TRUFFLE

Broadband Bonding^{TM} Network Appliance

with cellular data card failover/aggregation capability

The Truffle Broadband Bonding Network Appliance, enables cost-effective Internet access solutions for any size businesses, apartments, hotels & other multi-tenant buildings who wish to aggregate multiple Internet access services for increased performance and reliability. The Truffle aggregates the capacity of four (or optionally as many as eight or twelve) T-1, DSL or cable modem services and two usb based cellular data card providing increased access bandwidth for downloaded HTTP traffic equal to the combined bandwidth of the aggregated links, even to a single user. The Truffle provides this higher access capacity and more reliable Internet access at a cost much lower than expensive fiber optic or T-3 access service. It has a 1U rack-mountable form factor with silent active cooling.

TRUFFLE FEATURES

Downlink/uplink bonding in peered mode
Bonds Internet access lines for all types of traffic (including encrypted traffic such as VPN) for aggregated downlink and uplink capacity when peered over the Internet with a Truffle that has VLL server license located at the headquarter office or data center. For single office setups optional Broadband Bonding Service subscription enables downlink/uplink bonding.

Aggregated downlink capacity in standalone mode - When not peered with another Truffle device, all HTTP downlink sessions use the aggregated bandwidth of the combined Internet access links, even in the case of a single HTTP session. For non-HTTP downlink sessions and all uplink sessions, Truffle provides session-based intelligent load balancing across the access links in standalone mode.

Link failure recovery & link failover - In case of Internet access line failures, the Truffle keeps the ongoing sessions alive by retransmitting the lost packets over the available access lines, even for the sessions in progress, without loss of data integrity. Additionally automatic failover protects against failures of one or more access link outages. 2G/3G/4G cellular cards can be added as standby WAN access links for additional reliability.

Traffic Monitoring & Shaping - Traffic can be monitored via graphical plots over seconds/minutes/hours/days/months. Various realtime and non-realtime traffic types can be filtered and shaped.

Transparent installation – The existing Local Area Network does not require any changes. No coordination, new equipment or software is needed from the Internet Service Provider(s). A remotely accessible browser-based management interface provides quick and easy configuration and system monitoring.

Advanced QoS algorithms – All traffic routed through the Truffle is intelligently managed to prioritize real-time traffic. Additionally a unique set of proprietary algorithms are implemented to improve inbound real-time traffic latency metrics specifically for VoIP applications.

Dynamic DNS load balancing – Truffle can be configured to provide Dynamic DNS load-balancing for inbound requests for internally hosted servers such as web-server, ftp-server, mail-server etc.

Bridging to the Future
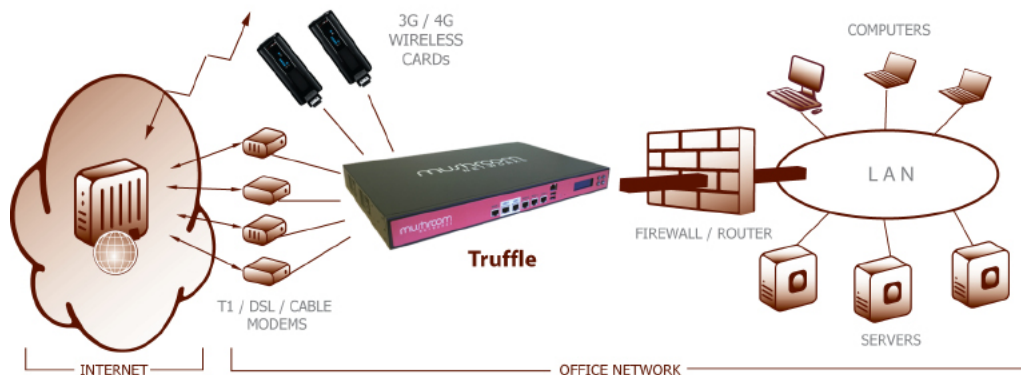
TRUFFLE HARDWARE SPECIFICATIONS

Mechanical Dimensions	438(W) x 292.1(D) x 44(H) mm, 17.25"(W) x 11.5"(D) x 1.73"(H)
Weight	10.4 lbs.
Input Power Requirement	200W full-range ATX
USB ports	2 (for cellular data card and future software uploads)
LAN ports (10/100/1000 baseT, auto-sensed)	2 RJ-45 Ethernet connector. One LAN port as fail-to-wire to WAN port in case of power outage.
WAN ports (10/100/1000 baseT, auto-sensed)	4 RJ-45 Ethernet WAN ports. 4 more or 8 more RJ-45 Ethernet WAN ports addon option.
Certifications	FCC, CE, RoHS-5, ICES-03, UL, cUL
Operating Temperature Range	32 - 104 F, 0 - 40 °C
Operating Humidity Range	20-90% RH
Storage Temperature Range	-4 - 158 F, -20 - 70 °C

TRUFFLE SOFTWARE SPECIFICATIONS

Max throughput	Base: 300 Mbps (standalone), 100 Mbps (peered) Higher performance available with Truffle E, EC, EF models
Max number of concurrent IP sessions	150,000 (1,000,000 with Truffle E, EC, EF, EX models)
Device management	-Web based management -SNMP -Remote syslog -Email Alerts
DHCP and DNS servers	-DNS relay -Parallel DNS optimization -Support for DHCP server
DDNS	-Support dynamic DNS for multiple interfaces
WAN configurations	-Support for various configuration modes: static, PPPoE, DHCP, Passthrough. -Selectable "failover-only" or "aggregate" modes for cellular data card and other WAN ports. -User configurable WAN interface binding
Routing	NAT and IP Forwarding, QoS and inbound/outbound VoIP quality management
UPnP	Support for peer-to-peer applications

TRUFFLE ADDON OPTIONS

Base model	4 Ethernet WAN ports, VLL client license
4 WAN ports addon	available in Truffle E models
12 WAN ports addon	available in Truffle EC, EF models
VLL Server license addon	VLL Server license addon
Performance pack addon	Available in Truffle E, EC, EF, EX models