DC-CAN Products and Services Guide

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DC-CAN
District of Columbia Government
Community Access Network

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About DC-CAN

The DC Community Access Network (DC-CAN) project—managed by the DC-Net program in the Office of the Chief Technology Officer (OCTO)—brings affordable, value-added broadband services to nearly 300 health care, educational, public safety and other community anchor institutions primarily in broadband-underserved areas of the District. It also creates a high speed middle mile network with points of interconnection for last mile service providers to deliver affordable broadband access to residents and businesses in underserved areas.

Key points about the DC-CAN project:

- DC-CAN is a District government initiative that encourages public-private partnership in the delivery of affordable broadband services to residents and businesses in underserved areas of the District (in particular Wards 5, 7, and 8) – spurring broadband adoption and economic development in underserved areas.
- DC-CAN will create a high-speed "public highway" infrastructure to which last mile providers can connect at reasonable cost, and pass these savings on to residents and businesses in underserved areas of the District.
- DC-CAN is a $25 million program over the next two years, funded primarily through a $17.5 million grant from the Department of Commerce's National Telecommunications and Information Administration. DC-CAN is part of a $36 million program (including $25 million in grants) to help bridge the Digital Divide within the District of Columbia.
- DC-CAN is built using the latest industry-standards to provide best-in-class service and functionality.

Links:

http://dcnet.dc.gov/DC/DCNET/About+DC-Net/Projects/DC+Community+Access+Network

About DC-Net

DC-Net is a facilities-based Metropolitan Area Network run by the District of Columbia Office of the Chief Technology Officer (OCTO) that provides a full suite of managed, interconnection and transport services to government and public services organizations in the District of Columbia.

The DC-Net network is a public safety-grade network providing reliable communication links for critical government services.

DC-Net is the "first mile" for all District government networking and is the first building block of any economic development or digital divide initiative that requires a network. It delivers Internet and network services to public schools, public libraries, community centers, hospitals and clinics, public safety agencies, administrative offices, and publicly-available Wi-Fi networks. The DC-Net program currently operates over 27,000 phone lines and 400 data circuits spanning over 400 locations. It serves 90 District entities, with a priority on education, public safety, and health care.

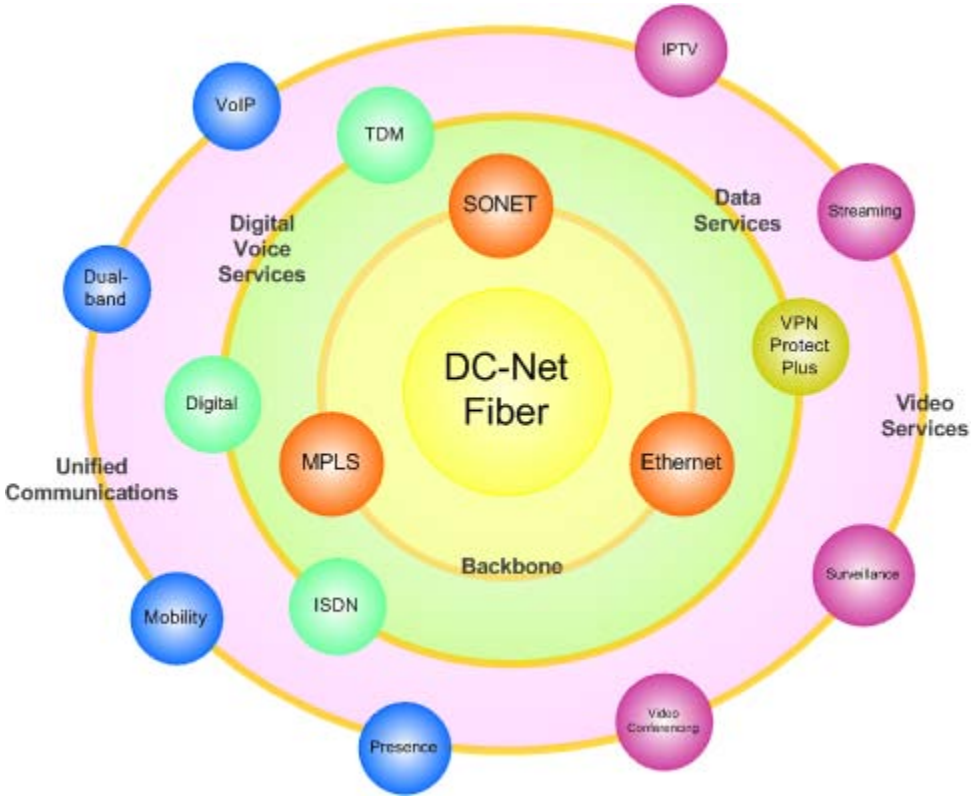
DC-Net manages a portfolio of approved vendors and contract vehicles to purchase telecommunications products and services in compliance with procurement guidelines and works with all District agencies to monitor and certify telecommunications inventories (landlines, cellular devices, pagers, data circuits) to best manage overall telecommunications operations. DC-Net also carries all wireless traffic associated with OCTO's 350+ wireless "hotspots" throughout the city, including the National Mall.

DC-Net's mission is to:

- Spearhead the delivery of reliable and secure data and telecommunication services within the District.
- Deliver cost effective, best-of-breed, and value-added products and services.
- Improve access to affordable broadband services for community anchor institutions, public safety entities, and District residents and businesses—particularly in underserved areas.
- Provide dependable 24/7 technical support with timely problem resolution.

As shown in Figure 1, DC-Net's fiber optic network is the resilient high-speed core for all products and services DC-Net provides, from digital voice to VPN data, Voice over Internet Protocol (VoIP), and video services which use IP-based networking.

Figure 1: DC-Net Services



DC-CAN Network Overview

DC-CAN is designed to be a separate network both physically and logically from DC-Net. It has an ultra high speed core supporting speeds up to 100 Gbps. The network supports a range of Carrier Ethernet and Wavelength services with speeds ranging from 10 Mbps to 40 Gbps. DC-CAN retains some of the key design features of DC-Net such as physically diverse fiber paths and redundancy in core electronics to guarantee 99.999% availability and service reliability.

About this Guide

The *DC-CAN Products and Services Guide* provides up-to-date descriptions of available products and services and gives guidance on the ordering process. This document is available in PDF at:: http://dcnet.dc.gov/DC/DCNET/Support/Product+Information.

Internet and Data Services

DC-Net offers DC-CAN Internet services ranging from 10 Mbps to 1 Gbps, wavelength and Carrier Ethernet data transport services from 10 Mbps to 10 Gbps, and hosting collocation services at data center and shelter locations.

Internet

The DC-CAN Internet service meets your organization's needs for a high-quality and redundantly routed service with guaranteed symmetrical download and upload speeds at the bandwidth you purchase. Because our service is not over-subscribed, there are no "up to" conditions. The speed you purchase is the speed you get. For example, a 100 Mbps Internet connection gives you 100 Mbps download and 100 Mbps upload speeds.

Key features include:

- Scalable:
  - Bandwidth speeds available from 10 Mbps to 1 Gbps
  - Ability to burst over purchased bandwidth
  - Static IP addressing available
- Reliable:
  - Guaranteed symmetrical bandwidth, unlike "up to speeds" promoted by cable modem and commercial fiber-based services
  - No over-subscription
  - Bandwidth over a private enterprise network dedicated for community anchor institutions
- Highly available:
  - Redundantly routed over diverse fiber path
  - Redundant electronics in the core
- Dedicated support:
  - Helpdesk support
  - Dedicated 24x7 network monitoring and customer support

Ethernet Data Transport

The DC-CAN Layer 2 Ethernet service offers point-to-point and point-to-multipoint transport with speeds ranging from 10 Mbps to 10 Gbps. It is delivered over an all-fiber network that spans across the city. The network is built with redundancy and services are optically protected over multiple fiber rings providing sub-50ms failover for any transport in the network core. The Ethernet data service supports both copper and fiber hand-offs, single and multimode.

DC-CAN offers standardized Metro Ethernet Forum (MEF) services, which include:

- **E-Line services** – E-Line service includes both Ethernet Virtual Private Line (EVPL) and Ethernet Private Line (EPL) services. E-Line supports full port speeds (10 Mbps, 100 Mbps, 1 Gbps, and 10 Gbps) and has the capability to support different Quality of Service (QoS) priorities for customer traffic. E-Line is a point-to-point configuration that can be provisioned as a Layer 1 service over the Wave Division Multiplexed (WDM) ring or as a Layer 2 tunnel providing a transparent dedicated connection between two sites.
- **Ethernet LAN (E-LAN) services** – E-LAN service is a point-to-multipoint Ethernet service connecting three or more sites. E-LAN is provisioned over Layer 2 tunnels. It supports full port speeds (10 Mbps, 100 Mbps, 1 Gbps, and 10 Gbps) and has the capability to support different QoS priorities for customer traffic.
- **E-Tree services** – E-Tree service is a multipoint-to-multipoint Ethernet service connecting several sites. More than one site can be configured as the root site and other sites can communicate with each other through multiple root sites. E-Tree supports full port speeds (10 Mbps, 100 Mbps, 1 Gbps, and 10 Gbps) and has the capability to support different QoS priorities for customer traffic.

There are seven QoS priority levels available on this service. Priority can be set for traffic on each E-LAN port such as real-time voice or video traffic can get a higher priority than standard data traffic. Public and private peering points for interconnection and offsite data storage/recovery are available.

Key features include:

- Scalable:
  - Bandwidth speeds available from 10 Mbps to 10 Gbps
  - Supports capability to burst
- Reliable:
  - Dedicate bandwidth for transport with no over-subscription in the core

    - Direct connectivity to core exchanges in Washington, DC
- Highly available:
    - Redundantly routed over diverse fiber path
    - Redundant electronics in the core
- Dedicated support:
    - Dedicated 24x7 network monitoring and customer support
    - 99.999% availability backed by Service Level Agreement

Wavelength Data Transport

DC-CAN Layer 1 fractional and full wavelengths are available with point-to-point or point-to-multipoint configuration.

The DC-Net network uses Wave Division Multiplexing (WDM) technology, which transmits multiple wavelengths over a single optical fiber; each data signal has its own wavelength.

Service handoffs include Ethernet, FC/FICON, SONET or direct wave (OTN) interfaces.

Key features include:

- Bandwidth speeds available from 10 Mbps to 10 Gbps. Higher speeds available on individual case basis.
- Dual-homed, diversely routed paths; built in disaster recovery
- Pricing includes access and transport
- Dedicated 24x7 network monitoring and customer support
- 99.999% availability backed by Service Level Agreement
- Direct connectivity to core exchanges in Washington, DC
- Available public and private peering points for interconnection and offsite data storage/recovery

Wavelength Transport

Available services:

- OTU - 2.5 Gbps
- OTU2 - 10 Gbps
- OTU2e - 11.1 Gbps

- OTU3 - 40 Gbps

Fractional Wave Transport

Available services:

- 1 GigE
- 10GigE
- OC-3
- OC-12
- OC-48
- OC-192

Collocation

DC-Net provides collocation services at the District of Columbia space in the CoreSite data center at 12100 Sunrise Valley Drive, Reston, Virginia, and at DC-CAN MegaPOP and shelter locations on DC-CAN throughout the District of Columbia.

Key features of data center collocation:

- 120 and 208 volt power at 20/30 amp available
- Caged Space (60, 80, and 100 square feet) – provide your own racks or purchase locked cabinet racks (42 u H x 42” D x 19” W) available from DC-Net
- Multimode, single-mode, and copper internal cross connects available; single-mode external cross connects available
- Customer access – up to 2 personnel 24/7 at no cost
- Remote hands, installation, and configuration professional services available to support collocation

CoreSite data center features are listed in Table 1.

Table 1: CoreSite Data Center Features

Feature	Description
Certifications	SAS 70 Type II certified
Power Density	120V and 208V available
UPS Power	Diverse AC UPS service available
Generator Power	N+1 emergency generator configuration
Cooling	N+1 cooling systems
Fire Suppression	Dual-interlock, dry-pipe pre-action fire suppression system with VESDA
Security	24x7 staffing and site access, CCTV surveillance, hardened data center perimeter and biometric access control
Network Access	Carrier-neutral access to over 50 networks and service providers through diverse points of entry
Parking	Ample on-site parking and loading dock for easy deliveries

Voice

DC-Net's voice services and products can meet your organization's needs and budget.

VoIP Managed Service

DC-Net provides Voice over IP (VoIP) managed services based on industry-leading SIP-enabled Cisco Systems and Avaya IP telephony platforms. A key part of a unified communications solution, VoIP enables users to access unified communications applications including unified messaging and soft client video conferencing.

When selecting a VoIP service, DC-Net will deploy a Cisco and Avaya solution based on customer needs and infrastructure. Key considerations include:

- Is it a new site? Because VoIP deployment requires less wiring, it is often recommended on new sites.
- On existing sites, what is the voice and/or data infrastructure at that site? VoIP may be integrated with existing infrastructure.
- What are the overall customer requirements for voice applications? Cisco and Avaya phones both offer similar features, including:
  - Support for unified communications
  - Built-in Ethernet switch on the phone, providing access to the PC so that one Ethernet port can support two devices (the phone and PC) at the desk top.
  - Call logging
  - LED display (some phones have a touch screen)
  - Standard and color screens.

For more information about VoIP offerings and help with selecting the right VoIP solution for your organization, contact DC-Net Support Services at 202-715-3733.

Standard Features

The following end user phone features are included in the VoIP service:

- Extension to Extension Dialing – 7 or 10 Digit Extension

- Caller ID
- Call Forwarding
- Call Forwarding Always
- Call Forwarding Busy
- Call Forwarding No Answer
- Call Logs
- Call Transfer
- Call Waiting
- Calling Line ID Delivery and Blocking
- Calling Name Retrieval
- Do Not Disturb
- E911 Service
- Last Number Redial
- Shared Call Appearance
- Shared Call Appearance
- Simultaneous Ring
- Three Way Calling / Conference
- On-Net Call (internal calls)
- Local Calls (DC Metro Area)
- Domestic Long Distance (US States only)
- Voicemail (if selected)
- Troubleshooting support

Advanced Features

The following features are supported but additional charges will apply:

- Call Tree / Call Menu
- Customized Greetings including After Hours and Holiday messages
- Customized Internal Directory Listing
- Customized extension dialing – (e.g. 4 digit)
- Internal Intercom

Not Supported

The following features are currently not supported:

- International Dialing

Voicemail

DC-Net provides voicemail options for all voice services.

- Avaya VoIP services – DC-Net offers Avaya Modular Messaging, a powerful platform that offers exceptional scalability and a superior feature package of call answering, voice messaging, and speech capabilities. TTY/TDD support for disabled callers and hearing-impaired employees and callers is included.
- Cisco VoIP service – DC-Net offers Cisco Unity, a reliable, secure, scalable, and full-featured voice and unified messaging platform.

Note: Cisco and Avaya voicemail systems do not interoperate by default.

Voicemail options include:

- Voicemail 30 Minute Storage Single Password
- Voicemail Premium 60 Minute Storage
- Voicemail Premium 90 Minute Storage
- Voicemail Announcement Only

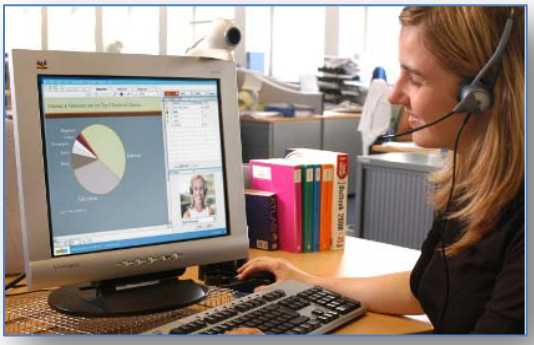
You can purchase voicemail on the first line and additional lines.

Voice Managed Services

In addition to the VoIP Managed Service, DC-Net provides a range of voice managed services that meet your organization's needs. WebEx and audio conferencing give you cost-saving and efficient ways of doing business.

Web Conferencing

DC-Net Web Conferencing solutions give you the power to conduct live online meetings, presentations, and interactive training sessions for group sizes of 25 and 200 users. Take advantage of integrated voice and video, and access meetings via PC or Mac and iPhone, Blackberry, or other mobile devices. Web Conferencing is a managed service that uses Cisco WebEx Meeting Center. It features Cisco-based 24/7 technical support (1-866-229-3239) and online training in your monthly service.



In a web conference, each participant sits at his or her own computer and is connected to other participants via the Internet.

Key Benefits

- Online meetings – Put an end to frustrating conference calls and back-and-forth emails. Accomplish more in less time.
- Presentations – Make sales presentations, demonstrate applications, and even review contracts online.
- Live interactive training – Train customers, partners, and employees anywhere in the world. Record for on-demand training, too.
- Large online events – Get your message out to more people faster; perfect for targeted webinars, online press briefings, any type of communications.
- IT helpdesk support – Support distributed users from any location. Remotely control desktops to see and fix issues in real time.
- Customer support – Troubleshoot and resolve remote customer problems via WebEx as if you were on site.

In a web conference, each participant sits at his or her own computer and is connected to other participants via the Internet.

Features

- Meet with up to 25 or 200 people at a time.
- Share documents, presentations, and applications.

- Meet from your PC or Mac—even your iPhone, Blackberry, or any other WiFi or 3G-enabled mobile device!
- Use integrated voice conferencing— join by phone or computer (VoIP).
- Schedule meetings yourself (Outlook integration).
- Access meetings on-net via DC-Net, off-net over the Internet.
- Record meetings for those who missed the session—or new audiences.
- Deliver rich multimedia (streaming video and up to six webcams).
- Count on exceptional reliability and security.
- Get 24/7 dedicated support.

Options

DC-Net Web Conferencing is available in two solutions:

- **200 User** – For up to 200 users, set up meeting using WebEx Enterprise Edition's Event Center, Meeting Center, Support Center, or Training Center meeting types.
- **25 User** – For up to 25 users, set up meetings using WebEx Meeting Center.

Note: Video and collaboration over WebEx are unlimited. Audio is charged at 6.5 cents per minute per user for non-VoIP and 2 cents per minute per user for VoIP based on usage.

Audio Conferencing

DC-Net offers 20, 30, and 50 person conference bridges that meet your organization's communication needs and budget. Services include unlimited number of minutes. Monthly and on-demand services are available.

Monthly

The DC-Net 20, 30, and 50 Port Conference Bridge monthly service lets you significantly increase the number of callers with access to conference calls (up to 50) without increasing your monthly cost. This service provides unlimited minutes, so you don't have to worry about overage charges.

For each bridge, a dedicated telephone line is available 24 x 7 x 365. DC-Net administers the conference bridge and controls the password. Participants call in at the prescribed conference time, enter the password, and are bridged into the conference call. The first

caller to the conference receives music on hold. As callers join, they are announced into the conference.

On Demand

The DC-Net 20, 30, and 50 Port Instant Meeting Conference Bridge lets you purchase an audio conference bridge for a 24 hour period. This is useful for large events where a monthly service is not needed. This service provides unlimited minutes, so you don't have to worry about overage charges.

Phone Sets

DC-Net offers SIP-enabled Avaya and Cisco phone sets.

Avaya VoIP Phones and Peripherals

DC-Net offers the Avaya 9600 series of IP phones and compatible expansion module.

9600 series phones offer the following benefits:

- Productivity of Users - The productivity of end users is greatly enhanced through prompting for common telephony tasks, one-touch access to key features, and superior high fidelity audio.
- Richer Communication - The superior audio capabilities make conference calls and meetings more effective by requiring less reiteration. This has been found to reduce employee stress and fatigue.
- Investment Protection - Built on open standards with a modular platform that supports a wide range of modules and adapters to further enhance user productivity.

Avaya 9621G

A member of the Avaya one-X™ Deskphone Edition family, the 9621G IP Deskphone is designed for users who spend considerable amounts of time on the phone. It delivers gigabit capability and touchscreen functionality.

Features

- 3.7 x 2.1 inch color touchscreen display
- 4 position adjustable tilt display
- Fixed features include speaker, mute, headset, contacts, home, history, message, phone, forwarding, volume
- Wideband audio and wideband speakerphone
- Dual message waiting indicators
- 360-degree visual alert for incoming calls and voice mail
- Bluetooth and DECT headset support with optional adapter
- Built-in two port Ethernet (10/100/1000 Mbps) switch for connection to LAN and collocated PC
- Built-in headset interface

Avaya 9641G IP

A member of the Avaya one-X™ Deskphone Edition family, the 9641G IP Telephone is specifically designed for the heavy telephone user. The 9641G provides superior high fidelity audio, built-in “one touch” access to key Avaya Communication Manager mobility features such as Extension to Cellular, protocol independence (H.323 and SIP) and a stylish and professional design.

The 9641G IP Telephone includes Gigabit Ethernet capabilities.

Features

- Supports 10/100/1000 Mbps with a secondary GigE port for workstation or PC.
- 3.8 inch (9.65 cm) diagonal high resolution color backlit display.
- Supports up to 24 call appearances/administered feature keys with six concurrent line appearances visible at any time.
- Several LED buttons. Six LED line appearance buttons on the side of the display provide explicit status of different line appearances and administered features, while LEDs built into several buttons on the phone such as Mute, Message, and Headset provide an intuitive and simple experience for the everyday end user.

- Helpful and intuitive user interface.
- Completing call transfers and setting up ad hoc conference calls is simple and can be executed with confidence.
- Supports 24-button expansion module, which provides additional call appearances, bridged appearances, and administered feature keys including speed dials.
- Superior Audio Quality—High-fidelity acoustics, including wideband audio support in the speaker, handset, and headset, deliver industry-leading audio that minimizes ambient noise.
- Four-way navigation button cluster provides a familiar, cell phone-like interface for navigation and feature selections.

Avaya 9650 IP

A member of the Avaya one-X™ Deskphone Edition family, the 9650 IP Telephone is specifically designed for building receptionists, executive assistants, contact center agents, and knowledge workers who manage calls for themselves and for groups of people and who need quick access to features and call appearances. The 9650 features built-in button module functionality with one-touch access to bridged appearances, speed dials and feature keys. When used with Avaya Communication Manager 4.0, the 9650 supports up to three SBM 24-button expansion modules.

Features

- Uses the g.722 codec open standard for wideband audio, which provides uncompromised sound quality.
- Delivers advanced communications capabilities, high definition audio, an integrated WML application interface, and comprehensive one-touch access.
- Supports higher quality wideband audio in both the handset as well as the speakerphone, which provides crystal clear audio with the elimination of background noise.
- Backlit display and intuitive interface simplifies access to Avaya Communication Manager features.

- Some features simultaneously manage multiple calls while selectively muting and dropping conference call participants.
- Supports built-in button module functionality (eight physical buttons with shift capability for a total of 16 feature keys) to provide simple one-touch access to bridged appearances, speed dials and feature keys.
- Dual position flip stand.
- Through integrated web browser and application interface, it supports productivity enhancing phone applications such as LDAP corporate directories and integration with Microsoft Outlook calendars.

Avaya 9670G IP

A member of the Avaya one-X™ Deskphone Edition family, the 9670G IP Telephone is specifically designed for the heavy telephone user. A large touch screen on this phone provides access to contacts and applications. An onscreen keyboard makes using features easy. All of these features help make employees more productive.

The 9670G provides superior high fidelity audio, built-in “one touch” access to key Avaya Communication Manager mobility features such as Extension to Cellular, protocol independence (H.323) and a stylish and professional design. The 9670G includes Gigabit Ethernet capabilities.

Features

- Uses the g.722 codec open standard for wideband audio, which provides uncompromised sound quality.
- Delivers advanced communications capabilities, high definition audio, an integrated WML application interface, and comprehensive one-touch access.
- Supports higher quality wideband audio in both the handset as well as the speakerphone, which provides crystal clear audio with the elimination of background noise.
- Backlit display and intuitive interface simplifies access to Avaya Communication Manager features.

- Some features simultaneously manage multiple calls while selectively muting and dropping conference call participants.
- Supports built-in button module functionality (eight physical buttons with shift capability for a total of 16 feature keys) to provide simple one-touch access to bridged appearances, speed dials and feature keys.
- Dual position flip stand.
- Through integrated web browser and application interface, it supports productivity enhancing phone applications such as LDAP corporate directories and integration with Microsoft Outlook calendars.

Avaya 1692 IP

The Avaya 1692 IP Speakerphone provides the convenience and productivity benefits inherent in a powerful, hands-free conference phone. It delivers the extensive set of Avaya Aura™ features directly to small, midsize and large conference rooms. Key features and benefits include:

- Improved productivity during conference calls with hands-free full duplex operation delivering simultaneous two-way conversations.
- Simplified wiring connects to your IP network with a 10/100 Base T Ethernet LAN connection. Simplified setup with integrated Power over Ethernet (PoE) with an AC power kit is available for non-PoE environments.

Avaya 9600 Series IP Phone Expansion Module

The Avaya IP Phone Expansion Module provides 24 additional lines for incoming calls, outgoing calls, and calling features.

Key features include:

- Compatible with Avaya 9600 series IP telephones

- Can add up to 3 SBM24 modules per phone

Avaya Phone Comparison Matrix

Feature	9670G IP	9650 IP	9641G IP	9621G IP	1692
					
Technology	IP	IP	IP	IP	IP
User	Heavy	Navigator (reception, call agents)	Heavy	Heavy	Small to midsize conference
Call Appearances	24	24	24	24	10
Call Log	✓	✓	✓	✓	
Display (cm w x h) resolution	5.1 x 3.8 color	7.9 x 5.9 320 x 240 pixels	4.1 x 2.3 color	3.7 x 2.1 color	2.5 x 1.3 gray
Feature LEDs	10	11	10		3
Speaker Phone	✓	Wideband	✓	✓	✓
Softkey Buttons	0 – 5, touchscreen	12	0 – 5, touchscreen	0 – 5	5
High-Fidelity Audio	✓	✓	✓	✓	✓
Integrated Speed Dial/ Contacts	250	250	250	250	
Expansion model support	✓	✓	✓	✓	✓
Ethernet Switch	✓	✓	✓	✓	✓
Communications Protocol	H.323	H.323	H.323, SIP	H.323, SIP	H.323
USB Port	✓	✓		✓	

Cisco Phone Sets

DC-Net offers a wide range of Cisco unified IP phones, including wireless and video phones for our Cisco VoIP solution. When you purchase a Cisco phone from DC-Net, this includes licensing that lets you:

- Access multiple applications and phone set features without paying any additional license fee.
- Upgrade phone sets without purchasing a new license.

Cisco Video Phone – 9971

Advance the pace of decision making and enhance user experience with high-performance business video and wireless communications from your phone. The Cisco Unified IP Phone 9971 delivers high-quality, advanced interactive multimedia communications in a design that is both user- and eco-friendly. It offers the following features:

- Interactive video elevates and personalizes communications (includes Cisco Unified Video Camera)
- Large backlit, vibrant high-resolution 640 x 480 pixel fully-adjustable color display with touchscreen makes viewing easy
- Built-in 802.11a/b/g Wireless-fidelity (Wi-Fi) radio increases portability and return on investment
- Twelve tri-color illuminated LED line/feature keys provide at-a-glance status for primary and shared lines
- Dual standard USB 2.0 ports support wired headsets for greater choice and convenience
- Bluetooth 2.0 headset profiles adds freedom at the desk
- High-definition voice (HD voice) provides greater clarity in communications
- Up to three Cisco Unified IP Color Key Expansion Modules for added scalability
- XML and MIDlet multimedia applications transform business processes and enhance user experience
- Gigabit Ethernet switch ports deliver high-speed network connection and PC collocation for reduced infrastructure cost

The 9971 is also eco-friendly. It is made from reground and recyclable plastics and has a deep-sleep power option to reduce power consumption up to 90 percent in off-hours as compared to its active state.

Cisco 7965G

Enhance the telephone user experience with high-fidelity wideband audio, new backlit color displays, and improved navigation options. The Cisco Unified IP Phone 7965G extends the functionality of the existing Cisco Unified IP Phone 7961G and 7961G-GE models with the following features:

- High-fidelity wideband audio for vibrant, lifelike conversations; Internet Low Bitrate Codec (iLBC) support for use in lossy networks.
- Large backlit color display for easy use of Cisco Unified Communications and third-party telephone applications.
- Improved navigation cluster for easier navigation and feature and function selection.
- Gigabit Ethernet connectivity.

Cisco 7962G

The Cisco Unified IP Phone 7962G is a full-featured IP phone with speakerphone and handset designed for wideband audio. It is intended to meet the needs of managers and administrative assistants. It has six programmable backlit line/feature buttons and four interactive soft keys that guide you through all call features and functions. The phone has a large, 4-bit grayscale graphical LCD that provides features such as date and time, calling party name, calling party number, digits dialed, and presence information. The crisp graphic capability of the display allows for the inclusion of higher value, more visibly rich Extensible Markup Language (XML) applications, and support for localization requiring double-byte Unicode encoding for fonts. A hands-free speakerphone and handset designed for hi-fidelity wideband audio are standard on the Cisco Unified IP Phone 7962G, as is a built-in headset connection and an integrated Ethernet switch.

Cisco 7945G

Improve the telephone user experience with new high-fidelity wideband audio, backlit color displays, and navigation options. The Cisco Unified IP Phone 7945G extends the functionality of the existing Cisco Unified IP Phone 7941G/7941G-GE models with the following features:

- High-fidelity wideband audio for vibrant, lifelike conversations; Internet Low Bitrate Codec (iLBC) support for use in lossy networks.
- Large backlit color display for easy use of Cisco Unified Communications and third-party telephone applications.
- Improved navigation cluster for easier navigation and feature and function selection.
- Gigabit Ethernet connectivity.

Cisco 7942G

Enhance the telephone user experience with high-fidelity wideband audio. The Cisco Unified IP Phone 7942G extends the functionality of the existing Cisco Unified IP Phone 7941G with the following features:

- High-fidelity wideband audio for lifelike conversations; Internet Low Bitrate Codec (iLBC) support for use in lossy networks
- High-resolution grayscale display for easy use of Cisco Unified Communications and third-party telephone applications

Cisco Wi-Fi Enabled Phone – 7925G

Enhance the user experience and personal freedom with support for Bluetooth. Increase business continuity by taking advantage of a new ruggedized industrial design. The Cisco Unified Wireless IP Phone 7925G for mobile professionals extends the functionality of the existing Cisco Unified Wireless IP Phone 7921G with the following new features:

- Support for Bluetooth v2.0 headset profiles gives you more freedom.
- Hermetically sealed phone/display is IP54 rated, protects against dust, liquids, and moist wipes, and is ideal for deployment in more demanding environments.
- Ruggedized industrial design is compliant with military 810F standard and includes a rubber casing to shield the phone from damage caused by drops and shocks.
- A more compact form factor gives you an IP phone that is easier to hold.

Other features include:

- IEEE 802.11a, b, and g standards that allow customers to use the phone in the 2.4 GHz or 5 GHz bands.
- A 2-inch color display (176 X 220 TFT) that is easier to read and enhances XML applications.
- Built-in speakerphone capabilities.
- Dedicated mute and volume keys, and separate Application button that can support Push-to-Talk via Extensible Markup Language (XML).
- Longer battery life (200 hours standby time or 15.5 hours talk time).
- High durability for all business environments.
- Exceptional voice quality with support for wideband audio.
- Diversity antenna for better RF coverage.
- Support for wide range of enterprise applications through XML.
- Wireless security features including LEAP, PEAP, EAP-FAST, EAP-TLS, WPA, WPA2, CCKM, WEP, TKIP/MIC, and AES.
- Voice security features including Certificates, Secure Real-Time Protocol (SRTP), and Transport Layer Security (TLS).
- Support for Wavelink Avalanche.

- Quality of service features including WMM, TSPEC, EDCA, and QBSS.

The 7925G phone set includes desk charge station and extended battery.

Cisco Conference Bridge – 7937G

The 7937G is Cisco's latest IP conference phone set that integrates with Cisco IP phones deployed on the DC-Net network. It is a replacement for the 7936G model.

Features include:

- Superior wideband acoustics with the support of the G.722 wideband codec
- Support for IEEE Power over Ethernet (PoE) or the Cisco Power Cube 3
- Expanded room coverage up to 30 feet by 40 feet with the optional external microphone kit
- Support for a third-party lapel microphone kit[1]
- New larger backlit liquid crystal display (LCD)
- Global localization

This phone set integrates with DC-Net's Cisco Unified Communications Manager/Cisco CallManager platform.

Cisco Unified IP Phone Feature Comparison

http://www.cisco.com/en/US/products/sw/voicesw/products_category_buyers_guide.html#~ipcomm

	7942G	7945G	7962G	7965G	7925G	7937G	9971
							
Description	General	General	General	General	Wireless	Conference Station	Wireless Video
Integral Switch	10/100/1000	10/100/1000	10/100/1000	10/100/1000	N/A	10/100	10/100/1000
Display	Digital, 16-bit graphical backlit TFT Color, 5"	Digital, 16-bit graphical backlit TFT Color, 5"	Digital, 16-bit graphical backlit TFT Color, 5"	Digital, 16-bit graphical backlit TFT Color, 5"	Digital, 16-bit graphical backlit TFT Color, 2"	32 level grayscale, backlit (255 x 128 pixels)	Backlit color 640 x 480
Number of DNs supported	2	2	2	6	6		6
Programmable (line) keys	2 - Lighted	2 - Lighted	2 - Lighted	6 - Lighted	N/A		6-lighted
Programmable (soft) keys	4	4	4	4	2	4	3
Speakerphone	✓	✓	✓	✓	✓	✓	✓
Headset Port	✓ (wideband support)	✓ (wideband support)	✓ (wideband support)	✓ (wideband support)	✓		✓
Wideband Audio	✓	✓	✓	✓	✓	✓	✓
iLBC support	✓	✓	✓	✓	✓		✓

'5-way' navigation cluster	✓	✓	✓	✓	✓		✓
Headset mobility	✓	✓	✓	✓			✓
XML App. Support	✓	✓	✓	✓	✓	✓	✓
Extension Mobility	✓	✓	✓	✓	✓		✓
Key Extension Module (KEM) support				✓			✓
Video Advantage Camera support	✓	✓	✓	✓			✓
Power budget	12W	12W	12W	12W	5W		5W
Power - other	Power cube, power injector	Power cube, power injector	Power cube, power injector	Power cube, power injector	Standard or Extended battery	Power over Ethernet or Power Cube 3	Power over Ethernet or Power Cube 3
Signaling Protocols	SCCP/SIP	SCCP/SIP	SCCP/SIP	SCCP/ SIP	SCCP	SCCP	SCCP
UC Manager support	4.1(3)sr5b and later	4.1(3)sr5b and later	4.1(3)sr5b and later	4.1(3)sr5b and later	4.1 and later	4.3-12.4 (15) x2 and later	4.3-12.4 (15) x2 and later
UC Manager Express support	4.1 or later	4.1 or later	4.1 or later	4.1 and later	4.1 and later	4.1 and later	4.1 and later

Headsets

DC-Net offers wireless headset and electronic hook switch packages for Cisco and Avaya users.

These combine the Plantronics Savi W0 100 convertible wireless headset and the Plantronics Savi EHS Avaya cord in one package. The headset system lets users connect to multiple communication applications and devices—desk phones, PC soft phones, and PC audio—with a single headset. With a touch of a button, professionals can connect a soft phone call on a PC with a desk phone call and then attend a Webinar. Features include a noise-canceling microphone, wideband PC audio, and integrated DECT 6.0 technologies. The headset offers lifelike fidelity with every call and application and lets users roam up to 350 feet from their desk without compromising on clarity.

The electronic hook switch (EHS) allows the user to control calls from the headset. It plugs into the phone and the headset base station plugs into it.

This product supports DC-Net Cisco IP 7900 series phones and Avaya 2420 and 9600 series phones.

Wireless Services

DC-Net offers both the extension of customer local area network (LAN) through indoor wireless services and outdoor wireless services.

Wireless LAN

As indoor wireless access becomes increasingly necessary in the workplace, DC-Net helps you meet your agency's needs for wireless services. DC-Net offers the wireless extension of data circuits through both secure and public access. We also customize wireless access point (AP) installation and management based on agency needs and site size and type. Both indoor and outdoor AP placements are supported

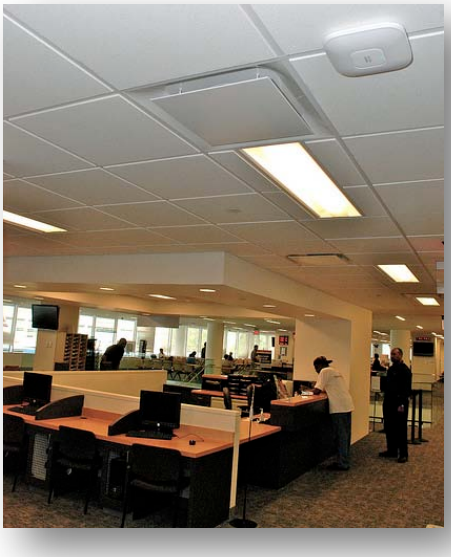
By leveraging state-of-the-art Cisco technology and supporting standards-based unlicensed frequencies (802.11 a/b/g/n), DC-Net can install and manage WAPs at each newly deployed site, enabling ubiquitous, secure wireless access for government workers. In addition, DC-Net wireless "hotspots" at these sites enable public access to District government services and the Internet over DC-WiFi.

For more information about DC-Net wireless services and applications, contact DC-Net Support Services (202) 715-3733.

Benefits

Meeting the growing demand for mobility and increased collaboration, DC-Net helps workers operate more effectively throughout the office environment, whether this is using a laptop in a wireless conference room or working remotely as a "visitor" at another agency.

This service is particularly useful at locations with a predominant number of mobile workers or other users, such as public safety sites, health care facilities, warehouses, job training centers, and educational institutions and campuses.



Indoor wireless access point deployment

DC-Net wireless infrastructure is an extension of the enterprise network, thus enabling centralized management and a range of wireless applications and benefits:

- Wireless LAN connectivity for laptop and other wireless device users
- Wireless VoIP for in-building wireless phones (Cisco 7925G and others) over the WLAN
- Secure separation of private/authenticated and public WiFi access
- Location tracking for personnel and assets
- Point of sale applications
- Complement to bar code scanners in warehouse
- OfficeAnywhere – Optimal for disaster recovery scenarios, pre-provisioned WAP extends internal network access over an existing Internet connection from anywhere.

Services

DC-Net offers the following LAN solution options:

- **Deluxe** – Ideal for large offices with bandwidth intensive multimedia voice and video applications and for hardened facilities. The Deluxe solution provides the most extensive wireless coverage available.
- **Standard Plus** – Ideal for large offices with bandwidth intensive multimedia voice and video applications and for environments with users with newer laptops and Wi-Fi enabled devices.
- **Standard** – Ideal for smaller to mid-size offices with no intensive bandwidth or mobile user requirements.
- **On Demand** – Contact DC-Net for indoor Wi-Fi deployments for special events.

DC-Net provides a full wireless solution which includes RF network design, AP configuration, installation, centralized management, and 24/7 support and maintenance.

Pricing includes a non-recurring cost for each WAP, along with a modest monthly recurring cost for management of the WAP and its supporting infrastructure.

Technology

Service	Features	Standards	MIMO	Through-put per AP	User per AP	Hardware
Deluxe	Large site - multimedia voice/video users. Hardened/old physical infrastructure buildings.	Dual band 802.11a/b/g/n, Advanced interference detection and mitigation.	4x4	Up to 450 MB	25>	Cisco 3602
Standard Plus	Mid-size to Large site - multimedia voice/video users. Users with newer laptops and Wi-Fi enabled smart devices	Dual band 802.11a/b/g/n, Advanced interference detection and mitigation.	2x3	Up to 300 MB	20>	Cisco 3502i
Standard	Small to mid-size office (DC-CAN)	Dual-band 802.11a/g/n, more over air bandwidth with appropriately equipped 802.11n clients.	2x3	Up to 300 MB	10-20	Cisco 1142

Wireless access points (APs) provide a standards-based extension of the existing data circuit, supporting both authenticated (Secure) and public (DCWiFi) SSIDs. These connections are completely separate. Workers use the secure connection to access the network; authentication is tied to existing user credentials. Visitors use DCWiFi to access the Internet.

DC-Net uses Cisco Aironet 3600, 3500, and 1142 series internal APs which provide a range of approximately one AP per 3000 square feet in most structures. These devices support 802.11 a/b/g/n Wi-Fi standards. Bandwidth is negotiated at whatever the user device supports, with theoretical speeds up to 11 Mbps for 802.11 b, 54 Mbps for 802.11 a/g, 350 Mbps for 802.11 n, and from 450 Mbps (single band) to 900 Mbps (dual band) with next generation APs.

Installation and Management

When you order wireless access point service from DC-Net all aspects of implementation and management are covered. DC-Net's experienced Radio Frequency Engineering team designs, configures, installs, and manages the network wireless infrastructure. Depending on a site's size and customization, DC-Net either manages access points remotely from on-site equipment or through its enterprise core infrastructure.

The DC-Net management infrastructure uses Cisco unified wireless controllers. These controllers support intrusion detection and rogue WAP detection as well as custom usage reporting.

Outdoor Wi-Fi

DC-Net offers the following services for outdoor wireless connectivity:

- **LAN Extension** – Similar to our indoor wireless service, this service extends the customer LAN (data, voice, video SSIDs) from indoor to outdoor campus. Cost includes monthly maintenance and management of wireless access points. Site surveys determine the number of access points to adequately cover your campus. Data service is required.
- **Point-to-Point Wireless Transport** – For locations with data transport needs of up to 10 Mbps and/or where fiber construction is not feasible, this service provides reliable transport for data, voice, video with QoS abilities.
- **Internet Access –** Provides free access to the Internet (with advertisements) at hotspots across the city.

Future Applications

DC-Net is positioned to support and deliver wireless applications as they become available and are requested by agencies. These include the deployment of dual-band phones that switch seamlessly between cellular and DC-Net network depending on signal strength as well as support for “Smart Building” applications. If your agency has special wireless application requirements or other customized needs, we can help. Please contact DC-Net Support Services today.

Professional Services

DC-Net offers voice service related Professional Services by our engineering and technical staff. Professional Services includes:

1. **Construction and Engineering** – Fiber construction, cabling, and wired and wireless equipment installation. This includes any cable work that requires extensive time and resources beyond what cable installation service covers, including the installation of single 4 pair Cat. 5E or Cat. 6 cable from customer demarcation point (room or device) and related work. All DC-Net wiring conforms to BICSI standards.
2. **Hosting** – Professional services assistance is available for collocation at data center and shelter locations.
3. **Programming** – Includes moves, adds, and changes completed in software on Avaya and Cisco PBXs and E-Fax system, the implementation of completed design work, and training.
4. **Design support** – Design, engineering, and project management services available for a reasonable fee to interested providers.
5. **Individual case basis** – Includes large and customized deployments.

In addition, DC-Net Professional Services conducts site surveys when you are considering new voice and data services or services beyond the standard moves, adds, and changes handled by DC-Net's Customer Service Representatives. A site survey precedes all Professional Services orders. The site survey allows DC-Net to assess the site environment, including existing voice hardware and electronic infrastructure, wiring, and physical and logical design to present you with options that best suit your agency's goals and budget for the site.

A site survey is required for any considered change that involves:

- 10 or more telephones at one time.
- Moves that require new wiring, including moves to a different floor within the same building.
- Moves to a new building.
- A voice service change or equipment upgrade.

For more information about Professional Services, contact DC-Net at 202-715-3733.

Getting Help

The DC-Net Support Services staff are knowledgeable, industry trained professionals that can assist you with:

- **Trouble issues** (available 24 hours a day, 7 days a week)
- **Product information and service order requests** (available from 8:30 am to 5:30 pm Monday through Friday)

Call 202-715-3733.

When you place a help desk request, a trouble ticket is generated and passed to the responsible team in DC-Net. You are then contacted regarding the status of your request and its final resolution. Non-emergency requests during off hours are handled during the next business day. Emergency requests during off hours are handled in coordination with the DC-NOC within two hours.

Tier 1 – 3 technical support is standard for all voice, wireless access point, and video teleconferencing services on supported endpoints. Ask for information regarding telephone moves, adds, and changes.

- Voice Tier 1 Assistance – Non-critical issues. Field technicians are available during work hours.
- Voice Tier 2 and 3 Assistance – After hours support. Inside voice and data engineers and select group of field engineers are available 24 x 7.

Data issues are forwarded automatically to the DC-NOC, which monitors the network 24 x 7 and provides immediate response along with DC-Net Tier 3 network engineering support.

To report a service outage or to request assistance for DC-CAN services:

- **Call:** 202-715-3733
- **Email:** dccan.support@dc.gov
- **Online:** http://dcnet.dc.gov/dccan

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