

TANDBERG

Deployment Guide

Connecting H.323 MCUs to VCSs
for resilience and capacity

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INTRODUCTION

This deployment guide describes how multiple H.323 MCUs should be integrated with TANDBERG VCSs in order to provide MCU resilience.

This deployment scenario allows the VCS to control calls to a pool of MCUs that are configured to handle the same MCU service prefix (the dial prefix used to indicate that the call is a call to a conference). The VCS randomly chooses different MCUs for each new ad hoc conference; the VCS also ensures that any calls to the same ad hoc conference ID are always routed to the chosen MCU VCS in the pool. This means that multiple MCUs are available to handle the MCU service prefix, thus providing greater capacity and resilience for ad hoc conferences than an individual MCU alone could provide.

This guide identifies the requirements and specifies the operation and necessary configuration for:

1. connecting multiple H.323 MCUs to a single VCS, and
2. connecting multiple H.323 MCUs to a cluster of VCS peers.

Typically H.323 MCUs support three conference types: ad hoc conferences, permanent conferences and scheduled conferences, each described below.

Note: the increase in capacity and resilience in the examples described in this guide only applies to ad hoc conferences, not permanent or scheduled conferences.

Ad hoc conferences

Ad hoc conferences are where either:

- the conference initiator sets up a conference by making a call to a number which consists of the MCU's service prefix followed by extra digits to define the full conference ID, or
- the conference initiator sets up a conference by making a call to the MCU's auto-attendant and then by using DTMF enters the required conference ID.

For ad hoc conferences:

- if service prefix is used the MCU permanently registers its MCU service prefix on the VCS
- if auto-attendant is enabled the MCU permanently registers its auto-attendant access number on the VCS
- when an ad hoc conference is initiated the MCU registers the full ad hoc conference ID on the VCS; it removes the registration when the conference ends.

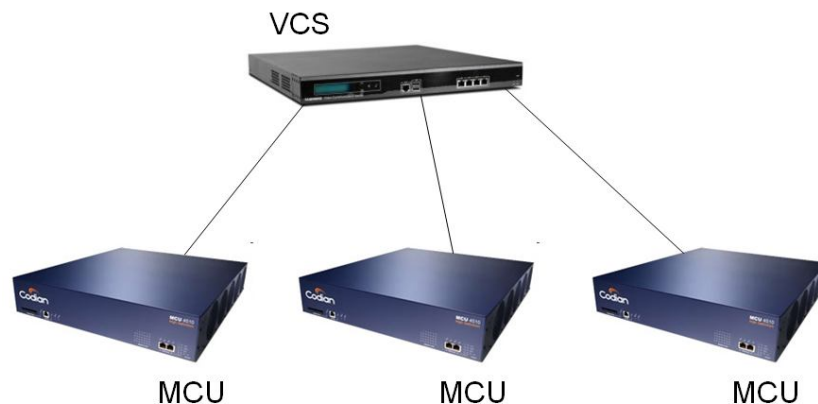
Permanent conferences

Permanent conferences (also known as **personal conferences**) are where full conference IDs are specified in the MCU, and the MCU permanently registers these IDs on the VCS.

Scheduled conferences

Scheduled conferences are where the full conference ID of a conference is registered on the VCS only for the scheduled duration of the conference. Conferences may be scheduled in the MCU itself, or via TMS (TANDBERG Management System).

CONNECTING MULTIPLE MCUs TO A SINGLE VCS



Requirements

When connecting multiple MCUs to a single VCS, it is important that:

- all connected MCUs are used to host conferences
- calls made by different people for the same conference ID must be directed to the same MCU
- if there is an imbalance of callers on one or more MCUs and it or they approach their capacity (reporting “out of resources”), new conferences should be created on a less busy MCU.

Operation

Each MCU is configured to register the same conference service prefix(es) on the VCS. When a call for a conference arrives, the VCS will check to see whether that conference ID is already registered.

- If the conference ID is registered (i.e. the conference has already been initiated), the call will be routed to that MCU.
- If the conference ID is not registered by any of the MCUs, but the required conference service prefix is registered by one or more MCUs, then the VCS will check to see whether another call has been made for this conference ID recently¹
 - if there has been no other recent call to this conference ID (i.e. this is the first), the VCS will randomly choose one of the MCUs that has registered a matching service prefix and will use that MCU for this conference ID. The VCS will route the call to that MCU so that the conference may be set up.
 - if there has been a recent call to this conference ID, the VCS will route this call to the same MCU to which the other call to this conference ID was routed. (This handles the situation where one or more callers dial in at almost the same time as the initiator, and so require their call(s) to be routed to the correct MCU before the MCU has had time to register the new conference ID.)

Note: If any MCU is nearly full of callers (or has reached the limit of the number of conferences it can handle) it reports “out of resources” to the VCS. The VCS will then adjust its randomisation algorithm to omit the nearly full MCU(s). The ‘out of resource’ report will not affect the routing of callers to existing conferences. In this way, callers to conferences that have already been set up will continue to be sent to the appropriate MCU so that they can be in the same conference as all others dialling that conference ID; new conferences will only be set up on MCUs that are not reporting ‘out of resources’.

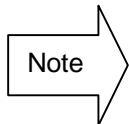
¹ recently = within 1 minute. 1 minute gives the MCU plenty of time to register the full conference ID of the ad hoc conference that it has been requested to create.

For capacity and resilience, register as many MCUs with the same service prefix(es) as are required to the VCS.

Configuration

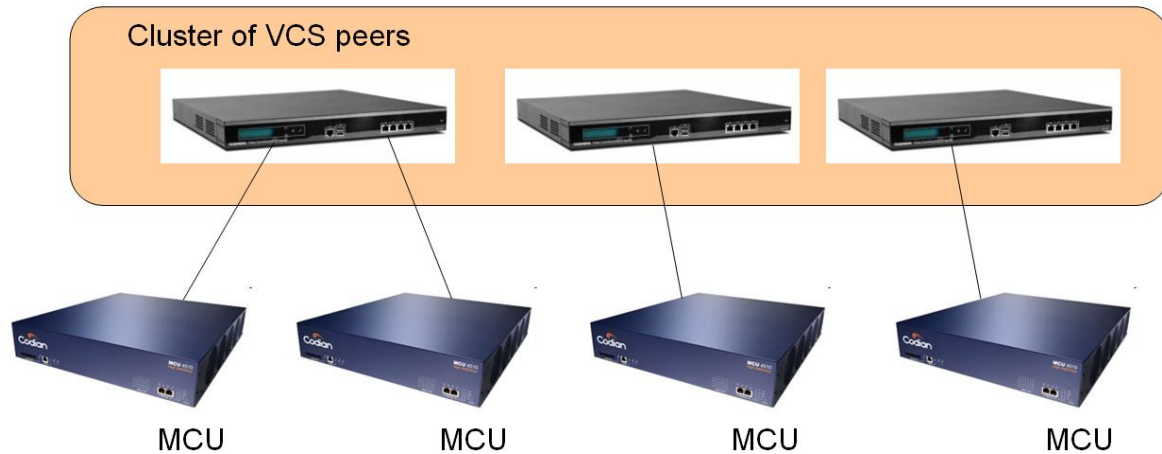
1. Configure each MCU to register identical service prefix(es) to the VCS.
2. Configure each MCU to register with a **Gatekeeper registration type =MCU (standard)**, configurable on the **Settings > Gatekeeper** page.

The VCS then handles all the conference call routing.



*The **Gatekeeper registration type** MUST NOT be **Gateway** because otherwise the VCS will distribute calls to a specific conference ID randomly across all MCUs that have registered a matching prefix. Only if **Gatekeeper registration type** is **MCU** will the VCS ensure that calls to the same conference ID get routed to the same MCU.*

CONNECTING MULTIPLE MCUs TO A CLUSTER OF VCS PEERS



Requirements

When connecting multiple MCUs to a cluster of VCS peers, it is important that:

- failure of any VCS will not stop new conferences being set up
- conference calls that are not on MCUs directly connected to a VCS that goes out of action should continue unimpeded²
- all MCUs connected to the cluster are used to host conferences
- calls made by different people for the same conference ID must be directed to the same MCU
- if there is an imbalance of callers on one or more MCUs and it or they approach their capacity (reporting “out of resources”), new conferences should be created on a less busy MCU.

Operation

Each MCU is configured to register the same conference service prefix(es) onto the VCS to which it registers. When a call for a conference arrives at a VCS, that VCS will check to see whether that conference ID is already registered anywhere on the cluster of VCS peers to which it belongs.

- If the conference ID is registered (i.e. the conference has already been initiated), the call will be routed to the MCU that registered the conference ID.
- If the conference ID is not registered by any of the MCUs across the cluster, but the required conference service prefix is registered by one or more MCUs, then the VCS receiving the call will check to see whether another call has been made for this conference ID recently³
 - if there has been no other recent call to this conference ID (i.e. this is the first), the VCS will randomly choose, from across the cluster, one of the MCUs that has registered a matching service prefix, and will use that MCU for this conference ID. The VCS will route the call to that MCU so that the conference may be set up.
 - if there has been a recent call to this conference ID, the VCS will route this call to the same MCU to which the other call to this conference ID was routed, regardless of whether the MCU is registered to that particular VCS or another VCS in the cluster. (This

² This is X4 functionality – prior to X4, calls may traverse up to 2 clustered VCS peers. If a call traverses 2 VCS peers, then failure of either peer will cause that call to drop.

³ Recent = within 1 minute. 1 minute gives the MCU plenty of time to register the full conference ID of the ad hoc conference that it has been requested to create.

handles the situation where one or more callers dial in at almost the same time as the initiator, and so require their call(s) to be routed to the correct MCU before the MCU has had time to register the new conference ID.)

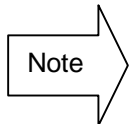
Note: If any MCU is nearly full of callers (or has reached the limit of the number of conferences it can handle) it reports “out of resources” to the VCS to which it is registered. Any VCS peer wanting to set up a new conference will take this into account and will adjust the randomisation algorithm to omit the nearly full MCU(s). The ‘out of resource’ report will not affect the routing of callers to existing conferences. In this way, callers to conferences that have already been set up will continue to be sent to the appropriate MCU so that they can be in the same conference as all others dialling that conference ID; new conferences will only be set up on MCUs that are not reporting ‘out of resources’.

For capacity and resilience, register as many MCUs with the same service prefix(es) as are required to VCS peers in the cluster. The MCU selection functionality works across a cluster of VCS peers just as well as it does in a single VCS.

Configuration

1. MCUs should be configured such that approximately the same number of MCUs are registered to each VCS peer.
2. Configure each MCU to register identical service prefix(es) to their VCS peer.
3. Configure each MCU to register with a Gatekeeper **registration type =MCU (standard)**, configurable on the **Settings > Gatekeeper** page

The VCS cluster then handles all the conference call routing.



*The **Gatekeeper registration type** MUST NOT be **Gateway** because otherwise the VCS will distribute calls to a specific conference ID randomly across all MCUs that have registered a matching prefix. Only if **Gatekeeper registration type** is **MCU** will the VCS ensure that calls to the same conference ID get routed to the same MCU.*

ANNEX 1 – OVERLAPPING SERVICE PREFIXES

If an MCU tries to register a service prefix that is either:

- a subset or a superset of an existing service prefix registration on that VCS, or, if the VCS is a peer in a cluster of VCSs
- a subset or a superset of an existing service prefix registration on any other peer in the cluster

the VCS will reject that registration. Service prefixes must be non-overlapping.

e.g. if an MCU service prefix registration for **91** exists on the VCS and a different MCU tries to register a service prefix of **914**, this latter registration request will be rejected.

Similarly, if an MCU service prefix registration for **914** exists on the VCS and a different MCU tries to register a service prefix of **91**, this latter registration request will be rejected.

ANNEX 2 – GATEKEEPER / BORDER CONTROLLER OPERATION

TANDBERG Gatekeeper running software version N6.0 or later, and TANDBERG Border Controller running software version Q6.0 or later, both operate in the same manner as the TANDBERG VCS in terms of routing calls to MCUs.

DISCLAIMERS AND NOTICES

The objective of this Guide is to provide the reader with assistance in using and configuring their VCS. Product capabilities of TANDBERG and other manufacturers' products change over time and so the required configuration may be different from that indicated here. If you have any suggestions for changes to this document, please feed them back to TANDBERG through your TANDBERG Authorized Service Representative.

If you need technical support, please contact your TANDBERG Authorized Service Representative.

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