

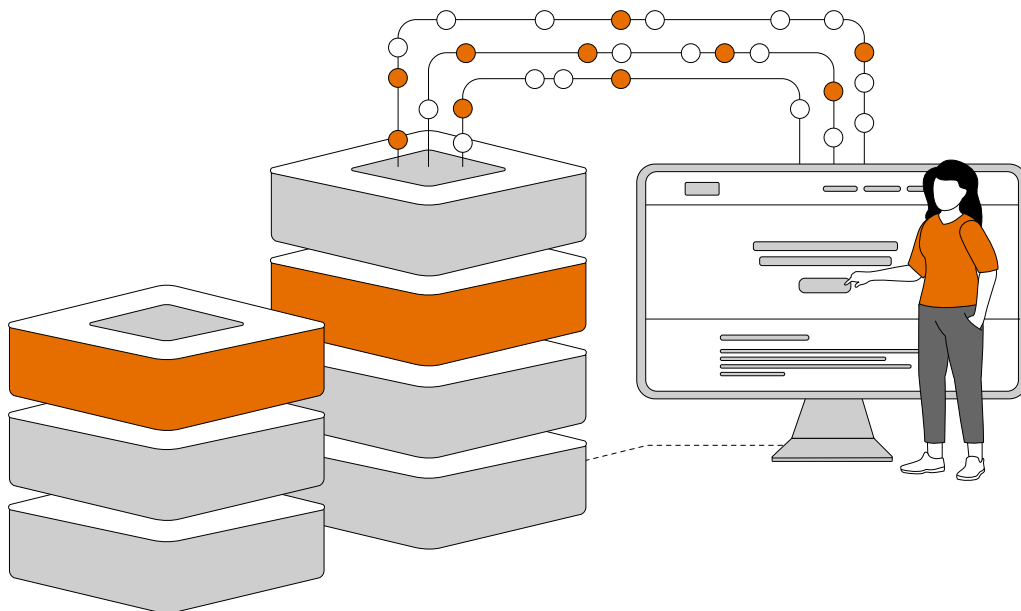
PowerDNS **Authoritative Server**

Authoritative DNS. **Fast Responses. Built for Scale.**

The Challenge

Authoritative DNS is mission-critical infrastructure. Organizations must deliver fast, reliable, and highly available DNS responses while managing growing numbers of domains, DNSSEC requirements, dynamic infrastructure, and automated provisioning workflows.

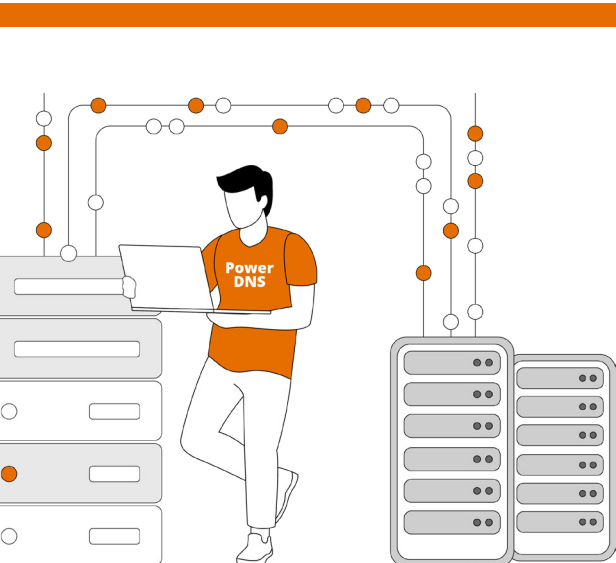
This applies equally to the DNS services of Internet service providers and the network infrastructure of enterprises. Traditional DNS servers often rely on static zone files, making large-scale automation, API-driven provisioning, and database-backed operations unnecessarily complex.



The Solution

PowerDNS Authoritative Server is a high-performance, open-source authoritative DNS server built for modern DNS infrastructures. It delivers reliable and standards-compliant domain name hosting services while providing the flexibility to integrate with databases, APIs, and automation frameworks.

PowerDNS Authoritative Server supports multiple backend technologies, including SQL databases, BIND zone files, remote backends, and custom integrations. This allows organizations to choose the architecture that best fits their operational requirements. It is the leading DNSSEC implementation used by many of the world's largest domain hosts and therefore comes with built-in DNSSEC. Standards-compliant zone transfers, dynamic DNS updates, REST APIs, and extensive automation capabilities make Authoritative Server an ideal platform for modern DNS operations. It combines exceptional performance with operational flexibility and enterprise-class extensibility.



Key Capabilities

Authoritative Zone Hosting

- ✓ Supports standard DNS record types (A/AAAA, MX, TXT, CNAME, NS, NAPTR, SRV, PTR, SVCB etc.)
- ✓ Full support for primary and secondary DNS operation
- ✓ Zone transfers via AXFR/IXFR as well as native replication for more efficient and effective transfer of zone data
- ✓ Efficient handling of large-scale multi-zone deployments

Flexible Backend Architecture

Supports numerous backend types, including:

- ✓ **MySQL**
 - ✓ **PostgreSQL**
 - ✓ **MariaDB**
 - ✓ **SQLite**
 - ✓ **BIND zone files**
 - ✓ **Remote and custom backends**
-

Built-in REST API

A native HTTP REST API provides secure access to:

- ✓ **Zone management**
 - ✓ **Record provisioning**
 - ✓ **DNSSEC key management**
 - ✓ **Metadata updates**
 - ✓ **Operational statistics**
-

Catalog Zones

PowerDNS Authoritative Server provides native support for Catalog Zones (RFC 9432), enabling automated provisioning and lifecycle management of DNS zones across fleets of authoritative servers.

Instead of manually creating or removing zones on individual servers, administrators simply update a catalog zone. Member servers automatically synchronize their zone inventory, significantly simplifying large-scale DNS operations and reducing operational overhead.

PowerDNS Authoritative Server supports consumer as well as producer zones, making it suitable for highly automated, distributed DNS environments.

Views

Views in PowerDNS Authoritative Server allow different versions of the same DNS zone to be served based on the client's source network or EDNS Client Subnet.

This enables organizations to maintain separate internal and external DNS views without relying on complex GeoIP-based logic or maintaining multiple authoritative server deployments. Views can be fully managed through both pdnsutil and the REST API, making them easy to integrate into automated provisioning workflows.

DNSSEC Support

Includes comprehensive DNSSEC functionality, supporting:

- ✓ **Online signing**
 - ✓ **Presigned zones**
 - ✓ **Automated key management**
 - ✓ **CDS/CDNSKEY publication**
 - ✓ **Multiple operational DNSSEC modes**
-

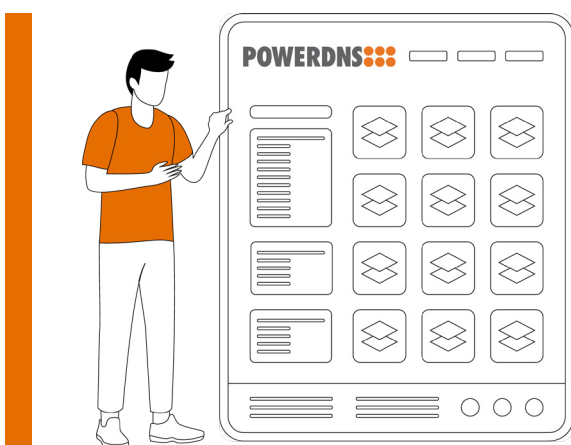
Dynamic DNS Operations

Supports Dynamic DNS Updates (RFC 2136), enabling automated DNS provisioning by DHCP servers, orchestration systems, and cloud platforms without manual zone editing.

Automation Ready

Integrates naturally with DevOps workflows through:

- ✓ **REST API**
- ✓ **Database backends**
- ✓ **Command-line tooling (pdnsutil)**
- ✓ **Configuration management systems**
- ✓ **CI/CD pipelines**



A full list of features is available at:

docs.powerdns.com/authoritative/features.html

Product Extensions

PowerDNS Lightning Stream Enterprise

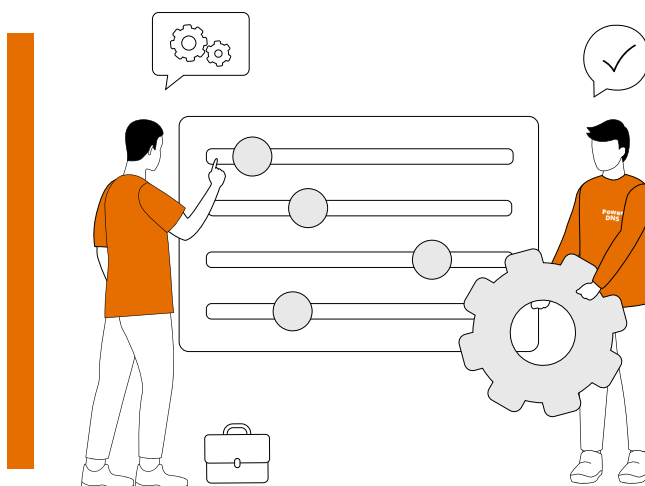
PowerDNS Lightning Stream Enterprise seamlessly synchronizes zone updates in PowerDNS Authoritative Server. It aligns changes between a local LMDB and an S3-compatible bucket in near real-time, enabling fast, scalable one- or two-way replication.

Designed for distributed, large-scale deployments, Lightning Stream Enterprise simplifies DNS replication while ensuring a globally consistent view of data within seconds. Incremental updates synchronize only the modified data, significantly reducing bandwidth consumption for organizations that frequently update large DNS databases. It also synchronizes zone data and DNSSEC keys across multiple PowerDNS servers, even in environments with concurrent write operations.

PowerDNS ZoneControl

ZoneControl is the graphical web-based interface for managing domains on PowerDNS Authoritative Server. It provides all the features necessary to manage a large number of domains. In addition, it provides “one-click” DNSSEC via the UI. ZoneControl allows role-based access so specific people or departments

can manage specific domains. It also includes version and history management to smoothly reverse changes.



PowerDNS Cloud Control

PowerDNS Cloud Control is a cloud-native deployment platform for PowerDNS products. It provides a highly scalable and distributed implementation of DNS, while simplifying deployment and scaling for operations teams. By combining containerization, automation, orchestration, lifecycle management, monitoring, and alerting, Cloud Control enables more efficient resource utilization and a cost-effective way to scale DNS deployments as demand grows.

Key Benefits at a Glance



High performance and scalability for large zone volumes and high query rates



Enhanced security through DNSSEC signing and policy controls



Flexible backend architecture for seamless integration into existing environments



Reliable authoritative DNS hosting for domains and zones



Automation-ready with API support for provisioning and lifecycle management

Does your organization require fast, reliable, and highly available DNS responses?

Learn how PowerDNS Authoritative Server combines a mature DNS platform with the flexibility required for modern, API-driven infrastructure in our documentation or contact us to discuss your specific requirements.

[Contact us](#)

doc.powerdns.com

