



It's your network.
It's your media.
It's your audience.

That's our business.

Park Media Technology Overview

Park Media's Enterprise Software Platform allows powerful, centrally managed, and targeted customer communications via digital signage, interactive kiosks and other networked digital media applications. Park Media provides a unique, enterprise-level solution based on technologies that offer scalability, reliability, and flexibility for enterprises who envision deploying large, distributed networks of digital signage and plan continuous improvement of how the organization will leverage this powerful communications tool.

Key Features

Displays are LCD, Plasma, or CRT monitors driven by the Park Media Software Platform, which enables the display of digital media in a variety of standard formats. These include:

- Video (MPEG-1/2, H.264, DivX, Quicktime, WMV)
- Audio (MP3, WAV, AC3, AAC)
- Images (JPG, GIF, PNG, TIFF, BMP)
- Flash 10 (and lower)
- HTML
- Live Video (NTSC, ATSC, Satellite, Cable, IP Streaming)

In addition to the types of digital media described above, Displays can pull live data from the Internet, and Park Media applications are available to display information in various formats such as news, weather, and other data available via RSS and other protocols.

Several digital media assets can be shown simultaneously on a Display, each in a Display Area, which collectively comprise a Layout. A Layout describes how the Display should look. An example is shown in *Fig 1* below. This Layout consists of four Display Areas, one called “Main” (in which perhaps video might be shown), another called “Billboard” (which might contain banner images), and a third called “Ticker” (which might display news or other important information), each residing on a fourth “Background” area.

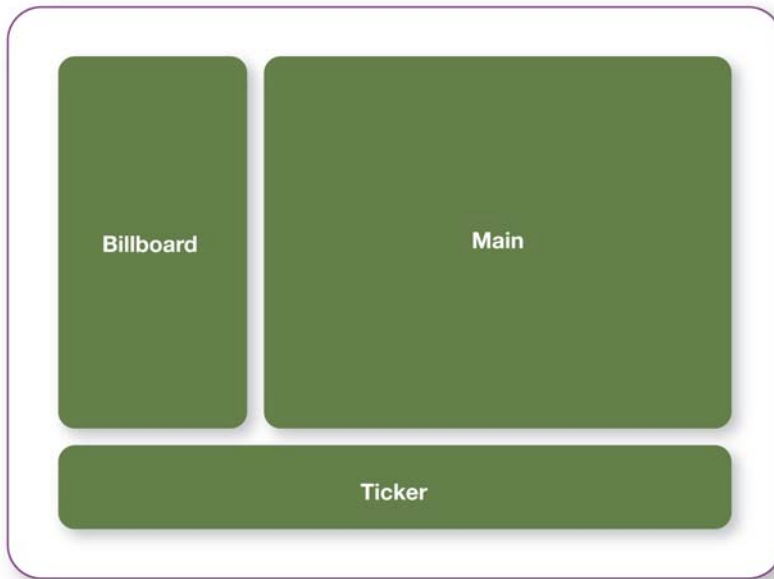


Fig 1: Example Layout

Touch screens, keyboards, printers, RFID scanners, or other interactive devices can be leveraged to allow Displays to become interactive kiosks. Interactive applications can be deployed using Flash, PHP, Web Applications, and other industry standard technologies.

Displays are centrally managed using Park Media’s software, which provides a wide variety of features. Some highlights include:

- Layout and Display Area Configuration
- Asset and Playlist Management
- Time of day scheduling and Calendaring
- Network Management and Alerting
- Reporting

Hardware and Network Architecture

The Park Media Software Platform operates on hardware consisting of two kinds of computing components: the Park Media Server and Park Media Modular Player Units (MPUs, which are connected to Displays). In *Fig 2* below, a simple hardware configuration consisting of a single Server managing two MPUs is shown. Each of these MPUs is in turn driving two Displays (four Displays total).

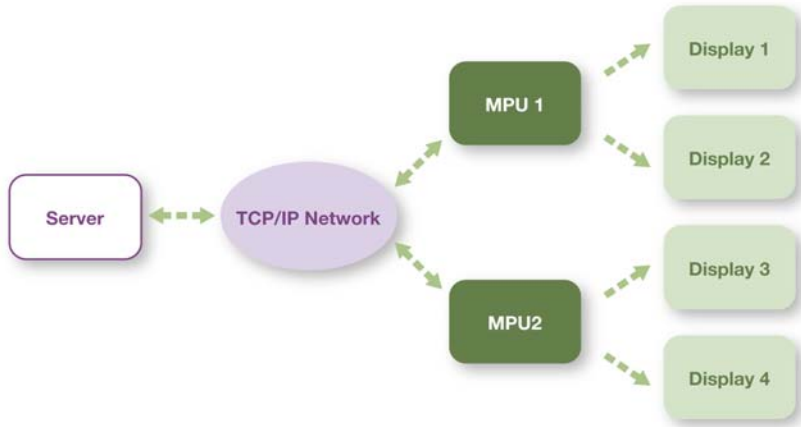


Fig 2: Simple Configuration

In addition to driving Displays, MPUs can be configured as Edge Servers. An Edge Server allows data from the server to be cached in local proximity to a number of MPUs that might need this data. In *Fig 2* below, MPU 1 is acting as an Edge Server so that MPU 2 can retrieve its data from a local area network.

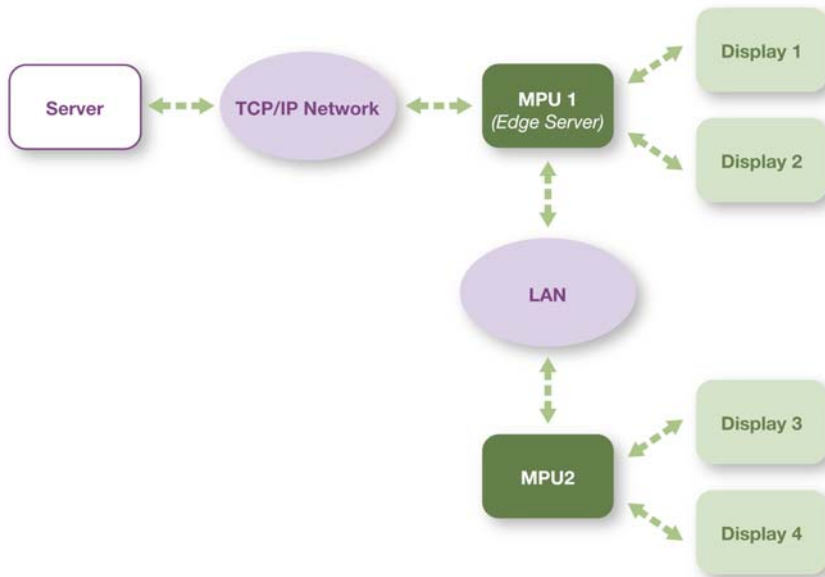


Fig 3: Edge Server Configuration

The most typical network configuration is to use a TCP/IP Network to deliver data from the server to the MPUs and Edge Servers and to receive reporting and diagnostic information back from the MPUs. For very large, distributed networks, multicast can be used to broadcast digital media assets and scheduling information to MPUs, and a lower bandwidth TCP/IP “backchannel” can be used to deliver the reporting and diagnostic information. An example of a multicast network configuration is shown in *Fig 4* below.

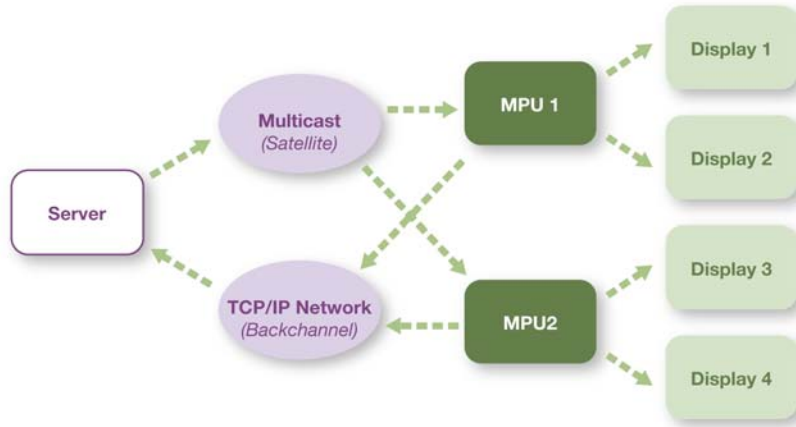


Fig 4: Multicast Configuration

Also for large network configurations, the server is configurable as a cluster. Fig 5 below shows the simple network configuration with a server cluster consisting of two database servers (Oracle), two application servers (JBoss), and shared NAS or SAN storage.

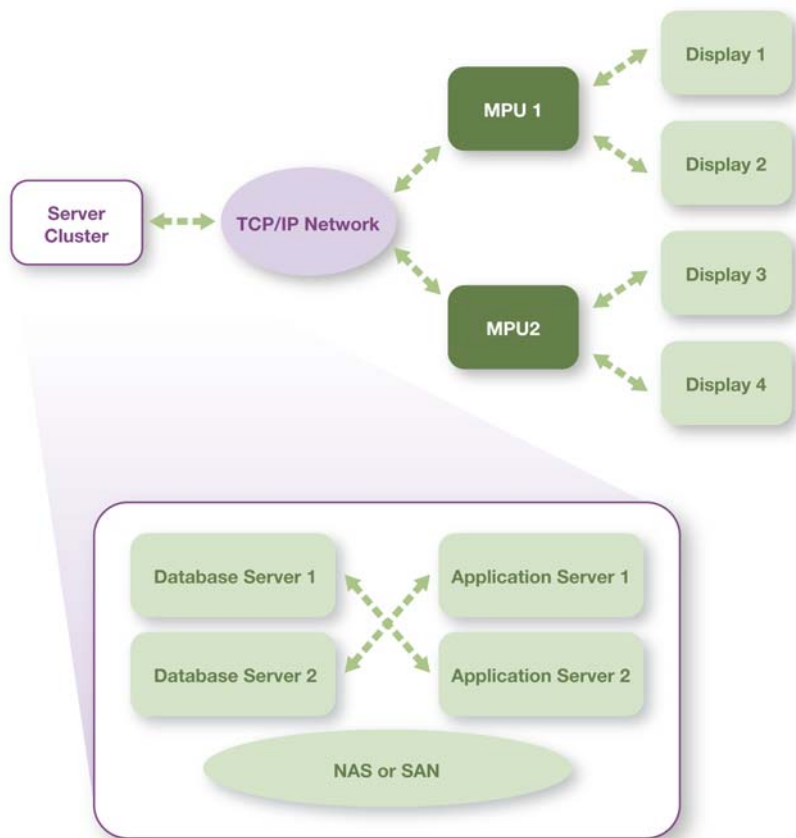


Fig 5: Clustered Server

Software Architecture

The Park Media Software Platform consists of four principal software components, two of which run on the Server, and two of which run on the MPUs. These software components are shown in *Fig 6* below and include:

- **Content Manager:** This is the user interface for the Communications Platform. It provides access to management of Assets, MPUs, Playlists, Scheduling, Reporting, and more.
- **Dispatcher Server:** This component is responsible for communicating with the MPUs. It performs scheduling of content, sends commands to devices (via push or pull), distributes assets, receives reporting and diagnostic information from the MPUs, and monitors the status of the server and the MPUs.
- **Dispatcher Client:** This component is the software on the MPU responsible for communicating with the Server.
- **Player:** This is the software that renders digital media onto the Displays according to the schedules provided by the Server.

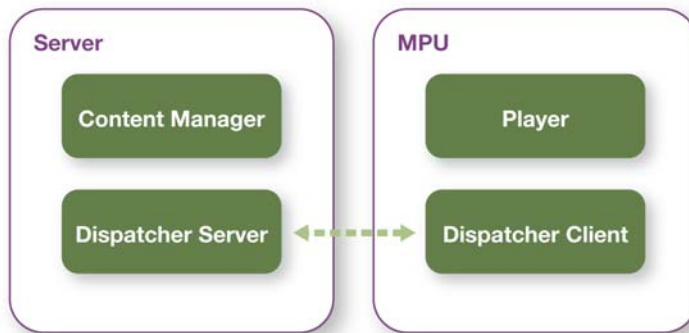


Fig 6: Principal Software Components

Park Media's Software Platform is built on open, enterprise technologies and standards that enable its underlying scalability, reliability, and flexibility. These technologies include Linux at an operating system level, Oracle, MySQL, and Hibernate at a database level, and Java, JBoss, Apache, and AXIS at an application level.

Because of its modular design based on these industry standard technologies, Park Media's software can be integrated and extended at a number of levels:

- Web Services used by the Communication Platform (e.g. Create/Modify Asset) can be accessed and called, and additional Web Services can be implemented by third parties
- The Java API can be extended by third parties to implement custom code
- The relational databases on both the Server and MPU can be queried and extended. By modifying the object relational map and the Java API, new kinds of objects can be created by third parties (for example, custom types of Assets).
- Assets written in Flash, Java, or PHP and deployed on the MPUs can leverage the operating system, relational database, web server, and application server residing on the MPU to deploy sophisticated, intelligent programs that respond to their environments and integrate with third party applications.

The Server and MPU application stacks are presented below in *Fig 7* and *Fig 8*, respectively.

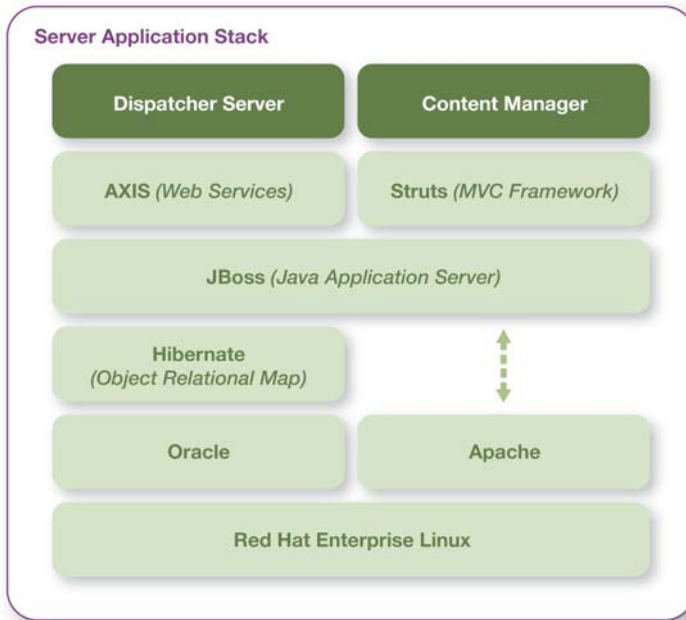


Fig 7: Server Application Stack

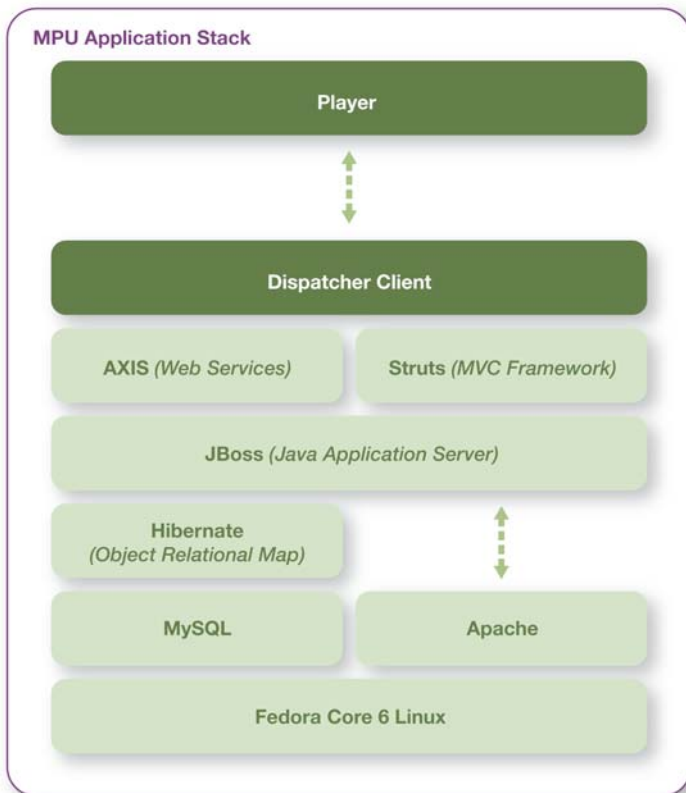


Fig 8: MPU Application Stack

Conclusion

Park Media's Software Platform is a powerful tool for organizations to reach customers with networked digital media applications. Its architecture—based on industry standard enterprise technologies—provides a scalable, reliable, and flexible platform that can adapt and grow with the changing needs and requirements of an organization.

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