

## Leverage Cisco BBSM Connect Screen and Walled Garden to Differentiate Service Offerings and Increase

**Cisco's Building Broadband Service Manager (BBSM) offers many capabilities that enable property owners or service providers to offer differentiated, user-friendly and profitable content at the beginning of every user session. This document highlights the functionality enabled by BBSM's connect screen and walled garden and provides an overview on how to take advantage of these powerful features.**

### Connect Screen

The BBSM connect screen is a powerful tool for defining and offering targeted Internet access sessions over in-building or public space networks. The connect screen is a forced portal that users are directed to at the beginning of every session. It uses Microsoft Active Server Page (ASP) technology to define the look-and-feel, pricing, billing approach, authentication requirements, bandwidth options, range of service levels and free access areas (known as the walled garden) based on the policy defined for a specific port.

In its simplest form, the BBSM Connect Screen offers the service to the end-user. The page usually includes information such as the available service(s) and pricing, as well as the specific authentication requirements for that location – RADIUS, credit card, hotel room charge or access code. The connect screen is created using one of the standard page sets provided with BBSM. A standard page can be customized and modified by using various .gif images to reflect the brand image of the property or chain.

### The Walled Garden

In addition, serving as an AAA (Authentication, Authorization, Accounting) server for fee-based access, BBSM allows the service operator/building management to define various free access links to specific web sites. This functionality, known as the walled garden, offers end users complimentary access to sites that will help service providers or owners/managers distinguish their offering, increase revenue, and reduce costs.

The type of sites that would be included in a walled garden varies based on the location-type. The following chart provides examples of the different types of walled garden links that may be offered:



Vertical Market	Typical Walled Garden Links
<b>Retail</b>	<ul style="list-style-type: none"><li>• E-Commerce</li><li>• Advertising</li><li>• Product Catalogs</li></ul>
<b>Healthcare</b>	<ul style="list-style-type: none"><li>• Patient Education Materials</li><li>• Hospital Directory</li><li>• Patient Services Outline and Links</li></ul>
<b>Hospitality</b>	<ul style="list-style-type: none"><li>• Local weather and attractions</li><li>• Online concierge services</li><li>• Online room service</li><li>• Hotel chain corporate or loyalty program portal</li></ul>
<b>Enterprise</b>	<ul style="list-style-type: none"><li>• Links to Campus Directory</li><li>• Links to business-oriented web pages</li></ul>

In each case, the walled garden offers the end-user valuable services and generates incremental revenue while reducing costs for the operator. In addition, the walled garden can be targeted using BBSM's location-based policies to present different links to users in different physical locations, such as a particular mall, or the club/premier floor of a hotel.

#### E-commerce Integration

In addition to linking to external web sites in the walled garden, BBSM acts as a local web server and hosts internal web-sites that can be developed to sell or manage additional end-user services. Because BBSM includes the Microsoft Win2K IIS web server, operators can develop custom Microsoft Active Server Pages using J-script or VB-script. For example, a resort hotel can create a page on the BBSM server for selling hotel branded products or services (t-shirts, golf balls/golf lessons from the resort pro, spa treatments). To create an internal e-commerce web-site, the service provider accesses BBSM's Web Config tool and configures the site for an additional "PMS Billing Type," so detailed charges can be posted directly to the PMS (property management system) and be properly identified as "Logo Wear" or "Lessons" as appropriate.

The custom connect screen leads the customer through the buying experience. When a transaction is executed the ASP logic in the connect screen posts a transaction to the PMS with the appropriate description and price. BBSM then executes web scripts to send notification (through email and/or to a printer) to the merchandiser, golf pro shop or spa reception. Much of this functionality can be created using standard off-the-shelf web technology available for the Windows 2000 server and IIS. However, BBSM provides the billing COM objects to enable posting charges to the hotel PMS. BBSM offers the same functionality for credit card or other billing methods.



### Private Server for Group File Sharing

There are applications where a subset of the end-users require shared access to online files. For example, a company sends representatives to a trade conference held at a Convention Center. While representing the company at the conference, the employees need on-line access to product documents and standard contract materials. For this scenario, the walled garden can be used to enable restricted access to a private server loaded with the specified documents. Only the hotel guests who are employees of the company would have access to the documents on the server. The private server feature is enabled by placing a server in a secure location on the network and including it in the walled garden, but not listing that link on the connect screen. By providing the address directly to the group members, they can simply type it into the URL line of the connect screen and gain access. The critical issue in this case is security. There are four steps that must be in place to ensure key security requirements are met:

- **Internal network security** – The server must be located where it cannot be detected by other users on the internal network. This is accomplished by putting it in the BBSM server's external subnet, between the BBSM server and the router. Authorized users on the internal network will enter the specific IP address to access the server, but other users will only be able to see the BBSM and the router.
- **External network security** – The private server must be protected from users outside of the property. By using a private IP address for the server, no one outside of the router will be able to see the server, even if they know the private IP address.
- **Physical security** – The private server must be located in a secure location where it cannot be stolen or otherwise accessed. This is a property owner/manager requirement and must be validated before offering a private server deployment.
- **Server security** – Use the web server to implement the corporate web pages in a secure manner by using a basic username/password scheme to protect the information. A local directory of users can be implemented in the web server and passed out to the corporate users in the hotel.

These security measures are very straightforward to put in place, and enable a potentially lucrative new service to meet the needs of large corporate groups.

### Structured Development to Enable Easy Updates

When BBSM is used to deploy a large number locations (for example, a chain of hotels or retail locations), a number of implementation decisions need to be made which greatly affect the ability to manage and maintain the content on the initial BBSM connect pages. For example, the web development group can create individual and localized connect screens for each hotel using BBSM. For a chain of 200 hotels, this could take a web developer approximately two hours per page, creating a total of 400 hours of web development work. If the 200 connect screens required a global change after initial deployment, changing, testing, and downloading the web page could take up to another 25 days of web development (one hour x 200 hotel pages).

Fortunately, there is a more efficient way to deploy content to multiple sites. Using BBSM, a web-developer can create one template for all 200 hotels providing each location with a consistent marketing look-and-feel. This template can import image and text files from the local BBSM servers to personalize the user session experience at the property level while maintaining the overall brand image. Using the Cisco Building Broadband Service Director (BBSD), connect screen



changes can be made remotely by pushing a new template to each of the BBSM servers at the 200 hotels. This approach enables global marketing look-and-feel changes while retaining personalized local images and text.

A similar approach can be used to manage connect screen advertising. By defining advertising spaces on the connect screen template and then pointing to a central server to download the actual advertisements, a single change to the central server can update or refresh advertisements at all the BBSM sites. Additional logic can be applied at the central server to send different advertisements to different properties.

By using a centralized approach to web development and maintaining an identical BBSM connect screen for each site, content changes can be implemented easily and quickly.

#### Updating and Changing the Connect Screen

With the assistance of the BBSM Software Developer's Kit (SDK), changes to portions of the connect screen and services offered are as simple as changing text. To update a screen, a developer would use Notepad (Notepad is a standard Windows application and is provided with the SDK) to open the desired page, input the changes and save the work.

Below is a sample of a connect screen opened with Notepad. This connect screen provides a hotel's service offerings by presenting the various types of Internet connection packages. Each package is defined by the cost and speed of the connection. To delete a package or make a change to a package price or speed, a developer simply scrolls to the appropriate array and makes the change. To add a package, the developer creates a new array by inputting the package, price and speed information. Refer to the BBSM SDK documentation for complete instructions.

```
var PackagePriceArray = new Array
    (9.95, // package 1, 9.95
     7.95, // package 2, 7.95
     5.95, // package 3, 5.95
     3.95, // package 4, 3.95
     1.95 // package 5, 1.95);

var PackageKbpsArray = new Array
    ( 0, // package 1, full speed
     512, // package 2, 512 Kbits/sec
     256, // package 3, 256 Kbits/sec
     128, // package 4, 128 Kbits/sec
     64 // package 5, 64 Kbits/sec)
```

BBSM's Connect Screen and Walled Garden provide a powerful platform for targeting and enhancing the user session experience. These unique features help you differentiate your services to attract more usage and generate incremental revenue streams, as well as helping service providers and building owners/managers realize the full potential of their network investment.

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