

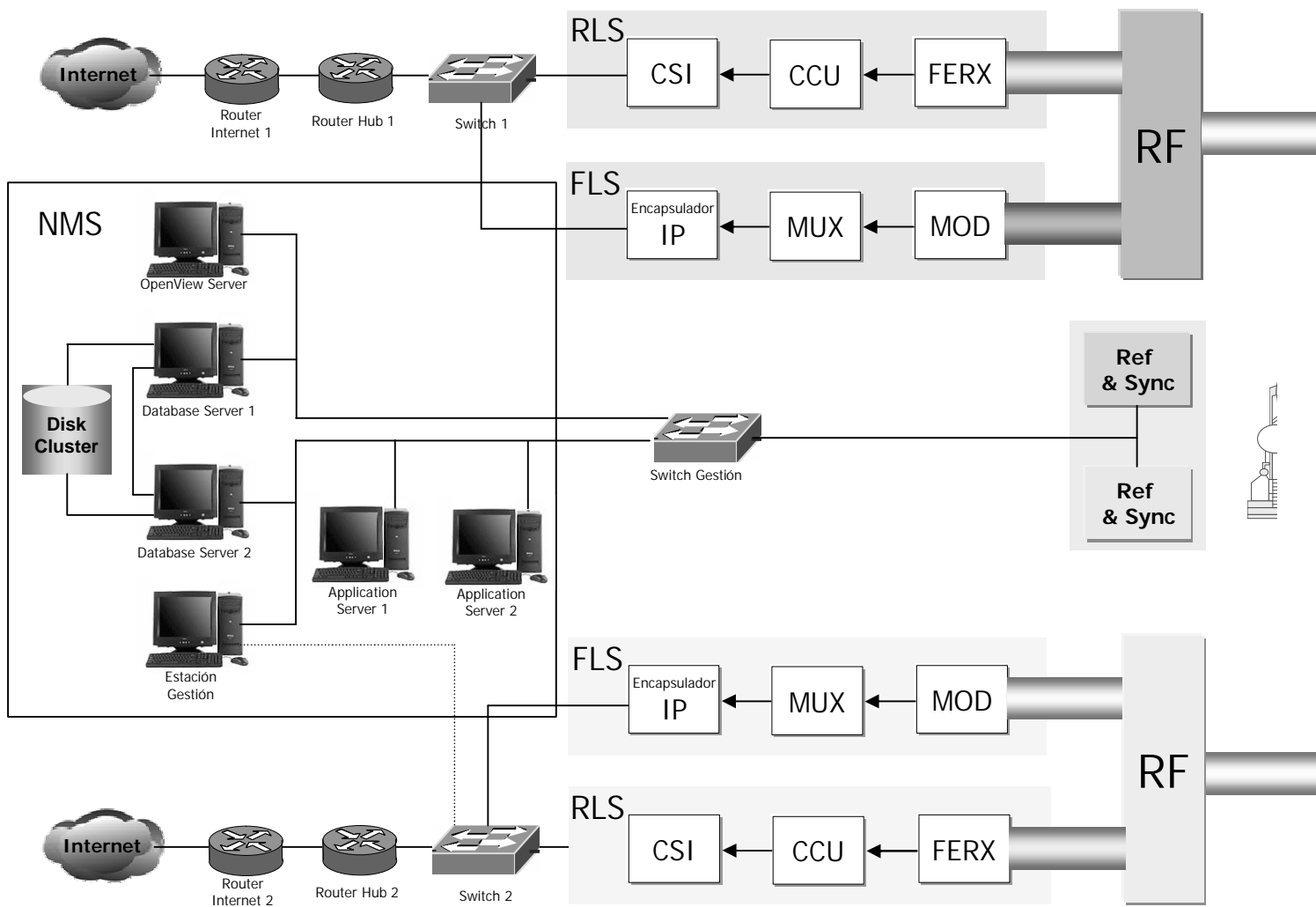
Hispasat's Platform

The Hispasat's platform (**Nera**) gives broadband access for IP networks according to the standard **DVB-RCS** (Digital Video Broadcasting- Return Channel via Satellite), constitutes a Star-Network with a Hub located at the Satellite Control Center at **Arganda** where the terrestrial backbone connection is done

Platform's Components

1. **Subsystem of Management Network.** It manages the traffic of the network and surveillance the system
2. **Subsystem for Forward Channel.** It encapsulates the traffic in MPEG frames according to the MPE (Multiprotocol Encapsulation) standard, multiplexes and modulates the outgoing stream according to the DVB-S standard.
3. **Subsystem for Inbound Channel.** It manages the MPE TDMA channels where the traffic coming from the terminals is transmitted.
4. **Subsystem for synchronization.** It gives the needed synchronism to the network.
5. **Subsystem for Internet Access.** It resolves the access to the Backbone Internet

Plataform Architecture



Main Characteristics

Two-ways Platform

- ✍ **MF-TDMA - Frequency hopping** in the inbound channel
- ✍ **Turbo Coding**(FEC $\frac{1}{2}$... $\frac{6}{7}$)
- ✍ Return channel **DVB-RCS** with speeds from 128 Ksymbol up to 1.2 Msymbol/seg to be setup per channel
- ✍ **MPEG2 / ATM** cells in the return channel
- ✍ Interconnection with **one or more subsystems forward** **DVB-S / MPEG2** with speeds up to 45 Mbit/seg
- ✍ Management of the resources in the inbound channel according to the algorithms defined in DVB-RCS (**CRA, RBDC, VFA, FCA**)
- ✍ Scalability for supporting thousands of terminals
- ✍ Hub **redundant** 1:1
- ✍ **Acceleration TCP**
- ✍ **Multicast** in the forward channel
- ✍ **Delegated Management** for the local operators of the terminals

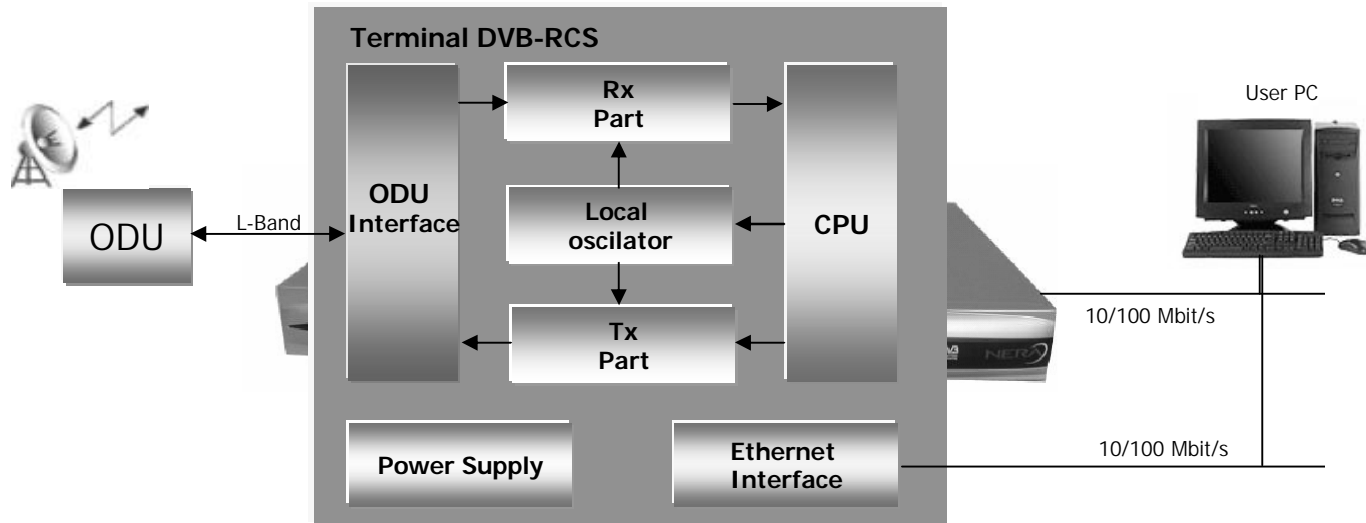
Bandwidth Management in the return channel

Return channel in DVB-RCS

Hispasat's Platform allows different algorithms for the bandwidth management of the return channel according to the DVB-RCS standard:

1. **CRA** (Continuous Rate Assignment). Fixed capacity assigned to the Hub without negotiation with the terminal. Optimized for real-time applications with guaranteed CIR (VoIP, Video over IP).
2. **RBDC** (Rate Based Dynamic Capacity). Dynamic capacity assigned to the terminal for a specific time. It is suitable for burst variable traffic that needs QoS (e.g. Real-time video with variable speed).
3. **VBDC** (Volume Based Dynamic Assignment). Dynamic capacity assigned on-demand. It is ideal for burst traffic such as Internet browsing, etc.
4. **FCA** (Free Capacity Assignment). Assigned capacity by the Hub without negotiation, according to the available capacity at the moment.

User Terminal



Characteristics

- ✍ Satellite Interface: Rx DVB-S, Tx DVB-RCS
- ✍ Transmission capacity: from 128 Kbps up to 2 Mbps
- ✍ Reception capacity: up to 45 Mbps
- ✍ Ethernet Interface 10/100 baseT
- ✍ Supported Protocols:
 - IPv4, PPP, TFTP, FTP, BOOTP
 - SNMP, ICMP, IGMP
 - NAT, ARP, RIP
- Configuration and management interfaces: SNMP, RS23
- Ku-Band frequencies:
 - Rx 10.95 – 12.75 GHz
 - Tx 14.0 . 14.5 GHz
- Size of the Dish: 90 / 120 cm / 180 cm