



Media Display

From

Digital signage
system supplied by

The logo for n2 communications, featuring a stylized "n2" in blue and yellow, with a vertical line and a dot above the "n" and a horizontal line with a dot below the "2". The word "communications" is written in a smaller font below the "n2".

www.n2.co.nz

The World's most affordable Dynamic Digital Signage System

Typical Displays

Tourism Operator



Landscape Mode Plasma Display in Tourist Information Centre. Top Window Scrolling Showing Regional Attractions. Centre Window Tourism Videos. Bottom Window Scrolling Advertising Accommodation and Activities

Supermarket



The example shows Wallflower in use as a Second Screen on a POS terminal. The top Window scrolls reinforcing Store Branding. The Middle Window displays promotions and Bottom Window scrolls showing generic promotions. Screen interacts with POS to show Customer Loyalty Information and promotions tempting customer to purchase additional products at checkout. Wallflower also prints coupons when promoted products are scanned.

Hairdressing Salon

A Plasma display in Portrait mode in a Salon entrance



Convenience Store

Wallflower installed at a 'KeyStore' outlet in Ayr Scotland



Real Estate Agent



Portrait Mode Plasma Display in Shop Window. Top Window Scrolling. Centre Window Featured Property and Video Walkthrough

Shopping Mall



Portrait Mode 42" Plasma Display in use in Shopping Mall. Featured Tenants are promoted with Top Window Branding Mall and Tenant. Centre Window displaying Tenants' promotions. Bottom Window scrolling showing Tenant's Special Offers.

Travel Agents Window and Counter displays show Videos of destinations and special Offers.

Shopping Malls Install second screens on retail outlet POS workstations or 'Wallflower' Display Units. Manage them centrally from the Management Office or large outlets can manage their own.

Retail Outlets Install a second screen on POS workstations to provide customer promotional material. Install free-standing 'Wallflower' Display Units in shop windows or mount on walls. Ask us for details of this innovative unit.

For multiple counters inbuilt 'Queue Management' advise customers of free counters with no changes to existing POS systems!

Tourist Accommodation Install a second screen on the front of house workstations to show guests details of local attractions or activities. Install free-standing 'Wallflower' Display Units in the Lobby or mount on walls. Ask us for details of this innovative unit.

Wallflower Features

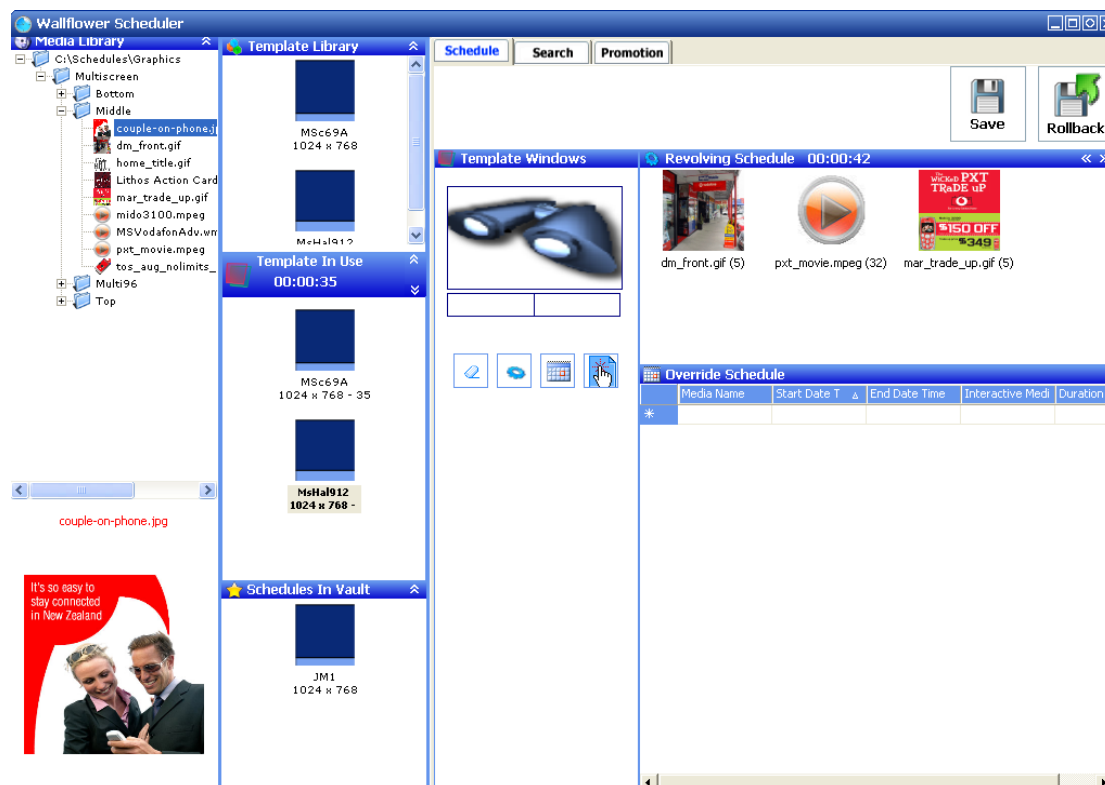
- Runs on any hardware supporting the MS .NET Framework
- Drives CRT, LCD and Plasma displays
- Stores display media on central server or locally at the display
- Can support up to 10 screens per display unit
- Can display unlimited 'Windows' of information
- Displays can run free-standing with no network connection
- Displays can be networked via Internet, WAN or LAN
- Can operate a second screen on a POS terminal to provide Customer promotional Information
- Network bandwidth use is optimised. Considerably less than 'Streaming' solutions
- Display is optimised to run on low-cost entry level hardware and does not require high specification display cards
- Very cost-effective software and hardware deployment costs
- Inbuilt 'Queue Management' functionality for multiple counter positions with no changes to existing POS.
- Almost any format of media may be displayed from static images through videos to live TV or internet feeds

The Wallflower Scheduler... Uniquely Simple... Simply Unique!


Scheduler Features


- Can be run at a Datacentre, Display Location or on stand-alone Display unit
- Display Locations can be grouped by Organisation, Geographic Location down to individual display unit. Separate schedules can be built for each group and cloned. A Shopping Mall could be a group and all displays in that Mall display the same media. Individual stores, however, could have their own material inserted
- Schedules can be updated at any time
- Ergonomically designed GUI allows a unique view of Schedules using point and click entry.
- Simple identification of 'free-slots' and media conflicts
- Bulk cloning and mass update of changed media
- The easiest ever scheduler to use!

The Wallflower Scheduler Screen In Action



The Display can show unlimited Windows

 A typical display ...



The image shows a digital display with three distinct sections. The top section is a red banner with white text: 'WELCOME TO [unclear] ... LOWEST PRICES EVER'. The middle section features a large image of a birthday cake on the left and bold text on the right: 'All Birthday Cakes 50% Discount This Week Only'. The bottom section is a white banner with several logos: Skittles, T (Toll-free), Eta, and The Coolest Crisp.

Optional Top Band Scrolls series of Images

Centre Band displays full-motion Video or series of still images

Optional Bottom Band scrolls series of images

Windows can contain images in almost any format, Flash, PowerPoint, Live TV, CCTV, Internet Feeds, Graphic images etc.

Full motion Video is supported in any format compatible with Microsoft Media Player.

The Window could include a live news feed for example. In a shopping mall this could be a lottery or competition result.

High impact can be achieved by switching to a full screen mode from time to time.

As schedules are dynamic the display can be changed completely throughout the day in response to promotional activity, weather reports etc.

In retail stores the 'Queue Management' facility allows counter staff to trigger 'Next Customer' messages and for other counters to advise customers of a free counter position.

Background to Wallflower

We are often asked for product comparisons between Wallflower and other Dynamic Digital Signage (DDS) products. These are difficult to provide as in many respects Wallflower is a unique concept.

For this reason it is more useful to provide some background to the development philosophy adopted when the product was conceived.

The History of DDS

DDS systems have been available for a number of years. Basically as soon as VDU technology became available various companies developed products to display messages and advertising media using stand alone or networked displays. With advances in the shape of larger screens, in association with the development of new technologies such as Digital media and the Internet, the whole market expanded.

There have emerged a number of key players in the segment these include Scala, Infoscapes, Panel director, Fred and C-nario.

These providers have now a large installed base in a wide variety of applications.

When Wallflower was conceived, the market and available products were studied in detail to develop a model embracing the best of the current approaches and to improve on perceived shortcomings.

The majority of current products were developed initially a few years ago. At the time hardware was comparatively expensive and off the shelf software to drive displays and show content was very limited. For this reason developers were forced to develop their own proprietary software to manage and drive displays as well as deliver content.

By the time Wallflower was conceived the Microsoft development platform, operating systems and associated third party software drivers were able to deliver a non proprietary solution. There are several advantages to using this approach:

Avoiding the 're-inventing' the wheel syndrome.

Each developer of the software elements are specialists in that particular area. This should result in an element that delivers optimum performance.

The Wallflower developers were free to concentrate on designing the media management and scheduling side of the system.

As new technologies arise, the Wallflower developers do not have to continually produce new Codecs or display drivers as these are obtained from third-party developers.

There are always two elements to any DDS solution from a software point of view. Firstly a mechanism to acquire and schedule what is to be displayed and secondly a mechanism to display the final results.

There are various ways in which the solution can be provided. Generally the existing products conformed to one of several models:

- Stand-alone solutions with all media stored within the display and no connection to other devices.
- Networked solutions with content being delivered to dumb displays directly driven by display controllers receiving data from centralised servers. The content being delivered by various full-time connections ranging from satellite links to LANs or the Internet.
- Hybrid variations of last example allowing for a 'store and forward' model with some content being stored within intelligent displays.

The actual display mechanism fell into two camps:

- Proprietary formats whereby displays showed content specially formatted from the original by the scheduling software.
- Streaming formats primarily as HTML based Web pages.

Most of the existing products have a strong emphasis on displaying media of high quality for promotional purposes and provide some feedback to management primarily operational information such as display status and history of display 'spots'.

The Wallflower Approach

Taking all of the above into account the Wallflower designers laid down a number of basic principles and objectives for the design. These were:

As hardware costs had plummeted Wallflower must be able to embrace all existing display technologies and those envisaged including:

- TV, LCD, CRT, Projectors, and Plasma.
- All configurations to be handled ranging from single screen displays up to multi-panel 'Videowalls'.
- Each display must be able to continue to operate free-standing if not connected to a network.
- The scheduling must be very user friendly with media management and scheduling performed as Windows drag and drop where possible.
- Scheduling must be able to be both a looping 'Filmstrip' style and time-based to show media at a particular time.
- The format of displays to be completely flexible and able to be changed within a session.
- The demand on networking to be as light as possible.

Optionally the delivery mechanism to be either streaming or fixed or a combination of both.

All functionality available from existing products must be supported.

All formats of content able to be displayed on a Windows based system to be supported.

Displays must operate as 'light loads' on a workstation so they can co-exist with other software such as Point of Sale to allow for customer-facing displays. This is to provide not only promotional media display but also interaction with software such as POS to display information including Customer Loyalty and promoted products.

Displays must include Touch screen or other pointing device input to allow viewer interaction.

Displays must be able to drive Windows printers to provide output such as coupons or brochures in response to Touch screen input or to triggers from a POS or other mechanism.

How Wallflower Achieves This

Wallflower meets all the objectives and design criteria from the above.

The outline design is:

- The development environment is the Microsoft .NET framework. This option satisfies all requirements being both at the leading-edge of technology and providing the widest possible libraries of pre-built software components.
- A database is used to store schedules. The Microsoft MSDE SQL Server database was chosen as it can be supplied at no cost and is compatible with and can be upgraded to a full MS SQL Server.
- Media for display and associated schedules are stored locally at the display point or optionally centrally on a server.
- Communication between displays and schedulers is either full-time for streaming applications or on demand to lighten network traffic.

Delivery mechanisms provided for are:

- LAN, WAN, VPN or Internet.
- Internet connections may be full-time or on demand. On demand may use the Synergetix Portable Replicator (Copyright). This allows for a mobile Wallflower installation for travellers, or at Trade Shows that have a temporary dial-up or Internet connection, with no need to establish a Virtual Private Network.
- A template approach has been adopted allowing any combination of content to be displayed in any position on a display. Templates are optionally time-orientated to allow changes of format on the fly.

Two schedules may be used in conjunction with each other:

- A Master Schedule is film-strip mode and provides a constantly revolving set of media.
- An Override Schedule is time-orientated and forces selected media to be displayed at a chosen time.

A hierarchical approach has been adopted that can be considered in terms of a retail organisation that may have a Region, Branch within Region and Department within Branch.

Schedules may be maintained at a Head Office or at any level in the hierarchy.

A flexible naming convention allows each level to be given its own name and each display to be known by name. This simplifies management by allowing the use of meaningful names.

Schedules may be set up to operate at any level and may be copied and pasted from level to level.

Thus a supermarket chain may set up a Master Schedule for all Bakery Departments and then an Override one for particular Branches.

Similarly they may set up separate Master Schedules for each Department within a Branch.

A Touch screen may be used as a display and Wallflower allows for customer interaction to trigger changes in templates or media. For example showing details of a house selected by a prospective customer at a Real Estate Agent window.

Wallflower automatically only sends changed information to displays reducing network demands.

Wallflower detects the display in use and configures output for optimum results using a library of known displays that is constantly updated or may be configured by user or supplier technicians.

Wallflower can control displays on-off status and monitor key status information such as bulb-life, if available. Personnel can be alerted by Email or automated phone message.

Wallflower stores a comprehensive history not only of displays but also of media. This is stored both at a display and may be sent to a central server.

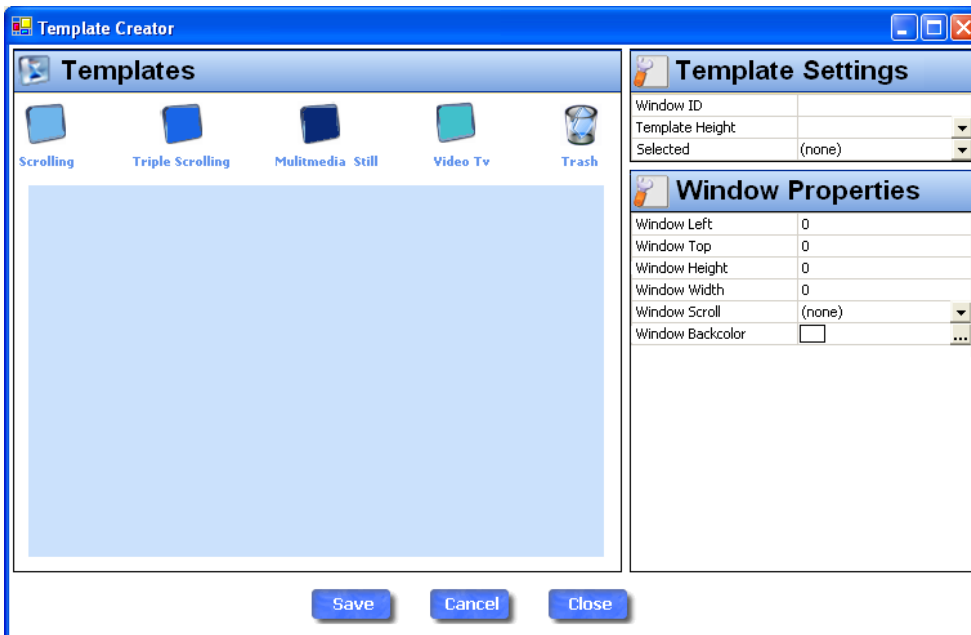
The history allows promotion effectiveness to be analysed by mapping to sales analysis.

Wallflower includes a number of features making it unique:

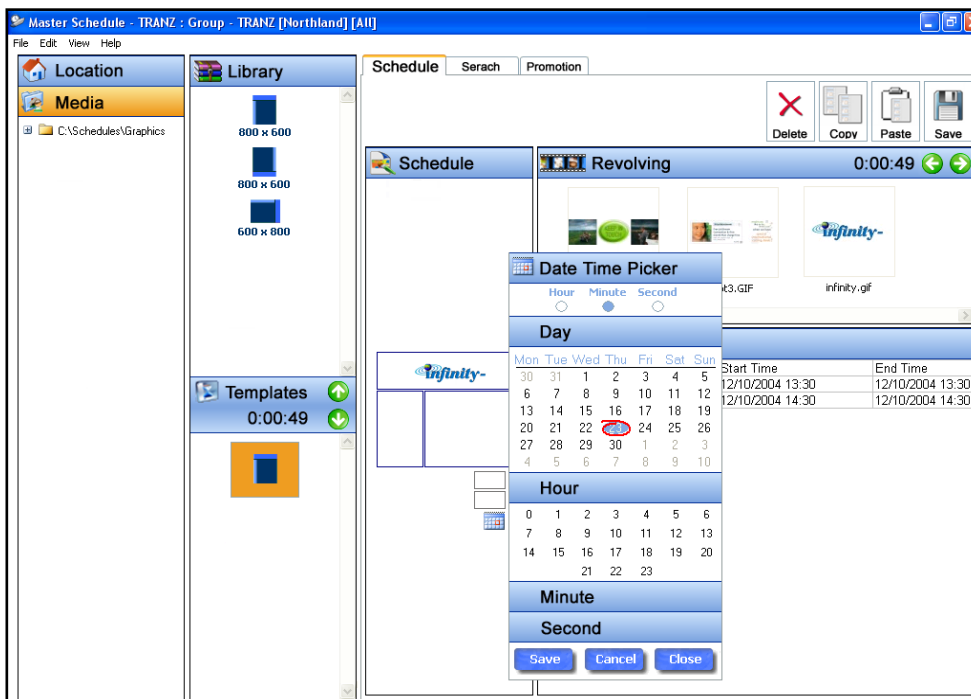
- The Wallflower Scheduler provides a complete solution. No need to use separate products to create Web pages or other template style.

- If users wish to employ Web or other templates, created externally by other applications, they may do so.
- Laying out of templates and media management uses a drag and drop GUI.
- Schedules are intuitive and use simple drag and drop or calendar approaches.
- May be used as a customer facing screen at a POS to display promotion and other information.
- In-built Queue Management functionality may be used for multiple counter retail installations.
- Interaction with POS systems is provided for to allow Wallflower to override the current display and show a Splash or other screen reacting to a customer purchase or other trigger.
- Printing of Coupons or other information such as Sales Brochures can be triggered by POS action, customer interaction via touch screen or other devices.
- Not only may displays use a Streaming approach they may also store and display their own media or a combination of both.
- Displays can function independently if they become disconnected from their Scheduling server.

The Template Creator



Film Strip Scheduler with Popped-up Date Time Override



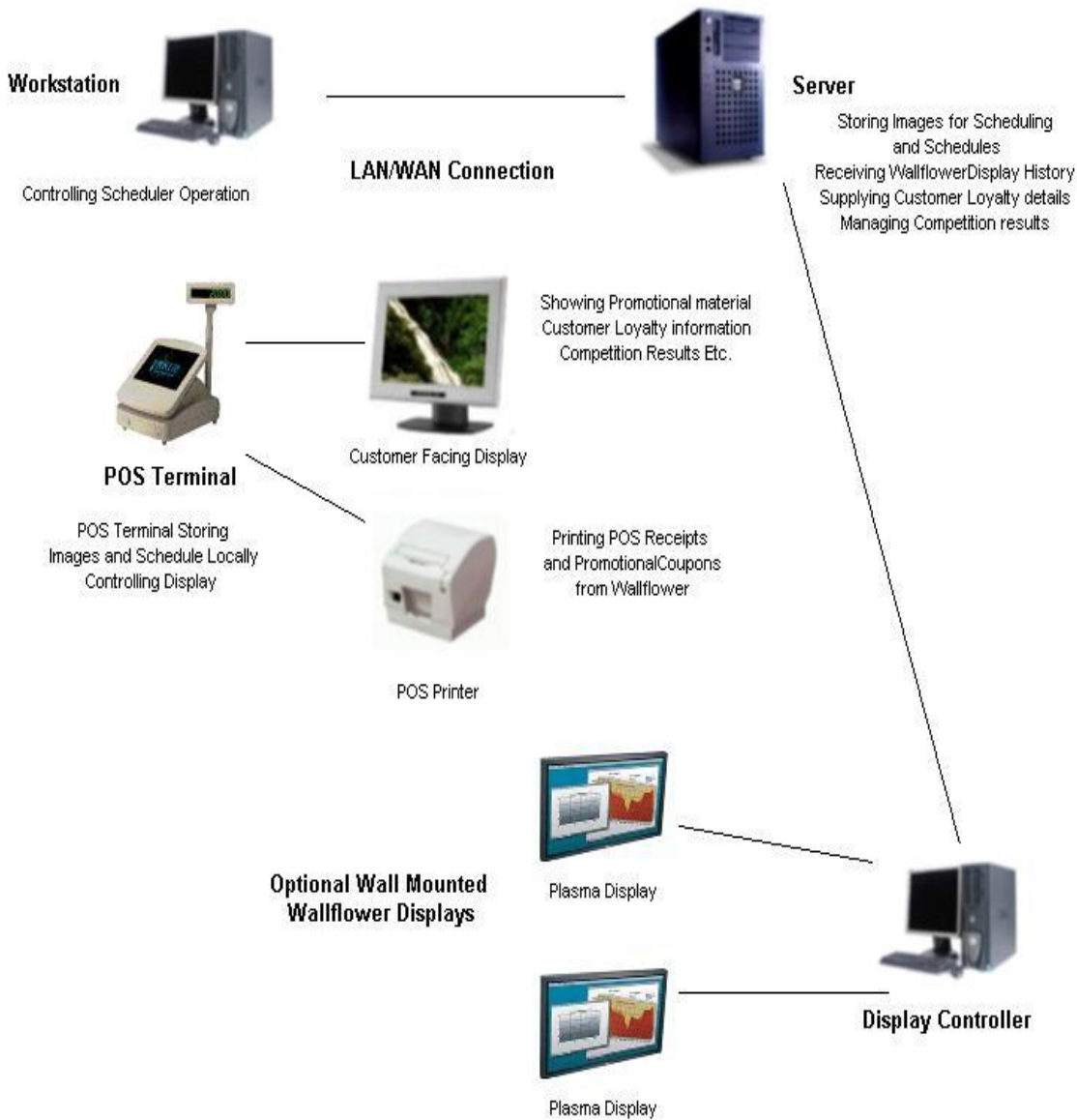


Sample Topologies

Wallflower for Retailers



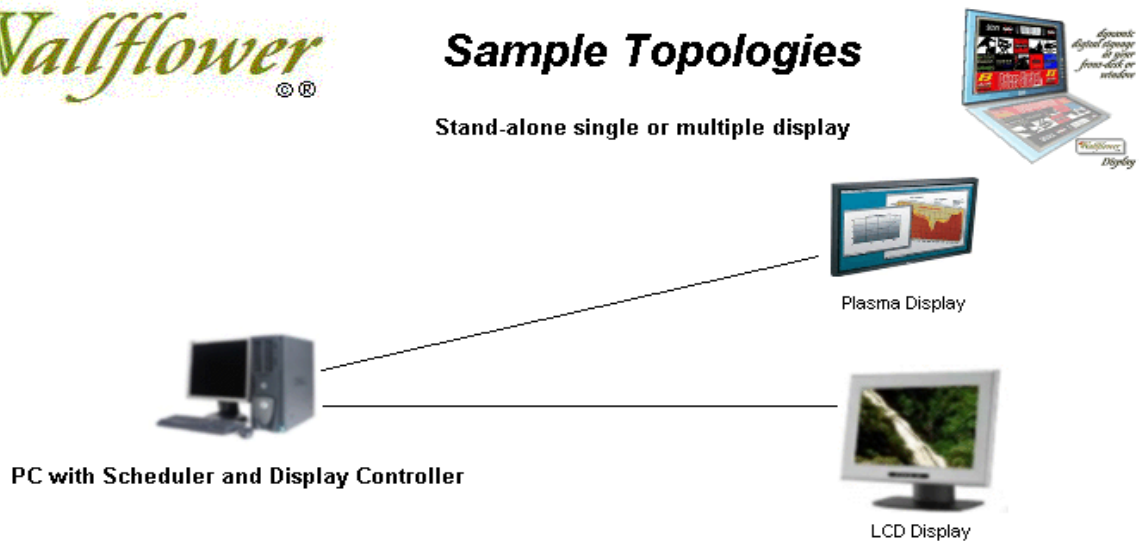
Networked installation with single or multiple POS terminals and displays



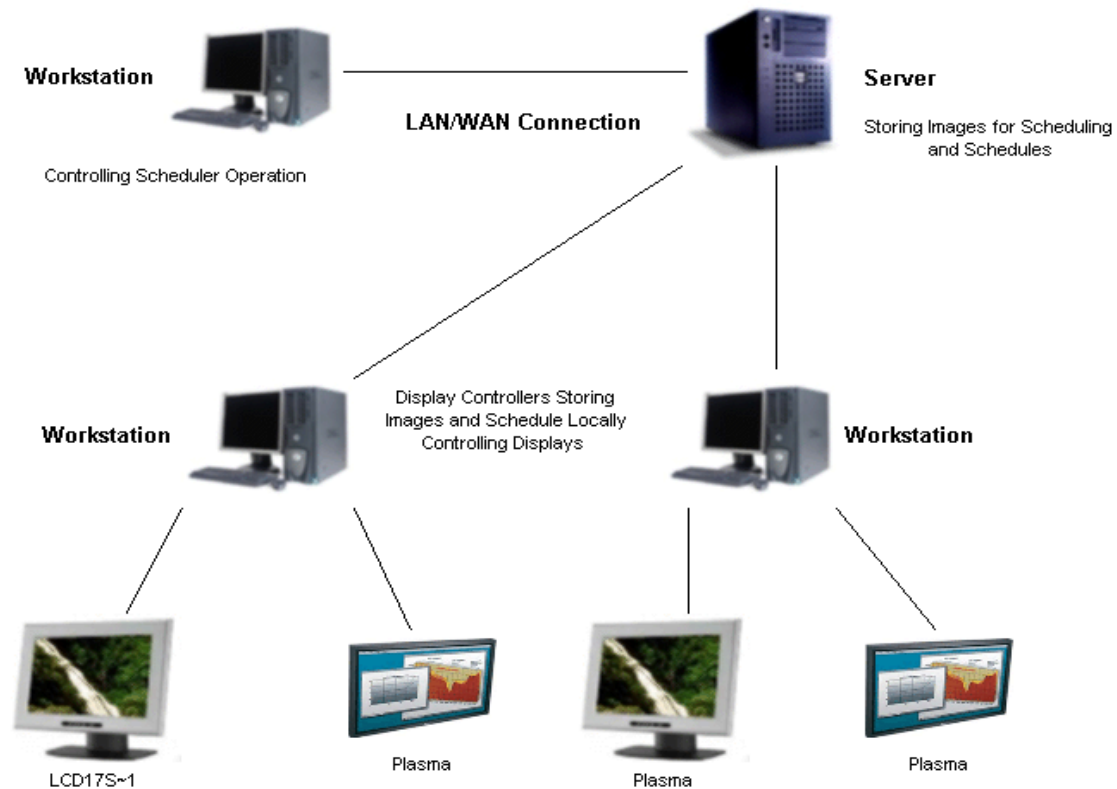


Sample Topologies

Stand-alone single or multiple display



Networked installation with single or multiple displays



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