

## Cisco Instant Connect Release 5

The Cisco<sup>®</sup> Instant Connect solution simplifies operational communications by offering total Instant Connectivity for field users or in-house personnel with push-to-talk, alerts, location-tracking and video functionality. Instant Connect complements and displaces Land-Mobile Radio (LMR) field and dispatch operations and enables improved responsiveness to facility events, incidents, and emergencies. Cisco Instant Connect dissolves connectivity barriers and bridges unified communications IP Phones and other endpoints with disparate devices such as Wi-Fi/3G/LTE mobile phones, landline phones, land-mobile radios, and PCs, wherever they are located.

When time is critical, Instant Connect delivers information into the right hands at the right time and in the right format. By providing flexible, scalable communication interoperability, Instant Connect enhances the value of existing and new radio, telephony, and IP communications networks. With Instant Connect, work crews can easily communicate with push-to-talk and Cisco Spark functions, at unprecedented levels of group connectivity.

Cisco Instant Connect 5.0 features:

- **Integrated Cisco Spark:** The Cisco Instant Connect mobile client has a Cisco Spark room associated with each channel.
- **Alerts:** The Cisco Instant Connect mobile client alerts dispatchers and channel users to alarm conditions. These include: user fall detection, impact detection, emergency alarm, and status messages.
- **Notification engine:** Cisco Instant Connect includes a notification server that can set policies for different actions on the system, including notifications.
- **IPV6:** Cisco Instant Connect includes IPV6 support for endpoints.<sup>1</sup>
- **Reports:** Cisco Instant Connect includes a report collector and server that track all usage in the system.
- **Enhanced redundancy:** The Cisco Instant Connect server and Unified Media Service have an option for cluster redundancy. This means that if a server or software is lost there is just a change in capacity. There is no longer a one for one redundancy between the primary and secondary server but many servers within a cluster (N+1).
- **Dial Connect:** Cisco Instant Connect has an option for the user to simultaneously be on the Push-to-talk (PTT) channel as well as on a phone call. This includes the ability to mute the PTT stream, telephone stream, or both streams. Dial Connect is perfect in hospitals or mines where users don't want to miss the important conversations (e.g., code blue audible alarms or PTT channels).
- **Expressway:** Enterprise customers can now easily manage mobile client users through the Cisco Expressway. This enables VPNless deployments of mobile clients and the ability to traverse firewalls, ensuring a secure mobile client connection and a secure enterprise VPN connection.

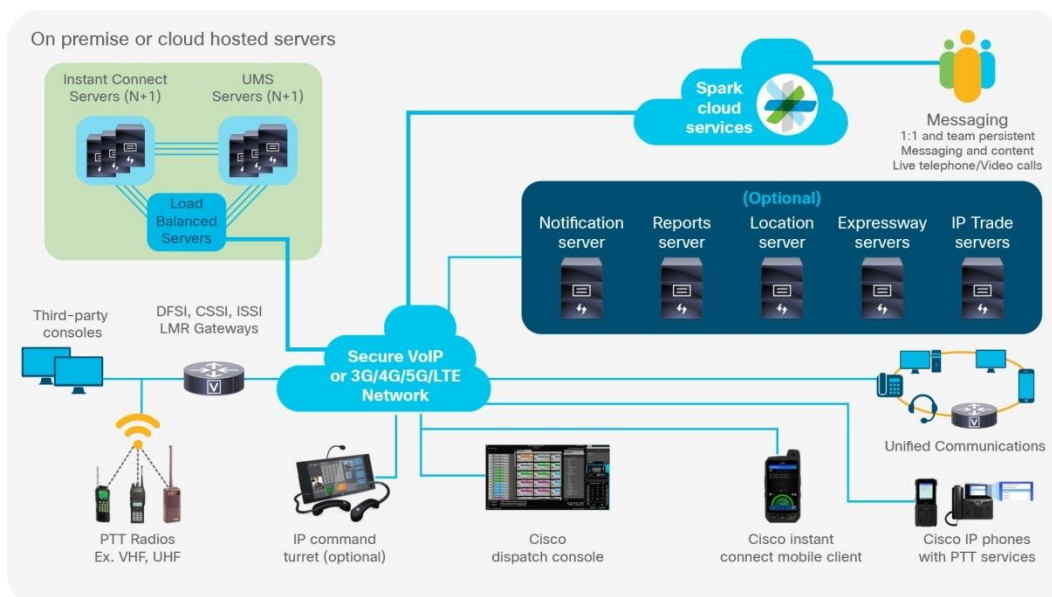
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<sup>1</sup> Check Compatibility matrix for supported software and devices.

- **Mapping:** The Cisco Instant Connect mobile clients include mapping for users on the talker history screen as well as on the contacts screen. The Instant Connect dispatch console includes live dynamic tracking of all the mobile client users on the talk line, dynamically showing them on a map. Users or administrators can change the polling time to give more accurate tracking of users on the team.
- **Improved security through SRTP:** Instant Connect includes a secure real time transport protocol that enables encryption between endpoints and the system. This ensures secure communications throughout the system.
- **Location affinity:** Cisco Instant Connect enables administrators to control the system with more finite capability. For example, if the administrator wants all users in the North Location to go through the North media mixing servers, then they can set up these parameters in the system. This provides for quicker call connections and throughput in a particular location.
- **History location and playback:** Cisco Instant Connect has the ability to dynamically track users within the talk line on an interactive map. Dispatchers can also click on users and make a Cisco Spark call or message ensuring instant collaboration.
- **Dial Engine upgrade:** The Cisco Instant Connect system now integrates into the Cisco Unified Communications Exchange integrated voice prompts and response. The dial in/dial out and scripting functions are now separate and can be licensed through Cisco UCCX.
- **Security hardening:** Cisco Instant Connect improves security through hardening of the core operating system. This includes DoD/government requirements to improve secure operations.
- **Monitoring:** Cisco Instant Connect now includes Zabbix-based Monitoring for advanced monitoring of system functions.
- **Usability:** We have improved the mobile and dispatch client user experience through multiple changes. This includes quick access buttons that can be pushed to give quick access to channel changes, favorite contacts, or alerts.

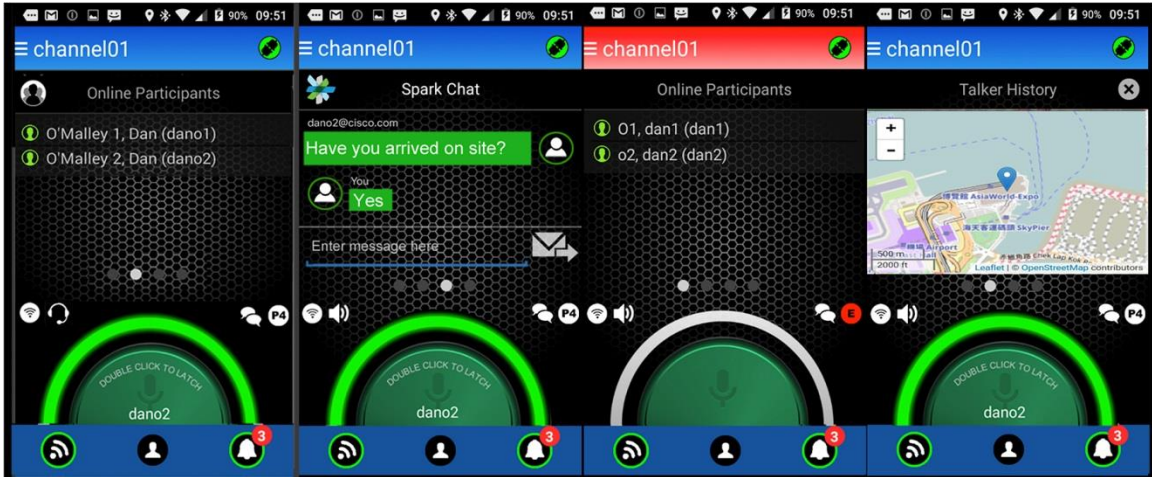
Figure 1 provides an overview of Cisco Instant Connect system components.

**Figure 1.** Cisco Instant Connect System



## Instant Connect Mobile Client

Figure 2. Cisco Instant Connect Mobile Client



Mobile client users see the presence of other users on their channel, and can also participate in secure group chat using Cisco Spark or Cisco Instant Connect Incidents (on premise). Instant Connect also provides the ability to route major and minor alerts to mobile clients and dispatchers. Now users can see a static and dynamic mapping history on the mobile client or on the dispatch application. (See Figure 2 above)

Figure 3. Cisco Instant Connect on Sonim XP 7 phones



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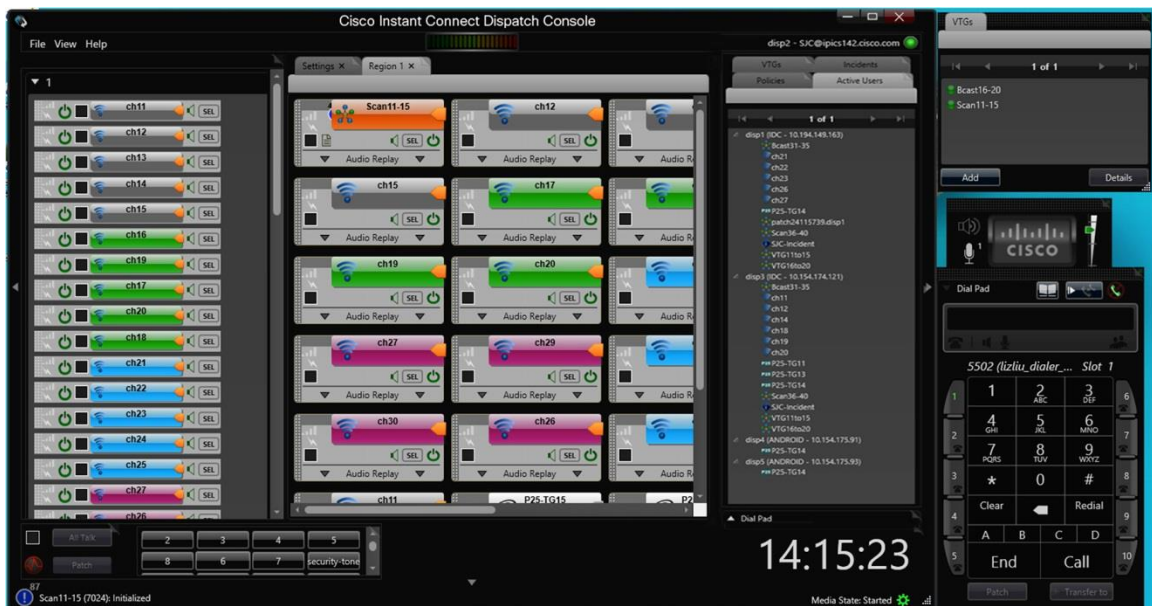
Major benefits of Cisco Instant Connect on a Sonim phone or BYOD Android/Apple include:

- **Loud Audio:** Audio and ring tones can be broadcast as high as 103dB, enabling users to hear a call or push-to-talk audio.
- **Contact Directory:** Mobile users can now have access to the company directory (up to 50,000 users) with User Presence. Users can view other active Cisco Instant Connect users on the system.
  - **Mapping:** Finding people in the contact directory is as easy as clicking on a button. Users can click on active users in the contact list and pull up a live map view of where the users are in the system in relation to their current location.
  - **Mobile Administration:** Managers can add new talk lines, add users to those talk lines, and delete users from talk lines right from their Cisco Instant Connect Client. Also Scan Groups and Broadcast Groups can easily be added from the Instant Connect client.
  - **Cisco Instant Connect Android, Apple, and Windows SDK:** With our software development kit (SDK) solution developers can embed PTT functions into Android, Apple, and Windows applications used in the workforce. Now PTT can be tailored to fit any application from retail environments, public safety, manufacturing, and virtually any operations scenario.
- **Call Assurance:** When the smartphone user roams outside of data coverage (Wi-Fi or carrier) area, the Instant Connect application will notify the user of the loss of connection through an audible beep and a visual indication. When the smart device roams back into coverage, Cisco Instant Connect will automatically reconnect the user to the talk group. Now users always know when they can communicate with their group.
- **Low costs:** Instead of paying monthly service provider fees for onsite personnel, you can deploy an on-premises Instant Connect solution. The savings from eliminating monthly fees quickly pays back the one-time capital investment. The Cisco solution is based on open standards, eliminating the need to purchase, support, and manage proprietary solutions.
- **Multiple Carrier Push-to-talk:** Cisco Instant Connect can be expanded for in-building coverage by adding Wi-Fi access points, integrating to carrier PTT service, bridging to LMR channels, and connecting to satellite data radios. With Cisco Instant Connect, customers can save the cost of high-priced LMR infrastructure build-outs.
- **High quality of experience:** Cisco Instant Connect integrates with your existing Cisco Unified Communications and Cisco Collaboration services. Quality of Service (QoS) and advanced voice codecs help to provide clear voice quality, even when the network is busy. Cisco CleanAir<sup>®</sup> technology continually identifies and works around sources of wireless interference that might otherwise affect the user experience.
- **Improved collaboration and situational awareness:** Mobile personnel can access PTT, voice, video, and instant messaging from multiple devices, including personal smartphones and tablets if your organization has a Bring-Your-Own-Device (BYOD) policy. Private and individual PTT, phone and video sessions are supported. Combining PTT with rich-media applications can improve decision making and situational awareness.
- **Scalability:** Cisco Instant Connect can support thousands of users. Managing a single system saves time and money compared to managing multiple service provider contracts.

- **Security:** Cisco Instant Connect encrypts all PTT communications between the wireless access point and the Cisco Unified Wireless IP Phone using the Advanced Encryption Standard 256 (AES-256) and Wi-Fi Protected Access 2 (WPA2) security standards. Users over carrier networks can use Cisco AnyConnect® technology to automatically establish a VPN session between the mobile device and the system.
- **High availability:** If PTT is mission-critical in your organization, take advantage of high-availability options for the wireless network, server, applications, and Cisco Unified IP Phones. For example, if the signaling connection to the server drops, the Cisco Unified IP Phone can automatically reconnect to a secondary server, avoiding service interruptions. In addition, mobile personnel can swap out the Cisco Unified Wireless IP Phone battery in the field, an option not available with many service providers' PTT alternatives.
- **Increased integration using open standards:** Cisco Instant Connect is based on the Session Initiation Protocol (SIP) standard, avoiding the interoperability, integration, and performance problems associated with proprietary encoding schemes. Cisco Instant Connect also meets the Mission Critical Push-to-talk Standards from the 3GPP committee<sup>2</sup>.

## Cisco Instant Connect Dispatch Console

Figure 4. Cisco Instant Connect Dispatch Console



The Cisco Instant Connect Dispatch Console integrates with virtually any analog or digital radio system, supporting dynamic, any-to-any Push-To-Talk (PTT) communications. It introduces rich interactive media support for Instant Connect incidents, giving dispatchers the power to consolidate information relating to an incident and instantly share that information among Instant Connect incident participants.

The Dispatch Console supports sharing of multimedia data, including:

- Archived videos
- Photos, Journal and live statuses'

<sup>2</sup> 3<sup>rd</sup> Generation Partnership Project



- Web links to resources such as: Federal Emergency Management Agency (FEMA), hazardous material databases, standard operating procedures, and maps

It also provides:

- Alarm monitoring
- Dynamic mapping
- Viewing of Spark room messaging, associated to Talk Groups
- PTT History viewing
- Quick Radio Selector access
- Native iLBC codec support
- SDK support
- Tearaway Dialer support

New features in the Instant Connect 5.0 Dispatch Console include:

- **History location and playback:** The dispatch console can now view the history and location of the users through a map interface. This enables the dispatcher to track and replay locations of the field personnel.
- **Alert Indications:** High profile alarms have an audible and verbal alarm alerting the dispatchers or operations managers to a critical incident. Minor alarms can be programmed as non-audible or as informational alerts.
- **Cisco Spark:** Employees that have Cisco Spark can message, upload files, or upload video clips for all the users on the Instant Connect channels to see. This enables people in the enterprise behind the desk to easily communicate with people in the field.

## Cisco Instant Connect Unified Media Engine

Release 5.0 includes a completely re-architected and improved Unified Media Engine

- Optimized multithreading media processing for better audio processing
- Faster channel activation and session refresh, maximizing resources
- Standards-based Real-time Transport Control Protocol (RTCP) talker ID
- Call assurance: Automatically reconnects Cisco Instant Connect users to talk line sessions when data connectivity is lost
- Direct Network Interface: The Unified Media Service can be directly bridged from other systems through a secure SIP connection.

## IP Command Touch Screen Dispatch Consoles

IP Command Touch Screen Dispatch Consoles (Figure 5) is a dispatch solution from IP Trade, a Cisco Solutions Plus Partner. This new console supports advanced incident management and telephony features such as call queuing, call priority queuing, multiple line appearances, and hold and transfer capabilities. These capabilities are integrated with Cisco Unified Communications and Cisco Instant Connect enabling dispatchers to prioritize their work and achieve higher productivity.

IP Command Touch Screen Dispatch Console is a complete dispatch unit with integrated audio and customizable layouts to meet any dispatch environment. Dispatch teams have access to integrated, collaborative features for radio communications, unified communications, and telephony.

**Figure 5.** IP Command Touch Screen Dispatch Consoles



## Enhanced Instant Connect APIs and SDK

A web service API integrates Instant Connect with third-party applications such as command and control, Physical Security Information Management (PSIM), alternative software applications, and computer-aided dispatch applications. Cisco Instant Connect has an Android, Windows, and Apple iOS Software Development Kit, providing tools for partners to embed push-to-talk in mobile or desktop applications.

Table 1 lists the capabilities of Cisco Instant Connect.

**Table 1.** Instant Connect System Capabilities

System Capabilities	Specification
<b>Instant Connect users in database</b>	Up to 50,000
<b>Active users</b>	Up to 2,500 with up to 1,300 active users per talk line
<b>Active dispatch consoles</b>	Up to 250
<b>VTGs</b>	Up to 350 active
<b>Radio channels</b>	Up to 1000 active channels
<b>Dial-In/Dial-Out users</b>	Up to 100 active dial users
<b>Mobile clients</b>	Up to 5,000 active (included in <b>Active users</b> earlier in the table)

## Licensing Information

The Cisco Instant Connect server checks the license count for proper software and resource licenses. For example, one dispatch console license is required for each Instant Connect Dispatch Console client logged into the Instant Connect server, meaning that the Cisco Instant Connect Dispatch Console or mobile clients can be installed on as many devices as needed, and the licensing is based only on the Cisco Instant Connect dispatch or mobile client sessions that are in use at any given time. Each Cisco Instant Connect system includes a basic location server, notification server, and Table 2 provides licensing options.

**Table 2.** Instant Connect Licenses

Bundle	Instant Connect Server License	UMS Server License	Location Server	Notifier Server	Reports Server	Radio Channel Ports	Virtual Talk Group	Silver Consoles	Platinum Consoles	Mobile Clients	IP Phone
<b>CICE-EXPRESS-VM</b>	1	1	Basic	1	N/A	N/A	6	N/A	N/A	4	N/A
<b>CIC-XP-K9</b>	1	1	Advanced	1	0	2	6	1	1	20	20
<b>CIC-MS-K9</b>	2	3	Advanced	1	1	20	50	10	5	100	100
<b>CIC-LS-K9</b>	3	10	Advanced	1	3	50	100	30	10	300	300

## Ordering Information

The Instant Connect solution is available direct from Cisco Advanced Services (with a mentor installation) or through trained technology partners.

To place an order, visit the Cisco ordering homepage or contact your Cisco account manager and refer to Table 3.

**Table 3.** Ordering Information

Part Number	Description
<b>L-CIC-VM</b>	Virtualized eDelivery Instant Connect System. Order this for a virtualized version of the Cisco Instant Connect system. Structure all software as options to this part number for eDelivery of software licenses.
<b>CIC-XP-K9</b>	Virtualized Instant Connect Small System. Order this for a virtualized version of the small Cisco Instant Connect system. See table 2 for system capacity. Order this as an option to the L-CIC-VM. This does not include cluster redundancy, or reports server,
<b>CIC-MS-K9</b>	Virtualized Instant Connect Medium System. Order this for a virtualized version of the medium Cisco Instant Connect system. See table 2 for system capacity. Order this as an option to the L-CIC-VM.
<b>CIC-LS-K9</b>	Virtualized Instant Connect Small System. Order this for a virtualized version of the small Cisco Instant Connect system. See table 2 for system capacity. Order this as an option to the L-CIC-VM.
<b>CIC-NFR-K9</b>	Virtualized Instant Connect Not For Resale System. Order this for a virtualized version of the small Cisco Instant Connect system. See is not for resale and only used for sales purposes. Order this as an option to the L-CIC-VM.
<b>CIC-NTFR-SV</b>	Cisco Instant Connect notification server. The option can be ordered for bundles or upgrades that do not include the notification server option. See table 2 for system details. Order this as an option to the L-CIC-VM.
<b>CIC-RPTR-SV</b>	Cisco Instant Connect reports server. The option can be ordered for bundles or upgrades that do not include the reports server option. See table 2 for system details. Order this as an option to the L-CIC-VM.
<b>CIC-LOC-SV-ADV</b>	Cisco Instant Connect advanced location server. The option can be ordered for bundles or upgrades that do not include the advanced location server option. See table 2 for system details. Order this as an option to the L-CIC-VM.
<b>CIC-VTG</b>	Cisco Instant Connect virtual talk group. The option can be ordered for bundles or upgrades that need more Virtual Talk Groups (VTG). A VTG adds capacity for private calls, scan groups, broadcast channels, and more talk lines to the system. The See table 2 for system details. Order this as an option to the L-CIC-VM.
<b>CIC-LMR</b>	Cisco Instant Connect Land Mobile Radio channel. The option can be ordered for bundles or upgrades that need more radio channel ports. Each CIC-LMR connects to a Land Mobile Radio streams. A VTG adds capacity for private calls, scan groups, broadcast channels, and more talk lines to the system. See table 2 for system details. Order this as an option to the L-CIC-VM.
<b>CIC-OPSV</b>	Cisco Instant Connect operational view. The option can be ordered for bundles or upgrades that need more than one operational view. Each Ops View enables agencies to have their own soft partition of the Cisco Instant Connect system. This includes management of users, reports and database usage. Order this as an option to the L-CIC-VM.
<b>CIC-UMS</b>	Cisco Instant Connect Unified Media Service (UMS). The option can be ordered for bundles or upgrades that need more UMS capacity. Each UMS enables 100 simultaneous media streams on the Cisco Instant Connect system. This includes private call streams, VTG channels, LMR radio channels, mobile clients, scan VTG's and broadcast VTG's. The UMS can be set up in a cluster redundant configuration (N+1). Order this as an option to the L-CIC-VM.
<b>CIC-MS-HA</b>	Cisco Instant Connect cluster redundancy upgrade. The option can be ordered for bundles or upgrades that need cluster redundancy. Cluster Redundancy does not come with the Cisco Instant Connect Express or the CIC-XP-K9 bundle. Order this as an option to the L-CIC-VM.



Part Number	Description
<b>CIC-MC</b>	Cisco Instant Connect Mobile Client. The option can be ordered for bundles or upgrades that need additional mobile clients. See table 2 for system details. Order this as an option to the L-CIC-VM.
<b>CIC-MC-10</b>	Cisco Instant Connect Mobile Client 10 pack. The option can be ordered for bundles or upgrades that need additional 10 mobile clients. See table 2 for system details. Order this as an option to the L-CIC-VM.
<b>CIC-MC-50</b>	Cisco Instant Connect Mobile Client 50 pack. The option can be ordered for bundles or upgrades that need additional 50 mobile clients. See table 2 for system details. Order this as an option to the L-CIC-VM.
<b>CIC-MC-100</b>	Cisco Instant Connect Mobile Client 100 pack. The option can be ordered for bundles or upgrades that need additional 100 mobile clients. See table 2 for system details. Order this as an option to the L-CIC-VM.
<b>CIC-MC-250</b>	Cisco Instant Connect Mobile Client 250 pack. The option can be ordered for bundles or upgrades that need additional 250 mobile clients. See table 2 for system details. Order this as an option to the L-CIC-VM.
<b>CIC-MC-500</b>	Cisco Instant Connect Mobile Client 500 pack. The option can be ordered for bundles or upgrades that need additional 500 mobile clients. See table 2 for system details. Order this as an option to the L-CIC-VM.
<b>CIC-MC-1K</b>	Cisco Instant Connect Mobile Client 1000 pack. The option can be ordered for bundles or upgrades that need additional 1000 mobile clients. See table 2 for system details. Order this as an option to the L-CIC-VM.
<b>CIC-SIL</b>	Cisco Instant Connect Silver Dispatch License. The option can be ordered for bundles or upgrades that need additional silver dispatch client licenses. The silver license does not have the VoIP 10 line dialer or the ability to manager Incidents. See table 2 for system details. Order this as an option to the L-CIC-VM.
<b>CIC-PLA</b>	Cisco Instant Connect Platinum Dispatch License. The option can be ordered for bundles or upgrades that need additional platinum dispatch client licenses. The platinum dispatch license includes a 10 line VoIP dialer and the ability to manager Incidents. See table 2 for system details. Order this as an option to the L-CIC-VM.
<b>CIC-IPPH</b>	Cisco Instant Connect IP Phone Client licenses. The option can be ordered for bundles or upgrades that need additional IP Phone license. Order this as an option to the L-CIC-VM.
<b>CIC-DC</b>	Cisco Dial Connect Mobile Client. The option can be ordered for bundles or upgrades that need a simultaneous voice phone call and a push-to-talk session. The dial connect mobile client does not include the Cisco Jabber, or Cisco Spark cross launch feature. See table 2 for system details. Order this as an option to the L-CIC-VM.
<b>CIC-DC-100</b>	Cisco Dial Connect Mobile Client 100 Pack. The option can be ordered for bundles or upgrades that need a simultaneous voice phone call and a push-to-talk session. The dial connect mobile client does not include the Cisco Jabber, or Cisco Spark cross launch feature. See table 2 for system details. Order this as an option to the L-CIC-VM.
<b>CIC-DC-1000</b>	Cisco Dial Connect Mobile Client 1000 Pack. The option can be ordered for bundles or upgrades that need a simultaneous voice phone call and a push-to-talk session. The dial connect mobile client does not include the Cisco Jabber, or Cisco Spark cross launch feature. See table 2 for system details. Order this as an option to the L-CIC-VM.
<b>CIC-UG5X</b>	Cisco Instant Connect 5.X upgrade from 4.X. The option can be ordered for customers that have an existing IPICS 4.X and want to upgrade to the 5.X license. Order this as an option to the L-CIC-VM. This does not include reports or notifier server which can be ordered separately.
<b>CIC-IPICS-HA-UG</b>	Cisco Instant Connect 5.X High Availability upgrade from 4.X. The option can be ordered for customers that have an existing IPICS HA in 4.X and want to upgrade to the 5.X license. This includes cluster redundancy (N+1). Order this as an option to the L-CIC-VM.
<b>CIC-UMS-5X-UG</b>	Cisco Instant Connect UMS upgrade from 4.X. The option can be ordered for customers that have an existing UMS in 4.X and want to upgrade to the 5.X license. Order this as an option to the L-CIC-VM.
<b>CIC-UMS-HA-UG</b>	Cisco Instant Connect UMS High Availability upgrade from 4.X. The option can be ordered for customers that have an existing UMS HA in the 4.X and want to upgrade to the 5.X license. This includes UMS cluster redundancy (N+1). Order this as an option to the L-CIC-VM.
<b>CIC-VTG-5XUG</b>	Cisco Instant Connect Virtual Talk Group (VTG) upgrade from 4.X. The option can be ordered for customers that have an existing Virtual Talk Group (VTG) in 4.X and want to upgrade to the 5.X license. Order this as an option to the L-CIC-VM.
<b>CIC-CHNL5X-UG</b>	Cisco Instant Connect Channel (LMR) upgrade from 4.X. The option can be ordered for customers that have an existing Channel or LMR connection in 4.X and want to upgrade to the 5.X license. Order this as an option to the L-CIC-VM.
<b>CIC-SIL5X-UG</b>	Cisco Instant Connect Silver upgrade from 4.X. The option can be ordered for customers that have an existing silver dispatch license in 4.X and want to upgrade to the 5.X license. Order this as an option to the L-CIC-VM.
<b>CIC-PLA5X-UG</b>	Cisco Instant Connect Platinum upgrade from 4.X. The option can be ordered for customers that have an existing platinum dispatch license in 4.X and want to upgrade to the 5.X license. Order this as an option to the L-CIC-VM.
<b>CIC-IP-5X-UG</b>	Cisco Instant Connect IP Phone upgrade from 4.X. The option can be ordered for customers that have an existing IP Phone license in 4.X and want to upgrade to the 5.X license. Order this as an option to the L-CIC-VM.
<b>CIC-PE-5X-UG</b>	Cisco Instant Connect Policy Engine upgrade from 4.X. The option can be ordered for customers that have an existing Policy Engine in 4.X and want to upgrade to the 5.X license. Order this as an option to the L-CIC-VM.

Part Number	Description
<b>CIC-OPS-UG</b>	Cisco Instant Connect Operational View upgrade from 4.X. The option can be ordered for customers that have an existing Operational View (OpsView) and want to upgrade to the 5.X license. Order this as an option to the L-CIC-VM.
<b>CIC-CICEX-UG</b>	Cisco Instant Connect Express upgrade from 4.X. The option can be ordered for customers that have an existing Instant Connect Express license in 4.X and want to upgrade to the 5.X license. Order this as an option to the L-CIC-VM.
<b>CIC-CIC5-UG</b>	Cisco Instant Connect upgrade from 5.X Cisco Instant Connect Express. The option can be ordered for customers that have that bought a Cisco Instant Connect Express 5.X license and want to upgrade to the full Cisco Instant Connect 5.X license. Order this as an option to the L-CIC-VM.

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