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Avaya Solution & Interoperability Test Lab

Application Notes for Virtual Hold Concierge with Avaya Communication Manager using Avaya Application Enablement Services – Issue 1.0

Abstract

These Application Notes describe the configuration steps required for Virtual Hold Concierge 6.7 to successfully interoperate with Avaya Communication Manager using Avaya Application Enablement Services. Virtual Hold Concierge is a contact center solution that uses the Avaya CVLAN service to provide intelligent queue management when incoming call traffic exceeds agent availability.

Information in these Application Notes has been obtained through DevConnect compliance testing and additional technical discussions. Testing was conducted via the DevConnect Program at the Avaya Solution and Interoperability Test Lab.

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Solution & Interoperability Test Lab Application Notes
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1. Introduction

Virtual Hold Concierge is a contact center solution that provides intelligent queue management when incoming call traffic exceeds agent availability. Virtual Hold Concierge calculates and informs the caller of expected wait time, maintains the caller position in a virtual queue, and calls the caller back when the caller's turn comes up. The CTI integration with Avaya Communication Manager is achieved through the Avaya Application Enablement Services (AES) CVLAN service.
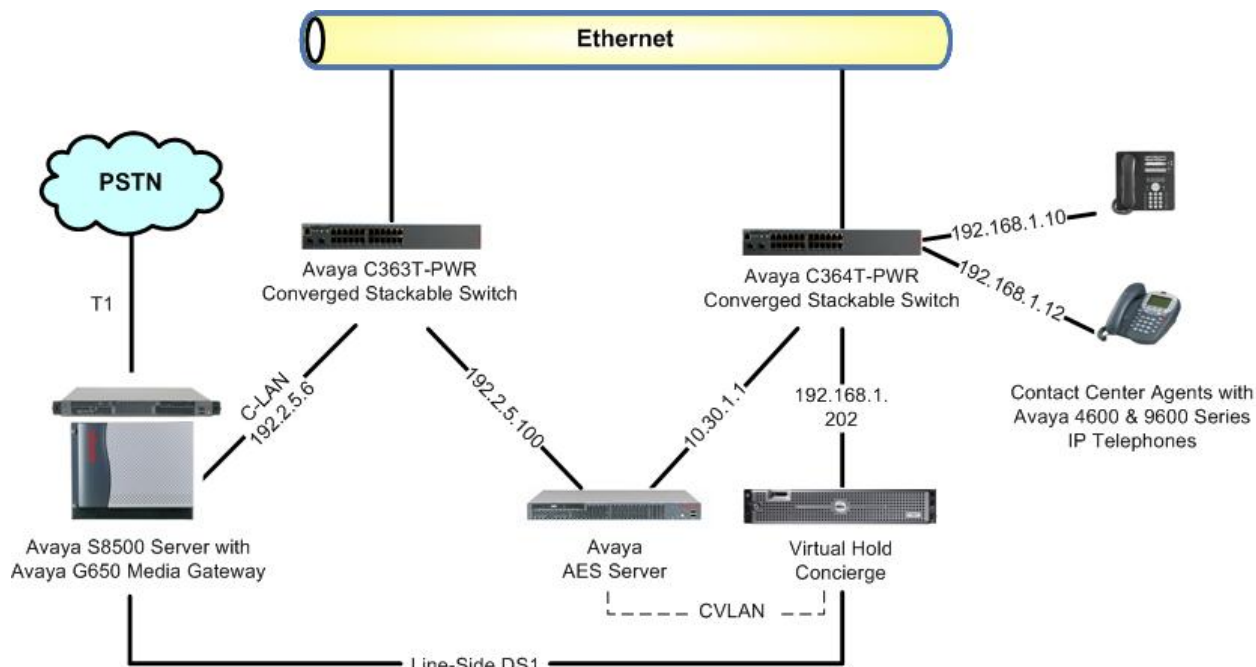

Figure 1: Virtual Hold Concierge with Avaya Communication Manager using Avaya AES

Virtual Hold Concierge uses the Avaya AES CVLAN service to query and monitor the ACD queues. The information obtained from the CTI event reports is used to calculate the expected wait time. All incoming calls are routed by Virtual Hold Concierge using the CTI adjunct routing capabilities. When the expected wait time for the ACD queue reaches a defined threshold, Concierge can specify the call to be routed to an available line-side DS1 station that terminates to Concierge. The internal Interactive Voice Response (IVR) component of Concierge will play the expected wait time announcement and provide the caller with options to continue to wait in queue or to be called back.

Callers that decide to continue to wait in queue will be transferred by Virtual Hold Concierge to the ACD queue. Callers that decide to be called back will be prompted for a callback number and time, and Virtual Hold Concierge will track the caller position in the virtual queue. When it is almost time for the caller to be serviced from the virtual queue, Virtual Hold Concierge will place a callback call to the caller, and transfer the call to the ACD queue with priority, such that the call will be placed in front of the queue. The callback calls are originated from available line-side DS1 stations. The DS1 circuit pack on Avaya Communication Manager is physically connected to the Dialogic T1/E1 card on Virtual Hold Concierge. Callback calls are originated by Virtual Hold Concierge from an available port on the Dialogic T1/E1 card, with call progress tones and tone detection handled by Virtual Hold Concierge. When the callback call is connected and accepted by the caller, Virtual Hold Concierge then utilizes the CTI domain control capabilities to transfer the callback call to the ACD queue.

2. Equipment and Software Validated

The following equipment and software were used for the sample configuration provided:

Equipment	Software
Avaya S8500 Server	Avaya Communication Manager 5.0, R015x.00.0.825.4
Avaya MCC1 Media Gateway • TN799DP C-LAN Circuit Pack • TN464HP DS1 Interface	HW01 FW017 HW02 FW018
Avaya Application Enablement Services	4.2
Avaya 4600 Series IP Telephones (H.323)	2.9
Avaya 9600 Series IP Telephones (H.323)	1.2
Virtual Hold Concierge • Dialogic DMV480A_2T1 Card	6.7 SR 6.0

3. Configure Avaya Communication Manager

The detailed administration of basic connectivity between Avaya Communication Manager and Avaya AES is not the focus of these Application Notes and will not be described. For administration of basic connectivity to Avaya AES, refer to the appropriate documentation listed in **Section 10**. This section provides the procedures for the following:

- Verify Avaya Communication Manager License
- Administer CTI link for CVLAN service
- Administer vectors and VDNs
- Administer line-side DS1 stations
- Administer DS1 hunt group

The detailed administration of contact center devices, such as ACD groups, logical agents and station extensions are assumed to be in place and are not covered in these Application Notes.

For the compliance testing, a skill group number of "801" with extension number "67801" was created. This information will be used to configure the vectors in **Section 3.3** and the Virtual Hold Concierge agent groups in **Section 5.3**.

3.1. Verify Avaya Communication Manager License

Log into the System Access Terminal (SAT) to verify that the Avaya Communication Manager license has proper permissions for features illustrated in these Application Notes. Use the "display system-parameters customer-options" command to verify that both the **ASAI Link Core Capabilities** and **ASAI Link Plus Capabilities** customer options are set to "y" on **Page 3**.

```
display system-parameters customer-options                      Page   3 of  11
                            OPTIONAL FEATURES

    Abbreviated Dialing Enhanced List? y          Audible Message Waiting? n
        Access Security Gateway (ASG)? n            Authorization Codes? n
        Analog Trunk Incoming Call ID? y                    CAS Branch? n
 A/D Grp/Sys List Dialing Start at 01? n                      CAS Main? n
Answer Supervision by Call Classifier? n           Change COR by FAC? y
                                  ARS? y  Computer Telephony Adjunct Links? y
              ARS/AAR Partitioning? y   Cvg Of Calls Redirected Off-net? n
          ARS/AAR Dialing without FAC? n                   DCS (Basic)? n
          ASAI Link Core Capabilities? y              DCS Call Coverage? n
          ASAI Link Plus Capabilities? y              DCS with Rerouting? n
        Async. Transfer Mode (ATM) PNC? n
 Async. Transfer Mode (ATM) Trunking? n   Digital Loss Plan Modification? n
            ATM WAN Spare Processor? n                          DS1 MSP? y
                                 ATMS? n        DS1 Echo Cancellation? n
                  Attendant Vectoring? y




          (NOTE: You must logoff & login to effect the permission changes.)
```

Navigate to **Page 6**, and verify that the **Vectoring (Basic)** customer option is set to "y".

```
display system-parameters customer-options                    Page   6 of  11
                        CALL CENTER OPTIONAL FEATURES

                        Call Center Release: 5.0

                              ACD? y                        Reason Codes? y
                    BCMS (Basic)? y              Service Level Maximizer? n
        BCMS/VuStats Service Level? n            Service Observing (Basic)? y
BSR Local Treatment for IP & ISDN? n       Service Observing (Remote/By FAC)? y
                Business Advocate? n              Service Observing (VDNs)? y
                  Call Work Codes? y                            Timed ACW? y
      DTMF Feedback Signals For VRU? n              Vectoring (Basic)? y
                 Dynamic Advocate? n              Vectoring (Prompting)? y
      Expert Agent Selection (EAS)? y          Vectoring (G3V4 Enhanced)? y
                         EAS-PHD? n           Vectoring (3.0 Enhanced)? y
                Forced ACD Calls? n     Vectoring (ANI/II-Digits Routing)? y
             Least Occupied Agent? n     Vectoring (G3V4 Advanced Routing)? y
          Lookahead Interflow (LAI)? n                    Vectoring (CINFO)? y
Multiple Call Handling (On Request)? n    Vectoring (Best Service Routing)? y
    Multiple Call Handling (Forced)? n              Vectoring (Holidays)? y
   PASTE (Display PBX Data on Phone)? y             Vectoring (Variables)? y
          (NOTE: You must logoff & login to effect the permission changes.)
```

3.2. Administer CTI Link for CVLAN Service

Add a CTI link using the "add cti-link n" command, where "n" is an available CTI link number.
Enter an available extension number in the **Extension** field. Note that the CTI link number and
extension number may vary. Enter "ASAI-IP" in the **Type** field, and a descriptive name in the
Name field. Default values may be used in the remaining fields.

```
add cti-link 2                                              Page   1 of   2
                                  CTI LINK
 CTI Link: 2
Extension: 60102
     Type: ASAI-IP
                                                              COR: 1
     Name: Virtual Hold CVLAN CTI Link
```

3.3. Administer Vectors and VDNs

Administer a set of vectors and Vector Directory Numbers (VDNs) for the following purposes:

- **Entry:** To provide adjunct routing and failure coverage.
- **Holding:** To queue incoming calls to the ACD group at medium priority.
- **Callback:** To queue callback calls to the ACD group at high priority.

3.3.1. Entry Vector and VDN

Modify a vector using the "change vector n" command, where "n" is an existing vector number. The vector will be used to provide adjunct routing to the CTI link defined previously in **Section 3.2**. Note that the vector **Number**, **Name**, **wait-time** step, and **route-to number** may vary. The **route-to number** is used as the covering point to provide failure coverage in case of failures from the adjunct routing step. In the compliance testing, an existing station extension of "64202" was used as the covering point.

```
change vector 901                                          Page   1 of   6
                              CALL VECTOR

    Number: 901                 Name: VH Entry
Multimedia? n      Attendant Vectoring? n    Meet-me Conf? n         Lock? n
    Basic? y   EAS? y   G3V4 Enhanced? y   ANI/II-Digits? y   ASAI Routing? y
 Prompting? y   LAI? n  G3V4 Adv Route? y   CINFO? y   BSR? y   Holidays? y
 Variables? y   3.0 Enhanced? y
01 adjunct       routing link 2
02 wait-time     20  secs hearing silence
03 route-to      number 64202              with cov n if unconditionally
04
```

Add a VDN using the "add vdn n" command, where "n" is an available extension number. Enter a descriptive name for the **Name** field, and the vector number from above for the **Vector Number** field. Retain the default values for all remaining fields.

```
add vdn 67901                                              Page   1 of   3
                         VECTOR DIRECTORY NUMBER

                            Extension: 67901
                                Name*: VH Entry
                        Vector Number: 901
                   Attendant Vectoring? n
                  Meet-me Conferencing? n
                    Allow VDN Override? n
                                  COR: 1
                                  TN*: 1
                             Measured: none
```

3.3.2. Holding Vector and VDN

Modify a vector to queue incoming calls to the ACD group at medium priority. Note that the vector **Number**, **Name**, **queue-to skill**, and **wait-time** step may vary.

```
change vector 902                                              Page   1 of   6
                              CALL VECTOR

    Number: 902              Name: VH Holding
Multimedia? n      Attendant Vectoring? n    Meet-me Conf? n          Lock? n
    Basic? y   EAS? y   G3V4 Enhanced? y   ANI/II-Digits? y   ASAI Routing? y
 Prompting? y   LAI? n  G3V4 Adv Route? y   CINFO? y   BSR? y   Holidays? y
 Variables? y   3.0 Enhanced? y
01 queue-to     skill 801  pri m
02 wait-time    20  secs hearing ringback
03
```

Add a VDN with an available extension as shown below. Enter a descriptive name for the **Name** field, and the vector number from above for the **Vector Number** field.

```
add vdn 67902                                                  Page   1 of   3
                           VECTOR DIRECTORY NUMBER

                             Extension: 67902
                                 Name*: VH Holding
                         Vector Number: 902
                   Attendant Vectoring? n
                   Meet-me Conferencing? n
                    Allow VDN Override? n
                                   COR: 1
                                   TN*: 1
                              Measured: none
```

3.3.3. Callback Vector and VDN

Modify a vector to queue callback calls to the ACD group at high priority. Note that the vector **Number**, **Name**, **queue-to skill**, and **wait-time** step may vary.

```
change vector 903                                          Page   1 of   6
                            CALL VECTOR

   Number: 903              Name: VH Callback
Multimedia? n      Attendant Vectoring? n    Meet-me Conf? n         Lock? n
    Basic? y   EAS? y   G3V4 Enhanced? y   ANI/II-Digits? y   ASAI Routing? y
 Prompting? y   LAI? n  G3V4 Adv Route? y   CINFO? y   BSR? y   Holidays? y
 Variables? y   3.0 Enhanced? y
01 queue-to     skill 801  pri h
02 wait-time    20   secs hearing ringback
03
```

Add a VDN with an available extension as shown below. Enter a descriptive name for the **Name** field, and the vector number from above for the **Vector Number** field.

```
add vdn 67903                                              Page   1 of   3
                        VECTOR DIRECTORY NUMBER

                          Extension: 67903
                              Name*: VH Callback
                      Vector Number: 903
                 Attendant Vectoring? n
                 Meet-me Conferencing? n
                  Allow VDN Override? n
                                COR: 1
                                TN*: 1
                           Measured: none
```

3.4. Administer Line-Side DS1 Stations

Administer the line-side DS1 stations. Each line-side DS1 station is a port off of the DS1 circuit pack that is physically connected to the Dialogic card in the Virtual Hold Concierge server. Typically half of the port capacities are configured to handle inbound calls, and the other half is configured to handle outbound callback calls. For the compliance testing, two ports were configured for handling of inbound calls, and two ports for handling of outbound callback calls. The customer can vary the number of ports to be used for each purpose.

3.4.1. Inbound Line-Side DS1 Stations

Use the "add station n" command, where "n" is an available extension number. Enter the following values for the specified fields, and retain the default values for all remaining fields. Submit these changes.

- **Type:** "DS1FD" to indicate line-side DS1.
- **Port:** An available port from the DS1 circuit pack.
- **Name:** A descriptive name.

```
add station 67991                                              Page   1 of   4
                                    STATION

Extension: 67991                        Lock Messages? n                BCC: 0
     Type: DS1FD                         Security Code:                   TN: 1
     Port: 01A1201                     Coverage Path 1:                  COR: 1
     Name: VH Inbound Line #1          Coverage Path 2:                  COS: 1
                                       Hunt-to Station:              Tests? y
STATION OPTIONS
                                            Time of Day Lock Table:
              Loss Group: 4
     Off Premises Station? y
        R Balance Network? n

            Survivable COR: internal
   Survivable Trunk Dest? y
```

Repeat the "add station n" command to add the desired number of line-side DS1 stations to be used for handling of inbound calls. When possible, use consecutive extension numbers for the line-side DS1 stations, for ease of configuring Virtual Hold Concierge. In the compliance testing, two line-side DS1 stations were configured for handling inbound calls, as shown below.

```
list station 67991 count 2

                         STATIONS

Ext/          Port/   Name/                       Room/        Cv1/ COR/ Cable/
 Hunt-to      Type       Surv GK NN        Move    Data Ext    Cv2  COS  Jack

67991         01A1201 VH Inbound Line #1                        1
               DS1FD                       no                        1
67992         01A1202 VH Inbound Line #2                        1
               DS1FD                       no                        1
```

3.4.2. Outbound Line-Side DS1 Stations

Use the "add station n" command, where "n" is an available extension number. Enter the following values for the specified fields, and retain the default values for all remaining fields. Submit these changes.

- **Type:** "DS1FD" to indicate line-side DS1.
- **Port:** An available port from the DS1 circuit pack.
- **Name:** A descriptive name.

```
add station 67995                                              Page   1 of   4
                                STATION

Extension: 67995                    Lock Messages? n              BCC: 0
     Type: DS1FD                    Security Code:                 TN: 1
     Port: 01A1205              Coverage Path 1:                   COR: 1
     Name: VH Outbound Line #1  Coverage Path 2:                   COS: 1
                                Hunt-to Station:               Tests? y
STATION OPTIONS
                                    Time of Day Lock Table:
            Loss Group: 4
   Off Premises Station? y
      R Balance Network? n


         Survivable COR: internal
   Survivable Trunk Dest? y
```

Repeat the "add station n" command to add the desired number of line-side DS1 stations to be used for handling of outbound callback calls. When possible, use consecutive extension numbers for the line-side DS1 stations, for ease of configuring Virtual Hold Concierge. In the compliance testing, two line-side DS1 stations were configured for handling outbound callback calls, as shown below.

```
list station 67995 count 2

                           STATIONS

Ext/          Port/   Name/                    Room/        Cv1/ COR/ Cable/
 Hunt-to       Type       Surv GK NN     Move   Data Ext    Cv2  COS  Jack

67995         01A1205 VH Outbound Line #1                    1
              DS1FD                       no                      1
67996         01A1206 VH Outbound Line #2                    1
              DS1FD                       no                      1
```

3.5. Administer DS1 Hunt Group

Administer a hunt group to be used for routing of inbound calls to the line-side DS1 stations. Use the "add hunt-group n" command, where "n" is an available hunt group number. Enter the following values for the specified fields, and retain the default values for the remaining fields.

- **Group Name:** A descriptive name.
- **Group Extension:** An available extension number.

```
add hunt-group 999                                              Page   1 of  60
                              HUNT GROUP

          Group Number: 999                            ACD? n
            Group Name: VH Inbound DS1                Queue? n
       Group Extension: 67999                         Vector? n
            Group Type: ucd-mia                 Coverage Path:
                    TN: 1         Night Service Destination:
                   COR: 1                    MM Early Answer? n
         Security Code:                 Local Agent Preference? n
 ISDN/SIP Caller Display:
```

Navigate to **Page 3** of the **HUNT GROUP** screen, and enter the extensions of all line-side DS1 stations to be used for handling of inbound calls from **Section 3.4.1**.

```
add hunt-group 999                                              Page   3 of  60
                              HUNT GROUP
         Group Number: 999  Group Extension: 67999       Group Type: ucd-mia
 Member Range Allowed: 1 - 1500      Administered Members (min/max): 0   /0
                                        Total Administered Members: 0
GROUP MEMBER ASSIGNMENTS
     Ext           Name(19 characters)      Ext           Name(19 characters)
  1: 67991                                14:
  2: 67992                                15:
  3:                                      16:
```

4. Configure Avaya Application Enablement Services

This section provides the procedures for configuring Avaya AES. The procedures include the following areas:

- Verify AES License
- Administer CVLAN link
- Administer CVLAN client

4.1. Verify AES License

Access the AES OAM web-based interface by using the URL "https://ip-address:8443/MVAP" in an Internet browser window, where "ip-address" is the IP address of the AES server. The **Login** screen is displayed as shown below. Log in with the appropriate credentials.

The **Welcome to OAM** screen is displayed next. Select **CTI OAM Admin** from the left pane.

The **Welcome to CTI OAM Screens** is displayed. Verify that the AES license has proper permissions for the features illustrated in these Application Notes by ensuring that the **CVLAN Service** is licensed, as shown below. If the **CVLAN Service** is not licensed, contact the Avaya sales team or business partner for a proper license file.
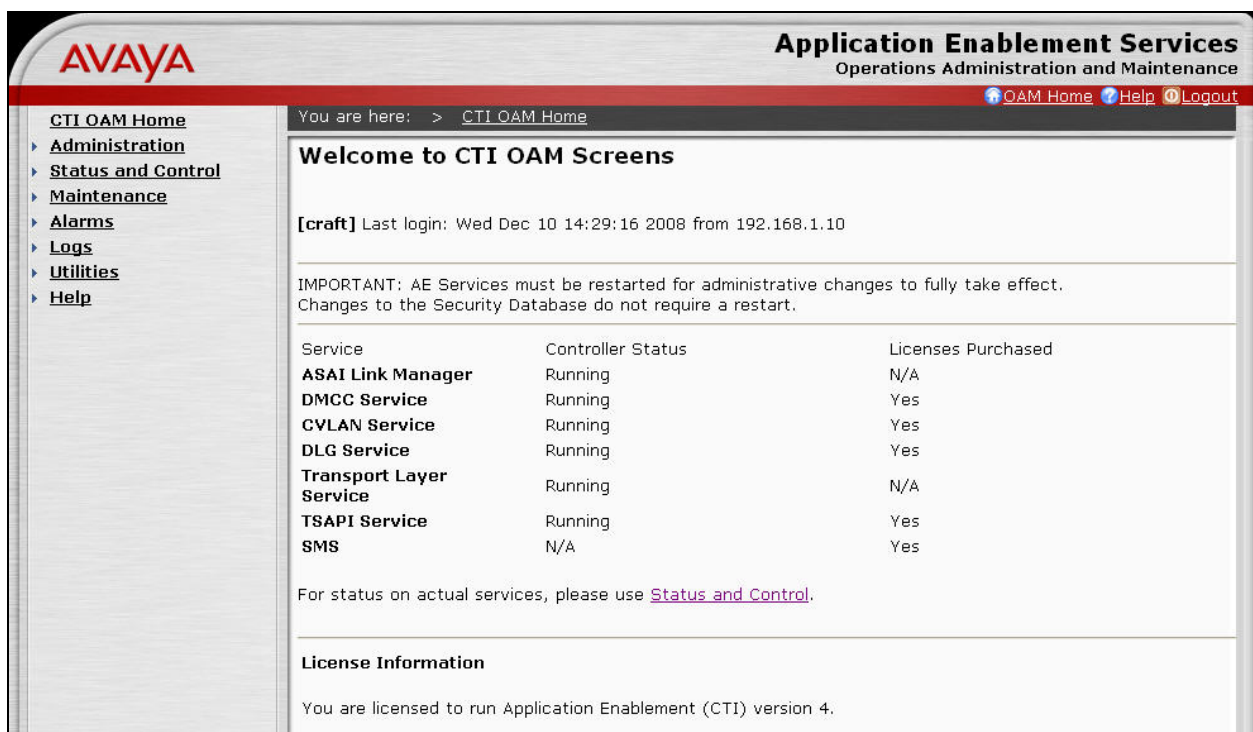
4.2. Administer CVLAN Link

Select **Administration > CTI Link Admin > CVLAN Links** from the left pane. The **CVLAN Links** screen is displayed, as shown below. Click **Add Link**.
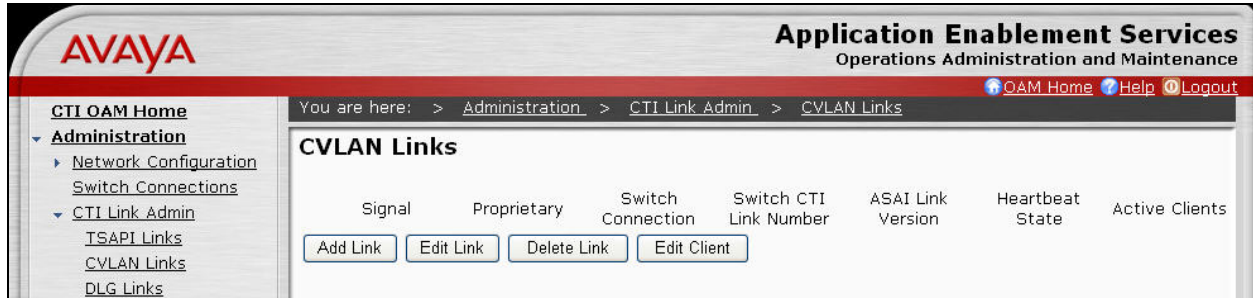
The **Add / Edit CVLAN Link** screen is displayed next. For **Signal**, select an available signal number from the drop-down list. For **Switch Connection**, select the relevant switch connection from the drop-down list. In this case, the existing switch connection "S8500" is selected. For **Switch CTI Link Number**, select the CTI link number from **Section 3.2**. Retain the default values in the remaining fields, and click **Apply Changes**.
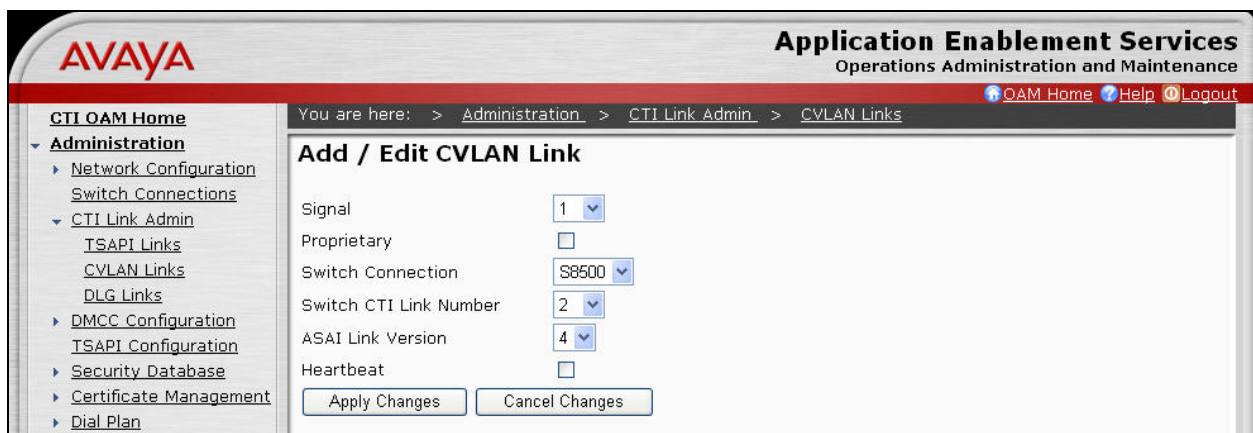
4.3. Administer CVLAN Client

The **CVLAN Links** screen is displayed again and updated with the newly created CVLAN link. Select the radio button next to the new CVLAN link, and click **Edit Client**.

The **Edit Clients** screen is displayed next. Enter the IP address of the Virtual Hold Concierge server, in this case "192.168.1.202", and click **Add Client**.

5. Configure Virtual Hold Concierge

This section provides the procedures for configuring Virtual Hold Concierge. The procedures include the following areas:

- Launch configuration wizard
- Administer switch connection
- Administer agent groups
- Administer IVR servers and extensions
- Administer queues
- Administer incoming extensions

Virtual Hold Concierge can be configured on a single server or with components distributed across multiple servers. For ease of compliance testing, the configuration used a single server hosting all components.

5.1. Launch Configuration Wizard

From the Virtual Hold Concierge server, navigate to **Start > All Programs > Virtual Hold > VHT_ConfigurationWizard** to launch the Configuration Wizard. The **Welcome to the Virtual Hold Configuration Wizard** screen is displayed, as shown below. Click **Configure** to proceed.

5.2. Administer Switch Connection

The **Switch Connection** screen is displayed. Click **Add** to create a connection to the switch.
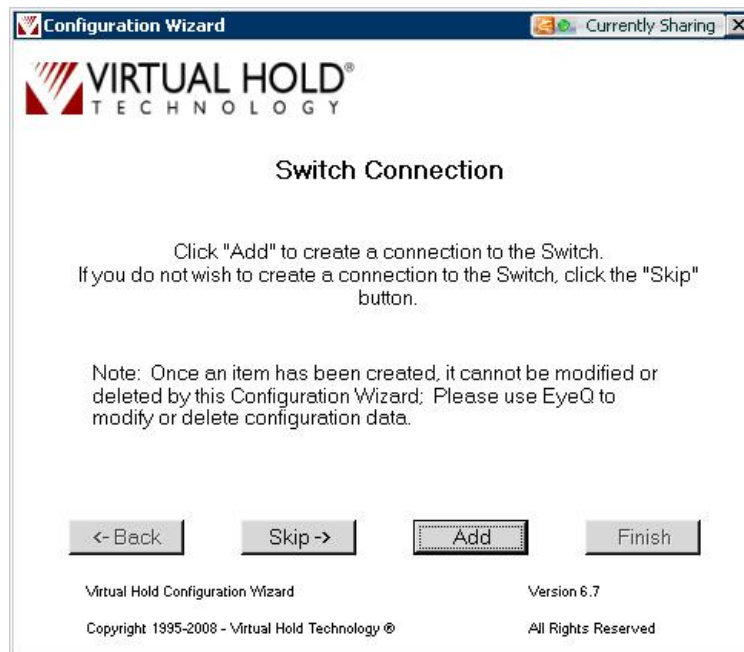
The **Switch Types** screen is displayed next. For **Switch Type**, select "TIALAvaya" from the drop-down list. For **MapD/Telephony Server IP**, enter the IP address of the AES server used for client connectivity. For **Signal Node**, enter the CVLAN signal number from **Section 4.2**.

Note that the value of the **Site Name** field is automatically populated and was created as part of the installation. The values in the **Logical ID** and **DLL Name** fields are changed automatically upon selecting the value for the **Switch Type** field. Click **Create**, followed by **Close**.
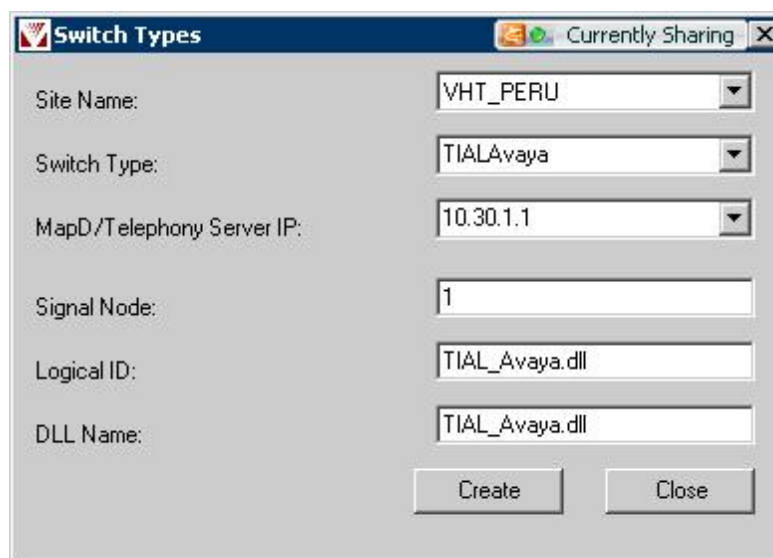
5.3. Administer Agent Groups

The **Agent Groups** screen is displayed. Click **Add** to create agent groups.
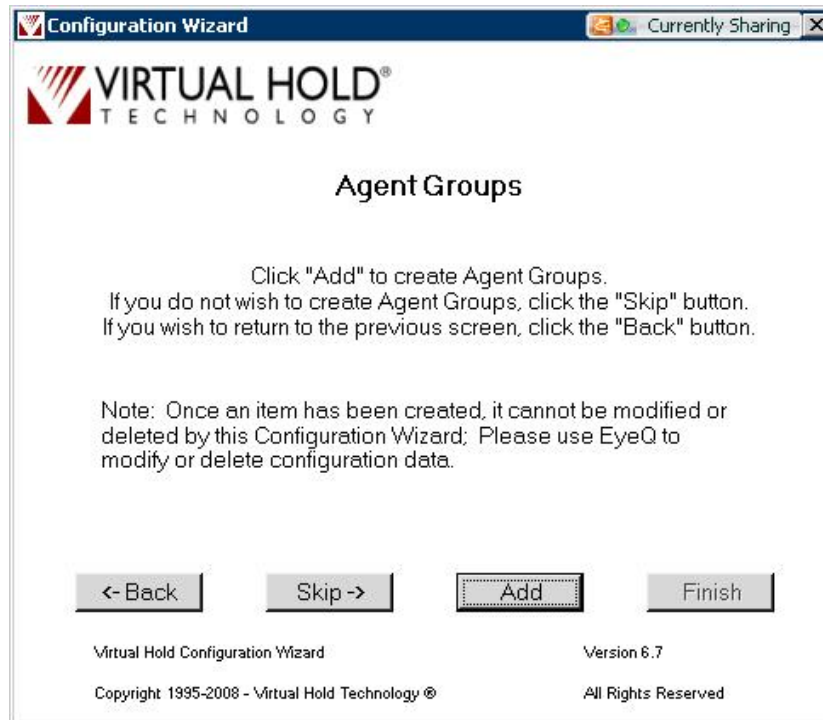
The **Agent Groups** screen is displayed next. This screen is used to define the ACD group. For the **Starting Agent Group** field, enter a descriptive agent group name and the agent group extension number, separated by a colon. Note that the agent group name, in this case "VHT_TEST", will be used later to administer queues in **Section 5.5**. The agent group extension number, in this case "67801", is the existing ACD group extension number on Avaya Communication Manager. Click **Create**, followed by **Close**.

The **Agents** screen is displayed. Click **Skip**.

5.4. Administer IVR Servers and Extensions

The **IVR Servers** screen is displayed. Click **Add** to create IVR servers.
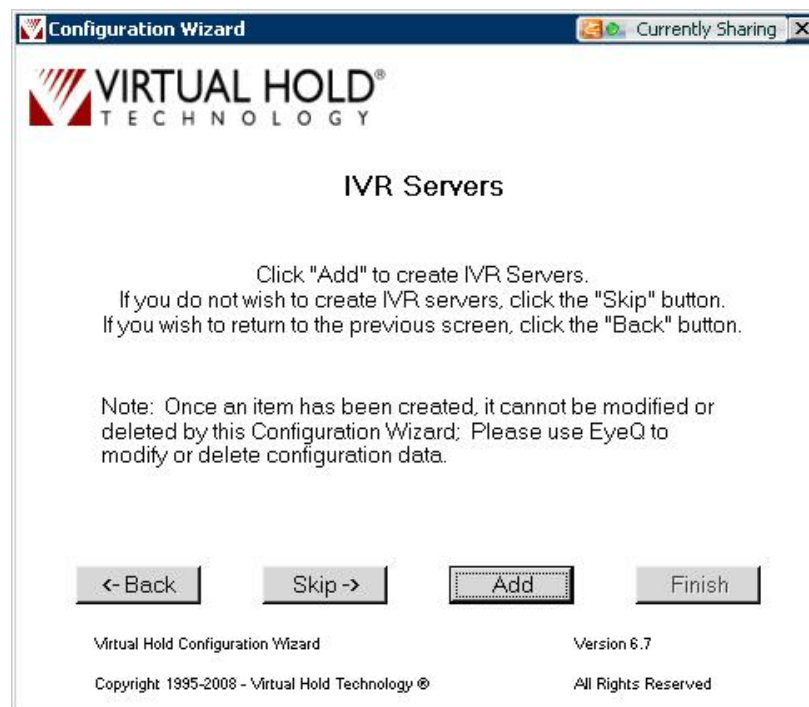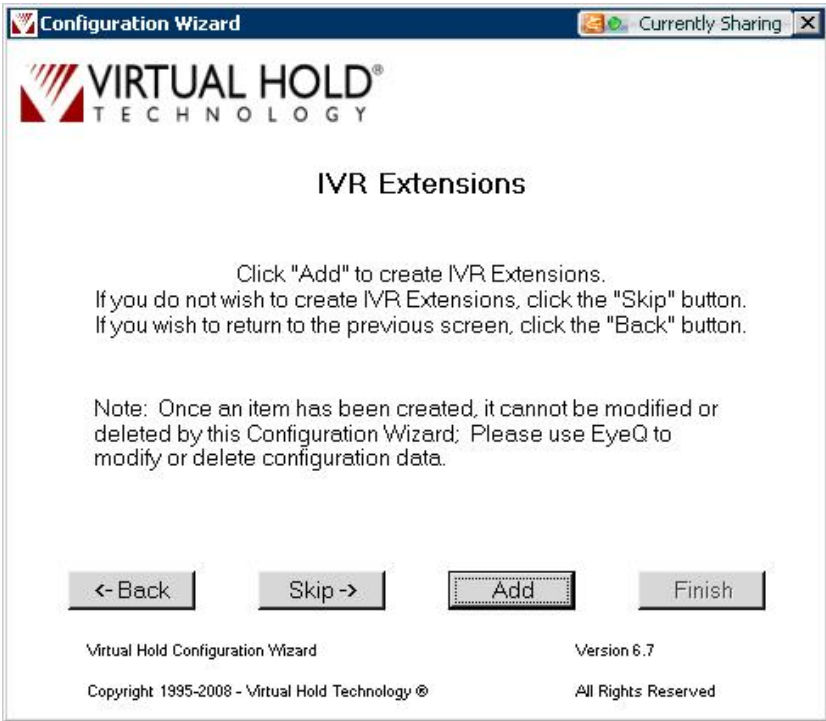
The **IVR Servers** screen below is displayed next. For the **Route Point** field, enter the extension of the hunt group for the inbound line-side DS1 stations from **Section 3.5**. Retain the default values for all remaining fields. Click **Create**, followed by **Close**.

The **IVR Extensions** screen is displayed. Click **Add** to create IVR extensions.

The **IVR Extensions** screen is displayed. For the **Starting Extension** fields, enter the starting extension number of the inbound and outbound line-side DS1 stations from **Section 3.4**. For the **Starting Line Number** and **Starting Time Slot** fields, enter the starting DS1 port number of the inbound and outbound line-side DS1 stations from **Section 3.4**. For the **Number to Create** fields, enter the number of inbound and outbound line-side DS1 stations that were created from **Section 3.4**. Retain the default values for all remaining fields. Click **Create**, followed by **Close**.

In the case that the line-side DS1 station extension numbers are not sequential, then each extension number will need to be entered individually on this screen.

5.5. Administer Queues

The **Queues** screen is displayed next. Click **Add** to create queues.

The **Queues Setup** screen is displayed. The **QueueSettings** area contains parameters relating to the ACD queue. The **Business Hours** area contains the hours of normal business operation. The **Callbacks Offered** area contains the hours of when the callback option will be offered to the callers. The **Callbacks Allowed** area contains the maximum threshold of callback calls that can be launched. Consult the Virtual Hold Concierge documentation for proper values to administer for these areas.

The **Queue ID** field value needs to match the agent group name from **Section 5.3**. For the compliance testing, the **Name** field was modified for a more descriptive name, as shown below. All remaining default values were retained from the **Use Test Defaults** option. Note that the **Turn On Threshhold** field defines the threshold for when the incoming calls are to be routed to the line-side DS1 stations. Click **Create**, followed by **Close**.

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The **Callback and Holding Queues** screen is displayed. Click **Add** to create queues.

The **Callback and Holding Queues** screen below is displayed next. For the **Callback Queue ID** field, enter the extension of the Callback VDN from **Section 3.3.3**, and the corresponding **Transfer Device** field value will be populated automatically. For the **Holding Queue ID** field, enter the extension of the Holding VDN from **Section 3.3.2**, and the corresponding **Route Device** and **Transfer Device** field values will be populated automatically. Retain the default in the **Site Name** field. Click **Create**, followed by **Close**.

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5.6. Administer Incoming Extensions

The **Incoming Extensions** screen is displayed. Click **Add**.
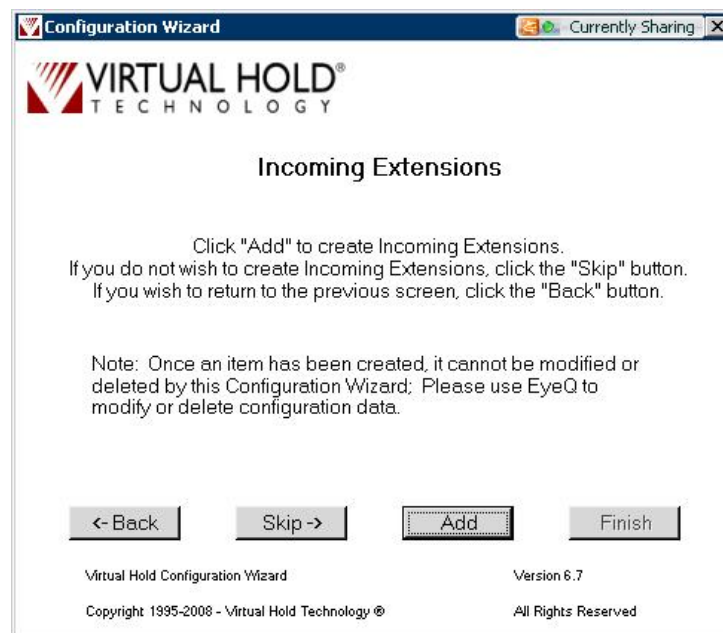
The screen below is displayed next. For the **Extension** field, enter the extension of the Entry VDN from **Section 3.3.1**. Retain the default values in all remaining fields. Click **Create**, followed by **Close**.

The **Incoming Applications** screen is displayed. Click **Skip**.
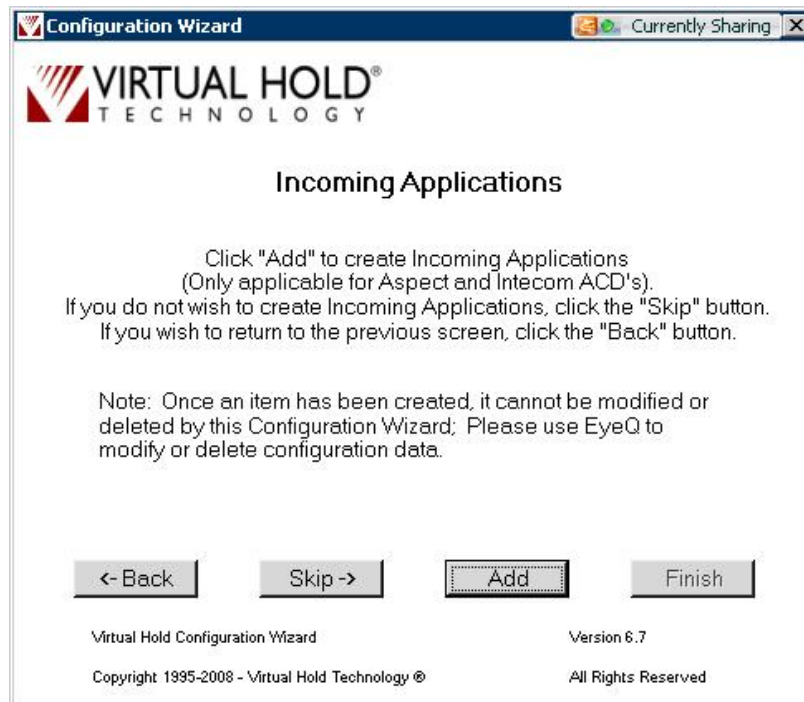
The **Finished** screen is displayed next. Click **Finish** to close the Configuration Wizard.
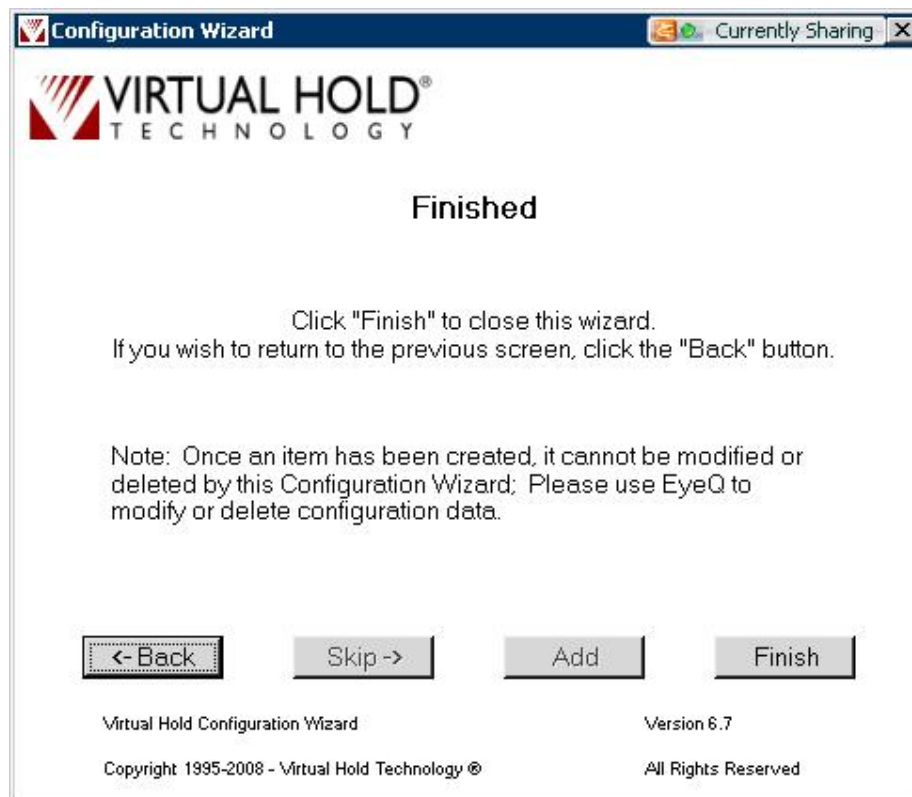
6. Interoperability Compliance Testing

The interoperability compliance test included feature and serviceability testing.

The feature testing focused on verifying Virtual Hold Concierge handling of CVLAN messages in the areas of routing, domain control, event notification, and value queries. The call scenarios included incoming calls under and over the wait time threshold, routing of inbound calls to the inbound line-side DS1 stations, and originating and transferring of outbound callback calls from the outbound line-side DS1 stations.

The serviceability testing focused on verifying the ability of Virtual Hold Concierge to recover from adverse conditions, such as disconnecting and reconnecting the Ethernet cable to the Virtual Hold Concierge server.

6.1. General Test Approach

The feature test cases were performed both automatically and manually. Upon start of the Virtual Hold Concierge application, the application automatically queries Avaya Communication Manager for ACD group status, requests VDN monitoring, and requests domain control on the line-side DS1 stations. For the manual part of the testing, incoming calls were made to the monitored VDNs to enable adjunct route and event reports to be sent to Virtual Hold Concierge. Manual call controls from the agent telephones were exercised to verify remaining event reports, and the scheduling and delivering of callback calls.

The serviceability test cases were performed manually by disconnecting and reconnecting the LAN cable to the Virtual Hold Concierge server.

The verification of all tests included checking of proper states at the telephone sets, and monitoring the event report logs from the Virtual Hold Concierge server log files.

6.2. Test Results

All test cases were executed and passed.

7. Verification Steps

This section provides the tests that can be performed to verify proper configuration of Avaya Communication Manager, Avaya AES, and Virtual Hold Concierge.

7.1. Verify Avaya Communication Manager

Verify the status of the administered CTI link by using the "status aesvcs cti-link" command. Verify the **Service State** is "established" for the CTI link number administered in **Section 3.2**, as shown below.

```
status aesvcs cti-link

                      AE SERVICES CTI LINK STATUS

CTI     Version  Mnt   AE Services      Service    Msgs    Msgs
Link             Busy  Server           State      Sent    Rcvd

1       4        no    AES-Test         established 15      15
2       4        no    AES-Test         established 934     820
```

Verify the status of an inbound line-side DS1 station during an active inbound call using the "status station n" command, where "n" is the extension of the connected station. Verify that the **Service State** is "in-service/off-hook" as shown below.

```
status station 67991                                        Page   1 of   5
                           GENERAL STATUS
     Administered Type: DS1FD            Service State: in-service/off-hook
        Connected Type: N/A
             Extension: 67991
                  Port: 01A1201      Parameter Download: not-applicable
           Call Parked? no                SAC Activated? no
      Ring Cut Off Act? no
 Active Coverage Option: 1
```
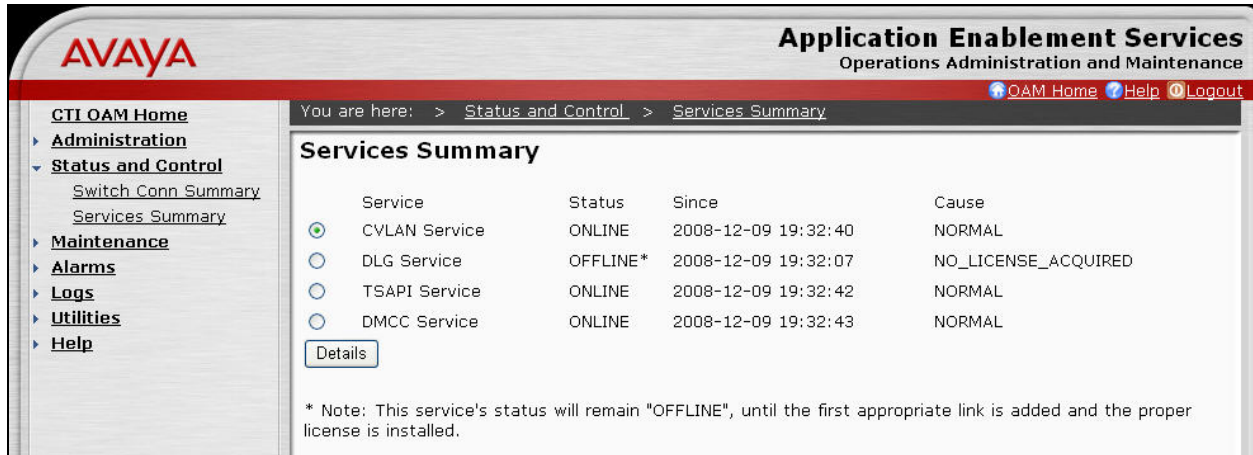
Verify the status of an outbound line-side DS1 station during an active outbound callback call using the "status station n" command, where "n" is the extension of the connected station. Verify that the **Service State** is "in-service/off-hook" as shown below.

```
status station 67995                                        Page   1 of   5
                           GENERAL STATUS
     Administered Type: DS1FD            Service State: in-service/off-hook
        Connected Type: N/A
             Extension: 67995
                  Port: 01A1205      Parameter Download: not-applicable
           Call Parked? no                SAC Activated? no
      Ring Cut Off Act? no

Active Coverage Option: 1
```

7.2. Verify AES

On the Avaya AES, verify the status of the CVLAN link by selecting **Status and Control > Services Summary** from the left pane. Click on **CVLAN Service**, followed by **Details**.
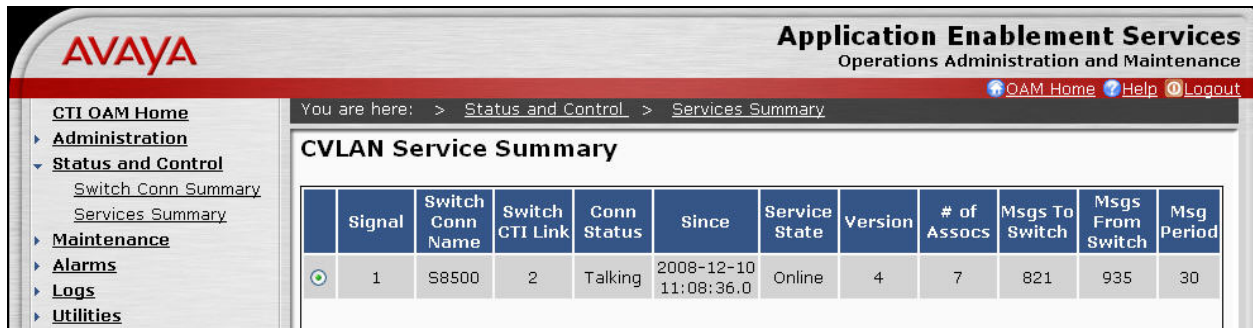
The **CVLAN Service Summary** screen is displayed. Verify the **Conn Status** is "Talking" for the CVLAN link administered in **Section 4.2**, as shown below.

7.3. Verify Virtual Hold Concierge

Access the Virtual Hold Concierge web-based EyeQ application by using the URL "http://host name/eyeQ/Home.aspx" in an Internet browser window, where "host name" is the host name of the Virtual Hold Concierge server. Log in with the proper credentials.
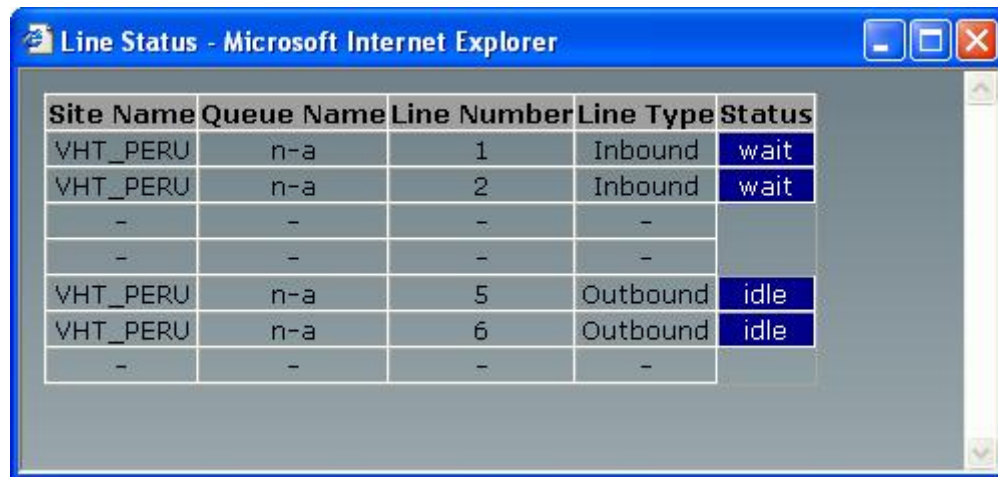

The screen below is displayed next. Click on the **QueueWATCH** icon.
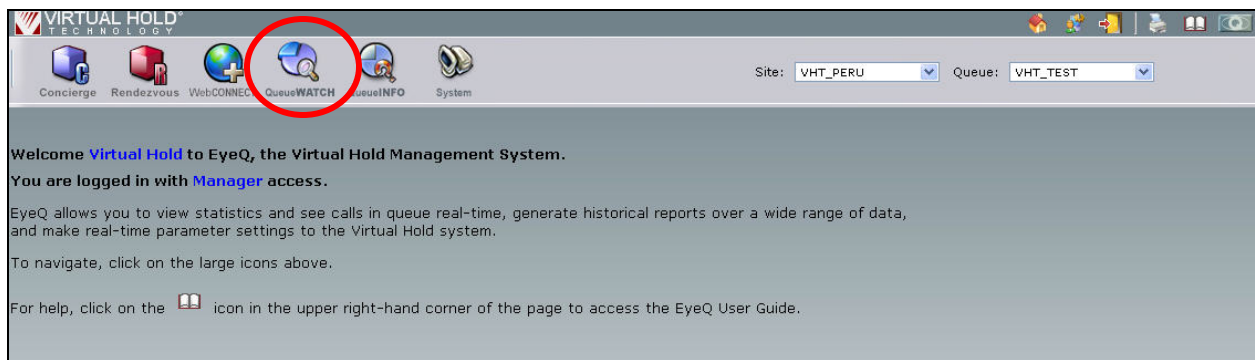
The **QueueWatch** screen is displayed. Select the **Line Status** tab.
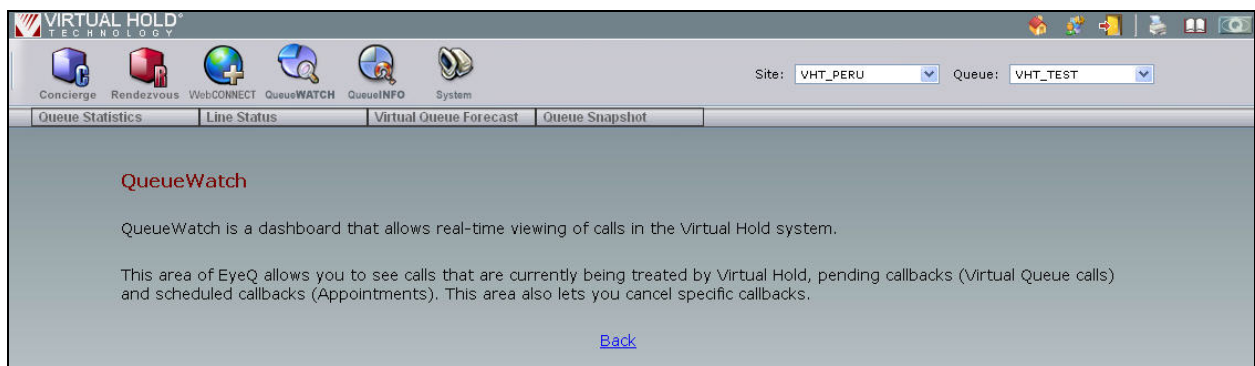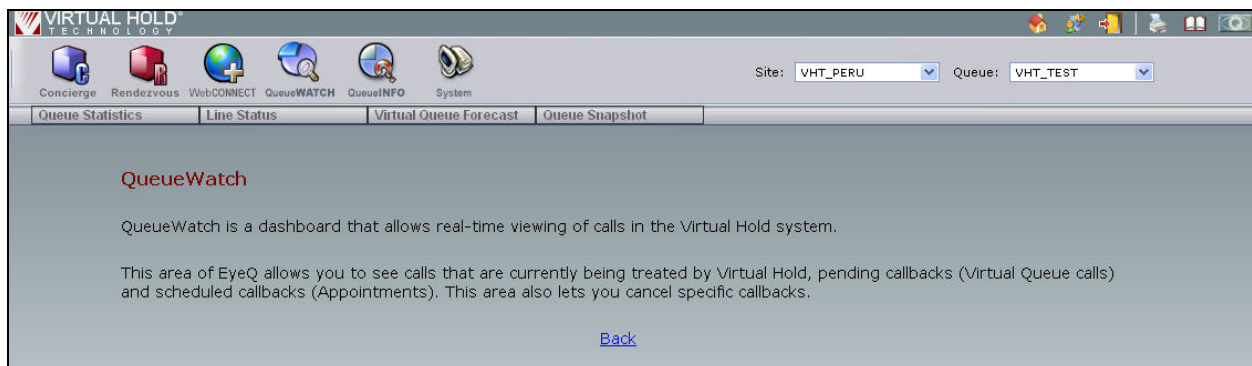
The **Line Status** pop-up window is displayed. Verify that the **Status** of the "Inbound" DS1 lines is "wait", and that the **Status** of the "Outbound" DS1 lines is "idle", as shown below.

Make a few calls to the entry VDN. From the **QueueWatch** screen, select the **Queue Statistics** tab.
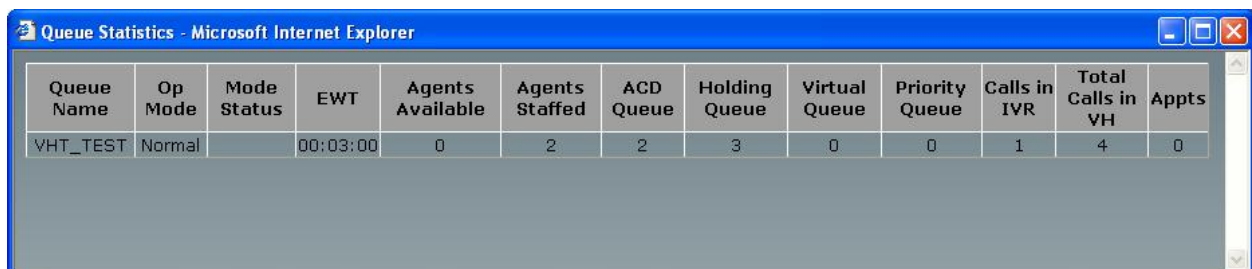
The **Queue Statistics** pop-up window is displayed. Verify that the data values properly reflect the current system activities.

8. Support

Technical support on Virtual Hold Concierge can be obtained through the following:

- **Phone:**   (866) 670-2223
- **Email:**   support@virtualhold.com

9. Conclusion

These Application Notes describe the configuration steps required for Virtual Hold Concierge to successfully interoperate with Avaya Communication Manager using Avaya Application Enablement Services.   All feature and serviceability test cases were completed successfully.

10. Additional References

This section references the product documentation relevant to these Application Notes.

- *Administrator Guide for Avaya Communication Manager*, Document 03-300509, Issue 4.0, Release 5.0, January 2008, available at http://support.avaya.com.

- *Avaya MultiVantage Application Enablement Services Administration and Maintenance Guide*, Release 4.2, Document ID 02-300357, Issue 10, May 2008, available at http://support.avaya.com.

- *Virtual Hold ACD Configuration Guide,* available from the Virtual Hold Concierge 6.7 Installation CD.

- *Virtual Hold Version 6 Deployment Guide,* available from the Virtual Hold Concierge 6.7 Installation CD.

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