



## Case Study

# Extension Mobility

**Cisco® IT Case Study / IP Telephony / Extension Mobility:** This case study describes Cisco IT's internal deployment of Extension Mobility within the Cisco global network, a leading-edge enterprise environment that is one of the largest and most complex in the world. Cisco customers can draw on Cisco IT's real-world experience in this area to help support similar enterprise needs.

“The chief benefit of Extension Mobility in EMEA is the cost savings that arise from office sharing. By not renting additional office space and furniture for every employee, we're saving hard dollars. And departmental budgets go further because managers can request, say, 100 virtual desks and phones instead of 200 fixed desks and phones.”—  
Gert Vanderstraeten, Cisco EMEA

## Challenge

Like many companies, Cisco Systems® has more employees than desks in certain locations. The explanation is a large salesforce, most of whom visit the physical office only rarely. “Salespeople are most productive when they're with a customer or on the road—not when they're at their desks,” says Gert Vanderstraeten, member of the IT technical staff for Cisco EMEA. In fact, Cisco account managers spend an average of just one day per week in their offices, and sales engineers spend no more than one-and-one-half to two days. Even this meager office time is diminishing because sales personnel can now more conveniently access intranet applications from home, using their new high-speed VPN connections. “It's increasingly important, especially for companies with salespeople in high-rent districts, to not tie up square footage when the employees are elsewhere,” says Dennis Silva, an IT engineer in the Cisco AVVID (Architecture for Voice, Video and Integrated Data) engineering group.

To make desk sharing practical, Cisco needed a way for employees to keep their personal phone extensions even if they used one desk one day and another the next—possibly in different cities. To ensure productivity, employees would also need access to their own telephony feature sets, such as speed-dial numbers and services like Follow-Me, Personal Assistant, and Unified Messaging.

## Solution

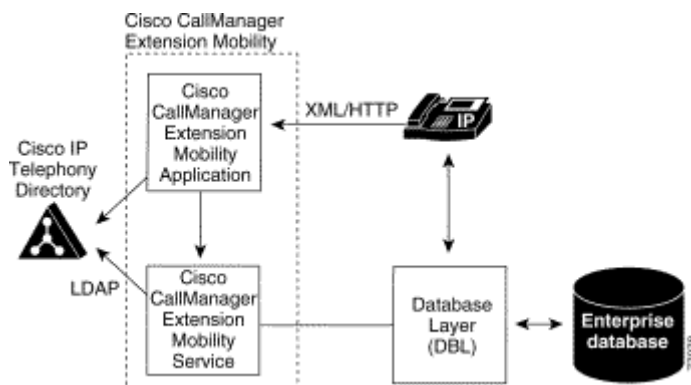
Cisco is achieving all its objectives with Extension Mobility, a built-in feature of Cisco CallManager software. Extension Mobility allows Cisco employees to configure any Extension Mobility-enabled IP phone as their own, on a temporary basis, by logging in to that phone. All IP phones served by a single CallManager cluster, whether that cluster serves a single building or offices in several cities, can participate in Extension Mobility.



Cisco began a phased deployment of Extension Mobility in EMEA in 2000, activating the feature whenever IT upgraded an office or installed a new version of Cisco CallManager software. Just 10 months later, all 7600 employees—salespeople, executives, and support staff—in all 65 locations throughout Western Europe, the Middle East, and South Africa used Extension Mobility.

When employees without an assigned desk arrive at an office, they sit down at any available desk, press the Services key on the Cisco IP Phone 7960, and log in by entering their CallManager username and PIN. Cisco CallManager authenticates the login against the Cisco IP telephony directory by using Lightweight Directory Access Protocol (LDAP), and then instantly configures the phone according to the user's profile, including direct telephone number and characteristics such as speed-dial information and services (Figure 1).

Figure 1 Extension Mobility Architecture



The phone retains the user profile until the user logs off or another user logs on. The administrator can specify a maximum logon duration, such as 12 hours, after which phones are automatically logged off. “When we first deployed Extension Mobility, we set it up for automatic log off after 10 hours, to reduce the office noise from phones ringing for people who weren’t at their desks but neglected to log off,” says Vanderstraeten. “However, we changed this because many of our employees have assigned desks, and they prefer not to have to log in every morning.”

To add, delete, or update users, Cisco EMEA uses the Web-based Cisco CallManager Bulk Administration Tool (BAT). Using BAT, provisioning IP phones with Extension Mobility takes no longer than provisioning them without the feature. It’s a two-step process. First the administrator uses the CallManager interface to define the phone by adding its MAC address and the URL of the login service. Then the administrator defines user profiles, which contain the user’s extension number, speed-dial numbers, and services such as forwarding. The phone definition and user profile are coupled when the user logs in, remaining so until the user logs off.

After the administrator adds users, these users can change their profiles—adding a service or changing a forwarding number, for example—by using the Cisco CallManager User Options Web page.

## Results

### Cost Savings

“The chief benefit of Extension Mobility in EMEA is the cost savings that arise from office sharing,” says Vanderstraeten. “By not renting additional office space and furniture for every employee, we’re saving hard dollars. And departmental budgets go further because managers can request, say, 100 virtual desks and phones instead of 200 fixed desks and phones. The money they save becomes available for other projects.”

Total cost of ownership for Extension Mobility is low, as well. When a user profile is created, there is no more administrative work than if the user had a dedicated phone. The Extension Mobility feature also reduces Cisco operational and support costs when employees relocate to a



different office, because there's no longer a need for IT staff to make changes. Instead, the employee logs on to an available phone in the new office. "By totally eliminating MACs, we're saving hundreds of thousands of dollars each year in our IT budget," Vanderstraeten adds .

### **Increased Productivity and Convenience**

Cisco employees readily accepted Extension Mobility. They save time by being able to use the nearest unoccupied desk, and don't have to compete for office space or phone use. "Having the ability to walk over to any desk in the building, key in your name and PIN, and then have your own phone number is a windfall," says Silva. Since a recent upgrade to Extension Mobility, the last person to have logged into a particular IP phone can simply select their name rather than keying it in, further increasing convenience.

Extension Mobility has proved a boon to collaboration, as well. "Cisco employees from different groups frequently come together to collaborate on a particular technical issue," says Silva. "Extension Mobility facilitates fluid workgroups. Employees can meet in any location, log on to an IP phone to access their speed-dial numbers, and then easily conference in other people as needed."

### **Extended Reach**

Extension Mobility works in all offices served by a single CallManager cluster. Presently, Cisco EMEA employees can use the same extension in Brussels, Amsterdam, and several London locations. As Cisco further centralizes call processing to increase the number of offices served by a single CallManager cluster, Cisco employees will be able to take advantage of Extension Mobility in an even broader geographic area. "By early 2004 we'll have one Cisco CallManager cluster serving all of Europe, one for the Middle East, and one for South Africa," says Vanderstraeten. "Whatever country within a region a salesperson happens to be in, their customers will be able to reach them directly by calling their usual phone number. This will improve customer service and also improve salespeople productivity by reducing the time they spend retrieving voice mail."

### **Next Steps**

#### **Deployment to More Sites**

Cisco will deploy Extension Mobility in Beijing and Shanghai during late 2003, and is presently planning its introduction to the Pleasanton, California, and Scotts Valley, California campuses. In late 2003, the 10 offices in the New York Metro region will be consolidated into a single CallManager cluster with Extension Mobility. With the flexibility to work from any office, employees in these locations should be able to provide better service to their customers, more conveniently.

#### **Cached User IDs**

Presently, Extension Mobility caches the most recently entered user ID, for the convenience of workers who frequently use the same desk. Vanderstraeten would like to see Extension Mobility enhanced to cache several user IDs.

#### **Charge Back**

In EMEA, Cisco is investigating the business benefits of a telecommunications charge-back model: each employee's toll calls (off-net calls) would be billed to their department. Should Cisco decide to implement the charge-back model, Cisco CallManager software and the Extension Mobility feature already have the capability to collect the necessary usage information.

#### **Home Extensions**

Providing employees with an extension at home as well as the office has two drawbacks. One is that both phones typically ring at once, creating unwanted noise both at the home and the office. The other is exposure to toll fraud if family members use the home extension. For these reasons, most European companies provide their employees with mobile phones instead of an extension in two locations, at a high cost premium.



“Extension Mobility makes it practical to provide a home extension,” says Vanderstraeten. “When the employee logs in at the office, they automatically log off their home phone, eliminating unnecessary ringing and preventing unauthorized use.”

### Enterprisewide Extension Mobility

As Cisco continues to centralize its call processing, Extension Mobility will be available throughout the enterprise. Cisco engineers are currently addressing challenges related to ensuring voice quality for sites with low bandwidth. “Ultimately, any Cisco employee will be able to log into an IP phone in any Cisco office in the world and receive calls from callers who dialed their direct number,” says Vanderstraeten.

This publication describes how Cisco has benefited from the deployment of its own products. Many factors may have contributed to the results and benefits described; Cisco does not guarantee comparable results elsewhere.

CISCO PROVIDES THIS PUBLICATION AS IS WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Some jurisdictions do not allow disclaimer of express or implied warranties, therefore this disclaimer may not apply to you.



#### Corporate Headquarters

Cisco Systems, Inc.  
170 West Tasman Drive  
San Jose, CA 95134-1706  
USA  
www.cisco.com  
Tel: 408 526-4000  
800 553-NETS (6387)  
Fax: 408 526-4100

#### European Headquarters

Cisco Systems International  
BV  
Haarlerbergpark  
Haarlerbergweg 13-19  
1101 CH Amsterdam  
The Netherlands  
www-europe.cisco.com  
Tel: 31 0 20 357 1000  
Fax: 31 0 20 357 1100

#### Americas Headquarters

Cisco Systems, Inc.  
170 West Tasman Drive  
San Jose, CA 95134-1706  
USA  
www.cisco.com  
Tel: 408 526-7660  
Fax: 408 527-0883

#### Asia Pacific Headquarters

Cisco Systems, Inc.  
Capital Tower  
168 Robinson Road  
#22-01 to #29-01  
Singapore 068912  
www.cisco.com  
Tel: +65 317 7777  
Fax: +65 317 7799

Cisco Systems has more than 200 offices in the following countries and regions. Addresses, phone numbers, and fax numbers are listed on **the Cisco Web site at [www.cisco.com/go/offices](http://www.cisco.com/go/offices).**

Argentina • Australia • Austria • Belgium • Brazil • Bulgaria • Canada • Chile • China PRC • Colombia • Costa Rica • Croatia • Czech Republic • Denmark • Dubai, UAE • Finland • France • Germany • Greece • Hong Kong SAR • Hungary • India • Indonesia • Ireland • Israel • Italy • Japan • Korea • Luxembourg • Malaysia • Mexico • The Netherlands • New Zealand • Norway • Peru • Philippines • Poland • Portugal • Puerto Rico • Romania • Russia • Saudi Arabia • Scotland • Singapore • Slovakia • Slovenia • South Africa • Spain • Sweden • Switzerland • Taiwan • Thailand • Turkey • Ukraine • United Kingdom • United States • Venezuela • Vietnam • Zimbabwe

Copyright © 2003 Cisco Systems, Inc. All rights reserved. Cisco, Cisco Systems, and the Cisco Systems logo are registered trademarks or trademarks of Cisco Systems, Inc. and/or its affiliates in the U.S. and certain other countries. All other trademarks mentioned in this document or Website are the property of their respective owners. The use of the word partner does not imply a partnership relationship between Cisco and any other company. (0304R)