



# LinchPin

## Managed Service For IP VPN Networks

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## **Introduction**

The LinchPin CPE Managed Service for IP VPN Networks utilises LinchPin's independence and expertise in scoping, delivering and supporting branded Carrier IP VPN infrastructure coupled with the in-house skills to provide and support the Customer premise routers. This gives LinchPin the unique advantage of being able to provide a single, flexible managed service offering whilst providing the network infrastructure that best suits a customer's geographic and access type requirements.

### **LINCHPIN Managed Service – What does it offer**

- **Reactive Service**
  - Solution scoping and supply of CPE
  - Installation and Configuration
  - Hardware Advanced Replacement accompanied by an Engineer
  - Web, E-Mail and Telephone Fault Reporting
  - Fault Management and Escalation
- **Proactive Service**
  - Network Surveillance and Pro-Active Management
  - Remote Diagnostics
  - Configuration Backup
  - On-Line Reports (Cost Option)
- **Additional services**
  - Add's Move's and Changes

## **Reactive Service**

### **Solution Scoping and supply of hardware**

Solution Consultants within LinchPin will work with the customer and recommend the appropriate CPE to interact with the network design taking into consideration future requirements. LinchPin predominantly recommends Cisco CPE but also look at the market place for competitive alternate providers.

### **Installation and configuration of CPE**

The LinchPin Managed Service includes the installation of customer premise equipment. LinchPin will provide the CPE and will install CPE 09:00-17:30, Monday to Friday.





NOTE: Any installation of CPE outside 09:00-17:30 will be considered during implementation and may be subject to a charge.

An engineer performs the following installation activities:

- Mounts the equipment in a rack or wiring closet where equipment is not rack mountable i.e. Cisco 801 and Cisco 1721 then a suitable shelf will be required and is not supplied by LinchPin
- Connects the router to the termination point of the leased line, ADSL or ISDN
- Connects the router to the customer LAN environment (customer provides cable and transceiver if required)
- Verifies the following:
  - System power up
  - Fan operation
  - Network interface is active and up

An option is available for a self install option where a configured CPE is delivered to site for the customer to connect to the circuit and LAN. Configuration is carried out by LinchPin prior to dispatch to the customer.

#### **Hardware Advanced Replacement accompanied by an Engineer**

LinchPin will provide an appropriately qualified Engineer to site within the contracted response time to progress the identified technical problem complete with hardware as appropriate. As a rule, all remote options to diagnose and progress a problem will be exhausted prior to an engineer being dispatched. This process allows LinchPin to despatch an Engineer who is equipped with the appropriate skills and resources to progress a problem in the most efficient and effective manner on arrival.

LinchPin Managed Service offers two levels of on-site support for customers:-

#### **Enhanced Support**

Support 24 x 7 x 4 - parts are delivered with an engineer within 4 hours of determining that part replacement is required anytime 24hours a day 7 days a week 365 days a year.

#### **Standard Support**

Support 8 x 5 x 4 - parts are delivered with an engineer within 4 hours of determining that part replacement is required during the standard work week 9.00 – 17.30 Monday – Friday

Both options come with an engineer complete with replacement hardware that will come to site and replace and re-configure the CPE device after a hardware failure has been diagnosed.





### **Web, E-Mail and Telephone Fault Reporting**

Faults can be logged 24x7 depending on the hours of cover purchased. Contact can be made by telephone, e-mail or via a secure web portal. All methods are manned 24x7 so you can be guaranteed a response any time of day or night. The Service Level for the cover you have purchased and the case priority will determine the response time that you will receive.

### **Fault Management and Escalation**

The LinchPin (LINCHPIN) CPE Managed Service for IP VPN Networks offering is based around industry standard monitoring and reporting tools and is managed from the Network Operations Centre (NOC) housed in our Customer Services Centre (CSC). This is a purpose built air-conditioned fully manned 24/7/365 Operations Centre and is ready to take calls day or night. The NOC has resilient internet connections via different providers to different points of presences as well as permanent connections into a number of Carrier Private IP VPN networks and has the benefit of uninterruptible power supplies and generator backup power to keep the NOC running in the event of power failure.

Our NOC is comprised of experienced, technical engineers that have many years industry experience and are all well versed in handling crisis situations as well as the simpler queries. All calls and events are logged into our ticketing system COPS (explained below) upon problem notification either via alarm or customer call/e-mail depending on the service chosen. The NOC then works to determine the source of the problem, escalating it to engineers or to dispatch resource as required.

The access into the Carrier networks are only available to monitor issues and cases that have been noted by our NOC these include alarms received and acknowledged by the NOC from our network monitoring systems or the customer. Circuit faults are then logged and tracked on our Siebel system which is used to manage installation to support of all the circuits and wired infrastructure that LinchPin has sold.

COPS is our **C**ase **O**peration **S**ystem and is a bespoke system developed for LinchPin to track and monitor cases that come into the NOC. COPS offer remote access via a web portal. This gives customer's secure access to their cases logged onto our support system.





When a fault is either reported by the customer or raised as a result of an alarm from our Remote Management System (in the case of the proactive service), the NOC retains ownership of that fault until resolution.

Activities may include regular customer contact statusing, ticket progression, escalation into third party providers and liaison with LinchPin technicians. The fault will follow a well-defined case management process, which is constantly monitored, and every stage of the process will be managed by the NOC.

Any customer queries pertaining to a logged fault, which can be handled immediately, will also be answered by this group. Once a fault is logged on the case management system, this group will then assume ownership of the problem through to resolution. Regular updates to the nominated customer contact will be communicated by the same group.

The NOC is responsible for:

- recording of query details and opening a query case
- checking correlating against previous query details
- owning the query through to resolution
- managing localisation of the problem
- transferring the query to the relevant department for resolution
- monitoring and directing resolution progress
- providing regular status updates to you
- notifying you and closing the query case upon resolution

## **Proactive Service**

### **Network Surveillance and Pro-Active Management**

The LinchPin NOC proactively monitors all CPE in the IP VPN Network on a 24 x 7 basis. This is done using an in-band SNMP monitoring tool and by reacting to the traps that the routers sends to the NOC, using both visual and audible alerts.

The NOC will monitor the data operational characteristics of all CPE's such as CPU, Memory Usage, Throughput, delay etc, by pro-actively monitoring these status's from the CPE the NOC can detect issue before they become service affecting.





The CPE characteristics are measured in real time, by taking measurements every few minutes, any parameter that exceeds a predefined threshold value will cause an alarm that is sent to the NOC for our engineers to investigate.

The NOC will also react to changes in monitored interface status; an alert is shown on our monitoring tools that indicate that an interface has failed and requires investigation.

### **Remote Diagnostics**

LinchPin will initially remotely diagnose all faults with the network and will have remote access to all managed devices, this will enable our engineers to diagnose a fault and ensure the correct course of action is followed. After our initial diagnostics should the fault be suspected to be with the circuit provider LinchPin will register a case with the carrier. In the case of a suspected hardware issue then LinchPin will dispatch an engineer to site to replace the CPE.

### **Configuration Backup**

LinchPin will maintain copies of the CPE devices supplied for the managed service. This facility provides added security in the event that the current configuration is corrupted or destroyed. This also allows LinchPin to pre-configure replacement units where appropriate. The frequency of such data back-ups will be monthly as the nature of managed services is that the topology and configuration remains fairly constant

### **On-Line Reports**

Reports are available as cost options to your management package please contact your sales representative for pricing details.

Reports are only available via the secure web report portal, reports are not e-mailed or posted to customers but are available 24x7.

Web based reporting is available and is generated by our Reports Package, LinchPin will offer the following statistics

- Summary Screen to include top 5 nodes with the elements of availability response, availability, input and output interface utilisation, dropped packets and errors
- Availability
- Interface Health
- System Stats showing CPU and Memory Usage
- Detailed Interface Reporting





- Packet Statistics including Fragments, Discards
- Response times
- Current, Daily, Weekly, Monthly report options

Below is an example of the detailed interface reporting of one of the CPE devices. Drilling down further gives detail on the interface health.

## Detailed Interface Reporting

Cisco CPE Interface Utilisation for Saturday February 25th, 2006

Node	Interface	Input Util	Output Util	Dropped
<a href="#">CPE1</a>	<a href="#">FastEthernet0</a>	0.00 %	0.00 %	0 %

## Drill down to show Summary

CPE1 for Saturday February 25th, 2006

<b>Device</b>	CPE1		<b>Choose View</b> <a href="#">Summary</a> <a href="#">Utilization (Percent)</a> <a href="#">Utilization (bits/sec)</a> <a href="#">Utilization (bytes/sec)</a> <a href="#">Volume (bytes/sec)</a> <a href="#">Packets</a> <a href="#">Errors</a> <a href="#">Discards</a> <a href="#">Dropped</a>
<b>IP Address</b>	10.3.5.134		
<b>Interface Name</b>	FastEthernet0(5)		
<b>Current Admin Status</b>	Up		
<b>Current Oper Status</b>	Up		
<b>Percent Uptime</b>	100 %		
<b>Link Speed</b>	100 M bps		
	<b>Input</b>	<b>Output</b>	
Average Utilization	0.00 %	0.00 %	
Peak Utilization	0.00 %	0.00 %	
Packets per Second	78 pps	63.6 pps	
Average Packet Size	136 bytes	154 bytes	
Errors	0	0	
Discards	0	0	
Total Dropped Packets	0 %	0 %	

Graphs of Utilisation (Percent), Utilisation (bits/sec), Utilisation (bytes/sec), Volume (bytes/sec), Packets, Errors, Discards and Dropped Packets are available





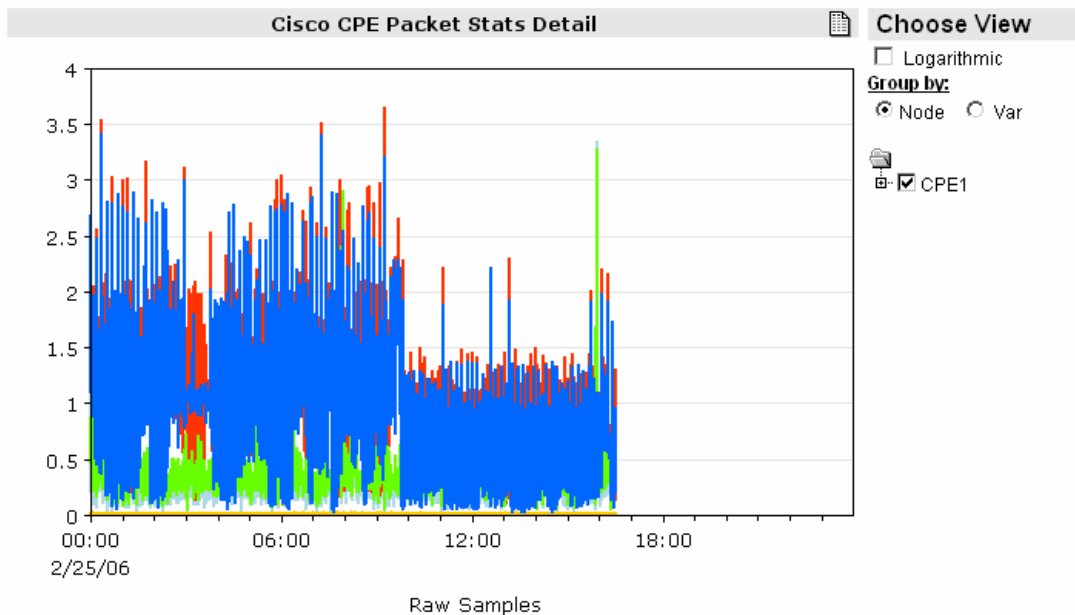
Below shows a further example of the Packet stats had you selected packets from the above view options

### Packet Statistics including Fragments, Discards

Cisco CPE Packet Stats for Saturday February 25th, 2006										
Node	Instance	InUcastPkts	InNUcastPkts	OutUcastPkts	OutNUcastPkts	InDiscards	InErrors	InUnknownProtos	OutDiscards	OutErrors
CPE1	FastEthernet0	0.93	0.35	1.04	0.01	0	0	0.25	0	0

### Summary of all Packet Stats

CPE1 for Saturday February 25th, 2006									
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Node/Instance	Variable	Min	Avg	Max	Unit
CPE1 / FastEthernet...	InUcastPkts	0.03	0.93	3.41	per second
	InNUcastPkts	0.05	0.35	3.28	per second
	OutUcastPkts	0.1	1.04	3.65	per second
	OutNUcastPkts	0	0.01	0.03	per second
	InDiscards	0	0	0	per second
	InErrors	0	0	0	per second
	InUnknownProtos	0	0.25	3.35	per second
	OutDiscards	0	0	0	per second
	OutErrors	0	0	0	per second







The above shows the stats for Unicast and Broadcast Traffic as well as errors and discards on that interface.

## **Additional Services**

### **Add's Move's and Changes**

The customer can request a change to their Managed Service. Most changes are billable items and are not included in any management fee. LinchPin carries out the following change activities:

- Designing the change
- Taking care of the project management of the change
- Updating the necessary paperwork to keep the configuration database up to date.

Changes have been grouped into the following four categories:

- Moves
- Adds
- Minor changes
- Upgrades, downgrades and other changes.

### **Moves**

#### **Move within a building**

A skilled engineer moves the CPE from the access point of the leased line. The customer will experience an interruption of service because the CPE must first be disconnected from the access point of the leased line/ADSL or ISDN in order to move the access line. The router can be moved only when the Public Telecommunications Operator (PTO) engineer has moved the access point of the leased line/ADSL or ISDN to the new location.

#### **Move to a new building**

New circuits will be provisioned at the new customer site. The existing CPE will be moved with an interruption to service but an interim CPE can be leased for to avoid disruption to service.

### **Adds**

Any of the product features can be added to an existing LinchPin Managed Service

LinchPin will charge for this based on the latest version of the LinchPin Price Book.





### **Minor Changes**

These include the following:

- Changes in the firewall rule set
- Private Addresses (addition/deletion/changes)
- Changes to existing QoS policies (e.g. different allocation of bandwidth to already assigned classes of service in a particular site)

Minor changes can be requested to the NOC. Up to 5 changes per year will be free of charge; subsequent changes will be charged as per latest price book.

A standard management charge will be applied to these changes if made during the hours of 9am – 5pm. Any changes requested outside the hours of 9am – 5pm will be subject to further charges.

Changes that are not contained in the list above are non-standard, and will require non standard order approval. They will be priced accordingly.

Changes that affect more than one CPE or the entire network are non-standard, and will require non standard approval. They will be priced accordingly.

### **Upgrades or Downgrades**

Access circuits can be upgraded and downgraded. Charges apply as per latest price book.

LinchPin does not offer the flexibility to upgrade or downgrade CPE models at customers request as upgrading or downgrading a CPE means physically replacing it. LinchPin would invoice the customer for all equipment charges related to that specific router for the remainder of the contract period. The new equipment charge will be based on the newly installed equipment.

### **Other changes**

All other changes that are not listed above are dealt with on an individual case-by-case basis and are charged on a time and material basis.

