

Introduction

This document outlines the features and enhancements added to the Kernel 4.16L.04 for the Broadcom chipsets as used in the Case 6401 and 6540 routers.

Features Supported in the chipset (NB the Case software already has these and other features in the code)

- IP Sec Protocol: ESP + Auth. AH not supported
- Tunnel Mode
- Encryption mode: Cipher block chain (CBC)
- Encryption algorithms: AES-128 / 192 / 256, DES, 3DES
- Authentication HMAC-MD5-96, HMAC-SHA1-96
- IPv4 or IPv6
- Fragmented IP Packets
- Up to 32 Tunnels

(GRE) L2-Ethernet GRE Tunnel Acceleration

L2-Ethernet GRE Tunnel acceleration support is added in flow cache.

Enhancements

Downstream backpressure mechanism from Host / FAP / Runner to SAR / DSL to benefit G.fast / G.inp/Bondin deployments are supported. This helps to avoid any packet loss that may occur with these scenarios.

G.Inp extended Buffering / Delay handling for small packets is supported on both the 6401 and 6540

Updated bridge to allow WDS authentication to complete on ports blocked by STP

XTM Interfaces mac address configuration can be overridden from their default setting using the 'ifconfig' command option to configure the mac address of the interface.

[VLANCTL] Support separate RK and TX locks to allow simultaneous reception and transmission of packets, thus increasing the Linux data path performance

To enable iz4 Kernel compression use menuconfig>root filesystemoption. Exists on both NAND and NOR Images.

Open SSL is upgraded from 1.0.1j to 1.0.2a

CFE's TFTP implementation adds support for RFC2348 extension to permit blocksize of 1024, hence images beyond 32MB.

[HOMEPLUG] added / proc/bcmenet_impl6/rtp/iptables debug interface for iptc rtp stats and ingress queue congestion debug.

[HOMEPLUG] Extended home plug API to get /set Standby settings which allow user applications to modify them.

[HOMEPLUG] Added parameter X_BROADCOM_CM_PLCPHY_Temperature to HomePlugAV data-model which report the HomePlug SOC Temperature.

[HOMEPLUG] Added two new parameters necessary to define a flash identification mechanism through TR069 to avoid upgrading the wrong images into the device from the ACS

[HOMEPLUG] Enable support for pure TR181 model

Added ability to set default MTU size at compile time for JUMBO frame enabled build. If not enabled the default build will be 2048 bytes.

BUG FIXES in 4.16.04L

Reference	Description
7790	Modem may respond with incorrect MAC Address when multiple WAN services are configured on same L2 Interface
14271	GSO Counters from FAP do not work properly
15934	[VLANCTL] Cant add a VLAN Linux Interface to a bridge if it's a real / root device is in bridge during VLAN interface creation
19552	Fixed a software bug in budget decrement logic in skbFree Thread
19576	Ethernet Frames smaller than 60 bytes contain random data in the padded part. Ethernet XTM and FAP drivers need to zero out the padding
19697	[TR069] Limit notification does not work if there are more parameters changed than parameters with limit notification
19717	Dynamic-DNS password was stored in plain text in CMS configuration file. With this fix in place in 4.16.04 release, if the image is upgraded in the field from previous versions and the configuration had a dynamic DNS entry, this dynamic DNS entry will need to be recreated.
19742	CPE Should not terminate the PPPOE session for invalid session ID
19767	xDSL link status notifications are sent to the XTM Layers first followed by the system monitor tasks to avoid any synchronisation issues. Previously the notifications were sent to the system monitor before they were sent to the XTM Layers.
19773	Under certain configurations, the Ethernet LED for port ETH3 would remain active after pulling the cable out, and return to normal behaviour when re-inserting the cable.
19788	[UPnP] Shows the wan statistic value
19800	[UPnP] Show the Ethernet WAN Bandwidth value
19871	Under some circumstance, DHCPD was still running even when disabled
19888	[HOMEPLUG] Fixed link detection issue in homeplug that caused the modem to involuntarily go to standby. Corrected standby exit configuration when the modem boots without an Ethernet link.
19962	[BCM 63381] Platform issues with DSL Line status changes alongside traffic have been addressed.
20116	IP Checksum is incorrect when received ToS/ DSCP value differs from the initial value when the flow was learnt by flow-cache.
20438	[FAP] Upstream traffic stops while forwarding fragmented UDP over PPPoE WAN
20563	DHCP Server didn't reply DHCPACK if client requested an error IP Address
20611	[Flow Cache] flwstats module reported incorrect packet / byte count after delete/re-create the query rules
20626	[ETHSWCTL] getifname commands do not work for external switch
20661	Modified the Openssl 1.0.2.a library do not use Neon to avoid unrecognised instruction signals(signal 4's) due to process migration and to avoid contention with voice

20714	[1905] Cleaned up some video artefacts on the 1905 topology page
20736	[Flow-Stats] Flow-Stats module allocates memory for statistics array with incorrect size resulting in kernel crash. The issue is noticed when large numbers (1000's) of flows are created.
20757	[Flow-cache] Unable to forward double tagged multicast traffic in downstream when the WAN Service is configured
20785	TR69, when updating to 4.16.03L software image, Transfer Complete and M Download were not sent

KNOWN BUGS and Limitations in 4.16L.04

Reference	Description
7648	The iq command line utilities do not send output to the controlling terminal, just to the serial port
8370	Creating more than 8 WAN Interfaces may cause call trace. The workaround is to increase the number of MAC Addresses in the CFE Configuration.
10547	USB SMB File Transfer throughput degrades over the Far End (FE) interface when voice is enabled
10636	[BCM 63168] GMAC Traffic stops after a link is re-established when BPM is controlled out
13551	[L2 Switch] Jumbo size RX Packets are not counted
14778	PTM Bonding packet loss on a given operational line when restarting the other line during traffic
15294	[GRE] Flow-Cache does not accelerate packets over MTU size over GRE Tunnel
19768	[SPEED-SERVICE] Upstream latency information is inaccurate in ADSL Mode
20118	[USB-SATA] Some Flash drives (TranscendUSB3.0 8GB) are pre-formatted without the use of partition table, and this contain no partitions. CPE does not mount them automatically, though it can still be mounted manually using the correct file system type.
21162	[DHD-Offload] TX Drops are not counted for non-accelerated WLAN Downstream traffic
21163	[BCM63168 / BCM 63148 / JUMBO] Traffic from host CPU Towards Ethernet WAN with packet size larger than 1984 Bytes are dropped by runner.