

The Comprehensive Guide to Avaya 9620L IP Telephony: Technical Architecture, Deployment, and Enterprise Integration

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In the evolving landscape of enterprise communications, the transition from traditional Time-Division Multiplexing (TDM) to Internet Protocol (IP) telephony has redefined how organizations handle voice data. Among the pivotal instruments in this transition, the **Avaya 9620L IP Telephone (Part Number 700461197)** stands as a benchmark for reliability, energy efficiency, and functional depth. This guide provides an exhaustive technical analysis of the Avaya 9620L, exploring its architecture, networking requirements, and its role within the broader Avaya One-X ecosystem.

Understanding the Avaya 9600 Series Architecture

The Avaya 9600 series, often referred to as the **one-X Deskphone** family, was engineered to provide high-fidelity audio and advanced feature integration for professional users. The 'L' designation in the 9620L model specifically denotes 'Low Power,' a critical evolution in hardware design that addresses the growing need for energy conservation in large-scale data centers and corporate campuses.

Architecturally, the 9620L is a sophisticated endpoint that functions as a specialized computer optimized for Real-Time Transport Protocol (RTP) streams. Unlike basic analog sets, the 9620L manages signaling and media through complex software stacks, supporting both **H.323** and **Session Initiation Protocol (SIP)**, depending on the firmware loaded and the requirements of the central call controller, such as Avaya Aura Communication Manager or Avaya IP Office.

Core Technical Specifications

The 9620L is characterized by a specific set of hardware attributes designed for the 'everyday' user—individuals who rely on the phone as a primary communication tool but do not necessarily require the extensive button modules of executive models. Key specifications include:

- **Display:** A 3.45-inch (diagonal) quarter-VGA backlit monochrome display. This provides high visibility even in low-light environments, essential for reading caller ID, navigating directories, and accessing system features.
- **Call Appearances:** It supports up to 3 line appearances natively, which can be mapped to handle up to 12 call appearances or features through the use of softkeys and shift-paging.
- **Interface:** 4 context-sensitive softkeys located directly below the screen, which change function based on the state of the phone (e.g., 'Transfer', 'Conference', 'Hold').
- **Audio Quality:** Full duplex speakerphone and a high-quality wideband handset, ensuring that audio fidelity meets the requirements for professional clear-voice communication.

The Mechanics of Energy Efficiency: The 'L' Suffix

The **Avaya 9620L** was introduced to optimize the Power over Ethernet (PoE) footprint of the device. In a standard enterprise environment with thousands of endpoints, the cumulative power consumption of IP phones can be significant. The 9620L is designed to operate as a **PoE Class 1** device.

Mathematical Impact of PoE Class Optimization

To understand the importance of the 9620L's low energy consumption, we must look at the power allocation at the switch level. Standard IP phones often fall into PoE Class 2 or Class 3.

PoE Class	Maximum Power at Switch Port	Typical Device Usage
Class 1	3.84 Watts	Avaya 9620L (Low Power)
Class 2	6.49 Watts	Avaya 9620 (Standard) / 9630
Class 3	15.4 Watts	Avaya 9611G / 9641G (Color Display)

By operating within Class 1 parameters, the 9620L allows network administrators to maximize the density of phones per PoE switch without exceeding the power budget of the Power Supply Units (PSUs). This reduction in thermal output also indirectly reduces the cooling requirements for the network closets (IDFs).

Network Integration and Protocols

Successful deployment of the Avaya 9620L requires a robust understanding of IP networking. The device relies on several layers of the OSI model to function correctly, from physical connectivity to application-level signaling.

1. DHCP and Scoping

When an Avaya 9620L boots, it initiates a DHCP (Dynamic Host Configuration Protocol) request. The DHCP server must be configured with **Option 242**. This option string tells the phone where to find its vital resources. A typical Option 242 string looks like this:

```
MCIPADD=10.1.10.5,MCPORT=1719,HTTPSRVR=10.1.10.10,HTTPDIR=/firmware,VLANTEST=0
```

2. Quality of Service (QoS)

To ensure voice clarity, the 9620L must have priority over standard data traffic. It utilizes **DiffServ (Differentiated Services)** marking at Layer 3 (typically DSCP 46 for media) and **802.1p/Qtagging** at Layer 2 (typically Priority 6). Without proper QoS configuration, the phone may experience jitter, latency, or packet loss, leading to 'robotic' audio or dropped calls.

3. Signaling Protocols: H.323 vs. SIP

The 9620L is versatile in its signaling support:

- H.323: The traditional protocol for Avaya environments, providing deep integration with Communication Manager features.
- SIP (Session Initiation Protocol): Used for more open environments or when integrating with Avaya Aura Session Manager. SIP provides better interoperability but may require different licensing and firmware (e.g., 9620 SIP firmware).

Practical Implementation: A Step-by-Step Field Guide

Deploying the Avaya 9620L involves more than just plugging it into a wall jack. Follow this technical procedure for a standard enterprise rollout:

Phase 1: Environment Preparation

1. VLAN Configuration: Define a Voice VLAN (e.g., VLAN 100) and a Data VLAN (e.g., VLAN 10). Configure the switch ports as 'trunk' or 'access with voice vlan' depending on the switch vendor (Cisco, HP, Avaya/Extreme).
2. File Server Setup: Prepare an HTTP or HTTPS server to host the 96xxupgrade.txt and 46xxsettings.txt files. These files control the phone's behavior and firmware updates.

Phase 2: The Boot Process

1. Power On: Connect the 9620L to a PoE-enabled port. The phone will display 'Waiting for DHCP'.
2. VLAN Discovery: The phone receives its Voice VLAN ID via DHCP Option 242 or LLDP-MED. It will then release its IP and re-DHCP on the correct VLAN.
3. Firmware Check: The phone contacts the HTTPSRVR defined in the DHCP string. It reads 96xxupgrade.txt. If a newer firmware version is listed, the phone downloads and installs it.
4. Settings Application: The phone reads 46xxsettings.txt for parameters like 'Trust Center' certificates, screen dimming timers, and emergency numbers.

Hardware Comparison: The 9620L vs. Modern Alternatives

While the 9620L remains a workhorse, it is often compared to other models in the Avaya portfolio. The following table highlights the evolutionary differences.

Feature	9620L (Legacy)	9611G (Modern 9600)	J179 (Current Gen)
Display Type	3.45" Backlit Monochrome	3.5" Color	3.5" Color
Ethernet Speed	10/100 Mbps	10/100/1000 Mbps	10/100/1000 Mbps
PoE Class	Class 1	Class 1 (without sidecar)	Class 1
Softkeys	4	4	4
USB Ports	No	Yes	Yes (Optional)

As seen above, while the 9620L lacks Gigabit Ethernet (making it less ideal for 'daisy-chaining' a high-performance PC to the same port), its PoE Class 1 rating remains a competitive advantage for high-density environments.

Troubleshooting and Maintenance

Even a device as reliable as the 9620L can encounter issues. Technical staff should be familiar with the following scenarios:

1. Radio Frequency Interference (RFI)

A specific operational note for the 9620L involves interference. Using mobile phones, GSM devices, or two-way radios in extremely close proximity to the IP phone can induce audible interference in the handset or speakerphone. This is due to the electromagnetic shielding requirements of high-sensitivity audio components. Users should be advised to maintain a distance of at least 12 inches between the phone and other transmitting devices.

2. The 'CRAFT' Menu

To manually configure or reset the phone, technicians use the 'CRAFT' menu (27238). By pressing 'Mute', then 'C-R-A-F-T' (#), a technician can:

- Clear: Factory reset the phone's local settings.
- Addr: Manually set the IP address, Gateway, and File Server.
- Test: Run diagnostic checks on the display and buttons.

3. Registration Failure

If the phone displays 'Discover [IP Address]', it means it cannot reach the Gatekeeper (Call Controller). Common causes include:

- Incorrect MCIPADD in the DHCP scope.
- Firewall blocking ports 1719 (UDP) or 1720 (TCP).
- Routing issues between the Voice VLAN and the Server VLAN.

Advanced Integration: Avaya One-X and Softphones

The Avaya 9620L is part of the **One-X** ecosystem, designed to bridge the gap between the physical deskphone and digital applications. Through **Avaya IP Softphone** or **Avaya One-X Communicator**, users can control their 9620L from their PC. This 'Shared Control' mode allows a user to click-to-dial from their computer while using the 9620L for the actual audio path, combining the comfort of a physical handset with the efficiency of a software

interface.

Furthermore, the 9620L supports **VPNremote** firmware for teleworkers. This allows the phone to establish an encrypted IPSec VPN tunnel directly to an Avaya Gateway (such as an Avaya G450 or G430), enabling secure remote work without the need for a separate VPN appliance at the user's home.

Broader Implications for Enterprise Communication Strategy

The legacy of the Avaya 9620L is defined by its balance of simplicity and capability. In an era where many manufacturers are moving toward touchscreens and complex Android-based operating systems for deskphones, the 9620L reminds us of the value of a dedicated, stable, and energy-efficient device. For an organization, the 9620L represents a predictable asset with a low Total Cost of Ownership (TCO).

Its low power profile helps meet 'Green IT' initiatives, while its robust build quality ensures a long lifecycle, often exceeding a decade of active service. When integrated correctly within a well-designed network—leveraging proper QoS, VLAN tagging, and automated provisioning via HTTP/HTTPS—the 9620L provides a seamless communication experience that remains the backbone of many global call centers and corporate offices today. As telecommunication continues to migrate toward the cloud (CCaaS and UCaaS), endpoints like the 9620L serve as a reminder that the quality of the physical interface is just as critical as the backend logic of the server.

Baca Juga (Artikel Terkait)

- [Mastering Avaya DEFINITY and Aura Communication Manager: The Definitive Guide to Enterprise PBX Administration](http://alaskawriters.com/mastering-avaya-definity-aura-communication-manager-administration.pdf)

URL: <http://alaskawriters.com/mastering-avaya-definity-aura-communication-manager-administration.pdf>

- [The Definitive Technical Guide to Alcatel-Lucent OmniPCX Enterprise \(OXE\) and OXE Purple Architecture](http://alaskawriters.com/alcatel-lucent-omnipcx-enterprise-oxe-purple-technical-guide.pdf)

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