SERVICE SPECIFICATION /

INTECHNOLOGY'S MANAGED LAN SWITCH /

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inTechnology

SECTION 1: OVERVIEW

SERVICE OVERVIEW

InTechnology's **Managed LAN Switch** Service provides customers with an Ethernet LAN Switch located on their site to provide connectivity between compatible, hard-wired Ethernet LAN devices. Typically the switch would be the central connectivity point for PCs, IP phones, servers and printers etc. In addition to the standard service, InTechnology offers enhanced hardware support and structured cabling health-checks, upgrades and repairs etc.

SUMMARY

- InTechnology offers several switch models from Cisco Systems, one of the most respected names in networking.
- Several port density options
- Support for power over Ethernet options
- InTechnology consultants advise re. suitability
- Switch can be configured to either a standard pre-defined profile or, where possible, configured to meet bespoke requirements.
- On-site engineer install
- Ongoing hardware, software and configuration support

SECTION 2: SERVICE DEFINITION

HARDWARE OPTIONS

InTechnology offers several switch models to cover the majority of stand-alone small site requirements.
The table below details port density, Layer-2, Layer-3 and POE capability.

Description	10/100 ports	10/100/1000 ports	L2	L3	POE	POE power	Height
24-port L2 no-POE	24	2	yes	no	no	N/A	1 U
24-port L2 POE	24	2	yes	no	yes	370W	1 U
48-port L2 POE	48	-	yes	no	yes	370W	1 U
48-port L3 no-POE	-	48	yes	yes	no	N/A	1 U
48-port L3 POE	-	48	yes	yes	yes	435W	1 U

InTechnology will consider providing other switch specifications. Requirements for non-standard switches along with subsequent commercials and any service capabilities and limitations must be agreed in writing prior to contract agreement.

PRE-REQUISITES / OTHER ASSOCIATED SERVICES

It is only possible for InTechnology to provide monitoring, reporting and support when robust, secure IP connectivity exists between the InTechnology Operations

Centre (NOC) and the customer site. Consequently the service is only offered when the switch connects to a piece of CPE terminating a Managed LANnet circuit.

INITIAL CONFIGURATION

InTechnology configures the switch according to the template below. Any deviation from the standard template must be agreed in writing prior to contract agreement. The contract must detail non-standard requirements with associated commercials and any resulting limitations.

Standard Template L2 switches

- Single VLAN configured for PC/data traffic
- Single VLAN configured for IP Telephony voice traffic
- VLAN configured for InTechnology Management
- Basic spanning-tree for L2 loop avoidance
- InTechnology standard IP telephony QOS template
- Physical ports connecting to InTechnology Managed WAN CPE configured as required
- Remaining ports set to auto speed negotiation
- Remaining ports set to auto duplex negotiation
- Remaining ports configured as 'access' for PC/data VLAN
- Remaining ports configured for Voice VLAN
- Remaining ports configured to identify device connected using CDP and behave accordingly
- Remaining ports set for port-fast and BPDU guard

Standard Template L3 switches

- As above except:
- Upto 10 VLANS for PC/data traffic
- Static Routing between VLANs
- Usable ports configured for trunk or access according to customer requirements

LOCAL INTER_VLAN ROUTING

It is essential that requirements for inter-VLAN routing are discussed at the design stage. InTechnology's LANnet CPE is not specified, by default, to accommodate even modest amounts of inter-VLAN traffic. Customers are advised to select Layer-3 LAN switches if traffic needs to be routed between VLANs.

SPANNING-TREE AND OTHER L2 PROTOCOL SUPPRT CHALLENGES

InTechnology deploys basic Spanning-tree (STP) configuration and assumes that no customer switches are connected to the InTechnology managed switch. Any requirements to support multi-switch environments where more complex STP, VLAN Trunking Protocol (VTP) or similar protocols might be required must be communicated in advance of contract agreement. InTechnology will accommodate requirements where it is possible to deliver a robust Managed Service but additional charges may be incurred.

Please note that customers must follow standard LAN connectivity guidelines. For example a customer who inadvertently connects two ports together on a switch will create a L2 loop; this will result in major connectivity disruption.

SNMP AND ACCESS TO SWITCH CONFIGURATION

InTechnology does not offer SNMP or other access to the switch. InTechnology will provide a copy of the running configuration (with the management detail removed) to the customer upon request.

SERVICE DELIVERY

An InTechnology installation engineer will take the pre-configured switch to the customer site and install it in a rack, cabinet or table-top. The customer is responsible for clearing space and ensuring a UK mains socket is provided reasonably close. The engineer will test a number of the port and ensure the device can be polled and managed remotely.

LAN CABLING

The basic service does not include any structured cabling checks, cable work or patching between switch and structured wiring frames. If the InTechnology Managed LANnet CPE and the managed switch are within 1m, the InTechnology engineer will provide patch cable(s) to join them together.

Upon request, InTechnology will undertake a general or detailed survey of existing structured cabling and provide a report on its suitability for certain applications.

Furthermore, InTechnology can arrange for cabling to be upgraded, repaired, corrected, extended, tidied, re-patched, labeled and replaced as required to ensure a customer's entire LAN is fit for purpose (e.g. to support IP telephony).

Such work is chargeable and priced on application. Timescales for undertaking such work, even under fault conditions, are determined by availability and no Service Level is offered.

MONITORING / ALARMS

InTechnology systems poll the switch approximately every 5 minutes to confirm that it is available. This is in line with industry standard network management best practices. If the switch does not respond to a number of successive polls, an automatic alert is forwarded to the InTechnology network fault management system. This then automatically raises an incident, which is in turn placed in the technical support queue – managed 24/7.

Very occasionally, customers can become aware of a connectivity issue in the short window before our polling procedures verify a problem and issue an alert. InTechnology provides additional channels for customers to raise faults, namely via telephone, email and the web portal. Experience shows that fault resolution times are largely independent of the fault identification and reporting method.

InTechnology classifies problems according to severity. This allows prioritisation of resource on issues that have the most impact on customers' businesses. Further details of the classifications can be found in InTechnology's Customer Service Plan (CSP), available on request.

As well as availability polls, information regarding CPU utilisation and environment temperature is retrieved (where capability exists on the switch hardware/firmware/software). InTechnology sets alarm thresholds for these parameters and support staff act accordingly when alarms are received.

HARDWARE SUPPORT

If InTechnology support desk staff determine that a switch has developed a fault, InTechnology will make arrangements to have it replaced 'next business day'. Customers can choose an expedited option which offers a target hardware replacement timeframe of 4 hours from the point that InTechnology determines a replacement is required. This timeframe is not practical for certain remote UK locations; InTechnology will notify the customer of alternative target timeframes for these locations. Naturally, expedited switch hardware replacement will not improve repair times for faults caused by anything else. The supplementary service is charged monthly in advance and is applicable regardless of the number of times it is called upon.

REPORTING

Information on switch performance and utilisation is presented on the InTechnology Inform portal. The reporting section of the portal is enabled by Infovista, an Enterprise class reporting system.

The following information is available on the reporting section:

- Availability of the switch according to the regular polls (detailed above)
- CPU percentage utilisation (Where capability exists on the switch)
- Environmental temperature (Where capability exists on the switch)
- Percentage utilisation of the first six access ports

CONFIGURATION SUPPORT & CHANGE REQUESTS

InTechnology support staff respond to requests to address connectivity issues by making minor configuration changes. Examples of minor configuration changes:

- Shutdown or re-enable a port
- Change access VLAN membership

- Change a port duplex or speed setting to resolve an incompatibility issue between switch and end device.

Any change requests that InTechnology consider to be non-minor are not included in the service. Requests for non-minor changes will be accommodated where InTechnology believe it can continue to provide a robust and supportable managed service. Such changes may be chargeable.

SECTION 3: CHARGING POLICY

PROFESSIONAL SERVICES: DESIGN, DEPLOYMENT & INTEGRATION

Charging for the **Managed LAN Switch** service consists of a one-off **Installation Charge** and a **Recurring Charge** which is payable monthly in advance.

Installation Charges specific to the Managed LAN Switch include the components listed below:

- Pre-sales consultation
- Sourcing of hardware
- Switch configuration
- Project management
- Installation on customer site
- Service testing and internal documentation

InTechnology staff will undertake this work during normal office hours (9:00 – 17:00 Monday to Friday excluding Bank Holidays).

Any customer requests for work to be completed outside of these hours will be accommodated where possible and such work will be subject to additional charge.

All other components will carry additional charges, including, but not limited to, the following items:

- Additional consultancy time required to address complex requirements
- Any work required to make sites 'ready' for new service (e.g. Cabling or configuration of existing devices)
- Any documentation produced for the benefit of the customer detailing the implemented solution

The **Monthly Recurring Charge** for the service incorporates:

- Depreciation of the hardware
- Change Control
- Hardware support

HARDWARE OWNERSHIP

InTechnology remains the owner of the Switch hardware at all times. InTechnology will recover this hardware at the end of the contract.

MINOR CONFIGURATION CHANGES

InTechnology undertakes 'change' work on a 'fair use' basis (please see our Customer Service Plan [CSP] for details), this meets the requirements of the vast majority of customers. If we feel that a disproportionate amount of resource is required to undertake change work for a particular customer, we will notify the customer and subsequent work may be chargeable.

Changes are scheduled to be completed by InTechnology's own engineers, using a priority system with 'Emergency' changes undertaken first. 'Non-emergency' changes will usually be scheduled to be completed during office hours. If non-emergency changes are required outside of office hours, the request will be accommodated where possible and may again be subject to additional charge.

SUPPORT

InTechnology supports products and services to meet the Service Level Agreement **which forms part of the contract**. Any support requests beyond this will be considered, and may be chargeable if implemented. For example, any major reconfiguration work required on a customer's systems/network to provide a work-round fix for a customer 'disaster'.

ADDITIONAL CHARGING

If additional charging is necessary:

- Where possible, we will issue an estimate for any chargeable work in advance.
- The figure will be calculated based on the 'standard' or 'out-of-hours' rate for the type of work and consultancy/engineering skills required
- Travel and/or other expenses will be detailed separately when applicable

As an illustration, please refer to the pricing below:

STANDARD RATES	
ENGINEER day	£750
ENGINEER hour (from)	£100
CONSULTANT day	£1000
CONSULTANT hour (from)	£120

Day rates apply to work carried out 9am – 5pm on weekdays, including 30 mins lunch break. Rates inclusive of 2 hours' travel time.

OUT-OF-HOURS RATES	
ENGINEER 'day'	£900
ENGINEER hour (from)	£115
CONSULTANT 'day'	£1200
CONSULTANT hour (from)	£140

'Day' rates apply to work carried out on bank holidays & weekends, or between 5pm and 9am on weekdays. Rate shown is per 8 hour project including 30 mins break.

Project specific quotes are available on request. Discounts may be available when 'multi-day' service bundles are purchased.

SECTION 4: SERVICE LEVEL AGREEMENT

The Service Level Agreement for the Managed LAN Switch Service is based on the Percentage of time that the service is available for use.

SERVICE AVAILABILITY

Service Availability is measured at the on-site switch as the percentage up-time seen by the InTechnology Network Management System. This percentage availability is reported on a monthly and 'last 12 months' basis. The Service Level Agreement offered is that over a 12 month period the percentage uptime will be the same as that offered on the LANnet access circuit. E.g. if the Managed Switch is on a site connected with a LANnet Ethernet circuit, InTechnology offers 99.8% availability for both the LANnet connectivity and the Managed LAN Switch.

SERVICE CREDITS

After the switch has been in service for 12 months, the customer may claim any service credits due.
A service credit will be awarded if the availability has fallen below the specified minimum availability percentage averaged over the last 12 months, as reported by the InTechnology Network Management System, adjusted for the following instances:

- Service unavailable due to planned or emergency maintenance or during the maintenance window specified in the Customer Service Plan (CSP)
- Loss of power to the InTechnology equipment at the customer site
- Unauthorised interference with the cabling to the on-site InTechnology equipment
- Faults traced to the customer or to faults on the customer's side of the service termination point including, for example, poor environmental conditions, power issues etc.
- Service unavailable due to contractual service suspension or to Force Majeure

Planned maintenance can involve a temporary suspension of part or all of the services in order to enable InTechnology to undertake vital remedial, maintenance or upgrade work. Controlled outages will always be notified to the customer at least 7 days in advance and be planned in such a way as to have minimum impact on the customer's operations.

Emergency maintenance required as a result of identifying a problem through ongoing monitoring and management, that could potentially cause an outage or failure of the service, will be notified to the customer at the earliest possible time and be managed in such a way as to have minimum impact on the customer's operations.

Any service credits due are calculated as follows:

If the availability of a site, measured over 12 months, is lower than the committed figure, a proportionate amount of the annual charge will be refunded by way of a service credit. The proportion will be the committed availability percentage minus the achieved availability percentage. For example, if the

committed availability is 99.8% and the achieved availability is 99.0%, the service credit is 0.5% of the annual charge.

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