Wind River Solutions
For Voice-Over-IP Applications

Wind River | *Networking*

Enabling the development of advanced voice products in the converged network

Telecommunications service providers offering converged voice and data services seek ways to reduce costs, expand services, and upgrade their networks from traditional circuit-switched technology to wireless, IP-based packet switching, also known as voice-over-IP (VoIP). Wind River's solutions for VoIP applications provide key building blocks for the development of VoIP products. Wind River's VoIP software components include SIP, MGCP, and Megaco protocol stacks. Based on industry standards, these protocols are fast, efficient, scalable, and can be used in any workstation and embedded environment. A generic transport layer allows for easy integration with a variety of transport protocols, such as the VxWorks® Network Stack.

Written in ANSI C, Wind River's VoIP products are highly portable and independent of the underlying hardware or operating system environment.

Wind River SIP features

Wind River's SIP software is based on the industry-standard RFC 2543 specification. SIP is used to establish, maintain, and terminate

Features

- Source-code solutions that implement and support industry-standard protocols:
  - RFC 2543, Session Initiation Protocol (SIP)
  - RFC 2705, Media Gateway Control Protocol (MGCP)
  - RFC 3015 and ITU H.248, Megaco
  - Supports RFC 2327, Session Description Protocol
- Scalable implementation supports a variety of applications, such as:
  - Softswitches
  - Media gateways
  - Media gateway controllers
  - SIP phones
  - Integrated access devices and servers
  - VoIP terminals
  - VoIP-enabled enterprise switches
- Easily integrated with other Wind River signaling stacks:
  - SS7
  - ISDN
  - R2
  - RBS

SIP NETWORK APPLICATION

WindRiver®
HOW SMART THINGS THINK™

MCGP/MEGACO NETWORK APPLICATION
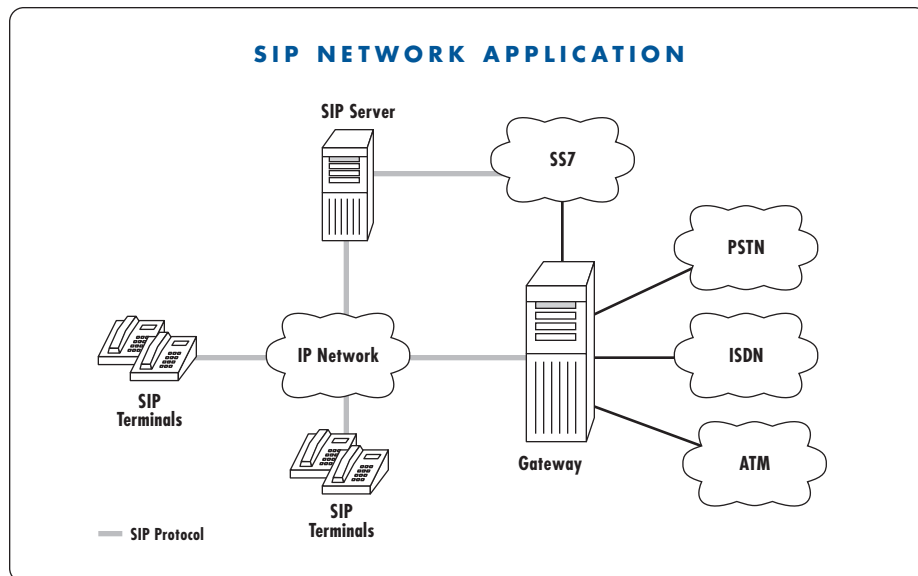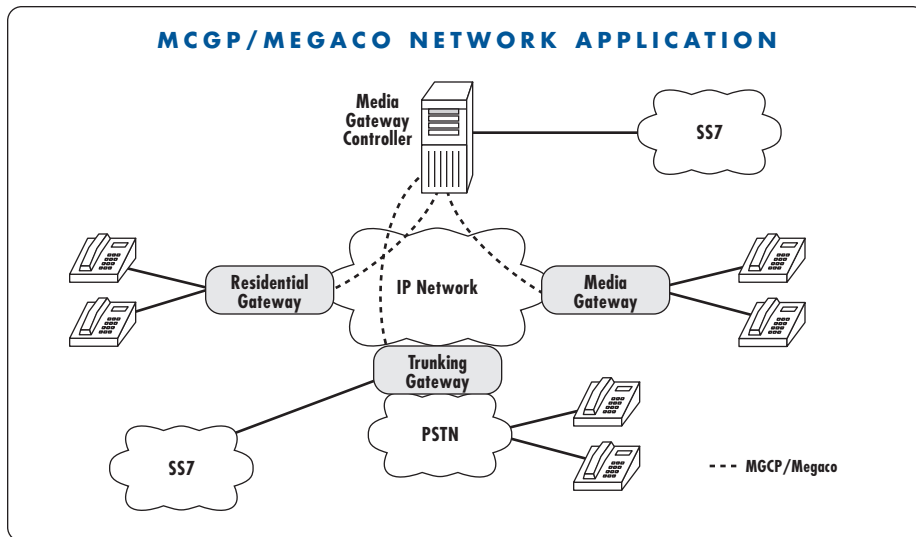
multimedia sessions. SIP can be used to create sessions and carry session descriptions. Session descriptions allow participants to agree on a compatible set of media types.

An application program interface (API) to the application gives the developer the ability to manipulate all the headers and methods of the SIP stack. A simple API is also provided to support applications such as a SIP phone — where memory requirements and interface complexity must be kept to a minimum. The API architecture supports the development of application-specific APIs. An API to the transport layer enables the developer to incorporate transport layers other than the traditional UDP/TCP implementation.

Product features include support for:
• Session establishment and descriptions
• Point-to-point and multipoint calls
• Standard parameters such as user location, user capabilities, user availability, call setup, and call handling
• UAS and UAC applications
• Proxy, redirect, and location servers

Wind River MGCP/Megaco features

The Wind River product for MGCP is based on the RFC 2705 specification; the Wind River product for Megaco is based on the RFC 3015 and ITU H.248 specifications. MGCP and Megaco are similar functionally, but they differ syntactically. The developer selects one or the other based on the requirements of the product under development.

MGCP and Megaco enable telephony gateways to be controlled from media gateway controllers or call agents. Media gateways and media gateway controllers are used to set up media flows between potentially dissimilar networks.

MGCP and Megaco are applicable to a wide variety of products including trunking; voice-over-ATM; residential, access, and business gateways; network access servers; and circuit and packet switches.

Both protocols provide a base API to the application, giving the developer access to all necessary parameters and functions. An extension API is also provided to support package-related parameters such as events and signals. The developer can enhance this extension API to support nonstandard packages. An API provided to the transport layer enables the developer to incorporate transport layers other than the traditional UDP/TCP implementation.

Product features include support for:
• Physical and logical endpoints
• Unidirectional, symmetric and asymmetric bidirectional, point-to-point, and point-to-multipoint connections
• Standard event and signal packages
• Calls and contexts involving multiple bearer types
• Flows of different media types
• Embedded signal/event descriptors
• Digit collection and digit mapping
• Registration with multiple applications

The architecture is designed to allow for support of custom and future packages. There is also the ability to add or delete one or more media streams to a connection or context.

The converged network

Used in conjunction with Wind River's portfolio of embedded networking technologies, operating systems, and development tools, the Wind River VoIP products provide manufacturers with a complete environment for developing new converged voice/data networking equipment. Contact a Wind River representative for more information.