Unified Network Policy Control with the Sandvine Policy Engine

Sandvine provides a single platform to introduce unified, standards-compliant network policy control into any fixed, mobile, or converged access network, whether the network is physical or virtual

The **Sandvine Policy Engine** is the world's most versatile and powerful network policy control platform, and is the foundation of all Sandvine solutions. Our Policy Engine can be thought of as a black box into which information about measured conditions and provisioned subscriber entitlements flow, and out of which charging updates, management actions, and business intelligence emerge.

This abstraction makes the Sandvine Policy Engine a single mechanism by which communications service providers (CSPs) can express any past, present, or future network policy control use case.

Unified Network Policy Control in Any Network

The Policy Engine spans both the data plane and control plane, embedded within Sandvine's PCEF/TDF and PCRF elements, and interacts with the B/OSS plane and remote enforcement points using standard interfaces. This unification across the control and data planes and the distributed intelligence that it brings delivers many benefits:

- Operators define a policy once, and it is seamlessly and consistently applied across control and data planes
- Control signaling and the load on PCRF elements are significantly reduced, since decisions are made locally
- Policy decisions are made faster, without needing to wait for a query and response
- Network policy control is completely agnostic of access technologies and vendors within the network, whether the network is physical or virtual

> "Sandvine's unified platform was an important factor in our selection process. Having policy decision making distributed at multiple points of presence – an ability unique to Sandvine – gives us the flexibility and reliability to deploy a variety of over-the-top services our subscribers care about, including parental controls and video optimization."
>
> *- Charles D. Watson II, Senior NOCC and Technical Infrastructure Manager*

c spire wireless

Any fixed, mobile, or converged access network; physical or virtualized
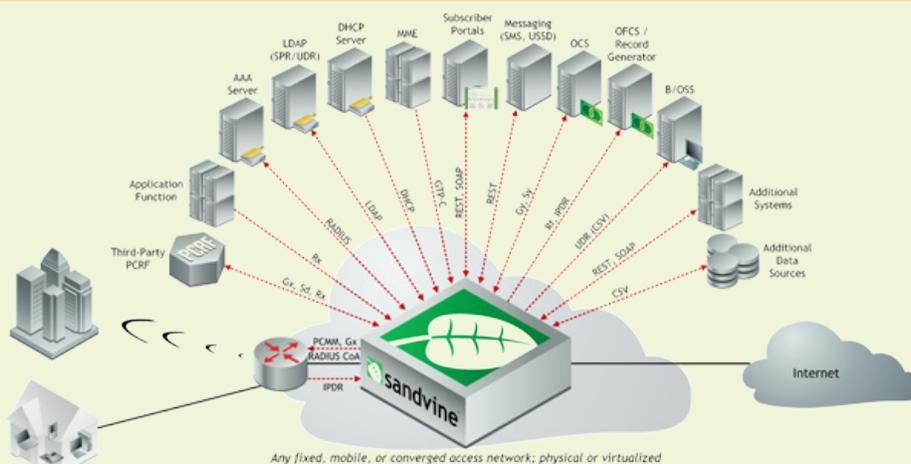
As capital budgets shrink, infrastructure must provide a long functional lifetime. Sandvine's platform supports:

- *Legacy Needs* - every network includes older systems that deliver value and cannot be overlooked
- *Today's Requirements* - today's networks are transitioning to standards including PCMM, 3GPP, Policy and Charging Control (PCC), DOCSIS 3.0, IPv6, and LTE
- *Tomorrow's Standards* - the future brings changes both known (carrier-grade NAT on gateways, virtualization of network functions) and unknown, and your network and subscriber services must function correctly in either case

Deploying the Sandvine Policy Engine

In Sandvine's architecture, our Policy Engine is embedded in two elements to span the control and data planes:

Policy Traffic Switch (PTS)

Embedding Intelligence in the Data Plane for Maximum Performance

The PTS uses deep-packet inspection (DPI) technology to identify and measure traffic, relies on the Sandvine Policy Engine to make local policy decisions and apply enforcement actions, and provides real-time measurements and interfaces for online charging; put simply, the PTS functions as an ultra-intelligent PCEF/TDF that scales to meet the demands of the world's largest networks.

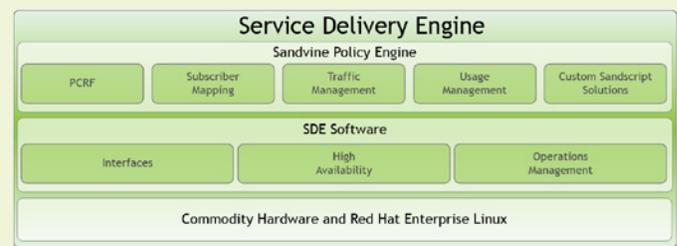For more information and performance specifications, check out *Policy Traffic Switch: Overview*.
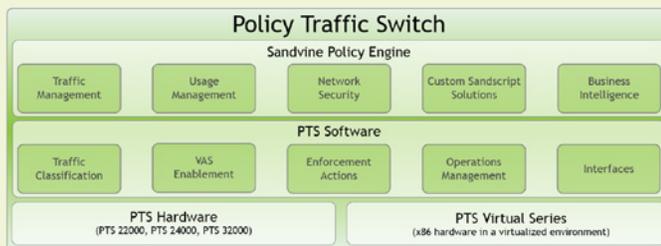
Service Delivery Engine (SDE)

Enabling Standards-Compliant Policy Control in Multi-Access Networks

The SDE is a complete PCRF (including a 3GPP Release 11-compliant Gx interface) that also performs vital control plane functions including real-time subscriber provisioning and session mapping. Running virtually on standard servers, the SDE works together with the PTS to provide unified network policy control within multi-vendor and multi-access networks.

For more information, check out *Service Delivery Engine: Overview* and *Sandvine's Policy and Charging Rules Function (PCRF): Overview*.

Policy Traffic Switch

Sandvine Policy Engine

| Traffic Management | Usage Management | Network Security | Custom Sandscript Solutions | Business Intelligence |

PTS Software

| Traffic Classification | VAS Enablement | Enforcement Actions | Operations Management | Interfaces |

| PTS Hardware (PTS 22000, PTS 24000, PTS 32000) | PTS Virtual Series (x86 hardware in a virtualized environment) |

Service Delivery Engine

Sandvine Policy Engine

| PCRF | Subscriber Mapping | Traffic Management | Usage Management | Custom Sandscript Solutions |

SDE Software

| Interfaces | High Availability | Operations Management |

| Commodity Hardware and Red Hat Enterprise Linux |

SandScript: Linking Any Condition to Any Action

SandScript is an event-driven policy definition language that lets CSPs fully utilize the Sandvine Policy Engine with programmatic flexibility.

Much more than the typical rules-based systems that severely restrict the user and cannot execute orthogonal policy conditions, SandScript allows freeform policy expression to link *any condition* to *any action*. In fact, SandScript is so powerful, it is what we use at Sandvine to build our products. That's right; Traffic Management, Usage Management, and Network Security are all solutions built in SandScript.

To learn more, check out the infosheet *SandScript: Linking Any Condition to Any Action*.

Simplified Operations Management and IT Integration

From more than 12 years of experience working with more than 200 CSPs worldwide, we've learned how important it is to simplify the operational experience and fit into existing IT systems and processes:

- **Control Center** is Sandvine's unified policy and operations management graphical user interface. Control Center allows CSPs to create and deploy network-wide service policies centrally and simplifies all aspects of Sandvine operations management by delivering granular control and real-time diagnostic information. For more information, check out *Control Center: Management Simplified*.

- The **Subscriber Policy Broker (SPB)** is an embedded database that provides long-term storage for comprehensive business intelligence insight, without requiring any database administration. The SPB also hosts the configuration information used throughout the Sandvine deployment. For more information, check out *Subscriber Policy Broker: Overview*.

sandvine®
Intelligent Broadband Networks