

ELAS White Paper

Introduction

ELAS (Electronics-Line Application Server) is EL's enhanced Cloud based service solution for managing and controlling security systems. This paper describes the system's structure, its security aspects and available features.

In today's competitive security market cloud services and Smartphone Apps are a key factor. End users demand their security system to be the most advanced component in their communication network. In addition, service providers and installers expect seamless transparency when adding sophisticated back office applications.

These requirements are met by ELAS, a fully redundant, scalable and secured cloud based web server with which EL control panels are in constant communication.

ELAS Users

ELAS includes a variety of different modules, each targeted for use by different users:

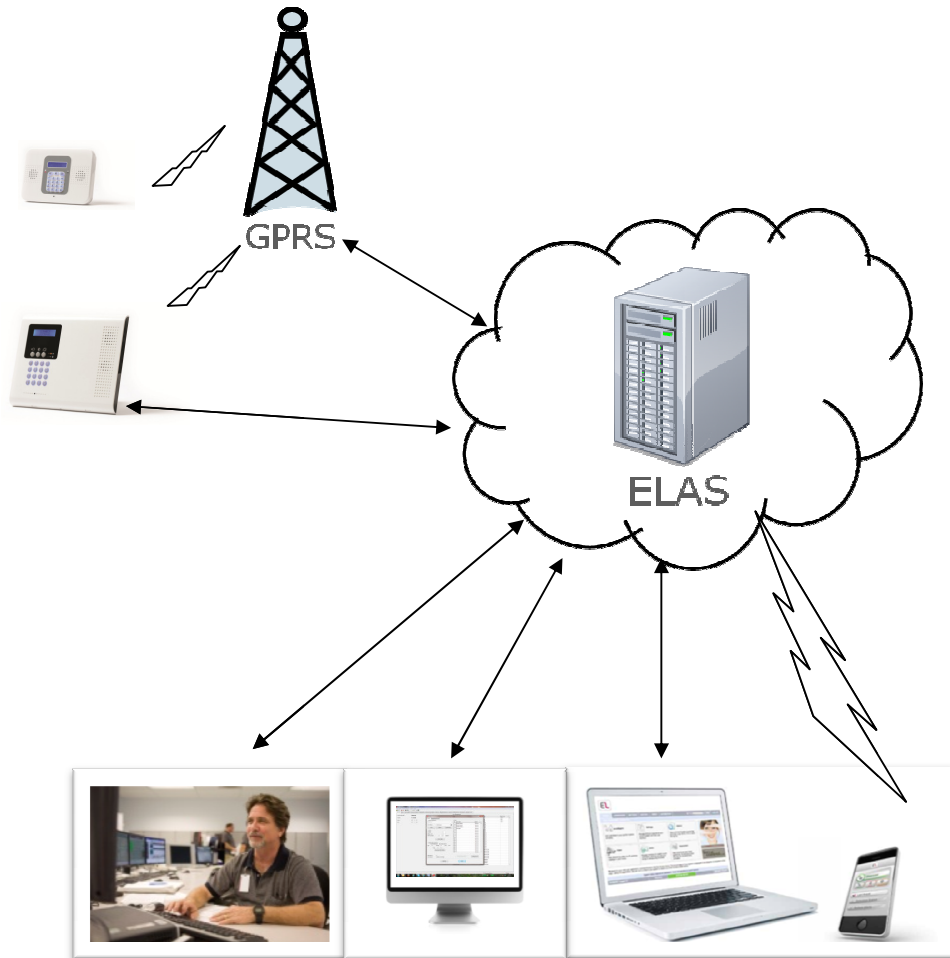
1. End-users are able to use Smartphone applications or web browsers in order to control and monitor homes and/or offices.
2. Installers use the remote programming application to easily configure the panel's parameters and remotely upgrade them.
3. Service providers and monitoring stations use the web admin application to manage: their customers, the services the end-users receive, and the web browser's look and feel. In addition, panel events are sent to the monitoring software, utilizing industry-standard protocols such as SIA, IP-SIA and Contact ID.
4. The ELAS includes a sophisticated web admin application which allows for easy customization of the end-user website, including: logos, banners, web page colors and language translation.

ELAS System Structure

1. The ELAS can reside anywhere in the world at an assigned static IP (or optional redirected URL) address.
2. The control panels reside locally at the end-users' homes and/or offices and use IP, GPRS or both in order to connect to the ELAS. The GPRS communication of the panel is local, even if the ELAS resides in another country.



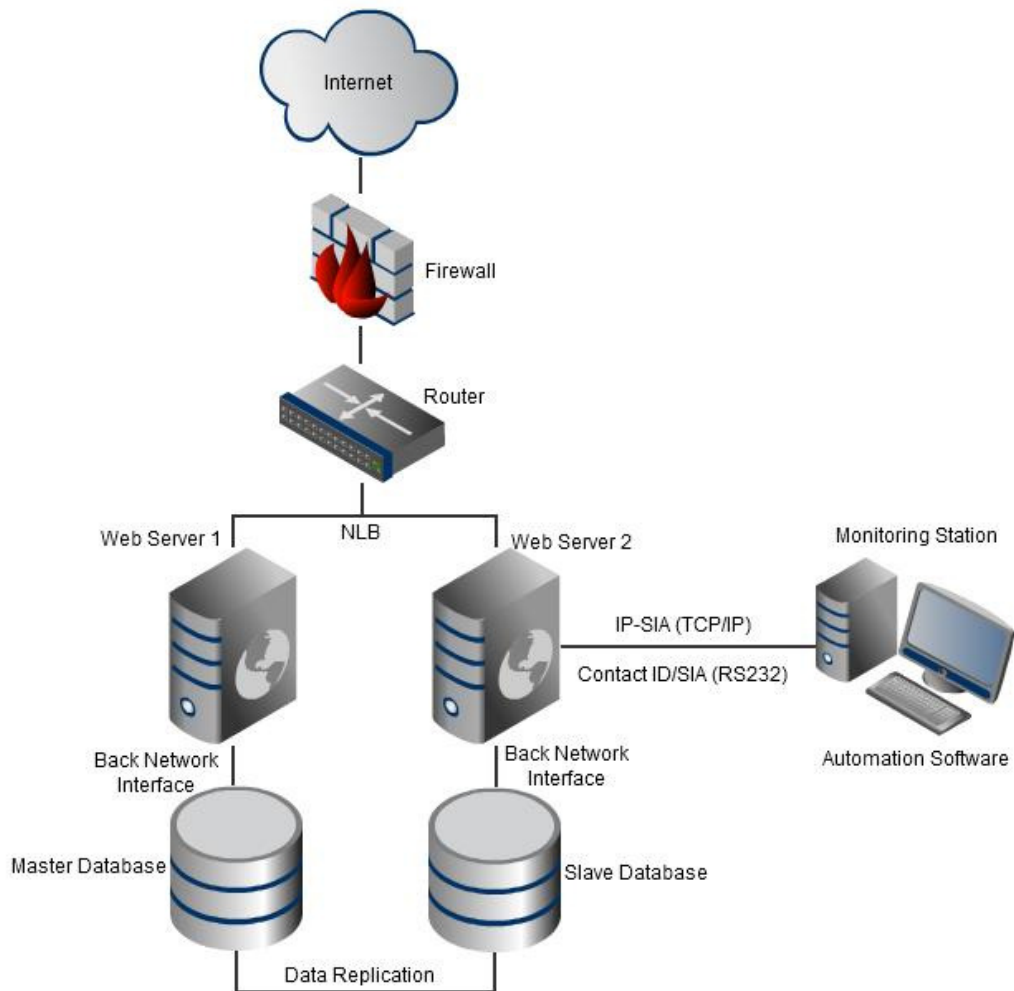
3. The ELAS's IP address is configured in the panel. As soon as the panel is powered up and connected to the internet (via IP/GPRS) it initiates communication and opens a channel to the ELAS. This Plug & Play mechanism allows the SP, CMS, installers and end-users 24/7 communication access to their panels without the need for complicated router port forwarding or sending SMS wake-up signals to the panel.
4. The ELAS acts as a proxy that mediates between the various applications and the panels. For example, when the end-user employs his Smartphone app, the application connects to the ELAS and the ELAS connects to his panel. Data is then transferred between the panel and the Smartphone in real-time. Any change in the panel's status will prompt the ELAS to actively update the Smartphone.





ELAS Topology

The ELAS can be installed either on several physical servers or on a virtual server as per your load balancing, redundancy and database backup requirements. The basic topology supports two servers that are open to the web for end-users' access via a firewall and a NLB (Network Load Balancer) between them for distributing the network load. The database and its backup can either reside on the web servers or on two separate back servers.



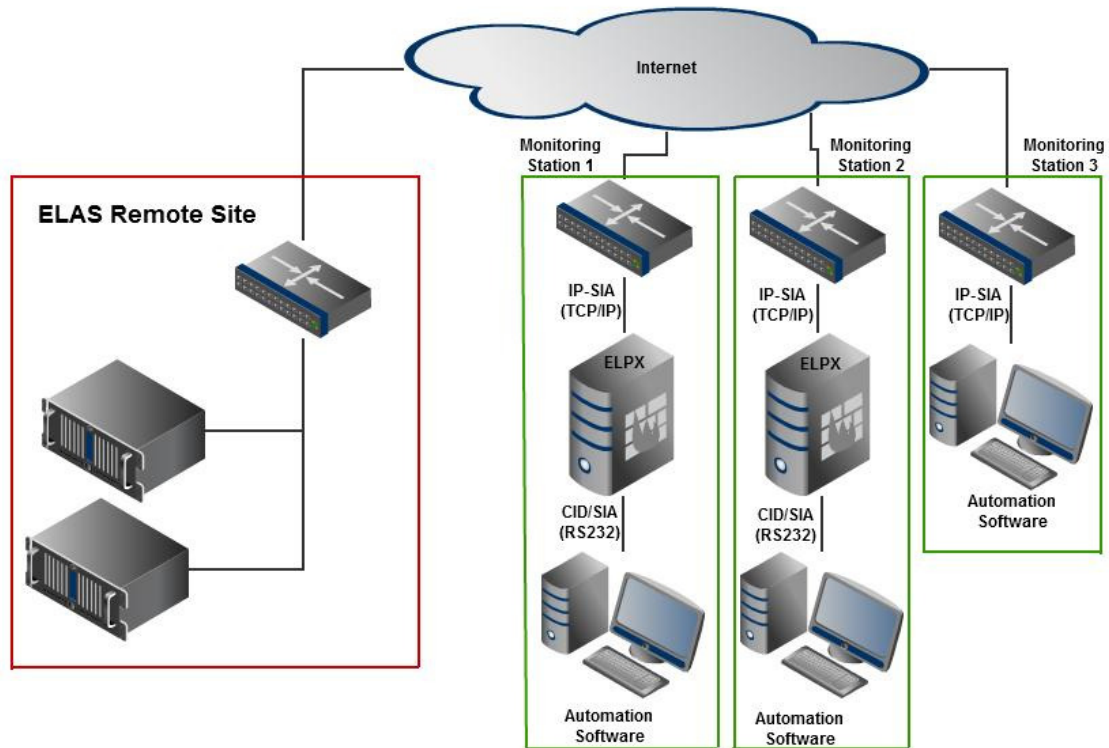
Alarm Event Protocols

If the ELAS is located in the vicinity of the monitoring software's server then it can act as an IP Receiver and can be connected directly over RS-232 when using standard protocols such as Contact ID or SIA. Additionally, the ELAS supports IP-SIA protocol;



thus, it can reside anywhere and send all the events over TCP/IP directly to the monitoring software.

If Contact ID or SIA over RS-232 is still the desired protocol, even though the ELAS resides elsewhere, then an additional proxy server (ELPX – EL Proxy Server) can be installed in the monitoring station and connected to the monitoring software's server.



ELAS Security Protocols

The security layers include: Access to the Cloud services; The transmitted data; And the communication protocols.

Access to the Cloud Services

Each device and user requires specific access credentials that are kept in the data base.

Web Admin Application – The back-office application, managed by the service provider or monitoring station, has several authorization levels

- Full access – Can access all data and manage it.
- Customer Data change only – Can access and manage end-user details for existing accounts only.



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- Read Only – Can read all information but cannot manage it.
- Panel Registrar – Has full access to create and manage new and existing accounts only.
- Remote Programming Supervisor – Access for the remote programming application.

Web User Application – Once a Customer file has been created in the Web Admin Application, the end user will be able to access his panel by entering a User Name, Password and the Passcode (the 4 digit number that is used to disarm the panel). The User Name and Password are authenticated in the ELAS while the Passcode is authenticated in the panel.

Data Communication Protocol

ELAS employs an encrypted SSL 3.0 protocol, utilizing sha1 algorithm.

ELAS Redundancy

The ELAS topology ensures that your 24/7 interface enjoys a complete service and database redundancy. Utilizing a Network Load Balancer (either hardware or software), several web servers act as back up to each other, so when one server is down the load of all the connected panels and users is transferred automatically to the active servers. When all servers are online, they are balanced and all of them share the load.

Additionally, the ELAS utilizes a MySQL database which is configured as two entities, a master and a slave. All new data is written into the master with data replicated to the slave. In addition, a .sql file containing the full database can automatically be created and saved for backup purposes.

ELAS Scalability

The basic ELAS topology requires two network nodes (i.e. two servers with the minimal specs or a virtual server with two separate IP addresses), as backup to each other. This setup can support up to 15,000 control panels and support for increased multiples of this capacity is as easy as adding more nodes on the virtual server or more physical servers.

3rd Party Integration with ELAS

The ELAS is based on .NET framework and installed on Windows Server OS. An API/SDK can be provided in order to integrate the ELAS with any monitoring station software or CRM software.