

## Cisco Instant and Mobile Integrated Communications Solution



The Cisco Instant and Mobile Integrated Communications Solution (IMICS) is a portable communications solution that can be rapidly deployed during an emergency, network outage, or a temporary event to provide secure data, voice, and wireless services. Cisco IMICS uses commercial off-the-shelf Cisco Systems® products and technologies in combination with third-party auto-acquisition very small aperture terminal (VSAT) antenna and satellite service to provide a preconfigured communications kit. Because Cisco IMICS employs satellite connectivity for backhaul, it is completely independent of the local communications infrastructure. Network coverage can be extended to surrounding areas using the Cisco wireless mesh network, which can be laid down in real time. The system operates using a portable generator or integrated uninterruptible power supply (UPS) and does not depend on the availability of local power lines.

Cisco IMICS is IP-based and is built around the award-winning Cisco Integrated Services Router. It addresses the need for a simple, reliable, and cost-effective communications solution for diverse needs ranging from public safety to enterprise branch offices. With IP as the foundation and wireless as the carrier, Cisco IMICS uses the latest in technology innovations to build a system that is dynamic and scalable.

### COMMUNICATIONS, ANYTIME, ANYWHERE

- Flexible voice communications with Cisco IP phones, analog phones, and integrated voicemail functions
- Secure and WAN-optimized data communications for wired as well as wireless devices
- Integrated 802.11 wireless access point and mesh wireless capability
- Radio interoperability with built-in land mobile radio gateway feature
- Preconfigured solution with straightforward setup; becomes operational in less than 10 minutes
- Weighs less than 200 pounds and requires less than 1000 watts of power. Broadband Cable

## NEED FOR INSTANT AND MOBILE COMMUNICATIONS

Access to the right information at the right time can help save lives and property during a disaster. For state and local governments, which spend millions of dollars on disaster-recovery preparedness, communications infrastructure during an emergency is the most critical component. For public safety agencies, mobile communications is the nervous system which is vital to their operations. Similarly for businesses, staying connected and operational during a natural disaster or network outage can prove vital for long-term business success.

The following features make Cisco IMICS a powerful solution when instant communication is needed:

- **Portable (size, weight, and power)**—To be effective when a natural disaster such as a hurricane or earthquake occurs, the solution needs to be truly portable. Cisco IMICS weighs under 200 pounds, can be easily transported on the back of a pickup truck or van, and can be powered using a portable generator. It is also within Federal Express shipping limits.
- **Ready-to-use**—Cisco IMICS is preconfigured and has a straightforward setup. It can be deployed by non-technical staff at the affected site without the need of any skilled technicians.
- **Flexible and interoperable**—Communications needs such as the number of devices, bandwidth requirement, range, and availability of a WAN option can vary depending on the incident. Cisco IMICS is scalable in terms of the number of phones supported, size of the wireless coverage area, satellite backhaul bandwidth, alternate terrestrial connectivity, and interoperability of devices.
- **Cost effective**—IP technology has made possible the integration of voice, data, wireless, and radio communications in one device, effectively reducing the cost of the solution. With Cisco IMICS, every agency and business can afford to be prepared for the next big disaster.



Hurricane Katrina changed the way we look at disaster preparedness. When Katrina hit the Gulf Coast in the United States, affected areas were completely cut off from all forms of communications for months. Rescue teams were frustrated by their inability to communicate and coordinate. In several cases, reporters were asked to brief public officials on the conditions in areas where information was not reaching them any other way. Amateur radio provided tactical and emergency communications and a means for health and welfare inquiries.

## APPLICATIONS

### Emergency Response Communications

When a natural or man-made disaster strikes, one of the first casualties is the communications infrastructure. The power grid may be down, phone lines may be damaged, central offices may be submerged in water, data centers may be inoperative, and cellular networks may be out of service or saturated. Agencies and organizations engaged in the relief efforts need a reliable and rapidly deployable communications solution to establish data and voice connectivity for planning, coordination, and effective action. The portability and instant availability offered by Cisco IMICS helps enable cities, public safety agencies, and businesses alike to act fast and decisively to:

- Relay information back and forth from the affected areas to operations control
- Provide voice communication to rescue workers as well as affected people
- Coordinate efforts between various agencies working together
- Provide first responders with access to the Internet to obtain critical information
- Provide connectivity for temporary ATMs and point-of-sale devices (credit card machines)
- Obtain live video capture from the affected areas for analysis and relief planning

## Business Continuity for Branch Offices, Retailers, Financial Institutions, and Hospitals

Businesses are becoming increasingly dependent on network connectivity for their operations. Network downtime as a result of a disaster or service provider outage can lead to loss of productivity and damage the reputation of the business. Sometimes restoring connectivity can take weeks or even months. Cisco IMICS helps businesses and organizations quickly bring their network back online. The portability of Cisco IMICS allows non-technical staff to quickly deploy the system. For businesses and organizations, the solution offers benefits such as the following:

- Secure VPN allows remote branch offices to restore their business communications.
- Retail stores can continue secure financial transactions with Cisco IMICS.
- Hospitals and temporary shelters can better operate with communications services provided through Cisco IMICS.
- Unlike fixed backup solutions, IMICS is not exposed to impairment caused by natural disasters such as hurricanes and floods.

## On-Demand Network for Temporary Worksites and Events

The need for instant and portable communications is not limited to disaster recovery. For temporary network deployment at construction sites, special events, state fairs, outdoor concerts, and expeditions, Cisco IMICS can provide a secure and reliable mobile network. It can be deployed at the temporary site as a transportable standalone kit or integrated in a mobile van that can be driven to the event venue. At the site, Cisco IMICS can provide:

- Internet connectivity
- Voice and Fax communications
- Secure credit card transactions and mobile ATMs
- VPN connectivity to the corporate headquarters
- Instant wireless hotspot for Laptops and PDAs



Cisco IMICS can provide on-demand networks for construction and other temporary sites.

## KEY FEATURES AND BENEFITS

- **Internet connectivity with TCP/HTTP acceleration**—Cisco IMICS uses satellites for WAN connectivity. Depending on the size of the antenna, downlink speeds of up to 10 Mbps and uplink speeds of up to 1.5 Mbps can be achieved. The Cisco IP VSAT Satellite WAN Network Module supports TCP and HTTP acceleration to significantly improve the network performance over a high-latency satellite link.
- **Voice services with wired and wireless IP phones**—Cisco IMICS can support up to 24 Cisco IP phones on the integrated switch module with Power over Ethernet (PoE) capability. The integrated 802.11b/g access point can support up to 16 Cisco Wireless IP Phone 7920 which can be extended with mesh access points.
- **Analog phone and fax capability**—Analog foreign-exchange-station (FXS) ports on the router allow connection of analog phones as well as fax machines. The router provides the dial tone, and offnet -calls go over the satellite link as H323 or Session Initiation Protocol (SIP) calls.
- **Local call control with Cisco CallManager Express (CME)**—Cisco CME functions embedded on the router provide call processing for Cisco IP phones. Cisco CME supports key system and small private-branch-exchange (PBX) features along with innovative convergence applications for up to 240 users.
- **Local voicemail capability with up to 50 mailboxes**—Cisco IMICS integrates Cisco Unity® Express voicemail functions using the Cisco Advanced Integrated Module (AIM) on the router. By default, Cisco IMICS provides 12 mailboxes, but with an optional license, the number of mailboxes can be extended to 50.

- **Wi-Fi hotspot for data and voice devices**—An integrated 802.11a/b/g access point provides secure wireless connectivity for both data and voice devices.
- **Simplified WLAN management and mesh networking**—To extend the wireless network beyond the reach of the integrated access point and create an ad-hoc mesh network, Cisco Aironet® 1500 Series outdoor Mesh Access Points can be quickly deployed and managed using the integrated wireless LAN controller (WLC) module. The WLC module allows zero-touch access-point configuration by managing all the access points as a complete wireless LAN (WLAN) system.
- **Land mobile radio (LMR) over IP**—The local radio network can be connected to the IP network using the LMR gateway functions on the router. This connection allows remote dispatch to radio over the IP network and interoperability between disparate radio networks during disaster recovery. Cisco IMICS can be integrated into the Cisco IP Interoperability and Collaboration System (IPICS) infrastructure for centralized control and management.
- **Web caching and video content distribution**—Transparent Web caching using the content engine module allows efficient use of the limited satellite bandwidth. In a disaster, if video content needs to be streamed across multiple sites, the content engine module can cache the content and make it available for later delivery.

### Voice Service Options

Cisco IMICS includes several options for providing voice dial-out capability. Using the Cisco CME and H.323 gateway functions on the router, IP phones can be registered locally and provided with off-net dial-out capability using one of the following options:

- H323 trunk to a public-switched-telephone-network (PSTN) gateway at the partner network operations center (NOC) or customer headquarters
- H323 trunk to the central Cisco CallManager infrastructure at the customer headquarters
- SIP trunk to a third-party SIP service provider
- Managed voice-over-IP (VoIP) solution provided by Spacenet

### CISCO IMICS ARCHITECTURE

Cisco IMICS is a standalone secure communications system with an independent power source, network connectivity, and wireless infrastructure. It uses the best-in-class Cisco 3845 Integrated Services Router as the core building block. The integrated services router provides the routing and switching foundation for Cisco IMICS, and the advanced IP services that the integrated services router supports provide the communications infrastructure. The integrated Cisco VSAT Module (part number NM-1VSAT-GILAT) provides the satellite backhaul that supports two-way satellite WAN connectivity with up to a 1.5-Mbps uplink and 10-Mbps downlink. Cisco IMICS uses a third-party portable auto-acquisition antenna unit that runs on generator power and locks to a satellite signal automatically in less than 10 minutes.



#### IP Telephony

- Cisco IMICS provides local call control using Cisco CME and an integrated Ethernet switch module with PoE for connecting up to 24 IP phones.

#### Integrated Voicemail

- Cisco Unity Express provides local voicemail on the router. During a disaster, voice messages can be distributed to multiple users at the affected site.

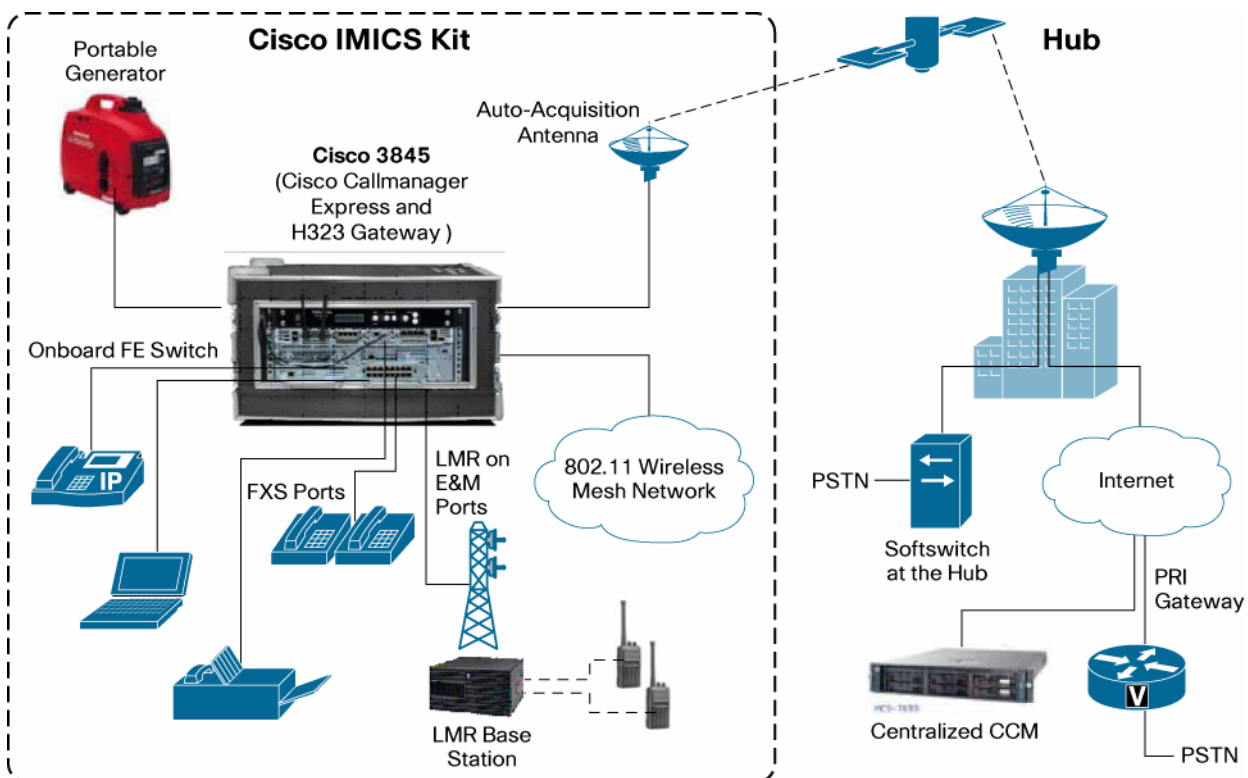
## System Components

Figure 1 shows the architecture of Cisco IMICS. Cisco IMICS has three major components. The core consists of the Cisco 3845 Router, the VSAT antenna controller, and the optional UPS in a hardened case with wheels. The second hardened case houses the IP phones and the mesh access points. The third component is the auto-acquisition antenna, which has its own case and is transportable.

Cisco parts include the following:

- Cisco 3845 Integrated Services Router
- Integrated Cisco VSAT Module (NM-1VSAT-GILAT)
- Integrated Wireless LAN Controller Module (NM-AIR-WLC6)
- EtherSwitch service module with PoE (NM-23ES-1G-P)

**Figure 1.** Cisco IMICS Architecture



- Content Engine Network Module (NM-CE-80GB)
- Cisco Unity Express AIM for Voicemail (AIM-CUE)
- Wired IP phones (Cisco IP Phone 7960G and IP Phone 7970)
- Wireless IP phones (Cisco 7920)
- Integrated 802.11a/b/g Interface card (HWIC-AP-G-A)
- Analog E&M Ports (VIC2-2E/M)
- Analog FXS Ports (VIC2-4FXS)
- Cisco Aironet® 1500 Outdoor Mesh Access Points

Third-party components of Cisco include the following:

- Portable auto-acquisition antenna
- Hardened case for router and antenna controller
- Pelican case for phones, connectors, cables, Access Points, etc.
- Emergency-response-grade satellite service
- Portable power source (UPS or generator)

### Satellite Backhaul Service

Cisco IMICS uses an integrated Ku/C-band VSAT modem and an auto-acquisition antenna to provide connectivity with Gilat-SkyEdge-compatible satellite services. In the US, the satellite service and service-level agreements (SLA) are provided by Spacenet, a leading provider of managed network solutions using satellite and terrestrial connectivity for businesses, government, and residential users ([www.spacenet.com](http://www.spacenet.com)).



#### Integrated Cisco VSAT Module

The integrated Cisco VSAT Module (part number CISCO NM-1VSAT-GILAT) provides two way broadband connectivity over satellite. The module is a VSAT indoor unit (IDU) and supports enhanced features such as TCP/HTTP acceleration, two-way Protocol Independent Multicast (PIM), accelerated VPN (future release), and quality of service (QoS). The integrated Cisco VSAT Module requires the Gilat Skyedge hub to function.

### ORDERING INFORMATION

Cisco IMICS is offered as a managed solution by premier Cisco partners and integrators. Contact a Cisco account manager for a list of Cisco IMICS integrators. Table 1 provides ordering information for the Cisco components of the solution. To place an order, visit the [Cisco Ordering Home Page](#).

**Table 1.** Ordering Information (Cisco Parts)

Product Name	Part Number
<b>Cisco 3845 Instant Mobile Communications Bundle</b>	CISCO3845-IMX/K9
<b>IMX Bundle components:</b> <ul style="list-style-type: none"> <li>• Cisco 3845 w/AC PWR</li> <li>• Cisco 3845 ADVANCED IP SERVICES</li> <li>• 32-Channel Packet Voice/Fax DSP Module</li> <li>• Cisco Call Manager Express Feat License For Up To 36 Users</li> <li>• 256 to 512MB DDR DRAM factory upgrade for the Cisco 3800</li> <li>• 64 to 256 MB CF Factory Upgrade for Cisco 3800 Series</li> <li>• EtherSwitch Service Mod 23 10/100T POE + 1 GE POE, IP Base</li> <li>• WLAN controller NM for 28/38xx ISR</li> <li>• Cisco IP VSAT Satellite WAN Network Module</li> <li>• AP HWIC, 2 radios( 2.4/5Ghz Radios 802.11 a/b/g) Americas</li> <li>• 2.2dBi/2.4Ghz,5.0dBi/5GHz DualBand Dipole Antenna</li> <li>• Content Engine NM-80GB</li> <li>• 4 port FXS or DID VIC</li> <li>• Two-port Voice Interface Card—EandM</li> <li>• Unity Express AIM—price includes 12 mailbox</li> <li>• LMR Feature License</li> </ul>	<ul style="list-style-type: none"> <li>• CISCO3845-AC-IP</li> <li>• S384AISK9-12406T</li> <li>• PVD2M-32=</li> <li>• FL-CCME-36</li> <li>• MEM3800-256U512D</li> <li>• MEM3800-64U256CF</li> <li>• NME-X-23ES-1G-P</li> <li>• NM-AIR-WLC6-K9</li> <li>• NM-1VSAT-GILAT</li> <li>• HWIC-AP-AG-A</li> <li>• AIR-ANTM2050D-R=</li> <li>• NM-CE-BP-80G-K9</li> <li>• VIC-4FXS/DID</li> <li>• VIC2-2E/M</li> <li>• AIM-CUE</li> <li>• FL-LMR</li> </ul>
<b>Cisco IP Phone 7970</b>	CP-7970G
<b>Cisco IP Phone 7920</b>	CP-7920-FC-K9
<b>Cisco Aironet 1500 Series Pole-Top Kit, 2.4 Omni 5 GHz Omni</b>	AIR-LAP1510KITP-A

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## FOR MORE INFORMATION

For more information about the Cisco IMICS, visit <http://www.cisco.com> or contact your local Cisco account representative.



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