



Display5

Versatile Signage

ARCHITECTURE

An Overview of the architecture of the Display5 web based Digital Signage platform.

Web Architecture

Display5 is a web server based solution that provides access for management and content display in a standard browser. Built in PHP (a standard web programming language) and Javascript /Ajax Display5 is an open architecture solution that builds dynamic HTML5 web page content. Web servers have been around for decades and Display5 benefits from the innovations in load balancing, high availability and clustering that form the backbone of many of the high performance web sites on the World Wide Web today. E.g. Amazon, Reddit, ebay and others.

Load Balancing

To create a Display5 solution that can support 10's of thousands of connections or players, there is no major investment or special hardware required. Conventional Apache, SQL and PHP servers can be used in a model where load is shared by multiple servers,

databases are replicated and run on dedicated servers and DNS is used to round-robin connections to each server as they come in. Display5 can run on enterprise grade Linux servers, such as CentOS and RedHat and is in line with many major commercial web site systems on the World Wide Web today.

Display5 can also take advantage of network file storage systems to off load content onto hot swappable, redundant storage systems. With these design methods Display5 can be configured to support very high volume Digital Signage

networks with 10s of thousands of players accessing the server at any given time.

Information Security

In the corporate world, new applications need security certification. This process can take a long time to complete. Display5, being a browser based product inherits the security certification already in place for the corporate standard browser (e.g. IE or Chrome). In addition, Display5 can provide information security through the use of SSL certificates which means that all communications with the server are secure (HTTPS), hence all information flow is encrypted and protected. In addition to this Display5 supports several authentication methods including basic, digest and Active Directory (LDAP). Display5 offer an on-premise version of the product, which can protect information behind the corporate firewall and does not involve any cloud or on line service access.

Deployment Models

Display5 can be installed in a monolithic



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model – that is to say that all services , databases , servers etc., needed to support the digital signage system can be installed in one computer. This can be either a Windows Server (2008, 2012 etc) or a Linux Server (Ubuntu, CentOS, RedHat etc.. Alternatively the services can be installed in several computers to increase the capacity and performance. The PHP and Apache can be installed in one system, database in another and file storage managed in a 3rd system. As discussed in the Load Balancing description above the Display5 server network can be clustered and redundancy built in for various server.

Languages and APIs

For the most part Display5 is a PHP based application, pages are generated dynamically in real time using server side compilation and execution. In several parts of the application Javascript, JSON data format, AJAX web exchanges and JQuery are used where there is a need for performance or functionality in the browser that is not available through PHP, an example would be detecting events on a page and inputs on a page that need to be processed. This model means that much of the processing can be off loaded from the server on to the client relieving strain on the server. In some instances Display5 reaches out the 3rd party SOAP and XML based interfaces and does this via PHP or Javascript based communications, examples would be Google Maps, Twitter and Yahoo weather.

Display5 Provides an Emergency messaging API that offers HTTP GET or PUT command interfaces to drive messages to screens and control emergency message delivery. The main CMS components (slides) are all HTML based content that is played via a PHP play engine. This Play engine can be embedded into any other Web

Applications, making integration with web site platforms (Wordpress etc) very simple.

Platform Monitoring

Built into the Display5 platform is a comprehensive logging system that can record all events that occur within the Display5 platform, shortly the platform will integrate with SNMP monitoring platforms that will allow extensive monitoring through SNMP traps. All system events such as Logins, content changes, show creation, publish and edit events are all recorded in a daily log file. In addition Display5 can record proof of play events for all content items. Players are monitored through the Player Dashboard

in the product and any player failures can be broadcast as an email to a set of platform admin users email addresses. Display5 can be installed behind a redundancy management system such as F5 and can report health information of both the Web Services and SQL database.

Fully Redundant Model

Display5 can be deployed in a fully redundant mode , the web server can be replicated and also the SQL database replicated and synched. With standard web server monitoring systems the health of the server can be monitored and hot swapped in the event of failure , in addition using an additional Network File System for all of the content and media that is added the server , the user shows , videos, images and other rich media can be backed up and replicated in a file store system. Each Apache instance can point to the same file store. Using RSync will ensure that all files or PHP code are fully replicated on all of the cluster servers, this is an industry standard approach. MySQL 5 introduced a special storage engine designed for distributed databases called NDB that provides another option for Database integrity and redundancy.

Display5 is a versatile web based digital signage platform that supports a wide range of player technologies including Win, Android, Linux, and webOS based hardware. System on Chip TV based players are also supported. Modules include Emergency Messaging, Player management, Screen control (power, volume, on/off) Active Directory Integration, Proof of play and advanced logging.

For more information visit:

WWW.DISPLAY5.COM