PLEXXI CONTROL

DATA SHEET

KEY BENEFITS

» Global single pane of glass Network Operations and Controller for streamlined management

» Dynamic Fitting Engine providing algorithm-based network fitting based on workload needs

» Direct accountability and visualization of network oper- formance versus application needs

» Seamless integration through- Plexxi Connect into existing IT systems using REST, Python or Java based APIs

» Simple VM-based image or standalone software installation

Orchestration and Control for Enterprise Data Center Networks

Plexxi Control is an advanced network platform that bridges the gap between virtualized data center resources and the physical network. Plexxi Control combines workload-driven network fabric orchestration, with full network management and visualization in a simple, easy-to-use and easily extensible software platform. Forming the basis of the Plexxi network solution with Plexxi Switch, Plexxi Control's Dynamic Fitting Engine builds an understanding of the relationships between compute, storage and network resources within a single data center or across the Cloud. It then defines policies that optimally fit the network to each workload and automatically orchestrates the topology across the Plexxi fabric.

The Workload Optimized Network

Plexxi's hyperconverged network solution creates the new paradigm for data center and cloud network performance and economics. Plexxi accomplishes this by combining control and programmability with the performance and flexibility of optical multiplexing technology. Plexxi Control's Dynamic Fitting Engine models workloads and algorithmically fits the network to the workloads for deterministic and directly validated network performance. Plexxi Control orches- trates switches to implement the desired network down to the physical layer. By understanding workload needs and directly controlling the network to meet those needs. Plexxi Control is able to provide completely deterministic network performance that reflects the actual needs of the applications that use it.

Plexxi Control

The Plexxi Control platform delivers three critical capabilities:

1. Workload Modeling

2. Dynamic Fitting Engine

3. Global Network Control and Visualization

Workload Modeling

Plexxi Control builds an understanding of the physical network and the workloads that utilize the network. It gathers the necessary information from cloud orchestration systems and other repositories leveraging RESTful APIs. Control is then used to identify how physical and virtual data center resources are associated and what the inter-dependencies between those groups are.

Benefit:
Plexxi Control goes beyond taking a snapshot of the network. It captures the complete picture of the compute/storage/network resource ecosystem. This delivers a more accurate and meaningful global view of how and where virtual demands are impacting the physical network.

Dynamic Fitting Engine

After modeling workloads and the current network state, Plexxi Control then applies sophisticated algorithms to determine the best network topology to satisfy the needs of critical data and application workloads. Policies created around explicit workload demands such as bandwidth, latency and isolation are met by arranging the network to satisfy those needs first. Remaining workloads are load balanced efficiently across the network.

Benefit:
Begin with the application and data workloads and then build a network around them. Fitting the network to workloads delivers deterministic and predictable network performance and ensures that the right network resources are applied to the right workloads. This, for example, can translate to faster storage replication and mirroring or quicker database transaction response.

Global Network Control

Plexxi Control offers the simplicity and determinism of centralized network management with the rapid response and scalability of decentralized control. Once Plexxi Control's Dynamic Fitting Engine has established the topologies to satisfy workload requirements, it then works with the Plexxi Switch network through a set of federated co-controllers resident on each switch to orchestrate the desired new network state. Local decisions for link failure handling and forwarding are handled on each switch for scale and performance. When workload requirements demand a new network state, Control

communicates updated topology information to the switches. The switches then implement the configuration for the physical layer (L1) as well as the link and network layers (L2/L3) across the network.

> **Benefit:**
> *The network can scale without being bottlenecked by the central controller for forwarding or rerouting decisions that can be handled locally. Switches maintain connectivity and the network self-heals even absent continued communication with Control.*

The Plexxi User Interface

Plexxi Control has been architected to orchestrate the network automatically and transparently leveraging Plexxi Connect's direct API integrations to external systems. If direct management or trouble-shooting is needed, interactive command based and graphical interfaces are available to provide visibility into the Plexxi Switches and other data center resources. The Plexxi Control UI can visualize the entire Plexxi fabric, the topologies established by the Dynamic Fitting Engine, and the resulting utilization of the fabric links. Because Plexxi Control maintains a network-wide view, it can provide advanced tools including MAC and IP address location with end-toend path tracking. This greatly simplifies debugging and problem resolution compared to traditional hop-by-hop network implementations.

Plexxi Progammable Fabric

Software-Defined Networking (SDN) has many definitions. Often it is described as the decoupling of the control plane from a network switch and the methodology by which that device then can be controlled. While this is a necessary basis for more advanced networks, the Plexxi solution goes far beyond device level control. It uses the Control network orchestration software platform to define the network topology. Plexxi tackles the challenge of deterministically programming the entire network as a unified ecosystem including the physical topology, and to allow workload management tools to tell the network exactly what they expect from the network to ensure workload performance.

Bridging the Network Gap

The rise of virtualization and 3rd platform scale out applications like Big Data has placed a new set of demands upon the data center network. To the user it must appear deterministic and fluid with any-to-any connectivity, making resources available on demand for the task at hand. Traditional networking solutions cannot fill the need – they either must be over-provisioned with expensive, everyto-every connectivity, or they must rely on non-deterministic oversubscription. The result: a chasm between the physical network and the virtual cloud. Plexxi bridges the gap.

INSTALLATION

The Plexxi Control is easily installed as a VM. It is also available as self-installed software or a pre-installed appliance.

Minimum server specifications for VDMK* installation:

- » Processor: Quad core 2.2 GHz Intel Processor
- » Memory: 8 GB RAM
- » Disk: 500 GB 7200 RPM disk

ORDERING INFORMATION

Product:
Plexxi Control

Product Code:
PX-C1-1

Description:
Unlimited RTU LIcense for 1 Plexxi Switch

Product:
Plexxi Control Appliance

Product Code:
PX-CTRL-APP

Description:
Plexxi Control Appliance pre-installed on a 1U, 6-core XEON server with 16GB memory