

INVENTION DISCLOSURE

1. **Invention Title.**

HTML5 Remote Window Manager

2. **Invention Summary.**

Consumer devices, such as televisions, are providing functionality through Remote User Interfaces (RUI) displayed within an HTML5 web browser. This approach can be extended to provide the device with a Remote Window Manager (RWM), allowing the user to simultaneously interact with multiple RUIs.

The Remote Window Manager would be loaded into the browser first, and would load the other Remote User Interfaces into <iframe> elements that it controls. The Remote Window Manager would access the underlying device capabilities through a local server, or through platform extensions directly implemented by the browser.

3. **Invention Description.**

Many consumer devices, such as televisions, are moving away from natively installed applications and are using HTML5-Based Remote User Interfaces (RUI) instead. These interfaces are delivered as a web page and allow the user to use the associated device/service.

The advantage of this approach, for the user, is that they don't have to install or upgrade an application to use the device/service. The user simply navigates to the associated web page, and interacts with that page in the same way they would with an installed application.

The advantage for the provider of the device/service is that they don't have to support an installed application base, and can upgrade the application by updating the associated website.

The disadvantage of this approach is that it describes a single application model, where you work with one application at a time, and switch between applications by navigating to a new page, or switching to another browser tab/window.

While a RUI can provide window-manager-like functionality they cannot provide access to underlying device-specific capabilities that have to be protected do to security concerns. This also opens the possibility of having window-manager-like RUIs displaying nested window-manager-like RUIs.

This invention provides a Remote Window Manager (RWM) that a device uses to:

- Provide access to device-specific functionality and configuration
- Display "apps" that are loaded onto the device
- Display other RUIs in a safe fashion, and allowing multiple RUIs to be active at a time
- Control the size and location of individual RUIs

Protected access to the underlying device is accomplished through extending the internal browser functionality, or through a lightweight server bundled with the device. Access can be restricted through signed certificates or referral addresses.

The RWM can include applications in a similar fashion to the apps on phones. These applications

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can be saved on the device through the device's server, or through another mechanism custom built into the browser.

Displaying RUIs is accomplished using <iframe> elements. HTML5 includes "sandbox" capabilities for these elements that ensure the loaded RUIs can't take over the RWM's browser session. Sandboxing can also be adjusted for different RUIs, as appropriate, to protect the user from untrusted content.

Each RUI's <iframe> element can be relocated and resized, as desired, through DOM manipulation. Other desktop paradigms, such as icons, can be simulated in the same way.

RWMs provide the following advantages for the device makers:

- A device's RWM is loaded from a remote server, and is easily updated and maintained
- Selling applications for the particular device opens up a new revenue stream for the device maker. Given the small margins in most consumer devices this can be very important
- Customers with special requirements can be given a specialized RWM instead of having one window manager that has to accommodate everyone
- The presence of a RWM opens the door for advanced advertising services that require multiple windows

RWMs provide the following advantages for device customers:

- Their device can be kept up-to-date without having to go through product updates
- If multiple RWMs are available they can choose the one they like the best

Briefly outline the potential commercial value and customers of the invention.

The customer for this invention would be device makers that are providing RUI functionality.

I don't have any estimates for what license fees could be for a product like this, but think the defensive value for the Cable industry would be quite high. It would be very good for the industry to be able to ensure that a video display device wouldn't be able to do unacceptable things with the video content.

4. How is this invention different from existing products, processes, systems?

Many devices don't provide a window manager, even when one would be useful.

Embedded window managers are costly to develop and maintain compared to a comparable web page.

A conventional web browser cannot provide a complete window manager without specialized platform support.