

A&E SPECIFICATION

Cameleon Version 4

1 SOFTWARE

1.1 OPERATING SYSTEM

1.1.1 The software shall operate on Windows 2000 Professional and Windows XP Professional.

1.2 DEVELOPMENT ENVIRONMENT

1.2.1 The software shall be programmed using the Microsoft Visual Studio 6.0 and Visual Studio .NET development environments.

1.3 ARCHITECTURE

1.3.1 Components

1.3.1.1 The software shall be comprised of the following components: server application, client application and device driver applications.

1.3.1.2 The various software components shall be able to be started in any order.

1.3.1.3 The software shall allow clients, servers and device drivers to be added at any time during or after initial configuration.

1.3.1.4 The software shall allow devices to be added at any time during or after initial configuration.

1.3.1.5 The software shall allow equipment from different manufacturers to be combined.

1.3.1.6 The unexpected or unplanned termination of a component shall not cause any other component to fail.

1.3.2 The software shall support client-to-server and client-to-multiple-server communications and operation.

1.3.3 The software shall support server-to-server communications and operation to allow video sharing.

1.3.4 The software shall be capable of linking to external access control and alarm systems to create an integrated security system.

1.4 SERVER APPLICATION

1.4.1 The server application shall have 'Hot Standby' capability with automatic switchover to the backup server.

1.4.2 The configuration interface shall provide a connection manager for defining switchable connections within the system.

1.4.3 The switching algorithm shall route video based on configurable parameters for path selection.

1.4.4 Time servers

1.4.4.1 The configuration interface shall provide a means to define time servers for the server to synchronize to periodically.

1.4.4.2 Any server shall be able to act as a network time server for other servers and devices to synchronize to.

1.4.5 Modes

1.4.5.1 The server application shall have two modes of operation, a run mode and a configuration mode.

- 1.4.5.2 In the run mode, the server application shall accept client connections.
 - 1.4.5.3 In the configuration mode, the server application shall present a graphical user interface that allows all aspects of the software to be configured.
 - 1.4.5.4 The configuration and run modes shall be capable of running simultaneously to allow configuration to take place without interfering with the client connections and operation.
 - 1.4.5.5 A single interface shall be used to configure all devices, including equipment from different manufacturers.
- 1.4.6 Devices**
- 1.4.6.1 The configuration interface shall provide the ability to add, remove and modify devices controlled by any configured device driver.
 - 1.4.6.2 The software shall provide a configurable arbitration system that eliminates CCTV resource conflicts and allows users to take exclusive control of specific devices.
 - 1.4.6.3 The configuration interface shall provide the means to define interlocks between devices that conditionally prevent a device from being controlled.
- 1.4.7 User access privileges**
- 1.4.7.1 The software shall provide configurable user groups with access privileges assigned to them.
 - 1.4.7.2 Access privileges shall allow a user's access to administrative functions to be restricted.
 - 1.4.7.3 Access privileges shall allow a user's access to be restricted to each map independently.
 - 1.4.7.4 Access privileges shall allow a user's access to be restricted to each device independently.
 - 1.4.7.5 Access privileges shall allow a user's access to be restricted to a subset of a device's features.
 - 1.4.7.6 Access privileges shall allow a user's access to workspaces to be restricted.
- 1.4.8 Scripts and expressions**
- 1.4.8.1 The software shall provide an expression service that allows events to be triggered based on system states or conditions of devices.
 - 1.4.8.2 The software shall provide a scripting language to allow automation of common tasks.
 - 1.4.8.3 The software shall support local and global scripts and variables.
 - 1.4.8.4 The scripting language shall support conditionals to ensure the correct conditions exist before a particular action takes place.
 - 1.4.8.5 Scripts shall be capable of executing in response to user input, conditions within the system, access or alarm input, or according to a schedule.
- 1.4.9 Labels and prompts**
- 1.4.9.1 The software shall provide user-definable labels with scripting capability.
 - 1.4.9.2 The software shall provide user-definable prompts with scripting capability.
- 1.4.10 Timers and schedules**
- 1.4.10.1 The software shall provide configurable timer and schedule services for executing specific tasks on a one-time or repetitive basis.
 - 1.4.10.2 The configuration interface shall provide a mechanism for configuring a group of users to notify when a scheduled event occurs.
- 1.4.11 Alarms and events**
- 1.4.11.1 The software shall provide user-definable alarms and events that are triggered when specific conditions occur within the system.
 - 1.4.11.2 Alarms and events shall have scripting capability.

- 1.4.11.3 The configuration interface shall provide a mechanism for configuring a group of users to notify when an alarm or event occurs.
- 1.4.11.4 The configuration interface shall provide the means to configure a plan for dynamically escalating user notification of alarms and events.
- 1.4.11.5 The software shall provide an archive engine capable of categorizing and storing up to 1 million alarms and events per day.
- 1.4.11.6 Alarms and events shall have the capability to run one automated event when the alarm is triggered, a second automated event when a user selects the alarm or event in the viewer, and a third automated event when the user has acknowledged the alarm or event.

1.4.12 Maps

- 1.4.12.1 The software shall support the importation of maps in a variety of standard graphics file formats: .wmf, .emf, .bmp, .jpg.
- 1.4.12.2 Maps shall be able to be customized by placing device icons, user-defined labels, user-defined hyperlinks, and alarm icons on them.
- 1.4.12.3 The configuration interface shall provide drag-and-drop capability for placing labels, hyperlinks, device icons and alarm icons on maps.
- 1.4.12.4 Device icons on maps shall be capable of showing the active status of the physical devices they represent.
- 1.4.12.5 Labels on maps shall have single-click and double-click scripting capability.
- 1.4.12.6 Hyperlinks on maps shall have controllable transparency and scripting capability.
- 1.4.12.7 Alarm icons on maps shall have scripting capability.
- 1.4.12.8 Alarm icons on maps shall be capable of animation when triggered.

1.5 CLIENT APPLICATION

- 1.5.1 The client application shall provide a means of specifying which server(s) to log in to.
- 1.5.2 The client application shall provide server auto-discover functionality.
- 1.5.3 The client application shall automatically synchronize with the server application after a valid username and password has been entered. This synchronization shall include all support and graphical files (i.e. maps) necessary for the client to run.
- 1.5.4 The client interface shall be comprised of a main map display area, an event viewer, a device list, and any number of custom windows.
- 1.5.5 The client application shall provide multi-monitor support.

1.5.6 Common interface

- 1.5.6.1 The same interface shall be used to control equipment from different manufacturers.
- 1.5.6.2 The same interface shall be used to retrieve archived video from different devices, no matter what type of device the video was recorded on.
- 1.5.6.3 A particular custom window shall be capable of displaying IP and analog video, and the client interface shall be capable of displaying IP and analog video simultaneously in different custom windows.

1.5.7 Workspaces

- 1.5.7.1 The client application shall have configurable workspaces that can be saved and loaded.
- 1.5.7.2 There shall be no limit on the number of workspaces.
- 1.5.7.3 Workspaces shall allow configuration of which predefined and custom windows are visible.
- 1.5.7.4 Workspaces shall allow configuration of the size of predefined and custom windows, including the ability to make them fixed size or dynamically sizeable.

- 1.5.7.5 Workspaces shall allow configuration of the position of predefined and custom windows, including the ability to make them fixed position or moveable.
- 1.5.7.6 Workspaces shall allow configuration of the content of custom windows, including the permitted types of content and the default content.
- 1.5.7.7 Workspaces shall allow configuration of the appearance of custom windows, including their borders and how they are layered.
- 1.5.7.8 Workspaces shall support multi-monitor systems.

1.5.8 Custom windows

- 1.5.8.1 The client interface shall support any number of custom windows.
- 1.5.8.2 Custom windows shall allow users to view live and archived video, load maps, connect to and control remote PCs, or connect to the Internet via an integral browser window.
- 1.5.8.3 Multipurpose windows shall have context sensitive toolbars to control the different types of window content.
- 1.5.8.4 Custom windows shall have the ability to be opened and closed, moved, locked in place, scaled, and scaled to content.
- 1.5.8.5 Custom windows shall be independent of each other, allowing different types of content to be displayed at the same time and different types of devices to be controlled.
- 1.5.8.6 Custom windows shall allow video to be loaded by dragging the camera from a map or from the device list to the window's display area.
- 1.5.8.7 Custom windows shall act as live control pads, allowing the user to control the currently loaded camera using the mouse or mouse wheel.
- 1.5.8.8 Custom windows shall provide a search and filter utility to aid in locating archived alarms and events and archived video.

1.5.9 Event viewer

- 1.5.9.1 The client application shall provide an event viewer that shows activities as they occur, including alarms and events, scheduled events, and scripts.
- 1.5.9.2 The event viewer shall have the ability to filter and sort activities on date, priority, event category, and key words in description fields.
- 1.5.9.3 The event viewer shall provide the means to view archived alarms and events.
- 1.5.9.4 The event viewer shall provide a search and filter utility to aid in locating archived alarms and events.

1.5.10 Device List

- 1.5.10.1 The device list shall list all the devices for which the user has access privileges.
- 1.5.10.2 The device list shall provide access to each device's controls.
- 1.5.10.3 The device list shall provide a means to switch devices.

1.5.11 Maps

- 1.5.11.1 The user shall be able to select a map from the list of available maps.
- 1.5.11.2 The user shall be able to adjust the view of the currently loaded map by zooming in, zooming out, zooming to fit, and loading a stored view.
- 1.5.11.3 Maps shall show icons representing physical devices and alarms.
- 1.5.11.4 Clicking a device icon on a map shall provide access to controls for the device represented by that icon.
- 1.5.11.5 The device list and event viewer shall provide all the functionality of maps, effectively making maps optional.

1.6 DEVICE DRIVER APPLICATIONS

- 1.6.1 Device drivers shall be capable of communicating with any device via direct serial, IP, or modem pool.

- 1.6.2 Multiple device drivers shall be able to share all or a portion of a modem pool.
- 1.6.3 Each device driver shall be unique to the type of equipment it controls.
- 1.6.4 The addition of a new device driver shall require no modification to the client or server application.
- 1.6.5 Device drivers shall run anywhere on the network, not necessarily located where the server is installed.
- 1.6.6 Device drivers shall have the capability of running as a Windows Service or as an executable.
- 1.6.7 CCTV equipment**
 - 1.6.7.1 Device drivers shall be provided for existing cameras, switchers, network video recorders and DVRs, as well as any new cameras, switchers, network video recorders and DVRs to be installed as part of this project.
 - 1.6.7.2 Camera advanced functions such as on-screen displays, patterns and presets shall be available through the driver interface.

2 PRODUCT DOCUMENTATION

2.1 CLIENT MANUAL

- 2.1.1 The Client Manual shall clearly outline all steps necessary to operate the software.
- 2.1.2 The Client Manual shall include screen captures taken directly from the software to illustrate the instructions.
- 2.1.3 The Client Manual shall contain a table of contents.
- 2.1.4 The Client Manual shall contain an index.

2.2 SERVER MANUAL

- 2.2.1 The Server Manual shall clearly outline all steps necessary to configure the software.
- 2.2.2 The Server Manual shall include screen captures taken directly from the software to illustrate the instructions.
- 2.2.3 The Server Manual shall contain a table of contents.
- 2.2.4 The Server Manual shall contain an index.

2.3 DRIVER APPLICATION NOTES

- 2.3.1 Each device driver shall have Driver Application Notes that document configuration and operation of the driver and its devices.
- 2.3.2 The Driver Application Notes shall clearly outline all steps necessary to configure the software.
- 2.3.3 The Driver Application Notes shall include screen captures taken directly from the software to illustrate the instructions.
- 2.3.4 The Driver Application Notes shall contain a table of contents.