTOMER RESPONSIBILITIES
In order to deliver the service we expect the customer to provide:

- IP Addressing & IP Routing information (L3VPN only)
- Bandwidth allocation for the traffic classes (L3VPN only)
- Deliver connectivity (cabling) to our racks within the POPs

5.10 FAULTS
Node4 will provide assistance in the event of a service failure. Faults will be dealt with as described in section 7.

5.11 ADDS, MOVES & CHANGES
Node4 provides a moves, adds and changes (MACs) service. This service will cover soft configuration changes on the ConnectMPLS Service. The service is available on an allocated number of MAC tickets per month, with each Standard request for a MAC using 1 ticket. A standard MAC request is defined as a change which can be completed within 30 minutes by a support engineer during the contracted support hours. MAC tickets cannot be combined or carried over to the next month. Non-standard changes requests will be charged at the appropriate Professional Services rates. The number of included monthly standard MAC tickets is 5 per MPLS VPN.

5.12 CUSTOMER SUPPORT
Silver level support, as identified in the fault management and reporting handbook is provided as standard on the ConnectMPLS Services. Options are available for Silver Plus and Gold support levels.

Node4 provides the service direct to the Customer. The Customer commits to fully manage all their customers and suppliers directly. Node4 will not interface directly with any third parties working with the Customer. If the Customer requires Node4 to provide their customers with a customer care or NOC service this is available on request and subject to Professional Service Charges.
5.13 SUSPENSION OF SERVICE
Node4 shall be entitled to suspend the ConnectMPLS service:

- In a life or property threatening emergency
- If required to do so by any governmental or regulatory authority; or
- Where the Customer is in breach of this Agreement,

5.14 WARRANTY
The Customer warrants that it will not use the Products or Services or permit the same to be used:

- For the transmission of any material which is defamatory, offensive or of an abusive or obscene or menacing nature; and/or
- To cause annoyance, inconvenience or needless anxiety or any improper use; and/or
- Except in accordance with any relevant legal or regulatory requirements, and operating
- instructions notified by Node4 from time to time; and/or
- In a manner which constitutes a violation or infringement of the right of any person; and/or
- Contrary to the procedures set out in the Customer Handbook and the terms of this Agreement.

6. SERVICE LEVEL AGREEMENT

6.1. CLASS OF SERVICE
Five class of service categories are supported throughout Node4’s core MPLS network. These being:

BEST–EFFORT (BE)
This class is the default class, all traffic not prioritized in the other queues will be serviced in this class. Typical traffic for this queue is web browsing, e-mail and FTP.

ASSURED FORWARDING – HIGH DROP PRECEDENCE (AF-HDP)
This class is the second class for data applications, e.g. ERP, database applications. Generally used for business critical applications, it provides guarantees of bandwidth. AF HDP traffic is prioritised above BE traffic. If/when congestion occurs BE traffic will be dropped in preference of AF traffic.

ASSURED FORWARDING – LOW DROP PRECEDENCE (AF-LDP)
This class is the highest class for data applications, e.g. ERP, financial transactions. Generally used for business critical applications, it provides guarantees of bandwidth. AF-LDP traffic is prioritised above AF HDP traffic. If/when congestion occurs BE then AF-HDP traffic will be dropped in preference of AF-LDP traffic.

EXPEDITED FORWARDING (EF)
This class is configured as a Priority Queue reserved for latency-sensitive applications only. The Priority Queue is guaranteed bandwidth based on the customer’s bandwidth allocation. The priority command implements a maximum bandwidth guarantee. The priority queue is reserved only for Voice over IP (VoIP) or Video over IP traffic.

NETWORK CONTROL (NC)
Reserved for routing protocols etc. – not for customer use.

6.2. SLA FOR MPLS CORE NETWORK
The following table shows the target performance for ConnectMPLS Services:

<table>
<thead>
<tr>
<th>Description</th>
<th>BE</th>
<th>AF-HDP</th>
<th>AF-LDP</th>
<th>EF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transit Delay</td>
<td>40ms</td>
<td>30ms</td>
<td>20ms</td>
<td>10ms</td>
</tr>
<tr>
<td>Delivery Ratio</td>
<td>99.9%</td>
<td>99.99%</td>
<td>99.99%</td>
<td>99.99%</td>
</tr>
<tr>
<td>Jitter</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>8ms (1-way)</td>
</tr>
</tbody>
</table>

TRANSIT DELAY
Transit Delay is a monthly measure of Node4’s network-wide delay, which is the average interval of time it takes during the applicable calendar month for test packets of data to travel between all selected test pairs of Node4’s MPLS PE Routers. Specifically, the time it takes test packets to travel from one MPLS PE router to another within our core network. Latency for the month is the average of all of these measurements.
Deliver Ratio

The “Delivery Ratio Percentage” for the core network is the average Data Delivery percentage for that month for all selected test pairs of Node4’s MPLS PE routers calculated by dividing Data Received by Data Delivered and multiplying by 100. “Data Delivered” is the number of test packets of data delivered in a month by Node4 from one MPLS PE router to another. “Data Received” is the number of such test packets of data that are actually received by the MPLS PE router. “Node4 MPLS PE routers” are the core MPLS routing nodes in the Node4’s network consisting of Juniper MX series Ethernet routers.

Jitter

“MPLS Jitter” is a monthly measure of the Node4 Network-wide IP packet delay variation within our core network, which is the average difference in the interval of time it takes during the applicable calendar month for selected pairs of test packets of data in data streams to travel between selected pairs of MPLS PE routers. Specifically, the difference in time it takes a selected pair of test packets in a data stream to travel from one MPLS PE router in a pair to another is measured for all selected pairs of MPLS PE routers over the month. One of the test packets in the selected pair will always be a packet in the data stream that takes the least time to travel from one Node4 MPLS PE router in the pair to another. MPLS Jitter for the month is the average of all of these measurements. “Node4 MPLS PE routers” are the core MPLS routing nodes in the Node4’s Network consisting of Juniper MX series Ethernet routers.

6.3. QUALITY OF SERVICE

QoS is provided end-to-end by using consistent DSCP and IP PreC values throughout the wide area and local area networks. We monitor network capacity to ensure that QoS is maintained.

The following table shows the QoS functions available for ConnectMPLS Services:

<table>
<thead>
<tr>
<th>Function</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Traffic</td>
<td>Access control list, DSCP, IP PreC, CoS – L3VPN</td>
</tr>
<tr>
<td>Classification</td>
<td>Interface or VLAN – L2 or L3VPN</td>
</tr>
</tbody>
</table>

6.4 CLASS MAPPINGS

For L3VPNs, customer can pre-classify traffic using a DSCP value. We will honour these marking and associated the traffic to the appropriate queue. Alternatively we can classify and mark customers traffic inbound on the MPLS PE.

The following table shows the standard DSCP to class mapping used within Node4’s MPLS Network:

<table>
<thead>
<tr>
<th>DSCP</th>
<th>MPLS QoS Class</th>
<th>Application Use</th>
<th>Recommended Bandwidth Allocation</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>BE / Default</td>
<td>Delay-tolerant Application – Email, Internet, FTP</td>
<td>25%</td>
</tr>
<tr>
<td>10,18</td>
<td>AF-HDP</td>
<td>Mission Critical Application</td>
<td>15%</td>
</tr>
<tr>
<td>26,34</td>
<td>AF-LDP</td>
<td>Mission Critical, Delay Sensitive Application, Real-time Multimedia</td>
<td>25%</td>
</tr>
<tr>
<td>46</td>
<td>EF</td>
<td>VoIP, Unified Communication</td>
<td>35% (max 50%)</td>
</tr>
<tr>
<td>48</td>
<td>NC</td>
<td>Routing Protocols</td>
<td>n/a</td>
</tr>
</tbody>
</table>
6.4 CLASS OF SERVICE OPTIONS

- ConnectMPLS L3VPN services being utilised for internet access only will be assigned to the BE class of service.
- ConnectMPLS L2VPN services (Ethernet CCC or VLAN CCC) will be assigned to the AF LDP class of service.
- ConnectMPLS L3VPN services used for site-to-site or multisite deployments by default will be assigned to the BE class of service – the customer has the option to upgrade some or all of the bandwidth to AF and/or up to 50% of the access bandwidth to EF. Bandwidth assignments must be identified on the order form.

7. FAULT REPORTING AND MANAGEMENT

7.1 FAULT HANDLING

Faults are handled as outlined in the Fault Reporting & Management Handbook.

7.2 TIME TO REPAIR

Node4 aims to resolve requests in relation to the Node4 infrastructure causing a loss of service within five (5) hours, with the following response times:

<table>
<thead>
<tr>
<th>Description</th>
<th>Cat 1</th>
<th>Cat 2</th>
<th>Cat 3</th>
<th>Cat 4</th>
<th>Cat 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Faults &amp; Technical Queries Acknowledge</td>
<td>30 Mins</td>
<td>30 Mins</td>
<td>1 Hour</td>
<td>2 Hrs</td>
<td>1 Day</td>
</tr>
<tr>
<td>ment*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Remedial Engineer Actions Commence</td>
<td>1 Hour</td>
<td>2 Hours</td>
<td>4 Hours</td>
<td>12 Hrs</td>
<td>N/A</td>
</tr>
<tr>
<td>Time to Resolve Fault**</td>
<td>5 Hours</td>
<td>5 Hours</td>
<td>24 Hours</td>
<td>72 Hrs</td>
<td>5 Days***</td>
</tr>
</tbody>
</table>

Hours of response is dependent on Service Level (Bronze, Silver, Silver Plus, Gold) All category 1 & 2 faults should be raised via the tickets system then followed by a phone call.

* Acknowledgement refers to an automated service which generates a response and alerts engineers of a service failure; or where there is dialogue between the client and the engineer.

** We will use reasonable endeavours to adhere to the TTRF guidelines. Where fault resolution involves third parties, or hardware replacement, then this is subject to the support contracts in place with those parties.

*** Standard Change requests will be completed during the contracted support hours within 2 days where requests are conducted within the support contract. This does not include change requests outside of the support contract, or change request implemented outside the contracted support hours these will be dealt with as chargeable projects.

7.3 MAINTENANCE WINDOW

Where Node4 plans to perform essential works Node4 will endeavor to perform such works during low traffic periods and will endeavor to give the Customer at least five (5) days prior notice. In the event of an emergency or Service affecting fault such notice may be less than 24 hours.
7.4 FAULT DURATION
All faults recorded by the Network Management System will be reconciled against the corresponding fault ticket raised by the Technical Support Centre. The exact fault duration will be calculated as the elapsed time between the fault being reported to the Technical Support Centre and the time when Service is restored.

7.5 SERVICE CREDITS
Node4 will provide the Customer with Service Credits, as set out below, for the failure to meet the following targets:

SERVICE AVAILABILITY
The Service is “Available” when the customer connection is authenticated and the customer can send and receive IP traffic.

The following equation will be used to calculate Service Availability. References to hours are to the number of hours (rounded to nearest hour) in the applicable Monthly Review Period:

\[
\frac{\text{Total hours} - \text{Total hours Unavailable}}{\text{Total hours}} \times 100
\]

Credits for Outages will be calculated on a monthly basis and will be based upon the cumulative elapsed time of any Outages and the monthly Charge for the Service for each Customer Site.

7.7 SERVICE AVAILABILITY
Node4’s goal is to achieve a minimum of:

99.9% Service availability per month for each ConnectMPLS VPN (as specified in the Customer Order);

IN RESPECT OF A MPLS VPN:

<table>
<thead>
<tr>
<th>Total monthly Outages at the relevant Customer Site (in minutes)</th>
<th>Service Credits (percentage of monthly recurring Charge for the Service at the relevant Customer Site)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up to and including 40</td>
<td>0%</td>
</tr>
<tr>
<td>Over 40 up to and</td>
<td>5%</td>
</tr>
</tbody>
</table>

7.8 CALCULATION OF SERVICE CREDITS
- Where a Monthly Review Period incorporates part of a month, any Service credit will apply to a pro-rated Monthly Charge.
- Service credits will be calculated monthly, aggregated and credited to the Customer on a quarterly basis.
- If a Service is cancelled during a Monthly Review Period, no Service credit will be payable in respect of that Circuit for that Monthly Review Period.
- The Customer must claim any Service credit due to a failure to meet the Service levels, in writing, within twenty one (21) business days of the date at which the Customer could reasonably be expected to become aware of such failure. The Customer shall not be entitled to any Service credits in respect of a claim unless and until Node4 has received notice of the claim in writing in accordance with the above. Should Node4 require additional information from the Customer, the Customer shall assist, and shall not be entitled to any Service credits until Node4 has received all the information it has reasonably requested.

7.9 EXCLUSIONS TO PAYMENT OF SERVICE CREDITS
Service credits will not be payable by Node4 to the Customer in relation to the Service Availability for faults or disruptions to the Service caused by any of the following:

- The fault, action or negligence of the Customer, its employees, agents or contractors;
- The Customer failing to comply with Node4’s Standard Terms and Conditions;
- A fault in, or any other problem associated with, equipment connected on the Customer’s side of the Node4 Network Termination Point, except where such fault or problem is directly caused by the fault action or negligence of Node4, its employees, agents or contractors;
• Any event described in Clause 12 (Force Majeure) of Node4’s Standard Terms and Conditions (Schedule 1);
• A failure by the Customer to give Node4 access to any equipment after being requested to do so by Node4; or
• Maintenance during any Planned Outage
• Where the customer is unable to provide 24 hour site access
• Faults relating to PSTN or Analogue Phones lines

Service credits are not applicable for more than one breach of any targets outlined in this document arising from the same occurrence.

In respect of any Monthly Review Period, the total amount of any service credit payable in relation to any service level breach shall not exceed 50% of the Monthly Charge for the affected Service.

The provision of Service credits shall be the sole and exclusive remedy for the failure to meet targets for the Co-location service. Node4 shall have no additional liability to the Customer.