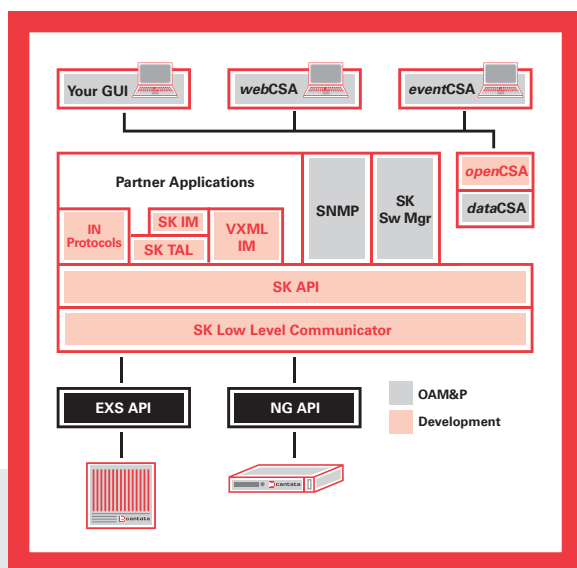


A Powerful Environment for Application Programming and OAM&P



SwitchKit offers a high-level software development environment that speeds application development on Excel MSP and CSP platforms. It also provides a set of integrated tools for Operations, Administration, Maintenance, and Provisioning (OAM&P). These tools allow the developer to improve their time-to-market, quickly develop competitive services, while reducing development costs, all at a better price performance. For service providers, benefits include reduced network management costs and improved network management along with enhanced application reliability.

Designed specifically for the Excel MSP and CSP platforms, SwitchKit provides advanced APIs in an easy-to-use system development, provisioning and maintenance environment. SwitchKit promotes rapid implementation, modification, and upgrading.

Features and Benefits

High-Level Development Environment

SwitchKit is a high-level application development environment. Developers can use C and C++ instead of lower-level APIs, which dramatically improves time-to-market for initial development, modifications, and upgrades. SwitchKit also includes abstraction layers, which are technology-specific higher-level APIs that further speed development of IN and VoiceXML applications.

Range of OAM Interfaces

The SwitchKit offers the following interfaces for OAM&P:

- **webCSA** - A browser-based graphical user interface (GUI) that is compatible across all platforms supported by SwitchKit. WebCSA includes user authentication levels for Configuring, Provisioning and Monitoring on an Excel MSP or CSP platform. Because webCSA is data driven, aspects of the screens may be customized for specific carrier customers. Customizable features include object names and descriptions, default values, and pulldown parameters.
- **openCSA** - An XML application interface into the configuration aspects of SwitchKit, which allows developers to integrate SwitchKit into their Management platform.
- **eventCSA** - A graphical process for monitoring alarms and events as they occur on an Excel MSP or CSP platform.

Full Functionality

SwitchKit supports all the same features, resources, and protocols as the hexadecimal API, but uses C Structures and C++ classes. Developers never need to add system-level code for applications to operate with the Excel MSP and CSP platforms. Developers using SwitchKit can develop all types of telecommunications applications and interface with many protocols over many types of network.

Reliability

SwitchKit maintains component-level redundancy (either N+1 or 1+1) through its Converged Services Administrator (CSA) and Low Level Communications (LLC). When deployed on redundant or fault-tolerant host computers, LLC and SwitchManager can operate in hot standby mode.

Modularity

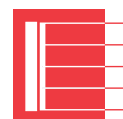
SwitchKit is designed with distinct modules, allowing developers to expand and upgrade the system incrementally, and separately from applications.

Computer Platform Independence

Service Providers can deploy SwitchKit on PCs, workstations, and servers, selecting the processing power, memory, and other resources needed to assure the required level of performance.

Open Service Environment

SwitchKit is an open service environment, allowing multiple applications to co-operate on the same host computer without host-level integration. SwitchKit relieves developers of integration programming because it performs the logic that distributes messages among applications.



SwitchKit

Open Programmability

SwitchKit is supported on various computing platforms, and allows developers to implement applications using either C or C++ industry standard programming languages. SwitchKit operates separately from the switch resources and the applications, so that upgrades, modifications and customizations to one of the resources can be implemented independently, without affecting the other components and without redesign.

Specifications

COMPONENTS

- **Low Level Communications (LLC)**

The LLC coordinates and routes all messages between application modules and the Excel platform. Applications interface with the LLC through the SwitchKit API, described below.

- **SwitchKit API**

The SwitchKit API facilitates rapid switch-to application integration by providing a high level interface between the application and the Excel MSP and CSP system software. Using C and C++, it supports automatic configuration and redundancy control. The SwitchKit API extracts messages between the application and the LLC, enables switch configuration from within the application.

- **SwitchManager**

The SwitchManager maintains Excel CSP and MSP platforms in a state of readiness, and assists developers with initial configuration and dynamic reconfiguration. It monitors alarms and user-defined responses, detecting faults and sending fault notifications. SwitchManager also tracks CPU switchover and automates N+1 redundancy.

- **Converged Services Administrator (CSA)**

This real-time switch maintenance and administration tool is a graphical user interface for creating and managing configurations, as well as for monitoring the system and applications. CSA graphically displays the state of the switch, its components, and alarms in real time, enabling users to change states, maintain trunk groups, and manage channels, also in real time.

- **SNMP Extension Agent**

The SNMP Extension Agent receives alarms from the Excel MSP and CSP platforms and converts them into traps that are then forwarded to the customer's network management system.

OPERATING SYSTEM AND COMPILER SUPPORT

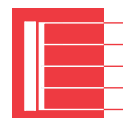
SwitchKit is supported on all major Operating Systems and compilers used in telecommunications; including Windows (Visual C, C++), RedHat Linux (GNU gcc), Solaris (Forte and GNU gcc), and HP/UX (ACC).

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