IP Resource Card (IRC)



DESCRIPTION

The IP Resource Card (IRC) is a common control card that is central to the core of the Calix C7 switched video services offering. The IRC provides the control processing plane for video switching (using IGMP), as well as the data processing plane for all IP traffic to and from set top boxes. The IRC maintains its own operational image and video-related provisioning data - such as video subscriber database and DHCP lease information - in flash memory rather than loading that information from the active RAP.

The IRC enables support of the following services from the Calix C7: broadcast video and audio, IP-aggregation, and set top box management.

The IRC can be plugged into any of the 20 universal slots within the Calix C7 shelf.

KEY ATTRIBUTES

INTEGRATED IGMP CHANNEL CHANGE FUNCTIONALITY: The IRC supports IGMP v2 with a fast mode capable of switching video streams for up to 8,000 video subscribers. Integrated IGMP allows the service provider to deliver video services to DSL-served subscribers from the Calix C7 with no need to deploy external routers to perform IGMP processing for channel changing functionality.

IP TERMINATION OF SET TOP BOX SESSIONS: The IRC supports termination of up to 8,000 ATM VCs from ADSL interfaces into IP sessions using Routed Bridge Encapsulation (RBE) based on the IETF RFC 2684 standards. Using the IRC, the service provider can aggregate multiple ATM VCs from different Calix C7 platforms into a single ATM VC uplink transporting IP traffic from multiple set top boxes.

DHCP RELAY: The IRC supports DHCP relay and aids in the centralized IP addressing allocation mechanism employed by network-based DHCP servers. **LAYER 3 FORWARDING:** The IRC supports layer 3 forwarding of IP data packets from set top boxes, encapsulated via Ethernet/AAL5/ATM, using static routes.

SCALABILITY: The IRC can be deployed in any Calix C7 to support of up to 8,000 video subscribers.

MULTI-SHELF CONFIGURATIONS: The IRC can be leveraged across large networks, which dramatically simplifies the deployment and management of video networks.

EQUIPMENT PROTECTION: The IRC supports 1:1 equipment protection, guaranteeing rapid video service restoration in the event of an equipment failure.

DATABASE BACKUP: The database on the IRC card can be backed up onto a PC and restored via iMS or TL-1 commands.



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CHANNEL CHANGE TIMES

IRC: 300 ms. End to end: Between 1.2 and 2 seconds (depending on network configuration)

SCALABILITY

Video subscribers: Up to 8,000 Calix C7 shelves: Up to 20

PROTECTION

1:1 equipment protection

IGMP SUPPORT

IGMP v2 with fast-mode.

IP TERMINATION

Routed Bridge Encapsulation (RBE) based on the IETF RFC 2684 standards (up to 8000 ATM PVCs)

IP ADDRESS ALLOCATION

DHCP relay

STATUS INDICATORS

FAIL: Red – Card has failed ACTIVE: Green – Indicates card is active and operating properly STANDBY: Yellow – Indicates Card is in standby mode

POWER DISSIPATION

35 watts per card

PHYSICAL DIMENSIONS Size: 9.3"H x 0.7"W x 9.0"D

Size. 9.5 TT x 0.7 W x 9.0 D

OPERATING ENVIRONMENT

Temperature: -40C to +65C Humidity: 5 to 90% non-condensing Altitude: to 13,125 feet

STORAGE TEMPERATURE -40C to +70C

NEBS LEVEL 3 COMPLIANCE

Telcordia GR-63-CORE, Network Equipment-Building System (NEBS) Requirements, Issue 1, October 1995. Telcordia GR-1089-CORE, Electromagnetic Compatibility and Electrical Safety, Issue 2, December 1997 with revision 1, February 1999.

SAFETY

NTRL-UL 1950 EMI/RFI FCC Part 15 Class A

STANDARDS SUPPORT

RFC 826, Address Resolution Protocol RFC 1027, Proxy ARP RFC 3046, DHCP Relay Agent Information Option RFC 2236, Internet Group Management Protocol, Version 2, November 1997 RFC 2684, Multiprotocol Encapsulation over ATM Adaptation Layer 5, September 1999 FTGS-02, VDSL System Architecture Specification, FS-VDSL Committee

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