SmartSpace

SmartSpace Using Unicast

Cluster Setup Guide

For version 3.2

Ubisense Limited, St Andrew's House, St Andrew's Road, Cambridge CB4 1DL, United Kingdom.

Telephone: +44 (0)1223 535170. Website: http://www.ubisense.net.

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Ubisense Limited

St Andrew's House

St Andrew's Road

Cambridge CB4 1DL

United Kingdom

Tel: +44 (0)1223 535170

WWW: http://www.ubisense.net

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Motivation

Ubisense protocols make use of multicast to communicate between all relevant machines on the network. When multicast is not available, the system must know in advance the addresses of the other machines running Ubisense services. The following sections outline how to set up a cluster of Ubisense server machines operating in unicast to implement a SmartSpace system.

Configuring the platform

The basic cluster configuration involves specifying, on each server, the IP addresses of the other servers in the cluster, and then installing a Service Controller on each server.

Deploy controllers

On each machine in the cluster, install UbisenseServers. Each machine must run a multicast proxy, which is started by the UbisenseServiceController service if the configuration requires it. The proxy forwards the platform messages sent by other servers to all the local services and clients that require them. As such, all servers in the cluster must run a local controller. Your system should still only have one core server. This means that UbisenseCoreServer should be disabled on all but the core server, so that it cannot be started by accident.

Configure machine-specific cluster parameters

To enable unicast mode, the following local configuration parameters must be set on each server machine:

no_multicast_mode – set this to 1 to disable use of multicast protocols and ensure the multicast proxy is started.

server_unicast_addresses – a comma separated list of IP addresses of the other server machines. The addresses should be in standard dotted address form (or DNS name if required and DNS is available).

(Optional) high_bandwidth_server_unicast_addresses – a comma separated list of IP address of other server machines running high bandwidth services (location cell data and presence association services). This only needs to be set on machines running these services. Set this to 0 to restrict high bandwidth service communications to the local machine only. Setting this will reduce unnecessary network to machines not requiring high bandwidth service data. When not set, the value of server_unicast_addresses is used instead.

Local configuration parameters are set either via the registry keys HKEY_LOCAL_MACHINE/SOFTWARE/Wow6432node/Ubisense2.1/Platform/Config/<parameter_name> on a Windows machine, or in the file /etc/ubisense/platform.conf on a Linux machine.

NOTE: On Windows, be careful not to add spaces in the registry parameter names as they will not be recognized by the platform.

After changing the value of a local configuration parameter, the service controller and (where applicable) the core server on that machine must be restarted before it will take effect.

Configure system-wide cluster parameters

To enable the multicast proxy, the following global configuration variable must also be set by running the ubisense_configuration_client command-line utility on the core server machine:

multicast_proxy_port – the port that the server machines will use to communicate between one another. This should be a port number that is free on all server machines.

When this global configuration parameter is set, all local controllers and the core server should be restarted. The server machines should all be running in unicast mode now and able to communicate with one another.

Example

We have two servers in the cluster, one for the core platform and location system support, and the other for the web site and Visibility. The server IP addresses are 10.1.16.1 (linux) and 10.1.16.2 (windows).

On server 10.1.16.1, we have:

A core and controller both running.

In platform.config:

no_multicast_mode: 1

server_unicast_addresses: 10.1.16.2

On server 10.1.16.2, we have:

A core and controller, with the core disabled and the controller running.

In registry HKLM/SOFTWARE/Wow6432node/Ubisense2.1/Platform/Config the following string values:

no_multicast_mode: 1

server_unicast_addresses: 10.1.16.1

On 10.1.16.1, the following command has been executed:

ubisense_configuration_client set multicast_proxy_port 24301

Now all core and controllers have been restarted. On 10.1.16.2, Service Manager can now be run and will show both controllers as present.

Visibility and cluster mode

If you have licensed Visibility, one of your cluster machines will be used to run the SmartSpace web site under IIS. There are two configurations necessary to get this to work:

Firewall exception for w3wp.exe

In cluster mode, the web site executable must be allowed to listen for UDP packets from other machines in the cluster. To do this, it is recommended to add a firewall exception for w3wp.exe, the IIS executable. On a 64 bit machine this is located in "%SystemRoot%\SysWOW64\inetsrv\w3wp.exe". This executable should be allowed to listen for UDP on non-private ports, i.e. 1025-65535. For extra security, this rule can be allowed only for remote addresses in the cluster.

Migrating web interface services to the same machine

It is recommended that the following services should be deployed onto the machine running IIS:

Ubisense Visibility Roles client interface

Ubisense VisibilityShifts client interface

UbisenseVisibilityTag status client interface

UbisenseVisibilityWeb map client interface

Use the Service Manager to drag these services onto the IIS server controller, and they should deploy automatically into that server.

Connecting clients

To connect to the Ubisense services from a client machine outside of the cluster, you will need to first connect to the server using Site Connector. The use of Site Connector is outlined in the document *Site Connector User Manual*.

References

unicast_server_cluster_setup_guide.pdf

UbisenseSiteConnector.pdf