NETBRICKS
FR-BRICKS

INTRODUCTION

NETBRICKS *FR-BRICKS* is a portable software package implementing the protocols in endpoints equipment of Frame Relay networks for both Permanent and Switched Virtual Circuits (PVC's, SVC's).

FR-BRICKS is fully compliant with ITU-TS recommendations : Q.922, Q.933; ANSI standards : T1. .606, 617, 618 and Frame Relay Forum Implementation Agreement (FRF.4).

FR-BRICKS architecture is based on NETBRICKS architecture using object oriented design and a message passing mechanism for inter-entity communication. *FR-BRICKS* is designed to process a rough synchronous byte stream or to support HDLC controller. Interfaces to most of commercial RTOS are provided : AMX, Nucleus, PSOS+, RTC, VRTX, WxWorks, ...

FR-BRICKS can be use in conjunction with *ISDN-BRICKS* in order to support ISDN BRI and PRI switched access to Frame Relay Network for PVC's and SVC's.

FR-BRICKS is addressed to the OEM market. Netbricks can develop any custom product based on *FR-BRICKS* technology according Customer's specifications.

FEATURES

FR-BRICKS consists of the following main software entities :

- PH : Physical HDLC drivers with an optional HDLC by software solution,
- DL : Data Link, LMI support,
- NS : Network Signaling with Frame Relay variant,
- CC : Call Control with Frame Relay variant,

PH implements for a synchronous full duplex bit stream :

- Frame delimitation (HDLC frame),
- HDLC bit stuffing and un-stuffing,
- CRC16 calculation and error detection,
- Error Rate Monitoring (Alignment and Normal),
- Provisioning and re-provisioning,
- PH and Management APIs,
- Support of Motorola MC683xx, PowerQUICC I and II, Infineon ESCC2, ESCC8, Munich-32, HSCX, Zilog Z85230,
- Standard : ISO HDLC 3309

Data Link (DL) implements the following functions :

- Extended DLCI,
- Forward and Backward congestion notifications,
- Core DL,
- Error correction,
- Provisioning and Re-provisioning,
- CC and Management APIs,
- Standards : ITU-TS Q.922 ; ANSI T1.618 ,

Local Management (LMI) implements the following functions :

- Support of Status message,
- Standards : ITU-TS Q.933 Annex A ; ANSI T1.617 Annex D ; Frame Relay Forum FRF1.1 Annex A.

Network Signaling (NS) implements the following functions :

- Access on demand,
- Q.933 syntax encoder decode,
- Q.933 Finite State Machine,
- Provisioning and Re-provisioning,
- CC and Management APIs.
- Standards : ITU-TS Q.933, ANSI T1.617, FRF.4.

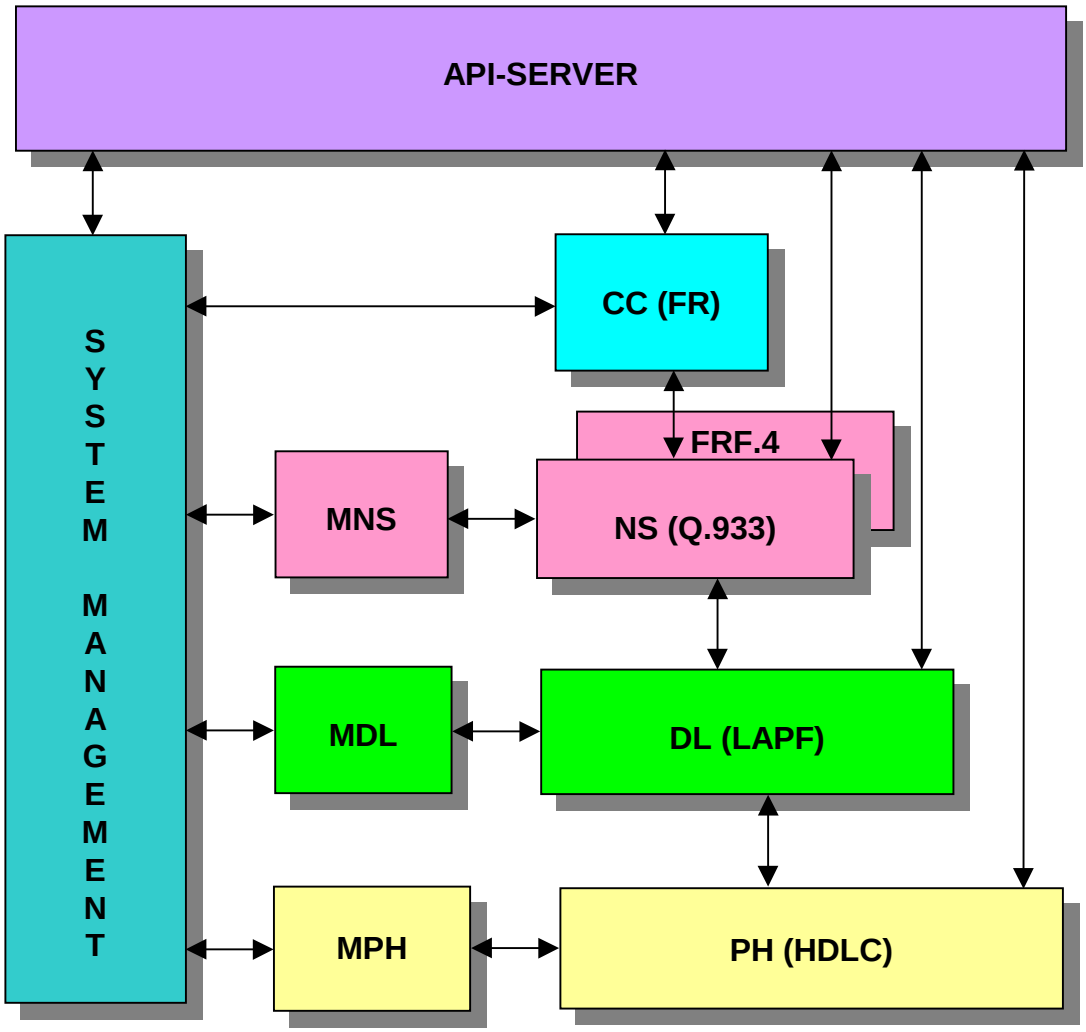
Call Control (CC) implements the following functions :

- Management of call parameters,
- Provisioning and Re-provisioning,
- CC and Management APIs,
- Standards : ITU-TS Q.933 and ANSI T1.617,

- System management entity SM.

- FR stack :
  - MPH Physical management entity
  - PH entity:
    - HDLC Interrupt Service Routine.
    - PH entity
  - MDL Data Link Management entity
  - DL entity
  - MNS Network Signaling Management entity
  - NS Network Signaling entity
  - CC Call Control entity

- API :
  - API-SERVER entity


API-SERVER
SYSTEM MANAGEMENT
CC (FR)
FRF.4
MNS
NS (Q.933)
MDL
DL (LAPF)
MPH
PH (HDLC)