
ATM Gateway

Piotr Lavrov <lvr@oktetlabs.ru>

Project dates: June 2005 – December 2006

Team Leader: Victor Vengerov, Senior Software Engineer

The task was to clarify requirements for ATM gateway device, design hardware solution jointly with hardware team, design ATM gateway software architecture, develop and test the software.

ATM gateway features:

- 10/100 Mbit/sec Ethernet, 155 Mbit/sec ATM over SONET, 2xE1 interfaces
- Ethernet-ATM/AAL5 routing
- 2xE1 trunking over ATM/AAL1
- SNMP management
- CLI interface
- VME interface, VME BusNet protocol
- 2 processors architecture:
 - Control Processor, Leon 3 core, running Linux 2.6
 - Network Processors, TMS320C6415, running custom software

ATM gateway project included:

- definition of features and requirements;
- review of related standards;
- participation in hardware architecture definition;
- participation in board schematic review;
- design of software architecture focused on real-time data processing, manageability, portability and extensibility;
- implementation of core software (NPI – Network Processing Infrastructure)
- implementation of IP router functionality;
- implementation of ATM traffic manager (supports CBR, VBR and UBR classes);
- implementation of AAL5 and AAL1 adaptation layers;
- implementation of shared memory communication driver and management interface;

- implementation of UTOPIA, ATM Frammer, Ethernet controller drivers for hardware;
- implementation of UTOPIA and Ethernet simulation drivers;
- running software prototype and tests using simulation environment based on User-Mode Linux;
- porting and adaptation of SnapGear embedded Linux for simulation and target environments;
- implementation of daemons and CLI commands to control network processor;
- porting and adaptation of net-snmp SNMP agent;
- adaptation of OKTET Labs Test Environment, tests implementation;
- creation the “Explanatory Notes” document.

The first version of the product is released, the team is working on additional hardware modules software and extended features.

[Back to the list \[index.rhtml\]](#)