

Internet Protocol Voice Service (IPVS)

Internet Protocol Voice Service (IPVS) allows users to make phone calls using a high-speed IP transport connection instead of a traditional, circuit-switched phone service. IPVS offers a number of advantages over the older technology including simplified and centralized system control, ease of physically moving or adding new phones, lower operations and maintenance costs, and dramatically reduced capital investment.

The service supports all voice calls, whether they are initiated or terminated on the same or different network. IPVS also offers a wide range of features including voice mail, caller ID, conference calling, call forwarding, etc.

The IPVS has three main options: (1) Deployment: Hosted or on-premises. In the hosted version, the contractor provides network-based telephone service; in the latter version, the agency owns and maintains the telephone system on its premises; (2) Managed LAN Service. Here, the vendor provides, manages and maintains the needed equipment to implement IPVS on the agency's premises; and (3) Session Initiation Protocol (SIP) Trunk Service option. This service enables the agency's private branch exchange (PBX) to connect to the contractor's IPVS network.

Category: Voice Service

Complementary Services Needed: In order to use IPVS, the agency may need one or more of the following EIS services or equivalent: Access Arrangements, Virtual Private Network Service, Private Line Service, Internet Protocol Service, or Ethernet Transport Service.

Definitions: Please see EIS contract [Section J.12 Glossary of Terms](#) for clarification of technical terms and acronyms.

Figure 1—IPVS with Contractor-provided Session Initiation Protocol (SIP) Trunk Service (connects the Agency’s phone system to the Contractor’s IPVS network)

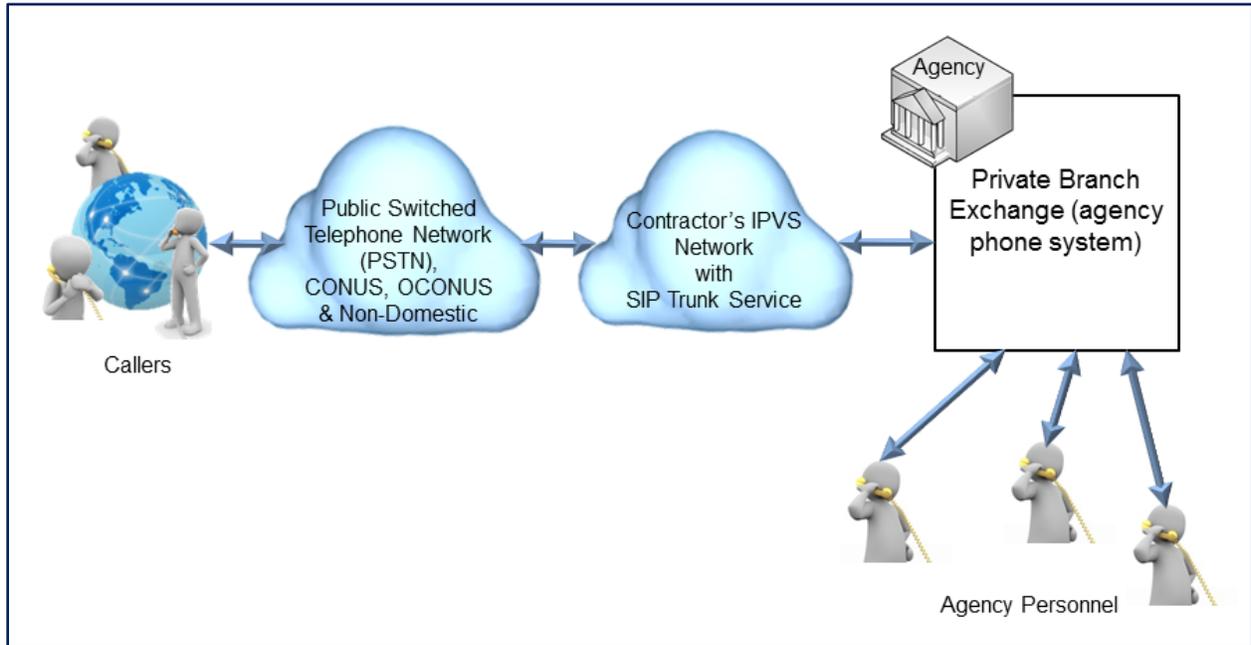
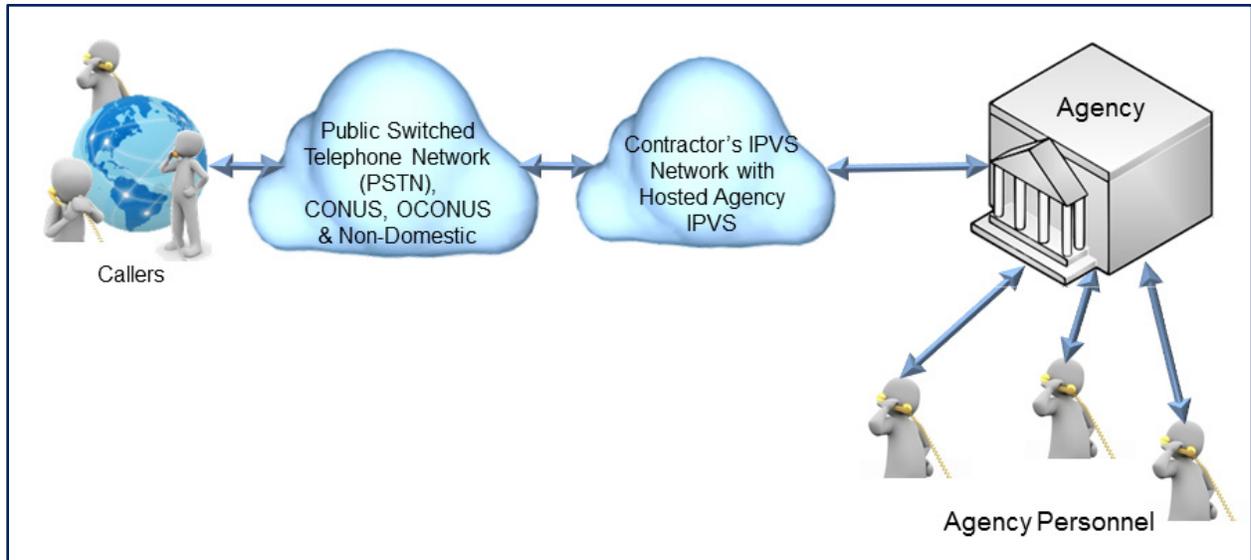


Figure 2—Hosted IPVS Solution



1. Why an Agency Might Select This Service

- Internet-based phone service—running on the contractor’s IP network—is less costly, thus making IP-based calls less expensive to make.
- With hosted IPVS, all of the technology for handling calls resides with the service provider. Agency subscribers can often add or change features through the service provider’s website.
- An agency could use IPVS to transition its voice service to 21st Century IP service, thus enabling the agency to take advantage of Unified Communications and other capabilities.

NOTE: Agencies considering this service may also want to compare this service with Unified Communications Service.

2. Examples of How IPVS Could be Used

- **Reduce Cost and Complexity of Physically Moving Phones:** It is estimated that it can cost hundreds of dollars to move a telephone in a regular circuit-switched network due to labor costs to disconnect, move, and install lines, and the cost of reconfiguring the agency’s Private Branch Exchange (PBX).

An agency could use IPVS to dramatically reduce such costs, as the IP network does not care about a user’s location. IPVS enables agency personnel to easily and quickly move IP phones within the agency’s enterprise-wide network as needed, and still keep the same phone number.

- **Reduce Network Management Expenses:** An agency could use IPVS to simplify and centralize management of its phone system, thereby saving the agency a considerable amount of money for operations and maintenance.

3. Key Technical Specifications

NOTE: This portion of the service guide has been abridged due to space considerations. For full technical details on IPVS, please refer to EIS contract [Section C.2.2.1 Internet Protocol Voice Service](#).

Table 1—IPVS Technical Capabilities

Capability	Description
Remote Access Capability	<p>Remote Access, once enabled, provides users with the ability to use any landline or cell phone to make or receive phone calls as if they were making or receiving calls with VoIP phones.</p> <p>The following capabilities are offered by all contractors unless otherwise indicated:</p> <ol style="list-style-type: none"> 1) Real time transport of voice, facsimile, and TTY communications 2) Real time delivery of Automatic Number Identification (ANI) information (when provided from the originating party) 3) Ability to interoperate with public network dial plans (e.g., North American Numbering Plan and ITU-E.164) 4) Ability to interoperate with private network dial plans and support direct dialing 5) Ability to interoperate with non-commercial, agency-specific 700 numbers (NOTE: May not be available from all contractors.) 6) Access to public directory and operator assistance services 7) Unique directory numbers for all on-net government locations, including support for existing government numbers. 8) Capability to initiate automatic callback 9) Three-way calling
Gateways for Interoperability	<p>Gateways are provided for interoperability between the contractor's IP-based network and the PSTN, or with agency User-to-Network Interfaces (UNIs). The specific gateway will depend upon the ordering agencies UNI requirements. The gateways and functionality are described below:</p> <ol style="list-style-type: none"> 1) <u>Subscriber Gateway</u>: The contractor provides interoperability for non-IP telephone devices. The contractor provides non-proprietary telephony station UNIs including (a) analog station and (b) ISDN BRI station interfaces. 2) <u>PSTN Gateway</u>: The contractor provides transparent access to and ability to interwork with domestic and non-domestic PSTNs.

Capability	Description
Station Mobility	Station mobility enables IP subscribers to dynamically move IP phones within the agency's enterprise wide network and access IP services.
Compatibility with Agency Firewalls and Security	IPVS provides the capability to traverse and successfully interoperate with agency firewalls and security layers. The contractor verifies with the agency that the agency firewall is compatible with the contractor's service.
Security	<p>Provides security practices and safeguards to minimize susceptibility to security issues and prevent unauthorized access. This includes SIP-specific gateway security for SIP firewalls, where applicable.</p> <p>Security practices and policies are regularly updated and audited. The general areas of security addressed are:</p> <ol style="list-style-type: none"> 1) <u>Denial of Service</u>: The contractor provides safeguards to prevent hackers, worms, or viruses from denying legitimate users from accessing IPVS. 2) <u>Intrusion</u>: The contractor provides safeguards to mitigate attempts to illegitimately use IPVS. 3) <u>Invasion of Privacy</u>: The contractor ensures that IPVS is private and that unauthorized third parties cannot eavesdrop or intercept IPVS communication numbers, IP addresses, or URLs.
Public Safety Answering Point (PSAP)	Compliance with emergency service requirements, including 911 and E911 services, identification of the location of originating stations, and the routing of the calls to the appropriate Public Safety Answering Point (PSAP).
Local Number Portability (LNP)	Contractor's IPVS will comply with the Federal Communications Commission (FCC) Local Number Portability (LNP) requirements.

Table 2—IPVS with Managed LAN Service Technical Capabilities

Capability	Description
IPVS Site Demarcation Extension	Provides all hardware and licensing necessary to extend IPVS site demarcation point to the terminating device for both hosted and premise-based solutions.
Hardware/Software Interop with VoIP Ready Cabling	Hardware/Software will interoperate with the ordering agency's provided VoIP-ready cabling infrastructure, including category 5, 5E, 6, 6A, single mode, and multimode fiber at a minimum.
Ongoing Maintenance & Upgrades	Provides ongoing maintenance and upgrades—at no additional cost—of the contractor-owned equipment used to provide the Managed LAN Service.
Installation Time Intervals	The contractor will propose install time intervals for additional devices at sites already using a Managed LAN Service.
No Wireless Devices or Components on LAN	No wireless devices or components will be provided on the LAN Service (i.e. wired solution only) unless requested by the OCO.
No Support for Other Services	Managed LAN Service will not support other services (i.e. data, video, etc.) unless requested and approved by the OCO.
Operation of Authorized Devices Only	The contractor ensures that only authorized devices as determined by the ordering agency are able to operate on the Managed LAN Service.
Monitoring, Management & Restoration (MMR)	MMR for the Managed LAN Service is performed by the contractor on a 24x7 basis.
LAN Management Activities	<ul style="list-style-type: none"> a. Configuration Management b. Moves, Adds, Changes, Disconnects (MACDs) c. Service /Alarm Monitoring & Fault Management d. Ticket Creation e. Proactive Notification f. Trouble Isolation & Resolution
Proactive Notification Alarms	Provides proactive notification of major and minor alarms to the Managed LAN Service via email to all the POCs identified by the ordering agency within 15 minutes of alarm detection.
Escalation Path for Trouble Tickets	The contractor defines the escalation path for trouble tickets for both network and hardware issues with the level of severity identified, and includes personnel for each level of escalation, as well as guideline and timing for the next step in escalation.

Table 3—IPVS with SIP Trunk Service Technical Capabilities

Capability	Description
SIP-based IP Trunk	Provides SIP-based trunk service that interoperates with any Private Branch Exchange (PBX) system that supports SIP-based trunk interfaces
Direct IP Connection between SIP-enabled PBX System	Provides a direct IP connection between a SIP-enabled PBX system on the agency's premise and the contractor's SIP-compliant IPVS Network that is fully intergated with IPVS to support calling to on-net and off-net locations

Table 4—IPVS Features

Feature	Description
Voice Mail Box	<ol style="list-style-type: none"> 1) Voicemail capability includes voice messaging transmission, reception, and storage 24x7 except for periodic scheduled maintenance. The contractor-provided voice mailbox meets the following minimum requirements: <ol style="list-style-type: none"> (a) At least sixty minutes of storage time (or 30 messages) (b) Ability to remotely access voice mail services (c) Secure access to voice mail via a password or PIN (d) Automatic notification when a message is received (e) Minimum message length of two minutes (f) Capability to record custom voice mail greetings 2) VM capability can be administered on a station basis according to the agency's needs. 3) Each voicemail message received by users with this VM feature can be sent to the email address that the user designates. Voice mail will be sent as an email with a WAVE (.wav) file attachment. 4) Users have the capability to add other notification devices / email addresses or to update email information and email preferences when receiving and forwarding messages through a secure user web portal.
Auto Attendant	<ol style="list-style-type: none"> 1) Allows callers to be automatically transferred to an extension without the intervention of an operator. 2) Provides capabilities allowing callers to dial a single number for high volume call areas and to select from up to nine (9) options to be directed to various attendant positions, external phone numbers, and mailboxes, or to dial by name or extension at a minimum.
Augmented 911/E911 Service	<ol style="list-style-type: none"> 1) The contractor appropriately populates a 911 Private Switch/Automatic Location Identification (PS/ALI) database with the government's profile that includes all the users' telephone numbers, station locations, building location, building address, building floor, and room number during service implementation. 2) The contractor provides secure remote access to the government via a client or a web browser to allow the government to maintain the government's profile on an ongoing basis (e.g., to account for moves, adds, deletions, or other changes). 3) The contractor ensures these government profile updates are reflected in the PS/ALI database.

<i>Feature</i>	<i>Description</i>
Standard IPVS Features	<p>The following standard IPVS features are included in the basic IPVS service:</p> <ol style="list-style-type: none">1. Caller ID2. Conference Calling3. Do Not Disturb4. Call Forward – All5. Call Park6. Hotline7. Call Forward – Busy8. Call Pickup9. Hunt Groups10. Call Forward – Don't Answer11. Class of Service Restriction12. Multi-Line Appearance13. Call Hold14. Distinctive Ringing15. Directory Assistance16. Call Transfer17. Call Waiting18. Speed Dial19. Call Number Suppression20. Specific Call Rejection21. Last Number Dialed22. IP Telephony Manager (Administrator)23. IP Telephony Manager (Subscriber)

4. Pricing Basics for IPVS

Please visit the [EIS Resources Listing](#) and locate the [Basic EIS Pricing Concepts Guide](#) to gain an understanding of EIS pricing fundamentals.

4.1 Access Arrangements

Appropriate access arrangements must be selected for each endpoint. Please visit the [EIS Resources Listing](#) and locate the [Access Arrangements Guide](#) for more detailed information.

4.2 Service Related Equipment (SRE)

- SRE must be chosen based on equipment required at each location. NOTE: SRE uses catalog-based pricing.
- Request that contractor provide pricing for any SRE that would be required, in addition to the agency's existing infrastructure, to deliver the service.
- Please visit the [EIS Resources Listing](#) and locate the [Service Related Equipment Service Guide](#) for more detailed information.

4.3 IPVS Price Components

The price structure for IPVS consists of the components shown in *Table 5* below.

Table 5—IPVS Pricing Components

Component	Charging Unit
IPVS (Hosted or Premises-Based) <ul style="list-style-type: none"> • Monthly Recurring Charge (MRC) • Non Recurring Charge (NRC) 	Seat
Managed LAN <ul style="list-style-type: none"> • MRC • NRC 	Seat
SIP Trunk Service <ul style="list-style-type: none"> • MRC • NRC 	Concurrent call path
On-Net to Off-Net Calling (OCONUS and Non-Domestic), and Non-domestic Mobile Termination Surcharge <ul style="list-style-type: none"> • Usage Fee 	6 seconds
Features	Feature dependent

Figure 3 below shows how the pricing components in Table 5 are combined to produce the total IPVS cost.

Figure 3—This figure shows how the various pricing components in Table 5 would be combined to calculate the total IPVS charges. NOTE: One or more of these components may not be needed to price a particular service package.



The charges for the different components in Figure 3 are calculated using details provided in the pricing tables in EIS contract [Section B.2.2.1 Internet Protocol Voice Service](#). (Please visit the [EIS Resources Listing](#) and locate the [Basic EIS Pricing Concepts Guide](#) for instructions on using the pricing tables to compute the cost of a service.)

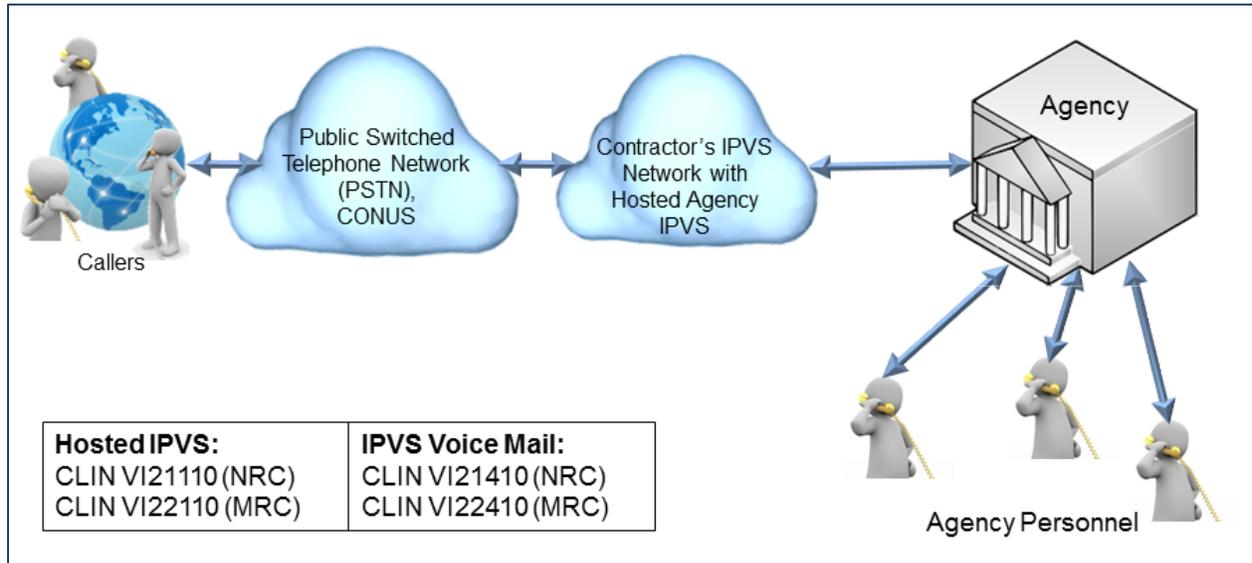
NOTE:

1. Usage charges include any OCONUS off-net termination and non-domestic off-net termination in any OCONUS or non-domestic country/jurisdiction where the contractor can deliver service.
2. A contractor may offer a custom variation of the service to meet an agency's unique requirements. Such a customization would be identified with a Task Order Unique CLIN (TUC), and would include charges that would have to be added to the components in Figure 3 to determine the total cost of the service.

4.4 IPVS Pricing Examples

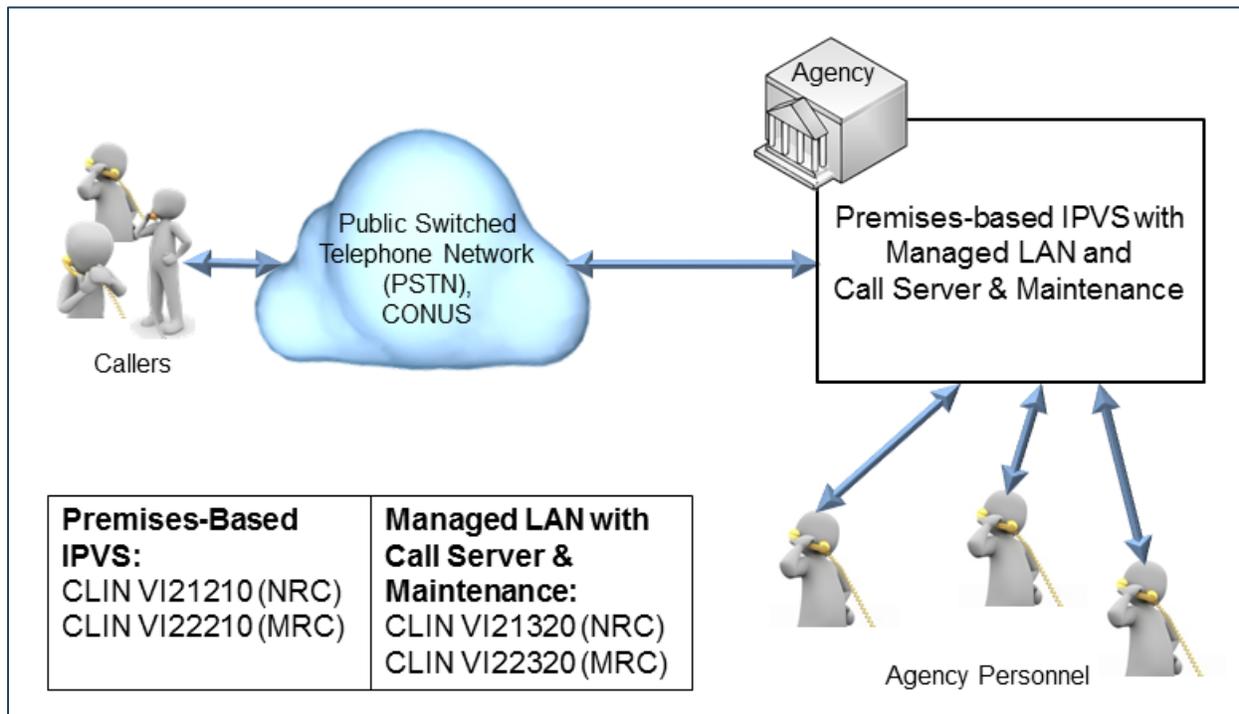
Example 1: Hosted IPVS with Voice Mail

Figure 4—Hosted IPVS with Voice Mail



Service CLINs

- Choose CLIN VI21110 (NRC) and CLIN VI22110 (MRC) “IPVS – Hosted” (see EIS contract table *B.2.2.1.2.3—IPVS Instructions Table*).
- Choose CLIN VI21410 (NRC) and CLIN VI22410 (MRC) “IPVS: Voice Mail Box” (See EIS contract table *B.2.2.1.4.3—IPVS Feature Pricing Instructions Table*).

Example 2: Premise-Based IPVS with Managed LAN*Figure 5—Premises-based IPVS with Managed LAN Solution***Service CLINs**

- Choose CLIN VI21210 (NRC) and CLIN VI22210 (MRC) “Premise-Based IPVS ” (see EIS contract table *B.2.2.1.2.3—IPVS Instructions Table*).
- Choose CLIN VI21320 (NRC) and VI22320 (MRC) “Managed LAN Service With Call Server & Maintenance - Premises-Based” (See EIS contract table *B.2.2.1.5.3— Managed LAN Pricing Instructions Table*).

5. References and Other Sources of Information

- For more technical details and information on IPVS, please refer to EIS contract [Section C.2.2.1](#); for pricing details, [Section B.2.2.1](#).
- For more information on service-related items, please see:
 - **EIS contract [Section B.2.10 Service Related Equipment](#)**
 - **EIS contract [Section B.2.11 Service Related Labor](#)**
- Please refer to a contractor's individual EIS contract for specifics on the contractor's IPVS offerings.
- For additional EIS information and tools, visit the [EIS Resources Listing](#).
- For guidance on transitioning to EIS, please visit [EIS Transition Training](#) where you'll find several brief video training modules.