**Product: ShoreTel system**          **System version:** ShoreTel 6

# Deploying a multi-tenant application on the ShoreTel system

The ShoreTel system can be configured to support multi-tenant applications including those for hosted services / service providers. The features and functions allow tenants to portray a unique, professional image to their calling parties and provides billing capabilities for the tenant management.

## Overview

This application note highlights the best practices for deploying a single ShoreTel system in a multi-tenant manner. This allows ShoreTel resources to be shared amongst all the tenants – including the ShoreWare server, ShoreGear voice switches providing trunking (i.e. ShoreGear-T1) and the ShoreGear voice switches providing station-side support.

The multi-tenant application is examined from perspective of the calling party experience, the main answering position and the user experience. Management of the ShoreTel system is also addressed.

## Calling Party Experience

The calling party experience can be made to appear completely unique and independent between tenants since the ShoreTel system

has flexible inbound routing options for menus, users and workgroups.

- Each company can have their own automated attendant greeting(s) with associated nesting. Calls are directed to the correct menu using Direct Inward Dial (DID) or Dialed Number Identification Service (DNIS) routing.

- In ShoreTel5 Release2, each tenant could have their own dial by first name, dial by last name and dial by number option on the system. This was built with user lists in ShoreWare Director.

- Users at each company can have their own Direct Inward Dial (DID) number.

- Each company can have their own workgroups for applications like technical support, inside sales, etc. Calls are directed to the correct workgroup using Direct Inward Dial (DID) or Dialed Number

Identification Service (DNIS) routing.

## Main Answering Position

Often in multi-tenant applications, there is a shared operator for all the tenants. The operator may be the main answering position or could be "zero-out" for the automated attendant.

The ShoreTel system provides the operator with information on the IP phone display as well as on the Operator Call Manager for proper answering. This allows the operator to answer with a specific greeting representing the tenant.

- The IP560, IP530 and IP100 will present the "Friendly DNIS" on the display for inbound calls.

- The Operator Call Manager (in fact, all Call Managers) will present the friendly DNIS for inbound calls.

Each company is given a unique DNIS entry along with a "Friendly DNIS" on the inbound trunk group representing the dialed number. For instance, when a customer dials "408-555-1000," the central office could present "1000" to the ShoreTel system and the friendly DNIS could be "ACME Supply." When the call reaches the operator, the IP phone and call manager will present "ACME Supply."

If you want to limit the number of users an Operator can view in the extension monitor, it is recommended to use the Supervisor Call Manager and create a workgroup for each company they monitor.

## User experience

The user experience will be very "information-rich" and powerful between tenants.

Users can call other tenants on their DID number, but they can also simply call other tenants on their internal extension.

Users can call other tenants on their DID number and leave a voice message, but they can also simply send a message to their internal mailbox.

With ShoreTel5 Release2, users could also have a different Caller ID number presented to the external parties they are calling rather than always presenting their DID number. This allowed all users in a company to potentially present the same Caller ID for external calls – different from another company on the same system.

## Management

The ShoreTel system in a multi-tenant environment is typically

managed by the tenant manager. Adds, moves and changes of the phone system are routed to the tenant manager since they may charge a monthly, per user fee.

For billing purposes, the ShoreTel system provides CDR reports for each and every user. These records can be leveraged to provide bill back to each user / tenant on a monthly basis.

With the release of ShoreTel 6 the process of upgrading the client software on a user's desktop has been improved such that administrative rights are no longer needed by the person running the install/upgrade on the client machines. Now the tenant manager (system administrator) can easily upgrade the software on all client machines regardless of the permissions associated with those machines or the users who log into those machines.

Many of the changes are reliant on Microsoft Active Directory. The Microsoft Active Directory software handles the following tasks:

- Create a Group Policy Object to use to distribute the software package

- Assign a package to a group of computers running Windows 2000, 2003, or XP Professional

- Publish a package

- Remove a package

Some level of management can be delegated to each tenant using ShoreTel's multi-level management.

The following configuration tips should be considered to provide better isolation of tenant users.

- Consider turning off voice mail distribution lists and broadcast.

- If desired, users can be marked as "Private" to hide their name for all users.

- Features like silent monitor, barge-in, call recording and intercom should be restricted to key users (i.e. shared operator position).

- With ShoreTel 6, caller ID display control for extension monitoring can be configured to address privacy concerns. The extension monitoring function has been enhanced to offer control over who can see caller ID information on monitored extensions. The system can be configured to display caller ID information on a monitored extension or simply show that the monitored extension is on a call with no caller ID information.

## On-Net Dialing

With ShoreTel 6 the system dial plan has been expanded to support On-Net dialing allowing a landlord to maintain one phone system at a building that houses two or more

organizations in such a way that neither organization is aware that the infrastructure or trunk lines are being shared. Different extensions/prefixes can be assigned to each organization. Extension numbers can have two components, a prefix and a user number. For instance, a deployment could have seven-digit extensions (PPP-UUUU) where the prefix is three digits (PPP) and the user number is four digits (UUUU).

If you assign each organization a different extension prefix, a new option can be activated which can limit the information shared between organizations. This includes:

- The QuickDialer in the Call Manager application which could show only users with the same extension prefix.

- The Extension Monitor in the Operator Call Manager application which could show only users with the same extension prefix.

Currently the ShoreTel system does not support Network Address Translation (NAT). If you need to connect disparate networks together, you must do so without NAT. ShoreTel is *considering* support for NAT in a future release.

## Summary

The ShoreTel system can be deployed in a manner to support many multi-tenant applications.

- The calling party experience can be made isolated between companies.

- A shared operator position can provide a custom answer based on a DNIS number.

- Bill back to different tenants can use the ShoreTel CDR records.

- Deployment of the desktop client software is made easier through the use of a "silent" client install.

- Each organization can have their own dial by name or number directories.

- Features like silent monitor, barge-in, call recording and intercom can be restricted to key users.

- Privacy concerns can be addressed by marking a user's phone number as "private" or controlling caller ID display information on monitored extensions.

- Support for On-Net dialing provides an option which can limit the directory information shared between tenants.

Users will be able to call extension to extension between tenants.