

Strata® DK Application Bulletin

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Voice IP Applications for Strata DK

The voice IP telephony gateway enables user interaction via the Public Switched Telephone Network (PSTN) and public/private IP networks. It enables voice communication between users of telephones and/or multimedia enabled PCs. Other applications, such as Internet Telephone Service and Fax Over IP, are also possible. For a full description of the product and applications of the voice IP telephony gateway, please contact VocalTec® Communications Ltd., or refer to their Web site at <http://www.vocaltec.com/>.

This bulletin describes the voice IP telephony gateway applications for enterprise solutions using the Toshiba Strata DK424 Digital Business Telephone Systems. Specifically:

- ♦ Toll Bypass – Voice traffic from a local Strata DK424, normally routed through the PSTN (toll segment), is instead carried via public/private IP network in the form of IP packets to remote Strata DK424 users with a similar voice IP telephony gateway and Strata DK424 configurations. The main benefit is the elimination of the long distance toll charge.
- ♦ Surf & Call™ – This emerging application brings Web surfers into the Call Center instantly without a separate telephone call or call back sequence. It assumes that the Web surfer is using a multi-media enabled PC. In addition to Call Center access, a company could publish Directory Service or Yellow Pages on its Web site, offering CALL buttons to Web surfers.
- ♦ Surf & Call with ACD Agent Screen Pop – This is an enhanced feature of the basic Surf & Call application. Similar to Caller ID and IVR processes, Web surfer ID and Interactive Web Response processes are provided. As a result, a pop-up window showing the ID of the Web surfer is presented to the ACD Agent at the same time the voice call is delivered.

The Calling Process

Calling via the voice IP gateway is a simple procedure. For voice calls, the gateway is dialed from any telephone or PC and the destination number is entered. The gateway then compresses¹ and segments the call into packets which travel over the public/private IP network to a second gateway where they are decompressed and reconstructed. The call is then routed over the local PSTN/PBX to the destination telephone.

For Surf & Call the calling process is automated via a Surf & Call enabled Web site on behalf of the surfer calling a pre-defined gateway.

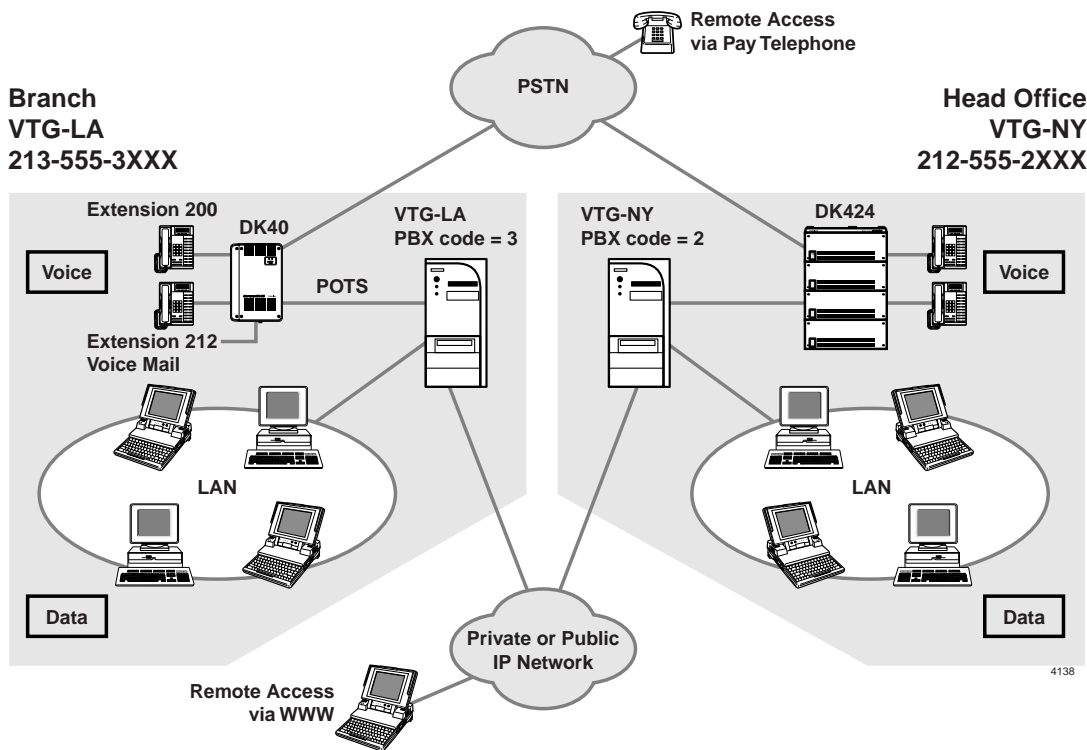
¹. The required bandwidth varies, depending on the types of voice encoder being used. The voice IP telephony gateway expects a stable bandwidth of 28KBPS for the first two voice connections and 11KBPS for each additional voice connection.

The Need for Good Network Planning

To successfully put voice traffic onto a public/private IP network requires a careful plan that involves both the telecom and the datacom side of the enterprise. Network planning requirements vary depending on the in-house expertise and the complexity of the network configuration.

Toll Bypass Configuration

A typical Toll Bypass system configuration is shown below:

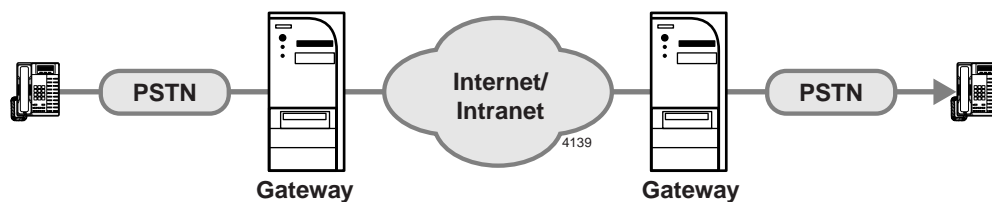


Applications

Five simple applications are described on the following pages.

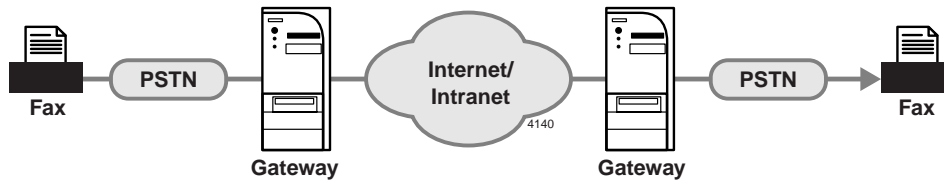
Phone to Phone

The call first travels over the PSTN/PBX to the nearest Strata DK424 and gateway. When prompted, the caller enters the destination telephone number. The call then travels over the Internet to the nearest Strata DK424 and gateway to the specified telephone. The local Strata DK424 and gateway decides the best routing to the destination on the basis of cost, load, and quality of service. From the remote Strata DK424 and gateway, the call is again sent over the PSTN/PBX to the destination phone. The figure below depicts the Phone to Phone application.



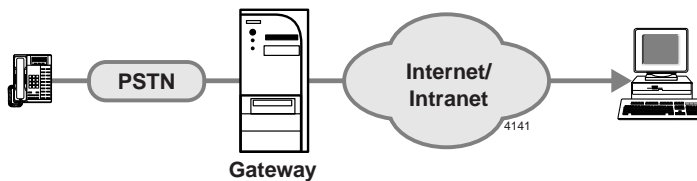
Fax to Fax

Using the Strata DK424 and gateway real-time fax capabilities, fax transmissions are made between local and remote gateways. The local fax dials the remote fax over the gateway network, establishes the connection, and transmits to the remote fax (see figure below).



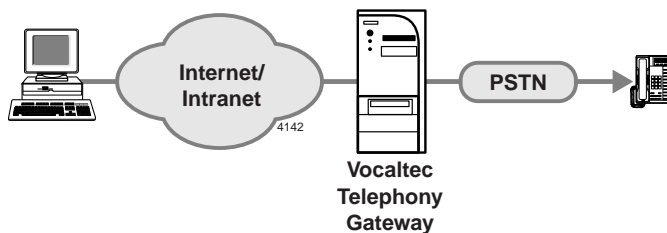
Phone to PC

When calling Internet telephones from a regular telephone, the call travels over the PSTN/PBX to the nearest Strata DK424 and gateway. When prompted, the caller enters the destination Internet address using the telephone's keypad. The call then travels directly to the desired computer. See figure below.



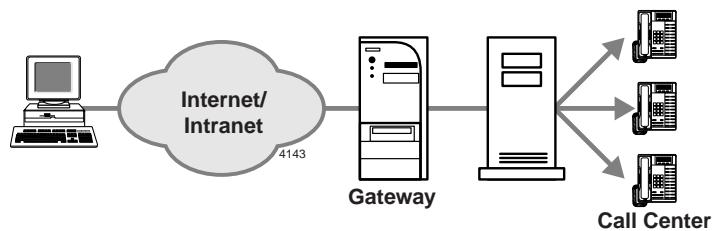
PC to Phone

When placing a call from Internet telephone, the call travels over the Internet/Intranet to the gateway closest to the call destination. This routing is automatically determined by the system. From this point, the call travels over the PSTN/PBX to its final destination. See figure below.



Web Browser to Phone: Surf & Call

Using the Surf & Call function, user's surfing the Web can connect to a company's call center simply by clicking a Call button located on the company Web page (see figure below). After downloading the plug-in, users can communicate with a customer service group, ordering department, or help desk by using their Web browser and multimedia equipment. This feature leverages the strengths of a company's Web site and call center, expanding the number of ways in which customers can obtain information and conduct business.



System Requirements

Depending on the application and capacity requirements, several voice IP telephony gateway models are available from Alliance Systems, Inc. These models are:

Alliance Model	Port size	Port Type	Dialogic Card	Strata DK interface	Type
DKIP-4A	4	Analog	2 - D/21H	RCOU	Loop Start Station*
DKIP-6A	6	Analog	3 - D/21H	RCOU	Loop Start Station*
DKIP-8A	8	Analog	1-D160SC-LS	RCOU	Loop Start Station*
DKIP-16A	16	Analog	2-D160SC-LS	RCOU	Loop Start Station*
DKIP-24T1	24	Digital	1-D480SC-2T1	RDTU	Ground/Loop CO DID/Tie lines

* To send DTMF, these stations must be programmed as voice mail ports.

Programming Notes

To make the installation and programming process as smooth as possible for our dealers, we suggest using most, if not all, of the default parameters that are pre-installed in the voice IP telephony gateway. You can then match up the gateway configuration to the Strata DK424 programming, a practice that is far more familiar to our dealers.

The voice IP telephony gateway is shipped to order with the necessary hardware (i.e., Dialogic Telephony cards) and software (i.e., Vocaltec telephony gateway) installed. The System Administrator should review Chapters 1~4 of the *VTG Manual* and perform the necessary hardware connections (e.g., analog line interface, T1 E&M interface LAN port, etc.).

If voice IP telephony gateway is positioned behind a firewall, please be sure to check the "Connecting to a Firewall" section under "Installation Planning" in Chapter 3. Once the gateway comes up, the administrator should proceed to "Configure the Gateway" (refer to *VTG Manual – Chapter 5*).

If VTG fails to come up, be sure to check if:

- ◆ A Dongle is installed
- ◆ LAN is active
- ◆ Dialogic service is active

Programming for the Alliance Voice IP Telephony Gateway Unit

Details on how to configure the gateway are described in the *VTG Manual – Chapter 5*. After the VTG starts for the first time, the configuration process is initiated from the Main Menu, by selecting the Configure button.

➤ To Configure the Mode

- Select Main (default) or Expansion Unit accordingly.

➤ To Configure Local Preferences

- Enter Gateway Information, Dialing Parameters, Dialing Permissions, Local Preferences, Operator and Fax Parameter from this entry.

For basic Toll Bypass between Strata DK424 users, entries for Gateway Information, Dialing Parameters and Local Preferences are generally sufficient. In general, we recommend using

the Strata DK424 to perform such functions of routing and toll restriction, and dialing a given gateway using its PBX Code.

Enter Dialing Permissions only if users will be dialing through a local gateway (in-band Dual Tone Multi-Frequency (DTMF) using E.164 dialing plan. In this case, the local gateway performs the routing function to select the best remote gateway to complete the call, terminating either to a remote PBX extension or dialing out a trunk call through the remote PBX.

► To Configure Lines

- Select Enabled and Apply to enable a given line.

This is where each line/port between the Strata DK424 and the gateway is enabled. In general, the given line becomes enabled and idle. "Do Not Ask for Access Code" is selected by default. Since Strata DK does not have Class Of Service (COS) restrictions that can discriminate incoming trunks from local station users accessing the gateway ports, pay careful attention when assigning the proper Login prompt and Outbound Permission parameters for each line/port configured.

► To Configure Remote

- Enter pertinent information for all remote gateways for the gateway network.

► Configure Client Types (i.e., users, Surf & Call, and Conference List) and access permission to the gateway facilities

For example, an Internet Service Provider (ISP) can assign access codes to subscribers (i.e., users accessing via telephones or Internet Phones) for authorization and billing purposes.

Programming for the Strata DK424

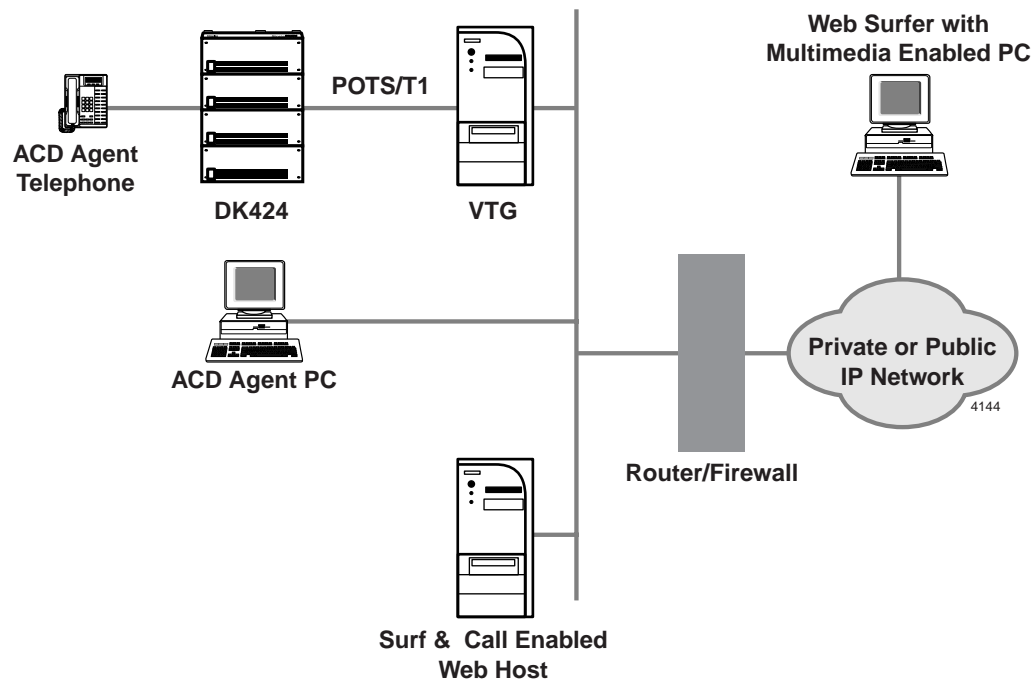
- | | | |
|--|-----------------|------------------------|
| 1. Setup port hunting for voice ports between the Strata DK and the gateway - Program 33 | | |
| 2. Setup Voice Mail ports | Program 31 | LEDs 4, 5, 9, 15~20=ON |
| 3. Setup for T1 | Programs: *41-1 | Default |
| | *41-2 | Type 4 (Tie Wink) |
| | *41-3, 4 | Default |
| | *42-1 | Primary Clock |
| 4. Setup for LCR | Programs: 50~56 | LCR Access |
| | 16, 39 | Trunk Group Access |

Surf & Call

Surf & Call extends the capabilities of Web surfers by enabling visitors to your Web site to make calls through your voice IP gateway to live agents behind the Strata DK system. A Surf & Call enabled Web host is a purpose-built Web pages with CALL buttons. These buttons provide the Surf & Call links to gateway.

In the figure below, a user surfing the Web interacts with a Surf & Call enabled Web host. A purpose built CALL button is presented to the Web surfer prompting him/her to click to dial a live agent. The Web surfer "Clicks" the CALL button to initiate the Voice-IP call into the Strata DK via the gateway.

The purpose-built CALL buttons can direct the surfer to talk to the ACD agent (Call Center) or an individual (Web-based Directory Service). The ability to talk directly to a live agent is especially important since it provides the means to complete the transaction.



Surf & Call System Requirements

Depending on the application and capacity, several voice IP telephony gateway models available from Alliance Systems, Inc., are:

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DKIP-16A	16	Analog	2-D160SC-LS	RCOU	Loop Start Station*
DKIP-24T1	24	Digital	1-D480SC-2T1	RDTU	Ground/Loop CO DID/TIE lines

* To send DTMF, the ports must be programmed as voice mail ports.

In an analog gateway environment, a Skutch Line Simulator is required between each Strata DK analog trunk port and analog gateway port to provide ringing.

Surf & Call Programming Notes

In addition to Programming Notes described on [Page 4](#), the section below provides programming notes on Surf & Call only.

Preparing a Surf & Call Web site involves the following steps:

1. Adding new entries to the gateway Surf & Call list.
2. Creating and publishing a Web page with Call buttons that provide links to the Surf & Call gateway.

Programming Surf & Call for the Alliance Voice IP Telephony Gateway

1. Complete the basic programming described in “[Programming for the Alliance Voice IP Telephony Gateway Unit](#)” on [Page 4](#).
2. Purchase and configure the Surf & Call option for the gateway unit.

► To Configure the Surf & Call Option

1. Click Upgrade from the Main Menu.
2. Select the Configure button in the Main Menu to configure Surf & Call.

Configure/Client/Surf & Call

This is used to Edit, Add Surf & Call or Remove Surf & Call links. You can create any number of Surf & Call links (e.g., the entire employee directory), but the Surf & Call licenses determine the maximum number of concurrent Surf & Call calls. It is important to note that a unique "Surf & Call string" is generated every time a Surf & Call list is created. This string must be copied and matched up with the CALL buttons during the customization process described in the following section.

Programming for Surf & Call Enabled Web Host

This is where the administrator creates and publishes CALL buttons with Surf & Call links. For details on this subject, please refer to VTG Manual (Appendix C – Surf & Call 3.0 Administrator Reference). Also, refer to <http://www.vocaltec.com/plugin> for the latest information, especially on consideration of how to provide the plug in (automatic or manual) to the browsers.

For customers who outsource the Web site, call Computer-Telephony Solutions, Inc., at (602) 496-9040

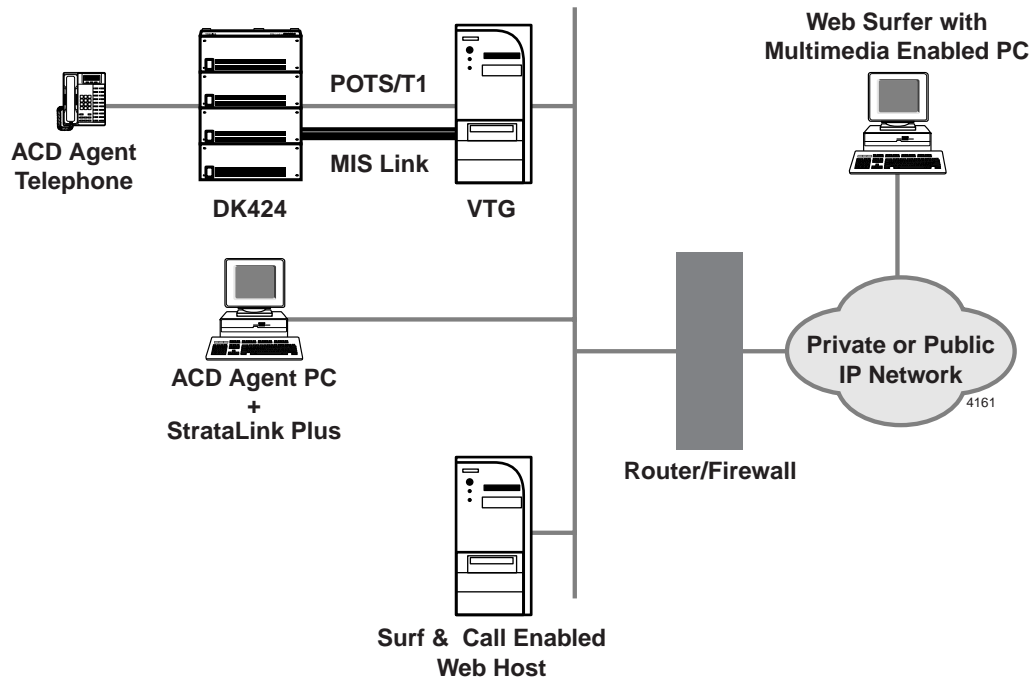
Programming for the Strata DK424

Setup for ACD - Programs 10-4, 14-1, 39, *33

Surf & Call with ACD Agent Screen Pop

In the figure below, a user surfing the Web interacts with Surf & Call enabled Web host. A purpose-built CALL button is presented to the Web surfer prompting him/her to click to dial a live agent. The surfer "Clicks" the CALL button to initiate the voice IP call into the Strata DK424 via the gateway.

In order to prepare for the ACD Agent Screen Pop, a form is sent to the Web surfer to log the identity of the Web surfer. When the call is finally presented to the ACD Agent telephone, the corresponding ACD Agent PC retrieves the log file of the Web surfer for the Screen Pop.



System Requirements

Depending on the application and capacity, several voice IP telephony gateway models are available from Alliance Systems, Inc. The models available are:

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To send DTMF, must be programmed as voice mail ports.

In an analog gateway environment, a Skutch Line Simulator is required between each Strata DK analog trunk port and analog gateway port to provide ringing.

Programming Notes

Before proceeding with this section, please complete the programming notes described in [“Programming Notes” on Page 4](#) and [Page 7](#).

Programming for the Alliance voice IP Telephony Gateway

- Refer to the [“Programming Notes” on Page 4](#) and [“Surf & Call Programming Notes” on Page 7](#).

Programming for the Strata DK424

- Setup for MIS link - Install RKYS3.

Programming for Surf & Call Enabled Web Host

No additional setup is required.

Programming for Computer-Telephony Solutions, Inc. CT Server Software

- Refer to *CT Server Operations Manual, Version 1.0*.

Programming for StrataLink 2.0

- Refer to *StrataLink 2.0 Operations Manual*.

TAIS Disclaimer

This information is being made available as a service to our customers. While the voice IP products mentioned have been tested for compatibility with the Toshiba Strata DK424 Business Telephone System, this in no way constitutes endorsement of such products. We assume no liability for damages incurred in connection with the purchase, use, or performance of such voice IP products alone or in combination with Toshiba products. Any and all responsibility and liability is exclusively limited to that set forth in the standard limited warranty applicable to the respective products.

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