Oracle Solaris 11 and Pluribus Networks

Enabling Application-Driven SDN in the Cloud

Cloud computing is fast becoming the lifeblood of our economy—and the shift in this direction is accelerating the need for networks to accommodate application awareness, where an application can be prioritized over the network fabric to improve performance. Oracle Solaris 11.2 introduces application-driven software-defined networking (SDN), which can integrate with Pluribus Networks' Netvisor®. The result is an end-to-end application aware fabric for the cloud.

Challenge

The shift toward the cloud-computing model is fundamentally changing the way in which enterprises access their applications and data. Applications are the prime drivers of an enterprise business today—they are the profit center, and a key strategic asset to the business. With the rapid growth of turnkey cloud computing solutions, the network fabric carrying the application packets is emerging as a key focus to drive greater performance, reliability, and efficiency of the application.

Cloud Credentials of Oracle Solaris 11.2

Oracle Solaris 11.2 further enhances its cloud credentials by delivering the ability to have application-driven SDN built into the platform. By providing much greater application agility without the added overhead of network hardware, it now enables application-driven, multitenant cloud virtual networking across a completely distributed set of systems. This provides a decoupling from the physical network infrastructure, while allowing application-based service level agreements (SLAs) for the network.

The introduction of Elastic Virtual Switch, a feature of Oracle Solaris, provides a framework that extends the existing network virtualization capabilities in Oracle Solaris 11 across multiple hosts to include a built-in distributed virtual switching architecture. As a result, cloud-hosted environments now can gain access and control over their own secure virtual network infrastructure—seamlessly utilizing the underlying physical network infrastructure. Oracle Solaris SDN enforces SLA and isolation policies for L4-L7 networking applications in multitenant environments and across complex network topologies.

In addition, Oracle Solaris supports protocols like Edge Virtual Bridging (EVB), an IEEE standard for a host to exchange virtual link information with an external switch. Applications gain the ability to apply their settings directly into the network infrastructure, which eliminates user error and optimizes for resource control placement. With all this functionality built directly into the Oracle Solaris 11.2 platform,

ORACLE SOLARIS 11.2

- Built-in application driven software-defined networking (SDN)
- Enables cloud virtual networking across a completely distributed set of systems
- Provides applications the control to prioritize their own traffic
- Applications can apply their settings directly into the network infrastructure

PLURIBUS NETWORKS NETVISOR

- First bare-metal network Hypervisor
- Physical and virtual network integration for visibility and manageability
- Open fabric integrated network virtualization—wire-once, rewire virtually

AN INTEGRATED SOLUTION FOR CONTROLLING THE NETWORK IN REAL TIME

- Control network quality of service (QoS) by application
- Build services through application-driven network SLAs
- Virtualize network topologies
- Prioritize network traffic from an application viewpoint

the foundation is set for a flexible, secure, and controlled network environment that is highly suitable for cloud deployments.

Pluribus Networks' Netvisor

Pluribus Netvisor, which is innovative network Hypervisor software, exposes a set of powerful APIs into the network, and these are made available to the application. For the first time, the application controls the network in real time, enabling analytics; and the result is an end-to-end application-aware fabric. The Netvisor-driven fabric is a bridge between bare-metal switching, SDN, and network functions virtualization (NFV), including switching, fabric management, and other functions.

The Joint Oracle and Pluribus Networks Solution

Traditionally, applications and the underlying network infrastructure operate separately as far as application QoS is concerned. Oracle and Pluribus Networks eliminated this disconnect by coupling Oracle Solaris 11.2 application-driven SDN with Pluribus Netvisor's programmable flow capabilities.

This Oracle Solaris application-driven SDN solution offers fine-grained QoS services, allowing for different tenants, applications, and even flow within applications, to be assigned SLAs to leverage the high-end router-class traffic manager and the network processing unit on the Pluribus platform. Applications become network aware so they can monitor congestions, errors, and latency across the fabric, allowing them to dynamically adjust their network resource requests.

Elastic Virtual Switch operates hand-in-hand with Pluribus Netvisor virtualization to enable multitenancy without complex overlay protocols and controllers, and the full set of Oracle Solaris services is available to each and every virtual network.
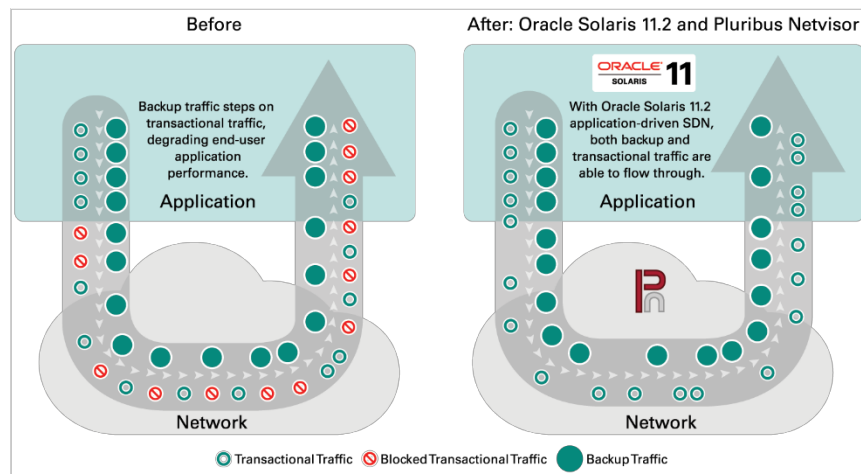
The solution can monitor QoS to allow both transactional (small bytes of data) and backup traffic (large bytes of data) to get through with proper prioritization.

Contact Us

For more information about Oracle Solaris solutions, visit oracle.com/solaris.

For additional details on Pluribus Networks solutions, visit www.pluribusnetworks.com or email sales@pluribusnetworks.com.

> "Thanks to the highly programmable Netvisor architecture, Oracle and Pluribus Networks are integrating Oracle Solaris 11.2 software-defined networking (SDN) capabilities and OpenStack management functionality with Pluribus Netvisor to provide customers with unmatched performance, visibility, and high-availability across the entire compute, network, and storage stack."
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