

SmallCasting Scheduled Programs

This chapter provides information about using SmallCast, and includes a SmallCast example and bandwidth consideration information.

Using SmallCast

The SmallCast capability is designed for intranet and Internet environments in which one or more of the routers is not multicast-enabled. SmallCasting allows a multimedia session to be forwarded across one or more nonmulticast-enabled routers (or across the Internet) as a unicast transmission, then multicast to viewers on the remote network segment.

The unicast transmission uses the UDP port number that was defined for the original program, so if the sending server and the receiving server are separated by a firewall, the program must be defined using a UDP port number that the firewall is configured to allow.

SmallCast Example

With SmallCasting, you can instruct an IP/TV Server to send an IP/TV program to another server using the second server's unicast address. The second server then multicasts the program using the multicast addresses specified in the Content Manager for the original program. See Figure 1-7 in the "Combining Unicast and Multicast Traffic" section in the "Introduction" chapter. This figure shows an example of this scenario. In the example, the nonMulticast-enabled router(s) might in fact be on the Internet. Also, refer to the "Examples" chapter in the *IP/TV Content Manager User Guide* for more examples of SmallCasting.

Many options are possible in this scenario. Server A can simultaneously multicast the program, as well as unicasting it. You could define a program instructing Server B to record the incoming unicast program in a disk file at the same time it is being multicast.

The Content Manager determines whether to use the SmallCast capability based on information in two places:

- When you define an IP/TV server, you may enter the unicast addresses of up to seven servers to which this server can send SmallCast programs.
- When you define a program, you can enable or disable SmallCast for this program. SmallCast is disabled by default. If you enable SmallCast, this program will automatically be sent to all of the SmallCast destinations set up on the IP/TV Server that is the source server for this program.

Bandwidth Considerations

It is important to note that each single unicast session takes up as much network bandwidth as a multicast of the same session. Thus, for example, if the multicast session consumes 1.15 Mbps (typical for MPEG video), and the session is also sent to seven unicast destinations, your network will be flooded with 9.2 Mbps of data streams. On a typical 10BaseT Ethernet network, this could result in severe disruption of network traffic.

In order to prevent unnecessary (or extraordinary) loads on your network, consider the following:

- When setting up an IP/TV server with a list of unicast addresses, make sure to list only those servers that are on the other side of a nonmulticast-capable router (or the Internet) from this server.
- Before enabling SmallCast for a program, make sure that you really want to send the program to all of the SmallCast destinations defined on the source server. You cannot set the program to unicast to only part of the source server's SmallCast list; the program is automatically unicast to all servers in the list.

If the sending IP/TV Server unicasts a program to a remote IP/TV Server that for some reason is not able to receive the transmission (for example, if the remote machine is down or not running IP/TV Server), that unicast transmission terminates as soon as the sending server discovers that the remote server is not listening. This action prevents "receiver not responding" error messages from flooding the network path from the intended receiver back to the sender. (Simultaneous unicasts to other servers continue normally.)