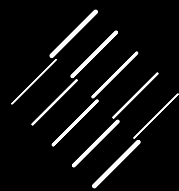# Protective DNS Solutions

Cyber security is the frontier of national defence

Governments and public sector organisations are under threat from sophisticated attacks orchestrated by criminal groups and enemy nation states. In this complex attack environment, defence is needed that is built into the very infrastructure of a country, effective on a local and central basis.

On a local level, councils, schools and other public sector organisations need visibility and protection against cyber threats. Intelligence that is specific to them and access to wider industry expertise and incident management support.

At a central level, governments need international threat intelligence and trend analysis, reliable, scalable defence technology, and service delivery that will allow them to defend their nation and citizens against cyber attack.
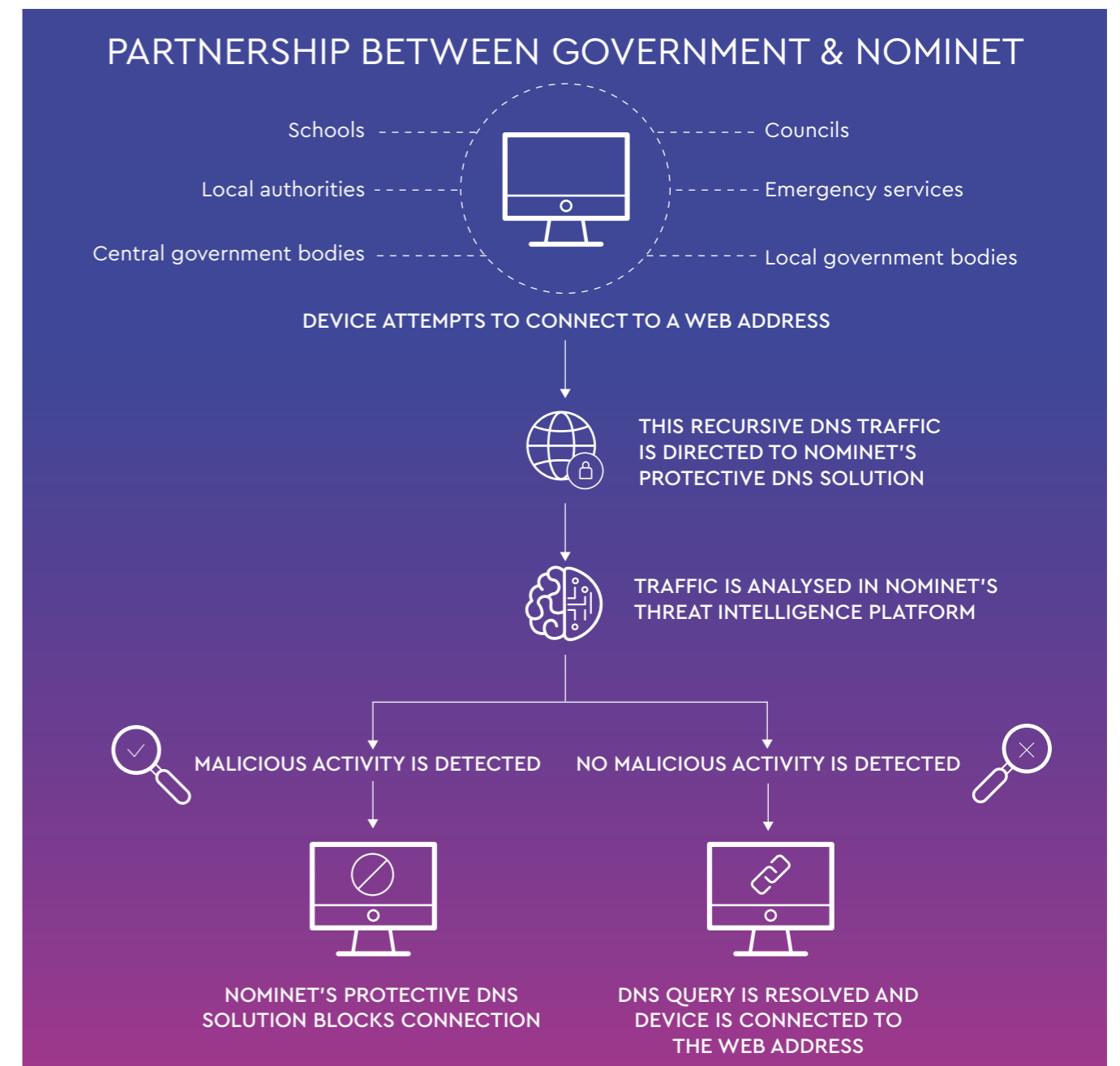
What is a Protective DNS Solution?

Every connection between an organisation's network and the world wide web is present in the DNS (Domain Name System) traffic. This includes visiting a web address in your browser as well as machine-initiated actions, such as a software update. In other instances, it could be a malicious connection.

Nominet's Protective DNS Solution is designed to analyse and block DNS requests deemed malicious.

It is based around a recursive resolver. Designed to answer DNS queries, the recursive resolver does not resolve a query if the domain is known to be malicious. Protection is provided against malware, ransomware, phishing attacks, viruses, spyware at source, and malicious sites. It also stops malware already on end devices from 'calling home' mitigating the damage of an attack.

Despite the additional analysis, domains are resolved significantly faster than many free DNS resolver services.

PARTNERSHIP BETWEEN GOVERNMENT & NOMINET

Schools - - - - - - - - - - Councils

Local authorities - - - - - - - - - - Emergency services

Central government bodies - - - - - - - - - - Local government bodies

DEVICE ATTEMPTS TO CONNECT TO A WEB ADDRESS

THIS RECURSIVE DNS TRAFFIC IS DIRECTED TO NOMINET'S PROTECTIVE DNS SOLUTION

TRAFFIC IS ANALYSED IN NOMINET'S THREAT INTELLIGENCE PLATFORM

MALICIOUS ACTIVITY IS DETECTED

NO MALICIOUS ACTIVITY IS DETECTED

NOMINET'S PROTECTIVE DNS SOLUTION BLOCKS CONNECTION

DNS QUERY IS RESOLVED AND DEVICE IS CONNECTED TO THE WEB ADDRESS

Nominet Protective DNS Solutions

Nominet Protective DNS Solutions are specifically designed for governments. They offer world class threat intelligence, discovery of malicious activity and blocking of malicious connections. They enable governments to enact early incident response and offer informed guidance to the public sector and beyond of the most imminent threats.

THREAT INTELLIGENCE PLATFORM

USER HUB   **DATA PLATFORM**   **DNS RESOLVERS**

SERVICE DELIVERY

CUSTOMER SUCCESS   **SERVICE MANAGEMENT**   **THREAT ANALYSTS**

Scalable – Nominet Protective DNS Solutions have proven resiliency at a national scale. Storing, aggregating, managing, and securing vast amounts of data. Most recently it has launched a Digital Roaming capability to offer protection away from the office network.

Accurate – Threat intelligence is curated for the government audience from multiple threat feeds, including commercially available, open source and proprietary. This feeds into a set of rules – a codified database or Response Policy Zone (RPZ) – for how DNS response should be modified in the instance that malicious activity is detected with minimal false positives.

Intelligent – A team of DNS specialists, data scientists and security experts sit behind the scenes to evolve the solution and as a support system for end users. From identifying specific threat actors to advising on severity and remediation.

Service-led – A full service-wrap is delivered with Nominet's Protective DNS Solution by local dedicated teams. This will include bespoke support and reporting depending on whether the end customer has one IT administrator or an entire security operations team. Service stretches across onboarding, deployment, training and troubleshooting through the user hub, to marketing support spreading awareness of the service.

PDNS
Protective DNS

Nominet proudly delivers the PDNS (Protective Domain Name Service) on behalf of the UK's National Cyber Security Centre (NCSC) to protect the UK public sector. It has been mandated for use by central government services and is available to all public sector organisations in the UK.
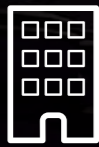
The delivery of the PDNS forms a vital part of the UK's Active Cyber Defence (ACD), designed to tackle cyber attacks to improve national resilience.
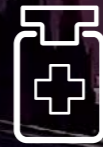
PROTECTS AN ESTIMATED 2.8 MILLION USERS

SUCCESSFULLY RESOLVED 201 BILLION PDNS QUERIES IN 1 YEAR

760+ ORGANISATIONS DELIVERING GOVERNMENT SERVICES

NHS & CRITICAL SECTOR ORGANISATIONS SUPPORTED

Attacks stopped by PDNS

Remediating a worm at a local authority

When Ramnit – a worm affecting Windows systems – was suspected of infecting the network of a government organisation, an investigation showed that PDNS was blocking malicious domain name lookups from infected machines that were not protected by an endpoint security solution.

USB infection

Malware originating from an infected USB stick was found through indicators from the PDNS.

Multiple internet connections

A constant desire to 'always be connected' means that security teams are constantly tackling new devices gaining access to the network. In some cases, these are connected specifically because employees want to bypass policy controls; e.g. they are prevented from downloading a specific piece of software. One of these connections was found to have been harnessed by an attacker who was detected by the PDNS as they pivoted through the target network.
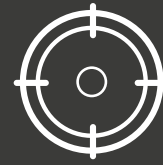
National Cyber Security Centre | NOMINET

Who is Nominet?

The .UK Registry

Part of UK's critical infrastructure with **25 years** DNS expertise managing **>11m** domains & handling **150bn** queries per month

Focus on cyber security

Years of R&D efforts resulted in launch of a Protective DNS solution in 2017

A profit-with-a-purpose organisation

Donating over **£50m** to tech-for-good initiatives that have helped and supported over 10 million people

Designed for government

Nominet Protective DNS Solutions are built for large scale, national protective interventions that move the needle