

InterReach® Office Solution (IRO)

Your One-Stop, Simple and Cost-Effective Wireless Enterprise Solution



ONE PHONE, ONE NUMBER AND ONE VOICE MAIL IN THE OFFICE

ADC: Your Wireless Enterprise Solution Provider

From nationwide networks to lab systems, ADC has developed customizable solutions for public operators, equipment manufacturers, and specialized applications.

ADC's scalable all-IP products and low startup costs enable customers to purchase systems that meet their current needs and allow for future expansion. The company uses industry-standard interfaces to facilitate integration with existing infrastructure and third party vendors.

ADC customers benefit from our innovative IP techniques that provide local switching and reduce backhaul costs. In mobile applications, customers also gain from our ability to rapidly deploy a network using compact designs and easy-to-configure databases.

A worldwide leader in indoor and outdoor wireless solutions, ADC is dedicated to provide the right communications solution for you.

ADC's InterReach® Office (IRO) Solution

Today, cellular phones have become the primary communication devices in the world. While people use cellular phones almost everywhere, 70 percent of mobile calls are made inside buildings, including corporate, campus, ships, etc. These users are very important as they generate the highest Average Revenue Per User (ARPU). Carriers need to provide better coverage, higher capacity and more services in-building in order to attract new customers and reduce churn.

ADC's InterReach® Office solution offers a unique, integrated, simple and cost-effective wireless enterprise solution. This solution combines an all-IP architecture and core network technology with ADC's industry leading in-building coverage capabilities. This solution integrates a fleet of mobile phones with offices' private voice network, providing excellent on-site coverage, dedicated capacity and wireless PBX services. At a lower cost, IRO users can enjoy high quality voice and data services. The IRO family includes InterReach Unison®, InterReach Fusion®, InterReach picoBTS and InterReach Mobility Gateway.

Key Benefits to Operators

- Net adds - attracting high revenue customers
- Reduce churn – improved customer satisfaction and extended use of mobile phones inside the enterprise
- Free up resources – offload macro network radio channels and trunks



Key Benefits to Enterprises

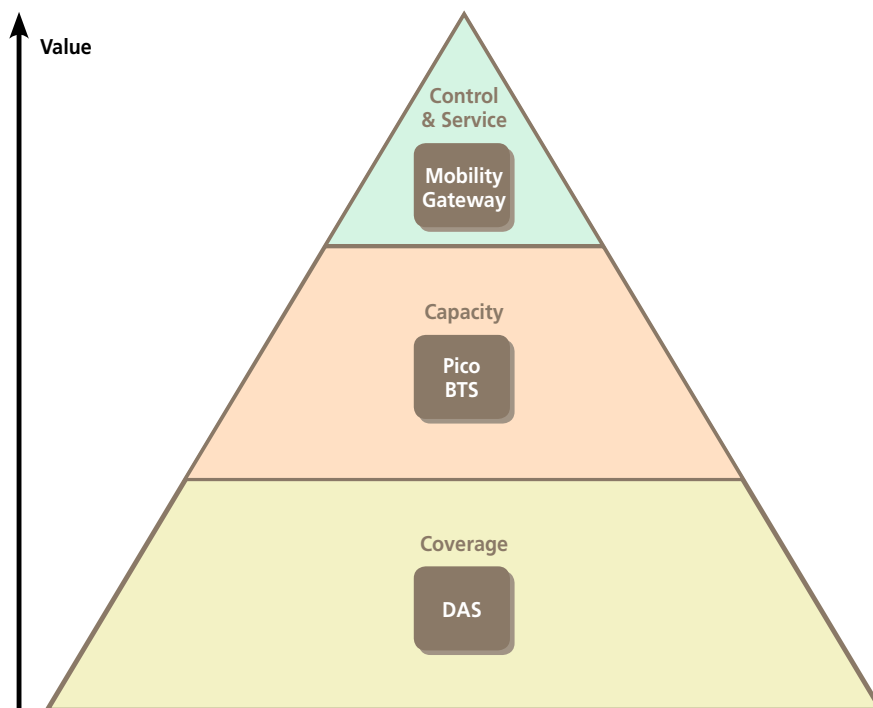
- Uniform coverage with minimum interference with the outdoor network
- Simplified all-IP architecture with low cost backhaul over standard broadband connections (cable, DSL)
- No special handsets required – works with standard GSM phones
- Increased office productivity
- Cost-effective and scalable capacity distribution throughout the building
- Local Switching – Intra-office mobile calls are not backhauled to central office
- Easy installation using existing CAT5 wiring in the Enterprise
- Minimal network management and on-going maintenance required
- IP PBX and Unified Communications (UC) integration via the Mobility Gateway for a comprehensive wireless Enterprise solution

APPLICATIONS

WIRELESS ENTERPRISE

Today, most Enterprises are only covered by macro-sites. This means that calls originating and terminating in the Enterprise use valuable capacity in the Operator's BSS and backhaul infrastructure. Outdoor solutions are not optimized to deal with in-building communications. The most obvious dilemma is how to provide adequate coverage and capacity at attractive

price points. However, an equally important task is the integration of cellular devices with other Enterprise communication tools such as Unified Communications and IP PBXs. ADC's InterReach Office solution offers a flexible portfolio of products that addresses all of these challenges faced by the Wireless Enterprise.



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Coverage

As soon as operators discovered the limitations of indoor coverage by macro sites, they started to deploy various technologies including repeaters, dedicated pico cells and Distributed Antenna Systems (DAS). Repeaters increase indoor signal strength but fail to offload the macro network. Individual pico cells provide coverage and capacity in smaller areas but

create handover problems when multiple picos overlap. DAS has proven to offer ideal RF conditions in any indoor environment and provide a highly scalable and cost-efficient approach to in-building radio coverage. ADC, a leader in DAS technology offers InterReach Unison and InterReach Fusion product lines as part of InterReach Office solution.

Capacity

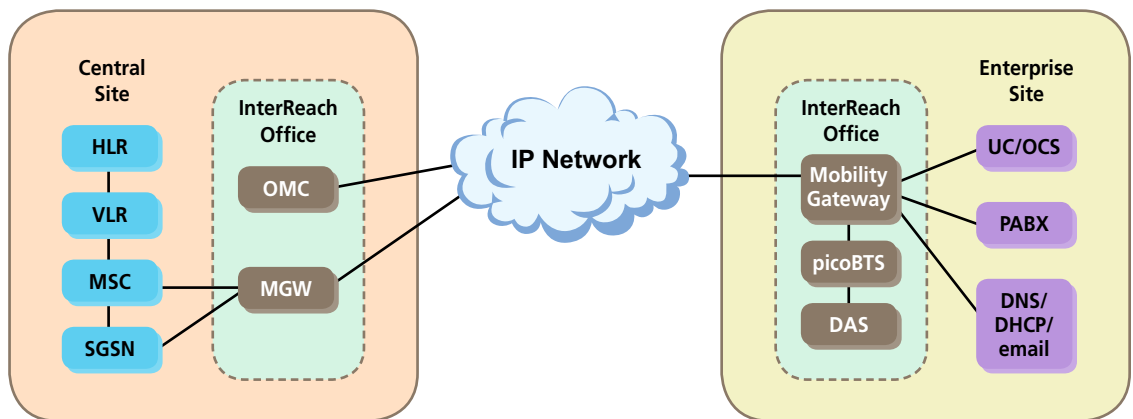
In many cases, indoor coverage is provided by DAS and dedicated capacity is provided by a micro Base Transceiver Station (BTS). Although individual pico cells on their own do not scale well for indoor coverage as mentioned above, in combination with DAS products they become cost-effective providers of capacity. As the RF part moves into the Enterprise, it would be preferable to feed the DAS with a small,

cost-effective picoBTS that can be backhauled over IP. Ideally, the picoBTS will consume very little power and duplicate the same form factor as the DAS to minimize footprint. In this regard, ADC offers an InterReach picoBTS that has been designed to meet the particular requirements of the Wireless Enterprise and is an integrated part of InterReach Office solution.

Control and Services

Improving coverage and capacity is a good start for winning high-ARPU corporate customers. The next step is to provide local call control and Value-Added Services. As most operators offer flat fees for Intra-company calls, there is no marginal revenue to cover the marginal cost of backhauling one more call to the central MSC. With the introduction of ADC's Mobility Gateway, Intra-company calls and data sessions can

be routed locally within the Enterprise. This has the double benefit of placing call control within the realm of the Enterprise and saving OPEX and CAPEX for the operator. Furthermore, it enables the Enterprise to interconnect its mobile devices with its Unified Communications and/or IP PBX systems to create true convergence. The InterReach Mobility GateWay is an integrated part of the InterReach Office.



InterReach Office Architecture

Unified Communications

Unified Communications (UC) is the software-based, streamlined communications solution. It encompasses all forms of call and multimedia/cross-media message-management functions controlled by an individual user for both business and social purposes. This includes any Enterprise informational or transactional application process that emulates a human user and uses a single, content-independent personal messaging channel (mailbox) for contact access.

InterReach Office has been designed to integrate seamlessly with Unified Communications and IP PBX systems from different vendors. The integration is provided through standard IP interfaces in the InterReach Office Mobility Gateway and takes place within the Enterprise. Carrier involvement is not necessary. Each user's personal messaging channels is extended to the mobile domain as the handset becomes another SIP endpoint in the UC community. In addition, cellular presence allows the mobile's status to be displayed.

Key UC Features

- Cellular presence on the IM clients
- IM to SMS conversions
- Voice mail service with web access
- Email with text to speech facilities
- PBX features, such as short numbering dialing
- Multi-party calling between all endpoints
- Standard cellular phones

MARITIME COMMUNICATIONS

Most of the world's cruise lines use satellite networks for data services (such as onboard Internet access), so it is relatively easy to add cellular backhaul traffic to these links. The challenge is to extend cellular coverage throughout a ship with local transmitters and local switching in some cases. Ships present a challenge to cellular coverage because the steel

construction interferes with wireless signals. ADC's InterReach Office solution includes a DAS, picoBTS and Mobility Gateway. It is the complete solution for best user experience anywhere on the ship. Calls can be locally switched on the ship or through the on-shore switching center.

Operation Models

The Service Provider offers an advanced roaming network onboard provision cruise ships, allowing users to make and receive calls using their own handset and phone number. Cellular service is available onboard while the ship is at sea.

International roaming charges apply and will be billed to users by your home carrier. When the cruise ship is approaching port, the in-ship system will turn itself off. Once in port, the user can attach to local roaming networks.



How Do You Benefit?

ADC's all-IP IRO solution provides marine operators and cruise lines with an edge over the competition. Based on the requirements of large and small-to-medium ships, ADC can apply its IRO solution with a locally distributed MSC (please refer to Scenario 1) or BSC (please refer to Scenario 2) respectively. This will not

only increase coverage, capacity and services but also enable operators to minimize backhaul bandwidth requirements and reduce operating expenses. By providing high quality services to passengers and crews on the ships, cruise lines will attract more customers and increase revenues.



Ship network Scenario 1: large ships with local switching



Ship network Scenario 2: Small-to-medium ships

COMPETITIVE ADVANTAGES

	Voice over WiFi	Mobile PBX	Mobile Centrex	InterReach Office
Private Numbering Plans and Tariffs	✓	✓	✓	✓
Off-Loading Macro Switches	✓	✗	✗	✓
Local Switching of GSM/UC/PBX calls and messaging	✓	✗	✗	✓
Works with any GSM handset	✗	✗	✓	✓
Optimized Indoor Radio Coverage	✗	✗	✗	✓
GSM to GSM Handovers for Voice, SMS and Voice Mail	✗	✓	✓	✓

InterReach picoBTS



InterReach picoBTS is packaged in a compact, rack-mountable, server-like enclosure designed for easy installation and configuration. With the IP backhaul, the base station can be easily integrated with DAS for extended coverage and capacity. It supports all GSM bands (850, 900, 1800, and 1900 MHz).

InterReach Mobility Gateway



The **InterReach Mobility Gateway** provides local call management and services for Enterprise subscribers. It interconnects with the Unified Communications and IP PBX over SIP.

InterReach Unison/Fusion



InterReach Unison operates as a seamless extension of the public wireless network infrastructure, expanding the reach of wireless communications by delivering crystal clear signals and ample capacity throughout any public or private facility.

InterReach Fusion offers all the benefits of InterReach Unison in a multi-band solution, enabling any organization to implement state-of-the-art in-building wireless for campus environments and for areas greater than 250,000 square feet (23,000 square meters). Highly economical and remarkably easy to maintain, Fusion delivers unparalleled high performance that competitive products simply cannot match. There are even integrated Web-based administrative and maintenance tools.

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OMC Management



This central control station for managing and provisioning IRO wireless network elements is an efficient and cost-effective platform. The graphical user interface (GUI) allows you to perform a wide range of network management functions, while the client/server architecture and object-oriented technology provide a robust platform for current and future demands.



The Enterprise local manager provides a simple user interface designed for IT professionals. This interface can be used to add or modify subscribers to the local network, adjust the Distributed Antenna System, or radio and mobility gateway parameters as necessary. It provides a simple turn-up and testing interface for the new coverage solution.

GLOSSARY

ARPU

Average Revenue Per User

BSC

Base Station Controller

BSS

Base Station System

BTS

Base Transceiver Station

DAS

Distributed Antenna System

DHCP

Dynamic Host Communication Protocol

DNS

Domain Name System

DSL

Digital Subscriber Line

EDGE

Enhanced Data Rates for GSM Evolution

GSN

GPRS Support Node

HLR

Home Location Register

IM

Instant Message

IP

Internet Protocol

IRO

InterReach Office

LAN

Local Area Network

MGW

Media GateWay

MSC

Mobile Switching Center

OC

Office Communicator

OCS

Office Communications Server

PBX

Private Branch Exchange

SGSN

Service GPRS Support Node

SMS

Short Message Service

UC

Unified Communications

VLR

Visited Location Register



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