



Success Story A Fortune 500 Japan-based Telecom Major

IPv6 Protocol Stack

The Challenge

The scope of the project was to port the FreeBSD TCP/IPv6 stack and socket interface on client devices with limitation on memory size. These devices contain FR-series processor and RealOS (Real Time Operating System compliant to ITRON specifications).

Our Solution

Majority of the work was done in the following areas:

- ◆ Optimization of FreeBSD stack, to reduce the code and memory size to port the stack in limited FRAM
- ◆ Analysis of FreeBSD socket interfaces code and redesign the socket interfaces for RealOS
- ◆ System testing of whole stack (TCP, UDP & IPv6) on the simulator and emulator.
- ◆ Porting of TCP-IPv6 stack on FR series of processor and RealOS

Benefits

- Small module size for embedded system
- Embedded TCP-IPv6 stack based on m UTRON specification.
- Modular structure, to facilitate ease in portability to any other OS.
- Discovery mechanism (Neighbor Discovery and Router Advertisement)
- Auto configuration (both Stateless and State full)
- TCP-IPV6 stack supports
- Extended addressing capabilities
- Flow labeling capabilities - both manual and dynamic key management.
- Authentication and privacy capabilities
- Scalable
- Support of extension headers like hop-by-hop options, routing, fragment, destination options, authentication and encapsulation security payload headers.
- High-speed processing using the code accelerator chip