



c i c e r o

NETWORKS

## Voice Over Wireless IP

**A new world of voice communications is emerging. The adoption of VoIP and the proliferation of wireless access points have created a new unlicensed mobile access network through which operators and service providers can deliver high quality voice services at a fraction of the cost of traditional cellular networks.**

Cicero offers service providers a unique means of delivering voice services over Wi-Fi and Bluetooth connections. Using industry standard smartphones, PDAs and laptops, enabled with Wi-Fi or Bluetooth, Cicero users can place and receive calls through any wireless access point, whether at home, at work or in a public hotspot location.

Cicero offers tremendous benefits to service providers both by increasing voice revenues and by reducing call termination costs. This allows service providers in turn to offer significant savings to subscribers through lower call charges and the benefit of using a single device for calls over both mobile and fixed-line networks.

*“Using Cicero, operators can exploit Wi-Fi networks to deliver mobile voice services at significantly lower costs”.*

# Voice Services for Wi-Fi and Bluetooth Networks

**Cicero users benefit from using a single mobile device to access all voice and data services through public and private access points.**

Using the same handset, Cicero users can:

- » make and receive low-cost calls from public hotspots in cafes, airport lounges, etc
- » connect to the company telephone network from a public hotspot
- » connect wirelessly to the office phone system when at work
- » connect to the office phone network when visiting other company locations
- » make and receive wireless calls over the broadband connection at home

## How Cicero Works

1. The user downloads Cicero Phone to their mobile phone or PDA. As simple as installing a new ring-tone, it can be delivered over-the-air, downloaded from a website or transferred over the access point itself.
2. When the user connects to a wireless access point, Cicero Phone automatically registers with an operator's network. The user is then authenticated and authorised for a range of services.
3. The user places a call using Cicero. The highly intuitive user interface supports both direct number entry and selection from the existing contact list on their mobile phone or PDA.
4. Within the operator environment, when Cicero Controller receives the call request, it uses the details of both the caller and the person being called to select an appropriate gateway for call completion.
5. Cicero Controller maintains a complete record of all call activity, including time and duration, for delivery to the operator's call accounting and billing systems.

Importantly, Cicero maintains detailed presence information on its users, enabling the service provider to route inbound calls through the access point. In addition to increasing user mobility, this call termination capability allows the service provider to reduce interconnection costs.

## Benefits

### **Increase revenues**

Service providers can increase revenues by providing a range of new voice services

### **Reduce interconnect fees**

Service providers can use Cicero to route calls directly to the subscriber over a combination of broadband and unlicensed wireless connections

### **Reduce call costs**

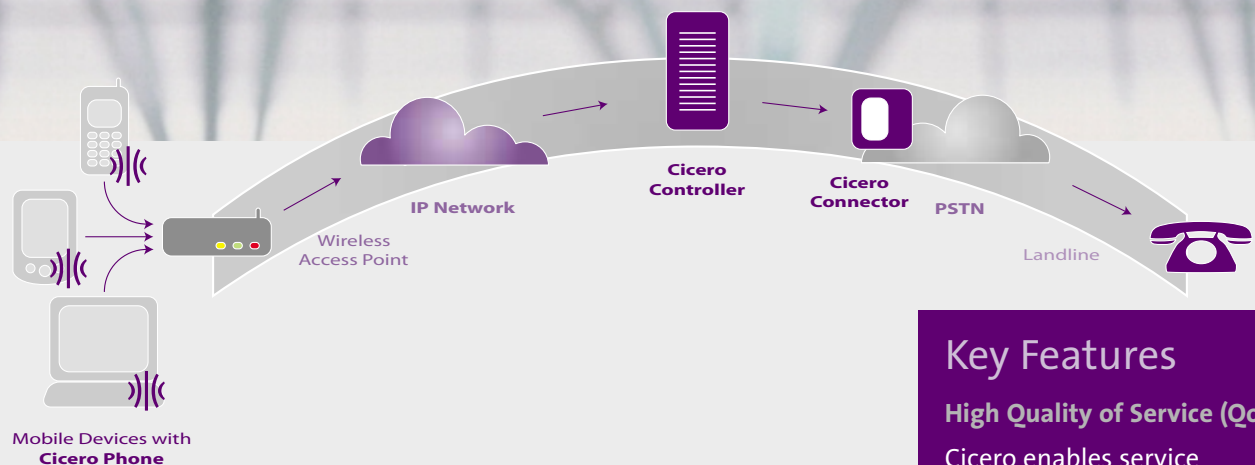
Both business and personal subscribers can significantly reduce their voice costs

### **Increase customer satisfaction**

By allowing people to use a single device for all types of calls, operators can enhance the customer experience and reduce churn

### **Increase productivity**

Enterprise users can roam freely while making and receiving calls through the company voice network



## What Cicero Offers

The principal components of the solution are Cicero Phone, Cicero Controller and Cicero Connector. Together, these components enable a broad range of mobile devices to integrate with existing telephony networks over unlicensed wireless connections.

### Cicero Phone

Cicero Phone is an easy-to-use lightweight softphone that operates across a range of platforms including mobile phones, PDAs and PCs. The softphone is specifically designed to operate in devices where both processing power and memory are in short supply. It supports a range of standard codecs allowing the choice of codec to be made on the basis of the capabilities of the connecting devices and the quality of the IP connection between them.

### Cicero Controller

Cicero Controller is the central call management and routing platform, responsible for the establishment and intelligent routing of calls between Cicero Phone users and external voice networks. Cicero Controller also provides a range of functions including user registration, service access authorisation and the management of client devices. It maintains a repository of on-line presence and location information, facilitating enabling both inbound and outbound call termination. Cicero Controller also keeps a record of all call activity (CDRs) for delivery to call accounting and billing systems

### Cicero Connector

Cicero Connectors support a range of existing voice networks, including both traditional and IP-based voice switches. Cicero Connectors provide location, capacity and usage information to Cicero Controller allowing it to make intelligent call routing decisions. Calls can even be routed through Cicero Connectors operated by different carriers provided that the appropriate interconnection arrangements have been put in place.

## Key Features

### High Quality of Service (QoS)

Cicero enables service providers to deliver high quality voice services over broadband and wireless connections.

### Highly scalable, carrier grade solution

Cicero's distributed server architecture offers the scalability and resilience required to provide carrier-grade voice services.

### Intelligent Call Routing

Cicero facilitates both inbound and outbound call termination using intelligent call routing capabilities leveraging information maintained across the Cicero architecture (Phone, Controller and Connector).

### Easy to provision and use

Cicero Phone is very simple to install and is easily downloadable over the air, via the web or, at point of first use through the access point itself.

### Supports open, standards-based infrastructure

Cicero uses industry standard mobile phones and wireless-enabled PDAs requiring no proprietary infrastructure investment. It is also designed to operate through standard access points and over standard IP networks.

# Wireless IP Telephony - Cicero in Action

**Cicero delivers significant advantages across a number of deployment scenarios.**

## **Cicero enhances public voice services**

Operators offering voice and data services over fixed-line connections are facing increasing pressure from both fixed-mobile substitution and the introduction of VoIP services. By deploying Cicero, the operator can now offer a new range of wireless voice services to both residential and corporate subscribers. As a residential subscriber, a Cicero user can make and receive mobile calls at home, via a wireless access point over DSL, to either another Cicero user or to a fixed line number at very low rates. This user can then use the same device to make and receive calls at fixed-line rates from public access points anywhere in the world, as if they were calling from their own home.

## **Cicero reduces mobile communications costs for the enterprise**

Take for example a company with three office locations, home-based teleworkers and a mobile sales force. The office locations are connected by a broadband IP network. Each location uses a different phone system for voice communications the head office operating an IP PBX; the branch office operating a traditional circuit-switched PBX and the sub-office using a direct PSTN connection. Using Cicero,

- » All voice calls can now be made between the offices over the wide area network. Even where all three offices are in the same region, the cost savings can be considerable.
- » Teleworkers and field personnel can now access the office phone system from external Wi-Fi access points – at home or a public hotspot – using their mobiles or PDAs reducing costly cellular bills.

Cicero's innovative use of wireless connections also allows employees to use their mobile device to make and receive voice calls while moving within or between office locations.

## About Cicero Networks

Cicero Networks is at the forefront of the wireless Internet revolution, developing solutions for the delivery of voice over wireless IP. Its unique platform-independent solution offers operators and service providers a means of delivering high-quality voice services over both Wi-Fi and Bluetooth networks at significantly lower cost than traditional cellular networks.

For more information on Cicero Networks, please visit

**[www.ciceronetworks.com](http://www.ciceronetworks.com).**

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