

KEY BENEFITS

- Rapid service creation and improved service agility
- Reduced cost and capacity barriers for launching new services, allowing for greater service experimentation and personalization
- New public, private, hybrid and edge cloud deployment options enabling best quality of experience
- Improved operational efficiencies

Application and Network Intelligence for dynamic, high-performing cloud-based networks

Increasing bandwidth consumption and prevalence of latency sensitive applications are the biggest challenges operators face today. Highly scalable and automated solutions are needed to cost-effectively keep up with market demands.

However, operators are often left with excess or outdated hardware that cannot be adapted to their new needs because of changing market dynamics. Aside from bandwidth pressures, operators are expected to run more reliable and higher speed networks, as users demand better quality of experience (QoE) for their applications, while also keeping CAPEX and OPEX down.

Cloud-based deployments have the promise of achieving dynamic networks with improved profitability and service agility, while delivering a higher quality of service (QoS) to users.

The first wave of cloud-based deployments have been predominantly in 5G. The requirements for a 5G Core architecture are naturally fulfilled by cloud; specifically, the modular design (control and user plane separation), support for Service Based Architecture (RESTful APIs), and the ability to deploy at the edge. Cloud deployments in a 5G network provide an interoperable architecture that benefits operators, vendors, and end users. Given the promise of higher bandwidth, lower latency, and increased reliability realized with 5G cloud deployments, adoption is on the rise across all access types.

SANDVINE ANI PORTFOLIO

Sandvine's simplified and flexible architecture (**Figure 1**) enables operators to run networks more efficiently while enabling service differentiation and increasing their profit margins.

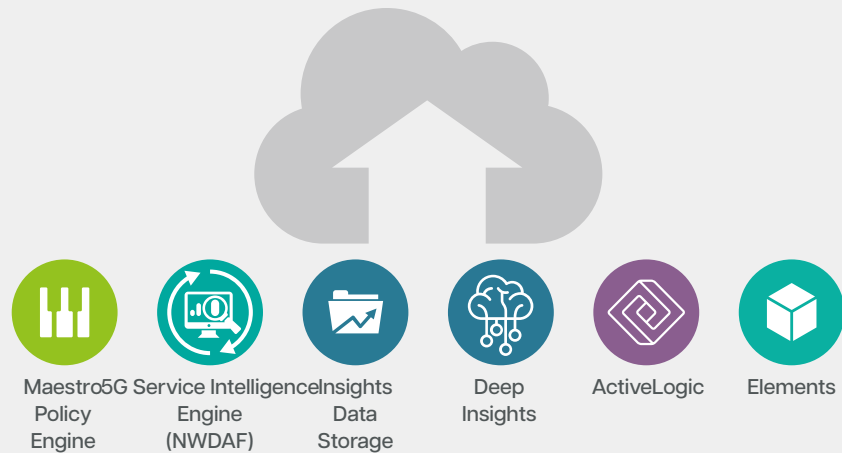
Sandvine's ANI solution is designed to address operators' current and future challenges without compromising on performance and functionality for different core and access networks.

Sandvine's ANI Portfolio is composed of the following:

- **ActiveLogic:** Hyperscale data plane for next generation networks, optimized for application QoE and closed-loop inline actions
- **Deep Insights:** Business analytics visualization platform powered by contextual, application QoE and network intelligence
- **Maestro Policy Engine:** Next generation control plane for automated networks, providing highly contextual data for policy and charging
- **Elements:** Proactive operations, administration, and maintenance system with proactive health monitoring
- **Insights Data Storage:** Highly scalable application and network intelligence storage
- **5G Service Intelligence Engine (NWDAF):** Enriched 3GPP-compliant NWDAF provides closed-loop automation

Figure 1

Sandvine ANI Portfolio in the Cloud



ANI CLOUD-NATIVE NETWORK FUNCTIONS (CNFs)

Sandvine's cloud-based ANI portfolio achieves cost-effectiveness and optimal resource utilization through a Cloud-native Network Functions (CNFs) solution. Sandvine's CNF-based solution is composed of Cloud Native Computing Foundation-compliant Kubernetes orchestrated containers. CNFs leverage a variety of open-source components and enable an agile DevOps methodology.

Sandvine's CNF solution provides the following benefits:

- Lower overhead, leading to lower resources required and efficient operation
- Horizontal scaling, supporting core and edge-based deployments
- Resiliency, preventing data loss downtime in case of different failure scenarios

The key CNF capabilities are as follows:

- Automation using ANI Deployer and Orchestrator manages installation and initial configurations
- Industry standard packaging using Helm charts
- Containerized service support with Kubernetes lifecycle management
- Microservices-based architecture to readily support 5G Service Intelligence Engine
- Observability using CNCF-compliant framework, e.g., Prometheus and FluentD
- Enhanced fault tolerance

FLEXIBLE CLOUD DEPLOYMENT OPTIONS

Cloud implies use of shared resources (e.g., compute, storage, etc.) across different applications, on-demand scalability, and ease of maintenance and agility through automation. Sandvine supports different cloud deployment models (**Figure 2**).

Figure 2

Cloud Deployment Options

Private Cloud

- Dedicated to the end user; is usually within a company firewall
- Runs on premises or in a rented, vendor-owned data center located off premises
- Underlying IT infrastructure is dedicated to a single customer with completely isolated access

Public Cloud

- Pool of IT resources that are automatically provisioned and allocated among multiple clients through a self-service interface
- Designed to scale out workloads to precisely track fluctuation in demand
- Deployed as part of heterogeneous mix of environments, leading to higher security and performance, and wider availability of services and applications

Hybrid Cloud

- Incorporates some degree of workload portability, orchestration, and management across two or more environments
- Includes at least one private cloud, one public cloud, and bare-metal or virtual environment connected to at least one of the clouds

Multit-Cloud

- Similar to the hybrid model, with combinations of private and public cloud, but using multiple cloud providers. For example, an operator could have AWS, Google, and Microsoft clouds and move IT assets around in them

The portfolio is offered as CNFs in public, private, and hybrid cloud environments and Virtual Network Functions (VNFs) in private cloud environments for maximum deployment flexibility (Figure 3). This ensures operators can build and run reliable and flexible multi-vendor networks and network slices.

Figure 3

Sandvine Platform Evolution

Support for private cloud, public cloud and hybrid cloud environments		
VNF	CNF for Public Cloud	CNF for Private Cloud
 openstack™  Red Hat	 EKS  GKE  AKS  aws   A	 OPENSIFT  VMware Tanzu

Sandvine ANI CNFs can be deployed on public cloud leveraging Hyperscaler platforms (e.g., AWS, GCP, and Azure), on private cloud leveraging customer owned container platform and/or OpenStack platform (e.g., Red Hat and VMware solutions), and on hybrid cloud leveraging a mix of Hyperscaler platform and customer owned Container/OpenStack platforms.

ABOUT APPLOGIC NETWORKS

AppLogic Networks' cloud-based App QoE portfolio helps customers deliver high quality, optimized experiences to consumers and enterprises. Customers use our solutions to analyze, optimize, and monetize application experiences using contextual machine learning-based insights and real-time actions. Market-leading classification of more than 95% of traffic across mobile and fixed networks by user, application, device, and location creates uniquely rich, real-time data that significantly enhances interactions between users and applications and drives revenues. For more information visit <https://www.applogicnetworks.com> or follow AppLogic Networks on X @AppLogic Networks.



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