

**SOLUTION NOTE**

# COST-EFFECTIVE NETWORK-LEVEL AD BLOCKING

Expand Value-Added Subscriber Services through a Cost-Effective and Scalable DNS-based Approach

## SUMMARY

**Unwanted online advertisements can add unnecessary network traffic and slow down the subscriber experience.**

More than just an annoyance, poorly designed or intrusive ads, and the tracking cookies that often come with them, can introduce numerous privacy concerns and can increase the threat of malware impacts through malvertising campaigns.

To block unwanted ads, subscribers have relied on web browser extensions, and increasingly use ad blocking applications on their mobile devices. Still, this device-level blocking does not reach smart devices such as TVs and video game systems. For service providers, traditional network-level content filtering approaches, such as deep packet inspection tools and proxies, bring significant challenges, including limited scalability and extensive performance impacts.

Today, there is a more powerful and cost-effective way to provide network-level ad-blocking to subscribers—using a DNS-based approach that offers several key benefits when compared to traditional methods such as deep packet inspection. Infoblox Subscriber Services provides a cost-effective and scalable DNS-based approach that allows service providers to deliver value-added offerings, including ad blocking and content filtering, that subscribers demand.

## ONLINE ADVERTISEMENTS DIMINISH THE SUBSCRIBER EXPERIENCE

Online ads can be more than just an annoyance. For communications service providers (CSPs), they can represent a source of unwanted network congestion that increases costs. For subscribers that feel inundated by irrelevant and excessive ads, online advertisements can harm their overall network experience, and ultimately degrade your brand. Pop-up ads and autoplay videos seemingly interrupt the online experience at every turn. Autoplay videos also play a role in consuming precious subscriber resources in terms of data plans and mobile device batteries due to unplanned, increased device network and CPU usage.

## ONLINE TRACKING INTRODUCES PRIVACY CONCERNS

Besides consuming bandwidth, online ads also pose risks to subscriber privacy. With targeted online advertisements, advertisers can track subscribers around the web, learning what sites they like to visit and which products they purchase. Through cookies, ad networks track which websites are visited to develop detailed profiles of subscribers. Some online ad networks combine cookie data with the information associated with other online accounts—including web searches, social media check-ins, streaming video watch history and installed mobile apps. On mobile devices, ad networks can collect even more data. Combined with built-in device GPS and using location tracking, apps can track the location of subscribers regardless of location.

## MALICIOUS CONTENT AND “MALVERTISING” THREATS

Security is near the top of provider-selection criteria used by subscribers of all kinds—consumer, business, and public sector—and these groups are increasingly looking to CSPs to help protect them. Malicious software is a real threat. Every year, millions of smartphone users experience undesired behavior on their phones, such as sending unauthorized text messages or accounts accessed without their permission—symptoms indicating malicious software. Beyond malware, subscribers can fall prey to malvertising (malicious advertising), where harmful code is seeded in seemingly legitimate online ads that can pop up even on trusted websites. Compromised and unsecured devices put network assets at risk, and unhappy subscribers can damage a trusted, valuable brand and reputation.

## A BETTER APPROACH: NETWORK-LEVEL ADBLOCKING THROUGH DNS

Most ad blocking and security solutions are complex, costly, and device specific. To build these services, many CSPs have relied on costly Deep Packet Inspection (DPI) or proxy-based approaches to deliver value-added services such as content filtering/parental control, ad blocking and end-user security services. It's a relatively simple concept to understand – all user traffic flows through the DPI tool, and pre-defined filtering and security policies are applied. These legacy approaches, however, create significant challenges and are not sustainable due to costs, management, performance and scalability limitations.

Traditional software-based methods can also place too much burden on the subscribers, requiring them to download, install and manage complicated software agents to control ad blocking or security features on a per-device basis. These traditional methods also leave devices such as video games, smart TVs and IoT appliances from being part of a comprehensive solution. Legacy approaches, such as deep packet inspection (DPI) used in parental control and content filtering services, cannot scale without massive initial investments. They can also come with substantial performance impacts, and the inability to provide value-added services for both fixed and wireless devices— simultaneously creating significant solution gaps.

Many CSPs often overlook or fail to realize that DNS provides a more straightforward, more cost-efficient means for deploying value-added ad blocking and security services. DNS is part of the core DDI infrastructure that the network relies on every day. Shorthand for integrating DNS, DHCP, and IP address management into a unified service or solution, DDI services play a central role in all communications over an IP-based network. The elements of DDI can be harnessed in the service provider network infrastructure to bolster security, improve performance and increase subscriber revenue streams.

## INFOBLOX SUBSCRIBER SERVICES

Infoblox offers a complete end-to-end solution for subscriber services—the proxy, portal, DNS, policy managers, on-premises databases, logging management and threat intelligence. Infoblox Subscriber Services is a highly scalable DNS-based platform for delivering a comprehensive portfolio of value-added services, like ad blocking parental controls and content filtering for fixed and mobile access. It leverages a component-based approach with open interfaces (APIs). This approach enables CSPs to select the most efficient integration strategy for their current IT footprint, and optimize value-added service offerings by integrating them via API communications with existing OSSs and BSSs.

CSPs can leverage Infoblox's deep networking expertise and decades of investment to build out these new service offerings. Our product experts and engineers are available to help with critical features, including DDI management, device discovery, DNS cache acceleration, load balancing, automation, and extensive DNS security capabilities. The Infoblox platform requires minimal up-front investment and generates a predictable ROI by leveraging a flexible, pay-as-you-grow model.

## NETWORK-LEVEL AD MANAGEMENT

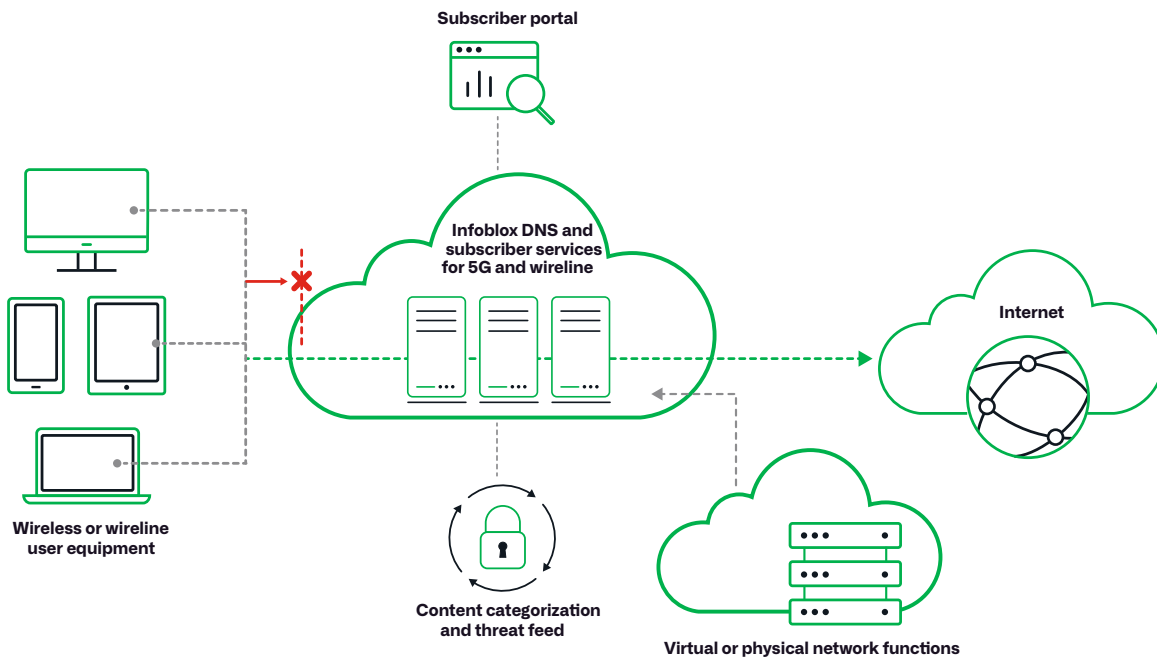
Content categorization feeds allow CSPs to analyze and categorize requests and content at the DNS layer to enable ad blocking and content-based filtering. The platform works with both HTTP and HTTPS-encrypted sites. Besides Internet web browsers, it can apply ad blocking lists to iOS, Android, and other mobile OS applications for broadened service applicability. The solution utilizes a pre-rated (static) content filtering engine that categorizes over 60 million web and mobile Internet sites with consistent content types. The database is continuously updated to ensure that new web sites are included in the database. Pre-rated content filtering allows seamless integration, with no interference, within the operator's network. The solution works principally via an advertisement identification engine based on fixed and dynamic content analysis—classifying ads either by a known list of ad networks or with additional custom domains provided by the carrier. Users can also be protected from ad sources containing known embedded malware.

## EASIER SUBSCRIBER ATTACH

With the user-friendly and white label subscriber portal, CSPs can present branded and differentiated opt-in offers that are simple to attach, personalize and use. With no software to download and install, subscribers are in complete control to configure and manage the solution across all of their devices with little operator intervention. Through the enablement of opt-out controls, CSPs can provide free or bundled ad blocking and content control services by default to large groups of subscribers, providing them the choice and the means to discontinue the service if desired.

## GREATER SUBSCRIBER REACH

Besides better scalability, the Infoblox DNS-based approach contains segmentation features that can distinguish between subscribers and non-subscribers, freeing providers to offer convergent subscriber services for both fixed and mobile access. This capability dramatically improves revenue potential for CSPs and provides differentiation against competitors. The Infoblox solution supports devices with associated telephone numbers such as cell phones and tablets for complete protection of both wireline and wireless devices.



## PREDICTABLE ROI

With Infoblox, CSPs can leverage their existing DNS infrastructure and investments, turning DNS from a network utility into a revenue-generating service. In place of the hard-ware-intensive, stand-alone solutions found in DPI tools or proxies that analyze all network traffic, the Infoblox DNS-based approach reduces network impact because only the traffic from specific customers is analyzed. Infoblox also minimizes the up-front investment with a scalable solution and a pay-as-you-grow licensing model, so providers only pay for the number of subscribers using the service.

To learn more, visit [www.infoblox.com/sp](http://www.infoblox.com/sp) or contact your local Infoblox representative today.

## MAINTAINS SPEED AND PERFORMANCE

Infoblox allows CSPs to leverage powerful DNS-caching capabilities to provide a much better first-connection experience. Designed to handle the “perfect storm” of future 5G and edge-based applications that require ultra-low latency of 50 microseconds on average, Infoblox DNS cache acceleration enables DNS query rates of up to 5 million queries per second. Through centralized management, network administrators can quickly instantiate, implement and auto-scale network services, and manage those services more efficiently through a unified family of devices.

## LOWER ADMINISTRATIVE BURDEN

Infoblox provides a pre-built and user-friendly self-service portal accessible from anywhere, enabling subscribers to personalize the service to match their preferences, values and business needs. CSPs can customize the portal to match branding and color schemes and expose new features to subscribers as their offerings evolve. The service also provides a user-friendly white-label administrative portal. Customer agents can view subscriber account details for assistance and troubleshooting, allowing them to see reporting on service activity, filtering trends and security threat activity. Agents can also manage manual subscriber onboarding, handle global policy settings and policy category groups, and set subscriber/user password rules (e.g., such as length and expiration).

## CONCLUSION

With Infoblox, CSPs can use the DNS they already have to deliver cost-effective value-added services like ad blocking. Infoblox Subscriber Services provides a scalable, resource-efficient, DNS-based way to protect the network and subscribers. It turns DNS into a powerful tool for building value-added security services, blocking threats at the source while providing consistent performance. Its lightweight footprint is easy to deploy and manage as an offering to existing fixed and wireless internet services.



Infoblox unites networking and security to deliver unmatched performance and protection. Trusted by Fortune 100 companies and emerging innovators, we provide real-time visibility and control over who and what connects to your network, so your organization runs faster and stops threats earlier.

**Corporate Headquarters**  
2390 Mission College Blvd, Ste. 501  
Santa Clara, CA 95054

+1.408.986.4000  
[www.infoblox.com](http://www.infoblox.com)