TRELLIS™ POWER SYSTEM MANAGER

BENEFITS

- Receive a comprehensive view of power resource and utilization for easier management of the complete data center power system–from utility entrance down to the rack power distribution
- Gain complete awareness of the active power path and the status of all devices in that power chain using a dynamic, maintainable one-line diagram
- Understand the dependencies within the power system, aiding maintenance activity planning
- Use current and historical trends to make more accurate capacity forecasts and deployment plans
- Improve business continuity through documentation of the power system and connections

With the evolving needs and high growth of data centers, uninterrupted power has never been more vital. Data center managers wanting to ensure 24/7 availability of their operations have the monumental task of managing the data center power system and responding to the growth demands of IT.

This involves understanding the power system design and interdependencies, efficiently managing capacity, maintaining optimal equipment operation and improving operational effectiveness and cost. As if the job was not hard enough, training the operations staff to manage these critical data centers and maintaining business continuity is another real challenge.

Still, many data center managers are oblivious to the design of their power system nor have real-time visibility into system state or performance. Without this information, response to critical alarms is delayed which can lead to unplanned downtime. In addition, enforcing availability and redundancy requirements during capacity planning activities proves to be difficult and time-consuming without detailed knowledge of the system. The *Trellis*™ Power System Manager addresses these challenges through a comprehensive view of the data center power system from utility entrance down to rack power distribution, helping users manage their responsibilities effectively.

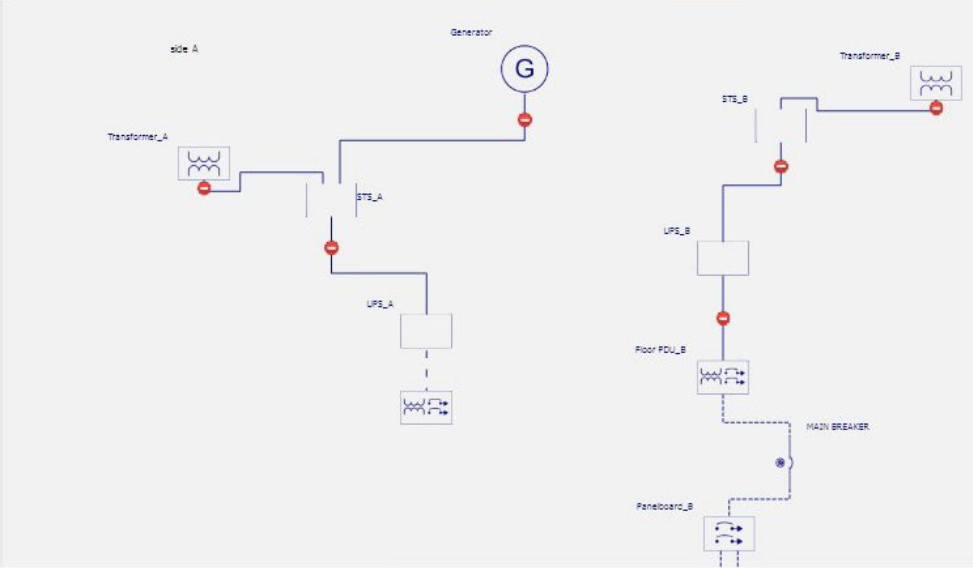
The *Trellis*™ Power System Manager also features the dynamic, one-line diagram where data center managers can visualize the operating state of all devices as well as dependencies linked to them–in a single view. This allows them to make fast, informed decisions in response to alarms or changing conditions in the data center. Also provided are dashboards which assist in forecasting power consumption and viewing the status of power sources and transfer devices for a data center.

With the *Trellis*™ Power System Manager, you can:

- View all power system capacity utilization using a dynamic one-line diagram.
- Be aware of the active power path and status of each device in the power system.
- Understand dependencies in the entire data center power system to know exactly what racks or devices will be affected by any failure and maintenance activity in the power system.
- Access reports showing system capacity and utilization.

Dynamic Electrical One-Line Diagram

- Understand current operating state of the complete power system through a one-line diagram; quickly identify and address potential issues and understand overall health.
- Navigate from one-line diagram to device view, allowing you to see data center power both from a bird's-eye view and under a magnifying lens.
- Determine which devices or racks are dependent on a device using configured connections, allowing you to better plan power maintenance and perform risk assessments.
- Create comprehensive downtime reports of cascading power failures by reviewing the historical operation of equipment.



The Trellis™ *Power System Manager one-line diagram.*

Capacity Reporting, Planning and Forecasting

- Ensure adequate power capacity of the complete power system is available during planning activities.
- Forecast power consumption based on current and historical data; plan deployment based on data center capacity plans.
- Map out dependency relationships of IT equipment to the power system; aid in risk assessments and enhance data center team coordination.
- Adjust operating loads on equipment based on actual.information to maintain service level agreements and increase efficiency—without worrying about availability.
- Evaluate power system utilization through dashboards.

Specifications - *Trellis*™

Workstation Requirements

Operating System:

- Microsoft® Windows® 7
- Microsoft® Windows® 2012
- Red Hat® Enterprise Linux version 7.x

Hardware Requirements:

- Dual-core Intel® Pentium® 4 CPU at 2.8 GHz
- 8 GB RAM, LAN connection

Browsers for the Trellis™ platform user interface:

- Mozilla® Firefox® version 31.0 or higher
- Google Chrome™ version 40.0 or higher
- Microsoft Internet Explorer® 9 and 10 with standard mode (compatibility mode is off) and 11

Browsers for the symbol portal:

- Microsoft Internet Explorer® 9 and 10 (with compatibility mode on) and 11

Browsers for 3D features:

- Microsoft Internet Explorer® 11, Chrome and Firefox

Hardware Recommendations

DATA SIZE GUIDELINES	SMALL	MEDIUM	LARGE	ENTERPRISE
Concurrent users	10	20	50	100
Devices	2,000	20,000	100,000	200,000
Power Connections	1,000	10,000	60,000	100,000
Data Connections	2,000	10,000	60,000	100,000
Monitored Datapoints	1,000	10,000	40,000	140,000

FRONT MACHINE	SMALL	MEDIUM	LARGE	ENTERPRISE
Processor	Intel® Xeon® 2.6 GHz 8M L3 cache			
CPU count	1	2	2	2
CPU cores	4	4	4	8
Memory (GB) DDR3 1333 MHz	32	32	40	44
Disk throughput	> 500 MB/s (sequential) [un-cached]			
Storage	300 GB Enterprise class			
Ethernet	> 80 MB/s			

BACK MACHINE	SMALL	MEDIUM	LARGE	ENTERPRISE
Processor	Intel® Xeon® 2.6 GHz 8M L3 cache			
CPU count	1	2	2	2
CPU cores	4	4	4	8
Memory (GB) DDR3 1333 MHz	24	32	32	32
Disk throughput	> 500 MB/s (sequential) [noncached]			
Storage	*300 GB Enterprise class for base installation			
Ethernet	> 80 MB/s			

Specifications - *Trellis*™ Intelligence Engine

Operating System:

- Ubuntu 14.04 LTS
- Red Hat Enterprise Linux version 7.2

Trellis *Intelligence Engine can be installed on:*

- Physical Hardware
- HyperV
- ESX

Machine Specifications:

	DATA POINTS/MIN	
	10,000	**50,000**
Processor	Intel® Xeon® 2.4 Ghz or higher	
CPU Cores	2	2
Memory (GB) DDR3 1333 MHz	2	5
Disk Throughput	500 MB/s(sequential) [noncached]	
Ethernet	> 50 MB/s	
Storage (w/o local backups)	25 GB	50GB

Supported Protocols:

- SNMP v1, v2, v3
- Modbus
- BACnet
- Velocity
- Redfish
- OPC-UA

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