

# R&S vPACE: A VPP DPI Engine Essential to Future 5G Networks

Vector packet processing (VPP) is an optimal framework to build a secure network-as-a-service (NaaS), cloud security, and traffic visibility solution.

In this new work culture, technology is not a choice, but a fundamental business strategy.

## R&S vPACE Key Features:

- **Granular Visibility** – Identification and classification of protocols, applications, and service types
- **Metadata Extraction** – Metadata including network performance indicators
- **High Performance** – The fastest real-time processing and most efficient memory utilization in the market
- **Encrypted Traffic Intelligence** – Advanced machine learning and deep learning techniques to classify encrypted traffic
- **Weekly Updates** – Frequent signature updates that can be performed seamlessly during runtime
- **First-Packet Classification** – Identification of applications on the very first packet for real-time traffic steering

During the pandemic, businesses faced massive challenges, such as the inability to update VPNs, great uncertainty about the correct level of network access to give employees and outside users, and ineffectively scaling services and applications to meet demand.

These challenges forced many businesses to digitally transform by adapting cloud architectures and secure access service edge (SASE) software, which set the tone for new ways of working.

This immense and simultaneous digital transformation also proved technology is not a choice but a fundamental business strategy. But most particularly, it conveys technology is a strategy that must be interwoven into every part of a business to enable better collaboration between departments, employees, and customers.

However, new software and technologies bring new concerns. Many businesses found themselves having trouble securing their networks, especially with the huge increase in traffic that mirrored the shift to a hybrid/remote workforce.

As a result, developers have led a must-needed push for highly performative traffic management technologies to help address the security challenges brought on by aggressive growth in traffic volume.

One of these traffic management technologies is vector packet processing (VPP), a packet processing open-source framework that is designed to improve network speed, decrease latency, and process more packets per watt.

Vectoring is one of the key paradigms in ipoque's R&S vPACE solution, an OEM deep packet inspection engine that allows network management and cybersecurity companies to detect and classify applications and protocols in real time at high speeds.

With R&S vPACE embedded into networking and cybersecurity solutions, decision-makers are given all the information they need through weekly updates and metadata extraction to scale, monitor, and secure a company's network, which ultimately helps stabilize enterprise networks and services.

## Overcoming Networking and Security Challenges

R&S vPACE's application and protocol system categorizes thousands of protocols and app services, such as video, chat, and audio, providing a network



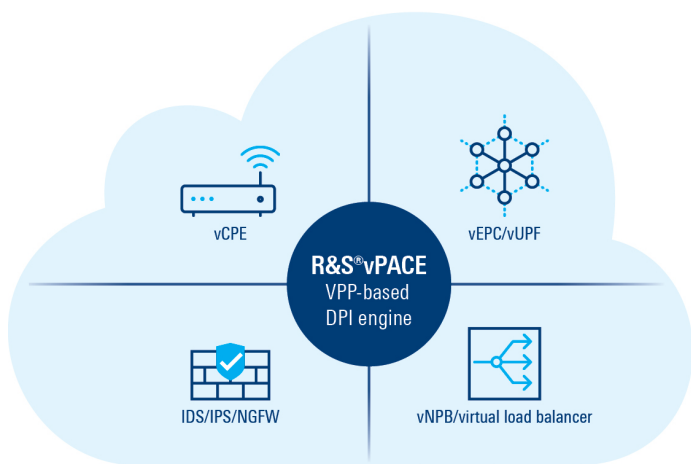
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solution provider with the most accurate direction and pathway to network efficiency by optimizing routing routines – including network vectors and better aligned packet processing graphs – and improving overall network security.

R&S vPACE also provides networking solutions and security providers with access to high-performance network functions that help them perform their own tasks at faster and more efficient speeds.

For instance, a client success manager can easily complete responsibilities on apps, like Salesforce, without any lag time.



Most importantly, the information provided by R&S vPACE’s weekly updates is highly reliable and accurate because it has one of the highest detection rates in the industry with no false positives when it comes to identifying IP traffic.

The VPP DPI engine also takes advantage of the C programming language and has no external dependencies. In addition, R&S vPACE greatly augments VPP, which allows it to scale its processing capacity to meet cloud computing requirements and support cloud-native network deployments. R&S vPACE can also be deployed on any other packet processing framework, such as DPDK.

With significantly enhanced clocks-per-packet ratio, R&S vPACE enables network vendors and operators to build and deploy high-performant and low-latency user plane functions (UPFs), virtual network functions (VNFs), and configuration network functions (CNFs), equipped with reliable real-time IP traffic insights.

Embedding R&S vPACE into your networking solution can help analyze, optimize, or manage IP network traffic, and scale your network, manage user experience, and prevent cybersecurity and malware attacks.

## How R&S vPACE works

R&S vPACE can be embedded into any 5G UPF, VNF, and CNF within a vectoring-based environment to enable granular insights into protocols, applications, and service types.

The engine can be easily integrated into virtualized CPEs, EPCs, PGWs, network packet brokers, load balancers, IP probes, NGFW, IPS/IDS, and WAPs to support a host of use cases such as:

5G operator services, including native support to be embedded in VNFs or CNFs

- vEPC
- vUPF
- Network slicing
- Wi-Fi offloading
- Load balancing

SD-WAN/SASE, including services, such as:

- Next-generation firewall
- Application performance
- Device/endpoint security
- Intrusion detection and intrusion prevention (IDS/IPS)

## Benefits of Licensing an OEM DPI Solution from ipoque

Along with R&S vPACE’s functionalities, there are also many advantages to licensing from ipoque. One of the many things networking and security solution providers can take advantage of is on-site applications and performance optimization consulting.

Weekly updates will keep users abreast of recent changes in applications and protocols. Networking and security solution providers will also be able to reduce research and development costs and accelerate time-to-market through quick integration.

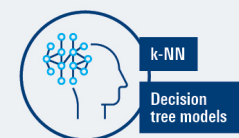
In addition, users can take advantage of flexible SLAs and be able to influence the product development roadmap.

But, the best part about joining forces with ipoque is that providers will be one step ahead of competition by leveraging market-leading DPI technology.

## THE IPOQUE DPI SIGNATURE CORE

Shared across the ipoque DPI product suite

Advanced ML/DL capabilities combined with traditional DPI methods



Machine learning



Deep learning

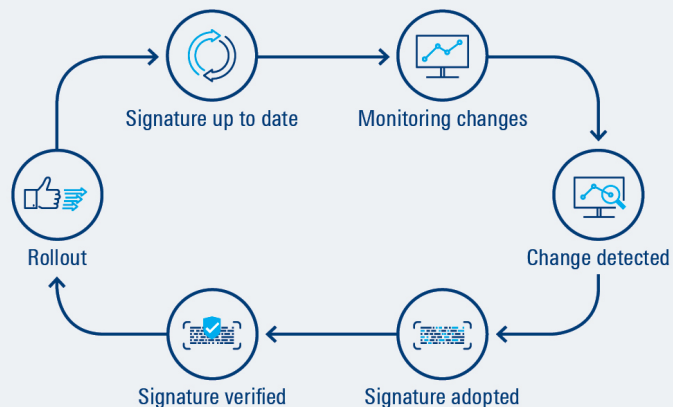


Behavioral analysis



Statistical/heuristic analysis

Weekly signature updates



### A Better Way

In the end, many businesses have made the move to cloud-native networking; however, they are still looking for better ways to secure and control network traffic flow.

By processing enhancements at the packet level, VPP can significantly augment the performance of each 5G-UPF, VNF, and CNF, leading to further advancements in how IP networks are built and managed.

R&S vPACE is the optimal solution for networking and security solution providers looking to build a more responsive, secure, and agile network, and increase collaboration, productivity, and revenue across the entire business.

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